SummerCEm Resource

From: Bob Perry [PerryB@dnr.sc.gov]
Sent: Tuesday, July 06, 2010 5:12 PM
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Subject: Comments: VC Summer Nuclear Station DEIS
Attachments: image002.jpg; VC Summer 2 & 3 DEIS.06July10.pdf

Attached please note comments from South Carolina Department of Natural Resources speaking to review of the Draft Environmental Impact Statement for VC Summer Nuclear Station Units 2 & 3. Please contact Vivianne Vejdani vejdaniv@dnr.sc.gov or 803.734.4199 if your office has any questions regarding this transmission and submittal. A hard copy has been mailed the attention of your office.

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DNR protects and manages the natural resources of South Carolina by making wise and balanced decisions for the benefit the people of the Palmetto State and the quality of our lives both now and in the future.

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Federal Register Notice: 74FR323
Comment Number: 29

Mail Envelope Properties (0E3714A8DB10454894B2A69D050B39621174B12C8F)

Subject: Comments: VC Summer Nuclear Station DEIS
Sent Date: 7/6/2010 5:11:47 PM
Received Date: 7/6/2010 5:14:33 PM
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Files	**Size**	**Date & Time**
MESSAGE	936	7/6/2010 5:14:33 PM
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VC Summer 2 & 3 DEIS.06July10.pdf	195445	

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July 6, 2010

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Mailstop TWB-05-B01M,
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

REFERENCE: COMMENTS – Draft Environmental Impact Statement for Virgil C. Summer Nuclear Station Units 2 and 3. Federal Register Notice April 23, 2010, page 21368-21369

Personnel of The South Carolina Department of Natural Resources (DNR) have reviewed the Draft Environmental Impact Statement (DEIS) for the proposed V. C. Summer Nuclear Station (VCSNS), Units 2 and 3, and DNR offers the following comments.

DNR Mission and Objectives

DNR is the state agency charged by law (Titles 48 and 50, South Carolina Code of Laws (1976), as amended) with the management, protection, and enhancement of wildlife and fisheries resources in South Carolina. DNR is charged with regulating watercraft operation and associated recreation, including establishing boating safety standards. Title 49, South Carolina Code of Laws, authorizes DNR as the state agency responsible for considering water supply (domestic, municipal, agricultural and industrial) issues, water quality facilities and controls, navigation facilities, hydroelectric power generation, outdoor recreation and fish and wildlife opportunities, as well as other water and land resource interests. This title also charges DNR with aquatic plant management, comprehensive drought response planning, management of State Scenic Rivers and coordination, and the conservation, protection and use of floodplain lands.

DNR thus is the steward of the state's natural resources and is responsible for the protection and management of these resources for the use and enjoyment by the public. Natural resources within DNR purview include the full range of land, water, mineral and biological resources. Public and private uses of natural resources are varied, sometimes conflicting and can result in significant impacts on the resources being used. DNR, in carrying out its protection and management responsibilities, must balance its objectives and actions in order to most appropriately protect and sustain the natural resources of South Carolina.

DNR submits these comments, opinions and recommendations as the position of the agency in accordance with the provisions of the Fish and Wildlife Coordination Act, as amended (16 U.S.C. §§ 661-667; the Federal Power Act (16 U.S.C. § 791 et seq.); the National Environmental Policy Act (42 U.S.C. § 4321 et seq.); and the Administrative Procedure Act (5 U.S.C. Chapters 5 through 8)

DNR's objective in reference to the proposed action is to protect the natural resources of the Broad River and its basin and associated waters to ensure continued biological diversity, public recreation, navigation and water supply uses.

The Broad River is a resource of state and regional significance and is important habitat for the priority conservation species robust redhorse (*Moxostoma robustum*) and American shad (*Alosa sapidissima*), a diversity of freshwater fish and mussel species, and economically important recreational fisheries. Populations of the rare and sensitive plant species rocky shoals spider lily (*Hymenocallis coronaria*) occur along its shoals and banks. The Broad River also is an important water supply resource for municipalities, hydropower and various industries. The Broad River, including Parr Reservoir, provides recreational boating, fishing, hunting and appreciative uses to large numbers of the public in the midlands of South Carolina and beyond.

