November 13, 2008

Mr. James Scarola
Senior Vice President &
Chief Nuclear Officer
Progress Energy, Inc.
P.O. Box 1551
Raleigh, NC 27602

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE ENVIRONMENTAL REVIEW OF THE COMBINED LICENSE APPLICATION FOR SHEARON HARRIS NUCLEAR POWER PLANT, UNITS 2 AND 3

Dear Mr. Scarola:

Enclosure 1 are the requests for additional information (RAIs) generated by the U.S. Nuclear Regulatory Commission (NRC) staff during its review of the Progress Energy Carolinas (PEC) Shearon Harris Nuclear Power Plant (HAR), Units 2 and 3 environmental report and the site audit conducted from July thru August 2008.

In a letter (ML082520664) dated September 19, 2008, the U.S. Army Corps of Engineers (USACE) was designated as a cooperating agency for the purpose of preparing an environmental impact statement for HAR, Units 2 and 3 combined license application environmental review in accordance with a memorandum of understanding (MOU) between the NRC and USACE dated September 12, 2008 (ML082540354). Enclosure 2 contains the RAIs generated by USACE under this MOU to support documentation that meets their disclosure and decision-making requirements.

Please provide the RAI responses in two separate packages to the NRC under oath or affirmation. One for the NRC staff RAIs responses and another separate package exclusively for the responses to the USACE staff RAIs.

The application review schedule assumes that technically correct and complete responses will be received within 30 days of receipt of the RAIs. For any RAI information that cannot be answered in 30 days it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this will impact the published schedule. In addition, any new and significant changes or additions to information that you have already submitted could impact scheduled completion dates.

If you have any questions, I can be reached at (301) 415-3803 or via e-mail at donald.palmrose@nrc.gov.

Sincerely,

/RA/

Donald Palmrose, Project Manager
Environmental Projects Branch 1
Division of Site and Environmental Reviews
Office of New Reactors

Docket Nos.: 52-022 and 52-023

Enclosure: As stated

cc: See next page

If you have any questions, I can be reached at (301) 415-3803 or via e-mail at donald.palmrose@nrc.gov.

Sincerely,

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Enclosure 1
U.S. Nuclear Regulatory Commission Requests for Additional Information (RAIs)
Shearon-Harris Nuclear Plant Units 2 & 3
Combined Operating License Application

Transportation

RAI Number	Question Summary (RAI)	Full Text (supporting information)
7.4 -1 10CFR51.52 Transportation Impact Analysis	Provide a full and detailed transportation impact analysis in the revised ER (i.e., Sections 3.8 & 7.4) that can be cited in the NRC EIS for the proposed construction and operation of Harris Units 2 and 3.	The Applicant has performed a full and detailed transportation impact analysis (#ENG-FM-Calculation) but it has not yet been docketed. This information must be made publicly available by the Applicant so it can be cited in the NRC EIS.

Hydrology

RAI Number	Question Summary (RAI)	Full Text (supporting information)
5.2.1.3-1	Provide details on the offsite impact to groundwater flow, water quality, and usage from the proposed 20-ft increase in the Harris Reservoir elevation during operations.	
5.2.2-1 ESRP 5.2.2 10 CFR 51.71(d)	Provide PEC's plans and potential schedule for addressing NCDENR's need to have instream flow studies completed for the Buckhorn Creek.	In a letter to the NRC dated August 29, 2008, the NCWRC stated "[it] is concerned about effects of Harris Nuclear Plant expansion downstream from the project. Currently, Buckhorn Creek, which is impounded by Harris Reservoir, has no minimum instream flow. An instream flow study should be performed to determine a suitable instream flow for Buckhorn Creek and that instream flow regime should be implemented. The instream flow regime should provide a minimum release from the Harris Reservoir dam and provide seasonal variation like that expected for an unregulated stream."
5.2.2-2 ESRP 5.2.2 10 CFR 51.71(d)	Provide PEC's plans and potential schedule for addressing NCDENR's need to have instream flow studies completed for the Cape Fear River.	In a letter to the NRC dated August 29, 2008, the NCWRC stated that "An instream flow study is also needed to determine the effects of water withdrawal from the Cape Fear River. The NCWRC anticipates varying withdrawal limits based on existing flows in the Cape Fear River. For example, more water could be withdrawn from the river during high flow periods with minimal effect on the river while no water should be withdrawn from the river during low flow periods.'

