UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
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RULES AND DIRECTIVES BRANCH

Chief, Rulemaking and Directives Branch
Office of Administration
Mail Stop: TWB-05-B01M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

RE: EPA Review and Comments
Draft Environmental Impact Statement (DEIS) for the
William States Lee III Nuclear Station Units 1 and 2
Combined Licenses (COLs) Application, Constructing and Operating Two New Nuclear Units at the Lee Nuclear Station Site, NUREG-2111
CEQ No. 20110423

Dear Sir:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the William States Lee III Nuclear Station Units 1 and 2 Combined Licenses (COLs) Application, Constructing and Operating Two New Nuclear Units at the Lee Nuclear Station Site, pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA), and Section 309 of the Clean Air Act. The purpose of this letter is to inform you of the results of our review, and our detailed comments are enclosed.

Duke Energy Carolinas, LLC (Duke) applied for combined construction permits and operating licenses (combined licenses or COLs) for William States Lee III Nuclear Station Units 1 and 2 in Cherokee County, South Carolina. USACE, a cooperating agency, participated with the NRC in preparation of the DEIS. The USACE and NRC will issue separate decision documents: the USACE will issue a Record of Decision (ROD) and the NRC will issue a license, if the Commission accepts the NRC staff's recommendations.

The proposed actions are: NRC issuance of COLs for two new nuclear power reactor units (Units 1 and 2) at the site in Cherokee County, SC, and a U.S. Army Corps of Engineers (USACE) permit action on a Department of the Army individual permit application to perform certain construction activities on the site.

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add - J. Lopas (SU2)

Radioactive waste storage and disposal are ongoing concerns with existing and proposed nuclear power stations. The NRC approved final revisions to the Waste Confidence findings and regulation (10 CFR Part 51.23) in September 2010. The revision expresses the NRC's *"confidence that the nation's spent nuclear fuel can be safely stored for at least 60 years beyond the licensed life of any reactor and that sufficient repository capacity will be available when necessary."* This refers to storage in a spent fuel basin or at either onsite or offsite independent spent fuel storage installations (ISFIs), and eventual disposition in a repository. We are aware of the NRC's current proposal to extend onsite waste storage at nuclear power stations further into the future, assuming that no geologic repository becomes available for permanent disposition of this waste.

Since appropriate storage of spent fuel assemblies and other radioactive wastes are necessary to prevent environmental impacts, the Final EIS (FEIS) should provide a thorough consideration of impacts resulting from such storage. Given the uncertainty regarding ultimate disposal at a repository, on-site storage may continue for many years.

Based on our review of the DEIS, EPA rated the document as "Environmental concerns, Insufficient information" (EC-2), meaning that the EPA review identified environmental concerns, and that further information should be provided in the FEIS. In particular, EPA has concerns regarding potential impacts to wetlands and streams regarded as Aquatic Resources of National Importance (ARNI), (see enclosed letter to USACE).

Also, EPA recommends that the FEIS include updated information about plans for radioactive waste storage and disposal, clarification of the GHG evaluation data, and a discussion of opportunities to reduce GHG and other air emissions during construction and operation of the facility. Specifically, energy efficiency and renewable energy should be a consideration in the construction and operation of facility buildings, equipment, and vehicles. In addition, updated information regarding water management plans, air quality and historic preservation should be included in the FEIS. EPA's detailed comments and a summary of EPA's rating definitions is enclosed.

We appreciate the inclusion of mitigation strategies for environmental impact categories and socioeconomic, EJ, and cultural resource impacts in the DEIS (Table 4-6). Table 4-6 lists specific measures and controls to avoid and minimize construction impacts, and we also note that there is also a specific requirement for a compensatory mitigation plan that complies with Section 404(b)(1) Guidelines. EPA reviewed the Joint Public Notice (JPN) and submitted comments regarding the compensatory mitigation and permit action under separate cover on March 6, 2012 (see enclosed letter to USACE). We recommend that clear commitments be provided regarding mitigation measures and public outreach methods mentioned for all media issues in the DEIS and Environmental Report (ER) in the decision documents.

Thank you for the opportunity to comment on this DEIS. We appreciate your continued coordination as this project progresses. We look forward to reviewing the Final EIS (FEIS) and a continued good working relationship with your agency. We would be happy to discuss these

comments with you further. If you have questions, please contact Ramona McConney, EPA Region 4 at (404) 562-9615.

Sincerely,

Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management

Enclosures: EPA Review and Comments
Summary of Rating Definitions and Follow Up Action
EPA Water Protection Division letter - March 6, 2012

Cc: Sarah Lopas, U.S. Nuclear Regulatory Commission
Richard Darden, U.S. Army Corps of Engineers

EPA Review and Comments Regarding
Draft Supplemental Environmental Impact Statement (DEIS) for the
William States Lee III Nuclear Station
Units 1 and 2 Combined Licenses (COLs) Application,
Constructing and Operating Two New Nuclear Units at the
Lee Nuclear Station Site, NUREG-2111

General

This DEIS provides information regarding preconstruction activities and environmental data, and focuses on the proposed issuance of the COLs for the two new reactor units and construction of the ancillary facilities. While EPA's comments include discussion of areas where additional information is needed, the DEIS generally makes a methodical effort to identify the many complex issues and environmental impacts associated with this project.

