

Appendix E

V.C. Summer Compliance Status and Consultation Correspondence

Appendix E

V.C. Summer Compliance Status and Consultation Correspondence

The list of licenses, permits, consultation, and other approvals obtained from Federal, State, regional, and local authorities for Virgil C. Summer Nuclear Station (V.C. Summer) are shown in Table E-1. Following Table E-1 are reproductions of correspondence prepared and sent during the evaluation process of the application for renewal of the operating licenses for V.C. Summer.

Table E-1. Federal, State, and Local Licenses, Permits, and Consultations and other Approvals for V.C. Summer

| Agency | Authority | Description | Number | Issue Date | Expiration Date | Remarks |
|--|--|--------------------------------------|-------------------------|------------------------|-----------------|---|
| NRC | Atomic Energy Act, 10 CFR Part 50 | Operating license | NPF-12 | 8/6/1982 | 8/6/2022 | Authorizes operation of V.C. Summer |
| FWS and NMFS | Endangered Species Act, Section 7 (16 U.S.C. 1536) | Consultation | NA | Consultation initiated | | Requires a Federal agency to consult with FWS regarding whether a proposed action will affect endangered or threatened species. Depredation and salvage permit. Renewal annually. |
| FWS | Migratory Bird Treaty Act (16 U.S.C. 703-712) | Depredation Permit Salvage Permit | MB040209-0 MB83793-0 | Annual | Annual | Removal and relocation of migratory bird nests. Retrieve dead birds. |
| SCDHEC-Bureau of Water | Clean Water Act, Section 402 | NPDES wastewater permit | SC0030856 | 12/3/2002 | 4/30/2007 | Discharges to Monticello Reservoir and Broad River |
| SCDHEC-Bureau of Air Quality | Clean Air Act | Air emissions permit | CM-1000-0012 | 8/10/1999 | 7/31/2004 | Establishes emissions limits from diesel emergency generators, miscellaneous diesel engines, and other miscellaneous units |
| SCDHEC-Division of Radioactive Waste Management, Bureau of Land and Waste Management | Atomic Energy and Radiation Control Act (S.C. Code of Laws, Sections 13-7-40, et seq.) | Radioactive Material License | No. 517, Amendment 02 | 9/30/1999 | 9/30/2004 | Authorizes storage of radioactive material in three stream generators removed from service in 1994. |

Table E-1. (cont)

| Agency | Authority | Requirement | Number | Issue Date | Expiration Date | Remarks |
|---|---|--------------------------------------|-------------|------------------------|-----------------|--|
| SCDHEC-Division of Waste Management | South Carolina Radioactive Waste Transportation and Disposal Act (S.C. Code of Laws 13-7-110 et seq.) | Radioactive Waste Transport Permit | 0163-39-02 | Annual | Annual | Authorizes shipment of radioactive waste to licensed collecting/processing facilities within state of South Carolina. |
| Tennessee Dept. of Environment and Conservation-Division of Radiological Health | Tennessee Code Annotated 68-202-206 | License to Ship Radioactive Material | T-SC001-L02 | Annual | Annual | Authorizes shipment of radioactive waste to licensed disposal/processing facilities within state of Tennessee. |
| SCDAH | National Historic Preservation Act, Section 106 (16 U.S.C. 4701) | Consultation | NA | Consultation initiated | | 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. |
| CFR - Code of Federal Regulations EPA - U.S. Environmental Protection Agency SCDHEC - South Carolina Department of Health and Environmental Control SCDAH - South Carolina Department of Archives and History FWPCA - Federal Water Pollution Control Act (also known as the Clean Water Act) FWS - U.S. Fish and Wildlife Service NMFS - National Marine Fisheries Service NPDES - National Pollutant Discharge Elimination System NA - Not applicable USC - United States Code | | | | | | |

April 16, 2003

Ms. Sandy Abbot
Field Supervisor, Ecological Services
US Fish and Wildlife Service
176 Croghan Spur Road, Suite 200
Charleston, SC 29407

SUBJECT: SUMMARY OF CONVERSATION REGARDING PROTECTED SPECIES
WITHIN THE AREA UNDER EVALUATION FOR THE V.C. SUMMERS PLANT
LICENSE RENEWAL

Dear Ms. Abbot:

The U.S. Nuclear Regulatory Commission (NRC) is preparing a Supplemental Environmental Impact Statement (SEIS) for the proposed license renewal for the Virgil C. Summer Nuclear Station (V.C. Summer) which expires August 2022. To support the SEIS preparation process and to ensure compliance with Section 7 of the Endangered Species Act, NRC met with your office on December 12, 2002, to discuss the current list of species and information on protected, proposed, and candidate species and critical habitat that may be within the area of the proposed action per 50 CFR 402.12.

The plant is located in Fairfield County, South Carolina, approximately 15 miles west of the county seat of Winnsboro and 26 miles northwest of Columbia, the state capital. The Broad River flows in a northwest-to-southeast direction approximately one mile west of the site and serves as the boundary between Fairfield County (to the east) and Newberry County (to the west). The site covers approximately 2,245 acres, an area that includes portions of Monticello Reservoir. Beginning at the V.C. Summer Station, the South Carolina Electric and Gas Company (SCE&G) transmission lines generally run in a southerly direction, with five terminations very near V.C. Summer Station, one near Aiken, South Carolina, and two near Columbia, South Carolina. The Santee Cooper lines run approximately east and west to substations near Blythewood and Newberry, South Carolina, respectively. In total, for the specific purpose of connecting to the transmission system, approximately 160 miles of transmission lines (120 miles of corridor) that occupy approximately 2,000 acres of corridor were constructed.

License renewal would include use and continued maintenance of existing facilities and transmission lines for an additional 20 years of operation. The proposed action would not result in new construction or disturbance.

SCE&G contacted your office by letter dated January 19, 2001, requesting information on threatened, endangered, and candidate species that potentially occur in the vicinity of the plant. Your office responded on March 15, 2001 with a list of species. During the course of our December 12th discussion regarding threatened and endangered (T&E) species and other species of interest within the area, it was noted that the primary species of interest is the Bald Eagle that is found near the plant. It was also noted that the list provided on March 15, 2001,

S. Abbot

2

is still the current list. It is our intent to use this information as we initiate and write our Biological Assessment and prepare our license renewal SEIS.

The NRC looks forward to continuing to work with the U.S. Fish and Wildlife Service to ensure that the SEIS and Section 7 compliance activities adequately evaluate potential effects to biological resources. If you have any questions concerning this matter please contact Gregory Suber by phone at 301-415-1124 or by email at GXS@nrc.gov.

Sincerely,

/RA/

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 50-395

cc: See next page

July 2003

E-5

Draft NUREG-1437, Supplement 15

June 13, 2003

Dr. Rodger E. Stroup, Director
South Carolina Department of Archives
and History
Archives and History Center
8301 Parklane Road
Columbia, SC 29223

SUBJECT: V. C. SUMMER NUCLEAR STATION LICENSE RENEWAL REVIEW AND
NATIONAL HISTORIC PRESERVATION ACT, SECTION 106 REVIEW
PROCESS

Dear Dr. Stroup:

The U. S. Nuclear Regulatory Commission (NRC) is evaluating an application submitted by South Carolina Electric and Gas Company (SCE&G) for the renewal of the operating license for the V. C. Summer Nuclear Station (V. C. Summer), located in the southeastern corner of rural Fairfield County, South Carolina, approximately 26 miles northwest of Columbia, South Carolina. As part of its review of the proposed action, the NRC staff is preparing a site-specific Supplemental Environmental Impact Statement (SEIS) to its "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), NUREG-1437. The SEIS will include analyses of relevant environmental issues, including potential impacts on historic and cultural resources from refurbishment activities, and for the extended period of operation. The application for renewal was submitted by SCE&G on August 6, 2002, pursuant to NRC requirements of Title 10 of the *Code of Federal Regulations*, Part 54 (10 CFR Part 54). SCE&G has indicated that it does not plan on any major refurbishment activity that would result in additional land disturbance in the site area.

For your reference, the Agency official (the Director, Office of Nuclear Reactor Regulation) has determined that the area of potential effect (APE) for a license renewal action is the area at the power plant site and its immediate environs which may be impacted by post-license renewal land disturbing operation or projected refurbishment activities associated with the proposed action. The APE may extend beyond the immediate environs in those instances where post-license renewal land disturbing operations or projected refurbishment activities specifically related to license renewal of the nuclear power plant potentially have an effect on known or proposed historic sites. This determination is made irrespective of ownership or control of the lands of interest.

On January 19, 2001, SCE&G sought feedback from the South Carolina State Historic Preservation Office (SHPO) regarding license renewal at V. C. Summer. In its letter, SCE&G stated that there are no plans to alter current operations, no plans to expand existing facilities, no plans to implement major structural modifications, no plans to initiate new construction, and no plans for additional land disturbance in support of license renewal. On January 29, 2001, the South Carolina SHPO responded to the SCE&G letter and stated that "license renewal for the continuing operation of plants such as this one typically has no effect on historic properties." The SHPO encouraged SCE&G to search the SHPO's Geographical Information System (GIS) database for a more accurate, up-to-date source of information.

