8.0 Environmental Impacts of Alternatives to Operating License Renewal

This chapter examines the potential environmental impacts associated with denying the renewal of the operating licenses (OLs) (i.e., the no-action alternative); the potential environmental impacts from electric generating sources other than Surry Power Station, Units 1 and 2; the possibility of purchasing electric power from other sources to replace power generated by Units 1 and 2 and the associated environmental impacts; the potential environmental impacts from a combination of generation and conservation measures; and other generation alternatives that were deemed unsuitable for replacement of power generated by Units 1 and 2. The environmental impacts are evaluated using the U.S. Nuclear Regulatory Commission's (NRC's) three-level standard of significance—SMALL, MODERATE, or LARGE, as developed using the Council on Environmental Quality guidelines and set forth in a footnote to Table-B-1 of 10 CFR Part 51, Subpart A, Appendix B:

SMALL – Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.

MODERATE – Environmental effects are sufficient to alter noticeably, but not to destabilize important attributes of the resource.

LARGE – Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

The impact categories evaluated in this chapter are the same as those used in the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (GEIS), NUREG-1437, Volumes 1 and 2 (NRC 1996; 1999)[(a)], with the additional impact categories of environmental justice and transportation.

8.1 No-Action Alternative

NRC's regulations implementing the National Environmental Policy Act (NEPA) specify that the no-action alternative be discussed in an NRC environmental impact statement (EIS, see 10 CFR Part 51, Subpart A, Appendix A[4]). For license renewal, the no-action alternative refers to a scenario in which the NRC would not renew the OLs for Surry Power Station, Units 1 and 2, and the Virginia Electric and Power Company (VEPCo) would then decommission

(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.

Units 1 and 2, when plant operations cease. Replacement of Units 1 and 2 electricity generation capacity would be met by (1) demand-side management and energy conservation, (2) power purchased from other electricity providers, (3) generating alternatives other than Units 1 and 2, or (4) some combination of these options. The environmental impacts associated with alternative generation technologies are discussed in Section 8.2.

VEPCo will be required to comply with NRC decommissioning requirements whether or not the OLs are renewed. If the Units 1 and 2 OLs are renewed, decommissioning activities may be postponed for up to an additional 20 years. If the OLs are not renewed, VEPCo would conduct decommissioning activities according to the requirements in 10 CFR 50.82. The GEIS (NRC 1996) and the *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* (NRC 1988) provide descriptions of decommissioning activities.[(a)]

The environmental impacts associated with decommissioning under the no-action alternative would be bounded by the discussion of impacts in Chapter 7 of the GEIS, Chapter 7 of this Supplemental Environmental Impact Statement (SEIS), and the *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* (NRC 1988). The impacts of decommissioning after 60 years of operation are not expected to be significantly different from those occurring after 40 years of operation.

The environmental impacts for the socioeconomic, historic and archaeological resources, and environmental justice impact categories are summarized in Table 8-1 and discussed in the following paragraphs. The no-action alternative would also have certain positive impacts in that adverse environmental impacts associated with current operation of Surry Power Station, for example, solid waste impacts and impacts on aquatic life, would be eliminated.

Table 8-1. Summary of Environmental Impacts of the No-Action Alternative

Impact Category	Impact	Comment
Socioeconomic	LARGE	Decrease in employment, higher-paying jobs, and tax revenues
Historic and Archaeological Resources	SMALL to MODERATE	Land occupied by Units 1 and 2 would likely be retained by VEPCo
Environmental Justice	MODERATE to LARGE	Loss of employment opportunities and social programs

(a) The NRC staff is currently updating the GEIS on decommissioning nuclear facilities. A draft for comment was issued on November 9, 2001 (66 FR 56721) (NRC 2001b). The staff is currently finalizing the draft Supplement for publication as a final document.

- Socioeconomic: When Surry Units 1 and 2 cease operation, there will be a decrease in employment and tax revenues associated with the closure. Employment (primary and secondary) impacts would be concentrated in Surry, James City, and Isle of Wight Counties and the City of Newport News. Approximately 60 percent of the employees who work at Surry Units 1 and 2 live in Surry, James City, and Isle of Wight Counties or the City of Newport News. The remainder live in other nearby locations (VEPCo 2001).

  Most of the tax revenue losses resulting from closure of Surry Units 1 and 2 would occur in Surry County. In 2001, VEPCo paid $10.9 million in property taxes to Surry County for the nuclear and fossil generation units at the Surry Power Station, or about 70 percent of all property taxes collected by the county (VEPCo 2001). The majority of the $10.9 million was attributable to Surry Power Station, Units 1 and 2. The no-action alternative would result in the loss of the taxes attributable to Surry Units 1 and 2 as well as the loss of plant payrolls 20 years earlier than if the OLs were renewed. Loss of the property tax revenue would have a significant negative impact on the ability of Surry County to provide public services such as schools and road maintenance. There would also be an adverse impact on housing values and the local economy in Surry County and surrounding areas if Surry Units 1 and 2 were to cease operations.

  VEPCo employees working at Surry Units 1 and 2 currently contribute time and money toward community involvement, including schools, churches, charities, and other civic activities. It is likely that with a reduced presence in the community following decommissioning, community involvement efforts by VEPCo and its employees in the region would be less. The socioeconomic impacts of this alternative are considered LARGE.

- Historic and Archaeological Resources: The potential for future adverse impacts to known or unrecorded cultural resources at the Surry Power Station following decommissioning of Units 1 and 2 will depend on the future use of the land occupied by the two units. Following decommissioning, land occupied by Units 1 and 2 would likely be retained by VEPCo for other corporate purposes. Eventual sale or transfer of the land occupied by Units 1 and 2, however, could result in adverse impacts to cultural resources if the land-use pattern changes dramatically. Notwithstanding this possibility, the impacts of this alternative on historic and archaeological resources are considered SMALL to MODERATE.

- Environmental Justice for No-Action: Current operations at Surry Units 1 and 2 have no disproportionate impacts on the minority and low-income populations of Surry and surrounding counties, and no environmental pathways have been identified that would cause disproportionate impacts. Closure of Units 1 and 2 would result in decreased

employment opportunities and tax revenues in Surry County and surrounding counties with possible negative and disproportionate impacts on minority or low-income populations. Because the Surry Power Station is located in a relatively rural area, the environmental justice impacts under the no-action alternative are considered MODERATE to LARGE.

Impacts for all other impact categories would be SMALL, as shown in Table 9-1.

8.2 Alternative Energy Sources

This section discusses the environmental impacts associated with alternative sources of electric power to replace the power generated by Surry Units 1 and 2, assuming that the OLs for Units 1 and 2 are not renewed. The order of presentation of alternative energy sources in Section 8.2 does not imply which alternative would be most likely to occur or to have the least environmental impacts. The following generation alternatives are considered in detail:

- coal-fired generation at the Surry Power Station site and at an alternate greenfield[(a)] site (Section 8.2.1)
- natural gas-fired generation at the Surry Power Station site and at an alternate greenfield site (Section 8.2.2)
- nuclear generation at the Surry Power Station site and at an alternate greenfield site (Section 8.2.3).

The alternative of purchasing power from other sources to replace power generated at Surry Units 1 and 2 is discussed in Section 8.2.4. Other power generation alternatives and conservation alternatives considered by the staff and found not to be reasonable replacements for Units 1 and 2 are discussed in Section 8.2.5. Section 8.2.6 discusses the environmental impacts of a combination of generation and conservation alternatives.

Each year, the Energy Information Administration (EIA), a component of the U.S. Department of Energy (DOE), issues an Annual Energy Outlook. In the *Annual Energy Outlook 2002* issued in December 2001 (DOE/EIA 2001a), EIA projects that combined-cycle or combustion turbine technology fueled by natural gas is likely to account for approximately 88 percent of new electric generating capacity between the years 2000 and 2020. Both technologies are designed primarily to supply peak and intermediate capacity, but combined-cycle technology can also be

(a) A greenfield site is assumed to be an undeveloped site with no previous construction.

used to meet baseload[a] requirements. Coal-fired plants are projected by EIA to account for approximately 9 percent of new capacity during this period. Coal-fired plants are generally used to meet baseload requirements. Renewable energy sources, primarily wind, geothermal, and municipal solid waste units, are projected by EIA to account for the remaining 3 percent of capacity additions. EIA's projections are based on the assumption that providers of new generating capacity will seek to minimize cost while meeting applicable environmental requirements. Combined-cycle plants are projected by EIA to have the lowest generation cost in 2005 and 2020, followed by coal-fired plants and then wind generation (DOE/EIA 2001a).

EIA projects that oil-fired plants will account for very little of new generation capacity in the U.S. during the 2000 to 2020 time period because of higher fuel costs and lower efficiencies (DOE/EIA 2001a).

EIA also projects that new nuclear power plants will not account for any new generation capacity in the U.S. during the 2000 to 2020 time period because natural gas and coal-fired plants are projected to be more economical (DOE/EIA 2001a). In spite of this projection, a new nuclear plant alternative for replacing power generated by Surry Units 1 and 2 is considered in Section 8.2.3. Since 1997, the NRC has certified three new standard designs for nuclear power plants under the procedures in 10 CFR Part 52, Subpart B: the U.S. Advanced Boiling Water Reactor (10 CFR Part 52, Appendix A), the System 80+ Design (10 CFR Part 52, Appendix B), and the AP600 Design (10 CFR Part 52, Appendix C). The submission to the NRC of these three applications for certification indicates continuing interest in the possibility of licensing new nuclear power plants. NRC has recently established a New Reactor Licensing Program Organization to prepare for and manage future reactor and site licensing applications (NRC 2001a).

Surry Units 1 and 2 have a combined average net capacity of 1602 megawatts electric (MW[e]). For the coal and natural gas alternatives, VEPCo's Environmental Report (ER) assumes three standard 508-MW(e) units[b] as potential replacements for Units 1 and 2 (VEPCo 2001). The staff used this assumption in their evaluation, although it results in some environmental impacts that are roughly 5 percent lower than if full replacement capacity were constructed. VEPCo's reasoning is that although customized unit sizes can be built, use of standardized sizes is more

(a) A baseload plant normally operates to supply all or part of the minimum continuous load of a system and consequently produces electricity at an essentially constant rate. Nuclear power plants are commonly used for baseload generation, i.e., these units generally run near full load.

(b) Each of the coal-fired units would have a rating of 538 gross MW and 508 net MW. Each of the gas-fired units would have a rating of 528 gross MW and 508 net MW. The difference between "gross" and "net" is the electricity consumed onsite.

economical. Moreover, using four 508-MW(e) units for the analysis would overestimate environmental impacts and tend to make the fossil alternatives less attractive.

8.2.1 Coal-Fired Generation

The coal-fired alternative is analyzed for both the Surry Power Station site and an alternate greenfield site. As discussed in Section 8.2, the staff assumed construction of three 508-MW(e) units.

The VEPCo ER assumes that coal and lime or limestone for a coal-fired plant sited at the Surry Power Station would be delivered by barge to the existing receiving dock (VEPCo 2001). Lime[(a)] (or limestone) is used in the scrubbing process for control of sulfur dioxide (SO_2) emissions. Rail delivery would be the most likely option for delivering coal and lime/limestone to an alternate inland site for the coal-fired plant. Barge delivery of coal and lime/limestone is potentially feasible for a coastal site. A coal slurry pipeline is also a technically feasible delivery option; however, the associated cost and environmental impacts make a slurry pipeline an unlikely transportation alternative. Construction at an alternate site could necessitate the construction of a new transmission line to connect to existing lines and a rail spur to the plant site.

The coal-fired plant would consume approximately 4.4 million MT (4.9 million tons) per year of pulverized bituminous coal with an ash content by weight of approximately 10.7 percent (VEPCo 2001). The ER assumes a heat rate[(b)] of 3 J fuel/J electricity (10,200 Btu/kWh) and a capacity factor[(c)] of 0.85 (VEPCo 2001). After combustion, 99.9 percent of the ash (approximately 474,000 MT/yr [522,000 tons/yr]) would be collected and disposed of at the plant site. In addition, approximately 221,000 MT/yr (244,000 tons/yr) of scrubber sludge would be disposed of at the plant site based on annual lime usage of approximately 76,000 MT (84,000 tons) (VEPCo 2001).

Unless otherwise indicated, the assumptions and numerical values used in Section 8.2.1 are from the VEPCo ER (VEPCo 2001). The staff reviewed this information and compared it to

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(a) In a typical wet scrubber, lime (calcium hydroxide) or limestone (calcium carbonate) is injected as a slurry into the hot effluent combustion gases to remove entrained sulfur dioxide. The lime-based scrubbing solution reacts with sulfur dioxide to form calcium sulfite, which precipitates out and is removed in sludge form.

(b) Heat rate is a measure of generating-station thermal efficiency. In English units, it is generally expressed in British thermal units (Btu) per net kilowatt-hour (kWh). It is computed by dividing the total Btu content of fuel burned for electric generation by the resulting net kWh generation.

(c) The capacity factor is the ratio of electricity generated, for the period of time considered, to the energy that could have been generated at continuous full-power operation during the same period.

environmental impact information in the GEIS. Although the OL renewal period is only 20 years, the impact of operating the coal-fired alternative for 40 years is considered (as a reasonable projection of the operating life of a coal-fired plant).

8.2.1.1 Once-Through Cooling System

For purposes of this SEIS, the staff assumed that a coal-fired plant located at the Surry Power Station would use the existing once-through system as a source of cooling. An alternate greenfield site could use either a closed-cycle or a once-through cooling system.

The overall impacts of the coal-fired generating system are discussed in the following sections and summarized in Table 8-2. The extent of impacts at an alternate site would depend on the location of the particular site selected.

- **Land Use**

  The existing facilities and infrastructure at the Surry Power Station site would be used to the extent practicable, limiting the amount of new construction that would be required. Specifically, the staff assumed that the coal-fired replacement plant alternative would use the existing once-through cooling system, switchyard, offices, and transmission line rights-of-way. Some additional land beyond the current Surry Power Station site boundary may be needed to construct a new coal-fired plant while the existing nuclear Units 1 and 2 continue to operate.

  The coal-fired generation alternative would necessitate converting most of the unused land at the Surry Power Station to industrial use for the plant, coal storage, and landfill disposal of ash, spent selective catalytic reduction catalyst (used for control of nitrogen oxide emissions), and scrubber sludge. VEPCo estimates that ash and scrubber waste disposal over a 40-year plant life would require approximately 172 ha (425 ac) (VEPCo 2001). Additional land-use changes would occur offsite in an undetermined coal-mining area to supply coal for the plant. The GEIS estimated that approximately 8900 ha (22,000 ac) would be affected for mining the coal and disposing of the waste to support a 1000-MW(e) coal plant during its operational life (NRC 1996). A replacement coal-fired plant for Surry Units 1 and 2 would be 1524 MW(e) and would affect proportionately more land. Partially offsetting this offsite land use would be the elimination of the need for uranium mining to supply fuel for Surry Units 1 and 2. The GEIS states that approximately 400 ha (1000 ac) would be affected for mining the uranium and processing it during the operating life of a 1000-MW(e) nuclear power plant (NRC 1996).

Table 8-2. Summary of Environmental Impacts of Coal-Fired Generation at Surry Power Station and an Alternate Greenfield Site Using Once-Through Cooling

	Surry Power Station Site		Alternate Greenfield Site	
Impact Category	**Impact**	**Comments**	**Impact**	**Comments**
Land Use	MODERATE	Uses most of unused portion of Surry Power Station site for plant, infrastructure, and waste disposal. Additional offsite land may also be needed. Additional offsite land impacts for coal and limestone mining.	MODERATE to LARGE	Uses up to 700 ha (1700 ac) for plant and infrastructure; additional land impacts for coal and limestone mining; possible impacts for transmission line and rail spur.
Ecology	MODERATE to LARGE	Uses undeveloped areas at Surry Power Station plus some offsite land. Potential habitat loss and fragmentation and reduced productivity and biological diversity.	MODERATE to LARGE	Impact depends on location and ecology of the site, surface-water body used for intake and discharge, and transmission line route; potential habitat loss and fragmentation; reduced productivity and biological diversity.
Water Use and Quality	SMALL	Uses existing once-through cooling system	SMALL to MODERATE	Impact will depend on the volume of water withdrawn and discharged and the charactenstics of the surface-water body.
Air Quality	MODERATE	Sulfur oxides • 4126 MT/yr (4548 tons/yr) Nitrogen oxides • 1075 MT/yr (1185 tons/yr) Particulates • 237 MT/yr (261 tons/yr) of total suspended particulates which would include 54 MT/yr (60 tons/yr) of PM_{10} Carbon monoxide • 1108 MT/yr (1221 tons/yr) Small amounts of mercury and other hazardous air pollutants and naturally occurring radioactive materials – mainly uranium and thorium	MODERATE	Potentially same impacts as the Surry Power Station site, although pollution control standards may vary.

Table 8-2. (contd)

	Surry Power Station Site		Alternate Greenfield Site	
Impact Category	**Impact**	**Comments**	**Impact**	**Comments**
Waste	MODERATE	Total waste volume would be approximately 700,000 MT/yr (770,000 tons/yr) of ash, spent catalyst, and scrubber sludge requiring approximately 172 ha (425 ac) for disposal during the 40-year life of the plant	MODERATE	Same impacts as Surry Power Station site; waste disposal constraints may vary.
Human Health	SMALL	Impacts are uncertain, but considered SMALL in the absence of more quantitative data.	SMALL	Same impact as Surry Power Station site.
Socioeconomics	SMALL to LARGE	During construction, impacts would be MODERATE to LARGE. Up to 2500 workers during the peak of the 5-year construction period, followed by reduction from current Surry Units 1 and 2 workforce of 990 to 200. Tax base preserved. Impacts during operation would be SMALL. Transportation impacts associated with construction workers could be MODERATE to LARGE. For barge transportation of coal and lime/limestone, the impact is considered SMALL.	SMALL to LARGE	Construction impacts depend on location, but could be LARGE if plant is located in a rural area. Surry County would experience loss of Units 1 and 2 tax base and employment with potentially LARGE impacts. Impacts during operation would be SMALL. Transportation impacts associated with construction workers could be MODERATE to LARGE. For rail transportation of coal and lime/limestone, the impact is considered MODERATE to LARGE. For barge transportation, the impact is considered SMALL.

Table 8-2. (contd)

	Surry Power Station Site		Alternate Greenfield Site	
Impact Category	**Impact**	**Comments**	**Impact**	**Comments**
Aesthetics	MODERATE to LARGE	MODERATE to LARGE aesthetic impact. Exhaust stacks will be visible from the Hog Island Wildlife Management Area, the James River, Chippokes Plantation State Park, and Colonial National Historical Park.	MODERATE to LARGE	Impact would depend on the site selected and the surrounding land features. If needed, a new transmission line or rail spur would add to the aesthetic impact.
		Barge transportation of coal and lime/limestone would have a SMALL aesthetic impact.		Rail transportation of coal and lime/limestone would have a MODERATE aesthetic impact. Barge transportation of coal and lime/limestone would have a SMALL aesthetic impact.
		Noise impact would be SMALL to MODERATE.		Noise impact would be SMALL to MODERATE.
Historic and Archeological Resources	SMALL	Some construction would affect previously developed parts of Surry Power Station site; cultural resource inventory should minimize any impacts on undeveloped lands.	SMALL	Alternate location would necessitate cultural resource studies.
Environmental Justice	MODERATE	Impacts on minority and low-income communities should be similar to those experienced by the population as a whole. Some impacts on housing may occur during construction; loss of 790 operating jobs at Surry Power Station could reduce employment prospects for minority and low-income populations.	MODERATE to LARGE	Impacts at alternate site vary depending on population distribution and makeup at site. Surry County would lose significant revenue, which could have MODERATE to LARGE impacts on minority and low-income populations.

The impact of a coal-fired generating unit on land use at the Surry Power Station site is best characterized as MODERATE. The impact would definitely be greater than the OL renewal alternative.

In the GEIS, NRC staff estimated that a 1000-MW(e) coal-fired plant would require approximately 700 ha (1700 ac) (NRC 1996). It is likely that this acreage would be sufficient for a 1524-MW(e) coal-fired generation alternative at an alternate greenfield site. Additional land could be needed for a transmission line and for a rail spur to the plant site. Depending

particularly on transmission line and rail line routing requirements, this alternative would result in MODERATE to LARGE land-use impacts.

- **Ecology**

  Locating a coal-fired plant at the Surry Power Station site would alter ecological resources because of the need to convert most of the currently unused land at the Station to industrial use for the plant, coal storage, and ash and scrubber sludge disposal. However, some of this land would have been previously disturbed.

  Siting a coal-fired plant at the Surry Power Station would have a MODERATE to LARGE ecological impact that would be greater than renewal of the Units 1 and 2 OLs.

  At an alternate site, the coal-fired generation alternative would introduce construction impacts and new incremental operational impacts. Even assuming siting at a previously disturbed area, the impacts would alter the ecology. Impacts could include wildlife habitat loss, reduced productivity, habitat fragmentation, and a local reduction in biological diversity. Use of cooling makeup water from a nearby surface-water body could have adverse aquatic resource impacts. If needed, construction and maintenance of a transmission line and a rail spur would have ecological impacts. Overall, the ecological impacts at an alternate site would be MODERATE to LARGE.

- **Water Use and Quality**

  The coal-fired generation alternative at the Surry Power Station site is assumed to use the existing once-through cooling system, which would minimize incremental water use and quality impacts. Surface-water impacts are expected to remain SMALL; the impacts would be sufficiently minor that they would not noticeably alter any important attribute of the resource.

  The staff assumed that a coal-fired plant located at the Surry Power Station would obtain potable, process, and fire-protection water from the series of groundwater wells that currently supply Units 1 and 2 (see Section 2.2.2). Use of groundwater for a coal-fired plant at an alternate site is a possibility. Groundwater withdrawal at an alternate site would likely require a permit.

  Some erosion and sedimentation would likely occur during construction (NRC 1996).

For a coal-fired plant located at an alternate site, the impact on the surface water would depend on the discharge volume and the characteristics of the receiving body of water. Intake from and discharge to any surface body of water would be regulated by the Commonwealth of Virginia or another state. The impacts would be SMALL to MODERATE.

- **Air Quality**

The air-quality impacts of coal-fired generation vary considerably from those of nuclear generation due to emissions of sulfur oxides (SO_x), nitrogen oxides (NO_x), particulates, carbon monoxide, hazardous air pollutants such as mercury, and naturally occurring radioactive materials.

Surry County is in the State Capital Intrastate Air Quality Control Region (40 CFR 81.145). Surry County is in compliance with the national ambient air quality standards for particulate matter, carbon monoxide, nitrogen dioxide, lead, sulfur dioxide (SO_2), and ozone (40 CFR 81.347).

A new coal-fired generating plant located at the Surry Power Station would likely need a prevention of significant deterioration (PSD) permit and an operating permit under the Clean Air Act. The plant would need to comply with the performance standards for new plants set forth in 40 CFR Part 60, Subpart Da. The standards establish limits for particulate matter and opacity (40 CFR 60.42a), SO_2 (40 CFR 60.43a), and NO_x (40 CFR 60.44a).

The U.S. Environmental Protection Agency (EPA) has various regulatory requirements for visibility protection in 40 CFR Part 51, Subpart P, including a specific requirement for review of any new major stationary source in an area designated as attainment or unclassified under the Clean Air Act. Surry County is classified as attainment or unclassified for criteria pollutants.[(a)]

Section 169A of the Clean Air Act (42 USC 7401) establishes a national goal of preventing future and remedying existing impairment of visibility in mandatory Class I Federal areas when impairment results from man-made air pollution. EPA issued a new regional haze rule in 1999 (64 FR 35714; July 1,1999 [EPA 1999]). The rule specifies that for each mandatory Class I Federal area located within a state, the state must establish goals that provide for reasonable progress towards achieving natural visibility conditions. The reasonable progress goals must provide for an improvement in visibility for the most-impaired days over

(a) Existing criteria pollutants under the Clean Air Act are ozone, carbon monoxide, particulates, sulfur dioxide, lead, and nitrogen oxide. Ambient air standards for criteria pollutants are set out in 40 CFR Part 50.

the period of the implementation plan and ensure no degradation in visibility for the least impaired days over the same period (40 CFR 51.308[d][1]). If a coal-fired plant were located close to a mandatory Class I area, additional air pollution control requirements could be imposed. However, the closest mandatory Class I Federal areas to Surry Power Station are the Swanquarter Wilderness in eastern North Carolina located approximately 200 km (125 mi) southeast of Surry Power Station, Shenandoah National Park located approximately 225 km (140 mi) northwest of Surry Power Station, and the James River Face Wilderness located approximately 240 km (150 mi) west of Surry Power Station.

In 1998, EPA issued a rule requiring 22 eastern states, including Virginia, to revise their state implementation plans to reduce NO_x emissions (63 FR 49442, EPA 1998). Nitrogen-oxide emissions contribute to violations of the national ambient air quality standard for ozone. The total amount of nitrogen oxides that can be emitted by each of the 22 states in the year 2007 ozone season (May 1 - September 30) is set out at 40 CFR 51.121(e). For Virginia, the amount is 163,470 MT (180,195 tons). Any new coal-fired plant sited in Virginia would be subject to this limitation.

Impacts for particular pollutants are as follows:

Sulfur oxides emissions. VEPCo states in its ER that an alternative coal-fired plant located at the Surry Power Station site would use wet scrubber technology utilizing lime/limestone for flue gas desulfurization (VEPCo 2001).

A new coal-fired power plant would be subject to the requirements in Title IV of the Clean Air Act. Title IV was enacted to reduce emissions of SO_2 and NO_x, the two principal precursors of acid rain, by restricting emissions of these pollutants from power plants. Title IV caps aggregate annual power plant SO_2 emissions and imposes controls on SO_2 emissions through a system of marketable allowances. EPA issues one allowance for each ton of SO_2 that a unit is allowed to emit. New units do not receive allowances, but are required to have allowances to cover their SO_2 emissions. Owners of new units must, therefore, acquire allowances from owners of other power plants by purchase or reduce SO_2 emissions at other power plants they own. Allowances can be banked for use in future years. Thus, a new coal-fired power plant would not add to net regional SO_2 emissions, although it might do so locally. Regardless, SO_2 emissions would be greater for the coal alternative than the OL renewal alternative.
VEPCo estimates that by using the best technology to minimize SO_x emissions, the total annual stack emissions would be approximately 4130 MT (4548 tons) of SO_x (VEPCo 2001).

Nitrogen oxides emissions. Section 407 of the Clean Air Act establishes technology-based emission limitations for NO_x emissions. The market-based allowance system used for SO_2 emissions is not used for NO_x emissions. A new coal-fired power plant would be subject to

the new source performance standards for such plants in 40 CFR 60.44a(d)(1). This regulation, issued on September 16, 1998 (EPA 1998), limits the discharge of any gases that contain nitrogen oxides (expressed as NO_2) in excess of 200 ng/J of gross energy output (1.6 lb/MWh), based on a 30-day rolling average.

VEPCo estimates that by using NO_x burners with overfire air and selective catalytic reduction, the total annual NO_x emissions for a new coal-fired power plant would be approximately 1075 MT (1185 tons) (VEPCo 2001). This level of NO_x emissions would be greater than the OL renewal alternative.

Particulates emissions. VEPCo estimates that the total annual stack emissions would include 237 MT (261 tons) of filterable total suspended particulates (particulates that range in size from less than 0.1 micrometer up to approximately 45 micrometers). The 237 MT would include 54 MT (60 tons) of PM_{10} (particulate matter having an aerodynamic diameter less than or equal to 10 micrometers). Fabric filters or electrostatic precipitators would be used for control. In addition, coal-handling equipment would introduce fugitive particulate emissions. Particulate emissions would be greater under the coal alternative than the OL renewal alternative.

During the construction of a coal-fired plant, fugitive dust would be generated. In addition, exhaust emissions would come from vehicles and motorized equipment used during the construction process.

Carbon monoxide emissions. VEPCo estimates that the total carbon monoxide emissions would be approximately 1110 MT (1221 tons) per year (VEPCo 2001). This level of emissions is greater than the OL renewal alternative.

Hazardous air pollutants emissions, including mercury. In December 2000, EPA issued regulatory findings on emissions of hazardous air pollutants from electric utility steam generating units (65 FR 79825, EPA 2000b). EPA determined that coal- and oil-fired electric utility steam-generating units are significant emitters of hazardous air pollutants. Coal-fired power plants were found by EPA to emit arsenic, beryllium, cadmium, chromium, dioxins, hydrogen chloride, hydrogen fluoride, lead, manganese, and mercury (EPA 2000b). EPA concluded that mercury is the hazardous air pollutant of greatest concern. EPA found that (1) there is a link between coal consumption and mercury emissions, (2) electric utility steam-generating units are the largest domestic source of mercury emissions, and (3) certain segments of the U.S. population (e.g., developing fetuses and subsistence fish-eating populations) are believed to be at potential risk of adverse health effects due to mercury exposures resulting from consumption of contaminated fish (EPA 2000b). Accordingly, EPA added coal- and oil-fired electric utility steam-generating units to the list of

source categories under Section 112(c) of the Clean Air Act for which emission standards for hazardous air pollutants will be issued (EPA 2000b).

Uranium and thorium emissions. Coal contains uranium and thorium. Uranium concentrations are generally in the range of 1 to 10 parts per million. Thorium concentrations are generally about 2.5 times greater than uranium concentrations (Gabbard 1993). One estimate is that a typical coal-fired plant released roughly 4.7 MT (5.2 tons) of uranium and 11.6 MT (12.8 tons) of thorium in 1982 (Gabbard 1993). The population dose equivalent from the uranium and thorium releases and daughter products produced by the decay of these isotopes has been calculated to be significantly higher than that from nuclear power plants (Gabbard 1993).

A coal-fired plant would also have unregulated carbon-dioxide emissions that could contribute to global warming.

Summary. The GEIS analysis did not quantify emissions from coal-fired power plants, but implied that air impacts would be substantial. The GEIS also mentioned global warming from unregulated carbon-dioxide emissions and acid rain from SO_x and NO_x emissions as potential impacts (NRC 1996). Adverse human health effects such as cancer and emphysema have been associated with the products of coal combustion. The appropriate characterization of air impacts from coal-fired generation would be MODERATE. The impacts would be clearly noticeable, but would not destabilize air quality.

Siting a coal-fired generation plant at a site other than Surry Power Station would not significantly change air-quality impacts, although it could result in installing more or less stringent pollution-control equipment to meet applicable local requirements. Therefore, the impacts would be MODERATE.

- **Waste**

Coal combustion generates waste in the form of ash, and equipment for controlling air pollution generates spent selective catalytic reduction (SCR) catalyst, additional ash, and scrubber sludge. Three 508-MW(e) coal-fired units would generate approximately 695,000 MT (766,060 tons) of this waste annually. The waste would be disposed of onsite, accounting for approximately 172 ha (425 ac) of land area over the 40-year plant life. Waste impacts to groundwater and surface water could extend beyond the operating life of the plant if leachate and runoff from the waste storage area occurs. Disposal of the waste could noticeably affect land use and groundwater quality, but with appropriate management and monitoring, it would not destabilize any resources. After closure of the waste site and

revegetation, the land could be available for other uses. Construction-related debris would be generated during construction activities.

In May 2000, EPA issued a Notice of Regulatory Determination on Wastes from the Combustion of Fossil Fuels (65 FR 32214, EPA 2000a). EPA concluded that some form of national regulation is warranted to address coal combustion waste products because (1) the composition of these wastes could present danger to human health and the environment under certain conditions, (2) EPA has identified 11 documented cases of proven damage to human health and the environment by improper management of these wastes in landfills and surface impoundments, (3) present disposal practices are such that, in 1995, these wastes were being managed in 40 to 70 percent of landfills and surface impoundments without reasonable controls in place, particularly in the area of groundwater monitoring, and (4) EPA identified gaps in state oversight of coal combustion wastes. Accordingly, EPA announced its intention to issue regulations for disposal of coal combustion waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA).

For all of the preceding reasons, the appropriate characterization of impacts from waste generated from burning coal is MODERATE; the impacts would be clearly noticeable, but would not destabilize any important resource.

Siting the facility at a site other than the Surry Power Station would not alter waste generation, although other sites might have more constraints on disposal locations. Therefore, the impacts would be MODERATE.

- **Human Health**

Coal-fired power generation introduces worker risks from coal and limestone mining, worker and public risks from coal and lime/limestone transportation, worker and public risks from disposal of coal combustion wastes, and public risks from inhalation of stack emissions. Emission impacts can be widespread and health risks difficult to quantify. The coal alternative also introduces the risk of coal pile fires and attendant inhalation risks.

In the GEIS, the staff stated that there could be human health impacts (cancer and emphysema) from inhalation of toxins and particulates from a coal-fired plant, but did not identify the significance of these impacts (NRC 1996). In addition, the discharges of uranium and thorium from coal-fired plants can potentially produce radiological doses in excess of those arising from nuclear power plant operations (Gabbard 1993).

Regulatory agencies, including EPA and State agencies, set air-emission standards and requirements based on human health impacts. These agencies also impose site-specific

emission limits as needed to protect human health. As discussed previously, EPA has recently concluded that certain segments of the U.S. population (e.g., developing fetuses and subsistence fish-eating populations) are believed to be at potential risk of adverse health effects due to mercury exposures from sources such as coal-fired power plants. However, in the absence of more quantitative data, human health impacts from radiological doses and inhaling toxins and particulates generated by burning coal are characterized as SMALL.

- **Socioeconomics**

Construction of the coal-fired alternative would take approximately 5 years. The staff assumed that construction would take place while Surry Units 1 and 2 continue operation and would be completed by the time Units 1 and 2 permanently cease operations. The workforce would be expected to vary between 1200 and 2500 workers during the 5-year construction period (NRC 1996). These workers would be in addition to the approximately 990 workers employed at Units 1 and 2. During construction of the new coal-fired plant, communities near the Surry Power Station would experience demands on housing and public services that could have MODERATE to LARGE impacts. These impacts would be tempered by construction workers commuting to the site from more distant cities such as Hampton, Norfolk, Chesapeake, Portsmouth, and Virginia Beach. After construction, the nearby communities would be impacted by the loss of the construction jobs. VEPCo estimates that the completed coal plant would employ approximately 200 workers (VEPCo 2001).

If the coal-fired replacement plant were constructed at the Surry Power Station site and Units 1 and 2 were decommissioned, there would be a loss of approximately 790 permanent high-paying jobs (from 990 for the two nuclear units down to 200 for the coal-fired plant), with a commensurate reduction in demand on socioeconomic resources and contribution to the regional economy. The coal-fired plants would provide a new tax base to offset the loss of tax base associated with decommissioning of the nuclear units. For all of these reasons, the appropriate characterization of nontransportation socioeconomic impacts for an operating coal-fired plant constructed at the Surry Power Station site would be MODERATE. The socioeconomic impacts would be noticeable, but would be unlikely to destabilize the area.

During the 5-year construction period of replacement coal-fired units, up to 2500 construction workers would be working at the site in addition to the 990 workers at Units 1 and 2. The addition of these workers could place significant traffic loads on existing highways near the Surry Power Station. Such impacts would be MODERATE to LARGE.

For transportation related to commuting of plant-operating personnel, the impacts are considered SMALL. The maximum number of plant-operating personnel would be approximately 200. The current Surry Units 1 and 2 workforce is approximately 990. Therefore, traffic impacts associated with plant personnel commuting to a coal-fired plant would be expected to be SMALL compared to the current impacts from Unit 1 and 2 operations.

Barge delivery of coal and lime/limestone to the Surry Power Station would likely have SMALL socioeconomic impacts.

Construction of a replacement coal-fired power plant at an alternate greenfield site would relocate some socioeconomic impacts, but would not eliminate them. The communities around Surry Power Station would experience the impact of Surry Units 1 and 2 operational job loss and Surry County would lose a significant tax base. These losses would have potentially LARGE socioeconomic impacts. Communities around the new site would have to absorb the impacts of a large, temporary workforce (up to 2500 workers at the peak of construction) and a permanent workforce of approximately 200 workers. In the GEIS, the staff stated that socioeconomic impacts at a rural site would be larger than at an urban site because more of the peak construction workforce would need to move to the area to work (NRC 1996). Alternate sites would need to be analyzed on a case-by-case basis. Socioeconomic impacts at a rural site could be LARGE. Transportation-related impacts associated with commuting construction workers at an alternate site are site-dependent, but could be MODERATE to LARGE. Transportation impacts related to commuting of plant-operating personnel would also be site-dependent, but can be characterized as SMALL to MODERATE.

At an alternate greenfield site, coal and lime/limestone would likely be delivered by rail, although barge delivery is feasible for a coastal location. Transportation impacts would depend upon the site location. For the rail delivery option, coal would likely be delivered by rail trains of approximately 115 cars each. Each open-top rail car holds about 90 MT (100 tons) of coal. Additional rail cars would be needed for lime/limestone delivery. In all, approximately 440 trains per year would deliver the coal and lime/limestone for the three units. An average of roughly 17 train trips per week on the rail spur would be needed because for each full train delivery, there would be an empty return train. On several days per week, there could be three trains per day using the rail spur to the alternate site. Socioeconomic impacts associated with rail transportation, such as delays at rail crossings, would likely be MODERATE to LARGE. Barge delivery of coal and lime/limestone would likely have SMALL socioeconomic impacts.

- **Aesthetics**

The three coal-fired power plant units could be as much as 60 m (200 ft) tall and be visible in daylight hours over many miles. The three exhaust stacks would be as much as 185 m (600 ft) high (VEPCo 2001). Given the low elevation at the site and of the surrounding land, the stacks would likely be highly visible in daylight hours for distances up to 16 km (10 mi). The stacks would be visible from the Hog Island Wildlife Management Area, the James River, Chippokes Plantation State Park, and Colonial National Historical Park, particularly the historic Jamestown portion of the park. The plant units and associated stacks would also be visible at night because of outside lighting. Visual impacts of a new coal-fired plant could be mitigated by landscaping and color selection for buildings that is consistent with the environment. Visual impact at night could be mitigated by reduced use of lighting and appropriate use of shielding.

The aesthetic impact of the replacement coal-fired units on visitors to the historic Jamestown portion of Colonial National Historical Park would be particularly significant. Given the environmental sensitivity of the park and the associated expectations of visitors to national parks, the addition of the coal-fired units and the associated exhaust stacks would likely have a MODERATE to LARGE aesthetic impact.

Coal-fired generation would introduce mechanical sources of noise that would be audible offsite. Sources contributing to total noise produced by plant operation are classified as continuous or intermittent. Continuous sources include the mechanical equipment associated with normal plant operations. Intermittent sources include the equipment related to coal handling, solid-waste disposal, transportation related to coal and lime/limestone delivery, use of outside loudspeakers, and the commuting of plant employees. The incremental noise impacts of a coal-fired plant compared to existing Surry Units 1 and 2 operations are considered to be SMALL to MODERATE given the rural location of the plant.

Noise associated with barge transportation of coal and lime/limestone would be SMALL.

At an alternate greenfield site, there would be an aesthetic impact from the buildings and exhaust stacks. There would be an aesthetic impact that could be LARGE if construction of a new transmission line and/or rail spur is needed. Noise impacts associated with rail delivery of coal and lime/limestone would be most significant for residents living in the vicinity of the facility and along the rail route. Although noise from passing trains significantly raises noise levels near the rail corridor, the short duration of the noise reduces the impact. Nevertheless, given the frequency of train transport and the fact that many people are likely to be within hearing distance of the rail route, the impact of noise on residents in the vicinity of the facility and the rail line is considered MODERATE. Noise and

light from the plant would be detectable offsite. Aesthetic impacts at the plant site would be mitigated if the plant were located in an industrial area adjacent to other power plants. Overall, the aesthetic impacts associated with locating at an alternate site can be categorized as MODERATE to LARGE.

- **Historic and Archaeological Resources**

  At the Surry Power Station site or an alternate site, a cultural resource inventory would likely be needed for any onsite property that has not been previously surveyed. Other lands, if any, that are acquired to support the plant would also likely need an inventory of field cultural resources, identification and recording of existing historic and archaeological resources, and possible mitigation of adverse effects from subsequent ground-disturbing actions related to physical expansion of the plant site.

  Before construction at Surry Power Station or an alternate greenfield site, studies would likely be needed to identify, evaluate, and address mitigation of the potential impacts of new plant construction on cultural resources. The studies would likely be needed for all areas of potential disturbance at the proposed plant site and along associated corridors where new construction would occur (e.g., roads, transmission corridors, rail lines, or other rights-of-way). Historic and archaeological resource impacts can generally be effectively managed and as such are considered SMALL.

