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## DRAFT FINAL RULE LANGUAGE FOR 10 CFR PART 51

### PART 51—ENVIRONMENTAL PROTECTION REGULATIONS FOR DOMESTIC LICENSING AND RELATED REGULATORY 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 § 51.53 by:
  - a. Revising the second sentence of paragraph (c)(2);

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- b. Revising the first sentence of paragraph (c)(3)(ii)(A);
- c. Revising the second sentence of paragraph (c)(3)(ii)(B);
- d. Revising paragraph (c)(3)(ii)(C);
- e. Revising paragraph (c)(3)(ii)(E);
- f. Removing and reserving paragraph (c)(3)(ii)(F);
- g. Revising paragraph (c)(3)(ii)(G);
- h. Removing and reserving paragraphs (c)(3)(ii)(I) and (J);
- i. Revising paragraph (c)(3)(ii)(K); and
- j. Adding paragraphs (c)(3)(ii)(N), (O), and (P).

The amendments read as follows:

**§ 51.53 Postconstruction environmental reports.**

\* \* \* \*

(c) \* \* \*

(2) \* \* \* 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) \* \* \*

(ii) \* \* \*

(A) If the applicant's plant utilizes cooling towers or cooling ponds and withdraws makeup water from a river, 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 stream

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(aquatic) and riparian (terrestrial) ecological communities must be provided.\* \*

\*

(B) \* \* \* If the applicant cannot 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) If the applicant's plant pumps more than 100 gallons (total onsite) of groundwater per minute, an assessment of the impact of the proposed action on groundwater must be provided.

\* \* \* \* \*

(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) [Reserved]

(G) If the applicant's plant uses a cooling pond, lake, or canal or discharges into a river, an assessment of the impact of the proposed action on public health from thermophilic organisms in the affected water must be provided.

\* \* \* \* \*

(I) [Reserved]

(J) [Reserved]

(K) All applicants shall identify any potentially affected historic or archaeological properties and assess whether any of these properties will be affected by future plant operations

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and any planned refurbishment activities in accordance with the National Historic Preservation Act.

\* \* \* \* \*

(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) Applicants shall provide information about other past, present, and reasonably foreseeable future actions occurring in the vicinity of the nuclear plant that may result in a cumulative effect.

(P) An applicant shall assess the impact of any documented inadvertent releases of radionuclides into groundwater. The applicant shall include in its assessment a description of any groundwater protection program for the site, including a description of any monitoring wells, leak detection equipment, and procedures for the surveillance of piping and components containing radioactive liquids for which a pathway to groundwater may exist. The assessment must also include a description of any past inadvertent releases, including information on the source of the release, the location of the release within the plant site, the types of radionuclides involved, including the quantities, forms, and concentrations, and the projected impact to the environment during the license renewal term, including the projected transport pathways, potential receptors (e.g., aquifers, rivers, lakes, ponds, ocean), and the projected concentrations of the radionuclides.

\* \* \* \* \*

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3. 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.\*

\*

\* \* \* \* \*

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4. Amend § 51.95 to revise the introductory text of paragraph (c), and 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 2012)], which is available in the NRC Public Document Room, 11555 Rockville Pike, Rockville, Maryland 20852.

\* \* \* \* \*

(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.

\* \* \* \* \*

5. In appendix B to subpart A of part 51, Table B-1 is revised to read as follows:

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**Appendix B to Subpart A—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<sup>1</sup>**

Issue	Category <sup>2</sup>	Finding <sup>3</sup>
<b>Land Use</b>		
Onsite land use	1	SMALL. Changes in onsite land use from continued operations and refurbishment associated with license renewal would be a small fraction of the 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 by continued operations and refurbishment associated with license renewal.
Offsite land use in transmission line right-of-ways (ROWS) <sup>4</sup>	1	SMALL. Use of transmission line ROWs from continued operations and refurbishment associated with license renewal would continue with no change in land use restrictions.
<b>Visual Resources</b>		
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 license renewal.

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
<b>Air Quality</b>		
Air quality impacts (all plants)	1	<p>SMALL. 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 exceedance of the <i>de minimis</i> 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 effects of transmission lines <sup>4</sup>	1	SMALL. Production of ozone and oxides of nitrogen is insignificant and does not contribute measurably to ambient levels of these gases.
<b>Noise</b>		
Noise impacts	1	SMALL. Noise levels would remain below regulatory guidelines for offsite receptors during continued operations and refurbishment associated with license renewal.
<b>Geologic Environment</b>		
Geology and soils	1	SMALL. The effect of geologic and soil conditions on plant operations and the impact of continued 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.
<b>Surface Water Resources</b>		
Surface-water use and quality (non-cooling system impacts)	1	SMALL. 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.

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
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.
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 and controlled 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 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.
Surface 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.
Surface water use conflicts (plants with cooling ponds or cooling towers using makeup water from a river)	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 surface 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, and possibly, from other State or local agencies.

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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.
<b>Groundwater Resources</b>		
Groundwater contamination and use (non-cooling system impacts)	1	SMALL. 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.
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.
Groundwater use conflicts (plants that withdraw more than 100 gallons per minute [gpm])	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, groundwater in salt marshes is naturally brackish and thus not potable. Consequently, the human use of such groundwater is limited to industrial purposes.

