

OMB SUPPORTING STATEMENT FOR  
FINAL RULE REVISIONS TO 10 CFR PART 51,  
REVISIONS TO ENVIRONMENTAL REVIEW FOR RENEWAL OF  
NUCLEAR POWER PLANT OPERATING LICENSES  
(OMB Clearance No. 3150-0021)  
REVISION

DESCRIPTION OF THE INFORMATION COLLECTION

As mandated by the Atomic Energy Act (AEA) of 1954, as amended, the Nuclear Regulatory Commission (NRC) is responsible for protecting public health and safety in the civilian use of nuclear power. The NRC Office of Nuclear Reactor Regulation (NRR) is responsible for ensuring the public health and safety through the licensing and inspection of activities at all commercial nuclear power reactor facilities in the U.S. The AEA allows the NRC to issue licenses for commercial power reactors to operate for up to 40 years. NRC regulations allow for the renewal of these licenses, the renewal term to include any remaining number of years on the operating license or combined license currently in effect plus an additional 20 years. The approval or disapproval of the license renewal application depends upon an NRC determination as to whether the nuclear facility can continue to operate safely during the 20-year period of extended operation. The term of any renewed license may not exceed 40 years. No specific limitations exist in the Atomic Energy Act or in NRC's regulations as to the number of times a power reactor operating license may be renewed.

As a federal agency, the NRC is subject to the National Environmental Policy Act (NEPA) of 1969, as amended. The NRC's environmental protection regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," identify the renewal of a nuclear power plant operating license as a major federal action significantly affecting the quality of the human environment. As such, an environmental impact statement (EIS) is required for a plant license renewal review in accordance with NEPA. As part of the license renewal process, the NRC prepared in 1996 the *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (GEIS), NUREG-1437, to assist the NRC staff in preparing license renewal EISs.

The purpose of the GEIS is to identify and generically address issues and processes that are common to all nuclear power plants and have the same or similar environmental impacts. These issues are called Category 1 issues. The GEIS also identifies issues and processes that are unique to each nuclear power plant, require site-specific information, or have different impacts, as compared to other sites, that need to be addressed separately in a site-specific supplement to the GEIS. These are called Category 2 issues. The findings of the GEIS are codified in Table B-1, "Summary of Findings on NEPA Issues for License Renewal of Nuclear Power Plants," of Appendix B to Subpart A, "Environmental Effect of Renewing the Operating License of a Nuclear Power Plant," of 10 CFR Part 51. (Hereafter, this table in 10 CFR Part 51 will only be referred to as "Table B-1" in this OMB Supporting Statement.)

The NRC's regulations in 10 CFR Part 51.53(c) require each applicant to prepare and submit a report entitled "Applicant's Environmental Report—Operating License Renewal Stage," as part of the applicant's license renewal application. The information provided by an applicant in the environmental report (ER) helps the NRC meet its regulatory obligations under NEPA. In the ER, the applicant provides information about the plant, the environment that could be affected by license renewal, and an assessment of the environmental impacts from issues identified as

Category 2 issues in Table B-1. The applicant also is required to include descriptive information and any new and significant impact information for Category 1 issues in Table B-1.

The findings of the GEIS were published as a final rule on June 5, 1996 (61 FR 28467). In Appendix B to Subpart A of 10 CFR Part 51, the Commission indicated that it intended to review the material in Table B-1 on a 10-year basis. The final rule revisions are the result of the 10-year review conducted by the NRC on the information and findings currently presented in Table B-1 and are based on: (1) consideration of public comments on the proposed rule, (2) current environmental laws and regulations, and (3) lessons learned and knowledge gained from license renewal environmental reviews conducted by the NRC since 1996.

The NRC also has prepared a revision to the GEIS which will be published with the final rule.

## A. JUSTIFICATION

### 1. Need for and Practical Utility of the Collection of Information

NEPA directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in NEPA, and (2) all agencies of the Federal Government shall comply with the procedures in Section 102(2) of NEPA except where compliance would be inconsistent with other statutory requirements. The regulations in Subpart A of 10 CFR Part 51 implement Section 102(2) of NEPA in a manner that is consistent with the NRC's domestic licensing and related regulatory authority under the AEA, the Energy Reorganization Act of 1974, as amended, the Uranium Mill Tailings Radiation Control Act of 1978, and the Commission's announced policy to take account of the regulations of the Council of Environmental Quality published November 29, 1978 (43 FR 55978-56007). In order to conduct the environmental (NEPA) review of licensing actions, the NRC requires applicants to collect recent environmental information about their nuclear power plants.

NRC's regulations in 10 CFR 51.53(c) require each applicant to prepare and submit a report entitled "Applicant's Environmental Report – Operating License Renewal Stage," with the applicant's license renewal application. The information provided by an applicant in the ER helps the NRC meet its regulatory obligations consistent with Section 102(2) of NEPA. In the ER, the applicant provides information about the plant, the environment that could be affected by license renewal, and an assessment of the environmental impacts from issues identified as Category 2 issues in Table B-1. The applicant also is required to include descriptive information and any new and significant impact information for Category 1 issues in Table B-1.

After accepting the license renewal application and ER, the NRC prepares a draft supplemental EIS (SEIS) to the 1996 GEIS that evaluates the environmental impact of plant-specific (Category 2) issues along with the consideration of any new and significant information for Category 1 and/or for any newly identified issues. The draft SEISs are made available for public comment. After considering public comments, the NRC prepares and issues a final SEIS. The final SEIS and the GEIS (NUREG-1437), together, serve as the requisite NEPA analysis for license renewal environmental reviews.

The appendix to this OMB Supporting Statement presents the four types of changes that appear in Table B-1:

