



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407



January 29, 2009

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RULES AND DIRECTIVES  
BRANCH

Chief, Rules and Directives Branch  
Division of Administrative Services  
Office of Administration  
Mail Stop TWB-05-B01M  
US Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Re: Virgil C. Summer Nuclear Station, Combined License Application, Fairfield  
County, SC, FWS Log No. 42410-2009-FA-0109

Dear Sir/Madam:

The U.S. Fish and Wildlife Service (Service) has received the Nuclear Regulatory Commission's (NRC) request to (1) participate in the environmental scoping process and (2) for a list of protected species within the area proposed to construct two new nuclear reactors near the Monticello Reservoir, Fairfield County, South Carolina. The NRC is reviewing an application by South Carolina Electric and Gas (SCE&G) for a combined license for two new reactors, Units 2 and 3 at its Virgil C. Summer facility (Summer site) north of the Town of Jenkinsville, SC. Your request is being made as required by the National Environmental Policy Act of 1969, the Endangered Species Act of 1973 and the Fish and Wildlife Coordination Act of 1934 in preparation of an Environmental Impact Statement (EIS) evaluating potential environmental issues and alternative considerations.

Your request is twofold, to solicit comments from the Service on potential environmental concerns and to obtain a list of threatened and endangered (T&E) species that may be present and affected by the project. A list of T&E species that may occur in the project area was submitted to you under separate cover. This response from the Service will provide general scoping comments for your consideration in development of the EIS. The Service believes there are numerous issues that must be addressed in the EIS. For brevity and organization, these issues are listed below; their order does not indicate relative importance.



FREDS = ADM-03

add = F. Hykton (egh)

SUNSI Review Complete  
Template = ADM-013

**CO2 Emissions.** The EIS should consider the potential environmental impacts associated with production of raw materials for the new nuclear site, as well as any related improvements in infrastructure necessary to bring those raw materials into the Summer site or to transport hazardous wastes from the site. Please consider the entire supply chain, transportation, use, and disposal in your analysis of these air quality effects.

**Water Intake, Loss and Thermal Changes.** The Summer site proposes to obtain water from the Monticello Reservoir to serve as a heat sink for the reactors during power operations. Intake of water poses a potentially adverse affect upon the aquatic biota. We understand that the volume of water taken for facilities of this type from generally exceed the volume returned. Much of the water used in cooling operations will be lost through evaporation. Therefore, the EIS must analyze impacts to downstream habitats and species as a result of this water loss. We encourage you to develop an instream flow study plan that considers the potential effects of these consumptive losses across the full range of flow scenarios. How will the water abstraction impact the physical habitat of fish and other aquatic community members? We will be glad to review and participate in the development of a study to consider the potential effects on aquatic species, their habitats, and community assemblages.

Water returned to the reservoir is likely to have a substantial temperature variation from the intake water. A sudden change in the thermal environment may be hazardous to aquatic organisms near the outflow. The EIS must address these impacts and provide alternatives to eliminating or reducing aquatic thermal variations.

**Impingement and Entrainment of Aquatic Organisms.** One of several issues associated with a large water intake includes impingement and entrainment of aquatic organisms at the cooling water intake. Previous studies at similar nuclear sites by Duke found impingement of some fishes, mostly threadfin shad, some bluegill, and alewife, most during periods of cold water. Although these impacts may be considered small, we recommend that the licensee establish a regular monitoring program and develop a strategy to reduce impingement and entrainment, and to mitigate these potential impacts. Methods to prevent entrainment of aquatic species such as appropriate screen sizes, low pump velocities or variable operation schedules during power operations to block biotic intake must be detailed in the EIS.

**Protected Species.** The EIS should present a detailed analyses of potential impacts to federally protected species as a result of the construction and operation of the Summer site. Although the main facility may be located in Fairfield County, infrastructure development, mining operations, supply components and transmission utilities are an integral part of the reactor facility and must be reviewed for impacts to threatened and endangered species.

## Heelsplitter

The Service does have records of smooth coneflower (*Echinacea laevigata*) from near the Cherokee County project site. We recommend a field survey to determine the presence or absence of this species and its habitat. The listed T&E species include Federal species of concern that are currently under status review by the Service and may occur in the project impact area. Federal species of concern are not legally protected under the Act and are not subject to any of its provisions, including section 7, unless they are formally proposed or listed as endangered or threatened. We are including these species in our response to give you advance notification and to request that any surveys include these species as well. The presence or absence of these species in the project impact areas should be addressed in the environmental assessment. We encourage you to consider alternatives which minimize impacts to these species and their habitats that may be present in the area of affect of the project.