Hydrology

5.2.2-3 ESRP 5.2.2 10 CFR 51.71(d)	Provide a description of the operation of the discharge structure as modified for a higher reservoir level which would satisfy potential USACE, NCDENR, and NCWRC concerns for controlling a minimum release flow rate from the Harris Reservoir.	
2.3.1.3-1	Provide the following reference as referred to in the ER: 2.3-017 Harding Lawson Associates Group, Inc., "GM-1 Pilot Study Report," Prepared for North Carolina LLRW Management Authority, October 27, 1997.	

Meteorology/Air Quality/Accidents

RAI Number	Question Summary (RAI)	Full Text (supporting information)
2.7-1 ESRP 2.7 10 CFR 100.20(c)	Verify monthly and annual onsite precipitation amounts listed in Table 2.7-69 of the ER. Compare precipitation measurements with nearby NWS stations to determine representativeness.	Compare onsite precipitation measurements with nearby NWS stations for the same months/years to support the following statement in Section 2.7.4.1.4 of the ER: "The on-site precipitation data presented here are considered to be representative of the HAR site and are generally consistent with the long-term regional observations from the Charlotte, Greensboro, and Raleigh-Durham meteorological observing stations when compared with long-term periods of record at those locations."
2.7-2 ESRP 2.7 40 CFR 51, Subpart W	Quantify expected direct and indirect ozone (and ozone precursor) emission rates and establish if a conformity determination is required under 40 CFR 51, Subpart W.	Section 2.7.2 of the ER states that "Although Wake County is currently designated by USEPA and NCDENR to be in nonattainment of the NAAQS for ozone, the operation of the HNP facility (including the proposed units) should not result in an increase in ozone levels at any location because there will be no significant emissions of any ozone forming pollutants from the facility." Please quantify expected direct and indirect ozone (and ozone precursor) emission rates to establish if a conformity determination is required under 40 CFR 51, Subpart W.
5.3.3.1-1 ESRP 5.3.3.1 10 CFR 52.89	Identify the method or model for estimating cooling tower plume impacts in Section 5.3.3.1.1 of the ER. If not publicly available, submit the model for review, as well as any associated documentation and assumptions, including electronic input and output files.	Section 5.3.3.1.1 of the ER mentions an "An analytical cooling tower plume model" that was used to analyze cooling tower plumes in the 1983 FSAR for the HNP site; however, no specific reference to the model was provided.

Meteorology/Air Quality/Accidents

5.3.3.1-2 ESRP 5.3.3.1 10 CFR 52.89	Resolve the inconsistency between Section 5.3.3 that implies a single natural draft cooling tower will be used and Section 1.14 that states two cooling towers will be used. How do multiple cooling towers affect predicted plume lengths, salt deposition, hours of fogging and icing, cloud shadowing, and increases in precipitation and humidity?	Section 5.3.3 suggests that "a single natural draft cooling tower will be used to provide a heat sink during normal operation of HAR 2 and 3." Subsequent discussion in this section further implies one cooling tower will be used for both HAR 2 and 3. Section 1.14 of the ER, however, states that "Waste heat will be dissipated by two main cooling towers…". Please resolve this inconsistency. How do multiple cooling towers affect predicted plume lengths, salt deposition, hours of fogging and icing, cloud shadowing, and increases in precipitation and humidity?
7.1-1 ESRP 7.1 10 CFR 50.34	Provide a re-evaluation of the LOCA DBA for the AP1000 reactor using assumptions that are acceptable to the NRC.	By letter dated August 14, 2008, NRC informed the AP1000 vendor that an unacceptable assumption was made in evaluating the LOCA DBA for Revision 16 of the AP1000 DCD. Provide an evaluation of the LOCA that does not make use of the unacceptable assumption.
Accidents - Severe		
7.2-1 ESRP 7.2 10 CFR 51.50(c)	Provide an accident-specific table of population dose from water ingestion from the MACCS2 code, similar to Table 7.2-3 in the ER.	Provide an accident-specific table of population dose from water ingestion from the MACCS2 code, similar to Table 7.2-3 in the ER.
7.2-2 ESRP 7.2 10 CFR 51.50(c)	Explain any differences between the source term described in the ER (Reference 7.2-001) and that provided in Chapter 49 of the AP1000 PRA, including the justification for using it.	Instead of using the source term provided in Chapter 49 of the AP 1000 PRA, the ER references a source term in a Westinghouse document (Reference 7.2-0001). Explain and justify any differences in the source term used for severe accidents.