- **Consolidated Issues.** A number of changes include consolidating certain issues in the current Table B-1 to improve the organization and clarity of Table B-1, which on net reduces the overall number of environmental issues. For example, one change would consolidate three Category 1 issues, “Aesthetic impacts (refurbishment),” “Aesthetic impacts (license renewal term),” and “Aesthetic impacts of transmission lines (license renewal term),” each with an impact level of small, into one new Category 1 issue, “Aesthetic impacts.” Issue consolidation will result in a reduction in burden to each license renewal applicant and NRC insofar as the overall number of Category 1 and 2 issues are reduced.
- **New Category 1 Issues.** New Category 1 issues are issues not previously evaluated in the 1996 GEIS and not listed in Table B-1 of the current rule.<sup>1</sup> For each new Category 1 issue, the license renewal applicant will incur an increase in burden because it must include within its ER an assessment of any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware (see 10 CFR 51.53(c)(3)(iv)). The NRC will incur an increase in burden to consider and evaluate this information during its plant-specific environmental review. The NRC has addressed the environmental impacts of these new Category 1 issues generically for all plants in the revised GEIS.
- **New Category 2 Issues.** New Category 2 issues are issues not previously evaluated in the 1996 GEIS and not listed in Table B-1 of the current rule.<sup>2</sup> For each new Category 2 issue, the applicant will incur an increase in burden because the applicant must conduct a plant-specific assessment of the potential environmental impacts related to that issue and include it in its ER. In addition, for each new Category 2 issue, the applicant must include in its ER a discussion of possible actions to mitigate any adverse impacts associated with license renewal and environmental impacts of alternatives to license renewal. Similarly, the NRC will incur an increase in burden to evaluate and assess the environmental impacts of each new Category 2 issue during its plant-specific environmental review. Some of the changes to Table B-1 codify information and assessments currently requested of applicants. This generally results in no additional burden beyond what is currently being incurred by each applicant and the NRC. However, as it was not previously required by the regulation, the burden for these activities is included in this analysis.
- **Existing Issue Category Changes from Category 2 to Category 1.** These are issues that were determined to be Category 2 in the 1996 GEIS and have been re-evaluated and determined to be Category 1 in the revised GEIS. This type of change results in a reduction in burden because: 1) each applicant will no longer be required to conduct a

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<sup>1</sup> New Category 1 issues also resulted from consolidation of multiple Category 1 issues from the 1996 GEIS and Table B-1 of the current rule. These new Category 1 issues reduce the burden associated with rule compliance by eliminating duplicative data collection and reporting efforts.

<sup>2</sup> New Category 2 issues also resulted from consolidation of multiple Category 2 issues from the 1996 GEIS and Table B-1 of the current rule. These new consolidated Category 2 issues reduce the burden associated with rule compliance by eliminating duplicative data collection and reporting efforts.

plant-specific assessment of the potential environmental impacts related to that issue and 2) the NRC is no longer required to analyze the potential environmental impacts related to that issue in the SEIS. However, consistent with the requirements of 10 CFR 51.53(c)(3)(iv), an applicant is still required to describe in its ER any "new and significant information" of which it is aware. The NRC would then consider and evaluate this information during its plant-specific environmental review.

2. Agency Use of the Information

The NRC evaluates the information provided in the license renewal application and ER and prepares a draft SEIS to analyze plant-specific issues (Category 2), any new and significant information for generic issues (Category 1), and possibly, any previously unidentified issues. After considering public comments, the NRC prepares and issues a final SEIS. The final SEIS and NUREG-1437, together, serve as the requisite NEPA analysis for any given license renewal application.

3. Reduction of Burden Through Information Technology

There are no legal obstacles to reducing the burden associated with this information collection. The NRC encourages respondents to use information technology when it would be beneficial to them. NRC issued a regulation on October 10, 2003 (68 FR 58792), consistent with the Government Paperwork Elimination Act, which allows its licensees, vendors, applicants, and members of the public the option to make submissions electronically via CD-ROM, e-mail, special Web-based interface, or other means. It is estimated that 100 percent of the license renewal applications will be submitted to the NRC electronically.

4. Effort to Identify Duplication and Use Similar Information

No sources of similar information are available. There is no duplication of requirements. NRC has in place an ongoing program to examine all information collections with the goal of eliminating all duplication and/or unnecessary information collections.

5. Effort to Reduce Small Business Burden

This information collection does not affect small businesses.

6. Consequences to Federal Program or Policy Activities if the Collection is Not Conducted or is Conducted Less Frequently

The environmental information collected by the applicant and included in the ER is affected by the final rule changes to Table B-1. The information provided in the ER is used by the NRC to conduct an assessment of the environmental impacts that could result from the renewal of the operating license and the continued operation of the nuclear power plant. The NRC then completes the environmental review and documents the results in a site-specific SEIS in compliance with NEPA.

Without the information collected as a result of the final changes to Table B-1, the NRC could not complete the environmental review in a timely manner which could delay the

overall completion of a license renewal review. Delays in the environmental review process likely would increase the information collection and reporting burden because additional time would be required for the licensee to collect and provide missing information to the NRC and for the NRC to conduct supplemental analyses on the additional information provided.

7. Circumstances Which Justify Variation from OMB Guidelines

There is no variation from OMB guidelines.

8. Consultations Outside the NRC

The opportunity for public comment on the information collection requirements for this rulemaking package was published in the *Federal Register* on July 31, 2009 (74 FR 38117). In addition, rulemaking related documents were made available for public review on [www.regulations.gov](http://www.regulations.gov) (Docket ID NRC-2008-0608). The NRC received 32 document submissions containing comments from industry stakeholders, representatives of Federal and State agencies, and other interested parties.

During the public comment period, the NRC conducted six public meetings to solicit comments on the proposed rule, revised GEIS, and related guidance documents. Public meetings were held in Atlanta, Georgia (September 15, 2009); Newton, Massachusetts (September 17, 2009); Oak Brook, Illinois (September 24, 2009); Rockville, Maryland (October 1, 2009); Pismo Beach, California (October 20, 2009); and Dana Point, California (October 22, 2009). The NRC received verbal comments at these meetings.

In total, the NRC received about 1000 comments. No comments addressed the information collection requirements (i.e., reporting burden).

9. Payment or Gifts to Respondents

Not applicable.

10. Confidentiality of Information

Confidential and proprietary information is protected in accordance with NRC regulations at 10 CFR 9.17(a) and 10 CFR 2.390(b). However, no information normally considered confidential or proprietary is requested.

11. Justification for Sensitive Questions

Not applicable.

## 12. Estimated Industry Burden and Burden Hour Cost

### a. Reporting Burden and Cost

The information required by the environmental assessment for renewal of nuclear plant operating licenses will be collected once from each applicant required to perform the assessment under 10 CFR Part 51. The estimated annualized one-time reporting burden to industry for this information collection is presented in Exhibit 1 for the 3-year OMB clearance period (i.e., 2013–2015). The estimate of burden addresses only the burden of the revision and amendments to the existing rule that affect the information collection requirements. These estimates are based on estimates made by NRC personnel who are familiar with the required information.

The final rule will decrease the annual reporting burden by 1,969.6 hours for an annual savings of \$539,670 (1,969.6 hours x \$274/hour) during the 3-year OMB clearance period.

### b. Recordkeeping Burden and Cost

Recordkeeping requirements are not specified in 10 CFR Part 51.

