

ATTACHMENT A

NRC NEPA ISSUES FOR LICENSE RENEWAL OF NUCLEAR POWER PLANTS

NMC has prepared this environmental report in accordance with the requirements of U.S. Nuclear Regulatory Commission (NRC) regulation 10 CFR 51.53. NRC included in the regulation a list of National Environmental Policy Act (NEPA) issues for license renewal of nuclear power plants. Table A-1 lists these 92 issues and identifies the section in which NMC addressed each applicable issue in this environmental report. For organization and clarity, NMC has assigned a number to each issue and uses the issue numbers throughout the environmental report.

**TABLE A-1
PINGP ENVIRONMENTAL REPORT DISCUSSION OF LICENSE RENEWAL
NEPA ISSUES^a**

Issue	Category	Section of this Environmental Report	GEIS Cross Reference ^b (Section/Page)
Surface Water Quality, Hydrology, and Use (for all plants)			
1. Impacts of refurbishment on surface water quality	1	4.1	3.4.1/3-4
2. Impacts of refurbishment on surface water use	1	4.1	3.4.1/3-4
3. Altered current patterns at intake and discharge structures	1	4.1	4.2.1.2.1/4-5
4. Altered salinity gradients	1	NA	Issue applies to a plant feature, discharge to saltwater, that PINGP does not have.
5. Altered thermal stratification of lakes	1	NA	Issue applies to a plant feature, discharge to a lake, that PINGP does not have.
6. Temperature effects on sediment transport capacity	1	4.1	4.2.1.2.3/4-8
7. Scouring caused by discharged cooling water	1	4.1	4.2.1.2.3/4-6
8. Eutrophication	1	4.1	4.2.1.2.3/4-9
9. Discharge of chlorine or other biocides	1	4.1	4.2.1.2.4/4-10
10. Discharge of sanitary wastes and minor chemical spills	1	4.1	4.2.1.2.4/4-10
11. Discharge of other metals in waste water	1	4.1	4.2.1.2.4/4-10
12. Water use conflicts (plants with once-through cooling systems)	1	4.1	4.2.1.3/4-13
13. Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a small river with low flow)	2	4.2.1	4.2.1.3/4-13
14. Refurbishment impacts to aquatic resources	1	4.1	3.5/3-5
15. Accumulation of contaminants in sediments or biota	1	4.1	4.2.1.2.4/4-10
16. Entrainment of phytoplankton and zooplankton	1	4.1	4.2.2.1.1/4-15

**TABLE A-1
PINGP ENVIRONMENTAL REPORT DISCUSSION OF LICENSE RENEWAL
NEPA ISSUES^a (CONTINUED)**

Issue	Category	Section of this Environmental Report	GEIS Cross Reference ^b (Section/Page)
Aquatic Ecology (for all plants)			
17. Cold shock	1	4.1	4.2.2.1.5/4-18
18. Thermal plume barrier to migrating fish	1	4.1	4.2.2.1.6/4-19
19. Distribution of aquatic organisms	1	4.1	4.2.2.1.6/4-19
20. Premature emergence of aquatic insects	1	4.1	4.2.2.1.7/4-20
21. Gas supersaturation (gas bubble disease)	1	4.1	4.2.2.1.8/4-21
22. Low dissolved oxygen in the discharge	1	4.1	4.2.2.1.9/4-23
23. Losses from predation, parasitism, and disease among organisms exposed to sublethal stresses	1	4.1	4.2.2.1.10/4-24
24. Stimulation of nuisance organisms (e.g., shipworms)	1	4.1	4.2.2.1.11/4-25
Aquatic Ecology (for plants with once-through and cooling pond heat dissipation systems)			
25. Entrainment of fish and shellfish in early life stages for plants with once-through and cooling pond heat dissipation systems	2	4.3	4.2.2.1.2/4-16
26. Impingement of fish and shellfish for plants with once-through and cooling pond heat dissipation systems	2	4.4	4.2.2.1.3/4-16
27. Heat shock for plants with once-through and cooling pond heat dissipation systems	2	4.5	4.2.2.1.4/4-17
Aquatic Ecology (for plants with cooling-tower-based heat dissipation systems)			
28. Entrainment of fish and shellfish in early life stages for plants with cooling-tower-based heat dissipation systems	1	4.1	4.3.3/4-33
29. Impingement of fish and shellfish for plants with cooling-tower-based heat dissipation systems	1	4.1	4.3.3/4-33