Alternatives

Alternatives in the DEIS include the no-action alternative, energy source alternatives and system design alternatives. Regarding design alternatives, we note that the NRC recently approved the Westinghouse AP1000 pressurized reactor design in a design certification process.
40 CFR Part 230.10(a) requires that the preferred alternative should be the least environmentally damaging practicable alternative (LEDPA).

EPA reviewed the Joint Public Notice (JPN) and submitted comments regarding the compensatory mitigation and permit action under separate cover on March 6, 2012 (see enclosed letter to USACE). EPA's letter states: *"The applicant has explored many alternative sites and alternatives for cooling water sources. However, the EPA recommends further analysis of possible avoidance and minimization, as well as a more comprehensive alternatives analysis. The applicant states in the Draft Environmental Impact Statement dated December, 2011 (DEIS) that using a Combination Wet/Dry Hybrid Cooling-Tower System would reduce the water required from Pond C from 9,874 acre-feet to 2,804 acre-feet, a 72 percent reduction. While the applicant states this would not fully eliminate the need for Pond C, it could greatly reduce the needed size of the impoundment allowing a smaller footprint at the current location or allowing the impoundment to be relocated. Further, water sources such as offline impoundments that would eliminate impacts to Water of the United States should be explored, and we recommend that these and other alternatives be integrated into the Final Environmental Impact Statement (FEIS)."*

Recommendations: We appreciate the analysis of many alternative sites and alternatives for cooling water sources. However, EPA recommends further analysis, in order to avoid and minimize environmental impacts related to water sources for the proposed project. The FEIS should document the evaluation and decision processes, and discuss the rationale for exclusion of alternatives that are eliminated from consideration.

Radioactive wastes

Appropriate on-site storage of spent fuel assemblies and other radioactive waste is necessary to prevent environmental impacts. Plans include storage in a reactor's spent fuel basin, or at either onsite or offsite independent spent fuel storage installations (ISFSIs). Given the uncertainty regarding ultimate disposal at a repository, on-site storage may continue for a long term, potentially hundreds of years, in relation to the Long-Term Waste Confidence Update currently under consideration by the NRC.

Yucca Mountain was formerly considered a possible final repository for spent nuclear fuel, but this plan was withdrawn by the U.S. Department of Energy by the motion of March 3, 2010. The abandonment of the plan to create a Yucca Mountain permanent geologic repository has been countered by NRC's Atomic Safety and Licensing Board. If another repository in the contiguous United States (other than Yucca Mountain) is ever selected, the environmental impact estimates from the transportation of spent reactor fuel to the repository should be calculated as required under 42 USC 4321 Fuel Cycle, Transportation, and Decommissioning.

In the Waste Confidence Rule (10 CFR 51.23), the Commission generically determined that the spent fuel generated by any reactor can be safely stored on-site for at least 30 years beyond the licensed operating life of the reactor. In a September 15, 2010 Decision and Rule, the NRC formally approved a final revision to its "Waste Confidence" findings and regulations. The revision expresses the NRC's *"confidence that the nation's spent nuclear fuel can be safely stored for at least 60 years beyond the licensed life of any reactor and that sufficient repository capacity will be available when necessary."* The NRC made five findings:

1. Safe disposal in mined geologic repository is technically feasible.
2. At least one mined geologic repository will be available when necessary.
3. HLW (high level waste) and SNF (spent nuclear fuel) will be safely managed until a repository is available.
4. SNF can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life.
5. Onsite or offsite storage for SNF will be made available if needed.

Recommendations: The FEIS should clarify the impact of this revision on the proposed project, as this new determination finds that spent nuclear fuel can be stored safely and securely without significant environmental impacts for at least 60 years after operation at any nuclear power station. EPA recommends that the FEIS cite any new analyses for longer-term storage regarding scientific knowledge relating to spent fuel storage and disposal. The FEIS should also mention any developments with the Presidential Blue Ribbon Commission on alternatives for dealing with high-level radioactive waste, if updates occur before FEIS publication.

EPA recommends discussion of the construction of the ISFSIs in the FEIS. The FEIS should include a more detailed description of the radioactive waste storage facility.

Section 5.9.6 discusses Radiological Monitoring. Duke should add information to this section that clarifies when increased monitoring and notifications to the state of South Carolina and NRC

will be needed if radionuclides resulting from plant operations are detected on plant property. (For example, if tritium levels in groundwater over a 3-year period trend from 10% of the 20,000 pCi/l standard to 40% of standard, the appropriate regulatory organizations will be notified. In addition, sampling frequency will be increased and an evaluation will be made to determine if additional monitoring wells are needed.)

Section 5.11.2.4 discusses Externally Initiated Events, and should address the largest anticipated earthquake at the site, based on current data and state of the art technology. The Charleston earthquake of the 1800s should be referenced, and how this would have impacted the proposed site of the reactors. The peak acceleration rate at the site based on the Charleston earthquake should be addressed.