During our independent review, the NRC staff met with a representative of your office on December 12, 2002, to discuss the potential impacts of the proposed V. C. Summer license renewal. Enclosed is the NRC's cultural resources review for this action. This review reports the results of the literature review conducted by the staff and information from historic and cultural records, which includes information from the SHPO GIS database (Enclosure 1). The results indicate that this undertaking will have no effect on historic properties.

We plan to issue the Draft SEIS for the V. C. Summer license renewal action for public comment in June 2003; it will reflect our interactions to date. If you have any questions or require additional information, please contact Gregory Suber, the NRC Environmental Project Manager for the V. C. Summer license renewal project, at 301-415-1124 or GXS@nrc.gov.

Sincerely,

/RA/

Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 50-395

Enclosures: As stated

cc w/o encl.: See next page

July 2003

**U.S. NUCLEAR REGULATORY COMMISSION (NRC)
OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF REGULATORY IMPROVEMENT PROGRAMS**

**CULTURAL RESOURCES REPORT NARRATIVE
VIRGIL C. SUMMER NUCLEAR STATION LICENSE RENEWAL**

May 2003

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CULTURAL RESOURCES REPORT NARRATIVE VIRGIL C. SUMMER NUCLEAR STATION LICENSE RENEWAL

PROJECT DESCRIPTION

The U.S. Nuclear Regulatory Commission (NRC) licenses the operation of domestic nuclear power plants in accordance with the Atomic Energy Act of 1954, as amended and NRC implementing regulations. The proposed Federal action is the renewal of the Operating License for the Virgil C. Summer Nuclear Station (V. C. Summer), which is operated by South Carolina Electric & Gas Company (SCE&G). The current operating license will expire August 6, 2022. The renewed license would subsume the remaining time of the current license and permit an additional 20 years of plant operation beyond the expiration of the current operating license.

This report presents the findings of the Section 106 review conducted to establish whether any historic properties will be affected by the license renewal of V. C. Summer.

AREA OF POTENTIAL EFFECT

V. C. Summer is located in Fairfield County, South Carolina, approximately 15 miles west of Wainsboro and 26 miles northwest of Columbia. The site is in a sparsely-populated, largely rural area, with forests and small farms comprising the dominant land use. The Broad River flows in a northwest-to-southeast direction approximately one mile west of the site.

An exclusion area must be defined by the applicant wherein it can control access in the event of an emergency situation. In this case, the exclusion area is owner controlled (i.e., not subject to an alternative routine use such as leased farming) and encompasses the area within approximately one mile of the reactor building; the exclusion area is posted and access to land portions of this area is controlled at all times. The V. C. Summer property covers approximately 2245 acres, and includes the southern portion of Monticello Reservoir and parts of the Fairfield Pumped Storage Facility.

In conjunction with this license renewal action, SCE&G does not plan to undertake a major refurbishment activity in the site vicinity or along the transmission lines expressly constructed to connect the plant to the electrical grid when the plant was initially licensed. Therefore, the area of potential effect (APE) for this license renewal action is the area at the power plant site and its immediate environs which may be impacted. Specifically, this area consists of the exclusion area boundary (1-mile radius) and the Monticello reservoir shoreline.

NOTIFICATIONS AND PUBLIC INVOLVEMENT

On January 19, 2001, SCE&G wrote the South Carolina State Historic Preservation Office (SHPO) regarding license renewal at V. C. Summer. On January 29, 2001, the South Carolina SHPO responded to SCE&G letter and stated that license renewal for the continued operation of plants, such as this one, typically has no effect on historic properties. The SHPO encouraged that the SHPO Geographical Information System (GIS) database be searched for a more accurate, up-to-date source of information.

On December 12, 2002, NRC staff met with Maria Matthews and Chad Long at the South Carolina SHPO's office, and Keith Derding and Diane Boyd at the South Carolina Institute of Archaeology and Anthropology (SCIAA). Archaeological site file searches were conducted at SCIAA. The GIS database and files at the South Carolina SHPO's office were searched for cultural resource information that may pertain to the proposed action. At the time of this visit, Dr. Matthews and Mr. Long raised the issue of potential impacts to cultural resources caused by erosion on the Monticello shoreline. This report addresses those concerns that were raised during the site visit in the section called "Identification of Historic Properties".

Four Native American Tribes were sent letters on November 27, 2002, providing them an opportunity to have input regarding cultural resource issues in the vicinity of V. C. Summer and inviting them to participate in the National Environmental Policy Act (NEPA) scoping process. The Tribes were the Catawba Indian Nation, Eastern Band of the Cherokee, Cherokee Nation (Western Cherokee in Oklahoma), and the United Keetoowah Band of Cherokee (Attachment 4 contains an example of this letter).

The NRC public involvement process is conducted in accordance with NEPA principles; in general, the NRC actively pursues stakeholder engagement in excess of the minimum requirements. The Commission has determined that the NRC will prepare an environmental impact statement (EIS) as that discussed in Section 102 of NEPA (42 USC 4332) to assess whether the license renewal action would significantly affect the quality of the human environment. The NRC staff will prepare an EIS and, in the case of license renewal, it is a site-specific supplement (SEIS) to the NRC Generic EIS for License Renewal of Nuclear Power Plants (GEIS), NUREG-1437, for the renewal of a reactor Operating License (OL). NUREG-1437 considered almost 100 environmental issues across all nuclear power plants to determine whether issues could be resolved generically. The potential impact to cultural resources cannot be resolved generically and, therefore, must be addressed on a site-specific basis in each SEIS.

On October 24, 2002, the NRC published a Notice of Intent in the *Federal Register* to notify the public of the staff's intent to prepare a site-specific supplement to the GEIS to assess the environmental impacts of the proposed action (renewal of the OL for the V. C. Summer plant) and to conduct scoping. The NRC invited the applicant, Federal, State, and local government agencies; Tribes; 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 to the NRC no later than January 6, 2003. Two public scoping meetings were held on December 11, 2002, at the Fellowship Hall at the Whitehall A.M.E. Church in Jenkinsville, South Carolina, to afford the public yet another opportunity to provide comments.

The draft Supplemental Environmental Impact Statement (SEIS) regarding license renewal at V. C. Summer is scheduled to be issued in July 2003. The NRC staff plans to conduct two public meetings on August 25, 2003, to present an overview of the draft V. C. Summer site-specific supplement to the GEIS, and to accept public comments on the document. The public comment period will end on September 15, 2003. The Final SEIS will be issued in February 2004.

Information regarding license renewal and documents associated with license renewal at V. C. Summer can be viewed at the NRC's website www.nrc.gov.

IDENTIFICATION OF HISTORIC PROPERTIES

Historic and archaeological site file searches were conducted at the South Carolina Master File in the South Carolina Department of Archives and History and the Institute of Archaeology and Anthropology at the University of South Carolina to identify cultural resources that might be present at V. C. Summer. In addition, record searches were conducted for nearby locations to gain perspective on the types of historic resources that may be present in the previously undeveloped and unsurveyed portions of V. C. Summer.

The Final Environmental Statement (FES) (AEC 1973) for the construction of V. C. Summer listed three historic sites in the vicinity of the station. At that time, it was determined that none of the sites were "endangered" by the construction and operation of the proposed V. C. Summer plant. Four archaeological sites were discovered within or near the site boundary and Dr. Robert L. Stephenson, State Archaeologist, recommended that the area be surveyed and that two of the known sites be excavated (AEC 1973).

In 1972, SCE&G supported an archaeological survey that was conducted by a team from the University of South Carolina Institute of Archaeology and Anthropology (Teague 1979). The archaeological survey was conducted to assess the nature and distribution of the sites present and to assess the effect of the Parr Hydroelectric Project on historic and archaeological resources. The Parr Hydroelectric Project included: raising the level of the Parr Reservoir by elevating the Parr Reservoir Dam; construction of a series of dams on Frees Creek to create the upper reservoir for a new pumped-storage facility and supply cooling water for V. C. Summer; and construction of the Fairfield Pumped Storage Facility and V. C. Summer.

The Institute of Archaeology and Anthropology team identified 27 additional sites and excavated two others. Four of the five sites were inundated by water when Monticello Reservoir was filled in 1978 and are now inaccessible. The remaining sites lie along the banks of Monticello and Parr Reservoirs. Periods represented included the Early Archaic, Middle Archaic, Woodland, Mississippian, and Early Historic (SCE&G 2002).

Since the publication of the 1973 FES, 41 sites have been added to the National Register of Historic Places for Fairfield County. Ten of these sites fall within a 6-mile radius of V. C. Summer. Twenty-eight sites have been added to the National Register for Newberry County. Four of these sites fall within a 6-mile radius of V. C. Summer. No sites listed on the National Register of Historic Places fall within a 1-mile radius of V. C. Summer.