Meteorology/Air Quality/Accidents

Accidents – Severe Accident Mitigation Alternatives		
7.3-1 ESRP 7.3 10 CFR 51.50(c)	Justify application of the NRC staff conclusions for DCD Rev. 15 presented in NUREG-1793 to DCD Rev. 16 based on design considerations.	The NRC staff conclusions described in Section 7.3.3 specifically relate to Rev. 15 of the AP1000 design; the COL application references the Rev. 16 of the design. Justify application of the conclusions for DCD Rev. 15 to DCD Rev. 16 based on design considerations. What is the basis for assuming that the conclusions are appropriate? Have the source terms changed? Have the core damage frequencies changed?
7.3-2 ESRP 7.3 10 CFR 51.50(c)	Clearly distinguish between SAMDAs and SAMAs.	The terms SAMA and SAMDA are not interchangeable. SAMDAs are related only to design. SAMAs include SAMDAs, but they also include other mitigation alternatives such as policies, procedures, and training. Separate discussions of SAMDA and other SAMAs would help clarify the distinction.
7.3-3 ESRP 7.3 10 CFR 51.50(c)	Expand the discussion of administrative SAMAs found in the paragraph beginning at the bottom of page 7-40.	The paragraph beginning at the bottom of page 7-40 mentions administrative procedures. What is included in administrative procedures? Do they include plant operational procedures, policies, and training? When will development of these items be completed? Will risk insights from PRAs be considered in the development of the plant procedures, policies, training?

Need for Power/Alternative Sites

RAI Number	Question Summary (RAI)	Full Text (supporting information)
9.2-1 NRC Regulatory Number: NUREG-1555 Sct. 9.2 Alternatives Requiring New Generation Fed: 10 CFR 51.71	Provide supporting information clarifying the impacts of a conventional pulverized coal fired power plant.	Please provide the missing information and/or clarification so staff can provide timely and effective support to the NRC with the technical review of the alternatives requiring new power generation: Alternatives requiring new power generation must be competitive with the proposed project. The ER (Sec. 9.2.3) appears to have calculated emissions from a circulating fluidized bed coal fired plant, however, waste generation and cumulative impacts appear to be predicated on a conventional pulverized coal fired plant. Please reassess the coal fired generating alternative including all impacts and cumulative impacts to be consistent with the feasible alternative of conventional pulverized coal power plants.
9.4-1 NRC Regulatory Number: NUREG 1555 Sct. 9.4 Region of Interest and Site Selection Process Fed: 10 CFR 51.71	Provide supporting data and information demonstrating a quantifiable alternative site selection process in the revised ER that can be cited in the NRC EIS for the proposed construction and operation of Harris Units 2 and 3.	Please provide the missing information and/or clarification so staff can provide timely and effective support to the NRC with the technical review of the need for power assessment: The alternative site selection process should follow a clear and defensible process to determine the final alternative sites, and the proposed site. Analysis performed on the four alternative sites to determine the proposed Harris site is clear and logical; however it is not clear how the region of interest was screened to provide candidate areas, potential sites, and candidate or alternative sites. Please provide a clear analysis of the site screening process from the defined region of interest to the selection of the four alternative sites.
9.4-2	Provide McCallum-Turner, Site Selection Analysis Report.	Submit as proprietary information or redacted as appropriate.

Radiological/Fuel Cycle/Waste Systems/Decommissioning/Noise

RAI Number	Question Summary (RAI)	Full Text (supporting information)
5.4.2-1 HP-1 ESRP 5.4.2	Explain the logic behind selecting the X/Q values used in Table 5.4-7 "Gaseous Pathways – Dose Summary Maximum Exposed Individuals Based on One AP1000 unit". List all necessary GASPAR input data and reference the sources or specify the assumptions behind the selection of the pathway vectors (i.e. cow milk, goat milk etc…)	In reviewing the GASPAR output it is not clear why the highest X/Q value in a compass sector was not used in Table 5.4-7 in the pathway analysis, specifically X/Q values near the EAB. The source of much of the data in Table 5.4-7 is not given and entries can not be verified.
4.5-1 HP-5 ESRP 4.5 or 5.4	Provide/clarify the construction worker exposure from Harris Lake drinking water.	In section 4.5 "Radiation Exposure to Construction Worker", did not address the drinking water exposure pathway from Harris Lake. The drinking water for SHNP workers is from Harris Lake, which is part of the liquid effluent discharge pathway for SHNP. Explain where the water for the construction workers is from and impact to dose to the construction workers.
4.5-2 HP-6 ER Sections 3.5, 3.6, 4.4, 4.5, and 5.3	Provide references as referred to in ER: 4.5-005 Nuclear Generation Group, "Area Thermoluminescent Dosimeter (TLD) Monitoring, "DOS-NGGC-0010, Revision 7, 2006, Nuclear Generation Group Standard Procedure Volume 99 Book/Part 99, information obtained from the HNP TLD monitoring group via a request for information. 4.4-003 CH2M HILL, "Progress Energy — Harris Lake Infrastructure Impacts," Technical Memorandum prepared for Progress Energy Carolinas, Inc., May 16, 2007.	