## 13. Estimate of Other Additional Cost

The NRC has determined that the records storage cost is roughly proportional to the recordkeeping burden cost. Based on a typical clearance, the records storage cost has been determined to be equal to 0.0004 percent of the recordkeeping burden cost. Therefore, the records storage cost is estimated to be \$0.00 (0 recordkeeping hours x 0.0004 x 274/hr = \$0.00).

## 14. Estimated Annualized Cost to the Federal Government

The final amendments and revisions to Table B-1 will decrease the estimated annualized one-time cost to the NRC to review the environmental assessment for a license renewal application. Exhibit 2 presents the estimated annualized one-time cost to the NRC during the 3-year OMB clearance period (2013–2015).

The final rule will decrease the annualized burden to the NRC by 2,026.6 hours for an annualized savings of \$555,288 (2,026.6 hours x \$274/hour) during the 3-year OMB clearance period.

This cost is fully recovered through fee assessments to NRC licensees pursuant 10 CFR 170 or 171.

## 15. Reasons for Change in Burden

The final rule will decrease the information collection burden for applicants for renewal of nuclear power plant operating licenses and the total is 5,908.8 hours during a 3-year period (1,969.6 hours annually). The final rule will decrease the annual burden for 10 CFR 51 from 100,783 hours to 94,874 hours by redefining the number and scope of the environmental

impact issues that applicants must address in their environmental reports for renewal of nuclear power plant operating licenses. Exhibit 3 presents the total information collection burden reduction from 2013 through 2015 for industry and the NRC.

In the analysis done for the proposed rule, the estimated annualized one-time reporting burden to industry for this information collection was shown to increase by 1,800.0 hours during the 3-year OMB clearance period. The change from a burden increase (proposed rule) to a burden decrease (final rule) is largely due to the following:

- The proposed rule analysis assumed that a total of 18 applications were submitted to the NRC during the 3-year OMB clearance period. The final rule analysis uses updated information during the 3-year OMB clearance period that assumes: 1) the NRC being bound by NEPA must use the revised requirements to evaluate applications as of the Commission affirmation date of the final rule (December 6, 2012), and 2) licensee compliance with the revised requirements will not be required until 2014 (i.e., one year from publication of the final rule in the *Federal Register*). Consequently, the NRC will evaluate 13 applications during 2013, 3 in 2014 and 3 more in 2015. On the other hand, licensees will submit 3 renewal applications to the NRC during 2014 and 3 more in 2015. As a result of revising the number of applications evaluated by the NRC and the number submitted by licensees, there will be a decrease in the estimated annualized one-time reporting burden to the NRC and industry for this information collection.
- The proposed rule analysis assumed that each applicant had to address all of the changes made to Table B-1. The final rule analysis now assumes that each applicant addresses only those Table B-1 changes applicable to the environmental impact issues at the applicant's facility. Reducing the number of Table B-1 changes addressed for some applicants will decrease the estimated annualized one-time reporting burden to industry for this information collection.
- The proposed rule analysis identified 15 issues that increased the reporting burden and 4 issues that reduced this burden. Based on public comments received on the proposed rule and the draft revised GEIS, a number of the environmental impact issues identified in the proposed rule were re-evaluated for detailed consideration in the final revised GEIS and are reflected in changes made by the final rule. Consequently, the final rule analysis identifies 17 issues that increase the reporting burden and 18 issues that decrease this burden. The change in the latter number from the proposed to final rule results in a substantial decrease of the estimated annualized one-time reporting burden to industry for this information collection.
- A labor rate of \$238/hr was used for the proposed rule analysis and \$274/hr for the final rule. However, the impact from the rise in hourly rate is offset by the substantial increase in the number of issues in the final rule that decrease the reporting burden to industry for this information collection. As a result, the increase in industry reporting burden that was determined for the proposed rule becomes a decrease in total burden under the final rule analysis.

The following discusses further the reasons for change in burden (with examples) as shown in Exhibit 1.

- Burden Increases. The estimated burden increase of 4,164.4 hours for one-time reporting (annualized) represents an increase in reporting requirements for the applicant's ER due to changes made to Table B-1 (e.g., creating new Category 1 and 2 issues, adding information requirements to some Category 1 and 2 issues).

One example of burden increase is due to the new Category 1 issue "Effects of dredging on surface water quality." The increase in the estimated annualized one-time reporting burden to industry for this information collection is 78.0 hours (final rule). For the proposed rule, the estimated annualized burden one-time burden was 96 hours.

- Burden Decreases. The estimated burden decrease of 6,134.0 hours for one-time reporting (annualized) represents a reduction in reporting requirements due to changes made to Table B-1 (e.g., changing issues from Category 2 to Category 1, consolidating multiple issues into one issue).

In response to public comments received on the proposed rule, two issues, "Air quality impacts (all plants)" and "Groundwater and soil contamination," were changed from Category 2 to Category 1 by the final rule. This change resulted in their associated reporting burden going from a burden increase (proposed rule) to a burden decrease (final rule). "For the proposed rule, "Groundwater and soil contamination" was determined to increase the annualized industry burden by 144 hours. For the final rule, this issue was changed from a Category 2 to a Category 1 issue and consolidated with the "Groundwater use and quality" issue into a single renamed Category 1 issue. "Groundwater contamination and use (non-cooling system impacts)." Consequently, the annualized industry burden decreased to 23 hours.

Also in response to public comments on the proposed rule, the issue "Air quality during refurbishment (nonattainment and maintenance areas)" was changed from a Category 2 to a Category 1 issue and renamed, "Air quality impacts (all plants)," by the final rule. Consequently, the estimated annualized one-time reporting burden for industry decreased by 702 hours.

- Net-one time reporting (annualized) industry burden decrease. 1,969.6 hours (6,134.0 hours – 4,164.4 hours) for a savings of \$539,670.

#### 16. Publication for Statistical Use

None.

#### 17. Reason for Not Displaying the Expiration Date

The requirement is contained in a regulation. Amending the *Code of Federal Regulations* to display information that, in an annual publication, could become obsolete would be unduly burdensome and too difficult to keep current.



18. Exceptions to the Certification Statement

None.

B. COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

Statistical methods are not used in this collection of information.