Two other historic sites exist within a 6-mile radius of V. C. Summer that are not listed on the National Register of Historic Places but are protected by SCE&G. One is the Mayo family cemetery, which is in a wooded area approximately 2.5 miles south of V. C. Summer on land that is owned by SCE&G, but is not within the exclusion area boundary of the V. C. Summer site. This small family plot contains headstones dating back to 1895. The other historic site, approximately 1.5 miles southwest of V. C. Summer, is a large monument erected in 1943 by the Daughters of the American Revolution marking the grave of General John Pearson, a Fairfield County native who served with distinction in the Revolutionary War. This monument is

- 4 -

in a wooded area on land that is not within the exclusion area of the V. C. Summer site, but is maintained as a buffer zone around the site. SCE&G's Forestry Operations group is familiar with these two other historic sites, which are marked on its timber inventory and land cover maps, and takes appropriate measures to protect them when conducting forest management activities in the vicinity of either historic site (SCE&G 2002).

Properties within the APE

The following table provides a summary of selected sites within the APE. No sites listed on the National Register fall within a 1-mile radius of V. C. Summer.

| Site Number | Description | National Register Status | Location |
|-------------|--|---|--|
| 38-FA-33 | Savannah River and Morrow Mountain projectile points, several pottery shards - all materials were collected | Not Evaluated | Monticello Lake east shoreline - outside 1 mile radius of V. C. Summer |
| 38-FA-37 | 50 pieces of quartzite chipping debris were dispersed over 500 square meters. 3 flakes were collected. | Not Evaluated | Monticello Lake west shoreline - outside 1 mile radius of V. C. Summer |
| 38-FA-41 | McMeekin Rock Shelter - excavated. This site is currently under water. | Nominated for the National Register of Historic Places in 1974 Site #74001854 | Underwater - Lake Monticello |
| 38-FA-42 | Located along a road cut through a plowed field. 25 quartzite flakes, 1 biface, 1 Guilford projectile point base were found. The biface and projectile point were collected. | Not Evaluated | North of Monticello - outside 1 mile radius of V. C. Summer |
| 38-FA-43 | 1 Savannah River projectile point base, 1 biface fragment, and 25 quartzite flakes were collected. This site is currently under water. | Not Evaluated | Underwater - Lake Monticello |
| 38-FA-46 | 25 flakes and broken stone tools. 3 flakes and 2 Savannah River projectile points were collected. This site is currently under water. | Not Evaluated | Underwater - Lake Monticello |

- 5 -

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|-----------|--|---|--|
| 38-FA-47 | 12 quartzite flakes (5 were collected). The site has been disturbed by a road cut and no intact archaeological deposits remain. | Not Evaluated | Within 1 mile of V. C. Sumner |
| 38-FA-51 | 5 quartzite flakes were collected. This site is currently under water. | Not Evaluated | Underwater - Lake Monticello |
| 38-FA-53 | 50 quartzite flakes and 2 projectile points were seen. The projectile points were collected. This site is currently under water. | Not Evaluated | Underwater - Lake Monticello |
| 38-FA-56 | Davis Plantation - two story house built about 1840-50 | Nominated for the National Register of Historic Places in 1971 Site #74000776 | South of Monticello on SC 215 - outside 1 mile radius of V. C. Sumner |
| 38-FA-125 | Guilford projectile points of quartz, 1 Kirk point, 1 Savannah River point, 1 finely shaped flint blade. This site is currently under water. | Not Evaluated | Underwater - Lake Monticello |
| 38-FA-298 | 2 steatite bowl fragments. Artifacts were collected. Site form suggests if associated with an archaeological site it would be under water. | Not Evaluated | Boat Ramp - north end of Lake Monticello - outside 1 mile radius of V. C. Sumner |

Only one archaeological site (38-FA-47) is located within a 1-mile radius of V. C. Sumner. This site has not been evaluated for inclusion on the National Register of Historic Places. At the time of recording, the site consisted of 12 quartzite flakes (5 were collected). Upon reviewing the National Register Criteria for Evaluation, site 38-FA-47 is not likely to be eligible for the National Register.

Several of the archaeological sites were flooded by the impoundment of Monticello Lake. The majority of these sites have not been evaluated for inclusion on the National Register of Historic Places. These sites are not likely to be eligible for inclusion when applying the criteria for evaluation.

The McMeekin Rock Shelter (38-FA-41) was evaluated and nominated to the National Register in 1974. The site was recorded, excavated and evaluated. Results are documented in the 1972 archaeological survey that was conducted by a team from the University of South Carolina Institute of Archaeology and Anthropology (Teague 1979). The McMeekin Rock Shelter is currently underwater and is located outside of the 1-mile radius of V. C. Sumner.

The Davis Plantation (38-FA-56) was evaluated and nominated to the National Register in 1971. The site is a two-story house built in approximately 1845, and is located south of the town of Monticello on SC 215. The Davis Plantation is located outside the 1-mile radius of V. C. Summer. The Davis Plantation is not located on the shoreline of Monticello Lake.

Several archaeological sites were considered during the cultural resources review due to their proximity to the shoreline of Monticello Lake and the potential concern of impacts associated with erosion. During the environmental site audit conducted for the NEPA review in December 2002, the NRC team of environmental specialists toured V. C. Summer and the surrounding area. The team walked portions of the Monticello Lake shoreline. Environmental impacts that could be associated with erosion were not observed. The team included specialists in archaeology, aquatic and terrestrial biology, and hydrology. The team visited several locations of known archaeological sites in the area. No cultural materials were observed at any of the locations.

SCE&G has established a land use and shoreline management plan (SCE&G 2002). The purpose of this plan is to help maintain and conserve the area's natural and man-made resources as well as assist in providing a balance between recreational use, development, environmental preservation, and control. This management plan addresses environmental policies including the exclusion area and public access for fishing, boating, hunting, and other shoreline activities. Erosion control measures are identified, as are restrictions on the removal of underbrush.

FINDINGS

In October 1972, upon reviewing the cultural resources literature associated with the construction of V. C. Summer, the South Carolina SHPO (Attachment 3) determined that no adverse effects to historic properties would result from SCE&G Construction Project #1894.

Major refurbishment of V. C. Summer is not anticipated for continued operation during the license renewal period; therefore, there is no expectation that land in the undeveloped portions of the site will be disturbed for operations during the renewal period. Operation of V. C. Summer, as planned under the application for license renewal, would protect undiscovered historic or archaeological resources on the site because the undeveloped natural landscape and vegetation would remain undisturbed, and access to the site would remain restricted.

In January 2001, SCE&G wrote the South Carolina SHPO (Attachment 1), requesting their comments on the V. C. Summer license renewal process. In its letter, SCE&G suggested that the continued operation of V. C. Summer will have no effect on historic properties (SCE&G 2001). In a response dated January 29, 2001, the South Carolina SHPO (Attachment 2) stated that license renewal for the continuing operation of plants such as this one typically has no effect on historic properties (SHPO 2001).

Operating procedures of SCE&G consider actions upon the inadvertent discovery of historic and archaeological remains at V. C. Summer. Based on the cultural resources analysis, the representation by SCE&G that it does not plan to undertake major refurbishment activities related to the renewal of V. C. Summer, and the expectation that operations will continue within

July 2003

- 7 -

the bounds of previously analyzed conditions, as evaluated in the FES (AEC 1973) and subsequent environmental assessments, the NRC staff concludes that there will be no effect on historic properties within the APE and no additional mitigation is warranted.

- 8 -

ATTACHMENTS

1. Letter - January 19, 2001 SCE&G wrote the South Carolina SHPO regarding license renewal at V. C. Summer. Includes Maps of V.C. Summer and surrounding environment.
2. Letter - January 29, 2001 South Carolina SHPO responded to SCE&G letter - agreed that license renewal for the continuing operation of plants such as this one typically has no effect on historic properties.
3. Letter - October 20, 1972 SHPO wrote letter to Federal Power Commission regarding the SCE&G construction Project 1894 - determined that no adverse effects to historic properties would result from this project.
4. Letter - November 27, 2002 the NRC wrote letters to the four Tribes - example of the letter that was sent to the Catawba Indian Nation.

CERTIFICATION OF RESULTS

I certify that I conducted the investigation reported here, that my observations and methods are fully documented, and that this report is complete and accurate to the best of my knowledge.

| | | |
|------------------------------------|-----------|-------|
| <u>Tara O. Eschbach</u> | _____ | _____ |
| Reporter, | Signature | Date |
| Pacific Northwest National | | |
| Laboratory on behalf of the | | |
| U.S. Nuclear Regulatory Commission | | |

| | | |
|------------------------------------|-------------------------|-------|
| <u>Darby C. Stapp, Ph.D., RPA</u> | _____ | _____ |
| Reviewer, | Concurrence (Signature) | Date |
| Pacific Northwest National | | |
| Laboratory on behalf of the | | |
| U.S. Nuclear Regulatory Commission | | |

REFERENCES

- South Carolina Electric and Gas (SCE&G), 2002. *Virgil C. Summer Nuclear Station Application for Renewed Operating License , Appendix E - Environmental Report*. Docket No. 50-395, Columbia, South Carolina.
- South Carolina Electric and Gas Company, 2002. FERC Project 1894 Land Use and Shoreline Management Plan Monticello and Parr Reservoirs - Effective April 1, 2002. Columbia, South Carolina.
- Teague, G.A., 1979. *An Assessment of Archeological Resources in the Parr Project Area, South Carolina*. Institute of Archeology and Anthropology. University of South Carolina. Columbia, South Carolina.
- U.S. Atomic Energy Commission (AEC), 1973. *Final Environmental Statement Related to the Virgil C. Summer Nuclear Station Unit 1; South Carolina Electric & Gas Company*. Docket No. 50-395, Washington, D.C.
- U.S. Nuclear Regulatory Commission (NRC), 1999. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants: Main Report*. NUREG-1437, Volume 1, Addendum 1, Washington, D.C.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 26, 2003

Ms. Sandy Abbot
U.S. Fish and Wildlife Service
Ecological Services Office
176 Crogham Spur Road
Suite 200
Charleston, SC 29407

SUBJECT: BIOLOGICAL ASSESSMENT FOR LICENSE RENEWAL AT V. C. SUMMER
NUCLEAR STATION AND REQUEST FOR INFORMAL CONSULTATION
(TAC NO. MB5227)

Dear Ms. Abbot:

The U.S. Nuclear Regulatory Commission (NRC) staff has prepared the enclosed Biological Assessment to evaluate whether the proposed renewal of the V.C. Summer Nuclear Station (V.C. Summer) operating license for a period of an additional 20 years would have adverse effects on listed species. This Biological Assessment covers the site, which is approximately 909 hectares (2,245 acres) and includes portions of Monticello Reservoir as well as the 193-km- (120-mi-) long transmission line corridor.