Tritium

EPA is concerned about potential tritium leakage. The NRC staff expects that the impacts from such potential leakage for proposed Lee Nuclear Station Units 1 and 2 would be minimal (page 5-71). Further information regarding the operational surface water and groundwater monitoring program should be included in the FEIS.

Recommendations: The FEIS should include a map of the groundwater monitoring wells. While we expect tritium levels in surface water discharge areas to be significantly diluted, we would also appreciate a map of surface water monitoring points.

Transmission lines

The project calls for four new transmission lines (two 230-kV and two 525-kV lines) to be constructed to accommodate the new power generating capacity (page 5-63). We note that the NRC considers transmission lines to be "preconstruction" activities, and that preconstruction activities are considered in the context of cumulative impacts. EPA is concerned about the impacts of transmission lines and supporting infrastructure for the project and, in accordance with NEPA, considers these activities as part of the project, and not a separate action.

Recommendations: The FEIS should clarify whether there are plans to issue a Limited Work Authorization (LWA) for these lines pursuant to the NRC's LWA process.

Wetlands

The site preparation and development of the proposed Lee Nuclear Station and associated facilities would potentially impact wetlands and streams regarded as Aquatic Resources of National Importance (ARNI). Page 7-24 notes that approximately 5.5 acres of wetlands are involved. The wetlands impacts include 0.21 acres at Lee Nuclear Station site; 3.66 acres at Make-up Pond C; and 1.57 acres of wetland impacts resulting from transmission lines, pipelines and the railroad spur. A majority of the impacts to Waters of the United States associated with

the project are due to "Drought Contingency Pond C" (Pond C). This pond proposes to permanently impact 65, 056 linear feet of stream and 4.07 acres of wetlands.

EPA reviewed the Joint Public Notice (JPN) and submitted comments regarding the compensatory mitigation and permit action under separate cover to Lt. Colonel Edward P. Chamberlayne, USACE on March 6, 2012 (enclosed). This letter states that *"The EPA has significant concerns that the effect of conversion of this stream into an impoundment could result in the elimination of existing uses of the streams in and downstream of the area of the proposed project, including the segments of the streams that could become the tailrace waters of the reservoirs during and after impoundment. The conversion may also require a change in the designated uses that are currently assigned to these streams in South Carolina water quality standards. Prior to the conversion, it must be demonstrated that such a conversion complies with all aspects and requirements of South Carolina's antidegradation policy, as well as any other applicable provision of South Carolina's water quality standards regulation."*

"The applicant has explored many alternative sites and alternatives for cooling water sources. However, the EPA recommends further analysis of possible avoidance and minimization, as well as a more comprehensive alternatives analysis. The applicant states in the Draft Environmental Impact Statement dated December, 2011 (DEIS) that using a Combination Wet/Dry Hybrid Cooling-Tower System would reduce the water required from Pond C from 9,874 acre-feet to 2,804 acre-feet, a 72 percent reduction. While the applicant states this would not fully eliminate the need for Pond C, it could greatly reduce the needed size of the impoundment allowing a smaller footprint at the current location or allowing the impoundment to be relocated. Further, water sources such as offline impoundments that would eliminate impacts to Water of the United States should be explored, and we recommend that these and other alternatives be integrated into the Final Environmental Impact Statement (FEIS)..."

Recommendations: EPA recommends that the FEIS contain updated information including the wetland mitigation plan and the status of the permitting process. Water sources that would reduce impacts to Water of the United States should be explored, and these and other alternatives evaluated in the FEIS. The FEIS should explain the rationale for exclusion of alternatives that are eliminated from consideration.

Measures to minimize impacts should be documented and committed to in the decision documents. We recommend that the following measures be considered to further minimize impacts to wetlands during construction:

- Perform construction in wetlands during frozen ground conditions, if feasible;
- Minimize width of temporary access roads;
- Use easily-removed materials for construction of temporary access roads (e.g., swamp/timber mats) in lieu of materials that sink (e.g., stone, rip-rap, wood chips);
- Use swamp/timber mats or other alternative matting to distribute the weight of the construction equipment. This will minimize soil rutting and compaction;
- Use vehicles and construction equipment with wider-tired or rubberized tracks or use of low ground pressure equipment to further minimize impacts during construction access and staging;

- Use long-reach excavators, where appropriate, to avoid driving, traversing, or staging in wetlands; and
- Place mats under construction equipment to contain any spills.

NPDES Permitting

Duke would obtain a Clean Water Act National Pollution Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Large and Small Construction Activities to minimize potential impacts to surface water and groundwater during construction and operation. SCDHEC would administer and enforce the NPDES general permit. Dewatering of the excavation site would be necessary during the site preparation for Units 1 and 2, and the resulting water would be discharged to the Broad River in accordance with the NPDES general permit (page 4-110).

The DEIS states that water will be withdrawn from the Broad River for cooling and other operational purposes for the proposed nuclear station, and would be discharged to the Ninety-Nine Island Reservoir. These discharges would contain both chemicals and biocides. In addition, stormwater from the site would be a potential nonradioactive liquid effluent that would be regulated by the NPDES permit (page 5-83).