**Exhibit 1**  
**One-Time Reporting Burden (Annualized)—Industry (2013–2015)**

Issue No.	Table B-1 Issues	Number of Respondents Annually	Responses per Respondent Annually	Total Responses Annually	Burden Hours Per Response	Total Annual Burden Hours	Estimated Annual Cost @ \$274/hr
<b>INDUSTRY—BURDEN INCREASE</b>							
8	Geology and soils	2.0	1.0	2.0	78.0	156.0	\$ 42,744
18	Effects of dredging on surface water quality	2.0	1.0	2.0	78.0	156.0	\$ 42,744
20	Groundwater contamination and use (non-cooling system impacts)	2.0	1.0	2.0	23.0	46.0	\$ 12,604
27	Radionuclides released to groundwater	2.0	1.0	2.0	312.0	624.0	\$ 170,976
29	Exposure of terrestrial organisms to radionuclides	2.0	1.0	2.0	78.0	156.0	\$ 42,744
33	Water use conflicts with terrestrial resources (plants with cooling ponds or cooling towers using makeup water from a river)**	1.0	1.0	1.0	312.0	312.0	\$ 85,488
44	Exposure of aquatic organisms to radionuclides	2.0	1.0	2.0	78.0	156.0	\$ 42,744
45	Effects of dredging on aquatic organisms	2.0	1.0	2.0	78.0	156.0	\$ 42,744
46	Water use conflicts with aquatic resources (plants with cooling ponds or cooling towers using makeup water from a river)**	1.0	1.0	1.0	312.0	312.0	\$ 85,488
48	Impacts of transmission line right-of-way (ROW) management on aquatic resources	2.0	1.0	2.0	78.0	156.0	\$ 42,744
50	Threatened, endangered, and protected species and essential fish habitat*	0.2	1.0	0.2	312.0	62.4	\$ 17,098
52	Employment and income, recreation and tourism	2.0	1.0	2.0	78.0	156.0	\$ 42,744
53	Tax revenues	2.0	1.0	2.0	78.0	156.0	\$ 42,744
59	Human health impact from chemicals	2.0	1.0	2.0	78.0	156.0	\$ 42,744
63	Physical occupational hazards	2.0	1.0	2.0	78.0	156.0	\$ 42,744
67	Minority and low-income populations	2.0	1.0	2.0	312.0	624.0	\$ 170,976
73	Cumulative impacts	2.0	1.0	2.0	312.0	624.0	\$ 170,976
<b>Subtotal—Industry Burden Increase</b>						<b>4,164.4</b>	<b>\$1,141,046</b>
<b>INDUSTRY—BURDEN DECREASE</b>							
2	Offsite land use	2.0	1.0	2.0	523.0	1,046.0	\$ 286,604
4	Aesthetic impacts	2.0	1.0	2.0	110.0	220.0	\$ 60,280
5	Air quality impacts (all plants)	2.0	1.0	2.0	234.0	468.0	\$ 128,232
9	Surface water use and quality (non-cooling system impacts)	2.0	1.0	2.0	55.0	110.0	\$ 30,140
15	Discharge of biocides, sanitary wastes, and minor chemical	2.0	1.0	2.0	55.0	110.0	\$ 30,140
31	Cooling tower impacts on vegetation (plants with cooling towers)**	1.0	1.0	1.0	55.0	55.0	\$ 15,070
32	Bird collisions with plant structures and transmission lines	2.0	1.0	2.0	55.0	110.0	\$ 30,140
34	Transmission line right-of-way (ROW) management impacts on terrestrial resources	2.0	1.0	2.0	55.0	110.0	\$ 30,140
36	Impingement and entrainment of aquatic organisms (plants with once-through cooling systems or cooling ponds)**	1.0	1.0	1.0	218.0	218.0	\$ 59,732
37	Impingement and entrainment of aquatic organisms (plants with cooling towers)**	1.0	1.0	1.0	55.0	55.0	\$ 15,070
41	Infrequently reported thermal impacts (all plants)	2.0	1.0	2.0	220.0	440.0	\$ 120,560
42	Effects of cooling water discharge on dissolved oxygen, gas supersaturation, and eutrophication	2.0	1.0	2.0	110.0	220.0	\$ 60,280
54	Community services and education	2.0	1.0	2.0	633.0	1266.0	\$ 346,884
55	Population and housing	2.0	1.0	2.0	234.0	468.0	\$ 128,232
56	Transportation	2.0	1.0	2.0	234.0	468.0	\$ 128,232
57	Radiation exposure to the public	2.0	1.0	2.0	55.0	110.0	\$ 30,140
58	Radiation exposure to plant workers	2.0	1.0	2.0	55.0	110.0	\$ 30,140
78	Termination of plant operations and decommissioning	2.0	1.0	2.0	275.0	550.0	\$ 150,700
<b>Subtotal—Industry Burden Decrease</b>						<b>6,134.0</b>	<b>\$ 1,680,716</b>
<b>Total—Industry Burden Decrease</b>						<b>1,969.6</b>	<b>\$ 539,670</b>