The NRC has identified eleven species listed as threatened or endangered under the Federal Endangered Species Act and one Candidate species with the potential to be affected by this action. The primary species of concern is the bald eagle, which has been found within an 8-km (5-mi) radius of V.C. Summer. The staff has determined that the proposed action is not a major construction activity and that it may affect, but is not likely to adversely affect, the bald eagle. No designated critical habitat for any listed species is located near the project area. We are placing this Biological Assessment in our project files and are requesting your concurrence with our determination.

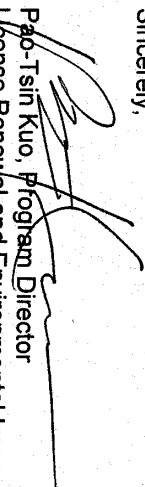
In reaching its conclusion, the NRC staff relied on the information available through local, State, and Federal agencies, on research performed by the NRC staff and contractors, and a current listing of species provided by the South Carolina field office of the Fish and Wildlife Service.

S. Abbot

- 2 -

If you have any questions regarding this Biological Assessment or the staff's request, please contact the license renewal project manager, Gregory Suber, by telephone at (301) 415-1124 or by e-mail at GXS@nrc.gov.

Sincerely,



Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 50-395

Enclosure: As stated

cc w/encl: See next page

E-20

July 2003

Biological Assessment

**Virgil C. Summer Nuclear
Station
License Renewal Review**

Jenkinsville, South Carolina

June 2003

**U.S. Nuclear Regulatory
Commission
Rockville, Maryland**

Biological Assessment of the Effects of the V.C. Summer Power Plant License Renewal on Threatened or Endangered Species

Executive Summary

This Biological Assessment evaluates the potential impacts of the license renewal of the Virgil C. Summer Nuclear Station (V.C. Summer) on Federally listed threatened or endangered species. There will be no major construction, refurbishment, or replacement activities associated with this action. The U.S. Nuclear Regulatory Commission (NRC) has determined that license renewal for V.C. Summer will have no effect on the wood stork, red-cockaded woodpecker, shortnose sturgeon, Carolina heelsplitter, pool sprite, Georgia aster, smooth coneflower, rough-leaved loosestrife, Canby's dropwort, harperella, or relict trillium. The license renewal may affect, but is not likely to adversely affect, the bald eagle.

Project Description

The NRC licenses the operation of domestic nuclear power plants in accordance with the Atomic Energy Act of 1954, as amended, and NRC implementing regulations. South Carolina Electric & Gas Company (SCE&G) operates V.C. Summer Unit 1 pursuant to NRC Operating License Number NPF-12, which expires August 6, 2022.

SCE&G has prepared an environmental report in conjunction with its application to NRC to renew the V.C. Summer operating license, as provided by the following NRC regulations:

- Title 10, Energy, Code of Federal Regulations (CFR), Part 54, Requirements for Renewal of Operating Licenses for Nuclear Power Plants, Section 54.23, Contents of Application-Environmental Information (10 CFR 54.23) and
- Title 10, Energy, CFR, Part 51, Environmental Protection Requirements for Domestic Licensing and Related Regulatory Functions, Section 51.53, Postconstruction Environmental Reports, Subsection 51.53(c), Operating License Renewal Stage [10 CFR 51.53(c)].

The renewed operating license would allow 20 additional years of plant operation beyond the current V.C. Summer licensed operating period of 40 years.

No major refurbishment or replacement of important systems, structures, or components are expected during the V.C. Summer license renewal period. In addition, no construction activities are expected to be associated with the V.C. Summer license renewal.

Description of Project Area

V.C. Summer is located in Fairfield County, South Carolina, approximately 24 km (15 mi) west of the county seat of Winnsboro and 42 km (26 mi) northwest of Columbia, the State capital (Figure 1). V.C. Summer is a joint project between SGE&G, operator and two-thirds

owner, and the South Carolina Public Service Authority (Santee Cooper), owner of the remaining one-third. The site is in a sparsely populated, largely rural area, with forests and small farms comprising the dominant land use. The Broad River flows in a northwest-to-southeast direction approximately 1.6 km (1 mi) west of the site and serves as the boundary between Fairfield County (to the east) and Newberry County (to the west).

The V.C. Summer site covers approximately 909 ha (2245 ac), an area that includes portions of Monticello Reservoir and the Fairfield Pumped Storage Facility (FPSF). Approximately 348 ha (860 ac) are covered by the waters of Monticello Reservoir. A significant portion of the property (approximately 150 ha [370 ac]) consists of generation and maintenance facilities, laydown areas, parking lots, roads, and mowed grass. Some 50 ha (125 ac) are dedicated to transmission line rights-of-way. However, much of the V.C. Summer property consists of forested areas (approximately 360 ha [890 ac]). The primary terrestrial habitats at V.C. Summer are pine forest, deciduous forest, and mixed pine-hardwood forest (SCANA 2000). The pine forests at V.C. Summer include planted pines and naturally vegetated pines. Most of the deciduous forests at the site are located along stream bottoms and surrounding slopes.

Forested areas within the V.C. Summer site are managed by SCANA Services' Forestry Operations group, but timber is not routinely harvested. Part Reservoir provides some limited freshwater marsh habitat in shallow backwaters, around low-lying islands, and in an area east of the FPSF tailrace that was used in the 1970s for the disposal of dredge spoil. These marshes and adjacent shallows are used by migrating dabbling ducks, including mallard, black duck, and teal. Monticello Reservoir and its subimpoundment also provide resting areas for wintering waterfowl and provide year-round habitat for non-migratory Canada geese.

Terrestrial wildlife species found in the forested portions of the V.C. Summer property are those typically found in the Piedmont forests of South Carolina. Wildlife characteristically found in the pine forests and mixed pine-hardwoods of the Piedmont include toads (e.g., Fowler's toad), lizards (e.g., Carolina anole, fence lizard, various skinks), snakes (e.g., black racer, rat snake, ringneck snake), songbirds (e.g., cardinal, bluejay, towhee, various warblers), birds of prey (e.g., red-tailed hawk, red-shouldered hawk), and a number of mammal species (e.g., gray squirrel, eastern cottontail, raccoon, white-tailed deer).

In total, for the specific purpose of connecting V.C. Summer to the transmission system, SCE&G and Santee Cooper constructed approximately 257 km (160 mi) of transmission lines (193 km [120 mi] of corridor) that occupy approximately 809 ha (2000 ac) of corridor. These transmission lines cross the counties of Fairfield, Newberry, Saluda, Aiken, Richland, and Edgefield (Figure 2). The areas are mostly remote, with low population densities. The longer lines cross numerous state and U.S. highways, including Interstate 26 and Interstate 20. SCE&G and Santee Cooper plan to maintain these transmission lines, which are integral to the larger transmission system, indefinitely. These transmission lines are expected to remain a permanent part of the regional transmission system even after V.C. Summer is decommissioned.