Recommendations: In Section 3.4.2.1, Water Withdrawals and Transfers (page 3-35, line 14), please add the following language:

> "Note that the operational conditions in Duke's water management plan are less stringent than requirements cited at 40 CFR Section 125.84(a) through (e) in EPA's Cooling Water Intake Structure rule for New Facilities. EPA's approval of an NPDES permit containing any conditions less stringent than those allowed in the rule at Section 125.84 is contingent upon a demonstration that the requested alternative requirements comply with 40 CFR Section 125.85."

Please be aware that we reserve the right to provide comments at the NPDES permitting stage. Should any water quality criteria or effluent change during the five-year permitting cycle, the NPDES permit will need to be updated. This includes the forthcoming revised standards under the Clean Water Act Section 316(b), which is currently in draft form, but closed for public comments.

We recommend that the applicant work with and notify South Carolina Department of Natural Resources (SCDNR) during unplanned shutdowns to control discharge rates and temperatures and to mitigate for any resultant impacts.

Updates, if available, should be given regarding the quality and condition of the various streams in the project area, including identification of any total maximum daily loads (TMDLs) for a particular stream.

Measures to limit bioentrainment and other impacts to aquatic species from surface water withdrawals and discharges should be referenced in the FEIS, and should continue to be addressed as the project progresses, in compliance with the NPDES Permit.

Water Quality

The DEIS concludes that the impacts on surface-water quality from construction and preconstruction of the proposed Lee Nuclear Station Units 1 and 2 would be small (page 4-16).

Recommendations: We recommend that the FEIS identify the specific measures to ensure that construction contractors follow their construction standard specification and special provisions. The FEIS should clarify the effects of the project on stormwater volumes related to the amount of impervious surfaces to be constructed. Alternative minimization strategies such as pervious concrete or porous pavement should be considered to help offset impacts, in areas where those approaches are feasible and can meet safety requirements. Alternative paving materials have additional environmental benefits besides groundwater recharge, including reduced stormwater runoff and reduced pollution.

Air Quality

Cherokee County is designated as being in attainment or unclassified for NAAQS criteria pollutants (page 2-171). The DEIS states that development activities at the Lee Nuclear Station site would result in temporary impacts on local air quality (page 4-97). The project team concludes that the cumulative impacts on air quality from the additional air emissions from intermittent operation of diesel generators at the Lee Nuclear Station site would be minimal, and that mitigation would not be warranted (page 7-42).

Duke plans to develop a mitigation plan to identify specific mitigation measures to control fugitive dust and other emissions (page 4-97). A mitigation plan should also include strategies to reduce CO_2 emissions. The DEIS concludes that the impacts from construction and preconstruction activities on air quality would not be noticeable because appropriate mitigation measures would be adopted.

Recommendations: The FEIS should include updated information regarding the status of the mitigation plan development, including the mitigation plan, if available. Plans for mitigation should be documented and committed to in the decision documents.

Greenhouse Gases (GHGs)

We appreciate your discussion of climate change and GHGs in the DEIS. The DEIS states that the majority of the potential carbon dioxide (CO_2) emissions of the proposed nuclear power station would be the life cycle contributions associated with the uranium fuel cycle (page 6-10).

The DEIS notes that such emissions primarily result from the operation of fossil-fueled power plants that provide the electricity needed to manufacture the nuclear fuel.

The DEIS concludes that the atmospheric impacts of the emissions associated with each aspect of building, operating, and decommissioning a single plant are minimal. In addition, the DEIS concluded that the impacts of the combined emissions for the full plant life cycle would be minimal (page 7-42).

Section 6.1, Table 6-1, Table of Uranium Fuel Cycle Environmental Data, needs clarification regarding what the center "total" column refers to, and how the references to the model plant compare to the proposed William States Lee Nuclear Station. The information should be organized in a manner that is easy to read and understand.

Section 6.1.3, Fossil Fuel Impacts, states in the 3rd paragraph *"The CO_2 emissions from the fuel cycle are about 5 percent of the CO_2 emissions from an equivalent fossil fuel-fired plant."* Please clarify whether this is in comparison with coal-fired power plants. Also, natural gas combined cycle turbine plants (NG CT) are also "fossil fuel-fired plants" which have less CO_2 emissions than coal plants, so the statement seems misleading. The FEIS should clarify which type of fossil fuel power plant is being referred to. While this difference appears "small", it appears that the 5% value is being compared to a conventional power plant, instead of the newer "cleaner" fossil fuel-fired power plants (such as NG CC turbine plants), which emit about 30% less CO_2 than coal plants.

Section 6.1.3, (page 6-10), also states that the NRC staff estimates that the carbon footprint for 40 years of fuel-cycle emissions would be approximately 51,000,000 metric tonnes (MT) an emissions rate of about 1,300,000 MT annually, averaged over the period of operation of CO_2. In comparison, a new natural gas combined cycle turbine plant (NG CT) of 1250 MW would have a potential to emit (PTE) of about 4.2 million short tons of CO_2e (which is about 3.8 million MT). Based on the math, the CO_2 emissions are about 14% of what a new NG CT plant would be.