Project Description

The VCSNS site is co-owned by South Carolina Electric and Gas (SCE&G) and Santee Cooper and is located in Fairfield County, South Carolina on the Broad River. The VCSNS site currently has one operating pressurized light water reactor with the capacity to generate 966 megawatts of electricity. SCE&G proposes to construct 2 new nuclear units adjacent to the existing site. SCE&G also has identified the need for transmission line corridor expansion. The DEIS identifies transmission of electricity generated at VCSNS as an essential element of the proposed project. Proposed transmission lines would be sited in Calhoun, Chester, Colleton, Dorchester, Hampton, Lancaster, Lexington, Orangeburg, and Richland counties, in addition to Fairfield County.

Information in support of licensing has been reviewed by the Review Team, which is comprised of staff of the Nuclear Regulatory Commission (NRC) and the United States Army Corps of Engineers (ACOE), as well as the NRC contractor, Pacific Northwest National Laboratory. Through this analysis, NRC considers and weighs the environmental impacts of the proposed action at the VCSNS site, including environmental impacts associated with constructing and operating reactors at the site, impacts of constructing and operating reactors at alternative sites, environmental impacts of alternatives to granting the Combined Operating License (COL), and mitigation measures available for reducing or avoiding adverse environmental effects. The DEIS also provides the NRC preliminary recommendation to the Commission regarding the issuance of a COL for the proposed VCSNS Units 2 and 3. The following comments are submitted by DNR in response to this assessment and address relevant sections within the DEIS in the order in which they appear in the document.

2.0 Affected Environment

2.4.1.3 Important Terrestrial Species and Habitats

Important Species – Transmission Lines

The DEIS states that SCE&G and Santee Cooper conducted reconnaissance-level studies for each proposed transmission-line corridor and determined there were 3 recorded occurrences of protected species within 100 to 500 ft of the proposed VCSNS-St. George transmission-line corridor. These protected species were not specified. Field surveys have not yet been conducted but are proposed once siting for transmission lines has been finalized. Pending results of these surveys, DNR requests consultation during Phase III of the finalization process to determine appropriate mitigation actions for any affected conservation priority and/or protected species.

Important Habitats – Transmission Lines

The expansion of existing transmission line right-of-ways (ROWs) and the construction of new transmission lines will convert a variety of wetland habitat types (seep, shrub bog, forested palustrine and others) to mowed and maintained ROW and will impact intermittent and perennial streams. The DEIS indicates that wetland delineations have not been conducted for the proposed transmission line routes. Pending selection of final routes, DNR requests that all potentially affected wetlands and streams within the finalized corridors be fully delineated and that affected habitat types be inventoried and any impacts appropriately mitigated in consultation with resource agencies.

2.4.1.4 Terrestrial Ecology Monitoring

The Review Team concluded that adequate information was available to assess ecological impacts of the construction of Units 2 and 3 at the VCSNS site, but more information about the proposed transmission system would be required to provide adequate data to characterize and track terrestrial ecological impacts associated with specific transmission-line corridor routes. DNR concurs with this assessment and has requested consultation during ROW site finalization and transmission line construction.

2.4.2.1. Aquatic Resources – Site and Vicinity

Broad River

The Review Team determined that there are no habitats present in the project vicinity that can be defined as critical habitat. However, through successful stocking efforts, the Broad River now supports populations of robust redhorse, a fish species that, until its rediscovery in 1991 was understood to have become extinct in the 1800s. Robust redhorse was not designated as a federal threatened or endangered species in order that maximum flexibility could be afforded to federal, state, academic and non-governmental conservation efforts. The Endangered Species Act (ESA) encourages creative partnerships between the public and private sectors and governmental agencies to conserve imperiled species and their habitats. Consequently, the Robust Redhorse Conservation Committee (RRCC) was established in 1995 under a Memorandum of Understanding between state and federal resource agencies, private industry, and the conservation community in lieu of listing under the ESA. DNR, as well as SCE&G, is a partner in the RRCC. Since the 1991 discovery, populations of robust redhorse have become successfully reestablished in the Broad and Wateree rivers in South Carolina. Communications from SCE&G indicate support for robust redhorse reintroduction. Therefore, although the robust redhorse was not federally listed, the Broad River is, in essence, critical habitat in that the Broad River is essential for ongoing and successful restoration and conservation of this special fish species.