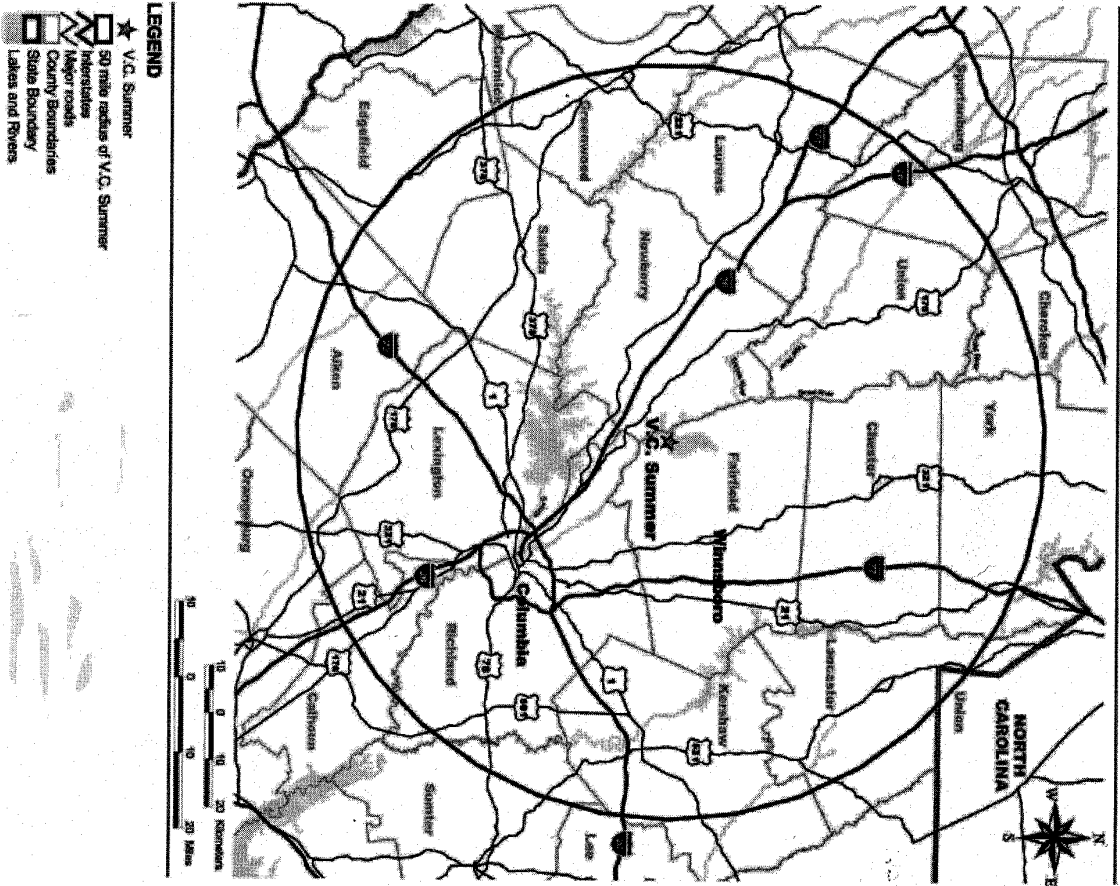
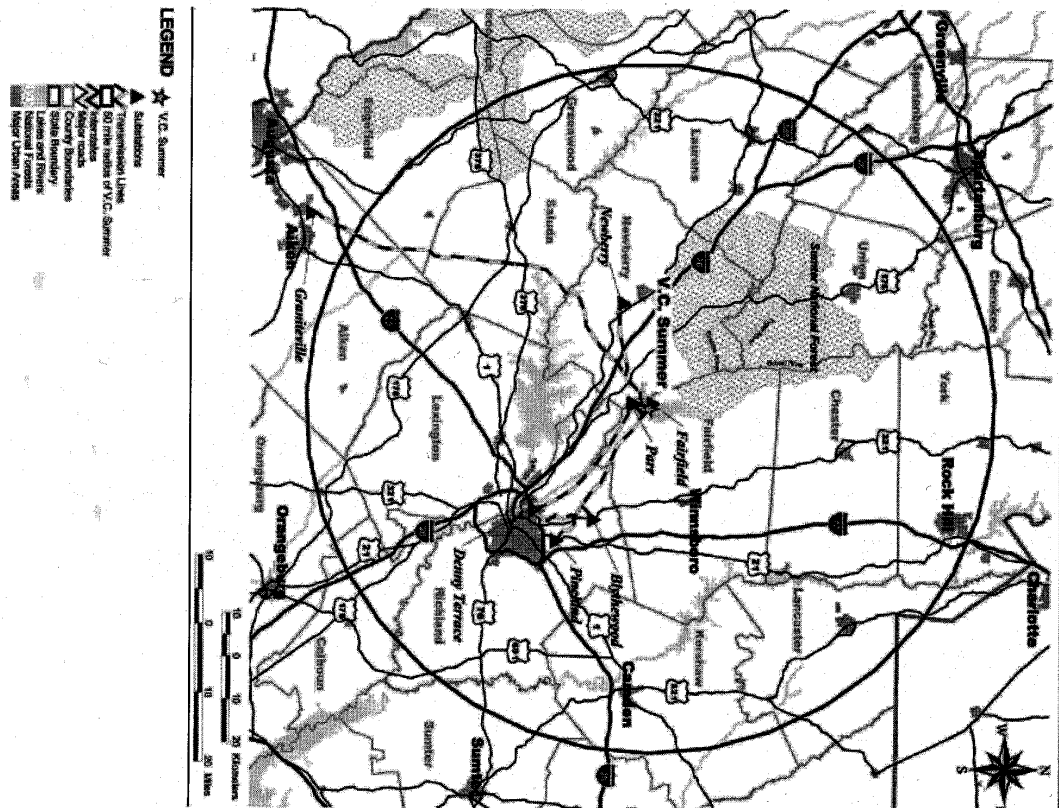


Figure 1. Location of V.C. Summer 80-km (50-mi) Region

Figure 2. Location of V.C. Summer Transmission Lines



Most of the transmission corridors are situated within the Piedmont Physiographic Region, but the southernmost portions of the Sumner-Graniteville, Sumner-Denny Terrace No. 2, and Sumner-Pine land corridors are situated within the Sandhills Physiographic Region. Most of the areas crossed by the transmission corridors are forest lands or agricultural lands (in pasture or row crops). Forest habitats along transmission corridors consist primarily of pine forest, pine-hardwood forest, and bottomland hardwood forest. Transmission corridors that run west from V.C. Sumner cross more agricultural lands (mostly pasture) than corridors that run to the east. Conversely, corridors that run to the east cross more forested lands and residential areas (northern suburbs of Columbia) than corridors that run to the west.

No areas designated by the U.S. Fish and Wildlife Service (USFWS) as critical habitat for endangered species exist at the V.C. Sumner site or on or adjacent to associated transmission lines. In addition, the transmission corridors do not cross any State or Federal parks, wildlife refuges, or wildlife management areas.

The transmission corridors are maintained by mowing, by trimming of undesirable vegetation from the sides of the corridors, and by use of approved herbicides. Under normal circumstances, the mowing and herbicide schedule follows a three-year cycle. Trees are "side-trimmed" every 10 years by helicopters carrying hydraulically operated saws. Aerial patrols of transmission corridors are conducted four times a year by SCE&G and twice a year by Santee Cooper. Dead and diseased trees at the edges of corridors are removed if it appears that they could fall and strike the transmission lines or support structures.

Periodic mowing in dry, upland portions of transmission corridors creates sunny, open conditions favorable for plants and animals normally found in fire-maintained ecosystems, such as successional grasslands and longleaf pine-wiregrass communities. Permanent and seasonal wetlands along transmission corridors hold potential for harboring a number of other plant species currently listed by the USFWS and South Carolina Department of Natural Resources (SCDNR), including the rough-leaved loosestrife and Canby's dropwort. Wetlands also provide habitat for several listed animal species, and some species (e.g., the wood stork) are found only in wetlands. Many animal species, however, are highly mobile and utilize more than one habitat type. The transmission corridors provide an open canopy and offer an abundance of herbaceous ground cover. Therefore, they can be natural avenues for movement and foraging by some animals.

Aquatic and riparian communities in the vicinity of V.C. Sumner are influenced by the hydrology and water quality of the Broad River and movement of water between the Broad River/Part Reservoir and Monticello Reservoir. The Broad River originates on the eastern slope of the Blue Ridge Mountains near Lake Lure, North Carolina, and flows 354 km (220 mi) southeast into South Carolina before joining the Saluda River at Columbia, South Carolina, to form the Congaree River. The Congaree River joins the Wateree River approximately 80 km (50 mi) southeast of Columbia, SC to become the Santee River. The Santee River flows southeast 230 km (143 mi) to empty into the Atlantic Ocean. In South Carolina, the Broad River basin encompasses an approximately 7242-km² (4500-mi²)

watershed drained by 7594 km (4719 mi) of streams (SCDHEC 1998). Major tributaries include the Pacolet, Tyger, and Enoree rivers, all of which enter the Broad River from the west. The Broad River Basin in South Carolina is entirely within the Piedmont region, which is an area of gently rolling to hilly terrain with relatively broad stream valleys; elevations range from 115 to 305 m (376 to 1000 ft) above mean sea level (SCDHEC 1998). For most of its length in South Carolina, the Broad River flows through agricultural and forested land, including the Sumter National Forest, which bounds the river for some 48 km (30 mi) above Parr Reservoir.

Parr Reservoir was created in 1914 by damming the Broad River at Parr Shoals, approximately 42 km (26 mi) upstream of the confluence of the Broad and Saluda rivers for Parr Hydro, a small (15 megawatt) run-of-the-river hydroelectric facility. Prior to 1977, the reservoir's surface area was 749 ha (1850 ac) (SCE&G 1978). In 1977, the level of Parr Reservoir was raised by 3 m (9 ft), which increased its surface area to approximately 1781 ha (4400 ac). This modification was necessary to support the development of FPSF, which was built on Frees Creek, a small tributary of the Broad River. In addition, Monticello Reservoir was created to serve as the upper reservoir for FPSF and the cooling water source for V.C. Sumner. Parr Reservoir, which had historically been the source of water for Parr Hydro, assumed a dual function, providing a headwater pool for Parr Hydro and a tailwater pool for FPSF. The daily cycle of operation at the FPSF transfers up to 35,771,181 m³ (29,000 acre-feet) per day of water from Parr Reservoir to Monticello Reservoir and back (NRC 1981). Operations vary, depending on the season and system needs. In summer, FPSF generally pumps water from Parr Reservoir to Monticello Reservoir between the hours of 10 am and 8 am and generates power (by releasing water) between the hours of 10 am and 11 pm. In winter, FPSF generally pumps water from Parr Reservoir to Monticello Reservoir between 11 pm and 6 am and generates between the hours of 6 am and 1 pm. The level of generation varies from one generator up to the maximum output of eight, depending on demand. Maximum output may not be necessary on all days. Pumping is normally done at maximum capacity. FPSF is normally operated seven days a week.