Recommendations: The FEIS should clarify the basis of comparison for the impacts of the proposed Lee Nuclear Station discussed in Section 6.1.3. In addition, Table 6-1 should be revised for clarity. Please refer to EPA's website (www.epa.gov/climatechange) for useful information on climate change.

Diesel Exhaust

In addition to the EPA's concerns regarding climate change effects and GHG emissions, the National Institute for Occupational Safety and Health (NIOSH) has determined that diesel exhaust is a potential human carcinogen, based on a combination of chemical, genotoxicity, and carcinogenicity data. In addition, acute exposures to diesel exhaust have been linked to health problems such as eye and nose irritation, headaches, nausea, and asthma.

Recommendations: Although every construction site is unique, common actions can reduce exposure to diesel exhaust. EPA recommends that the following actions be considered for construction equipment:

- Retrofit engines with an EPA certified or CARB verified exhaust filtration device to capture Diesel Particulate Matter before it enters the workplace.
- Position the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, thereby reducing the fume concentration to which personnel are exposed.
- A catalytic converter reduces carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulphur fuels.
- Ventilate wherever diesel equipment operates indoors. Roof vents, open doors and windows, roof fans, or other mechanical systems help move fresh air through work areas. As buildings under construction are gradually enclosed, remember that fumes from diesel equipment operating indoors can build up to dangerous levels without adequate ventilation.
- Attach a hose to the tailpipe of a diesel vehicle running indoors and exhaust the fumes outside, where they cannot reenter the workplace. Inspect hoses regularly for defects and damage.
- Use enclosed, climate-controlled cabs pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any air coming in is filtered first.
- Regular maintenance of diesel engines is essential to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance. For example, blue/black smoke indicates that an engine requires servicing or tuning.
- Work practices and training can help reduce exposure. For example, measures such as turning off engines when vehicles are stopped or inactive *(not performing a necessary function)* for more than a few minutes; training diesel-equipment operators to perform routine inspection and maintenance of filtration devices.
- When purchasing a new vehicle, ensure that it is equipped with the most advanced emission control systems available.
- With older vehicles, use electric starting aids such as block heaters to warm the engine, avoid difficulty starting, and thereby reduce diesel emissions.
- Respirators are only an interim measure to control exposure to diesel emissions. In most cases an N95 respirator is adequate. Respirators are for interim use only, until primary controls such as ventilation can be implemented. Workers must be trained and fit-tested before they wear respirators. Personnel familiar with the selection, care, and use of respirators must perform the fit testing. Respirators must bear a National Institute of Occupational Safety and Health (NIOSH) approval number. Never use paper masks or surgical masks without NIOSH approval numbers.

Socioeconomics

We understand that the NRC cannot include mitigation measures in the license that do not pertain to nuclear security. However, EPA encourages the applicant to continue coordinating with the communities that will be impacted by the project's construction and operation, and to continue a comprehensive public outreach strategy to inform residents of the risks and impacts as a result of the proposed project.

EPA believes that comprehensive public outreach is part of any successful mitigation strategy. This should include, but is not limited to, targeted outreach campaigns to neighbors, informational literature, and updated websites. Specific resource impacts where EPA believes this would particularly beneficial, includes, but is not limited to:

- construction schedule;
- work shifts and the resultant traffic expectations;
- noise monitoring;
- air quality monitoring data;
- radiological data;
- dewatering at the construction site and the resultant lowering of well levels;
- refueling outages and the resultant increase in onsite personnel;
- contact information for complaints and questions; and
- emergency preparedness information.

Recommendations: EPA encourages the applicant to continue a comprehensive public outreach strategy to inform residents to the risks and impacts as a result of the proposed project. This should include, but is not limited to, targeted outreach campaigns to neighbors, informational literature, and updated websites.

Environmental Justice (EJ)

The DEIS includes demographic and impact data related to minority and low-income populations. It indicates that the nearest minority and/or low-income populations of interest are located approximately 8 miles from the project site in Gaffney, SC. In addition, small pockets of migrant workers were identified in York and Cherokee Counties.

According to Section 2.6.5, low-income and minority populations within the 50-mile radius were found within the 50-miles radius that exceeded the criteria established for the EJ analysis. Therefore, NRC assessed the potential for disproportionately high and adverse health and environmental impacts, and concluded that there are no environmental pathways by which the identified EJ populations in the 50-mile region would be likely to suffer disproportionately high and adverse environmental or health impacts as a result of the proposed construction activities. The DEIS does indicate that subsistence fishing activities in York County were noted during a community survey or interview, but concluded that the overall impacts of construction would be small. No additional mitigation efforts beyond the strategies outlined by Duke in their Environmental Report (ER) would be warranted (page 4-88).

Recommendations: EPA appreciates your previous outreach activities and the EJ assessment data in the DEIS. EPA notes that communities with EJ concerns may experience benefits and burdens associated with this project, and should be involved in meaningful discussions with the project team throughout the decision-making process. We encourage the project team to continue coordinating with the communities that will be impacted by the project's construction and operation. A project of this magnitude and scope has the potential to impact area residents, businesses and cultural resources, and project planning should take into consideration community concerns and appropriate mitigation measures. Meaningful involvement and discussion of project issues should take place throughout project planning.