Parr Shoals Dam and the Lower Broad River (the portion of the Broad River below Parr Shoals Dam) also feature prominently in the Santee River Basin Accord (Accord). The Accord is a collaborative restoration effort among utilities (including SCE&G) and federal and state resource agencies to address diadromous fish protection, restoration and enhancement in the Santee River Basin including the Broad River both above and below the Parr Shoals Dam. In addition to its importance as habitat for newly established robust redhorse populations, gravel beds below Parr Shoals Dam represent a unique habitat in this area of the Broad River and are potentially important spawning habitat for a variety of fish species, including sucker species and American shad.

Parr Reservoir

A total of 6 priority conservation status fish species have been identified in Parr Reservoir. Parr Reservoir is listed on the 2007 303(d) list as impaired for aquatic life due to phosphorous and copper excursions. It is unknown what effect the operation of Units 2 and 3 will have on water quality in Parr Reservoir and downstream of Parr Shoals Dam. DNR requests consultation in the development of an acceptable water quality monitoring plan to assure that operation of the proposed units does not degrade water quality in Parr Reservoir and the Lower Broad River.

The DEIS references a study of the macroinvertebrate community near the proposed location of the heated water discharge structures. The study concluded that there were:

> *few differences in the benthic community and water quality conditions between the reference station and the proposed discharge location.*

DNR notes that this is the pre-operational condition. It is unknown what impacts the addition of Units 2 and 3 may have on aquatic resources and water quality. An adaptive management plan that includes water quality and aquatic life monitoring should be developed in consultation with federal and state resource agencies to address any potential adverse impacts that may accrue from the proposed expansion.

An assessment of aquatic vegetation in Parr Reservoir indicates the presence of 2 invasive plant species, alligatorweed (*Alternanthera philoxeroides*) and water primrose (*Ludwigia* spp.). The adaptive management plan should also include aquatic vegetation monitoring and a plan for managing invasive species developed in consultation/coordination with DNR.

2.4.2.2 Aquatic Resources – Transmission Lines

Aquatic resources within the footprint of the final transmission line corridors should be fully characterized through stream and wetland delineations. Field surveys should be conducted to locate any sensitive, rare and threatened species. Wetland habitat types should be fully characterized through field surveys. DNR requests consultation on proper mitigation regarding potential impacts to sensitive, rare and/or threatened species.

2.4.2.3 Important Aquatic Species

See above comments in 2.4.2.2

4.3.2 Aquatic Impacts

Site preparation activities for building the cooling towers will result in the filling of more than 700 linear feet of Mayo Creek, which according to the DEIS supports populations of state conservation priority fish species. This activity will require a permit pursuant to § 404 of the Clean Water Act (CWA) and a state water quality certification pursuant to § 401 of the CWA. Mitigation for unavoidable impacts will be required as specified in the Federal Mitigation Rule. The joint public notice for this activity was published by the US Army Corps of Engineers, Charleston District on April 28, 2010 and DNR will provide comment on the proposed activity to ensure that impacts are avoided and/or minimized to the greatest extent practicable and appropriate mitigation for unavoidable impacts is provided. DNR notes the current public notice for on-site wetland impacts does not include transmission corridor wetland impacts, and DNR will object to this omission.

4.0 Construction Impacts at the VC Summer Site

4.3.1.2 Terrestrial Resources – Transmission Lines

Potential impacts from the conversion of wetlands to maintained ROW for the proposed transmission lines are significant (220 acres according to the DEIS) and permanent. A wide variety of important wetland habitat types may be impacted. DNR requests full consultation during finalization of the transmission line corridors to address avoidance, minimization and mitigation measures for these and other important terrestrial habitats.