- **Environmental Justice**

  No environmental pathways or locations have been identified that would result in disproportionately high and adverse environmental impacts on minority and low-income populations if a replacement coal-fired plant were built at the Surry Power Station site. Some impacts on housing availability and prices during construction might occur, and this could disproportionately affect minority and low-income populations. Closure of Surry Units 1 and 2 would result in a decrease in employment of approximately 790 operating employees. Resulting economic conditions could reduce employment prospects for minority or low-income populations. Overall, impacts are expected to be MODERATE.

  Impacts at other sites would depend upon the site chosen and the nearby population distribution. If a replacement coal-fired plant were constructed at an alternate site, Surry County would experience a significant loss of property tax revenue, which would affect the County's ability to provide services and programs. Impacts to minority and low-income populations in Surry County could be MODERATE to LARGE.

8.2.1.2 Closed-Cycle Cooling System

The environmental impacts of constructing a coal-fired generation system at an alternate greenfield site using closed-cycle cooling with cooling towers are essentially the same as the impacts for a coal-fired plant using the once-through system. However, there are some environmental differences between the closed-cycle and once-through cooling systems. Table 8-3 summarizes the incremental differences.

8.2.2 Natural Gas-Fired Generation

The environmental impacts of the natural gas-fired alternative are examined in this section for both the Surry Power Station site and an alternate greenfield site. For the Surry Power Station site, the staff assumed that the plant would use the existing once-through cooling system.

The Surry Power Station site is currently served by natural gas pipelines from Newport News that pass under the James River (VEPCo 2001). The pipelines enter the VEPCo property near the cooling water intake structure. VEPCo assumes that construction of replacement natural gas-fired units at the Surry Power Station site would require a new dedicated high-pressure 61-cm (24-in.) diameter pipeline from Danville, Virginia (VEPCo 2001). Danville is approximately 238 km (148 mi) from the Surry Power Station. VEPCo also states in its ER that in the winter, when demand for natural gas is high, it may become necessary for a replacement natural gas- fired plant to operate on fuel oil due to a lack of gas supply (VEPCo 2001). Operation with oil would result in more stack emissions.

If a new natural gas-fired plant were built elsewhere to replace Surry Units 1 and 2, a new transmission line could need to be constructed to connect to existing lines. In addition, construction or upgrade of a natural gas pipeline from the plant to a supply point where a firm supply of gas would be available could be needed. One potential source of natural gas is liquefied natural gas (LNG) imported to either the Cove Point facility in Maryland or the Elba Island facility in Georgia. Both facilities are expected to be reactivated in 2002 (DOE/EIA 2001a). LNG imported to either facility would need to be vaporized and transported to the plant location via pipeline.

The staff assumed that a replacement natural gas-fired plant would use combined-cycle combustion turbines (VEPCo 2001). In a combined-cycle unit, hot combustion gases in a combustion turbine rotate the turbine to generate electricity. Waste combustion heat from the combustion turbine is routed through a heat-recovery boiler to make steam to generate additional electricity.

Table 8-3. Summary of Environmental Impacts of Coal-Fired Generation at an Alternate Greenfield Site with Closed-Cycle Cooling System Utilizing Cooling Towers

Impact Category	Change in Impacts from Once-Through Cooling System
Land Use	Requires 10-12 additional ha (25-30 ac) for cooling towers and associated infrastructure.
Ecology	Impact would depend on ecology at the site. Additional impact to terrestrial ecology from cooling tower drift. Reduced impact to aquatic ecology.
Surface Water Use and Quality	Discharge of cooling tower blowdown containing dissolved solids. Discharge would be regulated by the State. Decreased water withdrawal and less thermal load on receiving body of water. Consumptive use of water due to evaporation.
Groundwater Use and Quality	No change
Air Quality	No change
Waste	No change
Human Health	No change
Socioeconomics	No change
Aesthetics	Introduction of cooling towers and associated plumes. Natural draft towers could be up to 158 m (520 ft) high. Mechanical draft towers could be up to 30 m (100 ft) high and also have an associated noise impact.
Historic and Archaeological Resources	No change
Environmental Justice	No change

The following additional assumptions are made for the natural gas-fired plants (VEPCo 2001):

- three 508-MW(e) units, each consisting of two 168-MW combustion turbines and a 172-MW heat recovery boiler
- natural gas with an average heating value of 39 MJ/m^3 (1059 Btu/ft^3) as the primary fuel
- use of low-sulfur number 2 fuel oil as backup fuel
- heat rate of 2 J fuel/J electricity (6700 Btu/kWh)
- capacity factor of 0.85
- gas consumption of 2.11 billion m^3/yr (74.7 billion ft^3/yr).

Unless otherwise indicated, the assumptions and numerical values used in Section 8.2.2 are from the VEPCo ER. The staff reviewed this information and compared it to environmental impact information in the GEIS. Although the OL renewal period is only 20 years, the impact of operating the natural gas-fired alternative for 40 years is considered (as a reasonable projection of the operating life of a natural gas-fired plant).

8.2.2.1 Once-Through Cooling System

The overall impacts of the natural gas-generating system are discussed in the following sections and summarized in Table 8-4. The extent of impacts at an alternate greenfield site will depend on the location of the particular site selected.

- **Land Use**

  For siting at the Surry Power Station, existing facilities and infrastructure would be used to the extent practicable, limiting the amount of new construction that would be required. Specifically, the staff assumed that the natural gas-fired replacement plant alternative would use the existing once-through cooling system, switchyard, offices, and transmission line rights-of-way. For Surry Power Station, the staff assumed that approximately 14 ha (35 ac) would be needed for the plant and associated infrastructure. There would be an additional land use impact of up to approximately 1200 ha (3000 ac) for construction of a natural gas pipeline adjacent to existing previously disturbed pipeline easements (VEPCo 2001).

Table 8-4. Summary of Environmental Impacts of Natural Gas-Fired Generation at Surry Power Station and an Alternate Greenfield Site Using Once-Through Cooling

	Surry Power Station Site		Alternate Greenfield Site	
Impact Category	**Impact**	**Comments**	**Impact**	**Comments**
Land Use	MODERATE to LARGE	14 ha (35 ac) for powerblock, roads, and parking areas. Additional impact of up to approximately 1200 ha (3000 ac) for construction of an underground gas pipeline.	MODERATE to LARGE	45 ha (110 ac) for power-block, offices, roads, switchyard, and parking areas. Additional land possibly impacted for transmission line and/or natural gas pipeline.
Ecology	MODERATE to LARGE	Uses undeveloped areas at Surry Power Station plus land for a new gas pipeline.	MODERATE to LARGE	Impact depends on location and ecology of the site, surface water body used for intake and discharge, and possible transmission and pipeline routes; potential habitat loss and fragmentation; reduced productivity and biological diversity.
Water Use and Quality	SMALL	Uses existing once-through cooling system.	SMALL to MODERATE	Impact depends on volume of water withdrawal and discharge and charactenstics of surface water body.
Air Quality	MODERATE	Sulfur oxides • 122 MT/yr (134 tons/yr) Nitrogen oxides • 459 MT/yr (506 tons/yr) Carbon monoxide • 602 MT/yr (664 tons/yr) PM_{10} particulates • 180 MT/yr (198 tons/yr) Some hazardous air pollutants	MODERATE	Same emissions as Surry Power Station site.
Waste	SMALL	The only significant waste would be spent SCR catalyst used for control of NO_x emissions.	SMALL	The only significant waste would be spent SCR catalyst used for control of NO_x emissions.
Human Health	SMALL	Impacts considered to be minor.	SMALL	Impacts considered to be minor.

Table 8-4. (contd)

	Surry Power Station Site		Alternate Greenfield Site	
Impact Category	**Impact**	**Comments**	**Impact**	**Comments**
Socioeconomics	MODERATE	During construction, impacts would be MODERATE. Up to 1200 additional workers during the peak of the 3-year construction period, followed by reduction from current Surry Units 1 and 2 workforce of 990 to 150; tax base preserved. Impacts during operation would be SMALL. Transportation impacts associated with construction workers would be MODERATE.	MODERATE to LARGE	During construction, impacts would be MODERATE. Up to 1200 additional workers during the peak of the 3-year construction period. Surry County would experience loss of Units 1 and 2 tax base and employment associated with Units 1 and 2 with potentially LARGE associated impacts. Transportation impacts associated with construction workers would be MODERATE.
Aesthetics	MODERATE	MODERATE aesthetic impact due to impact of plant units and stacks on environmentally sensitive Colonial National Historical Park.	SMALL to LARGE	SMALL to MODERATE impact from plant and stacks. Additional impact that could be LARGE if a new transmission line is needed.
Historic and Archeological Resources	SMALL	Any potential impacts can likely be effectively managed.	SMALL	Same as Surry Power Station site; any potential impacts can likely be effectively managed.
Environmental Justice	MODERATE	Impacts on minority and low-income communities should be similar to those experienced by the population as a whole. Some impacts on housing may occur during construction; loss of 840 operating jobs at Surry Power Station could reduce employment prospects for minority and low-income populations.	MODERATE to LARGE	Impacts at alternate site vary depending on population distribution and makeup at site. Surry County would lose significant revenue, which could have MODERATE to LARGE impacts on minority and low-income populations.

For construction at an alternate greenfield site, the staff assumed that 45 ha (110 ac) would be needed for the plant and associated infrastructure (NRC 1996). Additional land could be impacted for construction of a transmission line and/or natural gas pipeline to serve the plant.

For any new natural gas-fired plant, additional land would be required for natural gas wells and collection stations. In the GEIS the staff estimated that approximately 1500 ha (3600 ac) would be needed for a 1000-MW(e) plant (NRC 1996). A replacement gas-fired plant for Surry Units 1 and 2 would be 1524 MW(e) and would affect proportionately more land. Partially offsetting these offsite land requirements would be the elimination of the need for uranium mining to supply fuel for Units 1 and 2. The NRC staff states in the GEIS (NRC 1996) that approximately 400 ha (1000 ac) would be affected for mining the uranium and processing it during the operating life of a 1000-MW(e) nuclear power plant. Overall, land-use impacts at both the Surry Power Station and an alternate greenfield location would be MODERATE to LARGE.

- **Ecology**

At the Surry Power Station site, there would be ecological land-related impacts for siting of the gas-fired plant. There would also be significant ecological impacts associated with bringing a new underground gas pipeline to the Surry Power Station site. Ecological impacts at an alternate site would depend on the nature of the land converted for the plant and the possible need for a new transmission line and/or gas pipeline. Construction of a transmission line and a gas pipeline to serve the plant would be expected to have temporary ecological impacts. Ecological impacts to the plant site and utility easements could include impacts on threatened or endangered species, wildlife habitat loss and reduced productivity, habitat fragmentation, and a local reduction in biological diversity. At an alternate site, the cooling makeup water intake and discharge could have aquatic resource impacts. Overall, the ecological impacts are considered MODERATE to LARGE at either location.

- **Water Use and Quality**

Each of the natural gas-fired units would include a heat-recovery boiler from which steam would turn an electric generator. Steam would be condensed and circulated back to the boiler for reuse. A natural gas-fired plant sited at Surry Power Station is assumed to use the existing once-through cooling system.

The staff assumed that a natural gas-fired plant located at the Surry Power Station would obtain potable, process, and fire-protection water from the series of groundwater wells that currently supply Units 1 and 2 (see Section 2.2.2). It is possible that a natural gas-fired plant sited at an alternate site could use groundwater. Groundwater withdrawal at an alternate site would likely require a permit. Groundwater withdrawal impacts are considered SMALL.

For alternate sites, the impact on the surface water would depend on the discharge volume and the characteristics of the receiving body of water. Intake from and discharge to any surface body of water would be regulated by the State. A natural gas-fired plant sited at an alternate site may use groundwater.

Water-quality impacts from sedimentation during construction of a natural gas-fired plant were characterized in the GEIS as SMALL (NRC 1996). The staff also noted in the GEIS that operational water quality impacts would be similar to, or less than, those from other generating technologies.

Overall, water-use and quality impacts at an alternate site are considered SMALL to MODERATE.

- **Air Quality**

Natural gas is a relatively clean-burning fuel. The gas-fired alternative would release similar types of emissions, but in lesser quantities than the coal-fired alternative. A new combined-cycle natural gas power plant would be subject to the new source performance standards for such units in 40 CFR 60 Subpart Da. Subpart Da establishes emission limits for particulates, opacity, SO_2, and NO_x. A new gas-fired plant would also be subject to the visibility and NO_x emission reduction provisions discussed in Section 8.2.1.

VEPCo projects the following emissions for the natural gas-fired alternative (VEPCo 2001):

Sulfur oxides - 122 MT/yr (134 tons/yr)
Nitrogen oxides - 459 MT/yr (506 tons/yr)
Carbon monoxide - 602 MT/yr (664 tons/yr)
PM_{10} particulates - 180 MT/yr (198 tons/yr)

A natural gas-fired plant would also have unregulated carbon dioxide emissions that could contribute to global warming.

In December 2000, EPA issued regulatory findings on emissions of hazardous air pollutants from electric utility steam-generating units. Natural gas-fired power plants were found by EPA to emit arsenic, formaldehyde, and nickel (EPA 2000b). Unlike coal- and oil-fired plants, however, EPA did not determine that regulation of emissions of hazardous air pollutants from natural gas-fired power plants should be regulated under Section 112 of the Clean Air Act.

Construction activities would result in temporary fugitive dust. Exhaust emissions would also come from vehicles and motorized equipment used during the construction process.

The preceding emissions would likely be the same at the Surry Power Station or at an alternate site. Impacts from the above emissions would be clearly noticeable, but would not be sufficient to destabilize air resources as a whole. The overall air-quality impact for a new natural gas-generating plant sited at the Surry Power Station or at an alternate site is considered MODERATE.

- **Waste**

The only significant waste generated at a natural gas-fired plant would be small amounts of spent SCR catalyst, which is used for control of NO_x emissions. In the GEIS, the staff concluded that waste generation from gas-fired technology would be minimal (NRC 1996). Gas firing results in very few combustion by-products because of the clean nature of the fuel. Other than spent SCR catalyst, waste generation at an operating gas-fired plant would be largely limited to typical office wastes. Construction-related debris would be generated during construction activities. Overall, the waste impacts would be SMALL for a natural gas-fired plant sited at the Surry Power Station or at an alternate site.

In the winter, it may become necessary for a replacement baseload natural gas-fired plant to operate on fuel oil due to lack of gas supply. Number 2 fuel oil would be used. Combustion of number 2 fuel oil does not produce any appreciable solid waste. Overall, the waste impacts associated with fuel oil combustion at a combined cycle plant are expected to be SMALL.

- **Human Health**

In the GEIS, the staff identifies cancer and emphysema as potential health risks from gas-fired plants (NRC 1996). The risk may be attributable to NO_x emissions that contribute to ozone formation, which in turn contribute to health risks. For any gas-fired plant, NO_x emissions would be regulated. Human health effects are not expected to be detectable or sufficiently minor that they would neither destabilize nor noticeably alter any important attribute of the resource. Overall, the impacts on human health of the natural gas-fired alternative sited at the Surry Power Station or at an alternate site are considered SMALL.

- **Socioeconomics**

Construction of a natural gas-fired plant would take approximately 3 years. Peak employment could be up to 1200 workers (NRC 1996). The staff assumed that construction

would take place while Units 1 and 2 continue operation and would be completed by the time they permanently cease operations. During construction, the communities surrounding the Surry Power Station site would experience demands on housing and public services that could have MODERATE impacts. These impacts would be tempered by construction workers commuting to the site from more distant cities such as Hampton, Norfolk, Chesapeake, Portsmouth, and Virginia Beach. After construction, the communities would be impacted by the loss of jobs. The current Units 1 and 2 workforce (990 workers) would decline through a decommissioning period to a minimal maintenance size. The new natural gas-fired plant would replace the nuclear tax base at Surry Power Station or provide a new tax base at an alternate site and approximately 150 permanent jobs. Siting at an alternate site would result in the loss of the nuclear tax base and associated employment in Surry County with potentially LARGE socioeconomic impacts.

In the GEIS (NRC 1996), the staff concluded that socioeconomic impacts from constructing a natural gas-fired plant would not be very noticeable and that the small operational workforce would have the lowest socioeconomic impacts of any nonrenewable technology. Compared to the coal-fired and nuclear alternatives, the smaller size of the construction workforce, the shorter construction time frame, and the smaller size of the operations workforce would mitigate socioeconomic impacts.

Transportation impacts associated with construction and operating personnel commuting to the plant site would depend on the population density and transportation infrastructure in the vicinity of the site. The impacts can be classified as MODERATE for siting at Surry Power Station or at an alternate site.

Overall, socioeconomic impacts resulting from construction of a natural gas-fired plant at Surry Power Station would be MODERATE. For construction at an alternate site, socioeconomic impacts would be MODERATE to LARGE.

- **Aesthetics**

  The turbine buildings and stacks (approximately 60 m [200 ft] tall) would be visible during daylight hours from offsite. The gas-pipeline compressors would also be visible. Noise and light from the plant would be detectable offsite. At the Surry Power Station site, these impacts would result in a MODERATE aesthetic impact given the environmental sensitivity of Colonial National Historical Park and the expectations of visitors to national parks.

  At an alternate site, the buildings and stacks would be visible offsite. If a new transmission line is needed, the aesthetic impact could be LARGE. Aesthetic impacts would be mitigated if the plant were located in an industrial area adjacent to other power plants. Overall, the

aesthetic impacts associated with a replacement natural gas-fired plant at an alternate site are categorized as SMALL to LARGE with site-specific factors determining the final categorization.

- **Historic and Archaeological**

  At both Surry Power Station and an alternate site, a cultural resource inventory would likely be needed for any onsite property that has not been previously surveyed. Other lands, if any, that are acquired to support the plant would also likely need an inventory of field cultural resources, identification and recording of existing historic and archaeological resources, and possible mitigation of adverse effects from subsequent ground-disturbing actions related to physical expansion of the plant site.

  Before construction at Surry Power Station or an alternate site, studies would likely be needed to identify, evaluate, and address mitigation of the potential impacts of new plant construction on cultural resources. The studies would likely be needed for all areas of potential disturbance at the proposed plant site and along associated corridors where new construction would occur (e.g., roads, transmission and pipeline corridors, or other rights-of-way). Impacts to cultural resources can be effectively managed under current laws and regulations and kept SMALL.

- **Environmental Justice**

  No environmental pathways or locations have been identified that would result in disproportionately high and adverse environmental impacts on minority and low-income populations if a replacement natural gas-fired plant were built at the Surry Power Station. Some impacts on housing availability and prices during construction might occur, and this could disproportionately affect minority and low-income populations. Closure of Surry Units 1 and 2 would result in a decrease in employment of approximately 840 operating employees, possibly offset by general growth in the immediate area. Resulting economic conditions could reduce employment prospects for minority or low-income populations. Overall, impacts are expected to be MODERATE.

  Impacts at an alternate site would depend upon the site chosen and the nearby population distribution. If a replacement natural gas-fired plant were constructed at an alternate site, Surry County would experience a significant loss of property tax revenue which would affect the County's ability to provide services and programs. Impacts to minority and low-income populations in Surry County could be MODERATE to LARGE.

8.2.2.2 Closed-Cycle Cooling System

The environmental impacts of constructing a natural gas-fired generation system at an alternate location using a closed-cycle cooling system with cooling towers are essentially the same as the impacts for a natural gas-fired plant using once-through cooling. However, there are some environmental differences between the closed-cycle and once-through cooling systems. Table 8-5 summarizes the incremental differences.

8.2.3 Nuclear Power Generation

Since 1997, the NRC has certified three new standard designs for nuclear power plants under 10 CFR Part 52, Subpart B. These designs are the U.S. Advanced Boiling Water Reactor (10 CFR Part 52, Appendix A), the System 80+ Design (10 CFR Part 52, Appendix B), and the AP600 Design (10 CFR Part 52, Appendix C). All of these plants are light-water reactors. Although no applications for a construction permit or a combined license based on these certified designs have been submitted to NRC, the submission of the design certification applications indicates continuing interest in the possibility of licensing new nuclear power plants. In addition, recent volatility in prices of natural gas and electricity have made new nuclear power plant construction more attractive from a cost standpoint. Consequently, construction of a new nuclear power plant at the Surry Power Station site using the existing once-through cooling system and at an alternate greenfield site using both closed- and open-cycle cooling are considered in this section. The staff assumed that the new nuclear plant would have a 40-year lifetime.

NRC has summarized environmental data associated with the uranium fuel cycle in Table S-3 of 10 CFR 51.51. The impacts shown in Table S-3 are representative of the impacts that would be associated with a replacement nuclear power plant built to one of the certified designs sited at the Surry Power Station or an alternate site. The impacts shown in Table S-3 are for a 1000-MW(e) reactor and would need to be adjusted to reflect replacement of Units 1 and 2, which have a capacity of 1602 MW(e). The environmental impacts associated with transporting fuel and waste to and from a light-water-cooled nuclear power reactor are summarized in Table S-4 of 10 CFR 51.52. The summary of NRC's findings on NEPA issues for license renewal of nuclear power plants in Table B-1 of 10 CFR Part 51, Subpart A, Appendix B, is also relevant, although not directly applicable, for consideration of environmental impacts associated with the operation of a replacement nuclear power plant. Additional environmental impact information for a replacement nuclear power plant using once-through cooling is presented in Section 8.2.3.1 and using closed-cycle cooling in Section 8.2.3.2.

Table 8-5. Summary of Environmental Impacts of Natural Gas-Fired Generation at an Alternate Greenfield Site with Closed-Cycle Cooling Utilizing Cooling Towers

Impact Category	Change in Impacts from Once-Through Cooling System
Land Use	Required 10-12 additional ha (25-30 ac) for cooling towers and associated infrastructure.
Ecology	Impact would depend on ecology at the site. Additional impact to terrestrial ecology from cooling tower drift. Reduced impact to aquatic ecology.
Surface Water Use and Quality	Discharge of cooling tower blowdown containing dissolved solids. Discharge would be regulated by the State. Decreased water withdrawal and less thermal load on receiving body of water. Consumptive use of water due to evaporation from cooling towers.
Groundwater Use and Quality	No change
Air Quality	No change
Waste	No change
Human Health	No change
Socioeconomics	No change
Aesthetics	Introduction of cooling towers and associated plume. Possible noise impact from operation of cooling towers.
Historic and Archaeological Resources	No change
Environmental Justice	No change

8.2.3.1 Once-Through Cooling System

The overall impacts of the nuclear generating system are discussed in the following sections. The impacts are summarized in Table 8-6. The extent of impacts at an alternate greenfield site will depend on the location of the particular site selected.

- **Land Use**

  The existing facilities and infrastructure at the Surry Power Station site would be used to the extent practicable, limiting the amount of new construction that would be required. Specifically, the staff assumed that a replacement nuclear power plant would use the existing cooling system, switchyard, offices, and transmission line rights-of-way.

  A replacement nuclear power plant at Surry Power Station would require approximately 200 ha (500 ac), some of which may be previously undeveloped land. There would be no net change in land needed for uranium mining because land for the new nuclear plant would offset land needed to supply uranium for fuel for Units 1 and 2.

  The impact of a replacement nuclear generating plant on land use at the Surry Power Station site is best characterized as MODERATE. The impact would be greater than the OL renewal alternative.

  Land-use requirements at an alternate site would be approximately 200-400 ha (500-1000 ac) plus the possible need for a new transmission line (NRC 1996). In addition, it may be necessary to construct a rail spur to an alternate site to bring in equipment during construction. Depending particularly on transmission line routing, siting a new nuclear plant at an alternate site could result in MODERATE to LARGE land-use impacts.

- **Ecology**

  Locating a replacement nuclear power plant at the Surry Power Station site would alter ecological resources because of the need to convert land to an industrial use. Some of this land, however, would have been previously disturbed.

  Siting at the Surry Power Station would have a MODERATE ecological impact that would be greater than renewal of the Units 1 and 2 OLs.

  At an alternate site, there would be construction impacts and new incremental operational impacts. Even assuming siting at a previously disturbed area, the impacts would alter the

Table 8-6. Summary of Environmental Impacts of New Nuclear Generation at Surry Power Station and an Alternate Greenfield Site Using Once-Through Cooling

	Surry Power Station Site		Alternate Greenfield Site	
Impact Category	**Impact**	**Comments**	**Impact**	**Comments**
Land Use	MODERATE	Requires approximately 200 ha (500 ac) for the plant	MODERATE to LARGE	Requires approximately 200-400 ha (500-1000 ac) for the plant. Possible additional land if a new transmission line is needed.
Ecology	MODERATE	Uses undeveloped areas at current Surry Power Station site plus additional offsite land. Potential habitat loss and fragmentation and reduced productivity and biological diversity on offsite land.	MODERATE to LARGE	Impact depends on location and ecology of the site, surface-water body used for intake and discharge, and transmission line route; potential habitat loss and fragmentation; reduced productivity and biological diversity.
Water Use and Quality	SMALL	Uses existing once-through cooling system	SMALL to MODERATE	Impact will depend on the volume of water withdrawn and discharged and the characteristics of the surface water body.
Air Quality	SMALL	Fugitive emissions and emissions from vehicles and equipment during construction. Small amount of emissions from diesel generators and possibly other sources during operation.	SMALL	Same impacts as Surry Power Station site
Waste	SMALL	Waste impacts for an operating nuclear power plant are set out in 10 CFR Part 51, Appendix B, Table B-1. Debris would be generated and removed during construction.	SMALL	Same impacts as Surry Power Station site
Human Health	SMALL	Human health impacts for an operating nuclear power plant are set out in 10 CFR Part 51, Appendix B, Table B-1.	SMALL	Same impacts as Surry Power Station site

Table 8-6. (contd)

	Surry Power Station Site		Alternate Greenfield Site	
Impact Category	**Impact**	**Comments**	**Impact**	**Comments**
Socioeconomics	MODERATE to LARGE	During construction, impacts would be MODERATE to LARGE. Up to 2500 workers during the peak of the 6-year construction period. Operating workforce assumed to be similar to Units 1 & 2. Surry County tax base preserved.	MODERATE to LARGE	Construction impacts depend on location. Impacts at a rural location could be LARGE. Surry County would experience loss of a significant tax base and employment with potentially LARGE impacts.
		Transportation impacts associated with commuting construction workers could be MODERATE to LARGE. Transportation impacts during operation would be SMALL.		Transportation impacts associated with commuting construction workers could be MODERATE to LARGE. Transportation impacts during operation would be SMALL to MODERATE.
Aesthetics	SMALL	No exhaust stacks or cooling towers would be needed. Daytime visual impact could be mitigated by landscaping and appropriate color selection for buildings. Visual impact at night could be mitigated by reduced use of lighting and appropriate shielding. Noise impacts would be relatively small and could be mitigated.	SMALL to LARGE	Similar to impacts at Surry Power Station. Potential LARGE impact if a new transmission line is needed.
Historic and Archeological Resources	SMALL	Any potential impacts can likely be effectively managed.	SMALL	Any potential impacts can likely be effectively managed.
Environmental Justice	SMALL	Impacts on minority and low-income communities should be similar to those experienced by the population as a whole. Some impacts on housing may occur during construction.	MODERATE to LARGE	Impacts will vary depending on population distribution and makeup at the site. Impacts to minority and low-income residents of Surry County associated with closure of Surry Units 1 and 2 could be significant.

ecology. Impacts could include wildlife habitat loss, reduced productivity, habitat fragmentation, and a local reduction in biological diversity. Use of cooling water from a nearby surface water body could have adverse aquatic resource impacts. If needed, construction and maintenance of the transmission line would have ecological impacts. Overall, the ecological impacts at an alternate site would be MODERATE to LARGE.

- **Water Use and Quality**

  The staff assumed that a replacement nuclear plant alternative at the Surry Power Station would use the existing cooling system, which would minimize incremental water-use and quality impacts. Surface-water impacts are expected to remain SMALL; the impacts would be sufficiently minor so they would not noticeably alter any important attribute of the resource.

  The staff assumed that a new nuclear power plant located at the Surry Power Station would obtain potable, process, and fire-protection water from onsite groundwater wells similarly to the current practice for Units 1 and 2 (see Section 2.2.2). Some erosion and sedimentation would likely occur during construction as a result of land clearing.

  For alternate sites, the impact on the surface water would depend on the discharge volume and the characteristics of the receiving body of water. Intake from and discharge to any surface body of water would be regulated by the State. The impacts would be SMALL to MODERATE.

  A nuclear power plant sited at an alternate site may use groundwater. Groundwater withdrawal at an alternate site would likely require a permit. Groundwater withdrawal impacts would depend on availability and how the water is withdrawn, but overall are considered SMALL.

- **Air Quality**

  Construction of a new nuclear plant sited at the Surry Power Station or an alternate site would result in fugitive emissions during the construction process. Exhaust emissions would also come from vehicles and motorized equipment used during the construction process. An operating nuclear plant would have minor air emissions associated with diesel generators. These emissions would be regulated by the Virginia Department of Environmental Quality or another state. Overall, emissions and associated impacts are considered SMALL.

- **Waste**

  The waste impacts associated with operation of a nuclear power plant are set out in Table B-1 of 10 CFR Part 51, Subpart A, Appendix B. In addition to the impacts shown in Table B-1, construction-related debris would be generated during construction activities and removed to an appropriate disposal site. Overall, waste impacts are considered SMALL.

Siting the replacement nuclear power plant at a site other than the Surry Power Station would not alter waste generation. Therefore, the impacts would be SMALL.

- **Human Health**

Human health impacts for an operating nuclear power plant are set out in 10 CFR Part 51, Subpart A, Appendix B, Table B-1. Overall, human health impacts are considered SMALL.

Siting the replacement nuclear power plant at a site other than the Surry Power Station would not alter human health impacts. Therefore, the impacts would be SMALL.

- **Socioeconomics**

The construction period and the peak workforce associated with construction of a new nuclear power plant are currently unquantified (NRC 1996). In the absence of quantified data, the staff assumed a construction period of 6 years and a peak workforce of 2500. The staff assumed that construction would take place while existing Units 1 and 2 continue operation and would be completed by the time Units 1 and 2 permanently cease operations. During construction, the communities surrounding the Surry Power Station site would experience demands on housing and public services that could have MODERATE to LARGE impacts. These impacts would be tempered by construction workers commuting to the site from more distant communities. After construction, the communities would be impacted by the loss of the construction jobs.

The replacement nuclear units are assumed to have an operating workforce comparable to the 990 workers currently working at Units 1 and 2. The replacement nuclear units would provide a new tax base to offset the loss of tax base associated with decommissioning of Units 1 and 2. The appropriate characterization of nontransportation socioeconomic impacts for operating replacement nuclear units constructed at the Surry Power Station site would be SMALL.

During the 6-year construction period, up to 2500 construction workers would be working at the Surry Power Station site in addition to the 990 workers at Units 1 and 2. The addition of the construction workers could place significant traffic loads on existing highways, particularly those leading to the Surry Power Station site. Such impacts would be MODERATE to LARGE. Transportation impacts related to commuting of plant operating personnel would be similar to current impacts associated with operation of Units 1 and 2 and are considered SMALL.

Construction of a replacement nuclear power plant at an alternate site would relocate some socioeconomic impacts, but would not eliminate them. Surry County and surrounding communities would experience the impact of Surry Units 1 and 2 operational job loss and the loss of tax base with potentially LARGE impacts given Surry County's heavy dependence on tax revenue from the Surry Power Station. The communities around the new site would have to absorb the impacts of a large, temporary workforce (up to 2500 workers at the peak of construction) and a permanent workforce of approximately 880 workers. In the GEIS (NRC 1996), the staff noted that socioeconomic impacts at a rural site would be larger than at an urban site because more of the peak construction workforce would need to move to the area to work. The Surry Power Station site is within commuting distance of a number of relatively large cities and, therefore, is not considered a rural site. Alternate sites would need to be analyzed on a case-by-case basis. Socioeconomic impacts at a rural site could be LARGE. Transportation-related impacts associated with commuting construction workers at an alternate site are site-dependent, but could be MODERATE to LARGE. Transportation impacts related to commuting of plant operating personnel would also be site-dependent, but can be characterized as SMALL to MODERATE.

- **Aesthetics**

The containment buildings for a replacement nuclear power plant sited at the Surry Power Station and other associated buildings would likely be visible in daylight hours over many miles. Visual impacts could be mitigated by landscaping and selecting a color for buildings that is consistent with the environment. The visual impact could also be mitigated by below-grade construction similar to Surry Units 1 and 2. Visual impact at night could be mitigated by reduced use of lighting and appropriate use of shielding. No exhaust stacks would be needed. No cooling towers would be needed, assuming use of the existing once-through cooling system.

Noise from operation of a replacement nuclear power plant would potentially be audible offsite in calm wind conditions or when the wind is blowing in the direction of the hearer. Mitigation measures, such as reduced or no use of outside loudspeakers, can be employed to reduce noise level and keep the impact SMALL.

At an alternate site, there would be an aesthetic impact from the buildings. There would also be a significant aesthetic impact if a new transmission line were needed. Noise and light from the plant would be detectable offsite. The impact of noise and light would be mitigated if the plant is located in an industrial area adjacent to other power plants. Overall, the aesthetic impacts associated with locating at an alternative site can be categorized as

SMALL; however, the impact could be LARGE if a new transmission line is needed to connect the plant to the power grid.

- **Historic and Archaeological Resources**

  At both the Surry Power Station site and an alternate site, a cultural resource inventory would likely be needed for any onsite property that has not been previously surveyed. Other lands, if any, that are acquired to support the plant would also likely need an inventory of field cultural resources, identification and recording of existing historic and archaeological resources, and possible mitigation of adverse effects from subsequent ground-disturbing actions related to physical expansion of the plant site.

  Before construction at the Surry Power Station site or another site, studies would likely be needed to identify, evaluate, and address mitigation of the potential impacts of new plant construction on cultural resources. The studies would likely be needed for all areas of potential disturbance at the proposed plant site and along associated corridors where new construction would occur (e.g., roads, transmission corridors, rail lines, or other rights-of-way). Historic and archaeological resource impacts can generally be effectively managed and are considered SMALL.

- **Environmental Justice**

  No environmental pathways or locations have been identified that would result in disproportionately high and adverse environmental impacts on minority and low-income populations if a replacement nuclear plant were built at the Surry Power Station site. Some impacts on housing availability and prices during construction might occur, and this could disproportionately affect minority and low-income populations. After completion of construction, it is possible that the ability of local governments to maintain social services could be reduced at the same time as diminished economic conditions reduce employment prospects for minority and low-income populations. Overall, however, impacts are expected to be SMALL.

  Impacts at an alternate site would depend upon the site chosen and the nearby population distribution. If a replacement nuclear plant were constructed at an alternate site, Surry County would experience a significant loss of property tax revenue, which would affect the County's ability to provide services and programs. Impacts to minority and low-income populations in Surry County could be MODERATE to LARGE.

8.2.3.2 Closed-Cycle Cooling System

The environmental impacts of constructing a nuclear power plant at an alternate greenfield site using closed-cycle cooling with cooling towers are essentially the same as the impacts for a nuclear power plant using a once-through system. However, there are minor environmental differences between the closed-cycle and once-through cooling systems. Table 8-7 summarizes the incremental differences.

8.2.4 Purchased Electrical Power

If available, purchased power from other sources could potentially obviate the need to renew the Surry Units 1 and 2 OLs. VEPCo currently has purchase agreements for 145 MW from the Southeastern Power Administration and approximately 3500 MW of non-utility generation (VEPCo 2001). Overall, Virginia is a net importer of electricity.

To replace Surry Units 1 and 2 capacity with imported power, VEPCo would need to construct a new 500-kV transmission line, which VEPCo estimates would be approximately 160 km (100 mi) long (VEPCo 2001). Assuming a 0.09 km (300 ft) easement width, the transmission line would impact approximately 15 km^2 (6 mi^2).

Imported power from Canada or Mexico is unlikely to be available for replacement of Surry Power Station Units 1 and 2 capacity. In Canada, 62 percent of the country's electricity capacity is derived from renewable energy sources, principally hydropower (DOE/EIA 2001b). Canada has plans to continue developing hydroelectric power, but the plans generally do not include large-scale projects (DOE/EIA 2001b). Canada's nuclear generation is projected to increase by 1.7 percent by 2020, but its share of power generation in Canada is projected to decrease from 14 percent currently to 13 percent by 2020 (DOE/EIA 2001b). EIA projects that total gross U.S. imports of electricity from Canada and Mexico will gradually increase from 47.9 billion kWh in year 2000 to 66.1 billion kWh in year 2005, and then gradually decrease to 47.4 billion kWh in year 2020 (DOE/EIA 2001a). On balance, it is unlikely that electricity imported from Canada or Mexico would be able to replace the Surry Units 1 and 2 capacity.

If power to replace Surry Power Station Units 1 and 2 capacity were to be purchased from sources within the U.S. or a foreign country, the generating technology would likely be one of those described in this SEIS and in the GEIS (probably coal, natural gas, or nuclear). The description of the environmental impacts of other technologies in Chapter 8 of the GEIS is representative of the environmental impacts associated with the purchased electrical power alternative to renewal of the Surry Units 1 and 2 OLs. Under the purchased power alternative, the environmental impacts of imported power would still occur, but would be located elsewhere within the region, nation, or another country.

Table 8-7. Summary of Environmental Impacts of a New Nuclear Power Plant Sited at an Alternate Greenfield Site with Closed-Cycle Cooling

Impact Category	Change in Impacts from Once-Through Cooling System
Land Use	Required 10-12 additional ha (25-30 ac) for cooling towers and associated infrastructure.
Ecology	Impact would depend on ecology at the site. Additional impact to terrestrial ecology from cooling-tower drift. Reduced impact to aquatic ecology.
Surface Water Use and Quality	Discharge of cooling-tower blowdown containing dissolved solids. Discharge would be regulated by the State. Decreased water withdrawal and less thermal load on receiving body of water. Consumptive use of water due to evaporation from cooling towers.
Groundwater Use and Quality	No change
Air Quality	No change
Waste	No change
Human Health	No change
Socioeconomics	No change
Aesthetics	Introduction of cooling towers and associated plume. Natural draft towers could be up to 158 m (520 ft). Mechanical draft towers could be up to 30 m (100 ft) high and also have an associated noise impact.
Historic and Archaeological Resources	No change
Environmental Justice	No change

8.2.5 Other Alternatives

Other generation technologies are discussed in the following subsections.

8.2.5.1 Oil-Fired Generation

EIA projects that oil-fired plants will account for very little of the new generation capacity in the United States during the 2000 to 2020 time period because of higher fuel costs and lower efficiencies (DOE/EIA 2001a). Oil-fired operation is more expensive than nuclear or coal-fired operation. In addition, future increases in oil prices are expected to make oil-fired generation increasingly more expensive than coal-fired generation. The high cost of oil has prompted a steady decline in its use for electricity generation. Also, construction and operation of an oil-fired plant would have environmental impacts. For example, in Section 8.3.11 of the GEIS, the staff estimated that construction of a 1000-MWe oil-fired plant would require about 50 ha (120 ac) (NRC 1996). Additionally, operation of oil-fired plants would have environmental impacts (including impacts on the aquatic environment and air) that would be similar to those from a coal-fired plant.

8.2.5.2 Wind Power

Virginia is in a wind power Class 1 region (average wind speeds at 10-m (30-ft) elevation of 0 to 4.4 m/s [9.8 mph]). Class 1 has the lowest potential for wind energy generation (DOE 2001a). Wind turbines are economical in wind power Classes 4 through 7 (average wind speeds of 5.6 to 9.4 m/s [12.5 to 21.1 mph] [DOE 2001a]). The staff concludes that locating a wind-energy facility on or near the Surry Power Station site as a replacement for Surry Power Station generating capacity would not be economically feasible given the current state of wind energy generation technology. As of December 31, 2000, there were no grid-connected wind power plants in Virginia or North Carolina (NREL 2001).

8.2.5.3 Solar Power

Solar technologies use the sun's energy and light to provide heat and cooling, light, hot water, and electricity for homes, businesses, and industry. Solar power technologies (photovoltaic and thermal) cannot currently compete with conventional fossil-fueled technologies in grid-connected applications due to higher capital costs per kilowatt of capacity. The average capacity factor of photovoltaic cells is about 25 percent (NRC 1996), and the capacity factor for solar thermal systems is about 25 to 40 percent (NRC 1996). Energy storage requirements limit the use of solar-energy systems as baseload electricity supply.

There are substantial impacts to natural resources (wildlife habitat, land-use, and aesthetic impacts) from construction of solar-generating facilities. As stated in the GEIS, land requirements are high—14,000 ha (35,000 ac) per 1000 MW(e) for photovoltaic (NRC 1996) and approximately 6000 ha (14,000 ac) per 1000 MW(e) for solar thermal systems (NRC 1996). Neither type of solar electric system would fit at the Surry Power Station site, and both would have large environmental impacts at a greenfield site.