We recommend that the FEIS provide additional discussion and information regarding potential socioeconomic impacts to EJ populations regarding the following concerns:

1. Clarify the potential for jobs for low-income and minority populations related to the implementation of the project. The FEIS should indicate whether the applicant plans to engage in local job training and job fairs for area residents and businesses within the vicinity of Lee Nuclear Station.

2. Discuss impacts to residences and schools in communities with EJ concerns due to construction activities (e.g., air quality, noise). EPA notes that approximately 86 housing structures will be demolished during the inundation of Make-Up Pond C. While it appears that many of these residents have already relocated, the FEIS should indicate what proportion of these relocation impacts involved low-income and minority populations. EPA also notes that there is some discussion regarding impacts to local schools in terms of their ability to absorb an influx of residents. However, the FEIS should clarify whether any of these schools, particularly those closest and/or most affected by the project, are located in communities with EJ concerns and whether project-related impacts, such as noise, will be an issue.

3. Discuss the impacts to businesses in and serving communities with EJ concerns, during both construction and operation of the project.

4. Develop an ongoing mechanism to access facility representatives to ensure that questions, concerns or recommendations that may arise during the construction and operation of the facility can be appropriately addressed.

5. Summarize EJ-related comments from community engagement activities and provide a responsiveness summary. The FEIS should also include copies or summaries of the community leader and key community member interviews referenced in Section 2.6.2.

<u>*Noise*</u>

Construction and operation of the proposed Lee Nuclear Station Units 1 and 2 has the potential to create impacts from noise (page 2-174). Given the postulated noise levels for mechanical draft cooling towers and diesel generators, the site characteristics and noise attenuation, the DEIS

concludes that potential noise impacts would be minor and mitigation would not be warranted (page 5-66).

Recommendations: Environmental stewardship should include measures to avoid and minimize noise impacts, particularly to sensitive receptors.

Aesthetics

According to the DEIS, the closest residence is *"0.74 mi south from the site of the proposed Lee Nuclear Station Units 1 and 2, separated by woodland and the Broad River such that the proposed Lee Nuclear Station Units 1 and 2 and associated structures may be visible. In addition, the proposed units and associated structures may be visible from the Broad River and residence along McKowns Mountain Road."*

Recommendations: Local residents may experience benefits and burdens associated with this project, and should be involved in meaningful discussions with the project team throughout the decision-making process. Every effort to meaningfully involve and outreach to residents closest to the site and with increased visibility to the proposed structures and its emissions should be made.

Endangered and Threatened Species

The DEIS summarizes the NRC's coordination with the U.S. Fish and Wildlife Service (FWS), noting the presence of three listed and one candidate species in Cherokee, Union, and York Counties, which encompass the Lee Nuclear Station site, the Make-Up Pond C site, the two proposed transmission-line corridors, and the railroad-spur corridor (page 4-43). There are no areas designated by the FWS as critical habitat for Federally listed threatened and endangered species in the area of the proposed Lee Nuclear Station and supporting infrastructure (page 5-21).

Recommendations: EPA defers to the FWS and the State wildlife agencies on these issues and recommends that the FEIS should provide updated information regarding the consultation process with the FWS.

Indirect and Cumulative Impacts

In a project of this magnitude, there is a potential for significant indirect and cumulative impacts to important resources. The DEIS notes that air quality, water resources, habitat, farmland, historic and archaeological resources are particular areas of concern that may be subject to indirect and cumulative impacts. In addition, EPA recommends further consideration of the project's indirect and cumulative impacts related to socioeconomic resources and EJ communities.

Recommendations: We appreciate the information in the DEIS regarding your coordination with resource agencies regarding mitigation planning for ecological, cultural and historical resource impacts, and we recommend that continuing coordination take place as the project proceeds in order to minimize direct, indirect and cumulative impacts.

Historic Preservation

We appreciate the thorough discussion of cultural and historic resources in the DEIS, and your coordination with the South Carolina SHPO and THPOs. The DEIS notes that one cemetery will need to be relocated due to groundbreaking activities, and that the SHPO concurred with the finding of no historic properties affected and recommendations for relocation of the Service Family Cemetery. We also note that the South Carolina SHPO concurred that the proposed transmission lines will cause no adverse effects to two historic farmsteads and no effects on any other historic properties.

Consultation under Section 106 of the NHPA is ongoing, and will not be complete until the draft cultural resources management plan and MOA between Duke, the USACE, the South Carolina SHPO, and interested THPOs are finalized.

The DEIS states that *"For the purposes of the NEPA analysis, impacts cannot be fully assessed until the draft cultural resources management plan and MOA between Duke, the USACE, the South Carolina SHPO, and interested THPOs implementing Duke Energy's corporate policy for cultural resources consideration at the Lee Nuclear Station site and associated developments in the site vicinity and offsite areas are finalized. Presently, the review team does not expect any significant impacts to historic and cultural resources during operation of proposed Lee Nuclear Station"* (page 5-59).

Recommendations: The FEIS should include an update of coordination activities with the SHPO and THPOs, along with the finalized decision documents, if available.