5.0 Operational Impacts at the VC Summer Site

5.2.2.1 Impacts on Surface-Water Use

The DEIS indicates that consumptive water loss associated with the operation of Units 2 and 3 would be between 62 cfs (normal operation) and 69 cfs (maximum use). Article 14 of the current license issued by the Federal Energy Regulatory Commission (FERC) for Parr Hydroelectric Project requires:

> a *minimum daily average flow of 800 cfs, or the daily natural inflow to the Parr Reservoir (less evaporative losses from the Parr and Monticello Reservoirs), whichever is less.*

However, it is not clear whether evaporative loss through cooling towers, which would now include Units 2 and 3 if licensed, is included in the total evaporative loss subtracted from the daily natural inflow when inflow is less than 800 cfs. DNR requests clarification on how the total evaporative loss to be subtracted from minimum flows will be derived. The current FERC license for the Parr Hydroelectric Project expires on June 30, 2020. It is anticipated that the relicensing process will be initiated by SCE&G in approximately 5 years. During relicensing, issues regarding potential impacts to natural resources will be examined. Chief among these are issues of water supply and the adequacy of current minimum flows to support aquatic resources in Parr Reservoir, and the Lower Broad River. It should be noted that changes in required minimum flows in the new FERC license for Parr Hydro may have bearing on water availability for Units 2 and 3.

The Review Team compared the long-term annual (6300 cfs) and lowest annual mean (2150 cfs) flows for the Alston gauging station to the surface water consumptive loss associated with Units 2 and 3 and concluded that this would represent a loss of approximately 1 % of the long-term

annual mean of Broad River flows. For the lowest annual mean flow consumptive water loss would be approximately 3 %. Mean calculations, while helpful for estimating water balance over some specified temporal period, does not capture instantaneous impact to aquatic organisms. Also, flows in the Broad River have historically been as low as approximately 220 cfs. If anticipated consumptive loss from Units 2 and 3 is subtracted from average daily flow during periods of flow as low as 220 cfs, the percent loss of Broad River flow increases from 28 % (of 62 cfs normal operation) to 31 % (69 cfs maximum operation). Monticello Reservoir is proposed as a source of cooling water during periods of low inflow, but it should be noted that during extended periods of low inflow it will take progressively longer to refill Monticello Reservoir consequently resulting in longer periods that water is diverted from Parr Reservoir and the Broad River. The assimilative capacity of Parr Reservoir to mix the thermal discharge is also reduced during these periods.

5.2.3.1 Impacts on Surface-Water Quality
Blowdown from the proposed units will consist of contaminants and toxic materials, including biocides, anti-scaling agents, corrosion inhibitors and algaecides, among others. These contaminants will be further concentrated as water is recycled through the cooling towers. It is not known what impact these contaminants will have on aquatic life in the vicinity of the discharge and how far potential adverse impacts may be carried downstream of the discharge, particularly during periods of low inflow less than the 7Q10. DNR is concerned over the impact of these contaminants to aquatic organisms both in the immediate area of the discharge and downstream. DNR will request consultation with the licensees and the South Carolina Department of Health and Environmental Control in the development of an acceptable water quality monitoring program to assure that water quality in the vicinity of the discharge is not degraded.

DNR also is concerned over adverse impacts to aquatic life associated with the thermal plume into Parr Reservoir. The thermal plume was modeled using the 7Q10 flow to represent *extreme drought*. Historically, inflow to Parr Reservoir has been as low as 220 cfs. Thermal impacts may be exacerbated during periods of very low or no riverine inflow or when the Fairfield Pumped Storage Facility pumps water from Parr Reservoir to Monticello Reservoir, creating an area of low inflow in the vicinity of the forebay for some indeterminate period. DNR recommends that thermal impacts be assessed using historic lowest riverine inflow as well as low forebay inflow.