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
Groundwater quality degradation (plants with cooling ponds at inland sites)	2	SMALL, MODERATE, or LARGE. Inland sites with closed-cycle cooling ponds could degrade groundwater quality. 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.
Radionuclides released to groundwater	2	SMALL or MODERATE. Leaks of radioactive water from plant components and pipes have occurred in recent years at several 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.
<b>Terrestrial Resources</b>		
Effects on terrestrial resources (non-cooling system impacts)	2	SMALL, MODERATE, or LARGE. Impacts resulting from continued operations and refurbishment associated with license renewal may affect terrestrial communities. 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 from continued operations and refurbishment associated with license renewal are expected to be well below exposure guidelines developed to protect these organisms.
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 plant structures and transmission lines <sup>4</sup>	1	SMALL. 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.

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
Water use conflicts with terrestrial resources (plants with cooling ponds or cooling towers using makeup water from a river)	2	SMALL or MODERATE. Impacts on terrestrial resources in riparian communities affected by water use conflicts could be of moderate significance.
Transmission line right-of-way (ROW) management impacts on terrestrial resources <sup>4</sup>	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.
<b>Aquatic Resources</b>		
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.
Entrainment of phytoplankton and zooplankton (all plants)	1	SMALL. Entrainment of phytoplankton and zooplankton 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.
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.
Thermal impacts on aquatic organisms (plants with cooling towers)	1	SMALL. Thermal effects associated with plants that use cooling towers are expected to be small because of the reduced amount of heated discharge.

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Infrequently reported thermal impacts (all plants)	1	<p>SMALL. Continued operations during the license renewal term are expected to have small thermal impacts with respect to the following:</p> <p>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.</p> <p>Thermal plumes have not been found to be a problem at operating nuclear power plants and are not expected to be a problem.</p> <p>Thermal discharge may have localized 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>
Effects of cooling water discharge on dissolved oxygen, gas supersaturation, and eutrophication	1	<p>SMALL. 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.</p>
Effects of non-radiological contaminants on aquatic organisms	1	<p>SMALL. Best management practices and discharge limitations of NPDES permits are expected to minimize the potential for impacts to aquatic resources during continued operations and refurbishment associated with license renewal. 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.</p>

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
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. 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.
Water use conflicts with aquatic resources (plants with cooling ponds or cooling towers using makeup water from a river)	2	SMALL or MODERATE. Impacts on aquatic resources in stream communities affected by water use conflicts could be of moderate significance in some situations.
Effects on aquatic resources (non-cooling system impacts)	1	SMALL. Licensee application of appropriate mitigation measures is expected to result in no more than small changes to aquatic communities from their current condition.
Impacts of transmission line right-of-way (ROW) management on aquatic resources <sup>4</sup>	1	SMALL. Licensee application of best management practices to ROW maintenance is expected to result in no more than small impacts to aquatic resources.
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.
<b>Special Status Species and Habitats</b>		
Threatened, endangered, and protected species and essential fish habitat	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.
<b>Historic and Cultural Resources</b>		

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
Historic and cultural resources <sup>4</sup>	2	Continued operations and refurbishment associated with license renewal 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 effects on historic properties and mitigation, if necessary.
<b>Socioeconomics</b>		
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 associated with license renewal are expected to be small. Nuclear plant operations, employee spending, power plant expenditures, and tax payments have an effect on local 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 as a result of continued operations and refurbishment associated with license renewal is not expected to change.
Community services and education	1	SMALL. 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.
Population and housing	1	SMALL. 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.
Transportation	1	SMALL. Changes resulting from continued operations and refurbishment associated with license renewal to traffic volumes would be small.

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
<b>Human Health</b>		
Radiation exposures to the public	1	SMALL. 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 plant workers	1	SMALL. 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.
Human health impact from chemicals	1	SMALL. 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.
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, or that discharge into 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 as required by permits and Federal and State regulations.
Chronic effects of electromagnetic fields (EMFs) <sup>4,6</sup>	N/A <sup>5</sup>	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 are of small significance if the workers adhere to safety standards and use protective equipment as required by Federal and State regulations.

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
Electric shock hazards <sup>4</sup>	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 conformance with NESC criteria of each nuclear power plant's in-scope transmission lines, it is not possible to determine the significance of the electrical shock potential.
<b>Postulated Accidents</b>		
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.
<b>Environmental Justice</b>		
Minority and low-income populations	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).
<b>Waste Management</b>		
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 license renewal term.
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.

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
Offsite radiological impacts of spent nuclear fuel and high-level waste disposal	1	<p>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.</p> <p>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.</p>
Mixed-waste storage and disposal	1	<p>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.</p>
Nonradioactive waste storage and disposal	1	<p>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.</p>
<b>Cumulative Impacts</b>		
Cumulative impacts	2	<p>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.</p>
<b>Uranium Fuel Cycle</b>		

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Issue	Category <sup>2</sup>	Finding <sup>3</sup>
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	<p>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.</p> <p>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.</p>
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.
<b>Termination of Nuclear Power Plant Operations and Decommissioning</b>		
Termination of plant operations and decommissioning	1	SMALL. Continued operations and refurbishment associated with license renewal are expected to be small for all resources with respect to termination of plant operations and decommissioning.

1. Data supporting this table are contained in NUREG-1437, Revision 1, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (XX 20XX).

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;

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(2) A single significance level (i.e., small, moderate, or large) has been assigned to the impacts (except for collective offsite 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 not likely 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. 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.

5. NA (not applicable). The categorization and impact finding definitions do not apply to these issues.

6. 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.