\* Burden only applies to 10% of reactors

\*\* Burden only applies to 50% of reactors

**Exhibit 2**  
**One-Time Reporting Burden (Annualized)—NRC (2013–2015)**

Issue No.	Table B-1 Issues	Number of Respondents Annually	Responses per Respondent Annually	Total Responses Annually	Burden Hours Per Response	Total Annual Burden Hours	Estimated Annual Cost @ \$274/hr
<b>NRC—BURDEN INCREASE</b>							
8	Geology and soils	6.33	1.0	6.33	26.0	164.6	\$ 45,100
18	Effects of dredging on surface water quality	6.33	1.0	6.33	26.0	164.6	\$ 45,100
20	Groundwater contamination and use (non-cooling system impacts)	6.33	1.0	6.33	8.0	50.6	\$ 13,864
27	Radionuclides released to groundwater	6.33	1.0	6.33	104.0	658.3	\$ 180,374
29	Exposure of terrestrial organisms to radionuclides	6.33	1.0	6.33	26.0	164.6	\$ 45,100
33	Water use conflicts with terrestrial resources (plants with cooling ponds or cooling towers using makeup water from a river)**	3.17	1.0	3.17	104.0	329.7	\$ 90,338
44	Exposure of aquatic organisms to radionuclides	6.33	1.0	6.33	26.0	164.6	\$ 45,100
45	Effects of dredging on aquatic organisms	6.33	1.0	6.33	26.0	164.6	\$ 45,100
46	Water use conflicts with aquatic resources (plants with cooling ponds or cooling towers using makeup water from a river)**	3.17	1.0	3.17	104.0	329.7	\$ 90,338
48	Impacts of transmission line right-of-way (ROW) management on aquatic resources	6.33	1.0	6.33	26.0	164.6	\$ 45,100
50	Threatened, endangered, and protected species and essential fish habitat*	0.63	1.0	0.63	104.0	65.5	\$ 17,947
52	Employment and income, recreation and tourism	6.33	1.0	6.33	26.0	164.6	\$ 45,100
53	Tax revenues	6.33	1.0	6.33	26.0	164.6	\$ 45,100
59	Human health impact from chemicals	6.33	1.0	6.33	26.0	164.6	\$ 45,100
63	Physical occupational hazards	6.33	1.0	6.33	26.0	164.6	\$ 45,100
67	Minority and low-income populations	6.33	1.0	6.33	104.0	658.3	\$ 180,374
73	Cumulative impacts	6.33	1.0	6.33	104.0	658.3	\$ 180,374
<b>Subtotal—NRC Burden Increase</b>						<b>4,396.4</b>	<b>\$ 1,204,609</b>
<b>NRC—BURDEN DECREASE</b>							
2	Offsite land use	6.33	1.0	6.33	174.0	1,101.0	\$ 301,674
4	Aesthetic impacts	6.33	1.0	6.33	36.0	228.0	\$ 62,472
5	Air quality impacts (all plants)	6.33	1.0	6.33	78.0	494.0	\$ 135,356
9	Surface water use and quality (non-cooling system impacts)	6.33	1.0	6.33	18.0	114.0	\$ 31,236
15	Discharge of biocides, sanitary wastes, and minor chemical	6.33	1.0	6.33	18.0	114.0	\$ 31,236
31	Cooling tower impacts on vegetation (plants with cooling towers)**	3.17	1.0	3.17	18.0	57.0	\$ 15,618
32	Bird collisions with plant structures and transmission lines	6.33	1.0	6.33	18.0	114.0	\$ 31,236
34	Transmission line right-of-way (ROW) management impacts on terrestrial resources	6.33	1.0	6.33	18.0	114.0	\$ 31,236
36	Impingement and entrainment of aquatic organisms (plants with once-through cooling systems or cooling ponds)**	3.16	1.0	3.16	73.0	231.0	\$ 63,294
37	Impingement and entrainment of aquatic organisms (plants with cooling towers)**	3.16	1.0	3.16	18.0	57.0	\$ 15,618
41	Infrequently reported thermal impacts (all plants)	6.33	1.0	6.33	72.0	456.0	\$ 124,944
42	Effects of cooling water discharge on dissolved oxygen, gas supersaturation, and eutrophication	6.33	1.0	6.33	36.0	228.0	\$ 62,472
54	Community services and education	6.33	1.0	6.33	210.0	1,329.0	\$ 364,146
55	Population and housing	6.33	1.0	6.33	78.0	494.0	\$ 135,356
56	Transportation	6.33	1.0	6.33	78.0	494.0	\$ 135,356
57	Radiation exposure to the public	6.33	1.0	6.33	18.0	114.0	\$ 31,236
58	Radiation exposure to plant workers	6.33	1.0	6.33	18.0	114.0	\$ 31,236
78	Termination of plant operations and decommissioning	6.33	1.0	6.33	90.0	570.0	\$ 156,180
<b>Subtotal—NRC Burden Decrease</b>						<b>6,423.0</b>	<b>\$1, 759,902</b>
<b>Total—NRC Burden Decrease</b>						<b>2,026.6</b>	<b>\$ 555,293</b>

\* Burden only applies to 10% of reactors

\*\* Burden only applies to 50% of reactors

**Exhibit 3**  
**Total Information Collection Burden Over 3 Years – (2013–2015)\***

Information Collection	Number of Respondents	Number of Responses	Total Burden**	
			Hours	\$
Reporting	19	19	-11,988.6	-3,284,876.00
Recordkeeping <sup>†</sup>	0	0	0	0

\* Burden Over 3 Years takes into account that (1) NRC begins using the revised requirements to evaluate license renewal applications during 2013 and (2) industry compliance begins during 2014

\*\* Sum of industry and NRC burden.

<sup>†</sup> Recordkeeping requirements are not specified in 10 CFR Part 51.

## APPENDIX

### Presentation of Final Rule Revisions to Table B-1 in 10 CFR Part 51

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
<b>Land Use</b>					
2	Offsite land use	SMALL (Category 1). Offsite land use would not be affected by continued operations and refurbishment associated with license renewal.	Offsite land use (refurbishment)	SMALL or MODERATE (Category 2). Impacts may be of moderate significance at plants in low population areas.	Change issue from Category 2 to Category 1  Issue consolidation (Category 1)  Remove tax revenue and address a new Category 1 issue
			Offsite land use (license renewal term)	SMALL, MODERATE, or LARGE (Category 2). Significant changes in land use may be associated with population and tax revenue changes resulting from license renewal.	
<b>Visual Resources</b>					
4	Aesthetic impacts	SMALL (Category 1). No important changes to the visual appearance of plant structures or transmission lines are expected from continued operations and refurbishment associated with license renewal.	Aesthetic impacts (refurbishment)	SMALL (Category 1). No significant impacts are expected during refurbishment.	Issue consolidation (Category 1)
			Aesthetic impacts (license renewal term)	SMALL (Category 1). No significant impacts are expected during the license renewal term.	
			Aesthetic impacts of transmission lines (license renewal term)	SMALL (Category 1). No significant impacts are expected during the license renewal term.	

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
<b>Air Quality</b>					
5	Air quality impacts (all plants)	<p>SMALL (Category 1). Air quality impacts from continued operations and refurbishment associated with license renewal are expected to be small at all plants. Emissions resulting from refurbishment activities at locations in or near air quality nonattainment or maintenance areas would be short-lived and would cease after these refurbishment activities are completed. Operating experience has shown that the scale of refurbishment activities has not resulted in exceedances of the de minimis thresholds for criteria pollutants, and best management practices including fugitive dust controls and the imposition of permit conditions in State and local air emissions permits would ensure conformance with applicable State or Tribal Implementation Plans.</p> <p>Emissions from emergency diesel generators and fire pumps and routine operations of boilers used for space heating would not be a concern, even for plants located in or adjacent to nonattainment areas. Impacts from cooling tower particulate emissions even under the worst-case situations have been small.</p>	Air quality during refurbishment (nonattainment and maintenance areas)	SMALL, MODERATE, or LARGE (Category 2). Air quality impacts from plant refurbishment associated with license renewal are expected to be small. However, vehicle exhaust emissions could be cause for concern at locations in or near nonattainment or maintenance areas. The significance of the potential impact cannot be determined without considering the compliance status of each site and the numbers of workers expected to be employed during the outage.	Change issue from Category 2 to Category 1
<b>Geologic Environment</b>					