The Surry Power Station site receives approximately 4 kWh of direct normal solar radiation per square meter per day compared to 7 to 8 kWh of solar radiation per square meter per day in areas of the western U.S., such as California, which are most promising for solar technologies (DOE/EIA 2000a). Because of the natural resource impacts (land and ecological), the area's relatively low rate of solar radiation, and the high cost, solar power is not deemed a feasible baseload alternative to renewal of the Surry Power Station Units 1 and 2 OLs. Some onsite generated solar power, e.g., from rooftop photovoltaic applications, may substitute for electric power from the grid. Implementation of solar generation on a scale large enough to replace Surry Units 1 and 2 would likely result in LARGE environmental impacts.

8.2.5.4 Hydropower

Virginia has an estimated 617 MW of undeveloped hydroelectric resources (INEEL 1997). This amount is less than needed to replace the 1602 MW(e) capacity of Surry Units 1 and 2. As stated in Section 8.3.4 of the GEIS, hydropower's percentage of U.S. generating capacity is expected to decline because hydroelectric facilities have become difficult to site as a result of public concern about flooding, destruction of natural habitat, and alteration of natural river courses. In the GEIS, the staff estimated that land requirements for hydroelectric power are approximately 400,000 ha (1 million ac) per 1000 MW(e) (NRC 1996). Replacement of Surry Power Station Units 1 and 2 generating capacity would require flooding more than this amount of land. Due to the relatively low amount of undeveloped hydropower resource in Virginia and the large land-use and related environmental and ecological resource impacts associated with siting hydroelectric facilities large enough to replace Surry Units 1 and 2, the staff concludes that local hydropower is not a feasible alternative to renewal of the Surry Units 1 and 2 OLs. Any attempts to site hydroelectric facilities large enough to replace Surry Units 1 and 2 would result in LARGE environmental impacts.

8.2.5.5 Geothermal Energy

Geothermal energy has an average capacity factor of 90 percent and can be used for baseload power where available. However, geothermal technology is not widely used as baseload generation due to the limited geographical availability of the resource and immature status of the technology (NRC 1996). As illustrated by Figure 8-4 in the GEIS, geothermal plants are

most likely to be sited in the western continental U.S., Alaska, and Hawaii, where hydrothermal reservoirs are prevalent. There is no feasible eastern location for geothermal capacity to serve as an alternative to Surry Units 1 and 2. The staff concludes that geothermal energy is not a feasible alternative to renewal of the Surry Units 1 and 2 OLs.

8.2.5.6 Wood Waste

A wood-burning facility can provide baseload power and operate with an average annual capacity factor of around 70 to 80 percent and with 20 to 25 percent efficiency (NRC 1996). The fuels required are variable and site-specific. A significant barrier to the use of wood waste to generate electricity is the high delivered-fuel cost and high construction cost per MW of generating capacity. The larger wood-waste power plants are only 40 to 50 MW(e) in size. Estimates in the GEIS suggest that the overall level of construction impact per MW of installed capacity should be approximately the same as that for a coal-fired plant, although facilities using wood waste for fuel would be built at smaller scales (NRC 1996). Like coal-fired plants, wood-waste plants require large areas for fuel storage and processing and involve the same type of combustion equipment.

Due to uncertainties associated with obtaining sufficient wood and wood waste to fuel a base-load generating facility, ecological impacts of large-scale timber cutting (e.g., soil erosion and loss of wildlife habitat), and high inefficiency, the staff has determined that wood waste is not a feasible alternative to renewing the Surry Units 1 and 2 OLs.

8.2.5.7 Municipal Solid Waste

Municipal waste combustors incinerate the waste and use the resultant heat to generate steam, hot water, or electricity. The combustion process can reduce the volume of waste by up to 90 percent and the weight of the waste by up to 75 percent (EPA 2001). Municipal waste combustors use three basic types of technologies: mass burn, modular, and refuse-derived fuel (DOE/EIA 2001c). Mass-burning technologies are most commonly used in the U.S. This group of technologies process raw municipal solid waste "as is," with little or no sizing, shredding, or separation before combustion. The initial capital costs for municipal solid-waste plants are greater than for comparable steam-turbine technology at wood-waste facilities. This is due to the need for specialized waste-separation and -handling equipment for municipal solid waste (NRC 1996).

Growth in the municipal waste combustion industry slowed dramatically during the 1990s after rapid growth during the 1980s. The slower growth was due to three primary factors: (1) the Tax Reform Act of 1986, which made capital-intensive projects such as municipal waste combustion facilities more expensive relative to less capital-intensive waste disposal

alternatives such as landfills; (2) the 1994 Supreme Court decision (*C&A Carbone v. Town of Clarkstown*), which struck down local flow control ordinances that required waste to be delivered to specific municipal waste combustion facilities rather than landfills that may have had lower fees; and (3) increasingly stringent environmental regulations that increased the capital cost necessary to construct and maintain municipal waste combustion facilities (DOE/EIA 2001c).

Municipal solid waste combustors generate an ash residue that is buried in landfills. The ash residue is composed of bottom ash and fly ash. Bottom ash refers to that portion of the unburned waste that falls to the bottom of the grate or furnace. Fly ash represents the small particles that rise from the furnace during the combustion process. Fly ash is generally removed from flue-gases using fabric filters and/or scrubbers (DOE/EIA 2001c).

Currently, there are approximately 102 waste-to-energy plants operating in the U.S. These plants generate approximately 2800 MW(e), or an average of approximately 28 MW(e) per plant (Integrated Waste Services Association 2001). The staff concludes that generating electricity from municipal solid waste would not be a feasible alternative to replace the 1602 MW(e) baseload capacity of Surry Units 1 and 2 and, consequently, would not be a feasible alternative to renewal of the Surry Units 1 and 2 OLs.

8.2.5.8 Other Biomass-Derived Fuels

In addition to wood and municipal solid waste fuels, there are several other concepts for fueling electric generators, including burning crops, converting crops to a liquid fuel such as ethanol, and gasifying crops (including wood waste). In the GEIS, the staff stated that none of these technologies has progressed to the point of being competitive on a large scale or of being reliable enough to replace a baseload plant such as Surry Units 1 and 2 (NRC 1996). For these reasons, such fuels do not offer a feasible alternative to renewal of the Surry Units 1 and 2 OLs.

8.2.5.9 Fuel Cells

Fuel cells work without combustion and its environmental side-effects. Power is produced electrochemically by passing a hydrogen-rich fuel over an anode and air over a cathode and separating the two by an electrolyte. The only by-products are heat, water, and carbon dioxide. Hydrogen fuel can come from a variety of hydrocarbon resources by subjecting them to steam under pressure. Phosphoric acid fuel cells are generally considered first-generation technology. Higher-temperature second-generation fuel cells achieve higher fuel-to-electricity and thermal efficiencies. The higher temperatures contribute to improved efficiencies and give the second-generation fuel cells the capability to generate steam for cogeneration and combined-cycle operations. DOE projects that by 2003, two second-generation fuel-cell

technologies using molten carbonate and solid oxide technology, respectively, will be commercially available in sizes up to 2 MW at a cost of $1000 to $1500 per kW of installed capacity (DOE 2001b). For comparison, the installed capacity cost for a natural gas-fired combined-cycle plant is approximately $456 per kW (DOE/EIA 2001a). As market acceptance and manufacturing capacity increase, natural gas-fueled fuel-cell plants in the 50- to 100-MW range are projected to become available (DOE 2001b). At the present time, however, fuel cells are not economically or technologically competitive with other alternatives for baseload electricity generation. Fuel cells are, consequently, not a feasible alternative to renewal of the Surry Units 1 and 2 OLs.

8.2.5.10 Delayed Retirement

The only VEPCo generating plants currently scheduled for retirement are Possum Point Units 1 and 2. These oil-fired units each have a nameplate generating capacity[a] of 69 MW (DOE/EIA 2000b). The Possum Point facility is located about 25 miles south of Washington, D.C. Delayed retirement of Possum Point Units 1 and 2 would not come close to replacing the 1602-MW(e) capacity of Surry Units 1 and 2. For this reason, delayed retirement of VEPCo generating units would not be a feasible alternative to renewal of the Surry Units 1 and 2 OLs.

8.2.5.11 Utility-Sponsored Conservation

VEPCo has developed residential, commercial, and industrial programs to reduce both peak demands and daily energy consumption. These programs are commonly referred to as demand-side management (DSM). VEPCo currently operates the following DSM programs: Rate Schedule SG (standby generation), Rate Schedule CS (curtailable service), Rider J (interruptible electric water heater service), and the Real Time Pricing Rate. VEPCo projects that by the year 2007, its DSM programs will reduce peak power requirements in the summer and winter by 74 and 130 MW, respectively (VEPCo 2001). VEPCo also projects that energy requirements in 2007 will be reduced by 14 gigawatt hours, 94 percent of which would be from load-management programs (VEPCo 2001).

Historic and projected reduction in generation needs as a result of DSM programs have been credited in VEPCo's planning to meet projected customer demand. Because these DSM savings are part of the long-range plan for meeting projected demand, they are not available offsets for Surry Units 1 and 2. Therefore, the conservation option is not considered a reasonable replacement for the OL renewal alternative.

(a) The nameplate generating capacity is the full-load continuous rating of a generating unit.

8.2.6 Combination of Alternatives

Even though individual alternatives to Surry Units 1 and 2 might not be sufficient to replace Surry Units 1 and 2 capacity due to the small size of the resource or lack of cost-effective opportunities, it is conceivable that a combination of alternatives might be cost-effective.

As discussed in Section 8.2, Surry Units 1 and 2 have a combined average net capacity of 1602 MW(e). For the coal and natural gas alternatives, VEPCo assumed three standard 508-MW(e) units as potential replacements for Surry Units 1 and 2 (VEPCo 2001). This approach is followed in this SEIS, although it results in some environmental impacts that are roughly 5 percent lower than if full replacement capacity were constructed.

There are many possible combinations of alternatives. Table 8-8 contains a summary of the environmental impacts of an assumed combination of alternatives consisting of 1016 MW(e) of combined cycle natural-gas-fired generation at Surry Power Station using the existing once-through cooling system and at an alternate greenfield location using closed-cycle cooling, 293 MW(e) purchased from other generators, and 293 MW(e) gained from additional DSM measures. The impacts associated with the combined cycle natural-gas-fired units are based on the gas-fired generation impact assumptions discussed in Section 8.2.2, adjusted for the reduced generating capacity. While the DSM measures would have few environmental impacts, operation of the new gas-fired plant would result in increased emissions and environmental impacts. The environmental impacts associated with power purchased from other generators would still occur, but would be located elsewhere within the region, nation, or another country, as discussed in Section 8.2.4. The environmental impacts associated with purchased power are not shown in Table 8-8. The staff concludes that it is very unlikely that the environmental impacts of any reasonable combination of generating and conservation options could be reduced to the level of impacts associated with renewal of the Surry Units 1 and 2 OLs.

8.3 Summary of Alternatives Considered

The environmental impacts of the proposed action, renewal of the OLs for Surry Units 1 and 2, are SMALL for all impact categories (except collective offsite radiological impacts from the fuel cycle and from high level waste and spent fuel disposal, for which a single significance level was not assigned). The following alternative actions were considered: no-action alternative (discussed in Section 8.1), new generation alternatives (from coal, natural gas, and nuclear discussed in Sections 8.2.1 through 8.2.3, respectively), purchased electrical power (discussed in Section 8.2.4), alternative technologies (discussed in Section 8.2.5), and the combination of alternatives (discussed in Section 8.2.6).

Table 8-8. Summary of Environmental Impacts for an Assumed Combination of Generating and Acquisition Alternatives

	Surry Power Station Site		Alternate Greenfield Site	
Impact Category	**Impact**	**Comments**	**Impact**	**Comments**
Land Use	MODERATE to LARGE	9 ha (23 ac) for powerblock, offices, roads, and parking areas. Additional impact of up to approximately 1200 ha (3000 ac) for construction of an underground gas pipeline.	MODERATE to LARGE	30 ha (74 ac) for power- block, offices, roads, and parking areas. Additional impact for construction of an underground natural gas pipeline and a transmission line.
Ecology	MODERATE to LARGE	Uses undeveloped areas at Surry Power Station site plus land for a new gas pipeline.	MODERATE to LARGE	Impact depends on location and ecology of the site, surface-water body used for intake and discharge, and transmission and pipeline routes; potential habitat loss and fragmentation; reduced productivity and biological diversity impact to terrestrial ecology from cooling tower drift.
Water Use and Quality	SMALL	Uses existing once-through cooling system	SMALL to MODERATE	Impact depends on volume of water withdrawal and discharge and characteristics of surface-water body. Discharge of cooling tower blowdown will have impacts. Consumptive use of water due to evaporation from cooling towers.
Air Quality	MODERATE	Sulfur oxides • 81 MT/yr (89 tons/yr) Nitrogen oxides • 306 MT/yr (337 tons/yr) Carbon monoxide • 402 MT/yr (443 tons/yr) PM_{10} particulates • 120 MT/yr (132 tons/yr) Some hazardous air pollutants	MODERATE	Same as siting at Surry Power Station
Waste	SMALL	The only significant waste would be spent SCR catalyst used for control of NO_x emissions.	SMALL	The only significant waste would be spent SCR catalyst used for control of NO_x emissions.
Human Health	SMALL	Impacts considered to be minor.	SMALL	Impacts considered to be minor.

Table 8-8. (contd)

	Surry Power Station Site		Alternate Greenfield Site	
Impact Category	**Impact**	**Comments**	**Impact**	**Comments**
Socioeconomics	MODERATE	During construction, impacts would be MODERATE. Up to 1200 additional workers during the peak of the 3-year construction period, followed by reduction from current Surry Units 1 and 2 workforce of 990 to approximately 100; tax base preserved. Impacts during operation would be SMALL. Transportation impacts associated with construction workers would be MODERATE.	MODERATE to LARGE	Construction impacts depend on location, but could be significant if location is in a rural area. Surry County would experience loss of tax base and employment with potentially LARGE impacts Impacts during operation would be SMALL. Transportation impacts associated with construction workers would be MODERATE.
Aesthetics	MODERATE	MODERATE aesthetic impact due to impact of plant units and stacks on environmentally sensitive Colonial National Historical Park.	SMALL to LARGE	MODERATE impact from plant and stacks. Additional impact could be LARGE if a new transmission line is needed
Historic and Archeological Resources	SMALL	Any potential impacts can likely be effectively managed.	SMALL	Any potential impacts can likely be effectively managed.
Environmental Justice	MODERATE	Impacts on minority and low-income communities should be similar to those experienced by the population as a whole. Some impacts on housing may occur during construction; loss of approximately 890 operating jobs at Surry Power Station could reduce employment prospects for minority and low-income populations	MODERATE to LARGE	Impacts vary depending on population distribution and makeup at site. Surry County would lose significant property tax revenue, which could have MODERATE to LARGE impacts on minority and low-income populations.

The no-action alternative would result in decommissioning Surry Units 1 and 2 and would require replacing electrical generating capacity by (1) demand-side management and energy conservation, (2) power purchased from other electricity providers, (3) generating alternatives other than Surry Units 1 and 2, or (4) some combination of these options. For each of the new generation alternatives (coal, natural gas, and nuclear), the environmental impacts would not be less than the impacts of license renewal. For example, the land-disturbance impacts resulting from construction of any new facility would be greater than the impacts of continued operation of Surry Units 1 and 2. The impacts of purchased electrical power would still occur, but would occur elsewhere. Alternative technologies are not considered feasible at this time, and it is very unlikely that the environmental impacts of any reasonable combination of generation and conservation options could be reduced to the level of impacts associated with renewal of the OLs for Surry Units 1 and 2.

The staff concludes that the alternative actions, including the no-action alternative, may have environmental effects in at least some impact categories that reach MODERATE or LARGE significance.

8.4 References

10 CFR Part 50. Code of Federal Regulations, Title 10, *Energy*, Part 50, "Domestic Licensing of Production and Utilization Facilities."

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

10 CFR Part 52. Code of Federal Regulations, Title 10, *Energy*, Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants."

40 CFR Part 50. Code of Federal Regulations, Title 40, *Protection of Environment*, Part 50, "National Primary and Secondary Ambient Air Quality Standards."

40 CFR Part 51. Code of Federal Regulations, Title 40, *Protection of Environment*, Part 51, "Requirements for Preparation, Adoption, and Submittal of Implementation Plans."

40 CFR Part 60. Code of Federal Regulations, Title 40, *Protection of Environment*, Part 60, "Standards of Performance for New Stationary Sources."

40 CFR Part 81. Code of Federal Regulations, Title 40, *Protection of Environment*, Part 81, "Designation of Areas for Air Quality Planning Purposes."

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9.0 Summary and Conclusions

By letter dated May 29, 2001, the Virginia Electric and Power Company (VEPCo) submitted an application to the U.S. Nuclear Regulatory Commission (NRC) to renew the operating licenses (OLs) for Surry Power Station, Units 1 and 2, for an additional 20-year period (VEPCo 2001). If the OLs are renewed, State regulatory agencies and VEPCo will ultimately decide whether the plants will continue to operate based on factors such as the need for power or other matters within the State's jurisdiction or the purview of the owners. If the OLs are not renewed, then the plants must be shut down at or before the expiration of the current OLs, which expire on May 25, 2012, for Unit 1 and January 29, 2013, for Unit 2.

Section 102 of the National Environmental Policy Act (NEPA) (42 USC 4321) directs that an environmental impact statement (EIS) is required for major Federal actions that significantly affect the quality of the human environment. The NRC has implemented Section 102 of NEPA in 10 CFR Part 51, which identifies licensing and regulatory actions that require an EIS. In 10 CFR 51.20(b)(2), the Commission requires preparation of an EIS or a supplement to an EIS for renewal of a reactor OL; 10 CFR 51.95(c) states that the EIS prepared at the OL renewal stage will be a supplement to the *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (GEIS), NUREG-1437, Volumes 1 and 2 (NRC 1996; 1999).[a]

Upon acceptance of the VEPCo application, the NRC began the environmental review process described in 10 CFR Part 51 for Surry Units 1 and 2 by publishing a notice of intent to prepare an EIS and conduct scoping (66 FR 42897 [NRC 2001]) on August 15, 2001. The staff visited the Surry Power Station in September 2001 and held public scoping meetings on September 19, 2001, in Surry County, Virginia. The staff reviewed the VEPCo Environmental Report for Surry Units 1 and 2 (ER; VEPCo 2001) and compared it to the GEIS, consulted with other agencies, and conducted an independent review of the issues following the guidance set forth in NUREG-1555, Supplement 1, the *Standard Review Plans for Environmental Reviews for Nuclear Power Plants, Supplement 1: Operating License Renewal* (NRC 2000). The staff also considered the public comments received during the scoping process for preparation of this Supplemental Environmental Impact Statement (SEIS) for Surry Units 1 and 2. The public comments received during the scoping process that were considered to be within the scope of the environmental review are provided in Appendix A, Part I, of this SEIS.

The staff prepared the draft SEIS, and on April 26, 2002, the U.S. Environmental Protection Agency (EPA) published an associated Notice of Availability in the *Federal Register* (67 FR 20763; EPA 2002). A 75-day comment period began on that date during which members of the public could comment on the preliminary results of the NRC staff's review.

(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.

The staff held two public meetings in Surry, Virginia, on May 29, 2002, to describe the preliminary results of the NRC environmental review, answer questions, and provide members of the public with information to assist them in formulating comments on the draft SEIS. All comments received on the draft SEIS were considered by the staff in developing the final document and are presented in Appendix A, Part II, of this SEIS.

This SEIS includes the NRC staff's analysis in which the staff considers and weighs the environmental effects of the proposed action, the environmental impacts of alternatives to the proposed action, and mitigation measures available for reducing or avoiding adverse effects. It also includes the staff's recommendation regarding the proposed action.

The NRC has adopted the following statement of purpose and need for license renewal from the GEIS:

> The purpose and need for the proposed action (renewal of an operating license) is to provide an option that allows for power generation capability beyond the term of a current nuclear power plant operating license to meet future system generating needs, as such needs may be determined by State, utility, and, where authorized, Federal (other than NRC) decisionmakers.

The goal of the staff's environmental review, as defined in 10 CFR 51.95(c)(4) and the GEIS, is to determine

> ...whether or not the adverse environmental impacts of license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.

Both the statement of purpose and need and the evaluation criterion implicitly acknowledge that there are factors, in addition to license renewal, that will ultimately determine whether an existing nuclear power plant continues to operate beyond the period of the current OL.

NRC regulations [10 CFR 51.95(c)(2)] contain the following statement regarding the content of SEISs prepared at the license renewal stage:

> The supplemental environmental impact statement for license renewal is not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action except insofar as such benefits and costs are either essential for a determination regarding the inclusion of an alternative in the range of alternatives considered or relevant to mitigation. In addition, the supplemental environmental impact statement prepared at the license renewal stage

need not discuss other issues not related to the environmental effects of the proposed action and the alternatives, or any aspect of the storage of spent fuel for the facility within the scope of the generic determination in § 51.23(a) and in accordance with § 51.23(b).[a]

The GEIS contains the results of a systematic evaluation of the consequences of renewing an OL and operating a nuclear power plant for an additional 20 years. It evaluates 92 environmental issues using the NRC's three-level standard of significance—SMALL, MODERATE, or LARGE—developed using the Council on Environmental Quality guidelines. The following definitions of the three significance levels are set forth in a footnote to Table B-1 of 10 CFR Part 51, Subpart A, Appendix B:

SMALL – Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.

MODERATE – Environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.

LARGE – Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

For 69 of the 92 issues considered in the GEIS, the analysis in the GEIS shows the following:

(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 [HLW] 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.

These 69 issues were identified in the GEIS as Category 1 issues. In the absence of new and significant information, the staff relied on conclusions as amplified by supporting information in

(a) The title of 10 CFR 51.23 is "Temporary storage of spent fuel after cessation of reactor operations-generic determination of no significant environmental impact."

the GEIS for issues designated Category 1 in Table B-1 of 10 CFR Part 51, Subpart A, Appendix B.

Of the 23 issues that do not meet the criteria set forth above, 21 are classified as Category 2 issues requiring analysis in a plant-specific supplement to the GEIS. The remaining two issues, environmental justice and chronic effects of electromagnetic fields, were not categorized. Environmental justice was not evaluated on a generic basis and must also be addressed in a plant-specific supplement to the GEIS. Information on the chronic effects of electromagnetic fields was not conclusive at the time the GEIS was prepared.

This SEIS documents the staff's evaluation of all 92 environmental issues considered in the GEIS. The staff considered the environmental impacts associated with alternatives to license renewal and compared the environmental impacts of license renewal and the alternatives. The alternatives to license renewal that were considered include the no-action alternative (not renewing the OLs for Surry Power Station, Units 1 and 2) and alternative methods of power generation. These alternatives were evaluated assuming that the replacement power generation plant is located at either the Surry Power Station site or some other unspecified location.

9.1 Environmental Impacts of the Proposed Action—License Renewal

VEPCo and the staff have established independent processes for identifying and evaluating the significance of any new information on the environmental impacts of license renewal. Neither VEPCo nor the staff has identified information that is both new and significant related to Category 1 issues that would call into question the conclusions in the GEIS. Similarly, neither VEPCo nor the staff has identified any new issue applicable to Surry Power Station, Units 1 and 2, that has a significant environmental impact. These determinations include the consideration of public comments. Therefore, the staff relies upon the conclusions of the GEIS for all Category 1 issues which are applicable to Surry Units 1 and 2.

VEPCo's license renewal application presents an analysis of the Category 2 issues that are applicable to Surry Units 1 and 2. The staff has reviewed the VEPCo analysis for each issue and has conducted an independent review of each issue. In addition, the staff has evaluated the two uncategorized issues, environmental justice and chronic effects from electromagnetic fields. Five Category 2 issues are not applicable because they are related to plant design features or site characteristics not found at Surry Power Station. Four Category 2 issues are not discussed in this SEIS because they are specifically related to refurbishment. VEPCo (VEPCo 2001) has stated that its evaluation of structures and components, as required by

10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of Surry Units 1 and 2, for the license renewal period. In addition, any replacement of components or additional inspection activities are within the bounds of normal plant component replacement and, therefore, are not expected to affect the environment outside of the bounds of the plant operations evaluated in the *Final Environmental Statement Related to Operation of Surry Power Station Unit 1* (AEC 1972a) and *Final Environmental Statement Related to Operation of Surry Power Station Unit 2* (AEC 1972b).

Twelve Category 2 issues related to operational impacts and postulated accidents during the renewal term, as well as environmental justice and chronic effects of electromagnetic fields, are discussed in detail in this SEIS. Five of the Category 2 issues and environmental justice apply to both refurbishment and to operation during the renewal term and are only discussed in this SEIS in relation to operation during the renewal term. For all 12 Category 2 issues and environmental justice, the staff concludes that the potential environmental effects are of SMALL significance in the context of the standards set forth in the GEIS. In addition, the staff determined that appropriate Federal health agencies have not reached a consensus on the existence of chronic adverse effects from electromagnetic fields. Therefore, no further evaluation of this issue is required. For severe accident mitigation alternatives (SAMAs), the staff concludes that a reasonable, comprehensive effort was made to identify and evaluate SAMAs. Based on its review of the SAMAs for Surry Units 1 and 2 and the plant improvements already made, the staff concludes that none of the candidate SAMAs are cost-beneficial.

Mitigation measures were considered for each Category 2 issue. Current measures to mitigate the environmental impacts of plant operation were found to be adequate, and no additional mitigation measures were deemed sufficiently beneficial to be warranted.

The following sections discuss unavoidable adverse impacts, irreversible or irretrievable commitments of resources, and the relationship between local short-term use of the environment and long-term productivity.

9.1.1 Unavoidable Adverse Impacts

An environmental review conducted at the license renewal stage differs from the review conducted in support of a construction permit because the plant is in existence at the license renewal stage and has operated for a number of years. As a result, adverse impacts associated with the initial construction have been avoided, have been mitigated, or have already occurred. The environmental impacts to be evaluated for license renewal are those associated with refurbishment and continued operation during the renewal term.

The adverse impacts of continued operation identified are considered to be of SMALL significance, and none warrants implementation of additional mitigation measures. The adverse impacts of likely alternatives if Surry Units 1 and 2 cease operation at or before the expiration of the current OLs will not be smaller than those associated with continued operation of these units, and they may be greater for some impact categories in some locations.

9.1.2 Irreversible or Irretrievable Resource Commitments

The commitment of resources related to construction and operation of Surry Units 1 and 2 during its current license period was made when the plant was built. The resource commitments to be considered in this SEIS are associated with continued operation of the plant for an additional 20 years. These resources include materials and equipment required for plant maintenance and operation, the nuclear fuel used by the reactors, and ultimately, permanent offsite storage space for the spent fuel assemblies.

The most significant resource commitments related to operation during the renewal term are the fuel and the permanent storage space. Surry Units 1 and 2 replace approximately one-third of the fuel assemblies in each of the two units during every refueling outage, which occurs on an 18-month cycle.

If Surry Units 1 and 2 cease operation on or before the expiration of the current OLs, the likely power generation alternatives will require a commitment of resources for construction of the replacement plants as well as for fuel to run the plants.

9.1.3 Short-Term Use Versus Long-Term Productivity

An initial balance between short-term use and long-term productivity of the environment at the Surry Power Station site was set when the plants were approved and construction began. That balance is now well established. Renewal of the OLs for Surry Units 1 and 2 and continued operation of the plants will not alter the existing balance, but may postpone the availability of the site for other uses. Denial of the application to renew the OLs will lead to shutdown of the plants and will alter the balance in a manner that depends on subsequent uses of the site. For example, the environmental consequences of turning the Surry Power Station site into a park or an industrial facility are quite different.

9.2 Relative Significance of the Environmental Impacts of License Renewal and Alternatives

The proposed action is renewal of the OLs for Surry Units 1 and 2. Chapter 2 describes the site, power plants, and interactions of the plant with the environment. As noted in Chapter 3, no refurbishment and no refurbishment impacts are expected at Surry Units 1 and 2. Chapters 4 through 7 discuss environmental issues associated with renewal of the OLs. Environmental issues associated with the no-action alternative and alternatives involving power generation and use reduction are discussed in Chapter 8.

The significance of the environmental impacts from the proposed action (approval of the application for renewal of the OLs), the no-action alternative (denial of the application), alternatives involving nuclear, coal, or gas generation of power at the Surry Units 1 and 2 an unspecified greenfield site, and a combination of alternatives are compared in Table 9-1.

Table 9-1 shows that the significance of the environmental effects of the proposed action are SMALL for all impact categories (except for collective offsite radiological impacts from the fuel cycle and from HLW and spent fuel disposal, for which a single significance level was not assigned [see Chapter 6]). The alternative actions, including the no-action alternative, may have environmental effects in at least some impact categories that reach MODERATE or LARGE significance.

9.3 Staff Conclusions and Recommendations

Based on (1) the analysis and findings in the GEIS (NRC 1996; 1999), (2) the ER submitted by VEPCo (VEPCo 2001), (3) consultation with Federal, State, and local agencies, (4) the staff's own independent review, and (5) the staff's consideration of public comments, the recommendation of the staff is that the Commission determine that the adverse environmental impacts of license renewal for Surry Units 1 and 2 are not so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.

Table 9-1. Summary of Environmental Significance of License Renewal, the No-Action Alternative, and Alternative Methods of Generation

Impact Category	Proposed Action–License Renewal	No Action Alternative–Denial of Renewal	Coal-Fired Generation		Natural-Gas-Fired Generation		New Nuclear Generation		Combination of Alternatives	
			Surry Power Station	Greenfield Site[a]	Surry Power Station	Greenfield Site[a]	Surry Power Station	Greenfield Site[a]	Surry Power Station	Greenfield Site[a]
Land Use	SMALL	SMALL	MODERATE	MODERATE to LARGE	MODERATE to LARGE	MODERATE to LARGE	MODERATE	MODERATE to LARGE	MODERATE to LARGE	MODERATE to LARGE
Ecology	SMALL	SMALL	MODERATE to LARGE	MODERATE to LARGE	MODERATE to LARGE	MODERATE to LARGE	MODERATE	MODERATE to LARGE	MODERATE to LARGE	MODERATE to LARGE
Water Use and Quality	SMALL	SMALL	SMALL	SMALL to MODERATE	SMALL	SMALL to MODERATE	SMALL	SMALL to MODERATE	SMALL	SMALL to MODERATE
Air Quality	SMALL	SMALL	MODERATE	MODERATE	MODERATE	MODERATE	SMALL	SMALL	MODERATE	MODERATE
Waste	SMALL	SMALL	MODERATE	MODERATE	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL
Human Health[b]	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL
Socio-economics	SMALL	LARGE	SMALL to LARGE	SMALL to LARGE	MODERATE	MODERATE to LARGE	MODERATE to LARGE	MODERATE to LARGE	MODERATE	MODERATE to LARGE
Aesthetics	SMALL	SMALL	MODERATE to LARGE	MODERATE to LARGE	MODERATE	SMALL to LARGE	SMALL	SMALL to LARGE	MODERATE	SMALL to LARGE
Historic and Archaeological Resources	SMALL	SMALL to MODERATE	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL	SMALL
Environmental Justice	SMALL	MODERATE to LARGE	MODERATE	MODERATE to LARGE	MODERATE	MODERATE to LARGE	SMALL	MODERATE to LARGE	MODERATE	MODERATE to LARGE

(a) A greenfield site is assumed, for the purpose of bounding potential impacts, to be an undeveloped site with no previous construction.
(b) Excludes collective offsite radiological impacts from the fuel cycle and from HLW and spent-fuel disposal, for which single significance levels were not assigned. See Chapter 6 for details.

9.4 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."

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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.

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Appendix A

Discussion of Comments Received on the Environmental Review

Appendix A

Discussion of Comments Received on the Environmental Review

Part I - Comments Received During Scoping

On August 15, 2001, the U.S. Nuclear Regulatory Commission (NRC) published a Notice of Intent in the Federal Register (66 FR 42897), to notify the public of the staff's intent to prepare a plant-specific supplement to the *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (GEIS), NUREG-1437, Volumes 1 and 2, to support the renewal application for the Surry Power Station operating licenses (OLs) and to conduct scoping. The plant-specific supplement to the GEIS has been prepared in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) guidelines, and 10 CFR Part 51. As outlined by NEPA, the NRC initiated the scoping process with the issuance of the Federal Register Notice. The NRC invited the applicant; Federal, State, and local government agencies; local organizations; and individuals to participate in the scoping process by providing oral comments at the scheduled public meetings and/or submitting written suggestions and comments no later than October 15, 2001.

The scoping process included two public scoping meetings, which were held at the Surry County Government Center in Surry County, Virginia, on September 19, 2001. Approximately 50 members of the public attended the meetings. Both sessions began with NRC staff members providing a brief overview of the license renewal process and the NEPA process. After the NRC's prepared statements, the meetings were open for public comments. Twenty (20) attendees provided either oral comments or written statements that were recorded and transcribed by a certified court reporter. The meeting transcripts are an attachment to the October 10, 2001, Scoping Meeting Summary.

The NRC received a letter dated November 15, 2001, from Mr. John P. Wolflin of the U.S. Fish and Wildlife Service (FWS) providing comments on the scope of the staff's environmental review. Because these comments arrived well after the scoping process had ended, they were not included in the scoping summary report. However, the staff did consider the comments from FWS in the preparation of this supplemental environmental impact statement (SEIS).

At the conclusion of the scoping period, the NRC staff and its contractors reviewed the transcripts to identify specific comments and issues. Each set of comments from an individual was given a unique identifier (Commenter ID), so that the comments could be traced back to the original transcript containing the comment. Specific comments were numbered sequentially within each comment set. Several commenters submitted more than one set of comments (e.g., they made statements in both the afternoon and evening scoping meetings). In these cases, there is a unique Commenter ID for each set of comments.

Appendix A

Table A-1 identifies the individuals who provided comments applicable to the environmental review and gives the Commenter ID associated with each set of comments. Individuals who spoke at the scoping meetings are listed in the order in which they spoke at the public meeting. To maintain consistency with the scoping summary report (Surry Power Station Scoping Summary Report, dated January 16, 2002), the unique identifier used in that report for each set of comments is retained in this report.

Table A-1. Individuals Providing Comments During Scoping Comment Period

Commenters ID	Commenter	Affiliation (If Stated)	Comment Source
SurS-A	Bill Barlow	Virginia House of Delegates	Scoping Meeting
SurS-B	Henry Bradby	The Isle of Wight County Board of Supervisors	Scoping Meeting
SurS-C	Judy Lyttle	Surry County Board of Supervisors	Scoping Meeting
SurS-D	Doug Caskey	Isle of Wight County	Scoping Meeting
SurS-E	Tyrone Franklin	Surry County Government	Scoping Meeting
SurS-F	Constance Rhodes	Smithfield Isle of Wight	Scoping Meeting
SurS-G	Claude Reeson	Surry County Chamber of Commerce	Scoping Meeting
SurS-H	Wilton Bobo	Dominion	Scoping Meeting
SurS-I	Richard Blount	Dominion	Scoping Meeting
SurS-J	Bill Bolin	Dominion	Scoping Meeting
SurS-K	Mike Stevens		Scoping Meeting
SurS-L	Howard Daniels	Tri-County Interdenominational Ministers Conference	Scoping Meeting
SurS-M	Thomas Hardy	Surry County	Scoping Meeting
SurS-N	Ralph Anderson	Nuclear Energy Institute	Scoping Meeting
SurS-O	Ernest Blount	Surry County Board of Supervisors	Scoping Meeting
SurS-P	Terry Lewis	Surry County	Scoping Meeting
SurS-Q	Jim Dishner		Scoping Meeting
SurS-R	Richard Blount	Dominion	Scoping Meeting
SurS-S	Bill Bolin	Dominion	Scoping Meeting
SurS-T	Fred Quayle	Virginia Senate	Scoping Meeting
SurS-U	James Brown	Dominion	Scoping Meeting
SurS-V	Bill Subjack		Scoping Meeting

Specific comments were categorized and consolidated by topic. Comments with similar specific objectives were combined to capture the common essential issues raised by the commenters. The comments fall into one of several general groups. These groups include:

- Specific comments that address environmental issues within the purview of the NRC environmental regulations related to license renewal. These comments address Category 1 or Category 2 issues or issues that were not addressed in the GEIS. They also address alternatives and related Federal actions.

- General comments (1) in support of, or opposed to, nuclear power or license renewal or (2) on the license renewal process, the NRC's regulations, and the regulatory process. These comments may or may not be specifically related to 1the Surry Units 1 and 2 license renewal application.

- Questions that do not provide new information.

- Specific comments that address issues that do not fall within, or are specifically excluded from, the purview of NRC environmental regulations. These comments typically address issues such as the need for power, emergency preparedness, current operational safety issues, and safety issues related to operation during the renewal period.

Each comment applicable to this environmental review is summarized in this section. This information, which was extracted from the Surry Power Station Scoping Summary Report, is provided for the convenience of those interested in the scoping comments applicable to this environmental review. The comments that are general or outside the scope of the environmental review for Surry Units 1 and 2 are not included here. More detail regarding the disposition of general or nonapplicable comments can be found in the Summary Report. The accession number for the Summary Report is ML020160586 in the NRC's Agencywide Document Access and Management System (ADAMS).

This accession number is provided to facilitate access to the document through the Public Electronic Reading Room (ADAMS), http://www.nrc.gov/reading-rm.html.

The following pages summarize the comments and suggestions received as part of the scoping process that are applicable to this environmental review, and discuss the disposition of the comments and suggestions. The parenthetical alpha-numeric identifier after each comment refers to the comment set (Commenter ID) and the comment number.