As a result of FPSF operations, Parr Reservoir is subject to daily fluctuations in water level of as much as 3 m (10 ft) (NRC 1981), but the daily average is approximately 1 m (4 ft) (Dames & Moore 1985). These water level fluctuations can expose and then inundate up to 1032 ha (2550 ac) of Parr Reservoir with each cycle of pumpback and generation (release of water). The amount of water pumped from and returned to Parr Reservoir daily represents as much as 88 percent of its total volume (NRC 1981).

V.C. Sumner is on the south shore of Monticello Reservoir (Figure 3), which serves as its cooling water source and heat sink. Monticello Reservoir was formed by damming Frees Creek, a small tributary of the Broad River that flowed into Parr Reservoir about 1.9 km (1.2 mi) upstream of the Parr Shoals dam. As previously discussed, Monticello Reservoir was designed to serve both as a cooling pond for V.C. Sumner and the upper pool for the FPSF,

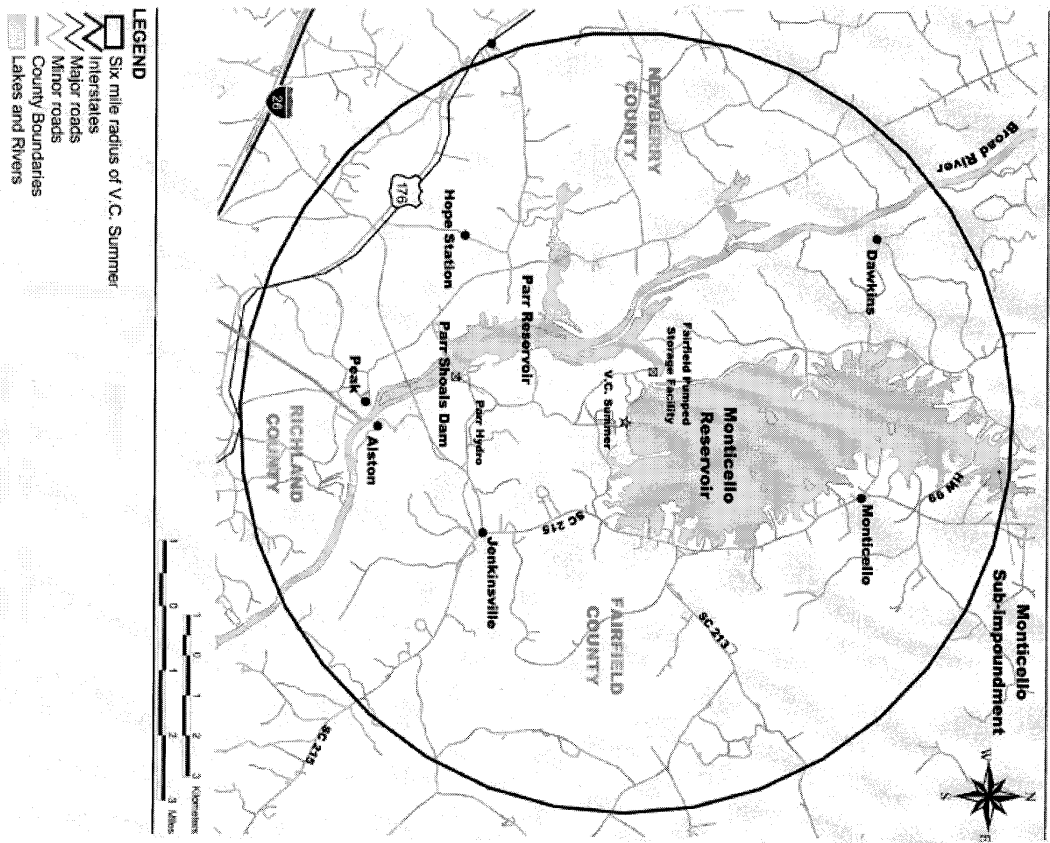


Figure 3 Location of V.C. Summer 10-km (6-mi) Region

with an enlarged Parr Reservoir serving as the lower pool. Water flow from the Frees Creek watershed into the newly created Monticello Reservoir was negligible, and FPSF's pumps were used initially to fill the reservoir with water from Parr Reservoir (NRC 1981). Monticello Reservoir's small watershed drains an area of only 4452 ha (11,000 ac), including the reservoir and its subimpoundment (discussed later in this section).

Monticello Reservoir is approximately 10 km (6 mi) long with a surface area of 2630 ha (6500 ac). The average depth is 18 m (59 ft) and the maximum depth is approximately 38 m (126 ft) (SCDHEC 1998). FPSF operations can cause water levels in Monticello Reservoir to fluctuate as much as 1.4 m (4.5 ft) daily. Daily water level changes vary, depending on system needs. It is currently rated as one of the least eutrophic reservoirs in South Carolina, and is characterized by low nutrient (total phosphorus and total nitrogen) concentrations.

List of Species

In preparing for renewal of its operating license, V.C. Summer assessed a wide variety of potential impacts, including those to ecological resources, in an environmental report that was submitted to the NRC on August 6, 2002, as part of a License Renewal Application. The *Threatened and Endangered Species Field Survey* (SCE&G 2002a) presents the results of field surveys of the V.C. Summer site and associated transmission corridors conducted in late spring (May) and summer (June, July, and August) 2002 to update information in the SCE&G environmental report (SCE&G 2002b) on ecological resources, emphasizing threatened and endangered species. Information obtained during the surveys was used by the NRC in its assessment of the potential impact of the V.C. Summer operation over the license renewal term on threatened and endangered species. This Biological Assessment describes the survey areas, presents a list of potentially occurring species, describes survey techniques, and discusses the results of the surveys.

The NRC has identified 11 species (Table 1) listed as threatened or endangered under the Federal Endangered Species Act and one Candidate species with the potential to be affected by this action based on information received from USFWS during a meeting of NRC and USFWS staff held at the USFWS Charleston Field Office in South Carolina on December 12, 2002. The list was again confirmed in a letter from NRC to USFWS April 16, 2003 (NRC 2002). The South Carolina counties included in the NRC assessment are Fairfield, Newberry, Saluda, Aiken, Richland, and Edgefield.

Additionally, SCE&G conducted field surveys to verify the presence or absence of these species (SCE&G 2002a). Before going into the field, project biologists conducted a literature review to identify species known to occur in the counties crossed by V.C. Summer transmission lines. Previous research for the V.C. Summer environmental report had shown that only one listed species, the bald eagle, was known to occur on the V.C. Summer site and there were no records of threatened and endangered species occurring along the V.C. Summer transmission corridors.

Table 1. Federal Endangered, Threatened, and Candidate Species that potentially occur in the vicinity of the V.C. Summer site or the Counties crossed by transmission lines.

| Scientific Name | Common Name | Federal Status ^a | Determination |
|---------------------------------|--------------------------|-----------------------------|--------------------------------|
| Invertebrates | | | |
| <i>Lasmsgona decorata</i> | Carolina heelsplitter | E | No Effect |
| Fish | | | |
| <i>Acipenser brevirostrum</i> | shortnose sturgeon | E | No Effect |
| Birds | | | |
| <i>Haliaeetus leucocephalus</i> | bald eagle | T | Not likely to adversely affect |
| <i>Myceteria americana</i> | wood stork | E | No Effect |
| <i>Picoides borealis</i> | red-cockaded woodpecker | E | No Effect |
| Plants | | | |
| <i>Amphianthus pusillus</i> | pool sprite | T | No Effect |
| <i>Aster georgianus</i> | Georgia aster | C | No Effect |
| <i>Echinacea laevigata</i> | smooth coneflower | E | No Effect |
| <i>Lysimachia asperifolia</i> | rough-leaved loosestrife | E | No Effect |
| <i>Oxpolis canbyi</i> | Canby's dropwort | E | No Effect |
| <i>Ptilimnium nodosum</i> | harperella | E | No Effect |
| <i>Trillium reliquum</i> | relict trillium | E | No Effect |

^a E = Endangered; T=Threatened; C = Candidate for listing.
Source: USFWS 2002

The federally listed species known to occur in the counties crossed by V.C. Summer-associated transmission corridors are shown in Table 1. Although this species list was based primarily on information obtained from the USFWS, a number of other sources and authorities were consulted, including *Manual of the Vascular Flora of the Carolinas* (Radford et al. 1973), *Endangered, Threatened, and Rare Vascular Flora of the Savannah River Site* (Knox and Sharitz 1990), *Amphibians and Reptiles of the Carolinas and Virginia* (Martof et al. 1980), *Guide to the Reptiles and Amphibians of the Savannah River Site* (Gibbons and Semlitsch 1991), *South Carolina Bird Life* (Sprunt and Chamberlain 1970), and *Mammals of the Savannah River Site* (Cottrane et al. 1991).