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
8	Geology and soils	SMALL (Category 1). The effect of geologic and soil conditions on plant operations and refurbishment activities on geology and soils would be small for all nuclear power plants and would not change appreciably during the license renewal term.	Not addressed	Not addressed	New Category 1 issue
<b>Surface Water Resources</b>					
9	Surface water use and quality (non-cooling system impacts)	SMALL (Category 1). Impacts are expected to be small if best management practices are employed to control soil erosion and spills. Surface water use associated with continued operations and refurbishment associated with license renewal would not increase significantly or would be reduced if refurbishment occurs during a plant outage.	Impacts of refurbishment on surface water quality	SMALL (Category 1). Impacts are expected to be negligible during refurbishment because best management practices are expected to be employed to control soil erosion and spills.	Issue consolidation (Category 1)  Issue expanded to include impacts of continued operations
			Impacts of refurbishment on surface water use	SMALL (Category 1). Water use during refurbishment will not increase appreciably or will be reduced during plant outage.	
15	Discharge of biocides, sanitary wastes, and minor chemical spills	SMALL (Category 1). The effects of these discharges are regulated by Federal and State environmental agencies. Discharges are monitored and controlled as part of the NPDES permit process. These impacts have been small at operating nuclear power plants.	Discharge of chlorine or other biocides	SMALL (Category 1). Effects are not a concern among regulatory and resource agencies, and are not expected to be a problem during the license renewal term.	Issue consolidation (Category 1)
			Discharge of sanitary wastes and minor chemical spills	SMALL (Category 1). Effects are readily controlled through NPDES permit and periodic modifications, if needed, and are not expected to be a problem during the license renewal term.	
18	Effects of dredging on surface water quality	SMALL (Category 1). 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, and possibly, from other State or local agencies.	Not addressed	Not addressed	New Category 1 issue

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
<b>Groundwater Resources</b>					
20	Groundwater contamination and use (non-cooling system impacts)	SMALL (Category 1). Extensive dewatering is not anticipated from continued operations and refurbishment associated with license renewal. Industrial practices involving the use of solvents, hydrocarbons, heavy metals, or other chemicals, and/or the use of wastewater ponds or lagoons have the potential to contaminate site groundwater, soil, and subsoil. Contamination is subject to State or Environmental Protection Agency regulated cleanup and monitoring programs. The application of best management practices for handling any materials produced or used during these activities would reduce impacts.	Impacts of refurbishment on ground-water use and quality	SMALL (Category 1). Extensive dewatering during the original construction on some sites will not be repeated during refurbishment on any sites. Any plant wastes produced during refurbishment will be handled in the same manner as in current operating practices and are not expected to be a problem during the license renewal term.	Issue expanded to include impacts of continued operations  Issue expanded to include impacts to groundwater and soil contamination
27	Radionuclides released to groundwater	SMALL or MODERATE (Category 2). Leaks of radioactive water from plant components and pipes have occurred at numerous plants. Groundwater protection programs have been established at all operating nuclear power plants to minimize the potential impact from any inadvertent releases. The magnitude of impacts would depend on site-specific characteristics.	Not addressed	Not addressed	New Category 2 issue
<b>Terrestrial Resources</b>					
29	Exposure of terrestrial organisms to radionuclides	SMALL (Category 1). Doses to terrestrial organisms from continued operations and refurbishment associated with license renewal are expected to be well below exposure guidelines developed to protect these organisms.	Not addressed	Not addressed	New Category 1 issue



Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
31	Cooling tower impacts on vegetation (plants with cooling towers) <sup>3</sup>	SMALL (Category 1). 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.	Cooling tower impacts on crops and ornamental vegetation	SMALL (Category 1). Impacts from salt drift, icing, fogging, or increased humidity associated with coolingtower operation 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 consolidation (Category 1)
			Cooling tower impacts on native plants	SMALL (Category 1). Impacts from salt drift, icing, fogging, or increased humidity associated with cooling tower operation 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.	
32	Bird collisions with plant structures and transmission lines	SMALL (Category 1). Bird collisions with cooling towers and other plant structures and transmission lines occur at rates that are unlikely to affect local or migratory populations and the rates are not expected to change.  Footnote: This issue applies only to the in-scope portion of electric power transmission lines which are defined as transmission lines that connect the nuclear power plant to the substation where electricity is fed into the regional power distribution system and transmission lines that supply power to the nuclear plant from the grid.	Bird collisions with cooling towers	SMALL (Category 1). These collisions 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 consolidation (Category 1)  Issue expanded to address collisions with all plant structures
			Bird collision with power lines	SMALL (Category 1). Impacts are expected to be of small significance at all sites.	

<sup>3</sup> Approximately 50 percent of nuclear power plants have cooling towers. Therefore, this information collection requirement only applies to 50 percent of license renewal applications prepared by industry and reviewed by the NRC.

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
33	Water use conflicts with terrestrial resources (plants with cooling ponds or cooling towers using makeup water from a river) <sup>4</sup>	SMALL or MODERATE (Category 2). Impacts on terrestrial resources in riparian communities affected by water use conflicts could be of moderate significance.	Not addressed	Not addressed	New Category 2 issue
34	Transmission line right-of-way (ROW) management impacts on terrestrial resources	SMALL (Category 1). 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.	Power line right-of-way management (cutting and herbicide application)	SMALL (Category 1). The impacts of right-of-way maintenance on wildlife are expected to be of small significance at all sites.	Issue consolidation (Category 1)
		Footnote: This issue applies only to the in-scope portion of electric power transmission lines which are defined as transmission lines that connect the nuclear power plant to the substation where electricity is fed into the regional power distribution system and transmission lines that supply power to the nuclear plant from the grid.	Floodplains and wetland on power line right of way	SMALL (Category 1). Periodic vegetation control is necessary in forested wetlands underneath power lines and can be achieved with minimal damage to the wetland. No significant impact is expected at any nuclear power plant during the license renewal term.	

<sup>4</sup> Approximately 50 percent of nuclear power plants use makeup water from a river. Therefore, this information collection requirement only applies to 50 percent of license renewal applications prepared by industry and reviewed by the NRC.

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
<b>Aquatic Resources</b>					
36	Impingement and entrainment of aquatic organisms (plants with once-through cooling systems or cooling ponds) <sup>5</sup>	SMALL, MODERATE, or LARGE (Category 2). 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.	Entrainment of fish and shellfish in early life stages (for plants with once-through cooling and cooling pond heat dissipation systems)	SMALL, MODERATE, or LARGE (Category 2). The impacts of 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. Further, ongoing efforts in the vicinity of these plants to restore fish populations may increase the numbers of fish susceptible to intake effects during the license renewal period, such that entrainment studies conducted in support of the original license may no longer be valid. See § 51.53(c)(3)(ii)(B).	Issue consolidation (Category 2)
			Impingement of fish and shellfish (for plants with once-through cooling and cooling pond heat dissipation systems)	SMALL, MODERATE, or LARGE (Category 2). The impacts of impingement are small at many plants but may be moderate or even large at a few plants with once-through and cooling-pond cooling systems. See § 51.53(c)(3)(ii)(B).	