Comments in this section are grouped in the following categories:

1. Category 1 Socioeconomic Issues
2. Category 1 Decommissioning Issues
3. Category 2 Aquatic Ecology Issues
4. Category 2 Threatened and Endangered Species Issues
5. Category 2 Socioeconomic Issues
6. Category 2 Historical and Archaeological Resource Issues

1. Comments Concerning Category 1 Socioeconomic Issues

As stated in 10 CFR Part 51, Table B-1, Category 1 socioeconomic issues include:

- Public services: public safety, social services, and tourism and recreation
- Public services, education (license renewal term)
- Aesthetics impacts (refurbishment)
- Aesthetics impacts (license renewal term)
- Aesthetics impacts of transmission lines (license renewal term)

Comment: Dominion Power has proven to be a great corporate citizen and steward for the environment. (SurS-E-2)

Comment: Dominion's commitment in Isle of Wight, in particular, has been demonstrated in a big way through the United Way effort. (SurS-F-5)

Comment: Dominion assisted in 12 nonprofit agencies in Isle of Wight on a yearly basis, enabling us to meet the needs of those less fortunate in our community. (SurS-F-6)

Comment: As well when a recent devastating hurricane hit southeastern Virginia, the Surry employees joined forces with other Dominion employees, to provide canned foods and household items for those who suffered the loss of homes and property. (SurS-F-7)

Comment: We (Surry) have strived to be a good corporate citizen. (SurS-I-13)

Comment: The employees have volunteered their time to build an amphitheater over at Chippokes, to paint some buildings over there. (SurS-K-3)

Comment: We view the power station as a great corporate neighbor to the county. (SurS-Q-2)

Comment: Our volunteer programs and participation is key to Dominion's corporate philosophy. And we continue this commitment to our communities in the future. (SurS-R-12)

Response: *The comments are noted. The comments are supportive of license renewal at Surry Power Station Units 1 and 2. Public services were evaluated in the GEIS and determined to be a Category 1 issue. Information regarding the impact on social services is discussed in Chapter 4 of the SEIS.*

Comment: The Surry plant has provided for a great number of educational purposes. (SurS-C-2)

Comment: Revenues from Surry have helped the county to do many things to improve itself. For instance we have probably one of the better education systems in the state of Virginia. (SurS-P-3)

Response: *The comments are noted. The comments are supportive of license renewal at Surry Power Station Units 1 and 2. Public services were evaluated in the GEIS and determined to be a Category 1 issue. Information regarding the impact on education is discussed in Chapter 4 of the SEIS.*

Comment: The containment structures for Surry were constructed below grade so as to reduce the visual impact to the historic James Town and Colonial Williamsburg sites. (SurS-J-2)

Comment: Another example of the design feature was the fact that the containment structures were constructed below grade so as to reduce the visual impact to the historic James Town and Colonial Williamsburg. (SurS-S-1)

Response: *The comments are noted. The comments are supportive of license renewal at Surry Power Station Units 1 and 2. Aesthetic impacts were evaluated in the GEIS and determined to be a Category 1 issue. Information regarding the impact of Surry Power Station structures on the natural landscape and scenic vistas is discussed in Chapter 4 of the SEIS.*

2. Comments Concerning Category 1 Decommissioning Issues

As stated in 10 CFR Part 51, Table B-1, Category 1 decommissioning issues include:

- Radiation doses
- Waste management
- Air quality

- Water quality
- Ecological resources
- Socioeconomic impacts

Comment: If we close down that facility we recognize the fact that we would have to put into place all types of security just to make certain that what remains in the county, the residue in terms of radioactive material, would have to be guarded. (SurS-P-11)

Comment: Losing Surry in terms of being a tax asset to the county, but also we pick up the liability in terms of having to provide the services that would be necessary to keep Surry county secure in the event that the plant itself is closed. (SurS-P-12)

Response: *The comments are noted; however, the statements are not accurate. Once the plant is permanently shut down, it will be decommissioned and the license will be terminated. To date, all nuclear power plants that have been decommissioned and have had their license terminated have had unrestricted access, which allows the site to be used for other activities and does not require any additional security or monitoring. If fuel is maintained onsite in an Independent Spent Fuel Storage Installation (ISFSI), a license for the ISFSI will be maintained and any required security and monitoring would be provided by the licensee. Decommissioning issues are Category 1 issues as evaluated in the GEIS. The comments provide no new information; therefore, the comments will not be evaluated further.*

3. Comments Concerning Category 2 Aquatic Ecology Issues

As stated in 10 CFR Part 51, Table B-1, Category 2 aquatic ecology issues are:

- Entrainment of fish and shellfish in early life stages
- Impingement of fish and shellfish
- Heat shock

Comment: We designed Surry Power Station such that the water that is released from the power station goes around Hog Island such to protect the oyster beds. (SurS-I-9)

Comment: We designed a structure, which takes in, as water comes in, removes fish from the water, protects them, and puts them back. (SurS-I-10)

Comment: The discharge for the Surry station was placed upstream to prevent, or to protect the oyster beds downstream. (SurS-J-1)

Comment: Surry has state-of-the-art withdraw screens, which are at the intake structure to protect fish. (SurS-J-4)

Comment: In the mid to late '70s we conducted a study that led to the impacts of this waste heat on the bottom of the James River. Basically we found no long-term deleterious effects. And the Virginia State Water Control Board, which is now called the Department of Environmental Quality, agreed with our findings. (SurS-J-8)

Comment: Water withdrawal issues were looked at, also. Water withdrawal represents the water that I mentioned earlier, that is used for cooling. The Virginia Institute of Marine Sciences studied the water withdrawal issue, and again demonstrated no long-term deleterious effects on the James River ecosystem. And, again, the water board, now VEQ, concurred with our findings. (SurS-J-9)

Comment: Our waterways, our water streams, Surry has safety in mind, you know, with our fish and wildlife, even at the intake. And they have designed a special fish separating system intake screen that separates, and where it goes into the James River as well. (SurS-O-8)

Comment: We designed Surry Power Station such that when the water that is released from the power station, that it does not impact the oyster beds. The station was turned such that water goes out, and by the time it gets to the oyster beds it is all cooled down again. (SurS-R-8)

Comment: Surry has developed the structure such that when fish are coming in, the structure picks up the fish, and puts them back into the river without being harmed. (SurS-R-9)

Comment: In the mid to late '70s Surry conducted a study that looked at the impacts of this waste heat on the biology of the James River. Basically we found no long-term deleterious effects. The Virginia State Water Control Board, which is now called the Department of Environmental Quality, agreed with our findings. (SurS-S-6)

Comment: Water withdrawal issues were looked at, also. Water withdrawal represents the water that I mentioned earlier, that is used for cooling. The Virginia Institute of Marine Sciences studied the water withdrawal issue, and again they demonstrated no long-term deleterious effects on the James River ecosystem, which the water board agreed with, also. (SurS-S-7)

Response: *The comments are noted. The comments relate to aquatic ecology and are supportive of license renewal at Surry Power Station Units 1 and 2. Aquatic ecology is addressed in Chapter 4 of the SEIS.*

4. Comments Concerning Category 2 Threatened and Endangered Species Issues

As stated in 10 CFR Part 51, Table B-1, Category 2 threatened and endangered species issues are:

- Threatened or endangered species.

Comment: Surry looked at such issues as waste heat, water withdrawal, and threatening of endangered species. (SurS-J-7)

Comment: Our research showed no impact to any threatened and endangered species as a result of operation of Surry and its associated transmission lines. In fact one of the most long-lived and successful bald eagle nest in Chesapeake bay population is located on Surry Power Station property. (SurS-J-10)

Comment: Some of the issues that we (Surry) looked at, at Surry, include such things as waste heat, water withdrawal, and threatened and endangered species. (SurS-S-5)

Comment: The evaluation of threatened and endangered species was a little different, in that we had to go to state and federal agencies to investigate possible impacts on listed species, since species are continually being listed. The research showed no impact to any threatened and/or endangered species as a result of the operation of the station, and its associated transmission lines. In fact one of the most long-lived and successful bald eagle nest in Chesapeake bay population is located on the station property. (SurS-S-9)

Response: *The comments are noted. The comments acknowledge the importance of the manner in which Surry Power Station operates the site to the benefit of threatened and endangered species. This issue is addressed in Chapter 4 of the SEIS.*

5. Comments Concerning Category 2 Socioeconomic Issues

As stated in 10 CFR Part 51, Table B-1, Category 2 socioeconomic issues are:

- Housing
- Public services, public utilities
- Public services, education (refurbishment)
- Offsite land use (refurbishment)
- Offsite land use (license renewal term)
- Public services, transportation

Comment: Surry provides a tremendous employment base. (SurS-D-8)

Comment: Surry has also been a model corporate citizen, and have helped many organizations in the county, plus provided jobs and an enormous tax base. (SurS-G-2)

Comment: License Renewal will assure that the local economy will continue to reap the benefits of the large number of employees at Surry Power Station. (SurS-I-2)

Comment: Since 1966 130 million dollars has gone to Surry County. (SurS-I-3)

Comment: With regard to socioeconomic issues, we found contribution to the local infrastructure. (SurS-J-11)

Comment: Surry provided 10.3 million dollars in taxes last year for a county of 6,000 people. (SurS-K-1)

Comment: From a business point of view, I have a restaurant, a small inn. Surry helps us to keep our employee level high through the year. (SurS-K-2)

Comment: We are impressed and proud of the fact that we receive a tax base here. And we are, more so, pleased with the fact that you employ some of our citizens. (SurS-L-3)

Comment: Surry has a profound effect on your tax base. (SurS-N-4)

Comment: Surry Power Station provides significant tax revenue for Surry County. (SurS-O-10)

Comment: Surry employment provides employment for 900 to 1,000 people at the power station, which contributes to the local economics here in the community, and surrounding areas throughout Virginia. (SurS-O-11)

Comment: Surry Power Station has been of great benefit to the county, in terms of the tax revenues that are generated by the plant for Surry. (SurS-P-2)

Comment: Revenues from Surry have helped the county to do many things to improve itself. For instance we have probably one of the better education systems in the state of Virginia. (SurS-P-3)

Comment: Surry Power Station allows Surry County to be a net producer of jobs. (SurS-P-5)

Comment: The jobs that are available at Surry Power Station are high end, high paying jobs, highly skilled, highly technical people are employed in those jobs. (SurS-P-6)

Comment: Surry will also ensure that our local economy will continue to reap the benefits of a large employer in the area. (SurS-R-2)

Comment: Surry County will continue to receive the tax revenue from the station operation. (SurS-R-3)

Comment: Surry Power Station will continue to have jobs well into this century. (SurS-R-4)

Comment: With regard to socioeconomic issues, we (Surry) found positive contribution to the local infrastructure, much of which you've heard about tonight. (SurS-S-10)

Comment: For the time that, since 1966, the Surry Power Station has pumped 130 million dollars into the economy of this county. It has provided jobs for 850 people, many of whom live in this county. (SurS-T-2)

Comment: Without Dominion Power we won't get no businesses. We use that to show that we have a low tax base, and we use that to show that we have power to give you. (SurS-U-3)

Response: *The comments are noted. The comments support license renewal at Surry Power Station Units 1 and 2. Socioeconomic issues specific to the plant are Category 2 issues and are addressed in Chapter 4 of the SEIS.*

6. Comments Concerning Category 2 Historical and Archaeological Resource Issues

Comment: Because there would be no new construction activity at Surry, we are going to continue to use the same facilities, the continued operation of the station means that there will be, the impacts to the cultural resource will also be negligible. (SurS-J-12)

Comment: There will be no new construction activity at Surry of a major consequence, so therefore the cultural resource impacts would be negligible. (SurS-S-11)

Response: *The comments are noted. The comments are supportive of license renewal at Surry Power Station Units 1 and 2. Historical and archaeological resources are addressed as Category 2 issues. Potential impacts to historical and archaeological resources are addressed in Chapter 4 of the SEIS.*

Part II - Comments Received on the Draft SEIS

Pursuant to 10 CFR Part 51, the staff transmitted the *Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Regarding Surry Power Station Units 1 and 2, Draft Report for Comment* (NUREG-1437, Supplement 6, referred to as the draft SEIS) to Federal, State, and local government agencies as well as interested members of the public. As part of the process to solicit public comments on the draft SEIS, the staff:

- placed a copy of the draft SEIS into the NRC's electronic Public Document Room, its license renewal website, and at the Swem Library at the College of William and Mary, Williamsburg, Virginia
- sent copies of the draft SEIS to the applicant, members of the public who requested copies, and certain Federal, State, and local agencies
- published a notice of availability of the draft SEIS in the Federal Register on April 25, 2002 (67 FR 20554)
- issued public announcements, such as advertisements in local newspapers and postings in public places, of the availability of the draft SEIS
- announced and held two public meetings in Surry, Virginia, on May 29, 2002, to describe the results of the environmental review and answer related questions
- issued public service announcements and press releases announcing the issuance of the draft SEIS, the public meetings, and instructions on how to comment on the draft SEIS
- established a website to receive comments on the draft SEIS through the Internet.

During the comment period, the staff received a total of 2 comment letters in addition to the comments received during the public meetings.

The staff has reviewed the public meeting transcripts and the 2 comment letters that are part of the docket file for the application, all of which are available in the NRC's electronic Public Document Room. Appendix A, Part II, Section A.1 contains a summary of the comments and the staff's responses. Related issues are grouped together. Appendix A, Part II, Section A.2 contains excerpts of the May 29, 2002, public meeting transcripts, the written statements provided at the public meetings, and comment letters.

Each comment identified by the staff was assigned a specific alpha-numeric identifier (marker). That identifier is typed in the margin of the transcript or letter at the beginning of the discussion of the comment. A cross-reference of the alpha-numeric identifiers, the speaker or author of the comment, the page where the comment can be found, and the section(s) of this report in which the comment is addressed is provided in Table A-2. The speakers at the meetings are listed in speaking order along with the page of the transcript excerpts in this report on which the comment appears. These comments are identified by the letters "SurD" followed by a number that identifies each comment in approximate chronological order in which the comments were made. The written statements (from the public meetings) and written comment letters are also identified by the letters "SurD."

The staff made a determination on each comment that it was one of the following:

(1) a comment that was actually a request for information and introduced no new information.

(2) a comment that was either related to support or opposition of license renewal in general (or specifically Surry Power Station Units 1 and 2) or that made a general statement about the license renewal process. It may have made only a general statement regarding Category 1 and/or Category 2 issues. In addition, it provided no new information and does not relate to safety considerations reviewed under 10 CFR Part 54.

(3) a comment about a Category 1 issue that

- provided new information that required evaluation during the review, or
- provided no new information

(4) a comment about a Category 2 issue that

- provided information that required evaluation during the review, or
- provided no such information

(5) a comment that raised an environmental issue that was not addressed in the GEIS or the draft SEIS

(6) a comment on safety issues pertaining to 10 CFR Part 54, or

(7) a comment outside the scope of license renewal (not related to 10 CFR Parts 51 or 54).

There was no significant new information provided on Category 1 issues [(3)(a) above]. A comment from the U.S. Fish and Wildlife Service led the NRC staff to prepare a biological

assessment related to bald eagles for the Category 2 issue, "Threatened or Endangered Species".

Comments without a supporting technical basis or without any new information are discussed in this appendix, and not in other sections of this report. Relevant references that address the issues within the regulatory authority of the NRC are provided where appropriate. Many of these references can be obtained from the NRC Electronic Public Document Room.

Within each section of Part II of this appendix (A.1.1 through A.1.21), similar comments are grouped together for ease of reference, and a summary description of the comments is given, followed by the staff's response. Where the comment or question resulted in a change in the text of the draft report, the corresponding response refers the reader to the appropriate section of this report where the change was made. Revisions to the text in the draft report are designated by vertical lines beside the text.

Some numbers were initially assigned to portions of verbal or written statements that were later determined not to be comments. These items were removed from the table. As a result, not all numbers are sequential (see Table A-2).

Table A-2. Surry Power Station Units 1 and 2 SEIS Comment Log

Number	Speaker or Author	Comment Source	Page of Comment	Section(s) Where Addressed
SurD-A-1	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-17	A.1.1
SurD-A-2	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-17	A.1.1
SurD-A-3	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-17	A.1.1
SurD-A-4	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-26	A.1.9
SurD-A-5	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-17	A.1.1
SurD-A-6	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-17	A.1.1
SurD-A-7	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-27	A.1.10
SurD-A-8	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-26	A.1.9
SurD-A-9	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-28	A.1.11
SurD-A-10	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-24	A.1.8
SurD-A-11	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-17	A.1.1
SurD-A-12	F. Quayle	Afternoon Meeting Notes (5/29/01)	A-17	A.1.1

Table A.2. (contd)

Number	Speaker or Author	Comment Source	Page of Comment	Section(s) Where Addressed
SurD-B-1	B. Barlow	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-B-3	B. Barlow	Afternoon Meeting Notes (5/29/01)	A-28	A.1.11
SurD-B-4	B. Barlow	Afternoon Meeting Notes (5/29/01)	A-22	A.1.6
SurD-B-5	B. Barlow	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-B-7	B. Barlow	Afternoon Meeting Notes (5/29/01)	A-21	A.1.2
SurD-B-9	B. Barlow	Afternoon Meeting Notes (5/29/01)	A-22	A.1.4
SurD-B-11	B. Barlow	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-C-1	T. Lewis	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-C-5	T. Lewis	Afternoon Meeting Notes (5/29/01)	A-24	A.1.8
SurD-C-6	T. Lewis	Afternoon Meeting Notes (5/29/01)	A-24	A.1.8
SurD-C-7	T. Lewis	Afternoon Meeting Notes (5/29/01)	A-24	A.1.8
SurD-C-8	T. Lewis	Afternoon Meeting Notes (5/29/01)	A-21	A.1.3
SurD-C-9	T. Lewis	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-D-1	L. Daniels	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-D-2	L. Daniels	Afternoon Meeting Notes (5/29/01)	A-25	A.1.8
SurD-D-3	L. Daniels	Afternoon Meeting Notes (5/29/01)	A-25	A.1.8
SurD-D-4	L. Daniels	Afternoon Meeting Notes (5/29/01)	A-25	A.1.8
SurD-D-5	L. Daniels	Afternoon Meeting Notes (5/29/01)	A-22	A.1.6
SurD-D-6	L. Daniels	Afternoon Meeting Notes (5/29/01)	A-23	A.1.6
SurD-D-7	L. Daniels	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-E-1	J. Lyttle	Afternoon Meeting Notes (5/29/01)	A-23	A.1.6
SurD-E-2	J. Lyttle	Afternoon Meeting Notes (5/29/01)	A-23	A.1.6
SurD-F-1	T. Sowers	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-F-2	T. Sowers	Afternoon Meeting Notes (5/29/01)	A-25	A.1.8
SurD-F-3	T. Sowers	Afternoon Meeting Notes (5/29/01)	A-25	A.1.8
SurD-F-6	T. Sowers	Afternoon Meeting Notes (5/29/01)	A-28	A.1.11
SurD-F-7	T. Sowers	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1

Table A.2. (contd)

Number	Speaker or Author	Comment Source	Page of Comment	Section(s) Where Addressed
SurD-F-8	T. Sowers	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-F-9	T. Sowers	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-F-10	T. Sowers	Afternoon Meeting Notes (5/29/01)	A-28	A.1.11
SurD-F-11	T. Sowers	Afternoon Meeting Notes (5/29/01)	A-23	A.1.6
SurD-G-1	J. White	Afternoon Meeting Notes (5/29/01)	A-18	A.1.1
SurD-G-4	J. White	Afternoon Meeting Notes (5/29/01)	A-19	A.1.1
SurD-G-5	J. White	Afternoon Meeting Notes (5/29/01)	A-19	A.1.1
SurD-G-6	J. White	Afternoon Meeting Notes (5/29/01)	A-19	A.1.1
SurD-G-7	J. White	Afternoon Meeting Notes (5/29/01)	A-21	A.1.2
SurD-G-8	J. White	Afternoon Meeting Notes (5/29/01)	A-19	A.1.1
SurD-H-2	P. Stephenson	Evening Meeting Transcript (5/29/01)	A-21	A.1.2
SurD-H-3	P. Stephenson	Evening Meeting Transcript (5/29/01)	A-28	A.1.11
SurD-H-4	P. Stephenson	Evening Meeting Transcript (5/29/01)	A-19	A.1.1
SurD-I-1	P. Small	Evening Meeting Transcript (5/29/01)	A-19	A.1.1
SurD-I-2	P. Small	Evening Meeting Transcript (5/29/01)	A-19	A.1.1
SurD-I-3	P. Small	Evening Meeting Transcript (5/29/01)	A-25	A.1.8
SurD-I-4	P. Small	Evening Meeting Transcript (5/29/01)	A-28	A.1.11
SurD-J-1	J. Newby	Evening Meeting Transcript (5/29/01)	A-19	A.1.1
SurD-J-2	J. Newby	Evening Meeting Transcript (5/29/01)	A-23	A.1.6
SurD-J-3	J. Newby	Evening Meeting Transcript (5/29/01)	A-25	A.1.8
SurD-J-4	J. Newby	Evening Meeting Transcript (5/29/01)	A-25	A.1.8
SurD-J-5	J. Newby	Evening Meeting Transcript (5/29/01)	A-25	A.1.8
SurD-J-6	J. Newby	Evening Meeting Transcript (5/29/01)	A-23	A.1.6
SurD-K-1	R. Turner	Evening Meeting Transcript (5/29/01)	A-23	A.1.6
SurD-K-2	R. Turner	Evening Meeting Transcript (5/29/01)	A-26	A.1.8
SurD-K-4	R. Turner	Evening Meeting Transcript (5/29/01)	A-23	A.1.6
SurD-K-5	R. Turner	Evening Meeting Transcript (5/29/01)	A-23	A.1.6

Table A.2. (contd)

Number	Speaker or Author	Comment Source	Page of Comment	Section(s) Where Addressed
SurD-K-6	R. Turner	Evening Meeting Transcript (5/29/01)	A-20	A.1.1
SurD-L-1	T. Sowers	Evening Meeting Transcript (5/29/01)	A-20	A.1.1
SurD-L-2	T. Sowers	Evening Meeting Transcript (5/29/01)	A-20	A.1.1
SurD-L-3	T. Sowers	Evening Meeting Transcript (5/29/01)	A-28	A.1.11
SurD-L-4	T. Sowers	Evening Meeting Transcript (5/29/01)	A-26	A.1.8
SurD-L-6	T. Sowers	Evening Meeting Transcript (5/29/01)	A-26	A.1.8
SurD-L-8	T. Sowers	Evening Meeting Transcript (5/29/01)	A-28	A.1.11
SurD-L-11	T. Sowers	Evening Meeting Transcript (5/29/01)	A-20	A.1.1
SurD-L-12	T. Sowers	Evening Meeting Transcript (5/29/01)	A-20	A.1.1
SurD-L-14	T. Sowers	Evening Meeting Transcript (5/29/01)	A-18	A.1.1
SurD-L-15	T. Sowers	Evening Meeting Transcript (5/29/01)	A-28	A.1.11
SurD-L-16	T. Sowers	Evening Meeting Transcript (5/29/01)	A-20	A.1.1
SurD-L-18	T. Sowers	Evening Meeting Transcript (5/29/01)	A-23	A.1.6
SurD-M-6	J. White	Evening Meeting Transcript (5/29/01)	A-20	A.1.1
SurD-M-7	J. White	Evening Meeting Transcript (5/29/01)	A-21	A.1.2
SurD-M-8	J. White	Evening Meeting Transcript (5/29/01)	A-20	A.1.1
SurD-N-1	D. Christian	Letter (7/2/02)	A-29	A.1.12
SurD-N-2	D. Christian	Letter (7/2/02)	A-29	A.1.12
SurD-N-3	D. Christian	Letter (7/2/02)	A-29	A.1.12
SurD-N-4	D. Christian	Letter (7/2/02)	A-29	A.1.12
SurD-N-5	D. Christian	Letter (7/2/02)	A-29	A.1.12
SurD-N-6	D. Christian	Letter (7/2/02)	A-29	A.1.12
SurD-N-7	D. Christian	Letter (7/2/02)	A-30	A.1.12
SurD-N-8	D. Christian	Letter (7/2/02)	A-30	A.1.12
SurD-N-9	D. Christian	Letter (7/2/02)	A-30	A.1.12
SurD-N-10	D. Christian	Letter (7/2/02)	A-30	A.1.12
SurD-N-11	D. Christian	Letter (7/2/02)	A-30	A.1.12

Table A.2. (contd)

Number	Speaker or Author	Comment Source	Page of Comment	Section(s) Where Addressed
SurD-O-1	M. Chezik	Letter (7/10/02)	A-27	A.1.10
SurD-O-2	M. Chezik	Letter (7/10/02)	A-26	A.1.9
SurD-O-3	M. Chezik	Letter (7/10/02)	A-26	A.1.9
SurD-O-4	M. Chezik	Letter (7/10/02)	A-27	A.1.10
SurD-O-5	M. Chezik	Letter (7/10/02)	A-22	A.1.5
SurD-P-1	O. Shehab	Letter (9/30/02)	A-24	A.1.7
SurD-P-2	O. Shehab	Letter (9/30/02)	A-24	A.1.7

(a) This comment was determined upon later review to either be combined with another comment or to be un-related to the scope of the SEIS.

A.1 Comments and Responses

A.1.1 General Comments in Support of License Renewal at Surry Power Station Units 1 and 2

Comment: The Surry plant has a good safety record and the operators are well trained. (SurD-A-1)

Comment: The plant has both environmental and socioeconomic impacts on the area. (SurD-A-2)

Comment: Dominion is environmentally responsible, using technology to protect environmental resources. (SurD-A-3)

Comment: Dominion was among the first companies to establish a permanent environmental group. (SurD-A-5)

Comment: The plant is operated within the bounds of its permits. (SurD-A-6)

Comment: Surry's record argues for continued operations. (SurD-A-11)

Comment: I support license renewal and am encouraged by the NRC's draft report. (SurD-A-12)

Comment: I support license renewal for Surry. (SurD-B-1)

Comment: Dominion has done an outstanding job; there were some problems early in the life of the plant, but things are much better now. (SurD-B-5)

Comment: I hope that the NRC will grant this license extension. (SurD-B-11)

Comment: This plant is very important to Surry County. (SurD-C-1)

Comment: I think it is important to keep this plant running. (SurD-C-9)

Comment: I've often asked citizens, "What would it be like if the power plant were not here?" They always shake their heads and say, "You don't want to know and we don't even want to think about it. We don't want to go back to the way we were before the power plant was built." (SurD-D-1)

Comment: We know that the power plant has an excellent safety record. Therefore, the citizens aren't worried about the effects of HAVING the nuclear power plant; they are worried about the effects of NOT HAVING the nuclear power plant. (SurD-D-7)

Comment: I am excited about license renewal. (SurD-F-1)

Comment: We believe our proximity to the Hog Island wildlife preserve fits hand-in-glove with efforts to maintain operations that have a minimal impact on the local environment. (SurD-F-7)

Comment: One of those goals is to have no environmental violations (a repeat of the successful 2001 goal). We don't put oil or other contaminants into the ground or waterways. If we have a piece of equipment leak oil, we have a spill prevention and cleanup procedure we invoke and we document the leak in our Corrective Action System where we track what, how and why it happened and what we will do to prevent reoccurrence. (SurD-F-8)

Comment: The station was relatively inexpensive to build, costing about $400 million. When you consider the cost of building new baseload electric generating units in today's economy, that's a bargain. (SurD-F-9)

Comment: I am very proud of Dominion's environmental performance throughout the years I've been employed. (SurD-G-1)

Comment: Dominion proactively engaged in discussions and meetings with key state and federal environmental agency staffs very early in the license renewal process to help ensure all issues were identified and appropriately addressed in the Environmental Report submitted to the NRC. Dominion also proactively communicated with environmental and other pertinent stakeholders about license renewal. This helped considerably in the development of a thorough and accurate report. (SurD-G-4)

Comment: Dominion developed an internal procedure to identify any new and significant information related to these issues that could potentially change the determinations. No information was identified that would change the conclusions in the Generic Environmental Impact Statement. This activity is considered very important in all license renewal projects for verification of the findings in the Generic Environmental Impact Statement. (SurD-G-5)

Comment: Dominion also agrees with the NRC that the potential environmental impacts of license renewal for the remaining environmental issues evaluated separately in the Supplemental Environmental Impact Statement are small. A significant consideration for this determination was the fact that no new major construction or land-disturbing activity is to take place in order to proceed with license renewal. (SurD-G-6)

Comment: Current measures to mitigate environmental impacts associated with operations were found to be adequate. (SurD-G-8)

Comment: I am familiar with the recent environmental review performed for the facility and I do agree that the renewal and extension of its license is an excellent energy generation alternative for our local environment and is in the best economic interest for our region and the Commonwealth. (SurD-H-4)

Comment: As a developer, as a public developer, I conduct environmental impact statements and reviews myself on properties we seek to develop and as an anecdotal neighbor of this facility I can only testify to the fact that there has been no significant environmental impact on any of our communities from this facility. No negative impacts whatsoever. So I'm speaking in unqualified support of renewal of this license. (SurD-I-1)

Comment: The fact that we are here today holding a public hearing in such a friendly environment is only a testament to the fact that there are no significant environmental impacts. (SurD-I-2)

Comment: Tonight I [have] come to thank the NRC and all the people at Virginia Power for their commitment to a safe environment here in Surry County and to note that there is a

continued review of our environment and the status that it is here in Surry. This is important to us because the power plant is important to Surry, to Surry Elementary School. (SurD-J-1)

Comment: I certainly, as you well know, speak in favor of the consideration of this and hope that it serves the community well. (SurD-K-6)

Comment: I take great pride in our station. I'm excited about license renewal. (SurD-L-1)

Comment: I started in the Nuclear Navy and I believe this is a very viable and legitimate alternative that we have far under-utilized in nuclear power. (SurD-L-2)

Comment: Our commitment to environmental stewardship dates back to the construction days of the 1960s and 1970s when we implemented many revolutionary design features at the station to maintain the environment and the intake and discharge canal you saw in the picture is one of a kind in this country. The discharge is upriver to protect the oyster beds, the game preserves and the feeding of the birds. (SurD-L-11)

Comment: We believe our proximity to Hog Island Wildlife Preserve fits hand and glove with our efforts to maintain operations that have minimal impact on the local environment. (SurD-L-12)

Comment: The station was relatively inexpensive to build, costing only $400 million. When you consider the cost of replacement power for base level electric generating units that is a real bargain. (SurD-L-14)

Comment: We try to be the best corporate citizen we can. It's also one of our goals. (SurD-L-16)

Comment: Dominion also agrees with the NRC that the potential environmental effects of license renewal for the remaining environmental issues evaluated separately in the supplemental environmental impact statement are small. A significant consideration for this determination was the fact that no new major construction or land disturbing activity is to take place in order to proceed with license renewal. (SurD-M-6)

Comment: The current measures to mitigate environmental impacts associated with operations were found to be adequate. (SurD-M-8)

Response: *The comments are noted. The comments are supportive of license renewal at the Surry Power Station Units 1 and 2, and are general in nature. The comments provide no new*

information, therefore, the comments will not be evaluated further. There was no change to the SEIS text.

A.1.2 Comments Concerning Air Quality Issues

Comment: With respect to air, nuclear is an emissions-free method of power generation compared to fossil fuels; some places (e.g., California) didn't want nuclear plants and they are now paying the price. (SurD-B-7)

Comment: Nor are there any new or increased environmental emissions as a result of this action. (SurD-G-7)

Comment: Nuclear power is an emission-free energy. (SurD-H-2)

Comment: Nor are there any new or increased environmental emissions as a result of this action. (SurD-M-7)

Response: *The comments are noted. Air quality impacts from plant operations were evaluated in the GEIS and found to be minimal. These emissions are regulated through permits issued by the U.S. Environmental Protection Agency and the States. Air quality effects of transmission lines is a Category 1 issue as evaluated in the GEIS. The comments provide no new information and, therefore, will not be evaluated further. There was no change to the SEIS text.*

A.1.3 Comments Concerning Decommissioning Issues

Comment: My only concern would be with decommissioning the plant; it would have a major impact in terms of lost income and lost jobs; also the County would have to pay to maintain the facility. (SurD-C-8)

Response: *The comment is noted; however the statement regarding County payments is not accurate. Once the plant is permanently shutdown, it will be decommissioned and the license will be terminated. To date, all nuclear power plants that have been decommissioned and have had their license terminated, have had unrestricted access, which allows the site to be used for other activities and does not require any additional security or monitoring. If fuel is maintained onsite in an Independent Spent Fuel Storage Installation (ISFSI), a license for the ISFSI will be maintained and any required security and monitoring would be provided by the licensee. Therefore, the County would not bear any financial responsibility for maintaining Surry Power Station. The comment provides no new information; therefore, the comment will not be evaluated further. There was no change to the SEIS text.*

A.1.4 Comments Concerning Land Use Issues

Comment: And on the land, the Hog Island Wildlife Management Area coexists well with its neighbor with no problems. (SurD-B-9)

Response: *The comment is noted. Onsite land use during the renewal period is a Category 1 issue as evaluated in the GEIS. The comment is supportive of license renewal at the Surry Power Station Units 1 and 2. Impacts to land use are addressed in Section 4 of the SEIS. The comment provides no new information and therefore, will not be evaluated further. There was no change to the SEIS text.*

A.1.5 Comments Concerning Archeological and Historic Issues

Comment: The Bureau of Indian Affairs (BIA) requests that the NRC consult with the Tuscarora Tribe regarding impacts to aboriginal territory. (SurD-O-5)

Response: *The comment is noted. On July 29, 2002, NRC sent a letter to the Tuscarora Nation providing them copies of the Surry and the North Anna draft SEISs with a 30-day opportunity to provide comments and share their views. Upon staff review it was determined that the Tuscarora tribe was historically in the North Carolina and Virginia (Roanoke River) region in precontact and early contact days. The Tuscarora maintained strong trading ties with the Powhatan villages located along the James River, including in the vicinity of Surry Power Station Units 1 and 2; however, available historic documentation indicates that the Tuscarora did not actually live in this specific area. In approximately 1722, the Tuscarora tribe was pushed northward by white settlers and eventually became the Sixth Nation of the Iroquois Confederacy. The Tuscarora Nation is similar to other tribes who for various reasons left their traditional homelands some time ago, but may still retain cultural ties to those formerly-occupied areas. The NRC staff did not receive any response from the Tuscarora Nation. Therefore, there was no change to the SEIS text.*

A.1.6 Comments Concerning Category 1 Socioeconomic Issues

Comment: Dominion is a good corporate citizen - conscientious and careful. (SurD-B-4)

Comment: The power station's local involvement is an example of their good corporate citizenship. (SurD-D-5)

Comment: The power station is an outstanding educational partner. (SurD-D-6)

Comment: VEPCo has been a good neighbor and we appreciate the income from the plant and the services that [it] allows us to provide. (SurD-E-1)

Comment: VEPCo contributes to the community in many ways, for example they provided speakers for the County's 350th anniversary activities; the employees help out in the community in many ways. (SurD-E-2)

Comment: We strive to be a good corporate citizen and have enjoyed the professional, supportive working relationship we have with the State and Local officials. Dominion has a long-standing tradition of investing in the communities we serve through volunteer and philanthropic activities. Our employees demonstrate their commitment to their community by participating in Adopt-A-Highway programs, Holiday baskets for the needy, contributing to the United Way, Blood Drives, supporting area scouting programs and many other community activities. We consider community partnership as an important component of the Dominion equation and environmental stewardship as a core component of that partnership. (SurD-F-11)

Comment: You've provided opportunities to explore the areas of math, science and technology in our fourth grade students. The students really enjoy going to the power station to study electricity and to be successful on those SOLs. (SurD-J-2)

Comment: Dominion Power employees provide many hours of volunteer services for community projects such as our Special Olympics Program and our school carnivals and most recently at the 350th Anniversary Speakers Series. (SurD-J-6)

Comment: And enjoyed a wonderful relationship with the good neighbors of Surry and their safety programs that we had with Surry nuclear plant and with the counties as good neighbors working together. (SurD-K-1)

Comment: Surry Nuclear Power Plant has some wonderful community leaders, not only Surry but Virginia Power as a whole, some wonderful community leaders that serve in local government, serve in all kinds of United Way and cancer drives and other things that they are leaders in that lead us and make this area a better place. (SurD-K-4)

Comment: They learn as you well have heard tonight of all the regulations and things that they've done prior to these people getting here. They help people from their staff every time there's a need in the community or a need in the Tidewater area. (SurD-K-5)

Comment: We're a leading contributor from the state, of course, for United Way, and the Scouting programs and many other community activities that we sponsor. We consider our

community partnership an important part of our equation and environmental stewardship, that's a core component of that partnership. (SurD-L-18)

Response: *The comments are noted. The comments are supportive of license renewal at the Surry Power Station Units 1 and 2. Public services were evaluated in the GEIS and determined to be a Category 1 issue. Information regarding the impact on socioeconomics are discussed in Chapter 4 of the SEIS. The comments provide no new information and therefore, will not be evaluated further. There was no change to the SEIS text.*

A.1.7 Comments Concerning Category 1 Water Use and Quality

Comment: Sanitary wastes generated at the facility receive treatment provided by an on-site activated sludge treatment plant (design flow of 0.085 MGD). The wastewater goes through flow equalization, screening, grinding, activated sludge treatment, settling and disinfection. The treated wastewater is finally discharged into the effluent discharge canal. Sludge is aerobically digested, then pumped and hauled by a local contractor for final disposal. (SurD-P-1)

Comment: The permit requires VEPCo to take immediate steps to achieve a non-detectable chlorine concentration in the final effluent if detectable chlorine concentrations are noted. (SurD-P-2)

Response: *The comments are noted. The SEIS text was modified to incorporate these comments.*

A.1.8 Comments Concerning Category 2 Socioeconomic Issues

Comment: The plant pays $10.94 million in taxes to the county, and employs about 850 people at an average salary of $56,400, much of which feeds back into the local economy. (SurD-A-10)

Comment: The plant is the largest employer in Surry County and one of the largest in the surrounding area; the jobs are high-paying, with many of the employees commuting into the County; so the benefits are spread around the area. (SurD-C-5)

Comment: The plant pays about $10 million to the county, compared to the county operating budget of about $25 million; this is good for the county, particularly the school system, which ranks among the highest in the state in terms of the amount of money spent on each student; and they rank high even compared to northern Virginia where the average household incomes are much higher. (SurD-C-6)

Comment: The plant and its employees also purchase locally, adding to the local economy. (SurD-C-7)

Comment: The significant amount of money in property taxes paid by Dominion provide a great source of assurance that the county will be able to meet the needs of the community. (SurD-D-2)

Comment: We now have modern, up-to-date schools of which everyone can be proud. Because of the power plant our children have the learning environment they deserve. (SurD-D-3)

Comment: The power station provides employment opportunities, thereby giving household income to many residents of the county who, in turn, contribute to the local economy. (SurD-D-4)

Comment: A renewed license is not only important for Surry County and Virginia, but also for more than 850 other fulltime Surry employees whose livelihood depends on providing safe and reliable electricity to customers in this state. (SurD-F-2)

Comment: A renewed license will provide assurance that the local economy will continue to reap the benefit of having a large employer in the area and that Surry County will continue to receive tax revenue from the Station's operations. (SurD-F-3)

Comment: The plant has a significant economic impact on our region. Fifteen percent of the Commonwealth's power is produced by this facility. (SurD-I-3)

Comment: Revenues generated through Dominion Power enables the school system to implement programs such as after school tutoring, Saturday school and summer school and because of these programs and more programs that we implement, Surry Elementary has achieved next to the top state rating for school accreditation and is accredited through Southern Association of Schools and Colleges and receives state recognition for the National Blue Ribbon Schools Award. Some of our teachers have applied for the mini grant that has been offered by Dominion Power and we've been able to implement special programs. (SurD-J-3)

Comment: And as a citizen of Surry County, Dominion Power is significantly meaningful to taxpayers in that it provides tax revenues that allows citizens in Surry to enjoy a quality of lifestyle at a compatible real estate property tax rate and at a personal property rate that is much lower than surrounding localities. (SurD-J-4)

Comment: The power plant has proven to be a responsible industry that not only provides energy for consumer use, but provides citizens of the county with employment opportunity. (SurD-J-5)

Comment: Where would Surry County Schools be, where would the local government be without the support and help in the past as well as in the future, where would Hampton Roads and the economy of the State of Virginia be without these nuclear power plants supplying good, economical power for our businesses here? (SurD-K-2)

Comment: It's wonderful for me and 850 other employees at the station. It's a livelihood over there. (SurD-L-4)

Comment: Renewed licenses will provide assurance that the local economy will continue to reap the benefit of having the large employer in the area and the tax benefits associated with that. (SurD-L-6)

Response: *The comments are noted. The comments support license renewal at the Surry Power Station Unit 1 and 2. Socioeconomic issues specific to the plant are Category 2 issues and are addressed in Chapter 4 of the SEIS. The comments provide no new information and therefore, will not be evaluated further. There was no change to the SEIS text.*

A.1.9 Comments Concerning Category 2 Aquatic Resource Issues

Comment: Dominion placed the cooling water discharge upstream of the intake to protect oyster beds. (SurD-A-4)

Comment: Dominion developed and patented an intake screen design to protect fish. (SurD-A-8)

Comment: Regarding aquatic species, the cooling water intake structures at the Power Station are nearly the state of the art. (SurD-O-2)

Comment: The Dominion Energy Company has developed a cooling water intake that is effective at minimizing aquatic impacts. The traveling mesh screens are spray washed and the biota is removed from the screens and returned to the river. The traveling screen and wash system clearly minimize aquatic impacts. To further minimize the impacts, in the process of replacing worn or damaged screens, the screens should be replaced with mesh less than or equal to one millimeter wide, with entrance velocities less than or equal to 0.5 feet per second. (SurD-O-3)

Response: *The comments are noted. The comments relate to design features of the plant that minimize the impact to the aquatic environment.*

Under the Clean Water Act, VEPCo submitted a 316(b) demonstration for Surry Power Station in 1980. The Virginia State Water Control Board, the permitting authority, determined that the intake design will ensure the protection and propagation of a balanced indigenous community of shellfish, fish, and wildlife in the James River.

Subsequent post-operational studies detailed in Sections 4.1.1 and 4.1.2 of this SEIS did not reveal any adverse impact on fish or shellfish in the James River due to impingement or entrainment. Therefore, additional mitigation is not warranted. The comments provide no new information and, therefore, will not be evaluated further. There was no change to the SEIS text.

A.1.10 Comments Concerning Category 2 Threatened and Endangered Species Issues

Comment: Bald eagles nest near the site. (SurD-A-7)

Comment: The FWS has determined that the Surry operations and minor refurbishment may have the potential to adversely affect natural resources in the area. The federally threatened bald eagle, *Haliaeetus leucocephalus*, may appear to be unaffected, but a scientific approach should be adopted to evaluate and document any population effects. (SurD-O-1)

Comment: The FWS agrees that the potential exists for the Surry Power Station to adversely affect the bald eagle, a federally threatened species nesting and feeding in and around the power facility. The potential impacts were identified in Appendix E of the draft Application for Renewed Operating License (August 24, 2000) and Supplement 6 of the Generic Environmental Impact Statement for License Renewal of Nuclear Plants, April 2002. The potential for incidental mortality associated with the transmission lines is the primary concern.

A secondary concern is the effects of human activity associated with the Stations's operation and refurbishment. Possible evidence of past disturbance is the abandonment of a nest that for four years successfully produced young eagles. The location of the abandoned nest near the Spent Fuel Site suggests the possibility that human activities may have caused the eagles to abandon nesting. The effects of human activity on eagles during Station operations and refurbishment should be evaluated.

Therefore, a site specific Biological Assessment should be prepared to identify and evaluate any potential impacts to the bald eagle in accordance with Section 7 of the Endangered Species Act.