Species Survey

The undeveloped portions of the V.C. Summer site were surveyed on foot. The transmission corridors, because of their size, were surveyed by concentrating efforts in areas offering the greatest potential for harboring listed species. Areas of interest were identified using U.S. Geologic Survey (USGS) 7.5 minute topographic maps, county soil maps, and aerial photographs prior to conducting ground surveys. This initial "desk-top" survey allowed biologists to rapidly eliminate from consideration cropland, pastures, and other areas of poor-quality habitat for listed species. Following this phase of the survey, biologists drove to areas of potential interest and conducted surveys on foot. The survey of the V.C. Summer site was conducted in late May 2002. Surveys of the corridors were conducted over the May-August 2002 period (SCE&G 2002a).

Survey techniques are described in detail in the *Threatened and Endangered Species Field Survey* (SCE&G 2002a). The survey techniques for birds, mammals, reptiles, and amphibians were designed to provide information on the occurrence and potential for occurrence of listed species at V.C. Summer and along the transmission corridors. Biologists conducted the survey of the V.C. Summer site by systematic walkover within all natural habitats, such that each habitat type was thoroughly searched. Surveys conducted along the transmission corridors were focused on areas identified, through the examination of aerial photographs and topographic maps, as providing potential habitat for listed animal species. During each survey, wildlife species were identified through actual observations, as well as from tracks, scat, and birdcalls.

Notes regarding species observed, as well as pertinent data regarding habitat quality, weather conditions, time of day, etc., were recorded in a field notebook. No trapping or other collecting activities were conducted, except where slow-moving reptiles or amphibians were captured by hand and released after identification. Because many animal species are mobile and secretive, the absence of a species during a survey is not necessarily conclusive evidence that the species does not use the area in question. Therefore, the *potential* for use of V.C. Summer and transmission corridors by listed wildlife species was also evaluated, based on the quality of habitats observed.

The V.C. Summer site contains substantial acreage of intact forestland (exclusive of planted pines), and an attempt was made to visit all forested sites, especially those featuring steep topography and stream drainages, since these would be expected to support the highest diversity of vascular species. Similarly, portions of transmission corridors with intact forests on one or both sides were presumed most likely to harbor rare plants. A total of 75 locations representing more than 97 km (60 mi) of transmission corridor were surveyed on foot. Most of these sites were chosen based on terrain features (from topo maps), soils (from county soil surveys), land use in the area (from aerial photographs), and existing vegetation (from aerial photographs). Other sites were added due to proximity to known populations of threatened and endangered species. Several access points were locked/gated and thus inaccessible; these sites generally feature pastureland that otherwise offer little in the way of habitat for rare species.

Enlarged topographic maps developed from USGS quad sheets (7.5 minute series) and a hand-held global positioning system unit were used to record the locations of areas that were searched. Notes were taken at each area searched describing habitats and plant species present. Field surveys involved careful study of all vegetation in each target area. In the case of problematic genera, specimens were collected for further study and placed in a plant press. Specimens collected and preserved during this study are stored at the A.C. Moore Herbarium of the University of South Carolina.

Before fieldwork began, the transmission corridors were evaluated using USGS topographic maps, aerial photographs, soil maps, and other resources. Lengths of corridor that appeared to have potential for supporting a high level of biological diversity or harboring one or more rare species were identified and surveyed.

Species Evaluated

Invertebrates:

***Lasimigona decorata*, Carolina heelsplitter**

Before a 1987 USFWS survey, the Carolina heelsplitter had not been recorded in the state since the mid-19th century (Keferl and Shelly 1988 as cited in USFWS 1993, Keferl 1991 as cited in USFWS 1993). This listed (Endangered) freshwater mussel was historically found in South Carolina in the Pee Dee River system (Clarke 1985 as cited in USFWS 1993, Keferl and Shelly 1988 as cited in USFWS 1993, Keferl 1991 as cited in USFWS 1993). The USFWS conducted intensive surveys between 1987 and 1990 and found only two surviving populations of the Carolina heelsplitter in the Pee Dee River system, the Goose Creek and Lynches River/Flat Creek populations (Keferl 1991 as cited in USFWS 1993). During the USFWS surveys, a total of only 12 live individuals were found in Flat Creek (1987–1990) and two individuals were found in the Lynches River (both found in 1990). Because the Carolina heelsplitter populations have been found only in other tributaries to the Pee Dee River and not in the Broad River system near the V.C. Sumner site or transmission lines, the NRC staff has determined that the proposed license renewal would have no effect on the Carolina heelsplitter.

Fish:

***Acipenser brevirostrum*, shortnose sturgeon**

The shortnose sturgeon is listed as Endangered. The shortnose sturgeon historically occurred in the Broad River in Lexington and Newberry counties, but was likely extirpated from that stretch of the Broad River. Passage of this species up the Broad River is blocked by dams (SCE&G 2002a). In South Carolina, the primary factors affecting populations of this species are habitat alteration, due to dredging and dam construction, and pollution. Currently, in South Carolina they inhabit Winyah Bay

Rivers, those that drain into Lake Marion, the Santee, Cooper, and Savannah rivers, and the ACE (Ashlepool, Combahce, and Edisto Rivers) Basin. In the latter, shortnose sturgeon are typically found at the freshwater-saltwater interface. The shortnose sturgeon has not been found near the V.C. Summer site or transmission lines. Therefore, the NRC staff has determined that the proposed license renewal would have no effect on the shortnose sturgeon.

Birds:

Haliaeetus leucocephalus, bald eagle

The bald eagle is generally associated with lakes, rivers, and coastal areas (USACE 2002). Bald eagles are commonly observed foraging around Monticello Reservoir, the FPSF tailrace canal, Parr Reservoir, and on the Broad River downstream of Parr Shoals dam. The bald eagle is listed as Threatened under the provisions of the Endangered Species Act. The bald eagle was the only listed species observed during the SCE&G field surveys.

There are no recorded bald eagle nests at the V.C. Summer site, but there are six nests within 8 km (5 mi) of the V.C. Summer site, the nearest being approximately 3.2 km (2 mi) from the site (Holling 2001). Four of these six nests are believed to be active nesting sites, while the status of two nests is unknown (SCDNR 2001). There are four bald eagle nesting sites on Parr Reservoir. Three (one active, two unknown status) are within 0.8 km (0.5 mi) of one another, on the western shore of the reservoir, approximately 3.2 km (2 mi) west of V.C. Summer. The fourth is on the Heller's Creek arm of Parr Reservoir, approximately 6 km (4 mi) northwest of V.C. Summer. There is a single bald eagle nesting site on the eastern shore of Monticello Reservoir, approximately 5.6 km (3.5 mi) north of V.C. Summer. There is also a nesting site approximately 3.2 km (2 mi) east of Monticello Reservoir (6 km [4 mi] northeast of V.C. Summer) on a tributary of the Little River. One active bald eagle nest in Saluda County is approximately 0.8 km (0.5 mi) west of the Summer-Graniteville transmission line, and one bald eagle nest in Richland County is located approximately 1.4 km (0.9 mi) south of the Summer-Denny Terrace transmission line (SCDNR 2001). The current status of the Richland County nest is unknown, but the nest was viable as recently as 1995 (SCDNR 2001).

The *Habitat Management Guidelines for the Bald Eagle in the Southeast Region* (USFWS 1987) prescribes 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 report are "primary" (from 229 to

457 m [750 to 1500 ft]) and "secondary" (from 23 m [75 ft] to 1.6 km [1 mi]) (USFWS 1987). The Habitat Management Guidelines provide recommendations, excluding certain activities within these zones, to minimize impacts to the bald eagle. The V.C. Summer site is located beyond the secondary management zone buffers of the active nests. Consequently, the potential for activities at the V.C. Summer site to disturb breeding/nesting at these nest sites is minimal.

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. Because of their acute vision, maneuverability, and the fact that they migrate neither in flocks nor at night, the likelihood of transmission line collisions involving the eagles is remote. There are no known reports of bald eagle collisions with the V.C. Summer transmission lines or other structures. Based on a review of the literature and the absence of any reported electrocutions associated with the V.C. Summer transmission lines, the staff concludes that potential eagle losses due to transmission line-related electrocutions are highly unlikely. In the event that an electrocuted bald eagle were to be found, SCE&G's procedures require that a Raptor Incident Report be filed.

Based on the locations of the active eagle nests relative to the V.C. Summer site and associated transmission lines, the potential for disturbance during nesting/breeding, either from activities at the V.C. Summer site or from transmission line maintenance, is highly unlikely. SCE&G's procedures require that it follow the USFWS Habitat Management Guidelines for the bald eagle in the Southeast Region.