**Migratory birds and raptors.** Potential impact to migratory bird populations and movement should also be analyzed. We are concerned about impacts of potential bird collisions, or electrocution. We believe that a monitoring program should be developed consistent with the MOA between the Service and NRC for migratory birds. Since bald eagles, osprey, black and turkey vultures, and herons frequent the project vicinity, we recommend any associated transmission lines or distribution lines crossing wetlands, large bodies of water, or open areas should be maintained to maximize visibility of the line to raptors by one of the following design modifications: (1) remove the static line, (2) enlarge the static line to improve visibility to raptors, or (3) mount aviation balls or similar markers on the static line. How will stormwater basins, settling ponds, lagoons, and other storage facilities be designed and managed to minimize impacts to migratory birds, including waterfowl?

**Lighting.** We are concerned about the effects of night security lighting. We are primarily concerned about the potential for overlighting the large site and the potential adverse effects on fish and wildlife resources in the area, including migratory birds and bats. A dark nighttime sky is essential. Contributions of light from the earth (both direct emissions and reflected light) brighten the night sky background. This brightening also greatly diminishes the view of the sky for migrating birds, moths, bats, and the general public. The type of light source chosen for outdoor lighting is important because some types may result in more adverse effects than others. We prefer down-shielded, low-pressure sodium (LPS); its nearly monochromatic yellow light can be easily filtered out. Other advantages of LPS are that the wavelength emitted is most near the point where the human eye is most sensitive and efficient, and it is also the most energy-efficient light source available. All outdoor fixtures should be fully shielded and installed in such a way that no light is emitted above a horizontal plane running through the lowest part of the fixture. Thus, glare, light trespass, and light pollution will be minimized, and energy savings will be maximized. The design of the fixtures should include time controls or occupancy sensors to turn lamps off when not needed (LPS has the ability to restrike immediately after a momentary power failure, while high-pressure

sodium and metal halide lamps must cool before restriking). We recommend safe, energy-efficient lighting that minimizes impacts to fish and wildlife resources

**Infrastructure.** All activities associated with the construction and necessary operations of the Summer site should be considered a part of the project and considered in the EIS. Construction of transmission lines, roads and support structures may contribute to resource impacts that extend well beyond the foot print of the Summer site. Stormwater detention and retention capacities should be designed and constructed to adequately prevent contamination of adjacent land and water resources.

**Secondary and Cumulative Impacts.** Additional reactors at the Summer site may foster or accelerate increased development of the surrounding areas. The EIS should model potential changes including, but not limited to, demographics, population growth, traffic needs, and spread of invasive and exotic species. Particular attention should be given to the effected lacustrine and natural wetland and floodplain systems. We are concerned that the water intake from the Monticello Reservoir will disrupt the ecological balance within the system. How will the water intake affect the drinking water supplies and assimilative capacity of the reservoir?

**Invasive Exotic Species.** We are also concerned with the introduction and spread of invasive exotic species in association with the proposed project. Without active management, including the revegetation of disturbed areas with native species, project corridors will likely only be sources of (and corridors for) the movement of invasive exotic plant species. Exotic species are a major contributor to native species depletion and extinction, second only to habitat loss. Exotics are a factor contributing to the endangered or threatened status of more than 40 percent of the animals and plants on the *Federal List of Endangered and Threatened Wildlife and Plants* (Wilcove, et. al., 1998). It is estimated that at least 4,000 exotic plant species and 2,300 exotic animal species are now established in the United States, costing more than \$130 billion a year to control (Pimentel, et. al., 2000). Additionally, the U.S. Government has many programs and laws in place to combat invasive species (see [www.invasivespecies.gov](http://www.invasivespecies.gov)) and thus cannot spend money to counter these efforts. Specifically, Section 2(a)(3) of Executive Order 13112 - Invasive Species (February 3, 1999) directs federal agencies to "not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere." Despite their short-term erosion-control benefits, many exotic species used in soil stabilization seed mixes are persistent once they are established, thereby preventing the reestablishment of native vegetation. Many of these exotics plants are also aggressive invaders of nearby natural areas, where they are capable of displacing already established native species. Therefore, we strongly recommend that only native plant species be used in association with all aspects of this project, including secondary impacts (i.e., connecting sewer lines).

**Waste disposal.** Disposal of hazardous waste material from the Lee site must be carefully reviewed. Potential hazards during waste removal and transport to an appropriate facility must be documented in the EIS.

The Service appreciates the opportunity to provide early comments for your consideration on this project. If we can be of any assistance or if you have any questions regarding the Service's comments, please do not hesitate to contact Mark Caldwell at 843-727-4707 (ext. 215).

Sincerely,



Timothy N. Hall  
Field Supervisor

TNH/MAC/km

### Literature Cited

<sup>1</sup> Wilcove, D. S., D. Rothstein, J. Dubow, A. Phillips, and E. Losos. 1998. Quantifying threats to imperiled species in the United States. *BioScience* 48:607-615.

<sup>2</sup> Pimentel, D., L. Lach, R. Zuniga, and D. Morrison. 2000. Environmental and economic costs of nonindigenous species in the United States. *BioScience* 50:53-65.