To assist with the review of the bald eagle and other federally or state listed species, in addition to other migratory birds, Dominion Energy should solicit comments from the State of Virginia Department of Game and Inland Fisheries and Heritage programs. These letters from the State should become part of the environmental review and administrative record for this issue. (SurD-O-4)

Response: *The comment is noted. NRC understands FWS' concerns regarding protection of bald eagles. With regard to impacts from plant operations, however, as long as operations at the Surry Power Station, Units 1 and 2, continue to comply with the Bald Eagle Protection Guidelines of Virginia that were prepared in consultation with and approved by FWS, no effects on bald eagles will occur. In response to the comment, the NRC staff has prepared a Biological Assessment (dated November 6, 2002) and has concluded that there are no effects on bald eagles. The text in Section 4.6.2 of the SEIS has been revised to reflect this information.*

A.1.11 Comments Concerning the Need for Power Issues

Comment: Surry supplies 15 percent of the power used in Virginia at low cost. (SurD-A-9)

Comment: The area is proud to be producing 15 percent of the power used in Virginia. (SurD-B-3)

Comment: We're consistently ranked among the most efficient producers of nuclear-generated electricity in the United States. (SurD-F-6)

Comment: In the future, more electricity, not less, will be required to meet growing customer demand. Because of Surry's low production costs, overall safety performance and minimal impact on the environment, we believe that re-licensing the station is the best option for meeting the future electricity needs of Virginians. (SurD-F-10)

Comment: It is an important part of the growing demand for electricity in the Commonwealth of Virginia. (SurD-H-3)

Comment: This facility plays a pivotal role in providing for all our local energy needs. (SurD-I-4)

Comment: It's wonderful to the consumer because we're a low cost producer. (SurD-L-3)

Comment: We're known as low cost producers. We're always ranked within the top five for nuclear fuel costs in the country and have been so for the past 12 years. (SurD-L-8)

Comment: In the future, more electricity, not less, will be needed and we will have to build additional plants. We believe that relicensing this station, though, is the best option for meeting the future electricity needs of this area and Virginia. (SurD-L-15)

Response: *The comments are noted. The need for power is specifically stated to be outside the scope of license renewal (10 CFR 51.95(c)(2)). The comments are interpreted as expressing support for license renewal at the Surry Power Station Units 1 and 2, however, the comments provide no new information and, therefore, will not be evaluated further. There was no change to the SEIS text.*

A.1.12 Editorial Comments

Comment: Page 1-9, Line 7, Table 1-1 indicates that the US Fish and Wildlife Service Migratory Bird Treat Act Permit expired December 31, 2001. Depredation Permit Number MB705136-0 was renewed effective 4/22/02, and expires 3/31/03. It is suggested that this update be reflected in Table 1-1. (SurD-N-1)

Comment: Page 2-7, Lines 25-26, The statement is made that, "After passing through the condensers, the cooling water enters into a 880-m (2900-ft) discharge tunnel and subsequently flows back into the James River." This implies that the water flows into the river directly from a 2900-foot long tunnel. The following statement is suggested as a replacement: "After passing through the condensers, the cooling water flows through a tunnel into the head of a 2900-foot discharge canal, and from the canal into the river." (SurD-N-2)

Comment: Page 2-27, Line 4, It is indicated that approximately 890 permanent employees work at Surry Units 1 and 2. It is suggested that the statement reflect about 880 permanent employees as stated in the Environmental Report Page E-3. (SurD-N-3)

Comment: Page 2-31, Lines 28-30, It is stated that Interstate 95 runs in a north-south direction west of Surry County through the region and connects Richmond to Washington, D.C. to the north and Charlotte, North Carolina to the south. It is suggested that the following words be replaced for the Charlotte connection: "...and to Emporia, Virginia, leading into North Carolina, to the south." (SurD-N-4)

Comment: Page 2-36, Lines 19-21, The statement is made, "Table 2-8 shows the actual and estimated changes in population...from 1980 to 2030." This could be interpreted as having actual USCB [United States Census Bureau] 2000 numbers, when in fact, they are estimates based on the 1990 census. It is recommended that the statement noting the population decrease for the century be a separate paragraph unto itself. (SurD-N-5)

Comment: Page 2-37, Line 12, and Page 2-49, Line 30, The source for Table 2-8 is given as VEPCo 2000c, and is noted on Page 2-49, Line 30, as "Final Safety Analysis Reports." Contrary to the notation in the GEIS, the source for Table 2-8 is from the reference on Page 2-50, Lines 1-3, and is noted as VEPCo 2001c, which is from the Environmental Report, Page 2-30. It is recommended that the Table 2-8 source be changed to VEPCo 2001c. It is also recommended that the Table 2-8 title add the words "...Based on 1990 Census Data," to clarify the source of the information and to likewise avoid the implication that the source is 2000 census data, noted on Page 2-36, Lines 21-22. It is also recommended that the title of VEPCo 2000c on Page 2-39, Line 30, be changed to "Updated Final Safety Analysis Report," which is the complete title of the reference. (SurD-N-6)

Comment: Page 4-13, Line 3, It is stated, "...at the shoreline (western) end of the dredged intake canal,..." In the License Renewal Application Environmental Report submitted May 29, 2001, the "intake canal" refers to the canal constructed from the low-level intakes to the high-level intakes. The word "channel" refers to the dredged area of the James River that ends at the intake structure, which pumps water into the intake canal. It is suggested that the SEIS replace the word "canal" on Page 4-13, Line 3, with the word "channel," to be consistent with the usage on Page 2-7, Line 18. (SurD-N-7)

Comment: Page 4-15, Lines 4-5, The statement: "The maximum temperature elevation of the water as a result of passing through the condensers...," is a description of a parameter that is not in the existing NPDES permit. The temperature (and conversion) given refers to a delta, and not an actual temperature measurement. It is recommended that the above statement be deleted, as the information is not pertinent to the NPDES permit, and not included in the Surry License Renewal Application Environmental Report. If the statement is retained, it is suggested that the temperature delta be given as 14°F, as provided in the Dominion resource, Final Environmental Impact Statement Surry Power Station, May 1972. (SurD-N-8)

Comment: Page 4-34, Line 13, Page 4-36, Line 2, The statement of Page 4-34 and title of Figure 4-2 on Page 4-36 indicate that the low-income population distribution is from Census 2000. It is Dominion's understanding that the distribution of low-income populations data was not available from Census 2000. The SEIS states on Page 4-26, Line 19, that income data was not available for the 2000 census, so data were used from Census 1990. It is recommended that the statement on Page 4-34, Line 13, and the title of Figure 4-2 on Page 4-36 be changed to attribute the distribution of low-income populations to Census 1990. (SurD-N-9)

Comment: Page 5-6, Line 6, Page 5-9, Line 40, page 5-26, Line 34, On Page 5-6, an RAI is referred to for a VEPCo response on SBO contribution. On Page 5-9, an RAI is referred to for a VEPCo response on external events. On page 5-26, an RAI is referred to for a NRC question

on cost-benefit. It is suggested that the NRC specify the RAI numbers referred to in the text, in order to correlate the appropriate VEPCo responses. (SurD-N-10)

Comment: Page 5-25, Lines 29-30, On Page 5-25 it is written that "...a scaling factor of 0.94 was applied to..." Averted Onsite (Power Replacement) Costs (RPC) formulae. Dominion interprets this description to be incorrect. On Page 4-43 of the License Renewal Application Environmental Report, it states "...the replacement power formula could be reduced by a factor of 0.94, but the generic formula will be conservatively used." Our decision to not apply the 0.94 scaling factor was deliberate and results in conservative cost calculations. (SurD-N-11)

Response: *The comments are noted. As appropriate, the comments resulted in modification of the SEIS text.*

A.2 Public Meeting Transcript Excerpts and Comment Letters

Transcript of the Afternoon Public Meeting on May 29, 2002, in Surry, Virginia

[Introduction, Mr. Cameron]
[Presentation by Mr. Tappert]
[Presentation by Mr. Tabatabai]
[Presentation by Mr. Kugler]
[Presentation by Ms. Hickey]
[Presentation by Mr. Kugler]

The court reporter was not available for the afternoon session. Because no other means to record the meeting could be found, there is no transcript. The following summary of comments made by members of the public is based on notes taken by the NRC staff during the meeting.

SurD-A (1) Hon. Fred Quayle, Virginia State Senate

SurD-A-1 • The Surry plant has a good safety record and the operators are well trained
SurD-A-2 • The plant has both environmental and socioeconomic impacts on the area
SurD-A-3 • Dominion is environmentally responsible, using technology to protect environmental resources
SurD-A-4 • Dominion placed the cooling water discharge upstream of the intake to protect oyster beds
SurD-A-5 • Dominion was among the first companies to establish a permanent environmental group
SurD-A-6 • The plant is operated within the bounds of its permits
SurD-A-7 SurD-A-8 • Bald eagles nest near the site

- Dominion developed and patented an intake screen design to protect fish

SurD-A-9 • Surry supplies 15 percent of the power used in Virginia at low cost

SurD-A-10 • The plant pays $10.94 million in taxes to the county, and employs about 850 people at an average salary of $56,400, much of which feeds back into the local economy

SurD-A-11 • Surry's record argues for continued operations

SurD-A-12 • I support license renewal and am encouraged by the NRC's draft report.

SurD-B (2) Hon. William K. Barlow, Virginia House of Delegates

SurD-B-1 • I support license renewal for Surry

- My wife and her sister grew up near the plant; my wife remains brilliant and beautiful

SurD-B-3 • The area is proud to be producing 15 percent of the power used in Virginia

SurD-B-4 • Dominion is a good corporate citizen - conscientious and careful

SurD-B-5 • Dominion has done an outstanding job; there were some problems early in the life of the plant, but things are much better now

- There are three aspects of plant operation related to the operation of the plant that I want to talk about - air, water, and land.

SurD-B-7 • With respect to air, nuclear is an emissions-free method of power generation compared to fossil fuels; some places (e.g., California) didn't want nuclear plants and they are now paying the price

- For the water resources, Dominion has worked hard to protect them

SurD-B-9 • And on the land, the Hog Island Wildlife Management Area coexists well with its neighbor with no problems

- Public safety is certainly very important to the residents and to Dominion; the plant was carefully designed and training and drills make sure the operators are ready

SurD-B-11 • I hope that the NRC will grant this license extension.

SurD-C (3) Terry D. Lewis, Surry County Administrator

SurD-C-1 • This plant is very important to Surry County

- Since 9/11 there has been heightened concern about the safety of the plant; I have received a number of calls about this issue and I have been able to tell them that the plant is safe

- Dominion focuses on safety; they've had heightened security since 9/11, and I believe the plant is operated safely; they also have an impressive training program

- There are good communications between the plant and the public and local government. The plant is run safely and any problems are quickly communicated to me.

SurD-C-5
- The plant is the largest employer in Surry County and one of the largest in the surrounding area; the jobs are high-paying, with many of the employees commuting into the County; so the benefits are spread around the area

SurD-C-6
- The plant pays about $10 million to the county, compared to the county operating budget of about $25 million; this is good for the county, particularly the school system, which ranks among the highest in the state in terms of the amount of money spent on each student; and they rank high even compared to northern Virginia where the average household incomes are much higher

SurD-C-7
- The plant and its employees also purchase locally, adding to the local economy

SurD-C-8
- My only concern would be with decommissioning the plant; it would have a major impact in terms of lost income and lost jobs; also the County would have to pay to maintain the facility

SurD-C-9
- I think it is important to keep this plant running.

SurD-D (4) M. Laverne Daniels, Superintendent of Schools, Surry County

Ms. Daniels provided a written statement (attached)

SurD-E (5) Judy S. Lyttle, Surry County Board of Supervisors

SurD-E-1
- VEPCo has been a good neighbor and we appreciate the income from the plant and the services that allows us to provide

SurD-E-2
- VEPCo contributes to the community in many ways, for example they provided speakers for the County's 350th anniversary activities; the employees help out in the community in many ways
- The plant is safe, the citizens feel comfortable with it, and we don't want to see them leave

SurD-F (6) Toby Sowers, Director, Surry Power Station Operations and Maintenance

The speaker provided a written copy of his remarks (attached).

SurD-G (7) Jud White, Dominion Department of Environmental Policy and Compliance

The speaker provided a written copy of his remarks (attached).

Transcript of Evening Meeting on May 29, 2002, in Surry, Virginia

[Introduction, Mr. Cameron]
[Presentation by Mr. Tappert]
[Presentation by Mr. Tabatabai]
[Presentation by Mr. Kugler]
[Presentation by Ms. Hickey]
[Presentation by Mr. Kugler]

SurD-H Mr. Stephenson : I'm used to that. That's great. Thank you. Good evening. My name is Peter Stephenson. I'm town manager for the town of Smithfield in adjoining Isle of Wight County. I hold a Master's degree in urban and environmental planning from the University of Virginia. I first became familiar with the Surry Power Station in the 1980s while working as a planner for James City County immediately across the river. Then, as now during the past seven years, I have served as the manager in Smithfield, would say that the Surry Power Station has always been known as a good neighbor.

However, despite my general familiarity with the facility, I had not actually toured the station as a local government official until earlier in 2001, prior to September 11th. I was thoroughly impressed, in fact, almost astounded by the extreme measures taken for plant safety and security. I was very impressed and I'm sure additional steps and enhancements have been made recently in the wake of the national tragedies last year.

I know that safety continues to be a top priority at the Surry Power Station. It must be. Dominion must also be able to rely on the resources of local, state and Federal agencies to protect against threats from outside sources. We're located about 20 minutes, a little less away, but we certainly pledge to assist in every way possible, as many of our residents are employed here in Surry County at the nuclear power station.

SurD-H-2 Nuclear power is an emission-free energy. It is an important part of the growing demand for
SurD-H-3 electricity in the Commonwealth of Virginia. The Surry Power Station should be proud of its
SurD-H-4 excellent operating record. I am familiar with the recent environmental review performed for the facility and I do agree that the renewal and extension of its license is an excellent energy generation alternative for our local environment and is in the best economic interest for our region and the Commonwealth.

Thank you.

Mr. Cameron: Okay, thank you, Mr. Stephenson. Next we're going to go to Mr. Patrick Small, Director of Economic Development for Isle of Wight County.

Mr. Small: Thank you very much. I only wish we were holding this hearing in the Isle of Wight County Courthouse and we were the net receivers of that $10 million in annual revenue this plant generates. However, we are the neighboring community. I was very pleased to hear the comments about the bald eagles at Hog Island. That refuge was established by Dominion/Virginia Power. It lies directly across the Isle of Wight County line and in fact, borders Isle of Wight County, so I'm pleased to hear those eagles are on a resurgence.

SurD-I-1 As a developer, as a public developer, I conduct environmental impact statements and reviews myself on properties we seek to develop and as an anecdotal neighbor of this facility I can only testify to the fact that there has been no significant environmental impact on any of our communities from this facility. No negative impacts whatsoever. So I'm speaking in unqualified support of renewal of this license. I thank those of you from the Regulatory Commission that conducted this study that are down here. We are relying upon you and the Environmental Protection Agency, and the Department of Environmental Quality at the state level to protect the public health and safety in this area. We expect if there were any significant impacts from this facility that you would have already acted upon those. We expect if there are negative impacts

SurD-I-2 in the future that you will act on those. The fact that we are here today holding a public hearing in such a friendly environment is only a testament to the fact that there are no significant

SurD-I-3 environmental impacts. The plant has a significant economic impact on our region. Fifteen percent of the Commonwealth's power is produced by this facility. Hampton Roads is a net importer of power. We're now looking at alternative energy sources, whether they be wind, whether they be gas or whether they be coal-fired energy suppliers. We as a region are trying

SurD-I-4 to attract those producers in order to keep our power costs down and keep our lights on. This facility plays a pivotal role in providing for all our local energy needs and again I appreciate your consideration in allowing us to speak on behalf of Dominion.

Mr. Cameron: Okay, thank you very much, Mr. Small. We're going to hear from another government official, JoeAnn Newby, who's principal of the Surry County public schools, one of the principals, I guess, and then we're going to go to Mr. Richard Turner.

JoeAnn?

SurD-J Ms. Newby: Thank you. Good evening. I am JoeAnn Newby and I'm the principal of Surry

SurD-J-1 Elementary School right here in Surry, Virginia and tonight I come to thank the NRC and all the people at Virginia Power for their commitment to a safe environment here in Surry County and to note that there is a continued review of our environment and the status that it is here in Surry. This is important to us because the power plant is important to Surry, to Surry Elementary School. Through the years we have established a very positive working relationship with Dominion Power. It has significant meaning to me, both as a 29 and a half year educator and as a lifelong citizen of the county. As an educator, my teachers and I are

SurD-J-2

appreciative of the following educational opportunities that are afforded to the children at Surry Elementary School. You've provided opportunities to explore the areas of math, science and technology in our fourth grade students. The students really enjoy going to the power station to study electricity and to be successful on those SOLs.

SurD-J-3 Also, revenues generated through Dominion Power enables the school system to implement programs such as after school tutoring, Saturday school and summer school and because of these programs and more programs that we implement, Surry Elementary has achieved next to the top state rating for school accreditation and is accredited through Southern Association of Schools and Colleges and receives state recognition for the National Blue Ribbon Schools Award. Some of our teachers have applied for the mini grant that has been offered by Dominion Power and we've been able to implement special programs.

We received the Virginia Business Education Partnership Grant and currently a representative
SurD-J-4 from Dominion Power serves on our advisory board. And as a citizen of Surry County, Dominion Power is significantly meaningful to taxpayers in that it provides tax revenues that allows citizens in Surry to enjoy a quality of lifestyle at a compatible real estate property tax rate
SurD-J-5 and at a personal property rate that is much lower than surrounding localities. The power plant has proven to be a responsible industry that not only provides energy for consumer use, but provides citizens of the county with employment opportunity.

SurD-J-6 In addition to providing job opportunities for Surry citizens, Dominion Power employees provide many hours of volunteer services for community projects such as our Special Olympics Program and our school carnivals and most recently at the 350th Anniversary Speakers Series.

You have been an asset to us and it's always good to know that safety is first and foremost because we like to have you around to continue the relationship that we enjoy.

Mr. Cameron: Thank you very much, Principal Newby.

Next we're going to go to Mr. Richard Turner who is the President of Isle of Wight Materials but has also been active in many economic development activities in the region.

SurD-K Mr. Turner: I'm going to be up front with you. I'm Richard Turner. I'm from Isle of Wight County. Patrick was the tall, dark and handsome version. I'm the short, fat, bald version. Patrick is the leader in economic development today. It wasn't on my résumé, but I served as Chairman of the Board of Supervisors for Isle of Wight County for seven years, served on the
SurD-K-1 Board for 14 years. And enjoyed a wonderful relationship with the good neighbors of Surry and their safety programs that we had with Surry nuclear plant and with the counties as good

neighbors working together. I might add that that's continued to be a good feeling, a warm fuzzy feeling that we have that type of relationship to work together for the betterment of all.

I'm a little bit concerned that I think I'm the only speaker that got instructions before I got here. It was 2 minutes instead of 7, I have to wear socks and I must talk and I must not sing. I don't think anybody else, I checked with them, and they didn't have those problems involved, but any how we could use a little singing, really.

(Laughter.)

I guess I want to ask a question instead of you asking the question, where would Surry County
SurD-K-2 be? I can say that because I'm not from Surry, but where would Surry County Schools be, where would the local government be without the support and help in the past as well as in the future, where would Hampton Roads and the economy of the State of Virginia be without these nuclear power plants supplying good, economical power for our businesses here?

Now the question may be asked why do we need another 20 years? Twenty years is a long time. Well, there were some times earlier in my life I thought the same thing. When I was 30 my Dad was 60 and I wanted him to get on the front porch and get in the chair and get out of the way because I figured he was an old man. I'm 60 years old today and I'm not ready to get in the rocking chair. But the point I want to bring out is that 30 years has gone by so fast you can't believe it. So 20 years or 40 years gives not only the Tidewater and the economy of Virginia, but also Virginia Power the basis for planning for the future and to work the best plan so better to serve you and I.

Now, the most important thing, I think that comes from all of this besides the economic part is
SurD-K-4 the people. Surry Nuclear Power Plant has some wonderful community leaders, not only Surry but Virginia Power as a whole, some wonderful community leaders that serve in local government, serve in all kinds of United Way and cancer drives and other things that they are leaders in that lead us and make this area a better place. That's what we all want.

I want to see when I get up in the morning three things. I need to make a new friend, help somebody's day to be a little brighter and learn something new. If you can't do one of those three things, stay home, get out of the way. But I draw that analogy to Surry Nuclear Power
SurD-K-5 Plant because they are that in the community. They learn as you well have heard tonight of all the regulations and things that they've done prior to these people getting here. They help people from their staff every time there's a need in the community or a need in the Tidewater area. And they've made a new friend. Years ago, Max and I served in the United Way
SurD-K-6 together. He's here tonight. He's a great leader too. So I thank you for being here. I certainly,

as you well know, speak in favor of the consideration of this and hope that it serves the community well. Thank you and God bless.

Mr. Cameron: Thank you very much, Mr. Turner.

We're going to ask two of the officials from Dominion Virginia Power to talk to us a little bit now about their vision behind the license renewal application and first of all we're going to go to Mr. Toby Sowers who is the Plant Manager for the Surry Nuclear Station and then Mr. Sowers is going to introduce us to Dr. Jud White who is the Manager of Environmental Policy and Compliance.

Toby?

SurD-L Mr. Sowers: Thank you very much, Chip. Good evening. I am Toby Sowers. I'm the Director of Ops and Maintenance which is the Plant Manager at Surry Power Station. I'd like to thank the Commission for holding this meeting and I feel blessed to have the opportunity and honor to represent the station and the employees at the station.

I also want to take a minute to thank our guest speakers from the local community, I mean, for such gracious comments. I sat there this afternoon and I marked up my discussion because a lot of what I said, I didn't want to be repetitive and I had that typed so I could send it to you as a formal statement. I sat there and I was marking it up again because they hit on a bunch of different topics.

SurD-L-1 I'll try not to be repetitive here, but there are some good things I want to say. I take great pride
SurD-L-2 in our station. I'm excited about license renewal. I've been in this business since I was 18. I started in the Nuclear Navy and I believe this is a very viable and legitimate alternative that we
SurD-L-3 have far under-utilized in nuclear power. And it's wonderful for the community. It's wonderful to
SurD-L-4 the consumer because we're a low cost producer, but it's wonderful for me and 850 other employees at the station. It's a livelihood over there and it's no small task to protect the health and safety and welfare of the public and we take it very seriously.

SurD-L-6 Renewed licenses will provide assurance that the local economy will continue to reap the benefit of having the large employer in the area and the tax benefits associated with that.

I'll take a moment just to tell you a little bit about myself and my association with Surry and the reason I do so is because I am merely a member of that leadership team that runs that station and my background is not atypical of the rest of the leadership team. I began my career in 1967, as I said with a 6-year enlistment in the United States Navy and I operated submarine reactors there. I trained for three years and was an operator for three years. I later worked for

Stone & Webster Engineering Corporation out of Boston. They were the architect/engineer, the designer/constructor of the Surry plants in the late 1960s and early 1970s. I started working for them in 1973 as an associate engineer while I finished my undergraduate engineering work and obtained my professional engineer's license, which I later tested for and obtained in Virginia. After I got my degree I decided I wanted some field experience and I transferred to Surry in 1977, late 1977, early 1978 and worked as a consultant engineer for Stone & Webster consulting for Virginia Power in the engineering area and I hired on with the company, Dominion, in 1983. And I ran their various engineering departments on-site from 1983 well into the 1990s. In the 1990s I obtained my certification for a senior reactor operator license and in 1999 I became the Director of the station's Nuclear Safety and Licensing. And then in the year 2000 I was promoted to the Director of Operations and Maintenance, the Plant Manager.

SurD-L-8 Surry has got a long history of safe and efficient operations. We're known as low cost producers. We're always ranked within the top five for nuclear fuel costs in the country and have been so for the past 12 years. We've achieved the highest levels of safety rating from the Nuclear Regulatory Commission and from the Institute for Nuclear Power Operations, INPO.

SurD-L-11 Additionally, every one of our training programs has and continues to be fully accredited. Our commitment to environmental stewardship dates back to the construction days of the 1960s and 1970s when we implemented many revolutionary design features at the station to maintain the environment and the intake and discharge canal you saw in the picture is one of a kind in this country. The discharge is upriver to protect the oyster beds, the game preserves and the feeding of the birds.

SurD-L-12 We believe our proximity to Hog Island Wildlife Preserve fits hand and glove with our efforts to maintain operations that have minimal impact on the local environment. We feel blessed to have bald eagles and ospreys soaring over our plant and nesting in our facility. We treasure the beauty of the pelicans and egrets and the osprey, the herons that perch on the banks of our intake and discharge canal. I walk it almost every day and it's just a warm feeling to see that part of wildlife next to a major industrial facility.

As you approach our plant entrance, you'll notice the signs. We call them goals. They're stakes in the ground. They're large signs right on the side of the road and they identify all of our goals. One of these goals is to have no environmental violations. It's a repeat goal from 2001 and 2002, which were successful. We don't put oil or chemicals on the ground or in the waterways. If we have a piece of equipment that leaks, or if we have a chemical spill, we have procedures in place to immediately clean it up. We identify it in our corrective action program and we determine why, how and what exactly happened and what we'll do to prevent any recurrence.

One of the things we took a close look at when we considered whether to apply for the Surry license was the cost of replacing the plant. We generate 1600 megawatts of power. That's enough to light 400,000 homes. I think it was referred to, 15 percent of the total power used in Virginia. That's for the past 30 years.

SurD-L-14 The station was relatively inexpensive to build, costing only $400 million. When you consider
SurD-L-15 the cost of replacement power for base level electric generating units that is a real bargain. In the future, more electricity, not less, will be needed and we will have to build additional plants. We believe that relicensing this station, though, is the best option for meeting the future electricity needs of this area and Virginia.

Finally again, I'd like to thank both state and local officials that we maintain such a close
SurD-L-16 relationship to. We try to be the best corporate citizen we can. It's also one of our goals. It's part of our Dominion equation. You've heard several mentions of what we did. We also lead southeastern Virginia in blood donations. We have blood drives every two months. There's a critical need for blood, especially at this time. Our Adopt-A-Highway work, the holiday baskets
SurD-L-18 for the needy, we're a leading contributor from the state, of course, for United Way, and the Scouting programs and many other community activities that we sponsor.

We consider our community partnership an important part of our equation and environmental stewardship, that's a core component of that partnership.

I appreciate the honor to represent the station here tonight and I'd like to introduce Dr. Jud White, he's our manager of Environmental Policy and Compliance and he'll talk about the environmental specifics of our submittal.

Thank you.

SurD-M Dr. White: Thank you, Toby. I appreciate that. Good evening, everyone.

My name is Jud White and I'm the environmental manager at Dominion with responsibilities for various compliance activities at all of our generating facilities including the Surry Power Station. I have about 27 years experience with Dominion and I hold degrees in biology, a master's degree in biology and a Ph.D. degree in environmental policy. I have to say in all sincereness that I am very proud of Dominion's record over the years with environmental performance and excellence and since I've been employed with them I don't mind saying so.

I was directly involved and assisted the Dominion nuclear team that prepared the license renewal application for Surry Power Station and in particular, I helped in the development of the

environmental report we submitted to them and helped coordinate with a variety of Federal and state agencies that we worked with.

We commend the NRC in developing a high quality and professional draft supplemental environmental impact statement associated with this license renewal process for Surry. This statement is a thorough and accurate scientific assessment of the potential environmental impacts associated with the proposed action. We agree and support the conclusions of NRC staff that renewing the Surry Power Station operating license is a reasonable option that will not result in any noticeable impact to the environment. Basically, this means that for Dominion the license renewal option is preserved or acceptable for Surry Power Station to provide safe and clean electricity to the Commonwealth of Virginia in order to meet future energy demands that the company needs to meet.

Dominion prepared over a several year period, and submitted, an extensive environmental report to the NRC for this license renewal process and this was only part of the information that was used by NRC to develop this SEIS in its recommendation. In other words, NRC didn't just rely on our work. They independently validated our conclusions through use of additional resources such as the generic environmental impact statement mentioned earlier, extensive consultation with Federal, state and local environmental authorities, independent review by the NRC's expert staff as well as National Laboratory consultants that are here with us tonight.

In addition, and more importantly, they also considered public comments that were provided during the scoping process that was held last September. Of particular note, relative to information sources, we engaged in discussions and meetings with key state and Federal environmental agency staff very early in the license renewal process to help ensure that all issues were identified and appropriately addressed in the environmental report that we submitted to NRC. Dominion also communicated with environmental and other pertinent stakeholders about license renewal. All of this activity, doing a lot of up front work helped considerably in the development of a thorough and accurate report.

Potential environmental impacts in the report are discussed with various aquatic resources as well as threatened and endangered species that have been discussed earlier. Studies at Surry began in 1969, even before the station was operational. The station's cooling water system which was mentioned earlier has a unique design in that its location, tidal transition zone, the NRC has concluded that potential impacts to aquatic resources from operations are small and that additional mitigation is not warranted.

The NRC also has preliminarily determined that the continued operation of the Surry Power Station and its associated transmission lines will not adversely affect any threatened or

endangered species including the bald eagle which has thrived in the area as noted earlier, for many years.

With respect to historic resources which is important, Dominion has coordinated closely with Virginia historic resources during the license renewal process and we authorized a professional consultant to perform a resource assessment of the station site. The Department of Historic Resources concluded that there were no recorded historic districts, structures or archeological sites located within the facility. It was also determined that continued operation of the power station would have a beneficial protective effect on any potential undiscovered historical resources located on undisturbed portions of the site and this was because of limiting future access to the property and protecting the natural landscape.

To assist the NRC staff in evaluating the current applicability of the generic environmental impact statement, the information in it as pertains to generic issues, Dominion developed an internal procedure and protocol to identify any new and significant information relative to those issues determined to be generic and determined whether there's any potential change to that determination. No information was identified that could change this conclusion and we feel that this activity that was done not only by NRC, but by Dominion is very important in all license renewal projects for verification of the findings in the GEIS.

SurD-M-6 Dominion also agrees with the NRC that the potential environmental effects of license renewal for the remaining environmental issues evaluated separately in the supplemental environmental impact statement are small. A significant consideration for this determination was the fact that no new major construction or land disturbing activity is to take place in order to proceed with
SurD-M-7 license renewal, a very important point. Nor are there any new or increased environmental
SurD-M-8 emissions as a result of this action. And the current measures to mitigate environmental impacts associated with operations were found to be adequate.

Overall, Dominion takes pride in its environmental performance and its positive relationships with regulatory agencies, environmental organizations, the general public and the community at large. All of this positive relationship building takes time to foster and develop as well as a major commitment by management of Dominion for openness and candor. In this license renewal process, we want to ensure that we continue on this path and that nothing adversely impacts our future performance or relationship.

Dominion believes its obligation to provide safe, reliable energy from nuclear power extends well beyond the license renewal milestone. Federal, state and local oversight will continue to test and challenge appropriately, just as it does today, our standard of environmental excellence and the conduct of our daily business.

We welcome all comments on the content of this supplemental environmental impact statement during the public comment period and we're looking forward to working constructively with the NRC staff.

Thank you.

Mr. Cameron: Okay, thank you, Jud and thank you, Toby. Do we have anybody else who wants to say anything tonight before we close?

As I mentioned earlier and as several of the NRC speakers had said, talk to them, get to know them after the meeting and I would just thank all of the speakers tonight who came out from the community to share their views with us and thank all of you for being here and with that, we're adjourned.

(Whereupon, at 8:18 p.m., the meeting was concluded.)

SurD-N

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261
July 2, 2002

Chief
Rules and Directives Branch
Mailstop T-6D 59
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

Serial No.: 02-284
LR/LTB R0
Docket Nos.: 50-280/281
License Nos.: DPR-32/37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY (DOMINION)
SURRY POWER STATION UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUEST FOR COMMENT ON THE DRAFT PLANT-SPECIFIC SUPPLEMENT 6 TO THE GENERIC ENVIRONMENTAL IMPACT STATEMENT

In a letter dated March 15, 2002, the NRC provided Virginia Electric and Power Company (Dominion) a draft supplement environmental impact statement (SEIS) regarding license renewal of Surry Power Station, Units 1 and 2. This draft SEIS is the draft plant-specific Supplement 6 to NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants and was provided for review and comment. Attached are our comments on the draft SEIS.

Dominion considers the draft SEIS to be an accurate and factual representation of the environmental conditions associated with plant operation during the license renewal period. Furthermore, we concur with the conclusions of the NRC that any environmental impacts associated with license renewal would be of small significance and that any adverse environmental impacts of license renewal would be smaller than those of other reasonable energy alternatives. Dominion specifically concurs with the NRC's topic discussions and conclusions presented in the draft SEIS.

Should you have any questions regarding this submittal, please contact Mr. J. E. Wroniewicz at (804) 273-2186.

Very truly yours,

David A. Christian
Senior Vice President – Nuclear Operations and Chief Nuclear Officer

Attachment

Commitments made in this letter: None

SurD-N

Attachment

License Renewal – Response to Request for Comment
Draft Plant-Specific Supplement 6 to the GEIS
Serial No. 02-084

Surry Power Station, Units 1 and 2

License Renewal Application

Virginia Electric and Power Company
(Dominion)

Section 1.5 Compliance and Consultations

SurD-N-1 Page 1-9, Line 7:

Draft GEIS Statement:

Table 1-1 indicates that the US Fish & Wildlife Service Migratory Bird Treaty Act Permit expired December 31, 2001.

Dominion Comment:

Depredation Permit Number MB705136-0 was renewed effective 4/22/02, and expires 3/31/03. It is suggested that this update be reflected in Table 1-1.

Section 2.1.3 Cooling and Auxiliary Water Systems

SurD-N-2 Page 2-7, Lines 25-26:

Draft GEIS Statement:

The statement is made that, "After passing through the condensers, the cooling water enters into a 880-m (2900 ft) discharge tunnel and subsequently flows back into the James River." This implies that the water flows into the river directly from a 2900-foot long tunnel.

Dominion Comment:

The following statement is suggested as a replacement: "After passing through the condensers, the cooling water flows through a tunnel into the head of a 2900-foot discharge canal, and from the canal into the river."

Section 2.2.8.1 Housing

SurD-N-3 Page 2-27, Line 4:

Draft GEIS Statement:

*It is indicated that approximately **890** permanent employees work at Surry Units 1 and 2.*

Dominion Comment:

It is suggested that the statement reflect about **880** permanent employees as stated in the Environmental Report Page E-3.

Section 2.2.8.2 Public Services

SurD-N-4 Page 2-31, Lines 28-30:

Draft GEIS Statement:

It is stated that Interstate 95 runs in a north-south direction west of Surry County through the region and connects Richmond to Washington, D.C. to the north and Charlotte, North Carolina to the south.

Dominion Comment:

It is suggested that the following words be replaced for the Charlotte connection: "...and to Emporia, Virginia, leading into North Carolina, to the south."

Section 2.2.8.5 Demography

SurD-N-5/6 Page 2-36, Lines 19-21, Page 2-37, Line 12, and Page 2-49, Line 30:

Draft GEIS Statements:

1. *The statement is made, "Table 2-8 shows the actual and estimated changes in population...from 1980 to 2030." This could be interpreted as having actual USCB 2000 numbers, when in fact, they are estimates based on the 1990 census.*

2. *The Source for Table 2-8 is given as **VEPCo 2000c**, and is noted on Page 2-49, Line 30, as "Final Safety Analysis Reports".*

Dominion Comment:

1. It is recommended that the statement noting the population decrease for the century be a separate paragraph unto itself.

2. Contrary to the notation in the GEIS, the source for Table 2-8 is from the reference on Page 2-50, Lines 1-3, and is noted as **VEPCo 2001c**, which is from the Environmental Report, Page 2-30. It is recommended that the Table 2-8 Source be changed to **VEPCo 2001c**. It is also recommended that the Table 2-8 title add the words "..., Based on 1990 Census Data", to clarify the source of the information and

SurD-N

to likewise avoid the implication that the source is 2000 Census Data, noted on Page 2-36, Lines 21-22.

It is also recommended that the title of **VEPCo 2000c** on Page 2-49, Line 30, be changed to "**Updated** Final Safety Analysis Report", which is the complete title of the reference.

Section 4.1.2 Impingement of Fish and Shellfish

SurD-N-7

Page 4-13, Line 3:

Draft GEIS Statement:

It is stated, "...at the shoreline (western) end of the dredged intake ***canal,...***"

Dominion Comment:

In the License Renewal Application Environmental Report submitted May 29, 2001, the "intake canal" refers to the canal constructed from the low-level intakes to the high-level intakes. The word "**channel**" refers to the dredged area of the James River that ends at the intake structure, which pumps water into the intake canal. It is suggested that the SEIS replace the word "**canal**" on Page 4-13, Line 3, with the word "**channel**", to be consistent with the usage on Page 2-7, Line 18.

Section 4.1.3 Heat Shock

SurD-N-8

Page 4-15, Lines 4- 5:

Draft GEIS Statement:

The statement, "The maximum temperature elevation of the water as a result of passing through the condensers....", is a description of a parameter that is not in the existing NPDES permit. The temperature (and conversion) given refers to a delta, and not an actual temperature measurement.

Dominion Comment:

It is recommended that the above statement be deleted, as the information is not pertinent to the NPDES permit, and not included in the Surry License Renewal Application Environmental Report. If the statement is retained, it is suggested that the temperature delta be given as 14°F, as provided in the Dominion resource, *Final Environmental Statement Surry Power Station, May 1972.*

SurD-N

Section 4.4.6 Environmental Justice

SurD-N-9 Page 4-34, Line 13, Page 4-36, Line 2:

Draft GEIS Statements:

The statement on Page 4-34 and title of Figure 4-2 on Page 4-36 indicate that the low-income population distribution is from Census 2000.

Dominion Comment:

It is Dominion's understanding that the distribution of low-income populations data was not available from Census 2000. The SEIS states on Page 4-26, Line 19, that income data was not available for the 2000 census, so data were used from Census 1990. It is recommended that the statement on Page 4-34, Line 13, and the title of Figure 4-2 on Page 4-36 be changed to attribute the distribution of low-income populations to Census 1990.

Section 5.2.2 Estimate of Risk for Surry Power Station

SurD-N-10 Page 5-6, Line 6, Page 5-9, Line 40, Page 5-26, Line 34:

Draft GEIS Statement:

On Page 5-6, an RAI is referred to for a VEPCo response on SBO contribution. On Page 5-9, an RAI is referred to for a VEPCo response on external events. On Page 5-26, an RAI is referred to for a NRC question on cost-benefit.

Dominion Comment:

It is suggested that the NRC specify the RAI numbers referred to in the text, in order to correlate the appropriate VEPCo responses.

Section 5.2.6.1 VEPCo Evaluation

SurD-N-11 **Page 5-25, Lines 29-30:**

Draft GEIS Statement:

On Page 5-25, it is written that "...a scaling factor of 0.94 was applied to..." Averted Onsite (Power Replacement) Costs (RPC) formulae.

Dominion Comment:

Dominion interprets this description to be incorrect. On Page 4-43 of the License Renewal Application Environmental Report, it states "...the replacement power formula could be reduced by a factor of 0.94, but the generic formula will be conservatively used." Our decision to not apply the 0.94 scaling factor was deliberate and results in conservative cost calculations.

SurD-O

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
Philadelphia, Pennsylvania 19106-2904

IN REPLY REFER TO:

July 10, 2002

ER 02/341

Chief, Rules Review and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, D.C. 21555-0001

Attention: Andrew Kugler

Re: *NUREG-1437, Draft Supplement 6 to the Generic Environmental Impact Statement Regarding Surry Power Station, Units 1 and 2*

Dear Sir:

The U.S. Department of the Interior has reviewed and offers the following comments on the referenced draft document.

General Comments

The Department shares a common goal with the U.S. Nuclear Regulatory Commission (NRC) to bring the Surry Nuclear Power Station into compliance with current environmental regulations. To this end, a representative of the U.S. Fish and Wildlife Service's (FWS) Chesapeake Bay Field Office staff visited the site on May 22, 2002, to help the NRC identify, assess, avoid and mitigate any adverse environmental impacts. With the advances in human understanding of ecological relationships, it is appropriate and useful that Federal and state natural resource agencies use the license renewal process to review site conditions in order to maintain the highest level of environmental protection. Since the Surry Power Station came online in 1972, the Dominion Energy Company (Parent Company of Virginia Electric and Power Company) and the NRC is to be commended for their progressive environmental stewardship of the natural resources around the Surry project area.

SurD-O-1

The FWS has determined that the Surry operations and minor refurbishment may have the potential to adversely affect natural resources in the area. The federally threatened bald eagle, *Haliaeetus leucocephalus*, may appear to be unaffected, but a scientific approach should be

SurD-O-2

adopted to evaluate and document any population effects. Regarding aquatic species, the cooling water intake structures at the Power Station are nearly the state of the art.