Sustainable Infrastructure

EPA would appreciate more information in the FEIS regarding the planned sources of the construction materials. Please outline whether this material may be made of second-sourced material, for example, reclaimed aggregate. Please see our website regarding environmentally preferable purchasing: www.epa.gov/epp.

We encourage the applicant to consider construction of buildings in accordance with Leadership in Energy and Environmental Design (LEED) standards. If LEED standards are pursued, this information should be included in the FEIS. Also, potential use of Energy Star appliances, EPA's WaterSense program, EPA's GreenScapes program or other similar programs should be identified in the FEIS. These are important elements of reducing the overall environmental impact of the proposed project.

Recommendations: EPA recommends that elements of sustainable or "green" infrastructure be incorporated into all facets of the design and site layout, in areas where safety and site security permit. This should include consideration of, but is not limited to, using permeable pavement and re-planting construction lay-down areas with native vegetation. We recommend that all beneficial mitigation measures are outlined in the FEIS.

EPA encourages the applicant to consider environmentally-friendly purchasing and sourcing, and sustainable development of the facility. Any plans currently proposed by the applicant to pursue programs or initiatives listed above should be disclosed in the FEIS.

We recommend that any auxiliary buildings, new roads, and other non-safety related structures be constructed with materials that are recycled, where feasible and where safety requirements are met.

SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION*

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the Draft EIS sate, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate

The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alterative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the Draft EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

March 6, 2012

Lt. Colonel Edward P. Chamberlayne
District Engineer
Attn: Mr. Richard Darden
U.S. Army Corps of Engineers
69A Hagood Avenue
Charleston, South Carolina 29403-5107

Subject: William States Lee III Nuclear Station SAC-2009-122-SIR

Dear Lt. Colonel Chamberlayne:

This is in response to your request for comments on the above referenced joint public notice (JPN). Duke Energy Carolinas, LCC seeks to conduct dredging in the Broad River and place fill in London Creek and in tributaries and their adjacent wetlands which flow into the Broad River and London Creek at the location of the proposed William States Lee III Nuclear Station in Cherokee County, South Carolina. The proposed project will result in impacts to 5.43 acres of wetlands, 29.63 acres of open water, and 67,285 linear feet of streams. The overall project purpose, as stated by the applicant, is the development of a "nuclear baseload generating capacity."

In particular, the proposed project requires: 1) excavation, fill and temporary draining within open waters of the Ninety-Nine Islands Reservoir and existing impoundments that would result in 2.68 acres of temporary impact and 9.37 acres of permanent impact from the installation of proposed raw water system intake structures, proposed refill structures and a proposed wastewater discharge diffuser, 2) permanent impacts to 65,056 linear feet of stream, 4.07 acres of wetlands and 17.58 acres of open water farm ponds due to the construction of a drought contingency pond and associated infrastructure; of these impacts, 60,414 linear feet of stream and 3.22 acres of wetlands will be impacted due to inundation from the impoundment with the remainder of the impacts due to the construction of the dam, culverts associated with S.C. 329 and culverts associated with the railroad and placement of spoils, 3) clearing impacts to 884 linear feet of stream due to a 50-foot-wide cleared area required around the perimeter of the drought contingency pond, 4) temporary impacts to 1,345 linear feet of stream and 0.45 acres of wetland from placement of fill and flooding associated with temporary cofferdams used during the replacement of a railroad culvert, and 5) clearing impacts to 1.36 acres of forested wetlands due to the construction of the four 230-kV and 525-kV transmission lines.

The Environmental Protection Agency has reviewed the JPN and has concerns with the proposed project. A large majority of the impacts to Waters of the United States associated with the project are due to the "Drought Contingency Pond C"(Pond C). The construction of this pond will permanently impact 65,056 linear feet of London Creek and its tributaries and 4.07 acres of wetlands. These streams and wetlands are important in maintaining the physical, chemical and biological integrity of aquatic resources in the watershed. The types of streams and wetlands and the scope of the proposed impacts have led to our determination that these are Aquatic Resources of National Importance (ARNI). The aquatic impacts associated with impoundments constructed in rivers and streams are well documented in

the scientific literature and range from fragmentation of aquatic species habitat, to water quality impacts both up and downstream of an impoundment. In addition to the destruction of the riverine habitat within the impounded area, there are also adverse effects on flow regimes, velocities, temperature, dissolved oxygen, chlorophyll levels, sediment transport, nutrient cycles, etc. The following two citations contain recent studies conducted by two Southeastern states, Tennessee and North Carolina, addressing water quality impacts from impoundments: (*Probablistic Monitoring of Streams below Small Impoundments in Tennessee,* and *Selected Bibliography – Stream Impoundment Perspectives*, North Carolina Division of Water Quality, June 2008, enclosed).

The EPA has significant concerns that the effect of conversion of this stream into an impoundment could result in the elimination of existing uses of the streams in and downstream of the area of the proposed project, including the segments of the streams that could become the tailrace waters of the reservoir during and after impoundment. The conversion may also require a change in the designated uses that are currently assigned to these streams in South Carolina water quality standards. Prior to the conversion, it must be demonstrated that such a conversion complies with all aspects and requirements of South Carolina's antidegradation policy, as well as any other applicable provision of South Carolina's water quality standards regulation.