Staff recently attended a meeting with representatives of SCE&G to discuss thermal impacts from the proposed discharge into Parr Reservoir and the alternative of discharging heated water instead into Monticello Reservoir. Discharging heated water into Parr Reservoir, and hence into the Broad River may compromise restoration efforts for anadromous and diadromous fishes and the rare robust redhorse and therefore does not appear to be the least damaging alternative. Monticello Reservoir was constructed with the purpose of serving as cooling water source for Unit 1, and DNR questions why this alternative is not the preferred alternative. DNR requested and received from SCE&G additional information on the thermal plume in Monticello Reservoir associated with the operation of Unit 1 and recommends further communication with SCE&G regarding the feasibility of this alternative. SCE&G currently is developing a revised updated CORMIX model of the thermal plume in Parr Reservoir using the most recent version of

CORMIX. SCE&G has committed to consult with DNR during this process and in the development of an acceptable water quality monitoring program, whatever alternative is chosen, to assure that water quality is not degraded.

5.3.1 Terrestrial and Wetland Impacts Related to Operation
Avian Mortality Impacts from Power Transmission Lines
There is risk of avian collision mortality due to structures associated with transmission lines. Certain better management practices (BMPs) can reduce this risk. DNR requests consultation on BMPs to reduce the risk of avian mortality from transmission lines.

5.3.1.3 Important Terrestrial Species and Habitats
DNR recommends consultation with the US Fish and Wildlife Service regarding appropriate mitigation for the bald eagle (*Haliaeetus leucocephalus),* protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

5.3.2 Aquatic Impacts Related to Operation
Aquatic Thermal Impacts
See Comments *in 5.2.3.1 Impacts on Surface-Water Quality.*

Chemical Impacts
See Comments in *5.2.3.1 Impacts on Surface-Water Quality.*

5.3.2.3. Important Aquatic Species and Habitats
See comments in *2.4.1.3 Important Terrestrial Species and Habitats and 2.4.2.2 Aquatic Resources – Transmission Lines.*

5.3.2.4 Aquatic Monitoring During Operation
SCE&G has committed to working with DNR on a water quality monitoring program to assure that water quality is not degraded as a result of operation of Units 2 and 3.

7.0 Cumulative Impacts
7.3.2 Aquatic Ecosystem Impacts
This section includes the Review Team's assessment of cumulative impacts associated with the operation of Units 2 and 3, when combined with the effects of past, present and reasonably foreseeable future actions. The geographic area of interest considered by the Review Team includes the drainage basin from Neal Shoals Dam to the Parr Shoals Dam. However, cumulative impacts could also potentially extend further downstream of Parr Shoals Dam if water quality and/or supply to the shoal habitat immediately downstream of the dam is affected. Cumulative adverse impacts have the potential to compromise robust redhorse and diadromous and anadromous fish restoration efforts as spawning, growth and reproductive success may be affected (see comments for *2.4.2.1. Aquatic Resources – Site and Vicinity.*

The Review Team examined the cumulative impact potential of the thermal plume associated with discharging into Parr Reservoir and concluded that the discharge is:

> *not likely to noticeably affect the biota, water quality or consumptive use of the Parr Hydroelectric Plant.*

DNR remains concerned regarding the potential impact of the thermal plume into Parr Reservoir and encourages dialog with SCE&G in the evaluation of Monticello Reservoir as an alternative cooling pond to Parr Reservoir and in the evaluation of the thermal plume from the proposed alternative to discharge into Parr Reservoir (see comments for *5.2.3.1 Impacts on Surface-Water Quality.)*

7.3.2.1 Summary of Aquatic Ecology Impacts
The Review Team concludes that:

> *cumulative impacts from thermal or chemical discharges are also expected to have minimal impacts on aquatic species because dischargers are operating within allowable levels that prevent water-quality degradation.*

It should be noted, however, that the state water quality standards allow for a *mixing zone* or area where waters in the discharge zone may exceed water quality standards. This mixing zone can represent a localized impact to target fish species such as state conservation priority species, recreational fisheries and the robust redhorse. DNR is concerned over thermal and chemical impacts to these target species and other aquatic biota in Parr Reservoir (see comments for *5.2.3.1 Impacts on Surface-Water Quality.)*

DNR appreciates the opportunity to comment on the DEIS. If your office will have any questions regarding the above comments and recommendations, please feel free to contact Vivianne Vejdani at vejdaniv@dnr.sc.gov or at (803) 734-4199.

Sincerely,

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