The Department offers the following comments on topics where the environmental standards have improved and new information is available. We also seek additional review with respect to a Tuscarora Nation concern about aboriginal territory.

Specific Comments

SurD-O-3 The Dominion Energy Company has developed a cooling water intake that is effective at minimizing aquatic impacts. The traveling mesh screens are spray washed and the biota is removed from the screens and returned to the river. The traveling screen and wash system clearly minimize aquatic impacts. To further minimize the impacts, in the process of replacing worn or damaged screens, the screens should be replaced with mesh less than or equal to one millimeter wide, with entrance velocities less than or equal to 0.5 feet per second (Gowan, C. and G. Garman 1999).

Endangered Species Act

SurD-O-4 The FWS agrees that the potential exists for the Surry Power Station to adversely affect the bald eagle, a federally threatened species nesting and feeding in and around the power facility. The potential impacts were identified in Appendix E of the draft Application for Renewed Operating License (August 24, 2000) and Supplement 6 of the Generic Environmental Impact Statement for License Renewal of Nuclear Plants, April 2002. The potential for incidental mortality associated with the transmission lines is the primary concern.

A secondary concern is the effects of human activity associated with the Stations's operation and refurbishment. Possible evidence of past disturbance is the abandonment of a nest that for four years successfully produced young eagles. The location of the abandoned nest near the Spent Fuel Site suggests the possibility that human activities may have caused the eagles to abandon nesting. The effects of human activity on eagles during Station operations and refurbishment should be evaluated.

Therefore, a site specific Biological Assessment should be prepared to identify and evaluate any potential impacts to the bald eagle in accordance with Section 7 of the Endangered Species Act.

Historic and Cultural Resources

SurD-O-5 The Bureau of Indian Affairs (BIA) requests that the NRC consult with the Tuscarora Tribe regarding impacts to aboriginal territory. Please contact the following for consultation:

Chief Leo Henry
Tuscarora Nation Clerk
2006 Mt. Hope Road
Lewiston, NY 14092
Telephone: 716-622-7061

Richard Hill (for cultural and historic properties)
Haudenosaunee Standing Committee
2235 Mt. Hope Road
Tuscarora Nation
Lewiston, NY 14132
Telephone: 716-297-7960

SurD-O

Neil Patterson, Jr., Director
Tuscarora Environmental Program
Tuscarora Nation
2045 Upper Mtn. Road
Sanborn, NY 14132
Telephone 716-628-5498

Summary Comments and Recommendations

The Department recommends that the NRC adopt the following recommendations in order to maintain optimum protection of natural and cultural resources at the Surry Nuclear Power Station:

Consult with representatives of the Tuscarora Tribe regarding impacts to aboriginal territory,

Require the intake screen replacements to have a mesh size of one millimeter or less wide with intake water velocities less than 0.5 feet per second, and

Complete a Biological Assessment to identify and evaluate potential impacts to the bald eagle at the Surry Nuclear Power Station during the current license renewal. To assist with the review of the bald eagle and other federally or state listed species, in addition to other migratory birds, Dominion Energy should solicit comments from the State of Virginia Department of Game and Inland Fisheries and Heritage programs. These letters from the State should become part of the environmental review and administrative record for this issue.

We appreciate the opportunity to review the draft environmental document and provide comment on natural and cultural resource protection. If you have any questions regarding the FWS comments, please contact David W. Sutherland of the Service's Chesapeake Bay Field Office by telephone at (410) 573-4535, or by e-mail at David_Sutherland@fws.gov. For any further consultation with the Bureau of Indian Affairs, please contact Jim Kardatzke, Eastern Regional Office, at telephone number (615) 467-1675.

Sincerely,

Michael T. Chezik
Regional Environmental Officer

SurD-O cc:
Dominion Energy Company (Tony Banks)
5000 Dominion Boulevard
Glen Allen, VA 23060

L. Henry, Tuscarora Nation, Lewiston, NY
R. Hill, Tuscarora Nation, Lewiston, NY
N. Patterson, Sanborn, NY

Reference

Gowan, C. and G. Garman. 1999. Design criteria for fish screens in Virginia: Recommendations based on a review of the literature. *Prepared for*: Virginia Department of Game and Inland Fisheries, Richmond, VA.

SurD-D

SURRY POWER STATION LICENSE RENEWAL COMMENTS
TO THE U.S. NUCLEAR REGULATORY COMMISSION
MAY 29, 2002

GOOD AFTERNOON,

THANK YOU FOR THE OPPORTUNITY TO ADDRESS YOU TODAY IN SUPPORT OF THE SURRY POWER STATION'S LICENSE RENEWAL. MY NAME IS LAVERNE DANIELS AND I AM SUPERINTENDENT OF SURRY COUNTY PUBLIC SCHOOLS.

DURING MY FOUR-YEAR TENURE HERE, WHEN THE TOPIC OF LICENSE

SurD-D-1

RENEWAL HAS COME UP I'VE OFTEN ASKED CITIZENS, "WHAT WOULD IT BE LIKE IF THE POWER PLANT WERE NOT HERE?" THEY ALWAYS SHAKE THEIR HEADS AND SAY, "YOU DON'T WANT TO KNOW AND WE DON'T EVEN WANT TO THINK ABOUT IT. WE DON'T WANT TO GO BACK TO THE WAY WE WERE BEFORE THE POWER PLANT WAS BUILT."

TO PREPARE MY COMMENTS FOR YOU TODAY I ASKED MY OFFICE STAFF TO RESPOND TO THE TOPIC "WHAT THE DOMINION POWER PLANT IN SURRY MEANS TO ME." THREE MAJOR THEMES EMERGED FROM THEIR

SurD-D

COMMENTS: COUNTY REVENUE, HOUSEHOLD INCOME, AND CORPORATE CITIZENSHIP.

Sur-D-D-2 THE SIGNIFICANT AMOUNT OF MONEY IN PROPERTY TAXES PAID BY DOMINION PROVIDE A GREAT SOURCE OF ASSURANCE THAT THE COUNTY WILL BE ABLE TO MEET THE NEEDS OF THE COMMUNITY.

OUR SCHOOLS HAVE BEEN REVITALIZED BECAUSE OF OUR NUMBER

SurD-D-3 ONE SOURCE OF TAX REVENUE -- THE POWER PLANT. WE NOW HAVE MODERN, UP-TO-DATE SCHOOLS OF WHICH EVERYONE CAN BE PROUD. BECAUSE OF THE POWER PLANT OUR CHILDREN HAVE THE LEARNING ENVIRONMENT THEY DESERVE.

SurD-D-4 THE POWER STATION PROVIDES EMPLOYMENT OPPORTUNITIES, THEREBY GIVING HOUSEHOLD INCOME TO MANY RESIDENTS OF THE COUNTY WHO, IN TURN, CONTRIBUTE TO THE LOCAL ECONOMY.

SurD-D-5 THE POWER STATION'S LOCAL INVOLVEMENT IS AN EXAMPLE OF THEIR GOOD CORPORATE CITIZENSHIP. MANY COUNTY ORGANIZATIONS

SurD-D

AND CHARITIES HAVE RECEIVED MONETARY SUPPORT FROM THE POWER STATION AND VOLUNTEER SUPPORT FROM PLANT EMPLOYEES. MY STAFF AND I RECENTLY WORKED WITH DOMINION'S CORPORATE SERVICES STAFF AND RECEIVED A GENEROUS CHECK TO PURCHASE A MATH/SCIENCE COMPUTER LAB AND TO PURCHASE ADDITIONAL COMPUTERS FOR THE SCIENCE DEPARTMENT AT OUR HIGH SCHOOL. WE ARE NOW WORKING TOWARD GETTING SOME OF OUR STUDENTS INTO

SurD-D-6

THE NUCLEAR OPERATORS TRAINING PROGRAM. THE POWER STATION IS AN OUTSTANDING EDUCATIONAL PARTNER.

SurD-D-7

WE KNOW THAT THE POWER PLANT HAS AN EXCELLENT SAFETY RECORD. THEREFORE, THE CITIZENS AREN'T WORRIED ABOUT THE EFFECTS OF **HAVING** THE NUCLEAR POWER PLANT; THEY'RE WORRIED ABOUT THE EFFECTS OF **NOT HAVING** THE NUCLEAR POWER PLANT.

M. LaVerne Daniels, Ph.D.
Superintendent
Surry County Public Schools

SurD-F

Toby Sowers
Director, Operations and Maintenance-Surry Power Station
NRC Public Meeting
Surry Power Station License renewal
May 29, 2002

SurD-F

Good evening. My name is Toby Sowers – the Director of Operations and Maintenance at Surry Power Station. I would like to thank the Nuclear Regulatory Commission for holding this important meeting to receive public comment on the NRC's Supplemental Environmental Impact Statement related to Dominion's license renewal application for Surry Power Station. I'm honored to represent the Station, as I believe that we at Dominion, Surry County and other local communities all have a stake in the future of Surry Power Station.

SurD-F-1

As an employee of Dominion, I am excited about license renewal. A

SurD-F-2

renewed license is not only important for Surry County and Virginia, but also for more than 850 other fulltime Surry employees whose livelihood depends on providing safe and reliable electricity to customers in this state – not to mention future employees that will be required to continue safe operation of the station well into this century. Surry Power Station generates about 15 percent of the power

SurD-F-3

used in Virginia and has done so for the past 30 years. A renewed license will provide assurance that the local economy will continue to reap the benefit of having a large employer in the area and that Surry County will continue to receive tax revenue from the Station's operations.

SurD-F

I'd like to take a moment to tell you a little about myself, and my association with Surry Power Station. My background is fairly typical of many of the members of our site leadership team. I began my career in 1967 with a 6-year enlistment in the US Navy as a nuclear submarine operator. I later worked for Stone & Webster Engineering as an associate engineer, providing design and operational engineering support to several operating nuclear plants, including Surry. I completed my degree in Engineering and obtained my Professional Engineer license in the state of Virginia, while working for Stone and Webster. I moved to Surry in 1978 as a construction engineer for Stone and Webster and joined Dominion in 1983 as the site design engineering supervisor. I obtained my commercial senior reactor operator certification during my tenure as site engineering manager. In 1999 I became Director of Station Safety and Licensing, and 2000, was promoted to Plant Manager.

SurD-F-6

Surry has a long history of safe and efficient operation. We're consistently ranked among the most efficient producers of nuclear-generated electricity in the United States. The station also has achieved high levels of performance in nuclear safety and plant security as measured by the Nuclear Regulatory Commission.

SurD-F

The Nuclear Regulator Commission – in its Systematic Assessment of Licensee Performance during the period spanning 1992-1998 gave the Station high marks for safety, with an average score of 1.2, which is defined as having superior safety performance in all station functional areas. Under the NRC's revised oversight process, Surry continues to fully meet all NRC safety cornerstone objectives. The Institute of Nuclear Power Operations, also, has consistently given Surry high marks for nuclear safety and operational performance in addition to fully accrediting all of our training programs.

Our commitment to environmental stewardship dates back to the

SurD-F-7

construction days of 1960s and1970s. We believe our proximity to the Hog Island wildlife preserve fits hand-in-glove with efforts to maintain operations that have a minimal impact on the local environment. We feel blessed to have bald eagles and ospreys nesting and soaring over our property. We treasure the beauty of the pelicans, egrets and herons that perch on the banks of our intake and discharge canals. As you approach the plant entrance you'll see our Station Goals posted on

SurD-F-8

roadside signs. One of those goals is to have no environmental violations (a repeat of the successful 2001 goal).

SurD-F We don't put oil or other contaminants into the ground or waterways. If we have a piece of equipment leak oil we have a spill prevention and cleanup procedure we invoke and we document the leak in our Corrective Action System where we track what, how, and why it happened and what we will do to prevent reoccurrence.

One of the things that we took a look at when we considered whether to apply to renew Surry's license was the cost of replacing the plant. Surry generates more than 1,600 megawatts of electricity, or enough power to light up about

SurD-F-9 400,000 homes. The station was relatively inexpensive to build, costing about $400 million. When you consider the cost of building new baseload electric

SurD-F-10 generating units in today's economy, that's a bargain. In the future, more electricity, not less, will be required to meet growing customer demand. Because of Surry's low production costs, overall safety performance and minimal impact on the environment, we believe that re-licensing the station is the best option for meeting the future electricity needs of Virginians.

Finally, I would like to thank those of you from the State and Local governments on behalf of Dominion for allowing us to do business in Surry

SurD-F-11 County. We strive to be a good corporate citizen and have enjoyed the

SurD-F

professional, supportive working relationship we have with the State and Local officials. Dominion has a long-standing tradition of investing in the communities we serve through volunteer and philanthropic activities. Our employees demonstrate their commitment to their community by participating in Adopt-a-Highway programs, Holiday baskets for the needy, contributing to the United Way, Blood Drives, supporting area scouting programs and many other community activities. We consider community partnership as an important component of the Dominion equation and environmental stewardship as a core component of that partnership.

I appreciate the opportunity to talk about our license renewal plan and would now like to introduce Dr. Jud White, our Manager of Environmental Policy and Compliance, to talk about the environmental specifics of our operations.

Thank you.

SurD-G

Comments by Jud White, Dominion
NRC Public Comment Meeting – May 29, 2002
Draft Supplemental Environmental Impact Statement (SEIS)
Surry Power Station

- My name is Jud White and I'm an environmental manager for Dominion with responsibilities related to water and waste compliance activities at all of our generating facilities, including Surry Power Station. I have about 27 years experience with Dominion; my academic degrees include a Masters in Biology and a Ph.D. in Environmental Policy. I am very proud of Dominion's environmental performance throughout the years I've been employed.

SurD-G-1

- I was directly involved with the Dominion nuclear team that prepared the license renewal application for Surry Power Station and, in particular, I helped develop our environmental report to the NRC and coordinated with federal and state environmental agencies.

- Dominion commends the NRC in developing a high-quality and professional draft Supplemental Environmental Impact Statement associated with license renewal for Surry Power Station. The Supplemental Environmental Impact Statement is a thorough and accurate scientific assessment of the potential environmental impacts associated with the proposed action.

- Dominion supports and agrees with the conclusion of NRC staff that renewing the Surry Power Station operating license is a reasonable option that will not result in any noticeable impact to the environment. The draft Supplemental Environmental Impact Statement states, "the adverse environmental impacts of license renewal for Surry Power Station, Units 1 and 2, are not so great that preserving the option of license renewal for energy-planning decisionmakers would be unreasonable." Basically this means that for Dominion the license renewal option is preserved or acceptable for Surry Power Station in order to meet future system generating needs of the company.

1

SurD-G

- The environmental impacts associated with potential alternative sources of electricity, in lieu of license renewal, are considered greater than preserving the option of license renewal for Surry Power Station. This is an important finding in the draft Supplemental Environmental Impact Statement.

- Dominion prepared (over a several year period) and submitted an extensive Environmental Report to NRC for license renewal that was part of the information used by NRC to develop this Supplemental Environmental Impact Statement and its recommendation. In other words, the NRC didn't just rely on our work. They independently validated our conclusions through the use of additional resources, including; their Generic Environmental Impact Statement for License Renewal for Nuclear Plants, extensive consultation with federal, state, and local environmental agencies, independent review by NRC staff and national laboratory consultants, and the consideration of public comment during the scoping process last September.

SurD-G-4

- Of particular note relative to information sources, Dominion proactively engaged in discussions and meetings with key state and federal environmental agency staffs very early in the license renewal process to help ensure all issues were identified and appropriately addressed in the Environmental Report submitted to the NRC. Dominion also proactively communicated with environmental and other pertinent stakeholders about license renewal. This helped considerably in the development of a thorough and accurate report.

- Potential environmental impacts to fish, shellfish, aquatic macroinvertebrates and threatened and endangered species are discussed in detail in the report. In fact extensive studies of the environmental impacts began in 1969, before the station was operational. Based on the station's cooling water intake and discharge design (water intake screening results in high survivability, heated water is dispersed and cools rapidly) and its location in the tidal transition zone (biota more abundant upstream and downstream of the plant site), the NRC concluded that potential impacts to aquatic biota from operation are small and that additional mitigation is not warranted. The NRC has also preliminarily determined that the continued operation of Surry Power Station and its associated transmission lines will not adversely affect any threatened or endangered species, including the bald eagle, which has

2

SurD-G

thrived in the area for many years. Dominion agrees with these scientific findings of NRC.

- With respect to historic resources, Dominion has coordinated closely with Virginia's Department of Historic Resources during the license renewal process. This department has concluded that "there are no recorded historic districts, structures or archaeological sites located within the ... facility." The staff concluded though that there is a moderate to high potential for undiscovered historical and archaeological resources to be present on the undeveloped portions of the property; but by limiting future access to the property, it was determined that continued operation of the Surry Power Station would have a beneficial, protective effect on undiscovered historical or archaeological resources located in the undisturbed portion of the site, for the duration of the license renewal period.

SurD-G-5

- To assist NRC in evaluating the current applicability of the Generic Environmental Impact Statement information as it pertained to the generic issues classified as needing no further review, Dominion developed an internal procedure to identify any new and significant information related to these issues that could potentially change the determinations. No information was identified that would change the conclusions in the Generic Environmental Impact Statement. This activity is considered very important in all license renewal projects for verification of the findings in the Generic Environmental Impact Statement.

SurD-G-6

SurD-G-7

SurD-G-8

- Dominion also agrees with the NRC that the potential environmental impacts of license renewal for the remaining environmental issues evaluated separately in the Supplemental Environmental Impact Statement are small. A significant consideration for this determination was the fact that no new major construction or land-disturbing activity is to take place in order to proceed with license renewal, nor are there any new or increased environmental emissions as a result of this action. In essence, current measures to mitigate environmental impacts associated with operations were found to be adequate.

- Dominion takes pride in its environmental performance and its positive relationships with regulatory agencies, environmental organizations, the general public, and our community neighbors. All of this takes time to

SurD-G

foster and develop as well as a major commitment by management to openness and candor. In this license renewal process we want to ensure that we continue on this path and that nothing adversely impacts our future performance or relationships.

- Dominion believes that our obligation to provide safe and reliable energy from nuclear power extends well beyond this license renewal milestone. Federal, state and local oversight will continue to test and challenge, just as it does today, our standard of environmental excellence and the conduct of our daily business.

- Dominion welcomes all comments on the contents of this Supplemental Environmental Impact Statement during the required public comment period and we look forward to working constructively with NRC staff.

4

Appendix B

Contributors to the Supplement

Appendix B

Contributors to the Supplement

The overall responsibility for the preparation of this supplement was assigned to the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission (NRC). The statement was prepared by members of the Office of Nuclear Reactor Regulation with assistance from other NRC organizations and the Pacific Northwest National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory.

Name	Affiliation	Function or Expertise
NUCLEAR REGULATORY COMMISSION		
Andrew Kugler	Nuclear Reactor Regulation	Project Manager
John Tappert	Nuclear Reactor Regulation	Section Chief
Thomas Kenyon	Nuclear Reactor Regulation	Project Management
James Wilson	Nuclear Reactor Regulation	Project Management
Barry Zalcman	Nuclear Reactor Regulation	Technical Monitor
Jennifer Davis	Nuclear Reactor Regulation	General Scientist
Gregory Suber	Nuclear Reactor Regulation	Environmental Engineer
Michael Masnik	Nuclear Reactor Regulation	Aquatic Ecology
Robert Schaaf	Nuclear Reactor Regulation	Project Management
Robert Palla	Nuclear Reactor Regulation	Severe Accident Mitigation Alternatives
Antoinette Walker	Nuclear Reactor Regulation	Administrative Support
Jessie Correa	Nuclear Reactor Regulation	Administrative Support
Nina Barnett	Nuclear Reactor Regulation	Administrative Support
PACIFIC NORTHWEST NATIONAL LABORATORY[a]		
Eva Eckert Hickey		Task Leader
Tara O. Eschbach		Deputy Task Leader
Van Ramsdell, Jr.		Air Quality, Water Use, Hydrology
Gregory A. Stoetzel		Radiation Protection
James Becker		Terrestrial Ecology
Charles A. Brandt		Terrestrial Ecology
Susan L. Sargeant		Aquatic Ecology
Paul L. Hendrickson		Land Use, Alternatives
Michael J. Scott		Socioeconomics
James R. Weber		Technical Editor
Trina Russell, Colleen Warnecke		Document Design
Kimberly Leigh		Environmental Scientist
Susan Gulley, Jean Cheyney		Administrative Support

Name	Affiliation	Function or Expertise
	Lawrence Livermore National Laboratory[b]	
Charles Hall		Socioeconomics
	Los Alamos National Laboratory[c]	
W. Bruce Masse		Cultural Resources
	Energy Research, Inc.	
Mohsen Khatib-Rahbar		Severe Accident Mitigation Alternatives
Michael Zavisca		Severe Accident Mitigation Alternatives
	Information Systems Laboratory	
Kim Green		Severe Accident Mitigation Alternatives
Jim Meyer		Severe Accident Mitigation Alternatives

(a) Pacific Northwest National Laboratory is operated for the U.S. Department of Energy by Battelle Memorial Institute.
(b) Lawrence Livermore National Laboratory is operated for the U.S. Department of Energy by the University of California.
(c) Los Alamos National Laboratory is operated for the U.S. Department of Energy by the University of California.

Appendix C

Chronology of NRC Staff Environmental Review Correspondence Related to Virginia Electric and Power Company's Application for License Renewal of Surry Power Station, Units 1 and 2

Appendix C

Chronology of NRC Staff Environmental Review Correspondence Related to Virginia Electric and Power Company's Application for License Renewal of Surry Power Station, Units 1 and 2

This appendix contains a chronological listing of correspondence between the U.S. Nuclear Regulatory Commission (NRC) and the Virginia Electric and Power Company (VEPCo) and other correspondence related to the NRC staff's environmental review, under 10 CFR Part 51, of VEPCo's application for renewal for the Surry Power Station, Units 1 and 2, operating licenses. All documents, with the exception of those containing proprietary information, have been placed in the Commission's Public Document Room, at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland, and are available electronically from the Public Electronic Reading Room found on the Internet at the following web address: http://www.nrc.gov/reading-rm.html. From this site, the public can gain access to the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents in the Publicly Available Records (PARS) component of ADAMS. The ADAMS accession numbers for each document are included below.

May 16, 2001	Letter from NRC to Mr. Alan Zoellner, Swem Library, concerning the maintenance of reference material for the Surry license renewal application (Accession No. ML011360033)
May 29, 2001	Letter from Mr. David A. Christian, Virginia Electric Power Company (VEPCo) to the NRC, submitting the application for the renewal of the operating licenses for the Surry and North Anna Power Stations, Units 1 and 2 (Accession No. ML011500502)
August 8, 2001	Letter from NRC to Mr. David A. Christian, VEPCo, forwarding the Notice of Intent to prepare an environmental impact statement and conduct scoping process for license renewal for Surry Power Station, Units 1 and 2 (Accession No. ML012130132)
August 21, 2001	Notice of September 19, 2001, public meeting to discuss environmental scoping process for the Surry Power Station, Units 1 and 2, license renewal application (Accession No. ML012330263)
August 22, 2001	Letter from NRC to Ms. Reeva Tilley, Chairman, Virginia Council on Indians, inviting scoping comments (Accession No. ML012360236)

October 10, 2001	Summary of September 19, 2001, public scoping meetings for the Surry Power Station, Units 1 and 2, license renewal application (Accession No. ML012830412)
October 17, 2001	NRC letter to Mr. David A. Christian, VEPCo, "Request for Additional Information Related to the Staff's Review of Severe Accident Mitigation Alternatives for the Surry and North Anna Power Stations, Units 1 and 2" (Accession No. ML012910292)
November 15, 2001	Letter to NRC from John P. Wolflin, U.S. Fish and Wildlife Service, providing scoping comments on Surry Power Station license renewal (Accession No. ML013460237)
December 10, 2001	Letter from Mr. David A. Christian, VEPCo, to NRC, responding to the October 17, 2001, request for additional information related to the staff's review of severe accident mitigation alternatives for the Surry and North Anna Power Stations, Units 1 and 2 license renewal (Accession No. ML013520484)
December 26, 2001	Memo to file, socioeconomic and aquatic information provided by VEPCo (Accession No. MLO13610514)
January 3, 2002	NRC letter to Ms. Cara H. Metz, Virginia Department of Historic Resources, concerning the potential for license renewal at the Surry and North Anna Power Stations to affect historic resources (Accession No. ML020070569)
January 16, 2002	NRC letter to Mr. David A. Christian, VEPCo, "Issuance of Environmental Scoping Summary Report Associated with the Staff's Review of the Application by Dominion for Renewal of the Operating Licences for Surry Power Station, Units 1 and 2" (Accession No. ML020160586)
January 17, 2002	NRC note to file, information provided by VEPCo during the NRC site audits in relation to the license renewal applications for the Surry and North Anna Power Stations, Units 1 and 2 (Accession No. ML020180119)
January 23, 2002	NRC note to file, information provided by VEPCo in relation to severe accident mitigation alternatives in its license renewal application for the Surry Power Station, Units 1 and 2 (Accession No. ML020250545)

January 24, 2002	NRC letter to Ms. Karen Mayne of the U.S. Fish and Wildlife Service requesting a list of protected species within the area under evaluation for the Surry and North Anna Power Stations license renewal (Accession No. ML020250611)
March 14, 2002	NRC letter to Mr. John P. Wolflin, U.S. Fish and Wildlife Service, responding to scoping comments regarding license renewal for the Surry and North Anna Power Stations (Accession Nos. ML020740498 and ML020230063)
March 15, 2002	NRC letter to Mr. David A. Christian, VEPCo, "Request for Comments on the Draft Plant-Specific Supplement 6 to the Generic Environmental Impact Statement Regarding Surry Power Station, Units 1 and 2" (Accession No. ML021060300)
April 3, 2002	NRC letter to the U.S. Environmental Protection Agency, filing a copy of the supplemental environmental impact statement (NUREG-1437, Supplement 6) regarding license renewal for Surry Power Station, Units 1 and 2 (Accession Nos. ML021060405 [letter] and ML021050274 [NUREG package])
April 3, 2002	NRC letter to Mr. David A. Christian, VEPCo, "Notice of Availability of the Draft Plant-Specific Supplement to the Generic Environmental Impact Statement Regarding Surry Power Station, Units 1 and 2" (Accession No. ML021060225)
May 7, 2002	NRC Notice of Public Meeting to Discuss the Draft Environmental Impact Statement for the Surry Power Station, Units 1 and 2, License Renewal (Accession No. ML021210322)
May 22, 2002	Letter from Ms. Karen Mayne of the U.S. Fish and Wildlife Service to NRC providing a list of protected species within the area under evaluation for the Surry and North Anna Power Stations license renewal (Accession No. ML021560147)
June 17, 2002	Summary of May 29, 2002, public meetings to discuss the draft supplemental environmental impact statement for the Surry Power Station, Units 1 and 2, license renewal application (Accession No. ML021720280)

July 2, 2002	Letter from Mr. David A. Christian, VEPCo, to NRC, providing comments on the draft environmental impact statement for license renewal for Surry Units 1 and 2 (Accession No. ML021910257)
July 10, 2002	General comment letter from Michael T. Chezik, U.S. Fish and Wildlife Service's Chesapeake Bay Field Office, regarding Surry Power Station, Units 1 and 2 license renewal (Accession No. ML022210134)
July 29, 2002	NRC letter to Chief Leo Henry, Mr. Neil Patterson, and Mr. Richard Hill, Tuscarora Nation, "Availability of Draft Plant-Specific Supplements 6 and 7 to the Generic Environmental Impact Statement Regarding the License Renewal for the Surry and North Anna Power Stations" (Accession No. ML022140548)
September 14, 2002	NRC letter to Dr. Oula Shehab, Virginia Department of Environmental Quality, "Draft Plant-Specific Supplements 6 and 7 to the Generic Environmental Impact Statement Regarding the License Renewal for the Surry and North Anna Power Stations" (Accession No. ML022610691)
September 30, 2002	Email from Dr. Oula Shehab, Virginia Department of Environmental Quality, providing comments on draft Supplement 6 to the Generic Environmental Impact Statement Regarding the License Renewal for the Surry Power Station (Accession No. ML022830313)
October 21, 2002	NRC letter to Mr. David A. Christian, VEPCo, "Revision of Schedule For The Review of the North Anna, Units 1 and 2, and Surry, Units 1 and 2, License Renewal Applications" (Accession No. ML022950104)
November 1, 2002	Note to file docketing emails associated with the staff's biological assessment concerning eagles under license renewal for Surry Power Station, Units 1 and 2 (Accession No. ML02305100)
November 6, 2002	NRC letter to Mr. John P. Wolflin, U.S. Fish and Wildlife Service, "Biological Assessment For Bald Eagles For License Renewal at Surry Power Station, Units 1 and 2, and Request For Informal Consultation" (Accession No. ML022910160)
November 6, 2002	Note to file docketing an email from T. Banks, VEPCo, concerning river intake structure screen mesh size for Surry Power Station, Units 1 and 2 (Accession No. ML023100170)

Appendix D

Organizations Contacted

Appendix D

Organizations Contacted

During the course of the staff's independent review of environmental impacts from operations during the renewal term, the following Federal, State, regional, and local agencies were contacted:

U.S. Fish and Wildlife Service, Annapolis, Maryland

Virginia Department of Historic Resources, Portsmouth, Virginia

Virginia State Historic Preservation Office

Virginia Department of Transportation, Resident Engineer

Virginia Department of Taxation

Virginia Employment Commission

Groundwater Hydrologist, Virginia Department of Environmental Quality

County Administrator, Surry County

Community Development Director, Surry County Department of Planning, Surry, Virginia

Director, Social Services, Surry County

Planning Director, Surry County

Agricultural Extension, Surry County

Associate Superintendent, Surry County School District

Director, Surry County Parks and Recreation Department

Commissioner of Revenue, Surry County

Hope Alternatives (private social service agency in Surry County)

Isle of Wight Social Services Director

Superintendent, School District, Isle of Wight

Director, Public Utilities Department, Isle of Wight

Director, Isle of Wight Parks and Recreation

Director, Economic Development, Isle of Wight

Director, Smithfield and Isle of Wight Convention and Tourist Bureau

Town Manager, Town of Smithfield

Tuscarora Nation, Lewiston, New York

Deputy Director, Hampton Roads Planning District Commission

Director, James City County Social Services

Director, James City Service Authority (Water Service)

Director, James City County Economic Development Department

Director, Newport News Waterworks

Appendix E

Virginia Electric and Power Company's Compliance Status and Consultation Correspondence

Appendix E

Virginia Electric and Power Company's Compliance Status and Consultation Correspondence

The list of licenses, permits, consultations, and other approvals obtained from Federal, State, regional, and local authorities for Surry, Units 1 and 2, are shown in Table E-1. Following Table E-1 are reproductions of correspondence prepared and sent during the evaluation process for the application for renewal of the operating licenses for Surry, Units 1 and 2.

Source	Recipient	Date of Letter
United States Nuclear Regulatory Commission (C. I. Grimes)	Virginia Department of Historic Resources	January 3, 2002
United States Nuclear Regulatory Commission (C. I. Grimes)	U.S. Fish and Wildlife Service	January 24, 2002
Commonwealth of Virginia Department of Environmental Quality (E. L. Irons)	Dominion Virginia Power Company	February 20, 2002
United States Nuclear Regulatory Commission (B. Zalcman)	Tuscarora Nation	July 29, 2002
Dominion Virginia Power Company (T. Banks)	National Marine Fisheries Service	February 6, 2001
United States Department of the Interior (K. L. Mayne)	United States Nuclear Regulatory Commission	May 22, 2002
United States Department of Commerce (M. Colligan)	Dominion Generation	March 23, 2001
United States Nuclear Regulatory Commission (P.T. Kuo)	U.S. Fish and Wildlife Service	November 6, 2002

Table E-1. Federal, State, Local, and Regional Licenses, Permits, Consultations, and Other Approvals for Surry Power Station, Units 1 and 2

Agency	Authority	Description	Number	Issue Date	Expiration Date	Remarks
NRC	10 CFR Part 50	Operating license, Surry, Unit 1	DPR-32	05/26/72	05/25/12	Authorizes operation of Unit 1
NRC	10 CFR Part 50	Operating license, Surry, Unit 2	DPR-37	01/30/73	01/29/13	Authorizes operation of Unit 2
FWS	Migratory Bird Treaty Act (16 USC 703-712)	Permit	MB705136-0	04/22/02	03/31/03	The permit authorizes removal of up to 15 osprey nests causing safety hazards.
FWS	Section 7 of the Endangered Species Act (16 USC 1536)	Consultation	NA	Letter from NRC to FWS 01/24/02	NA	Section 7 requires a Federal agency to consult with FWS regarding whether a proposed action will affect endangered or threatened species. FWS determined that the renewal of the Surry OLs may affect the bald eagle.
NMFS	Section 7 of the Endangered Species Act (16 USC 1536)	Consultation	Letter 1514-05(A) from NMFS to VEPCo, 03/23/01	NA	NA	NMFS determined that renewal of the Surry OLs is not likely to affect species protected by the Endangered Species Act and under the purview of NMFS
U.S. Army Corps of Engineers	Section 404 of the Clean Water Act (33 USC 1344)	Authorization to use regional permit for discharge of dredged or fill material	97-RP-19, Project 99-V1336	08/27/99	08/12/03	Permit covers periodic dredging to maintain the intake channel in the James River

Table E-1. (contd)

Agency	Authority	Description	Number	Issue Date	Expiration Date	Remarks
DOT Research and Special Programs Administration	49 CFR Part 107, Subpart G	Registration	0531000020241	05/25/01	06/30/02	Registration covers hazardous materials shipments
VMRC	COV Title 28.2, Chapters 12 and 13	Permit	VMRC 92-1347	08/02/99	12/31/02	Maintenance dredging of the intake channel in the James River
VDHR	Section 106 of the National Historic Preservation Act (16 USC 470f)	Consultation	NA	Letter from NRC to VDHR 01/03/02	NA	The National Historic Preservation Act requires Federal agencies to take into account the effect of any undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places.
VDEQ	Section 307(c)(3)(A) of the Coastal Zone Management Act (16 USC 1456[c][3][A])	Consistency determination with the Virginia Coastal Management Program	NA	Letter from VDEQ to VEPCo (02/20/02)	NA	Certification that the Surry Power Station complies with the Virginia Coastal Program
VDEQ	9 VAC 25-610-40	Permit	GW0003900	08/01/99	08/01/09	Permit for withdrawal of groundwater for use as potable, process, and cooling water
VDEQ	33 USC 1342	Virginia pollutant discharge elimination system (NPDES) permit	VA0004090	11/02/01	11/01/06	The NPDES permit covers plant and stormwater discharges

Table E-1. (contd)

Agency	Authority	Description	Number	Issue Date	Expiration Date	Remarks
VDEQ	9 VAC 5-80-10	Air operating permit				An application for an air operating permit was submitted to VDEQ on 0/12/98 and revised on 04/07/98. Issuance of the permit is pending.
VDEQ	9 VAC 5-20-160	Registration	50336	NA	NA	Annual recertification of air emission sources
VDEQ	9 VAC 5-80-10	Permit		09/27/93	None	Air pollution permit covering installation and operation of the emergency blackout generator
Virginia Department of Health, Bureau of Water Supply Engineering	Waterworks regulations, section 3.14	Permit	3181800	03/07/78	None	Permit authorizes operation of a noncommunity waterworks

CFR = Code of Federal Regulations
COV = Code of Virginia
DOT = U.S. Department of Transportation
EPA = U.S. Environmental Protection Agency
FWS = U.S. Fish and Wildlife Service
NA = not applicable
NMFS = National Marine Fisheries Service
NRC = U.S. Nuclear Regulatory Commission
USC = United States Code
VAC = Virginia Administrative Code
VDEQ = Virginia Department of Environmental Quality
VDHR = Virginia Division of Historic Resources
VEPCo = Virginia Electric and Power Company
VMRC = Virginia Marine Resources Commission

January 3, 2002

Ms. Cara H. Metz, Director
Division of Resource Services and Review
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Dear Ms. Metz:

This letter responds to issues raised in your letter dated February 13, 2001, to Mr. William Corbin of Virginia Electric and Power Company (VEPCo), regarding the license renewal Environmental Reports for the Surry and North Anna Power Stations. Our response has benefitted from productive discussions between representatives of my staff and Dr. Ethel Eaton of your staff, including a meeting held at the Virginia Department of Historic Resources on September 21, 2001, for Surry.

In response to your original letter, VEPCo authorized cultural resource assessments of the Surry and North Anna sites. These assessments were conducted by the Louis Berger Group, Inc., and the completed reports were delivered to VEPCo in March 2001, with an addendum to the North Anna report delivered in October 2001. A copy of the Surry report was provided to the U.S. Nuclear Regulatory Commission (NRC) during our recent visit to the site in September 2001. Also during this September visit, Dr. Eaton and our consulting archaeologist, Dr. W. Bruce Masse of Los Alamos National Laboratory, had the opportunity to tour the grounds of the Surry Power Plant. Dr. Masse later reviewed the assessment report and pertinent archival records on file at the Virginia Department of Historic Resources. We received a copy of the North Anna report and its addendum following our visit to that site in October 2001.

The NRC is acutely aware of the richness of the history in and around Gravel Neck Peninsula, and the lower James River in general. We are also aware of the potential for significant intact historic and archaeological resources to be present in the undeveloped portions of the Surry and North Anna Power Stations. We have discussed this topic at considerable length with the station managers and with other appropriate representatives from VEPCo, and are confident they share our concern for these cultural resources. Station procedures provide for the protection of cultural resources during future site activities.

Dr. Eaton, our reviewers, and the cultural resources assessment reports are in agreement that there is little likelihood that intact cultural resources exist in the presently developed portions of the Surry and North Anna Power Stations.

Because there are current operating procedures that take into account the inadvertent discovery of historic and archaeological remains at both stations, and because the license renewal is not expected to result in major refurbishment nor the need to expand operations into the currently undeveloped portions of the stations, we believe that license renewal is unlikely to

affect cultural resources. We therefore also consider it unnecessary at this time to enter into a programmatic agreement pursuant to the license renewal. However, should conditions specific to either of the stations change, or should the NRC license renewal process change in general, we would be prepared to reconsider this decision.

Please let us know if you have any other questions or concerns about the license renewal process. We will send you copies of the completed draft Supplemental Environmental Impact Statements for both the Surry and North Anna Power Stations as soon as they become available for review. Also, if you do not yet have a copy of the Berger Group cultural resource assessment reports for the two stations and wish to obtain copies for your files, we would be happy to provide you with copies.

Sincerely,
Original Signed By: CIGrimes
Christopher I. Grimes, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos. 50-280, 50-281, 50-338, and 50-339

Enclosure: As stated

cc w/encl: see next page

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Environmental r/f
DMatthews/FGillespie
JTappert
AKugler
RPrato
CGrimes
OGC
EHickey (PNNL)

Accession no.: **ML020070569**

*See previous concurrence
Document Name:G:\Rgeb\North Anna-Surry\Common Items\Historic Preservation\NRC ltr to VDHR.wpc

OFFICE	PM:RGEB	SC:RGEB	C:RGEB	PD:RLEP	OGC (NLO)
NAME	AKugler*	BZalcman*	CCarpenter*	CGrimes*	RWeisman*
DATE	12/13/01	12/13/01	12/14/01	01/04/02	01/03/02

OFFICIAL FILE COPY

January 24, 2002

Ms. Karen Mayne, Supervisor
Virginia Field Office
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, Virginia 23061

SUBJECT: REQUEST FOR LIST OF PROTECTED SPECIES WITHIN THE AREA UNDER EVALUATION FOR THE SURRY AND NORTH ANNA POWER STATIONS LICENSE RENEWAL

Dear Ms. Mayne:

The Nuclear Regulatory Commission (NRC) is evaluating an application submitted by Virginia Electric and Power Company for the renewal of the operating licenses for its Surry and North Anna Power Stations, Units 1 and 2. The NRC is preparing station-specific supplements to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (NUREG-1437) for this proposed license renewal, for which we are required to evaluate potential impacts to threatened and endangered species.

The proposed action would include use and continued maintenance of existing facilities and transmission lines and would not result in new construction or disturbance. The Surry Power Station is located on the James River in Surry County, Virginia. The transmission line corridors for this station pass through portions of Surry, Isle of Wight, Prince George, and Charles City counties, and the corporate limits of the cities of Suffolk, Chesapeake, Newport News, and Hopewell, Virginia. In total, the corridors include about 5000 acres (170 miles in length).

The North Anna Power Station is located on the south side of Lake Anna in Louisa County, Virginia. The transmission line corridors for this station pass through portions of Louisa, Hanover, Goochland, Powhatan, Henrico, Chesterfield, Spotsylvania, Caroline, Orange, Culpeper, and Fauquier counties, Virginia. In total, the corridors include about 2900 acres (120 miles in length). In addition, Lake Anna, which is fed by the North Anna River and impounded by the North Anna Dam, is used as part of the cooling system for North Anna Power Station. Therefore, the lake and the Lower North Anna River are considered part of the aquatic environment of interest.