<sup>5</sup> Approximately 50 percent of nuclear power plants use once-through cooling systems or cooling ponds. Therefore, this information collection requirement only applies to 50 percent of license renewal applications prepared by industry and reviewed by the NRC.

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
37	Impingement and entrainment of aquatic organisms (plants with cooling towers) <sup>6</sup>	SMALL (Category 1). 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.	Entrainment of fish and shellfish in early life stages (for plants with cooling tower-based heat dissipation systems)	SMALL (Category 1). Entrainment of fish has not been found to be a problem at operating nuclear power plants with this type of cooling system and is not expected to be a problem during the license renewal term.	Issue consolidation (Category 1)
			Impingement of fish and shellfish (for plants with cooling tower-based heat dissipation systems)	SMALL (Category 1). The impingement has not been found to be a problem at operating nuclear power plants with this type of cooling system and is not expected to be a problem during the license renewal term.	
41	Infrequently reported thermal impacts (all plants)	SMALL (Category 1). Continued operations during the license renewal term are expected to have small thermal impacts with respect to the following:  Cold shock has been satisfactorily mitigated at operating nuclear plants with once-through cooling systems, has not endangered fish populations or 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.  Thermal plumes have not been found to be a problem at operating nuclear power plants and are not expected to be a problem.  Thermal discharge may have localized	Cold shock (for all plants)	SMALL (Category 1). Cold shock has been satisfactorily mitigated at operating nuclear plants with once-through cooling systems, has not endangered fish populations or 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.	Issue consolidation (Category 1)
			Thermal plume barrier to migrating fish (for all plants)	SMALL (Category 1). Thermal plumes 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.	
			Distribution of aquatic organisms (for all plants)	SMALL (Category 1). Thermal discharge may have localized effects but is not expected to affect the larger geographical distribution of aquatic organisms.	

<sup>6</sup> Approximately 50 percent of nuclear power plants have cooling towers. Therefore, this information collection requirement only applies to 50 percent of license renewal applications prepared by industry and reviewed by the NRC.

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
		<p>effects but is not expected to affect the larger geographical distribution of aquatic organisms.</p> <p>Premature emergence has been found to be a localized effect at some operating nuclear power plants but has not been a problem and is not expected to be a problem.</p> <p>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.</p>	<p>Premature emergence of aquatic insects (for all plants)</p> <p>Stimulation of Nuisance Organisms (e.g., Shipworms)</p>	<p>SMALL (Category 1). Premature emergence has been found to be a localized effect at some operating nuclear power plants but has not been a problem and is not expected to be a problem during the license renewal term.</p> <p>SMALL (Category 1). 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.</p>	

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
42	Effects of cooling water discharge on dissolved oxygen, gas supersaturation, and eutrophication	SMALL (Category 1). Gas supersaturation was a concern at a small number of operating nuclear power plants with once-through cooling systems but has been mitigated. Low dissolved oxygen was a concern at one nuclear power plant with a once-through cooling system but has been 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.	Eutrophication	SMALL (Category 1). Eutrophication has not been found to be a problem at operating nuclear power plants and is not expected to be a problem during the license renewal term.	Issue consolidation (Issue 1)
			Gas supersaturation (gas bubble disease)	SMALL (Category 1). Gas supersaturation was a concern at a small number of operating nuclear power plants with once-through cooling systems but has been satisfactorily mitigated. 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.	
			Low dissolved oxygen in the discharge	SMALL (Category 1). Low dissolved oxygen has been a concern at one nuclear power plant with a once-through cooling system but has been effectively mitigated. 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.	
44	Exposure of aquatic organisms to radionuclides	SMALL (Category 1). Doses to aquatic organisms are expected to be well below exposure guidelines developed to protect these organisms.	Not addressed	Not addressed	New Category 1 issue
45	Effects of dredging on aquatic organisms	SMALL (Category 1). Dredging at nuclear power plants is expected to occur infrequently, would be of relatively short duration, and would affect relatively small areas. Dredging is performed under permit from the U.S. Army Corps of Engineers, and possibly, from other State or local agencies.	Not addressed	Not addressed	New Category 1 issue

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
46	Water use conflicts with aquatic resources (plants with cooling ponds or cooling towers using makeup water from a river) <sup>7</sup>	SMALL or MODERATE (Category 2). Impacts on aquatic resources in stream communities affected by water use conflicts could be of moderate significance in some situations.	Not addressed	Not addressed	New Category 2 issue
48	Impacts of transmission line right-of-way (ROW) management on aquatic resources	SMALL (Category 1). Licensee application of best management practices to ROW maintenance is expected to result in no more than small impacts to aquatic resources.	Not addressed	Not addressed	New Category 1 issue

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<sup>7</sup> Approximately 50 percent of nuclear power plants use makeup water from a river. Therefore, this information collection requirement only applies to 50 percent of license renewal applications prepared by industry and reviewed by the NRC.

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
<b>Special Status Species and Habitats</b>					
50	Threatened, endangered, and protected species and essential fish habitat <sup>8</sup>	<p>(Category 2). The magnitude of impacts on threatened, endangered, and protected species, critical habitat, 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 continued operations and refurbishment associated with license renewal.</p> <p>Footnote: This issue applies only to the in-scope portion of electric power transmission lines which are defined as transmission lines that connect the nuclear power plant to the substation where electricity is fed into the regional power distribution system and transmission lines that supply power to the nuclear plant from the grid.</p>	Threatened or endangered species	SMALL, MODERATE, or LARGE (Category 2). Generally, plant refurbishment and continued operations are not expected to adversely affect threatened or endangered species. However, consultation with appropriate agencies would be needed at the time of license renewal to determine whether threatened or endangered species are present and whether they would be adversely affected. See § 51.53(c)(3)(ii) (E).	Issue expanded to include essential fish habitats protected under the Magnuson-Stevens Fishery Conservation & Management Act (MSA)
<b>Socioeconomics</b>					

<sup>8</sup> Approximately 10 percent of nuclear power plants are located in areas in close proximity to a commercial fisheries. Therefore, this information collection requirement only applies to 10 percent of license renewal applications prepared by industry and reviewed by the NRC.



Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
52	Employment and income, recreation and tourism	SMALL (Category 1). Impacts from continued operations and refurbishment associated with license renewal are expected to be small.	Public services: public safety, social services, and tourism and recreation	Small (Category 1). Impacts to public safety, social services, and tourism and recreation are expected to be of small significance at all sites.	Issue expanded to address employment and income  The "Public safety, social services" portion of this issue was consolidated into the Category 1 issue, "Community services and education"
53	Tax revenues	SMALL (Category 1). 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 as a result of continued operations and refurbishment associated with license renewal is not expected to change.	Considered in the 1996 GEIS but not identified as an issue	Not addressed	New Category 1 issue

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
54	Community services and education	SMALL (Category 1). Changes resulting from continued operations and refurbishment associated with license renewal to local community and educational services would be small. With little or no change in employment at the licensee's plant, 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.	Public services: public safety, social services, and tourism and recreation	SMALL (Category 1). Impacts to public safety, social services, and tourism and recreation are expected to be of small significance at all sites	The "tourism and recreation" portion of this issue was consolidated into the Category 1 issue, "Employment and income, recreation and tourism"
			Public services: public utilities	SMALL or MODERATE (Category 2). An increased problem with water shortages at some sites may lead to impacts of moderate significance on public water supply availability.	Change issue from Category 2 to Category 1
			Public services, education (license renewal term)	SMALL (Category 1). Only impacts of small significance are expected.	No change
			Public services, education (refurbishment)	SMALL, MODERATE, or LARGE (Category 2). Most sites would experience impacts of small significance, but larger impacts are possible depending on site- and project-specific factors.	Change issue from Category 2 to Category 1
55	Population and housing	SMALL (Category 1). Changes resulting from continued operations and refurbishment associated with license renewal to regional population and housing availability and value would be small. With little or no change in employment at the licensee's plant expected during the license renewal term, population and housing availability and values would not be affected by continued power plant operations.	Housing impacts	SMALL, MODERATE, or LARGE (Category 2). Housing impacts are expected to be of small significance at plants located in a medium or high population area and not in an area where growth control measures that limit housing development are in effect. Moderate or large housing impacts of the workforce associated with refurbishment may be associated with plants located in sparsely populated areas or in areas with growth control measures that limit housing development.	Change issue from Category 2 to Category 1

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
56	Transportation	SMALL (Category 1). Changes resulting from continued operations and refurbishment associated with license renewal to traffic volumes would be small.	Public services, Transportation	SMALL, MODERATE, or LARGE (Category 2). Transportation impacts (level of service) of highway traffic generated during plant refurbishment and during the term of the renewed license are generally expected to be of small significance. However, the increase in traffic associated with additional workers and the local road and traffic control conditions may lead to impacts of moderate or large significance at some sites.	Change issue from Category 2 to Category 1
<b>Human Health</b>					
57	Radiation exposures to the public	SMALL (Category 1). Radiation doses to the public from continued operations and refurbishment associated with license renewal are expected to continue at current levels, and would be well below regulatory limits.	Radiation exposures to the public during refurbishment	SMALL (Category 1). During refurbishment, the gaseous effluents would result in doses that are similar to those from current operation. Applicable regulatory dose limits to the public are not expected to be exceeded.	Issue consolidation (Category 1)
			Radiation exposure to public (license renewal term)	SMALL (Category 1). Radiation doses to the public will continue at current levels associated with normal operations.	
58	Radiation exposures to plant workers	SMALL (Category 1). Occupational doses from continued operations and refurbishment associated with license renewal are expected to be within the range of doses experienced during the current license term and would continue to be well below regulatory limits.	Occupational radiation exposures during refurbishment	SMALL (Category 1). Occupational doses from refurbishment are expected to be within the range of annual average collective doses experienced for pressurized-water reactors and boiling-water reactors. Occupational mortality risk from all causes including radiation is in the mid-range for industrial settings.	Issue consolidation (Category 1)
			Occupational radiation exposures (license renewal term)	SMALL (Category 1). Projected maximum occupational doses during the license renewal term are within the range of doses experienced during normal operations and normal maintenance outages, and would be well below regulatory limits.	

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
59	Human health impact from chemicals	SMALL (Category 1). Chemical hazards to plant workers resulting from continued operations and refurbishment associated with license renewal are expected to be minimized by the licensee implementing good industrial hygiene practices as required by permits and Federal and State regulations. Chemical releases to the environment and the potential for impacts to the public are expected to be minimized by adherence to discharge limitations of NPDES and other permits.	Not addressed	Not addressed	New Category 1 issue
63	Physical occupational hazards	SMALL (Category 1). Occupational safety and health hazards are generic to all types of electrical generating stations, including nuclear power plants, and are of small significance if the workers adhere to safety standards and use protective equipment as required by Federal and State regulations.	Not addressed	Not addressed	New Category 1 issue
<b>Environmental Justice</b>					
67	Minority and low-income populations	(Category 2). Impacts to minority and low-income populations and subsistence consumption resulting from continued operations and refurbishment associated with license renewal 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; August 24, 2004).	Environmental justice	None. The need for and the content of an analysis of environmental justice will be addressed in plant-specific reviews.	New Category 2 issue

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
<b>Cumulative impacts</b>					
73	Cumulative impacts	(Category 2). Cumulative impacts of continued operations and refurbishment associated with 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.	Not addressed	Not addressed	New Category 2 issue
<b>Termination of Nuclear Power Plant Operations and Decommissioning</b>					
78	Termination of plant operations and decommissioning	SMALL (Category 1). License renewal is expected to have a negligible effect on the impacts of terminating operations and decommissioning on all resources.	Radiation doses	SMALL (Category 1). Doses to the public will be well below applicable regulatory standards regardless of which decommissioning method is used. Occupational doses would increase no more than 1 man-rem caused by buildup of long-lived radionuclides during the license renewal term.	Issue consolidation (Category 1)
			Waste management	SMALL (Category 1). Decommissioning at the end of a 20-year license renewal period would generate no more solid wastes than at the end of the current license term. No increase in the quantities of Class C or greater than Class C wastes would be expected.	
			Air quality	SMALL (Category 1). Air quality impacts of decommissioning are expected to be negligible either at the end of the current operating term or at the end of the license renewal term.	
			Water quality	SMALL (Category 1). The potential for significant water quality impacts from erosion or spills is no greater whether decommissioning occurs after a 20-year license renewal period or after the original 40-year operation period, and measures are readily available to avoid such impacts.	

Final Rule Revisions			Current Rule		Final Rule Change Summary
Issue #	Issue	Finding	Issue	Finding	
			Ecological resources	SMALL (Category 1). Decommissioning after either the initial operating period or after a 20-year license renewal period is not expected to have any direct ecological impacts.	
			Socioeconomic impacts	SMALL (Category 1). Decommissioning would have some short-term socioeconomic impacts. The impacts would not be increased by delaying decommissioning until the end of a 20-year relicense period, but they might be decreased by population and economic growth.	