

### 3.0 Environmental Impacts of Refurbishment

Environmental issues associated with refurbishment activities are discussed in the *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (GEIS), NUREG-1437, Volumes 1 and 2 (NRC 1996; 1999).<sup>(a)</sup> The GEIS includes a determination of whether the analysis of the environmental issues could be applied to all plants and whether additional mitigation measures would be warranted. Issues are then assigned a Category 1 or a Category 2 designation. As set forth in the GEIS, Category 1 issues are those that meet all of the following criteria:

- (1) The environmental impacts associated with the issue have been determined to apply either to all plants or, for some issues, to plants having a specific type of cooling system or other specified plant or site characteristic.
- (2) A single significance level (i.e., SMALL, MODERATE, or LARGE) has been assigned to the impacts (except for collective offsite radiological impacts from the fuel cycle and from high-level waste and spent fuel disposal).
- (3) Mitigation of adverse impacts associated with the issue has been considered in the analysis, and it has been determined that additional plant-specific mitigation measures are likely not to be sufficiently beneficial to warrant implementation.

For issues that meet the three Category 1 criteria, no additional plant-specific analysis is required unless new and significant information is identified.

Category 2 issues are those that do not meet one or more of the criteria for Category 1, and, therefore, additional plant-specific review of these issues is required.

License renewal actions may require refurbishment activities for the extended plant life. These actions may have an impact on the environment that requires evaluation, depending on the type of action and the plant-specific design. Environmental issues associated with refurbishment that were determined to be Category 1 issues are listed in Table 3-1.

Environmental issues related to refurbishment considered in the GEIS for which these conclusions could not be reached for all plants, or for specific classes of plants, are Category 2 issues. These are listed in Table 3-2.

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(a) The GEIS was originally issued in 1996. Addendum 1 to the GEIS was issued in 1999. Hereafter, all references to the "GEIS" include the GEIS and its Addendum 1.

## Environmental Impacts of Refurbishment

**Table 3-1.** Category 1 Issues for Refurbishment Evaluation

<b>ISSUE—10 CFR Part 51, Subpart A, Appendix B, Table B-1</b>	<b>GEIS Section</b>
<b>SURFACE-WATER QUALITY, HYDROLOGY, AND USE (FOR ALL PLANTS)</b>	
Impacts of refurbishment on surface-water quality	3.4.1
Impacts of refurbishment on surface-water use	3.4.1
<b>AQUATIC ECOLOGY (FOR ALL PLANTS)</b>	
Refurbishment	3.5
<b>GROUNDWATER USE AND QUALITY</b>	
Impacts of refurbishment on groundwater use and quality	3.4.2
<b>LAND USE</b>	
Onsite land use	3.2
<b>HUMAN HEALTH</b>	
Radiation exposures to the public during refurbishment	3.8.1
Occupational radiation exposures during refurbishment	3.8.2
<b>SOCIOECONOMICS</b>	
Public services: public safety, social services, and tourism and recreation	3.7.4; 3.7.4.3; 3.7.4.4; 3.7.4.6
Aesthetic impacts (refurbishment)	3.7.8

Category 1 and Category 2 issues related to refurbishment that are not applicable to Surry Power Station, Units 1 and 2, because they are related to plant design features or site characteristics not found at Surry Power Station are listed in Appendix F.

The potential environmental effects of refurbishment actions would be identified, and the analysis would be summarized within this section, if such actions were planned. The Virginia Electric and Power Company (VEPCo) indicated that it has performed an evaluation of structures and components pursuant to 10 CFR 54.21 to identify activities that are necessary to continue operation of Surry Power Station, Units 1 and 2, during the requested 20-year period of extended operation. These activities include replacement of certain components as well as new inspection activities and are described in the VEPCo Environmental Report (ER; VEPCo 2001).

**Table 3-2.** Category 2 Issues for Refurbishment Evaluation

<b>ISSUE—10 CFR Part 51, Subpart A, Appendix B, Table B-1</b>	<b>GEIS Section</b>	<b>10 CFR 51.53 (c)(3)(ii) Subparagraph</b>
<b>TERRESTRIAL RESOURCES</b>		
Refurbishment impacts	3.6	E
<b>THREATENED OR ENDANGERED SPECIES (FOR ALL PLANTS)</b>		
Threatened or endangered species	3.9	E
<b>AIR QUALITY</b>		
Air quality during refurbishment (nonattainment and maintenance areas)	3.3	F
<b>SOCIOECONOMICS</b>		
Housing impacts	3.7.2	I
Public services: public utilities	3.7.4.5	I
Public services: education (refurbishment)	3.7.4.1	I
Offsite land use (refurbishment)	3.7.5	I
Public services, transportation	3.7.4.2	J
Historic and archaeological resources	3.7.7	K
<b>ENVIRONMENTAL JUSTICE</b>		
Environmental justice	Not addressed <sup>(a)</sup>	Not addressed <sup>(a)</sup>
(a) Guidance related to environmental justice was not in place at the time the GEIS and the associated revision to 10 CFR Part 51 were prepared. If an applicant plans to undertake refurbishment activities for license renewal, environmental justice must be addressed in the applicant's environmental report and the staff's environmental impact statement.		

However, VEPCo stated that the replacement of these components and the additional inspection activities are within the bounds of normal plant component replacement and inspections; therefore, they are not expected to affect the environment outside the bounds of plant operations as evaluated in the final environmental statement (AEC 1972a, 1972b). In addition, VEPCo's evaluation of structures and components as required by 10 CFR 54.21 did not identify any major plant refurbishment activities or modifications necessary to support the continued operation of Surry Power Station, Units 1 and 2, beyond the end of the existing operating licenses. Therefore, refurbishment is not considered in this supplemental environmental impact statement.

### 3.1 References

| 10 CFR Part 51. Code of Federal Regulations, Title 10, *Energy*, Part 51, “Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions.”

| 10 CFR Part 54. Code of Federal Regulations, Title 10, *Energy*, Part 54, “Requirements for Renewal of Operating Licenses for Nuclear Power Plants.”

U.S. Atomic Energy Commission (AEC). 1972a. *Final Environmental Statement Related to Operation of Surry Power Station, Unit 1*. Docket No. 50-250, AEC, Washington, D.C.

U.S. Atomic Energy Commission (AEC). 1972b. *Final Environmental Statement Related to Operation of Surry Power Station, Unit 2*. Docket No. 50-281, AEC, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1996. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants*. NUREG-1437, Volumes 1 and 2, NRC, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 1999. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Main Report*, “Section 6.3 – Transportation, Table 9.1, Summary of findings on NEPA issues for license renewal of nuclear power plants, Final Report.” NUREG-1437, Volume 1, Addendum 1, NRC, Washington, D.C.

Virginia Electric and Power Company (VEPCo). 2001. *Application for License Renewal for Surry Power Station, Units 1 and 2*, “Appendix E, Environmental Report - Operating License Renewal Stage.” VEPCo, Richmond, Virginia.