To support the environmental impact statement preparation process and to ensure compliance with Section 7 of the Endangered Species Act, the NRC requests a list of species and information on threatened, endangered, proposed, and candidate species and critical habitat that may be in the vicinity of the Surry and North Anna Power Stations and their associated transmission lines. We have enclosed figures showing the location of the stations and their associated transmission lines.

Also, we would like confirmation that the Chesapeake Bay Field Office will serve as the U.S. Fish and Wildlife Service's point of contact for Endangered Species Act compliance, including any Section 7 consultation that may be needed, for the Surry and North Anna Power Stations.

If you have any comments or questions, please contact Andrew J. Kugler, Senior Project Manager, at (301) 415-2828.

Sincerely,
ClGrimes
Christopher I. Grimes, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos. 50-280, 50-281, 50-338 and 50-339

Enclosure: As stated

cc: John P. Wolflin, Supervisor
Chesapeake Bay Field Office
U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, Maryland 21401

cc: See next page

Accession nos.:
1. **Cover letter: ML020250603**
2. **Enclosure: Figures Depicting the Location of the Surry and North Anna Power Stations and Their Associated Transmission Lines - ML020100388**
3. **Package: ML020250611**

DISTRIBUTION:

DMatthews/FGillespie	GEdison
CGrimes	SMonarque
JTappert	RPrato
AKugler	Environmental R/F
EHickey (PNNL)	

*See previous concurrence
DOCUMENT NAME: G:\RGEB\North Anna-Surry\Surry\Consult\Ltr to FWS-E&T spec.wpd

OFFICE	PM.RLEP	SC:RLEP	RLEP:DRIP
NAME	AKugler*	JTappert*	CGrimes*
DATE	01/22/02	01/22/02	01/24/02

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Enclosure: Figures Depicting the Locations of the Surry and North Anna Power Stations and Their Associated Transmission Lines

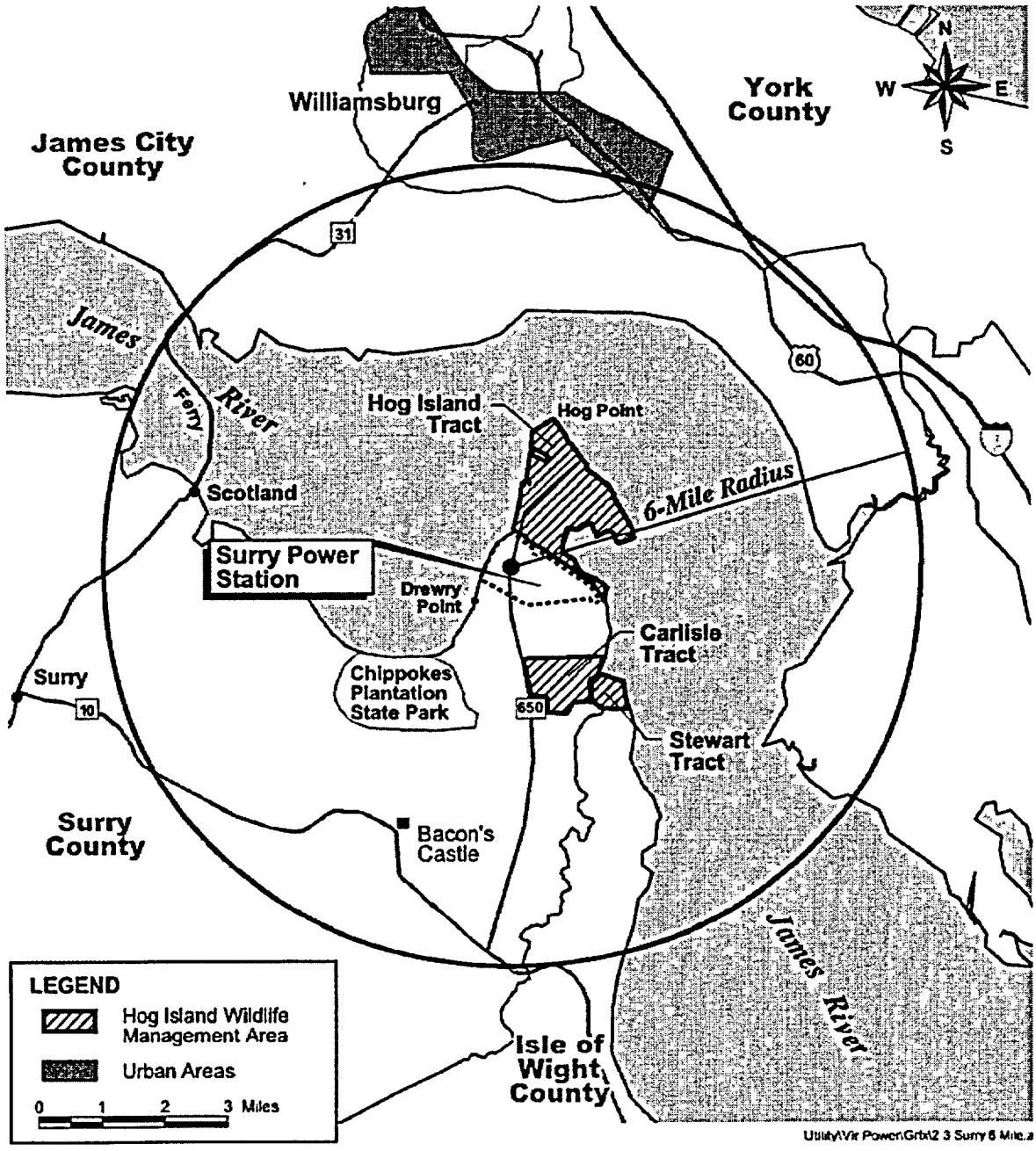

Figure 2-3. Dominion - 6-Mile Surry Vicinity Map

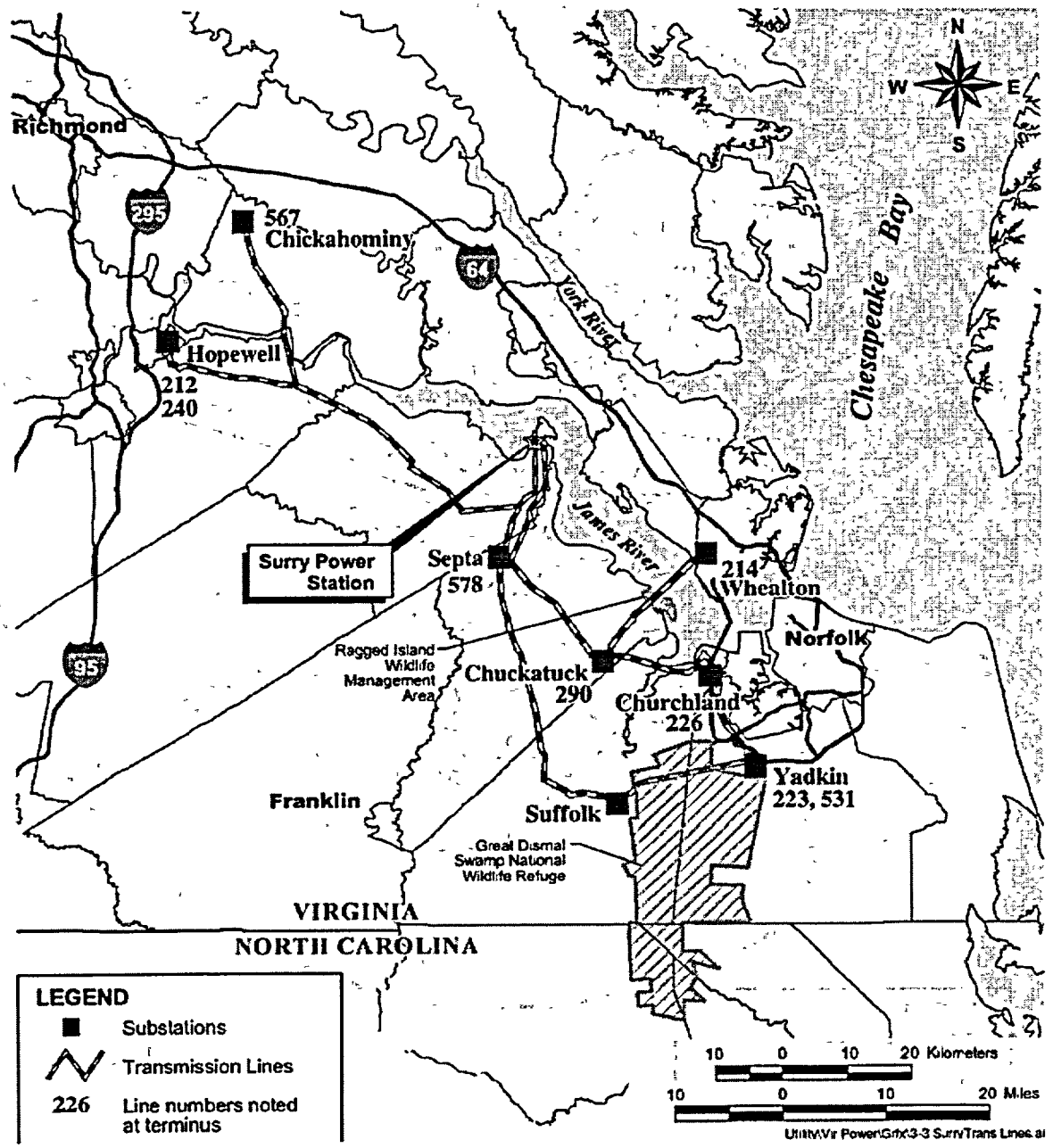

Figure 3-3. Transmission Corridors

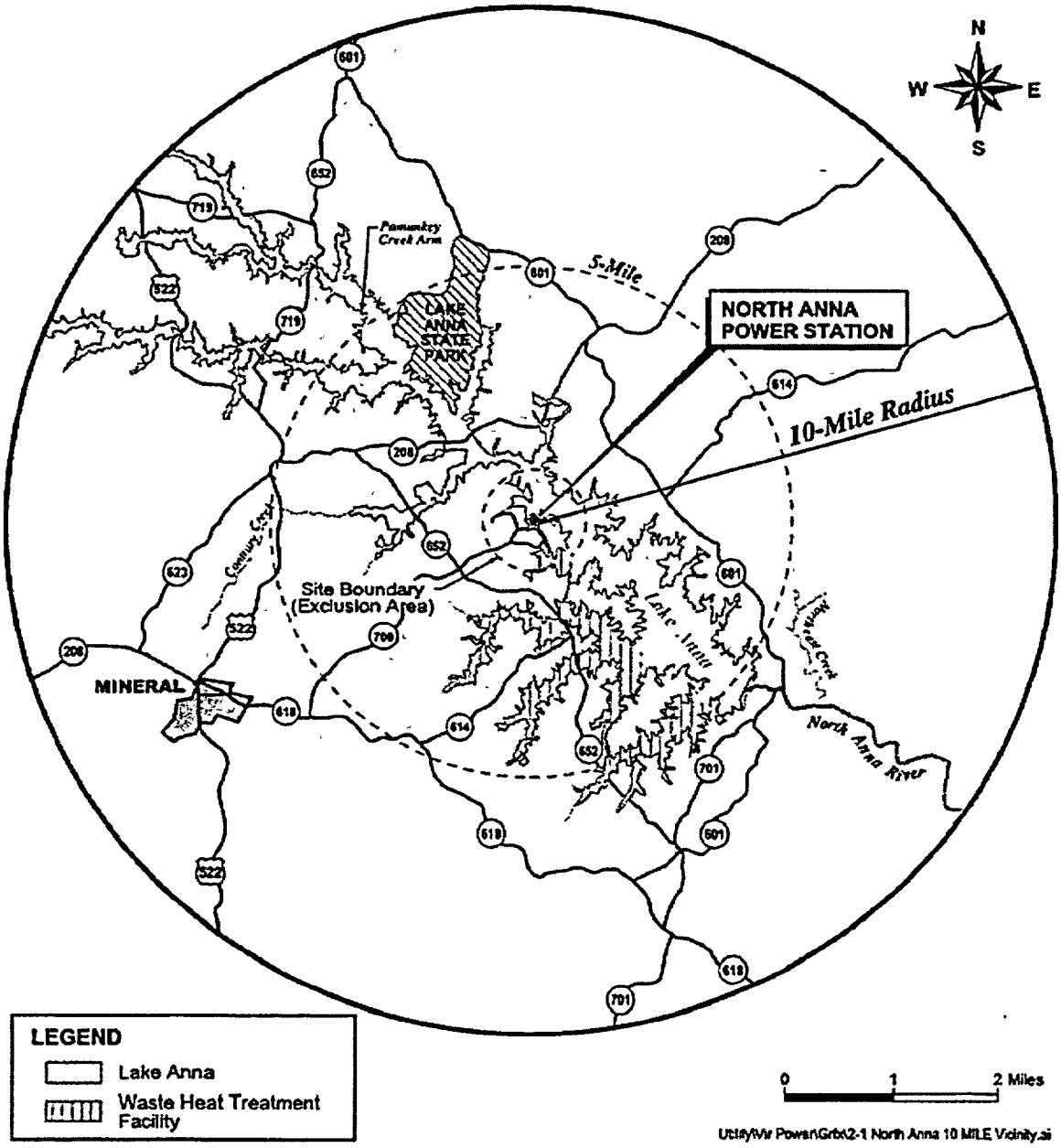

Figure 2-1. Dominion - 10-Mile North Anna Vicinity Map

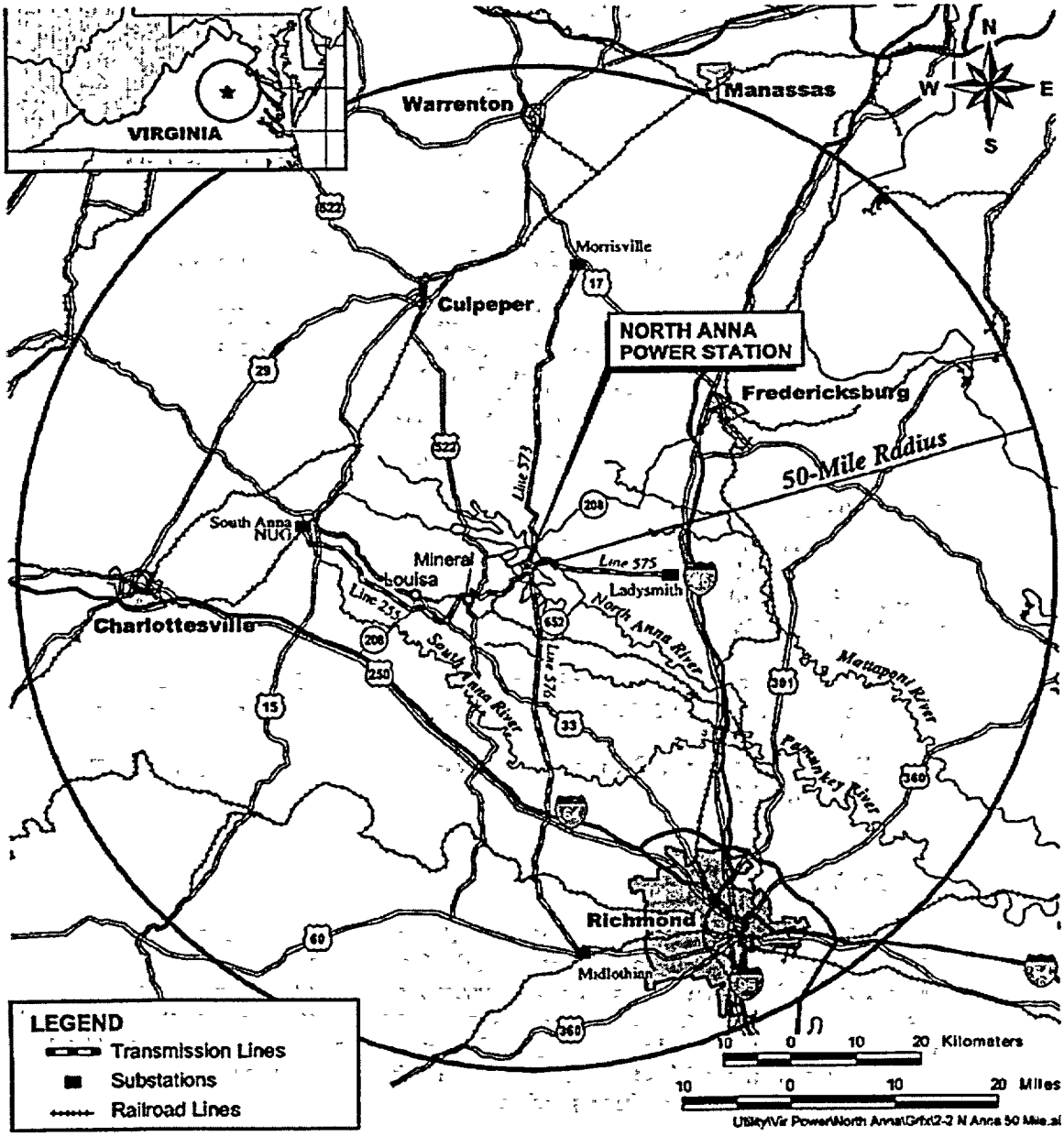

Figure 2-2. Dominion - North Anna Power Station 50-Mile View

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 10009, Richmond, Virginia 23240
Fax (804) 698-4500 TDD (804) 698-4021
www.deq.state.va.us

Robert G. Burnley
Director

(804) 698-4000
1-800-592-5482

February 20, 2002

J. W. White, Ph.D.
Manager, Water and Waste Programs
Dominion Virginia Power Company
5000 Dominion Boulevard
Glen Allen, Virginia 23060

RE: Surry Power Station License Renewal: Application by Dominion Virginia Power Company to U.S. Nuclear Regulatory Commission for Renewed Operating License
Federal Consistency Certification under the Coastal Zone Management Act
DEQ-01-186F

Dear Dr. White:

This letter responds to your September 27, 2001 letter requesting the Department of Environmental Quality's concurrence with the federal consistency certification for renewal of the Dominion Virginia Power Company's operating license for the Surry Power station. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal consistency certifications and responding to applicants for federal approval on behalf of the Commonwealth. The following agencies and planning district commission took part in this review:

Department of Environmental Quality
Department of Conservation
Department of Health
Marine Resources Commission
Chesapeake Bay Local Assistance Department
Crater Planning District Commission.

In addition, Surry County was invited to comment.

Project Description

Dominion Virginia Power submitted information for this review in the form of two documents. One, submitted with the initial letter, is called "Appendix E, Environmental Report" (cited hereinafter as "Appendix E"). The other is entitled "Federal Consistency Certification for Surry Power Station License Renewal" and is dated October 26, 2001 (cited hereinafter as "Certification").

Dominion Virginia Power owns and operates the Surry Power Station, a nuclear electric generating station located on the James River in Surry County. The plant is situated at the river just south of Hog Island Wildlife Management Area (Appendix E, page E-11, figure E-2). The plant consists of two nuclear reactors and associated steam turbines that generate approximately 1,600 megawatts of electricity. The Unit 1 license is to expire on May 25, 2012, while the Unit 2 license will expire on January 29, 2013. Both licenses have terms of 20 years, and are to be renewed for new 20-year terms. (Appendix E, page E-3). The Company expects Surry Power Station operations during the new license term to be a continuation of present operations (Appendix E, page E-2).

Federal Consistency Analysis

The Virginia Coastal Resources Management Program (VCP) is comprised of a network of programs administered by several agencies. In order to be consistent with the VCP, the applicant for federal licensing must obtain all the applicable permits and approvals listed under the Enforceable Programs of the VCP prior to commencing the project. Based on the commitments provided in the Consistency Certification that Dominion Virginia Power will obtain and comply with all approvals from agencies administering the applicable Enforceable Programs (Certification, page 1; Appendix E, page E-2) and comments submitted by agencies administering the Enforceable Programs, the Department of Environmental Quality concurs with the finding that the license renewal and continued operation of the Surry Power Station is consistent with Virginia's Coastal Resources Management Program.

This discussion analyzes the continued operation of the project under the license renewal in light of the Enforceable Programs of the Virginia Coastal Management Program.

1. Subaqueous Lands Management. The Marine Resources Commission indicates no objection to the renewal of the Nuclear Regulatory Commission (NRC) license for this project, provided that the applicant adheres to existing activities permitted by the Commission and/or submits appropriate permit applications for any new activities

affecting State-owned subaqueous lands. According to the Certification, the applicant has no plans for any activity under the license renewal that would require a permit from the Commission (page 13, Table 2, item b).

2. Coastal Lands Management. According to the Chesapeake Bay Local Assistance Department, the proposed license renewal is not subject to any requirements under the Chesapeake Bay Preservation Act because the license renewal would allow continued operations without new construction or redevelopment.

3. Wetlands Management. According to DEQ's Piedmont Regional Office, renewal of the NRC license for this project will not affect the existing Virginia Water Protection Permit covering the project, as long as the project stays in compliance with the requirements of the permit. According to DEQ's Virginia Water Protection Program, activities under the license renewal will not affect wetlands.

4. Point Source Water Pollution. According to DEQ's Piedmont Regional Office, renewal of the NRC license for this project will not affect the existing Virginia Pollutant Discharge Elimination System Permit covering the project, as long as the project stays in compliance with the requirements of the permit. According to DEQ's Virginia Water Protection Program, activities under the license renewal will not affect surface waters.

5. Air Pollution Control. According to DEQ's Piedmont Regional Office, renewal of the NRC license for this project will not affect the existing air permits covering the project, as long as the project stays in compliance with the requirements of these permits.

6. Other Enforceable Programs. As the Certification indicates , the remaining Enforceable Programs of the Virginia Coastal Resources Management Program do not apply to the renewal of the NRC license for the Surry Power Station. Specifically, the Fisheries Management Program, including the State Tributyltin Regulatory Program, is not applicable to continued operation of the Surry Power Station. Neither are the Dunes Management Program, the Non-point Source Pollution Control (Erosion and Sediment Control) Program, or the Shoreline Sanitation Program.

Environmental Impacts and Mitigation

1. Natural Heritage and Wildlife Resources. "Natural heritage resources" are defined as the habitat of rare, threatened, or endangered species of plants and animals, unique or exemplary natural communities, and significant geologic formations, according to the Department of Conservation and Recreation. That Department indicates that

natural heritage resources have not been documented as present in the vicinity of the project. In addition, the Department of Conservation and Recreation represents the Department of Agriculture and Consumer Services in commenting on state-listed endangered plant and insect species that might be affected by a project. The continued operation of the Surry Power Station will not affect protected plant or insect species.

2. Recreation Resources. Continued operation of the Surry Power Station will not adversely affect any existing or planned recreational facilities. Nor will it affect streams on the National Park Service Nationwide Inventory, Final List of Rivers or potential Virginia Scenic Rivers. The project will not affect any Virginia Byways.

3. Solid and Hazardous Waste Management. The DEQ's Waste Division, Office of Remedial Programs did a cursory review of its data files and found that the Surry Power Station is listed as a small-quantity generator of hazardous waste, subject to the provisions of Title 40, Code of Federal Regulations, Part 262 (and related provisions in Parts 264, 265, and 268), which are adopted by reference in the Virginia Hazardous Waste Management Regulations. The most recent DEQ inspection of the North Anna Power Station took place in May 1999; the inspection revealed that the Station was in compliance with all the requirements applicable to small-quantity generators.

4. Radiological Health Considerations. According to the Department of Health's Radiological Health Program, the Department of Health provides independent verification of this facility's environmental monitoring program for radiological releases. The Department of Health implemented its environmental monitoring program during the pre-operational stage of the facility; the program continues to the present day. There is no indication, in the published annual reports of the monitoring program, of any releases of radiation affecting the environment in the history of the program.

In addition, the applicant has been supportive of the efforts of state and local governments in maintaining an effective State Emergency Response Plan in case of radiological emergencies at the power plant. The Nuclear Regulatory Commission license includes a condition requiring certification of the Plan by the Federal Emergency Management Agency (FEMA); FEMA has certified the Plan.

J. W. White, Ph.D.
February 20, 2002
Page 5

Thank you for the opportunity to comment on this federal consistency certification.

Sincerely,

Ellie L. Irons
Program Manager
Office of Environmental Impact Review

Enclosures

cc: Derral Jones, DCR
Leslie P. Foldesi, VDH
Thomas D. Modena, DEQ-DWPC-ORP
K.S. Narasimhan, DEQ-DAPC-ODA
Mark S. Alling, DEQ-PRO
Brenda K. Winn, DEQ-VWPP
M. R. Habibi, DEQ-PRO
Tony Watkinson, MRC
Catherine M. Harold, CBLAD
Dennis K. Morris, Crater PDC
Terry D. Lewis, Surry County
Andy Kugler, U.S. NRC

July 29, 2002

Chief Leo Henry
Tuscarora Nation Clerk
2006 Mt. Hope Road
Lewiston, NY 14092

Mr. Neil Patterson, Jr., Director
Tuscarora Environmental Program
Tuscarora Nation
2045 Upper Mtn. Road
Sanborn, NY 14132

Mr. Richard Hill
Haudenosaunee Standing Committee
2235 Mt. Hope Road
Tuscarora Nation
Lewiston, NY 14092

SUBJECT: AVAILABILITY OF DRAFT PLANT-SPECIFIC SUPPLEMENTS 6 AND 7 TO THE GENERIC ENVIRONMENTAL IMPACT STATEMENT REGARDING THE LICENSE RENEWAL FOR THE SURRY AND NORTH ANNA POWER STATIONS

Dear Messrs:

The U.S. Nuclear Regulatory Commission (NRC) staff has completed draft plant-specific Supplements 6 and 7 to NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," regarding the renewal of operating licenses DPR-32 and DPR-37 for Surry Power Station, Unit Nos. 1 and 2 (Surry), and NPF-4 and NPF-7 for North Anna Power Station, Unit Nos. 1 and 2 (North Anna), for an additional 20 years of operation. Representatives of the Bureau of Indian Affairs (Department of the Interior) expressed their interest in ensuring that the NRC provide you with the opportunity to share your views on the findings of the staff assessment.

Both of these facilities are a considerable distance from the Neuse and Roanoke Rivers. The Surry plant is located on the James River, six miles south of Williamsburg, VA. Construction of the Surry plant was initiated in 1968; Unit No. 1 went into commercial operation in 1972 and Unit No. 2 in 1973. The North Anna plant is located on Lake Anna, 10 miles northeast of Mineral, VA. Construction of the North Anna plant was initiated in 1971; Unit No. 1 went into commercial operation in 1978 and Unit No. 2 in 1980. Neither of the plants anticipate any major refurbishment activities associated with a 20-year renewal of the licenses that could result in land disturbances beyond those already experienced.

Enclosed are copies of the two reports for your information. The NRC plans to prepare the final versions of these reports in September 2002. The draft reports were filed with the U.S. Environmental Protection Agency (EPA) and a notice of availability was issued with each,

indicating a 75-day comment period. Should you have an interest in commenting on these drafts, we request that such comments be received by the NRC no later than August 30, 2002, so that they may be considered in the final Supplements. Comments on either document should be addressed to:

Chief
Rules and Directives Branch
Mailstop T-6D 59
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Comments may also be submitted electronically to the NRC at *SurryEIS@nrc.gov* or at *NorthAnnaEIS@nrc.gov*.

Sincerely,
Original Signed By: BZalcman
Barry Zalcman, Senior Project Manager
Environmental Section
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation.

Docket Nos. 50-280, 50-281,
50-338, and 50-339

Enclosures: As stated
cc w/o encl: See next page

Distribution:

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J. Tappert	OGC	S. Monarque	E. Hickey, PNNL

Accession nos.:
1. Letter to: L. Henry, R. Hill & N. Patterson, Jr.: **ML022140519**
2. Letter to EPA w/Svc List, dated 04/03/02: **ML021060405**
3. Letter to EPA w/Svc List, dated 04/23/02: **ML021140391**
4. Package: **ML022140548**

*See previous concurrence
Document NameC:\Documents and Settings\d3e672\Local Settings\Temporary Internet Files\OLK35\TuscaroraNation.wpd

OFFICE	PM:RLEP	GE:RLEP	LA:RLEP	SC:RLEP	PD:RLEP
NAME	BZalcman*	JDavis*	HBerilla*	JRTappert* (RLE)	PTKuo*
DATE	07/25/02	07/23/02	07/26/02	07/29/02	07/29/02

OFFICIAL RECORD COPY

Dominion Generation
5000 Dominion Boulevard Glen Allen VA 23060

Dominion

February 6, 2001

Ms Carne McDaniel, Fisheries Biologist
National Marine Fisheries Service
Protected Resources Division
1 Blackburn Dr
Gloucester, MA 01930

Re: **Dominion's Surry Power Station Nuclear License Renewal**

Dear Ms McDaniel,

This correspondence follows our recent telephone conversation regarding nuclear license renewal for Dominion's Surry and North Anna Power Stations, and previous contact with the NMFS office in Hampton, VA (April 2000, January 2001). Please find enclosed for your review and comment, applicable sections of the Draft Environmental Reports for the license renewal application. One is provided for each station though Surry may be the only site in a location of interest.

We intend the application for license renewal to be consistent with requirements of the National Marine Fisheries Service and with the priorities of our communities As part of the license renewal process, the U.S. Nuclear Regulatory Commission (NRC) requires that applicants identify adverse impacts to threatened and endangered species resulting from continued operation of the facility or from refurbishment activities associated with license renewal. There are no changes in operations or refurbishment activities planned which would invalidate the conclusion we have thus far, that there are no adverse impacts on aquatic species.

As a matter of course, the NRC may request an informal consultation with your agency regarding our actions. The time frame for this NRC request is anticipated to be in the second half of 2001, following our late spring application submittal.

We regard our cooperative relationships with jurisdictional agencies such as yours important in meeting regulatory requirements and shared objectives Your interest and active participation in our efforts and potentially with the NRC later this year are appreciated. It is our expectation that by contacting you at this point in the process, we can identify any questions needing to be addressed prior to submittal We respectfully request and appreciate correspondence to that effect, as well as if there are no additional data needed for your concurrence with our conclusion

Should you have questions regarding any of the enclosed information, please contact me at 804/273-2170 (or tony_banks@dom.com), or Dr Jud White at 804/273-2948 (or judson_white@dom.com).

Thank you for your attention to the matters presented herein

Sincerely,

Tony Banks

Tony Banks, MPH, CHMM

Cc. J W. White, EP&C
LR file

Enclosures ER documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061

May 22, 2002

Mr. Christopher Grimes
Nuclear Regulatory Commission
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
Washington, D.C. 20555-0001

P.T. Kuo

Re: License Renewal for Surry and North Anna Power Stations, Surry and Louisa Counties, Virginia

Mr. Grimes:

The U.S. Fish and Wildlife Service (Service) has received your request for a list of federally listed or proposed endangered and threatened species and designated critical habitat within the area under evaluation for the Surry and North Anna Power Stations license renewal. This letter is submitted in accordance with provisions of the Endangered Species Act (ESA) of 1973 (87 Stat 884, as amended; 16 U.S.C. 1531 et seq.). Attached are lists of species with federal status and species of concern that have been documented or may occur in the counties where your project is located These lists were prepared by this office and are based on information obtained from previous surveys for rare and endangered species.

The Service would like to confirm that any further Section 7 consultation necessary for this project, pursuant to the ESA, will be conducted by personnel of the Chesapeake Bay Field Office in Annapolis, Maryland.

If you have any questions or need further assistance, please contact Mr. Eric Davis of this office at (804) 693-6694, extension 104.

Sincerely,

J. Eric Davis Jr.
for Karen L. Mayne
Supervisor
Virginia Field Office

Enclosures

1560147

SURRY COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus[1]	Bald eagle	LT
PLANTS		
Aeschynomene virginica	Sensitive joint-vetch	LT

Species of Concern

INVERTEBRATES		
Speyeria diana	Diana fritillary	G3
Stygobromus araeus	Tidewater interstitial amphipod	G2
VASCULAR PLANTS		
Carex decomposita	Epiphytic sdege	G3
Chamaecrista fasciculata var. macrosperma	Marsh senna	G5T2
Desmodium ochroleucum	Creamflower tick-trefoil	G2G3
Rudbeckia heliopsidis[2]	Sun-facing coneflower	G2
Trillium pusillum var virginianum	Virginia least trillium	G3T2

[1]Nesting occurs in this county; concentrated shoreline use has been documented on the James River.
[2]Surveys needed within 5-miles of Prince George County species location.

March 22, 1999
Prepared by U.S Fish and Wildlife Service, Virginia Field Office

ISLE OF WIGHT COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT

Species of Concern

INVERTEBRATES		
Caecidotea phreatica	Phreatic isopod	G1
Speyeria diana	Diana fritillary	G3
Stygobromus araeus	Tidewater interstitial amphipod	G2
Stygobromus indentatus	Tidewater amphipod	G2G3
NON-VASCULAR PLANTS		
Sphagnum cyclophyllum	Circular leaved peatmoss	G3
Sphagnum macrophyllum var macrophyllum	Large-leaf peatmoss	G3T3
VASCULAR PLANTS		
Carex decomposita	Epiphytic sedge	G3
Litsea aestivalis[1]	Pondspice	G3
Trillium pusillum var. virginianum[2]	Virginia least trillium	G3T2

[1]Survey may be needed along the Blackwater River.
[2]This species has been documented in an adjacent county and may occur in this county.

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

PRINCE GEORGE COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus[1]	Bald eagle	LT
VASCULAR PLANTS		
Aeschynomene virginica	Sensitive joint-vetch	LT

Species of Concern

INVERTEBRATES		
Speyeria diana	Diana fritillary	G3
VASCULAR PLANTS		
Chamaecrista fasciculata var. macrosperma	Marsh senna	G5T2
Rudbeckia heliopsidis	Sun-facing coneflower	G2
Trillium pusillum var. virginianum[2]	Virginia least trillium	G3T2

[1]Nesting occurs in this county; concentrated shoreline use has been documented on the James River.
[2]This species has been documented in an adjacent county and may occur in this county.

March 22, 1999
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

CHARLES CITY COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus[1]	Bald eagle	LT
VASCULAR PLANTS		
Aeschynomene virginica	Sensitive joint-vetch	LT
Helonias bullata[2]	Swamp pink	LT
Isotria medeoloides[2]	Small whorled pogonia	LT

Species of Concern

INVERTEBRATES		
Speyeria diana	Diana fritillary	G3
VASCULAR PLANTS		
Chamaecrista fasciculata var. macrosperma	Marsh senna	G5T2
Eriocaulon parkeri	Parker's pipewort	G3
Juncus caesariensis	New Jersey rush	G2
Nuphar sagittifolia	Narrow-leaved spatterdock	G5T2T3
Trillium pusillum var. virginianum	Virginia least trillium	G3T2

[1]Nesting occurs in this county; concentrated shoreline use has been documented on the James River.
[2]This species has been documented in an adjacent county and may occur in this county.

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

CITY OF SUFFOLK, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT

Species of Concern

INVERTEBRATES		
Chlorochroa dismalia	Dismal Swamp green stink bug	G2
Speyeria diana	Diana fritillary	G3
Stygobromus araeus	Tidewater interstitial amphipod	G2
Stygobromus indentatus	Tidewater amphipod	G2G3
NON-VASCULAR PLANTS		
Sphagnum carolinianum	Carolina peatmoss	G3
VASCULAR PLANTS		
Eriocaulon parkeri	Parker's pipewort	G3
Gentiana autumnalis	Pine-barren gentian	G3
Litsea aestivalis[1]	Pondspice	G3
Rhynchospora pallida	Pale beakrush	G3
Trillium pusillum var. virginianum	Virginia least trillium	G3T2

[1]Survey may be needed along the Blackwater River.

February 28, 2000
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

CITY OF CHESAPEAKE, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
None listed		

Species of Concern

INVERTEBRATES		
Euphyes dukesi	Scarce swamp skipper	G3
Pseudopolydesmus paludicolous	A millipede	G1
Stygobromus araeus	Tidewater interstitial amphipod	G2
NON-VASCULAR PLANTS		
Sphagnum macrophyllum var. macrophyllum	Large-leaf peatmoss	G3T3
VASCULAR PLANTS		
Trillium pusillum var. virginianum	Virginia least trillium	G3T2

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

CITY OF NEWPORT NEWS, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT

Species of Concern

None documented

August 26, 1999
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

LOUISA COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
INVERTEBRATES		
Alasmidonta heterodon	Dwarf wedgemussel	LE

Species of Concern

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green floater	G3

February 8, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

HANOVER COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT
INVERTEBRATES		
Alasmidonta heterodon	Dwarf wedgemussel	LE
VASCULAR PLANTS		
Aeschynomene virginica[1]	Sensitive joint-vetch	LT
Isotria medeoloides[1]	Small whorled pogonia	LT

Species of Concern

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green floater	G3
Sigara depressa	Virginia Piedmont water boatmen	G1G3
VASCULAR PLANTS		
Chamaecrista fasciculata var. macrosperma[1]	Marsh senna	G5T2

[1]This species has been documented in an adjacent county and may occur in this county.

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

POWHATAN COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT
INVERTEBRATES		
Pleurobema collina[1]	James spinymussel	LE

Species of Concern

INVERTEBRATES		
Lexingtonia subplana	Virginia pigtoe	G1Q
VASCULAR PLANTS		
Isoetes piedmontana	Piedmont quillwort	G3

[1]This species has been documented in an adjacent county and may occur in this county.

February 8, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

HENRICO COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus[1]	Bald eagle	LT
VASCULAR PLANTS		
Aeschynomene virginica[2]	Sensitive joint-vetch	LT
Helonias bullata	Swamp pink	LT
Isotria medeoloides[3]	Small whorled pogonia	LT

Species of Concern

INVERTEBRATES		
Fusconaia masoni	Atlantic pigtoe	G2
VASCULAR PLANTS		
Chamaecrista fasciculata var. macrosperma[1]	Marsh senna	G5T2
Juncus caesariensis	New Jersey rush	G2
Trillium pusillum var. virginianum	Virginia least trillium	G3T2

[1]Nesting occurs in this county; concentrated shoreline use has been documented on the James River.
[2]This species has been documented in an adjacent county and may occur in this county.
[3]This species has been documented in an adjacent county and may occur in this county east of I-295.

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

CHESTERFIELD COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus[1]	Bald eagle	LT
INVERTEBRATES		
Alasmidonta heterodon[2]	Dwarf wedgemussel	LE
VASCULAR PLANTS		
Aeschynomene virginica	Sensitive joint-vetch	LT
Rhus michauxii[2]	Michaux's sumac	LE

Species of Concern

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Speyeria diana	Diana fritillary	G3
VASCULAR PLANTS		
Chamaecrista fasciculata var. macrosperma	Marsh senna	G5T2
Desmodium ochroleucum	Creamflower tick-trefoil	G2G3
Trillium pusillum var virginianum	Virginia least trillium	G3T2

[1]Nesting occurs in this county; concentrated shoreline use has been documented on the James River.
[2]This species has been documented in an adjacent county and may occur in this county.

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

SPOTSYLVANIA COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
INVERTEBRATES		
Alasmidonta heterodon	Dwarf wedge mussel	LE
VASCULAR PLANTS		
Isotria medeoloides	Small whorled pogonia	LT

Species of Concern

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green floater	G3
Sigara depressa	Virginia Piedmont water boatmen	G1G3
Speyeria idalia	Regal fritillary	G3
NON-VASCULAR PLANTS		
Sphagnum carolinianum	Carolina peatmoss	G3

April 5, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

CAROLINE COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus[1]	Bald eagle	LT
VASCULAR PLANTS		
Aeschynomene virginica[2]	Sensitive joint-vetch	LT
Helonias bullata	Swamp pink	LT
Isotria medeoloides	Small whorled pogonia	LT

Species of Concern

BIRDS		
Aimophila aestivalis	Bachman's sparrow	G3
INVERTEBRATES		
Sigara depressa	Virginia piedmont water boatman	G1G3
Stygobromus indentatus	Tidewater amphipod	G2G3
VASCULAR PLANTS		
Chamaecrista fasciculata var. macrosperma[2]	Marsh senna	G5T2
Desmodium ochroleucum	Creamflower tick-trefoil	G2G3
Eriocaulan parkeri	Parker's pipewort	G3
Juncus caesariensis	New Jersey rush	G2
Sabatia kennedyana	Plymouth gentian	G3

[1]Nesting occurs in this county; concentrated shoreline use has been documented on the Rappahannock River.
[2]This species has been documented in an adjacent county and may occur in this county.