Additionally, a substantial number of bald eagles and other birds are commonly seen foraging at the FPSF as it transfers water from Parr Reservoir to Monticello Reservoir. Likely, the substantial number of bald eagles and other birds foraging at the FPSF indicates that the daily pumping of water creates a preferred foraging area for the birds. It is possible that the current water circulating system of V.C. Summer, more specifically the FPSF, increases the availability of fish. Therefore, based on the available information, the NRC staff makes a finding of "may affect, not likely to adversely affect" the bald eagles for the proposed license renewal.

***Mycteria americana*, wood stork**

The wood stork, listed as Endangered, is known to occur in Aiken County. The Summer-Graniteville transmission line terminates in the northern part of Aiken County more than 80 km (50 mi) from the V.C. Summer site. Although they do not nest in Aiken County, wood storks from the Birdsville Colony (near Millen, Georgia) forage in shallow

wetlands on the U.S. Department of Energy's Savannah River Site and in specially constructed ponds on the National Audubon Society's Silver Bluff Sanctuary, near Jackson, South Carolina (DOE 1997; NAS undated). No transmission corridors associated with V.C. Summer cross or approach the Savannah River Site or the Silver Bluff Sanctuary, and wood storks have not been recorded near the V.C. Summer site or its transmission line corridors. Therefore, the NRC staff has determined that the proposed license renewal would have no effect on the wood stork.

***Picoides borealis*, red-cockaded woodpecker**

The red-cockaded woodpecker, listed as Endangered, is known to occur in Aiken, Edgefield, Saluda, and Richland counties (SCDNR 2002). Active nest cavities of this cooperative breeder occur in open, mature pine stands with sparse midstory vegetation (USFWS 2002). When the hardwood midstory grows above 5 m (15 ft), cavity abandonment usually occurs (Hooper et al. 1980). Preferred habitat for this species is not found at the V.C. Summer site, nor is it found along the transmission corridors. There is one point on the Summer-Graniteville corridor where the Summer transmission corridor passes through mature, marginally open pine forests. At this location, however, numerous oaks of considerable height are scattered among the pines, significantly decreasing the probability that red-cockaded woodpeckers would occur here. Although the forest adjacent to that location was thoroughly searched during the 2002 field surveys, no active or abandoned nest cavities were found. Because suitable habitat does not occur at the V.C. Summer site or associated transmission lines, the NRC staff has determined that the proposed license renewal would have no effect on the red-cockaded woodpecker.

Plants:

***Aster georgianus*, Georgia aster**

The Georgia aster, a Candidate for listing, is found in dry, open woodlands and disturbed areas, such as roadsides and utility rights-of-way that are regularly mowed. Populations have been found in Edgefield, Fairfield, and Richland counties (SCDNR 2002). However, there have been no recorded occurrences of this species in or adjacent to the transmission corridors or at the V.C. Summer site (SCDNR 2001). Furthermore, the Georgia aster was not found during the 2002 field surveys. Therefore, the NRC staff has determined that the proposed license renewal would have no effect on the Georgia aster.

***Echinacea laevigata*, smooth coneflower**

The smooth coneflower, listed as Endangered, is known to occur in Aiken and Richland counties. There is no known record of smooth coneflower in Fairfield County (SCDNR 2002). Habitat for this perennial herb is open woods, cedar barrens, roadsides, clear cuts, limestone bluffs, and transmission line corridors. Fire or other disturbance, such as well-timed mowing or clearing, is essential to maintaining the open habitat required for this species (USFWS 2002). Considering the absence of truly circumneutral soils on the transmission corridors studied, the absence of apparent habitat on neighboring land, and the fact that fires are practically nonexistent in the transmission corridors, it is highly unlikely that smooth coneflower ever has been a resident of these areas. Although it was sought on open corridors featuring steep, rocky terrain throughout this project area during the 2002 field surveys, there have been no recorded occurrences of this species in or adjacent to the transmission line corridors associated with V.C. Summer or at the site (SCDNR 2001). Therefore, the NRC staff has determined that the proposed license renewal would have no effect on the smooth coneflower.

***Lysimachia asperulifolia*, rough-leaved loosestrife**

The rough-leaved loosestrife is listed as Endangered. Habitat for this perennial herb consists of Carolina bays and the ecotones between longleaf pine uplands and pond pine pocosins. The only known location of the rough-leaved loosestrife within South Carolina is at Fort Jackson in Richland County (USFWS 2002); there are no recorded occurrences of this species in or adjacent to the transmission line corridors associated with V.C. Summer or at the site (SCDNR 2001). Some possibility exists that this species could survive on boggy places under power lines studied in the field survey, but there are only two sites that could reasonably be considered, and neither of them is burned. Portions of the Graniteville transmission corridor would be thought to potentially support loosestrife, but no sandhill seepage bogs were discovered. It is highly unlikely that rough-leaved loosestrife has ever grown anywhere within the study area. Furthermore, rough-leaved loosestrife was not found during the 2002 field surveys. Therefore, the NRC staff has determined that the proposed license renewal would have no effect on the rough-leaved loosestrife.

***Oxypolis canbyi*, Canby's dropwort**

Canby's dropwort is listed as Endangered. This perennial plant is known to occur in 11 counties within South Carolina, one of which (Richland) is crossed by V.C. Summer transmission lines (SCDNR 2002). This coastal plain species grows in wet meadows, wet pinelands savannas, ditches, sloughs, and along the edges of cypress-pine ponds (USFWS

2002). There have been no recorded occurrences of this species in or adjacent to the transmission line corridors associated with V.C. Summer or at the site (SCDNR 2001). No Canby's dropwort were found during the 2002 field surveys. Therefore, the NRC staff has determined that the proposed license renewal would have no effect on the Canby's dropwort.

Ptilimnium nodosum, harperella

Harperella is listed as endangered. Typical habitat for this annual herb is rocky or gravel shoals, margins of swift-flowing streams, and edges (bays) of intermittent pineland ponds (USFWS 2002). Harperella is known in South Carolina from Aiken and Saluda counties (SCDNR 2002). There is one recorded population of harperella approximately 0.8 km (0.5 mi) west of the Summer-Graniteville transmission line corridor in Saluda County. The most recent observation of this population in the SCDNR database was from 1985 (SCDNR 2001). There are no recorded occurrences of this species in or adjacent to the V.C. Summer-associated transmission corridors or the site (SCDNR 2001). It is of potential occurrence, therefore, in suitable habitat along portions of the Summer-Graniteville line, particularly around Ridge Spring. High ponds occur around State Highway SC 23 in the vicinity of the Graniteville line, but these bays are highly altered, and little resident native vegetation remains. On the other hand, the Graniteville line does not specifically cross any Carolina bays in the region. Therefore, the NRC staff has determined that the proposed license renewal would have no effect on the harperella.

Trillium reliquum, relict trillium

The relict trillium is listed as Endangered. Habitat for this perennial herb is mature, moist, undisturbed hardwood forests (USFWS 2002). Relict trillium is known from Aiken and Edgefield counties (SCDNR 2002). Relict trillium is restricted to sites over mafic rock, within old-growth, intact forest systems. They do respond somewhat positively to disturbance, and may be expected to survive in openings under powerlines if present in adjacent forests. No relict trillium was seen during this survey. The Aiken County locations for this species are much unlike anything else seen in Aiken County under the Graniteville transmission line; it is extremely unlikely that this species ever occurred in the project area. There have been no recorded occurrences of this species in or adjacent to the transmission line corridors associated with V.C. Summer or at the site (SCDNR 2001). Therefore, the NRC staff has determined that the proposed license renewal would have no effect on the relict trillium.

***Amphianthus putilius*, pool sprite**

The pool sprite, also known as little amphianthus, is listed as Threatened. This aquatic plant occurs in small (usually less than one square meter) shallow pools on the crests and flattened slopes of granite outcrops (USFWS 2002). These pools completely dry out in summer droughts. The pool sprite is known to occur within Saluda County (USFWS 2002; SCDNR 2002), which is crossed by the transmission lines associated with V.C. Summer. This plant is endemic to open flat granite rocks, with enough surface area to allow the development of shallow pools that fill with water during spring rainy periods, when the seeds germinate, followed by rapid growth, flowering, and fruit set.

Transmission corridors featuring granitic rock anywhere within this project were examined for the slightest possibility of occurrence; the best developed "flatrocks" are just south of V.C. Summer. Some boulders were seen elsewhere along power lines in Fairfield County, but none was adequate for supporting this species. It is highly unlikely that pool sprite ever occurred anywhere within the study area. Only one occurrence of this plant is known from Saluda County (USFWS 2002), but there are no recorded occurrences in or adjacent to the V.C. Summer-associated transmission line corridors or at the site (SCDNR 2001). Therefore, the NRC staff has determined that the proposed license renewal would have no effect on the pool sprite.

Conclusions

The NRC has identified 11 species listed as Threatened or Endangered under the Federal Endangered Species Act and one Candidate species with the potential to be affected by the license renewal of V.C. Summer. There will be no major refurbishment, construction, or replacement activities associated with this action. The NRC has determined that license renewal for V.C. Summer will have no effect on the wood stork, red-cockaded woodpecker, shortnose sturgeon, Carolina heelsplitter, pool sprite, Georgia aster, smooth coneflower, rough-leaved loosestrife, Canby's dropwort, harpetella, and relict trillium and may affect, but is not likely to adversely affect, the bald eagle.

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