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PINGP ENVIRONMENTAL REPORT DISCUSSION OF LICENSE RENEWAL
NEPA ISSUES^a (CONTINUED)**

Issue	Category	Section of this Environmental Report	GEIS Cross Reference ^b (Section/Page)
30. Heat shock for plants with cooling-tower-based heat dissipation systems	1	4.1	4.3.3/4-33
Ground-water Use and Quality			
31. Impacts of refurbishment on groundwater use and quality	1	4.1	3.4.2/3-5
32. Groundwater use conflicts (potable and service water; plants that use < 100 gpm)	1	NA	Issue applies to a plant feature, groundwater use less than 100 gpm, that PINGP does not have.
33. Groundwater use conflicts (potable, service water, and dewatering; plants that use > 100 gpm)	2	4.2.3	4.8.1.1
34. Groundwater use conflicts (plants using cooling towers withdrawing make-up water from a small river)	2	4.2.2	4.8.1.3/4-117
35. Groundwater use conflicts (Ranney wells)	2	NA	Issue applies to a feature, Ranney wells, that PINGP does not have.
36. Groundwater quality degradation (Ranney wells)	1	NA	Issue applies to a feature, Ranney wells, that PINGP does not have.
37. Groundwater quality degradation (saltwater intrusion)	1	NA	Issue applies to a feature, location in a coastal area, that PINGP does not have.
38. Groundwater quality degradation (cooling ponds in salt marshes)	1	NA	Issue applies to a feature, cooling ponds, that PINGP does not have.
39. Groundwater quality degradation (cooling ponds at inland sites)	2	NA	Issue applies to a feature, cooling ponds at inland sites, that PINGP does not have.
Terrestrial Resources			
40. Refurbishment impacts to terrestrial resources	2	4.6	3.6/3-6
41. Cooling tower impacts on crops and ornamental vegetation	1	4.1	4.3.4/4-34
42. Cooling tower impacts on native plants	1	4.1	4.3.5.1./4-42

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NEPA ISSUES^a (CONTINUED)**

Issue	Category	Section of this Environmental Report	GEIS Cross Reference ^b (Section/Page)
43. Bird collisions with cooling towers	1	4.1	4.3.5.2/4-45
44. Cooling pond impacts on terrestrial resources	1	NA	Issue applies to a feature, cooling ponds, that PINGP does not have.
45. Power line right-of-way management (cutting and herbicide application)	1	4.1	4.5.6.1/4-71
46. Bird collisions with power lines	1	4.1	4.5.6.2/4-74
47. Impacts of electromagnetic fields on flora and fauna (plants, agricultural crops, honeybees, wildlife, livestock)	1	4.1	4.5.6.3/4-77
48. Floodplains and wetlands on power line right-of-way	1	4.1	4.5.7/4-81
Threatened or Endangered Species (for all plants)			
49. Threatened or endangered species	2	4.7	4.1/4-1
Air Quality			
50. Air quality during refurbishment (non-attainment and maintenance areas)	2	4.8	3.3/3-2
51. Air quality effects of transmission lines	1	4.1	4.5.2/4-62
Land Use			
52. Onsite land use	1	4.1	3.2/3-1
53. Power line right-of-way land use impacts	1	4.1	4.5.3/4-62
Human Health			
54. Radiation exposures to the public during refurbishment	1	4.1	3.8.1/3-27
55. Occupational radiation exposures during refurbishment	1	4.1	3.8.2/3-27
56. Microbiological organisms (occupational health)	1	4.1	4.3.6/4-48

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NEPA ISSUES^a (CONTINUED)**

Issue	Category	Section of this Environmental Report	GEIS Cross Reference ^b (Section/Page)
57. Microbiological organisms (public health) (plants using lakes or canals, or cooling towers or cooling ponds that discharge to a small river)	2	4.9	4.3.6/4-48
58. Noise	1	4.1	4.3.7/4-49
59. Electromagnetic fields, acute effects (electric shock)	2	4.10	4.5.4.1/4-66
60. Electromagnetic fields, chronic effects	NA	4.1	NA – Not applicable. The categorization and impact finding definitions do not apply to this issue.
61. Radiation exposures to public (license renewal term)	1	4.1	4.6.2/4-87
62. Occupational radiation exposures (license renewal term)	1	4.1	4.6.3/4-95
Socioeconomics			
63. Housing impacts	2	4.11	3.7.2/3-10 (refurbishment) 4.7.1/4-101 (renewal term)
64. Public services: public safety, social services, and tourism and recreation	1	4.1	Refurbishment 3.7.4/3-14 (public services) 3.7.4.3/3-18 (safety) 3.7.4.4/3-19 (social) 3.7.4.6/3-20 (tour, rec) Renewal Term 4.7.3/4-104 (public services) 4.7.3.3/4-106 (safety) 4.7.3.4/4-107 (social) 4.7.3.6/4-107 (tour, rec)
65. Public services: public utilities	2	4.12	3.7.4.5/3-19 (refurbishment) 4.7.3.5/4-107 (renewal term)
66. Public services: education (refurbishment)	2	4.13	3.7.4.1/3-15
67. Public services: education (license renewal term)	1	4.1	4.7.3.1/4-106
68. Offsite land use (refurbishment)	2	4.14	3.7.5/3-20
69. Offsite land use (license renewal term)	2	4.14	4.7.4/4-107