The applicant has explored many alternative sites and alternatives for cooling water sources. However, the EPA recommends further analysis of possible avoidance and minimization, as well as a more comprehensive alternatives analysis. The applicant states in the Draft Environmental Impact Statement dated December, 2011 (DEIS) that using a Combination Wet/Dry Hybrid Cooling-Tower System would reduce the water required from Pond C from 9,874 acre-feet to 2,804 acre-feet, a 72 percent reduction. While the applicant states this would not fully eliminate the need for Pond C, it could greatly reduce the needed size of the impoundment allowing a smaller footprint at the current location or allowing the impoundment to be relocated. Further, water sources such as offline impoundments that would eliminate or reduce impacts to Water of the United States should be explored. As the public notice for this project was issued concurrently with the DEIS, we recommend these and other alternatives be integrated into the Final Environmental Impact Statement (FEIS). The preferred alternative of a project should be the least environmentally damaging practicable alternative (LEDPA) as required by 40 CFR Part 230.10(a). As the LEDPA has not yet been established in the FEIS, we cannot fully evaluate compliance with Section 404(b)(1) Guidelines at this time.

The EPA also has some concerns with the proposed mitigation plan for the project. Information supplied by the applicant indicates that 483,583 stream compensatory mitigation credits will be required for stream impacts. In addition, 54 wetland compensatory mitigation credits and 273 open water compensatory mitigation credits will be required for wetland and open water impacts. These calculations were made using the U.S. Army Corps of Engineers Charleston District 2010 Guidelines for Preparing a Compensatory Mitigation Plan. We appreciate the applicant proposing to utilize all the available mitigation credits via mitigation banks per the 2008 Mitigation Rule in the impacted area, although this constitutes only a small portion of the stream credits needed for the proposed project. The applicant proposes to meet the remaining mitigation requirements using two permittee-responsible sites. The 2008 Mitigation Rule requires applicants to look sequentially at mitigation banks, in-lieu fee programs and permittee-responsible mitigation for required compensatory mitigation. Since the needed stream credits are unavailable through current banks and the compensatory mitigation required is extensive, one option may be to pursue the permittee-responsible mitigation plan as a single-user mitigation bank. In considering whether permittee-responsible mitigation would be appropriate, the 2008 Mitigation Rule requires that a watershed approach be used in determining where mitigation would best serve the entire impacted watershed. If permittee-responsible mitigation is found to be acceptable, a mitigation plan

must include objectives, a site protection instrument, baseline data collection plan for biotic communities, hydrology, etc., determinations of credits, a mitigation work plan, a maintenance plan, performance standards, monitoring requirements, a long-term management plan, an adaptive management plan and financial assurances. Thus, a permittee-responsible project must attain the same standard as a mitigation bank. By exploring project mitigation as a mitigation bank, the applicant can work with the Interagency Review Team to address issues and concerns and to meet the requirements of the 2008 Mitigation Rule.

The current mitigation plan lacks sufficient detail to determine if it is adequate to supply the needed mitigation and if restoration would be successful. Objectives stating which specific functions will be restored should be provided, as well as including performance standards to measure if there is functional lift versus only measuring structural standards. Further, the documentation on long-term management, adaptive management and financial assurances is inadequate. The Turkey Creek site proposes a preponderance of preservation credit. This site should be evaluated for potential restoration as preservation must meet the following criteria in order to be considered:

1. Resources provide important physical, chemical, or biological functions for the watershed;
2. Resources contribute significantly to the ecological sustainability of the watershed;
3. Resources are under threat of destruction or adverse modifications; and
4. Shall be done in conjunction with aquatic resource restoration or enhancement activities, or, if stand alone, only where resources have been identified as a high priority resource using a watershed approach and with higher compensation ratios.

Currently, a mid-March, 2012 site visit to the proposed mitigation sites is planned. The EPA will use this site visit as an opportunity to ask additional questions, discuss concerns and make requests for information needed to conduct our review at that time.

In summary, the EPA believes an adequate review of avoidance and minimization, alternatives analysis and an adequate compensatory mitigation plan have not been supplied. Based on the above observations, the EPA has determined that the project, as currently proposed, does not comply with the Section 404(b)(1) Guidelines and may have substantial and unacceptable adverse impacts on ARNIs. Therefore, we recommend denial of the project, as currently proposed. This letter follows the field-level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding Section 404(q) of the Clean Water Act.

Thank you for considering these comments in your permit review and issuance process. We look forward to continuing to work with your office and the applicant to resolve these issues. If you have any questions, please contact Kelly Laycock at laycock.kelly@epa.gov or 404-562-9132 for more information.

Sincerely,

for James D. Giattina
Director
Water Protection Division

Enclosures

cc: Mr. Richard Darden, USACE
Mr. Mark Leao, USFWS
Mr. Pace Wilber, NMFS
Mr. Bob Perry, SC DNR
Ms. Susan Davis, SC DNR
Ms. Vivianne Vejdani, SC DNR
Mr. Chris Beckham, SC DHEC