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

ORANGE COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
None documented		

Species of Concern

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green Floater	G3
Speyeria idalia	Regal fritillary	G3

March 22, 1999
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

CULPEPER COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT
INVERTEBRATES		
Alasmidonta heterodon[1]	Dwarf wedgemussel	LE

Species of Concern

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green floater	G3
VASCULAR PLANTS		
Agalinis auriculata[1]	Earleaf foxglove	G3

[1]This species has been documented in an adjacent county and may occur in this county.

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

FAUQUIER COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT
INVERTEBRATES		
Alasmidonta heterodon	Dwarf wedgemussel	LE

Species of Concern

INVERTEBRATES		
Elliptio lanceolata	Yellow lance	G3
Lasmigona subviridis	Green floater	G3
Speyeria idalia	Regal fritillary	G3
Stygobromus spinosus	Blue Ridge Mountain amphipod	G2G3
VASCULAR PLANTS		
Agalinis auriculata[1]	Earleaf foxglove	G3
Carex polymorpha[1]	Variable sedge	G2G3
Carex schweinitzii[1]	Schweinitz's sedge	G3
Poa paludigena	Bog bluegrass	G3
Pycnanthemum torrei	Torrey's mountain-mint	G2

[1]This species has been documented in an adjacent county and may occur in this county.

May 29, 2001
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

CITY OF HOPEWELL, VIRGINIA
Federally Listed, Proposed, and Candidate Species

SCIENTIFIC NAME	COMMON NAME	STATUS
BIRDS		
Haliaeetus leucocephalus	Bald eagle	LT

May 21, 2002
Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930

Mr. Tony Banks, MPH, CHMM
Dominion Generation
5000 Dominion Boulevard
Glen Allen, VA 23060

MAR 23 2001

Dear Mr. Banks,

This letter is in response to your inquiry on February 6, 2001, requesting information on the presence of any federally listed threatened or endangered species and/or designated critical habitat for listed species in the vicinity of Dominion's Surry Power Station, Glen Allen, Virginia Dominion Generation is applying for nuclear license renewal as required by the U.S. Nuclear Regulatory Commission (NRC) renewal process. The renewal process requires all applicants to identify adverse impacts to threatened or endangered species that may result from continued operation of the facility or refurbishment activities associated with renewal.

Potential spawning habitat for shortnose sturgeon has been thought to occur in the James River, but there have been no reports of shortnose sturgeon in this river system. However, Atlantic sturgeon, a candidate species under the Endangered Species Act of 1973, has been documented in the vicinity of the proposed project. Nevertheless, no federally listed or proposed threatened or endangered species and/or designated critical habitat for listed species under the jurisdiction of the National Marine Fisheries Service are known to exist in the project area. No further consultation pursuant to Section 7 of the Endangered Species Act of 1973, as amended, is required. If, however, project plans change or new information becomes available that changes the basis for this determination, then consultation should be reinitiated.

Sincerely,

Mary Colligan
Acting Assistant Regional Administrator
for Protected Resources

File Code 1514 - 05(A). nsp

November 6, 2002

John P. Wolflin, Supervisor
Chesapeake Bay Field Office
U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

SUBJECT: BIOLOGICAL ASSESSMENT FOR BALD EAGLES FOR LICENSE RENEWAL AT SURRY POWER STATION, UNITS 1 AND 2, AND REQUEST FOR INFORMAL CONSULTATION (TAC NOS. MB1992 AND MB1993)

Dear Mr. Wolflin:

The Nuclear Regulatory Commission (NRC) is evaluating an application submitted by Virginia Electric and Power Company (VEPCo) for the renewal of the operating licenses for an additional 20 years for its Surry Power Station (SPS), Units 1 and 2. The SPS is located on the Gravel Neck Peninsula in Surry County, Virginia. The current license for Unit 1 will expire on May 25, 2012, and for Unit 2 on January 29, 2013. License renewal will extend the operating license for each unit an additional 20 years past the above dates. The proposed action would include the continued operation and maintenance of the existing facilities at the SPS site and the transmission corridor that connects the SPS, Units 1 and 2, to the regional electrical grid. The proposed action will not include any new construction or onsite disturbance. The NRC is preparing a supplement to its 1996 "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (NUREG-1437) for this proposed license renewal. As part of the renewal review, we evaluate potential impacts to Federally listed, proposed, or candidate species, as well as designated or proposed critical habitat.

In a letter to the Virginia Field Office of the U.S. Fish and Wildlife Service (FWS) dated January 24, 2002, the NRC staff requested a list of Federally protected species and any critical habitat known from the vicinity of the SPS. In April 2002 the NRC staff issued the draft supplemental environmental impact statement (SEIS) for the license renewal of the SPS, Units 1 and 2. The NRC staff received correspondence from Ms. K. Mayne of FWS, dated May 22, 2002, that provided listed, proposed, or candidate species known from the vicinity of the plant site. The NRC staff also visited the SPS and surrounding areas with Mr. David Sutherland of your staff on May 23, 2002. On July 10, 2002, you provided comments on the NRC staff's draft SEIS. In the draft SEIS, the NRC staff concluded that listed aquatic species would not be adversely affected and that the impacts to threatened or endangered terrestrial species would be small as a result of the proposed action. However, in your letter you requested that the NRC staff prepare a biological assessment (BA) to more fully document the basis for its conclusion with respect to the bald eagle (*Haliaeetus leucocephalus*).

The NRC staff and its contractor, Pacific Northwest National Laboratory, has evaluated the potential impact of the power plant re-licensing on the list of species provided in the May 22, 2002, correspondence. We have prepared the enclosed BA that provides an evaluation of the potential for impact for the bald eagle. The staff has determined that the proposed action is not

a major construction activity and that the proposed action will have "no effect" on the bald eagle.

The reasons for our conclusion related to the "no effect" finding for the bald eagle are documented in the enclosed BA. We are placing a copy of the BA in our project files and on our public docket for this license renewal application and are requesting your concurrence with our determination.

Both the July 10, 2002, letter from FWS regarding the SPS and the July 24, 2002, letter regarding North Anna Power Station (North Anna) included a statement about bringing these plants "into compliance with current environmental regulations." The NRC staff is concerned that this statement could lead some readers to believe that VEPCo is not operating these stations in compliance with the regulations. Based on our review, the NRC staff did not find any situations in which the operation of the SPS and North Anna was not in compliance with the regulations.

If you have questions regarding the proposed action, the BA, or the staff's request for concurrence, please contact the environmental project manager, Andrew Kugler, by telephone at 301-415-2828 or e-mail at ajk1@nrc.gov.

Sincerely,

ORIGINAL SIGNED BY

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Program
Office of Nuclear Reactor Regulation

Docket Nos.: 50-280 and 50-281

Enclosure: As stated

cc w/encl.: See next page

Evaluation of Potential Effects of the Proposed License Renewal for Surry Power Station, Units 1 and 2, on the Bald Eagle (*Haliaeetus leucocephalus*)

Project Description

The proposed Federal action is renewal of the operating licenses (OLs) for Surry Power Station (SPS), Units 1 and 2. The current OL for Unit 1 (DPR-32) expires on May 25, 2012, and for Unit 2 (DPR-37) on January 29, 2013. By letter dated May 29, 2001, Virginia Electric and Power Company (VEPCo), the licensee, submitted an application to the U.S. Nuclear Regulatory Commission (NRC) (VEPCo 2001) to renew these OLs for an additional 20 years of operation (i.e., until May 25, 2032, for Unit 1 and January 29, 2033, for Unit 2).

The plant has two Westinghouse-designed light-water reactors, each with a design rating for net electrical power output of 855 megawatts electric (MW[e]). Plant cooling is provided by a once-through cooling system that withdraws and returns water from the James River. The SPS is connected to the transmission system via nine transmission lines, totaling approximately 480 km (300 mi) and covering approximately 2000 ha (5000 ac). A more detailed description of the facility and the local environment can be found in the NRC staff's draft supplemental environmental impact statement (SEIS) for the license renewal of the SPS, Units 1 and 2, previously provided.

Prior consultations with the U.S. Fish and Wildlife Service (FWS) include issuance of a permit to VEPCo under the Migratory Bird Treaty Act (16 USC 703-712) (permit #MB705136-0, expiration date March 31, 2003) for the removal of osprey (*Pandion haliaetus*) nests causing safety hazards (NRC 2002b). The NRC also consulted with FWS on an informal basis regarding threatened and endangered species under Section 7 of the Endangered Species Act (16 USC 1536) by letter dated January 24, 2002, for purposes of this license renewal (NRC 2002a). FWS responded in a letter dated May 22, 2002, (FWS 2002a) and also provided comments on the NRC staff's April 2002 draft SEIS in a letter dated July 10, 2002 (FWS 2002b).

Project Area

The SPS is located in the southeastern part of Virginia, in Surry County, on the south side of the James River, across from Jamestown and Williamsburg, Virginia. The SPS occupies approximately 340 ha (840 ac) on Gravel Neck Peninsula, located approximately 40 km (25 mi) upstream of the point where the James River enters the Chesapeake Bay (Figure 1).

The terrestrial ecosystem of the SPS and vicinity contains communities similar to those of the majority of the Virginia and North Carolina coastal plain. The primary plant community on the SPS site consists of remnants of mixed pine-hardwood forest dominated by loblolly pine (*Pinus taeda*) and white oak (*Quercus alba*) (VEPCo 2001).

The SPS utilizes the James River for main condenser cooling. Approximately 80 fish species are known to inhabit the brackish portion of the river downstream from the SPS and approximately 40 species have been recorded for the freshwater portion of the river upstream (VEPCo 1977).

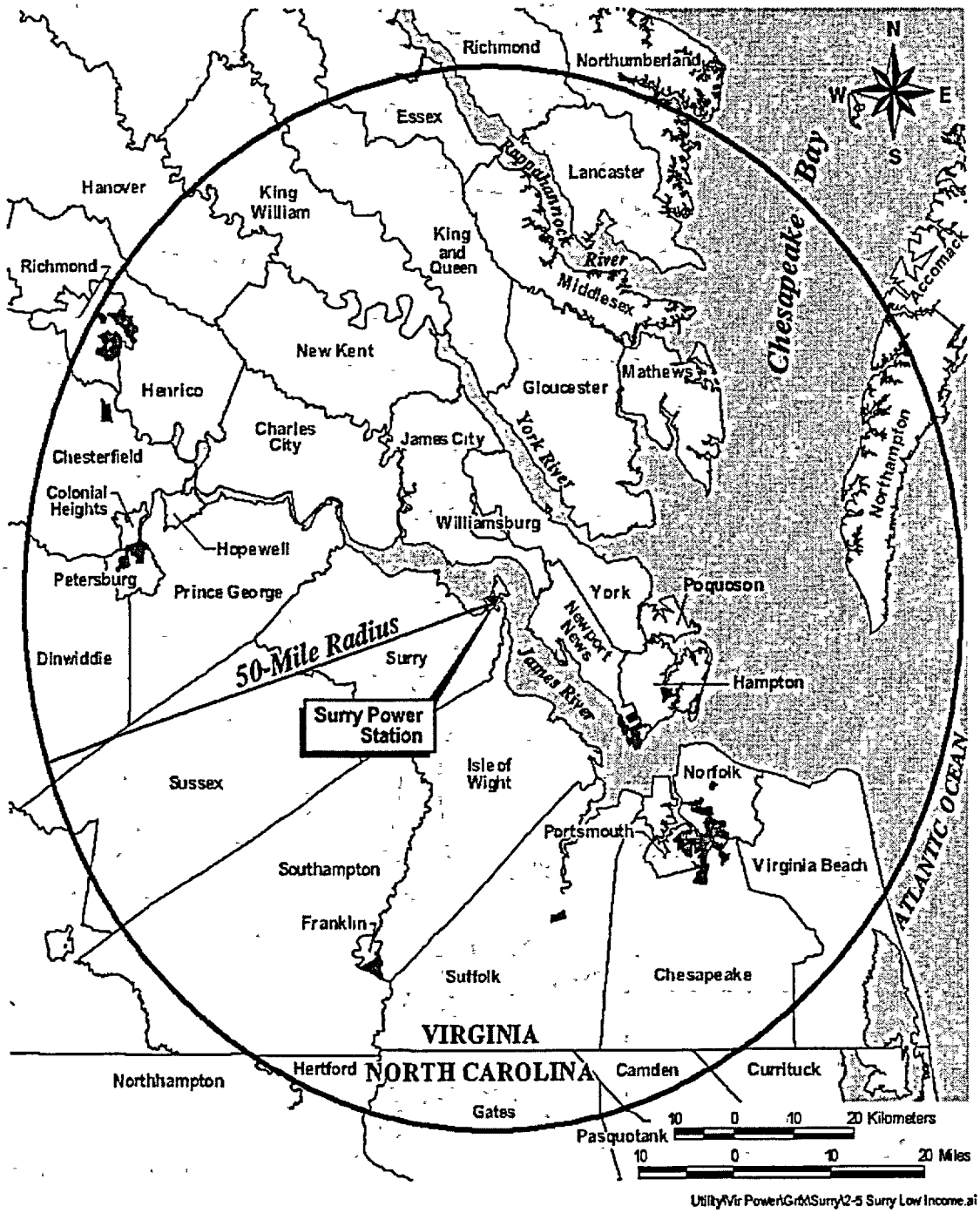

Figure 1. Location of Surry Power Station, 80-km (50-mi) region

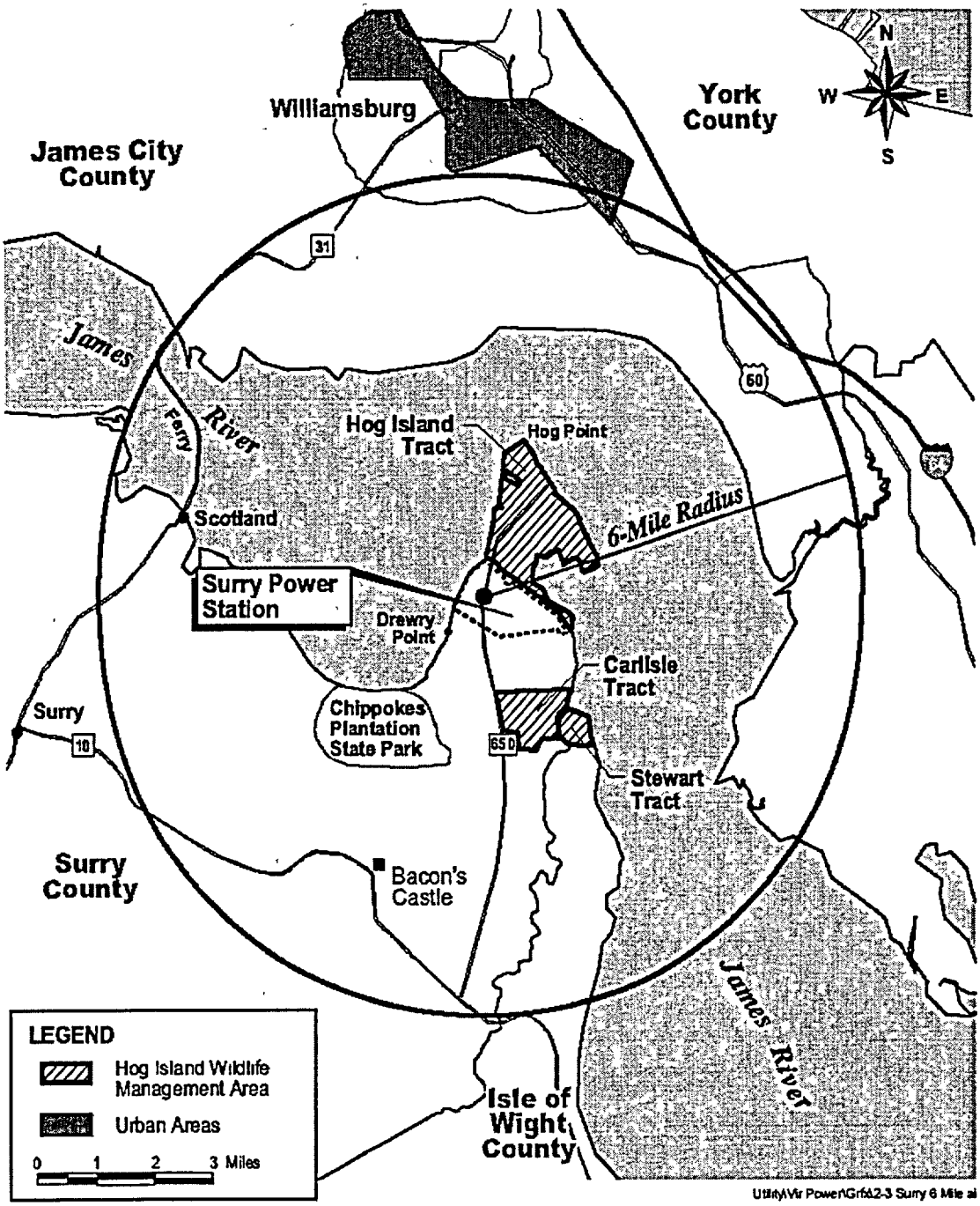

Figure 2. Location of Surry Power Station, 10-km (6-mi) region

The adjacent Hog Island Wildlife Management Area (HIWMA) consists of three tracts; Hog Island Tract (HIT) (1200 ha [2900 ac]), located adjacent to the northern boundary of the SPS (Figure 2) at the tip of the Gravel Neck Peninsula, and the Carlisle Tract and Stewart Tract (410 ha [1000 ac] total), both located southeast of the SPS (Figure 2). The HIT consists primarily of tidal marshes and diked impoundments interspersed with pine forests. The Carlisle and Stewart Tracts consist primarily of upland forested areas, but also contain tidal marshes. The tidal flats and marshes provide habitat for large numbers of waterfowl. All three tracts of the HIWMA are managed by the Virginia Department of Game and Inland Fisheries (VDGIF) (VEPCo 2001).

The transmission corridors (Table 1, Figure 3) traverse land-use categories typical of coastal Virginia, such as row crops, pasture, pine plantations, and old fields. In addition, the transmission corridors pass through more natural habitat types, such as pine-hardwood forests, bottomland hardwood forests, and shrub bogs. The Suffolk-to-Yadkin transmission corridor traverses a 4-km (2-mi) portion of the Great Dismal Swamp National Wildlife Refuge (Figure 3), where hardwood swamp comprises the transmission corridor habitat. The Chuckatuck-to-Whealton corridor crosses the James River and a 304-m (1000-ft) portion of the Ragged Island Wildlife Management Area (Figure 3), a 622-ha (1537-ac) tract along the lower James River that consists of brackish marsh and pine-covered islands (VEPCo 2001).

Table 1. Surry Power Station Transmission Line Corridors

Substation	Number of Lines (line number)	kV	Approximate Distance km	(mi)	Corridor	Corridor Width m	(ft)	Approximate Corridor Area hectares	(acres)
Chickahominy	1 (567)	500	87	(54)	1	46 to 107	(150 to 350)	110	(270)
Chuckatuck	1 (290)	230	39	(24)	2	90 to 137	(295 to 450)	270	(650)
Churchland	1 (226)	230	63	(39)	2	38 to 137	(125 to 450)	92	(230)
Hopewell	2 (212 and 240)	230	85	(53)	1	37 to 107	(120 to 350)	760	(1900)
Septa	1 (578)	500	19	(12)	2	73 to 107	(240 to 350)	200	(500)
Whealton	1 (214)	230	61	(38)	2	32 to 137	(105 to 450)	72	(180)
Yadkin	2 (223 and 531)	230 500	79 82	(49) (51)	2 1	38 to 137	(125 to 450)	61 330	(150) (820)
Total			480	(300)				2000	(5000)

Source: VEPCo 2001

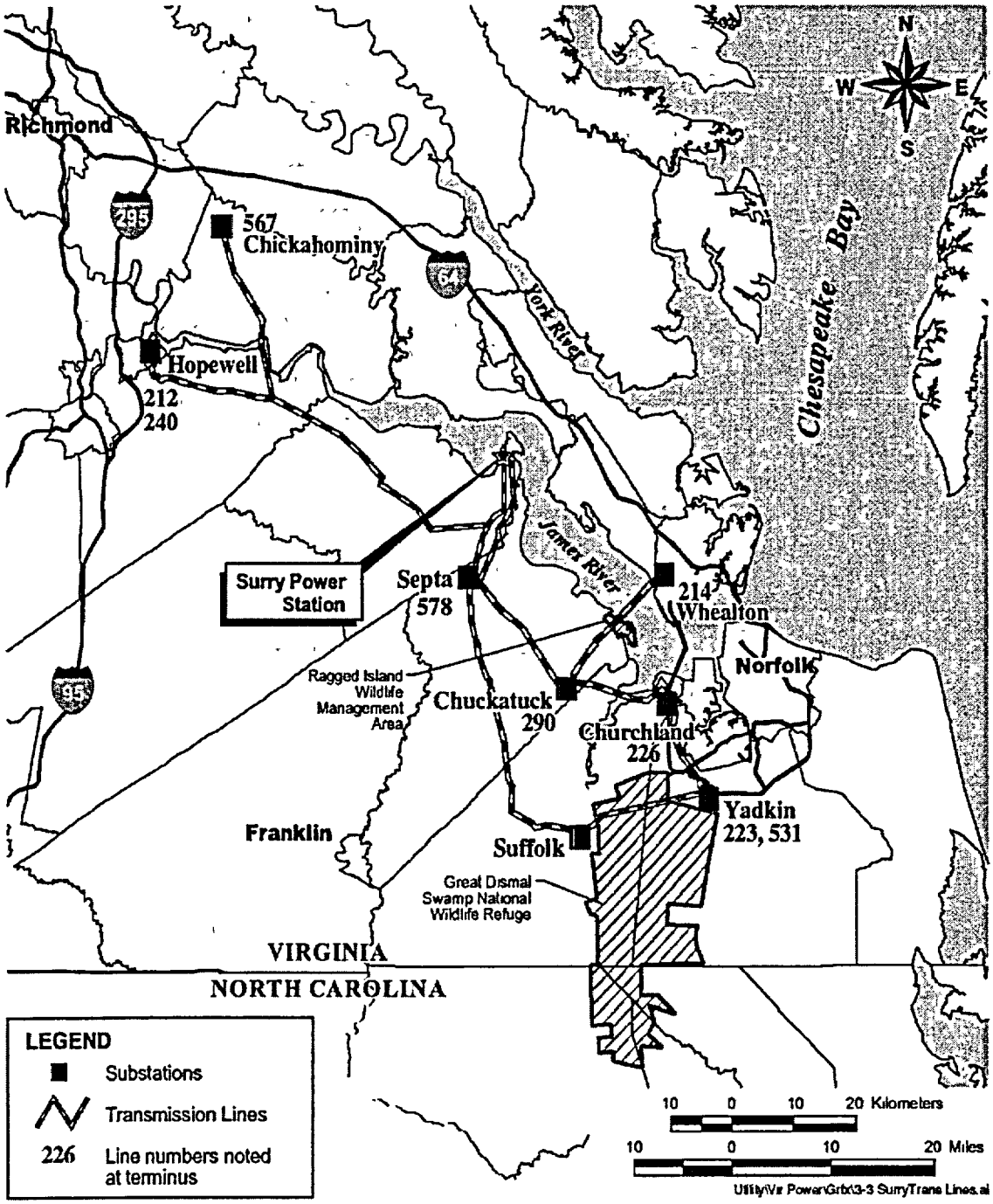

Figure 3. Surry Power Station transmission lines

Bald Eagle Use of Surry Power Station Site and Transmission Line Corridors

The bald eagle *(Haliaeetus leucocephalus)* is the only Federally listed threatened or endangered species currently known to occur on and in the vicinity of the SPS site or along its transmission corridors (VEPCo 2001). Bald eagles generally nest in tall trees near major waterways, such as the James River, and feed on fish, waterfowl, and occasionally carrion.

Active Nests. The Center for Conservation Biology at the College of William and Mary in Williamsburg, Virginia, in collaboration with FWS and VDGIF, annually tracks locations of bald eagle nests throughout the Commonwealth. There are four active nests in the vicinity of the SPS site and transmission line corridors (VEPCo 2002a and Watts 2002).

The first nest is located south of the SPS site ~4.0 km (~2.5 mi) and approximately 200 m from the transmission line corridor to the Septa substation. This nest may have been constructed by a pair of eagles that previously nested ~0.8 km (~0.5 mi) closer to the SPS (VEPCo 2002a and Watts 2002). The former nest site no longer exists, since the nest tree has toppled (Watts 2002).

The second nest is located northeast of the SPS site ~1.6 km (~1.0 mi) in the HIT of the HIWMA (VEPCo 2002a and Watts 2002).

A third nest was constructed this year and was reported to be located ~0.4 km (~0.25 mi) west of the SPS site (VEPCo 2002a and Watts 2002) on land behind the site security firing range (VEPCo 2002b). VEPCo's Environmental Policy and Compliance staff biologists, in concert with VDGIF Environmental Services specialists, conducted a search on September 25, 2002, to confirm and ground truth the reported nest location. Their search employed two Global Positioning System (GPS) units, each independently programmed using topographic map coordinates. They searched for several hours, but were unable to find the nest. Consequently, VEPCo and VDGIF staff have concluded that the nest, if it exists, is located further south and west of the SPS site than 0.4 km (0.25 mi). The decision whether to continue the search for this nest has not been made (VEPCo 2002b).

The fourth nest is located east of the town of Hopewell, just east of Windmill Point, adjacent to the south side of the James River approximately 50 m to 100 m from the transmission line corridor to the Chickahominy substation (Watts 2002).

The NRC staff can provide more precise locations for the nests if needed.

Abandoned Nests. Formerly, there were several nests located along the boundary of Hog Island, four of which were on the SPS site. These nests have been abandoned for three or more consecutive nesting seasons (Watts 2002). Three of the four nest trees on the SPS site likely still stand, although no evidence of the nests remains. The fourth nest tree on the SPS site has been toppled by wind throw (Watts 2002).

High Use Areas. As many as 50 eagles may forage within the HIWMA and vicinity during spring migration (NRC 2002b). However, there are no eagle concentration areas (e.g., roost

sites or shoreline foraging areas, as discussed in the BEPG) currently known to occur on or in the vicinity[1] of the SPS site or along its transmission corridors (VEPCo 2002a and NRC 2002b).

Analysis of Effects

Basis for Analysis – Bald Eagle Protection Guidelines for Virginia (BEPG). The BEPG (FWS and VDGIF 2000) prescribe two management zones around eagle nests, night roosts, and shoreline use areas in which the provisions of various laws and their implementing regulations may apply. The two management zones prescribed in the BEPG are "primary" (229 m [750 ft]) and "secondary" (229 m - 400 m [750 ft -1320 ft]) (FWS and VDGIF 2000). The BEPG provided recommendations, excluding certain activities within these zones to preclude take of a bald eagle (FWS and VDGIF 2000).

Active Nests. The SPS site is located beyond the secondary management zone buffers of the four active nests. Consequently, the potential for activities at the SPS site to disturb breeding/nesting at these four nest sites is minimal.

The Chickahominy and Septa transmission line corridors lie within the primary management zones of two of the four active nests. Transmission line rights-of-way (ROW) are generally maintained on a 3-year cycle (NRC 2002b). The SPS's transmission line ROW maintenance practices take into consideration threatened and endangered species, such as the bald eagle, and conform to the BEPG by conducting maintenance activities outside the breeding/nesting season (VEPCo 2002c). Consequently, the potential for ROW maintenance practices to disturb breeding/nesting at these two nest sites is very small.

The SPS operational activities both at the site and within its transmission line corridors are and will remain in conformance with the BEPG for existing and future active nests.

Abandoned Nests. The above-mentioned abandoned nests on or in the vicinity of the SPS site have been abandoned for three or more consecutive nesting seasons (Watts 2002), thereby excluding them from the management zone provisions of the BEPG (FWS and VDGIF 2000).

High Use Areas. Since there are no known eagle concentration areas (i.e., night roosts or foraging areas) on or in the vicinity of the SPS site or along its associated transmission line corridors (VEPCo 2002a and NRC 2002b), no evaluation of compliance with the pertinent BEPG requirements or the potential for disturbing roosting/foraging activities is provided.

Electrocution. Lehman (2001) summarized the literature regarding raptor electrocutions on power lines, and emphasized that nearly all electrocutions in the United States occur on comparatively low-voltage distribution lines supplying individual users and businesses, not transmission lines. For example, the four bald eagle electrocutions in Virginia documented in FWS Law Enforcement files for the period 1989-1991 were all associated with lower voltage 3-phase (three cases) and single-phase (one case) distribution lines (Cline 1992).

[1] By "vicinity," the staff means within the 400 m (1320 ft) zone defined in the BEPG.

The SPS has a rigorous Raptor Incident Reporting (RIR) system. The RIR was developed in collaboration with the VDGIF, Center for Conservation Biology at the College of William and Mary, and FWS. The RIR has a requirement to report all incidents to the local FWS law enforcement section. There are no known records of bald eagle electrocutions at the SPS or on the SPS's transmission lines (VEPCo 2002a).

Based on a review of the circumstances surrounding past electrocutions of bald eagles in Virginia and the lack of any reported electrocutions associated with the SPS's transmission lines, the staff concludes that potential eagle losses due to transmission line-related electrocutions are highly unlikely.

Collisions. There are no known reports of bald eagle collisions with the SPS's transmission lines or other SPS structures.

There are no known eagle concentration areas (e.g., roost sites or shoreline foraging areas) currently known to occur on the SPS site or along its transmission line corridors (VEPCo 2002a and NRC 2002b). The nearest known eagle concentration area consists of as many as 50 eagles that forage within the HIWMA during spring migration (NRC 2002b). Because of their acute vision, maneuverability, and the fact that they migrate neither in flocks nor at night, the likelihood of collisions involving these eagles is remote.

Conclusion

Based on the locations of the four active eagle nests relative to the SPS site and associated transmission lines and on the licensee's compliance with the BEPG, the potential for disturbance during nesting/breeding, either from activities at the SPS site or from ROW maintenance, is highly unlikely. Based on the lack of eagle concentration areas near transmission lines, a review of the literature, and the lack of any eagle mortalities associated with the SPS site or its transmission lines, the potential for electrocutions and collisions is also highly unlikely. Consequently, the NRC staff makes a finding of "no effect" to bald eagles for the renewal of the OLs for the SPS, Units 1 and 2.

References

(1) Cline, K.W. 1992. Bald Eagle Concentration Areas and Power Line Mitigation in Virginia: Final Report. Unpublished report prepared for the U.S. Fish and Wildlife Service, Virginia Department of Game and Inland Fisheries, and Virginia Electric and Power Company. 27 pp.

(2) Lehman, R.N. 2001. Raptor Electrocution on Power Lines: Current Issues and Outlook. Wildlife Society Bulletin 29(3): 804-813.

(3) Migratory Bird Treaty Act of 1918. 16 USC 703 et seq.

(4) U.S. Fish and Wildlife Service and Virginia Department of Game and Inland Fisheries. 2000. Bald Eagle Protection Guidelines for Virginia. 6 pp. Updated May 15, 2000.

(5) U.S. Fish and Wildlife Service. 2002a. Letter from Ms. Karen Mayne of the U.S. Fish and Wildlife Service to NRC providing a list of protected species within the area under evaluation for the Surry and North Anna Power Stations license renewal. May 22, 2002.

(6) U.S. Fish and Wildlife Service. 2002b. General comment letter from Michael T. Chezik, U.S. Fish and Wildlife Service's Chesapeake Bay Field Office, regarding Surry Power Station, Units 1 and 2, license renewal. July 10, 2002.

(7) U.S. Nuclear Regulatory Commission (NRC). 2002a. NRC letter to Ms. Karen Mayne of the U.S. Fish and Wildlife Service requesting a list of protected species within the area under evaluation for the Surry and North Anna Power Stations license renewal. January 24, 2002.

(8) U.S. Nuclear Regulatory Commission (NRC). 2002b. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Surry Power Station Units 1 and 2.* NUREG-1437, Supplement 6, Draft Report for Comment, Washington, D.C. April 2002.

(9) Virginia Electric and Power Company (VEPCo). 1977. *Section316(a) Demonstration (Type I)* – Surry Power Station – Units 1 and 2. Richmond, Virginia.

(10) 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." Richmond, Virginia.

(11) Virginia Electric and Power Company (VEPCo). 2002a[1]. Email from T. Banks regarding the location of active bald eagle nests and eagle concentration areas in the vicinity of Surry Power Station and its transmission line corridors. Virginia Electric and Power Company, Surry Power Station, Virginia. September 9, 2002.

(12) Virginia Electric and Power Company (VEPCo). 2002b[1]. Email from T. Banks regarding the location of active bald eagle nests in the vicinity of Surry Power Station and its transmission line corridors. Virginia Electric and Power Company, Surry Power Station, Virginia. September 27, 2002.

(13) Virginia Electric and Power Company (VEPCo). 2002c[1]. Email from T. Banks regarding Surry Power Station transmission line right-of-way maintenance practices. Virginia Electric and Power Company, Surry Power Station, Virginia. October 18, 2002.

(14) Watts, B. 2002[1]. Email from B. Watts, Center for Conservation Biology, College of William and Mary, Williamsburg, Virginia, regarding the location of bald eagle nests in the vicinity of Surry Power Station and its transmission line corridors. October 25, 2002.

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[1] These emails may be found under accession number ML023050100 in the NRC's Electronic Reading Room on the NRC Web Page (www.nrc.gov).

Appendix F

GEIS Environmental Issues Not Applicable to Surry Power Station, Units 1 and 2

F

Appendix F

GEIS Environmental Issues Not Applicable to Surry Power Station, Units 1 and 2

Table F-1 lists those environmental issues listed in the *Generic Environmental Impact Statement* (GEIS) *for License Renewal of Nuclear Plants* (NRC 1996; 1999)[a] and 10 CFR Part 51, Subpart A, Appendix B, Table B-1, that are not applicable to Surry, Units 1 and 2, because of plant or site characteristics.

Table F-1. GEIS Environmental Issues Not Applicable to Surry Power Station, Units 1 and 2

ISSUE—10 CFR Part 51, Subpart A, Appendix B, Table B-1	Category	GEIS Sections	Comment
SURFACE WATER QUALITY, HYDROLOGY, AND USE (FOR ALL PLANTS)			
Altered thermal stratification of lakes	1	4.2.1.2.2 4.4.2.2	Surry, Units 1 and 2, do not discharge into a lake.
Water-use conflicts (plants with cooling ponds or cooling towers using makeup water from a small river with low flow)	2	4.3.2.1 4.4.2.1	Surry, Units 1 and 2, cooling systems do not use makeup water from a small river with low flow.
AQUATIC ECOLOGY (FOR PLANTS WITH COOLING TOWER BASED HEAT DISSIPATION SYSTEMS)			
Entrainment of fish and shellfish in early life stages	1	4.3.3	North Anna does not dissipate heat using cooling towers.
Impingement of fish and shellfish	1	4.3.3	North Anna does not dissipate heat using cooling towers.
Heat shock	1	4.3.3	North Anna does not dissipate heat using cooling towers.

(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.

Table F-1. (contd)

ISSUE—10 CFR Part 51, Subpart A, Appendix B, Table B-1	Category	GEIS Sections	Comment
GROUNDWATER USE AND QUALITY			
Groundwater-use conflicts (potable and service water, and dewatering; plants that use <100 gpm)	1	4.8.1.1 4.8.2.1	Surry, Units 1 and 2, use >100 gpm of groundwater.
Groundwater-use conflicts (plants using cooling towers withdrawing makeup water from a small river)	2	4.8.1.3 4.4.2.1	This issue is related to heat-dissipation systems that are not installed at Surry, Units 1 and 2.
Groundwater-use conflicts (Ranney wells)	2	4.8.1.4	Surry, Units 1 and 2, do not have or use Ranney wells.
Groundwater quality degradation (Ranney wells)	1	4.8.2.2	Surry, Units 1 and 2, do not have or use Ranney wells.
Groundwater quality degradation (cooling ponds in salt marshes)	1	4.8.3	Surry, Units 1 and 2, do not use cooling ponds
Groundwater quality degradation (cooling ponds at inland sites)	2	4.8.3	Surry, Units 1 and 2, are not located at an inland site.
TERRESTRIAL RESOURCES			
Cooling tower impacts on crops and ornamental vegetation	1	4.3.4	This issue is related to a heat-dissipation system that is not installed at Surry, Units 1 and 2.
Cooling tower impacts on native plants	1	4.3.5.1	This issue is related to a heat-dissipation system that is not installed at Surry, Units 1 and 2.
Bird collisions with cooling towers	1	4.3.5.2	This issue is related to a heat-dissipation system that is not installed at Surry, Units 1 and 2.
Cooling pond impacts on terrestrial resources	1	4.4.4	Surry, Units 1 and 2, do not use cooling ponds

Table F-1. (contd)

ISSUE—10 CFR Part 51, Subpart A, Appendix B, Table B-1	Category	GEIS Sections	Comment
	HUMAN HEALTH		
Microbiological organisms[a] (occupational health)	1	4.3.6	This issue is related to workers maintaining cooling towers, which Surry does not have.
Microbiological organisms, public health (plants using lakes or canals or cooling towers or cooling ponds that discharge to a small river)	2	4.3.6	Surry, Units 1 and 2, do not use cooling lakes, towers, or ponds and do not discharge into a small river (the location of discharge into the James River is categorized as an estuary).

(a) In its Environmental Report (VEPCo 2001), Virginia Electric and Power Company inadvertently stated that this issue was considered to apply to Surry. During discussions with the staff during the September site visit to Surry and the October site visit to North Anna, the staff established that this issue is not applicable to Surry.

F.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."

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

NRC FORM 335 (2-89) NRCM 1102, 3201, 3202

U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

1. REPORT NUMBER (Assigned by NRC, Add Vol., Supp., Rev., and Addendum Numbers, if any.)

NUREG-1437, Supplement 6

2. TITLE AND SUBTITLE

Generic Environmental Impact Statement for License Renewal of Nuclear Plants
Supplement 6
Regarding Surry Power Station, Units 1 and 2
Final Report

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8 PERFORMING ORGANIZATION - NAME AND ADDRESS *(If NRC, provide Division, Office or Region, U S Nuclear Regulatory Commission, and mailing address, if contractor, provide name and mailing address)*

Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

9 SPONSORING ORGANIZATION - NAME AND ADDRESS *(If NRC, type "Same as above"; if contractor, provide NRC Division, Office or Region, U S Nuclear Regulatory Commission, and mailing address)*

Same as 8 above

10 SUPPLEMENTARY NOTES

Docket Numbers 50-280, 50-281

11. ABSTRACT *(200 words or less)*

This supplemental environmental impact statement (SEIS) has been prepared in re sponse to an application submitted to the NRC on May 29, 2001, by the Virginia Electric and Power Company (VEPCo) to renew the operating licenses for Surry Power Station, Units 1 and 2, for an additional 20 years under 10 CFR Part 54. This SEIS includes the staff's analysis that considers and weighs the environmental effects of the proposed action, the environmental effects of alternatives to the proposed action, and alternatives available for reducing or avoiding adverse effects. It also i ncludes the staff's recommendation regarding the proposed action.

The NRC staff's recommendation is that the Commission determine that the advers e environmental impacts of license renewal for Surry Power Station, Units 1 and 2, are not so great that preserving the op tion of license renewal for energy-planning decisionmakers would be unreasonable. This recommendation is based on (1) the analysis and findings in the Generic Environmental Impact Statement for License Renewal of Nuclear Plants (NUREG-143 7); (2) the Environmental Report submitted by VEPCo; (3) consultation with Federal, State, and local agencies; (4) the staff's own independent review; and (5) the staff's consideration of public comments.

12. KEY WORDS/DESCRIPTORS *(List words or phrases that will assist researchers in locating the report.)*

Surry Power Station, Units 1 and 2
Surry
Supplement to the Generic Environmental Impact Statement
GEIS
National Environmental Policy Act
NEPA
License Renewal

13. AVAILABILITY STATEMENT

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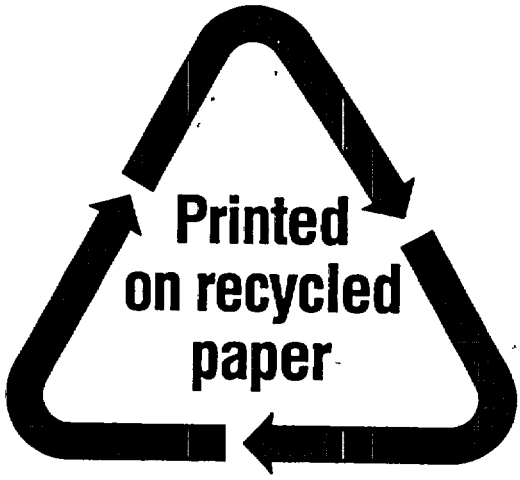
16. PRICE

NRC FORM 335 (2-89)



Federal Recycling Program

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300