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Issue	Category	Section of this Environmental Report	GEIS Cross Reference ^b (Section/Page)
70. Public services: transportation	2	4.15	3.7.4.2/3-17 (refurbishment) 4.7.3.2/4-106 (renewal term)
71. Historic and archaeological resources	2	4.16	3.7.7/3-23 (refurbishment) 4.7.7/4-114 (renewal term)
72. Aesthetic impacts (refurbishment)	1	4.1	3.7.8/3-24
73. Aesthetic impacts (license renewal term)	1	4.1	4.7.6/4-111
74. Aesthetic impacts of transmission lines (license renewal term)	1	4.1	4.5.8/4-83
Postulated Accidents			
75. Design basis accidents	1	4.1	5.3.2/5-11 (design basis) 5.5.1/5-114 (summary)
76. Severe accidents	2	4.17	5.3.3/5-12 (probabilistic analysis) 5.3.3.2/5-19 (air dose) 5.3.3.3/5-49 (water) 5.3.3.4/5-65 (groundwater) 5.3.3.5/5-96 (economic) 5.4/5-106 (mitigation) 5.5.2/5-114 (summary)
Uranium Fuel Cycle and Waste Management			
77. Offsite radiological impacts (individual effects from other than the disposal of spent fuel and high-level waste)	1	4.1	6.2/6-8
78. Offsite radiological impacts (collective effects)	1	4.1	Not in GEIS.
79. Offsite radiological impacts (spent fuel and high-level waste disposal)	1	4.1	Not in GEIS.
80. Nonradiological impacts of the uranium fuel cycle	1	4.1	6.2.2.6/6-20 (land use) 6.2.2.7/6-20 (water use) 6.2.2.8/6-21 (fossil fuel) 6.2.2.9/6-21 (chemical)
81. Low-level waste storage and disposal	1	4.1	6.4.2/6-36 (low-level definition) 6.4.3/6-37 (low-level volume) 6.4.4/6-48 (renewal effects)
82. Mixed waste storage and disposal	1	4.1	6.4.5/6-63

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NEPA ISSUES^a (CONTINUED)**

Issue	Category	Section of this Environmental Report	GEIS Cross Reference ^b (Section/Page)
83. Onsite spent fuel	1	4.1	6.4.6/6-70
84. Nonradiological waste	1	4.1	6.5/6-86
85. Transportation	1	4.1	6.3/6-31, as revised by Addendum 1, August 1999.
Decommissioning			
86. Radiation doses (decommissioning)	1	4.1	7.3.1/7-15
87. Waste management (decommissioning)	1	4.1	7.3.2/7-19 (impacts) 7.4/7-25 (conclusions)
88. Air quality (decommissioning)	1	4.1	7.3.3/7-21 (air) 7.4/7-25 (conclusion)
89. Water quality (decommissioning)	1	4.1	7.3.4/7-21 (water) 7.4/7-25 (conclusion)
90. Ecological resources (decommissioning)	1	4.1	7.3.5/7-21 (ecological) 7.4/7-25 (conclusion)
91. Socioeconomic impacts (decommissioning)	1	4.1	7.3.7/7-24 (socioeconomic) 7.4/7-25 (conclusion)
Environmental Justice			
92. Environmental justice	NA	2.5.3	NA – Not applicable. The categorization and impact finding definitions do not apply to this issue.

a Source: 10 CFR 51, Subpart A, Appendix A, Table B-1. (Issue numbers added to facilitate discussion.)
b Source: Generic Environmental Impact Statement for License Renewal of Nuclear Plants (NUREG-1437).
NEPA = National Environmental Policy Act.