Radiological/Fuel Cycle/Waste Systems/ Decommissioning/Noise

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	3.5-001 Progress Energy Carolinas, Inc., "Long Term X/Q Modeling Request," JVT – Request for Information (RFI) # 129, January 12, 2007. 3.6-001 Progress Energy Carolinas, Inc., "Carolina Power & Light Company, Harris Nuclear Plant and Harris Energy & Environmental Center National Pollutant Discharge Elimination System Permit Number NC0039586," January 30, 2006. 5.3-001 Sargent & Lundy, LLC, "Conceptual Design and Calculations for Harris Lake Makeup Water System for Harris Advanced Reactors Units 2 & 3," Calc. No.: HAG-XK01-ZOC-001, Rev. 2, June 22, 2007.	

Historic and Cultural Resources

RAI Number	Question Summary (RAI)	Full Text (supporting information)
2.5.3-1 ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 36 CFR 800 10 CFR 51.75 42 U.S.C. §4321 10 CFR § 51.45(c) 40 CFR § 1508.7 16 U.S.C. § 470h-2(k)	Provide copies for docketing of an initial letter and all following correspondence with SHPO regarding the approval/concurrence of the following: 1. The changing scope of the APE due to project "fine tuning" and a commitment to keep SHPO informed each time a change is made. 2. A proposed post-licensing cultural resources procedure/plan, addressing protection and management of the resources. 3. A commitment to define and complete the following cultural resources work with a schedule for work start dates and expected completion dates. A. Areas proposed to be investigated in "Archaeological Survey Plan, Proposed Expansion of Harris Lake" written by New South Associates. B. Areas affected directly or indirectly by changes made in infrastructure (roads, bridges, overpasses etc.) to accommodate the addition of a new reactor. Additional changes include, but are not limited to logging associated with raised reservoir preparation, access to accommodate logging, and new access routes to the power plant. 4. A procedure or plan for evaluation and mitigation or avoidance of resources	

Historic and Cultural Resources

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	identified during any of the above-mentioned investigations (if they are likely to be impacted).	
2.5.3-2 ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 10 CFR 51.75 42 U.S.C. §4321 10 CFR § 51.45(c) 40 CFR § 1508.7 16 U.S.C. § 470h-2(k)	Outline and define all “preconstruction” areas and how cultural resources will be impacted by them.	
2.5.3-3 ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 10 CFR 51.75 42 U.S.C. §4321 10 CFR § 51.45(c) 40 CFR § 1508.7 16 U.S.C. § 470h-2(k	Define the areas and associated cultural resources work with a schedule for work start dates and expected completion dates for the following: 1. Areas proposed to be investigated in "Archaeological Survey Plan, Proposed Expansion of Harris Lake". 2. Areas affected directly or indirectly by changes made in infrastructure (roads, bridges, overpasses etc.) to accommodate the addition of a new reactor. Additional changes include, but are not limited to	

Historic and Cultural Resources

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	logging associated with raised reservoir preparation, access to accommodate logging, and new access routes to the power plant	

RAI Number	Question Summary (RAI)	Full Text (supporting information)
2.4.1-1 (TE) NRC Regulatory Basis: 10 CFR 51.71 (d)	Provide recent and current information identifying and documenting a complete listing of important terrestrial species found on Harris site. In addition, provide the complete text and maps from the following document: "An Inventory of Significant Natural Areas in Wake County, North Carolina." Published by the North Carolina Natural Heritage Program in 2003.	Provide a listing and description of the relative abundance of the important terrestrial wildlife species (including game and/or recreationally important wildlife) found in the habitats existing on the Harris site. Provide any additional information describing the most recent ecological survey data that documents the presences/absence of important federal or state-listed species that potentially inhabit the site and information on the current presence, seasonality, habitat use and distribution of state listed plant or wildlife species likely to be found on the Harris site. At the site audit, staff discussed a revision of the CH2MHill ecological observations report and addendum to address these issues. Provide the completed ecological observations report.
2.4.1-2 (TE) NRC Regulatory Basis: 10 CFR 51.71 (d)	Provide current information on wildlife potentially inhabiting the Harris site and using habitats that will be impacted. Provide the following reference: • Seamster, M. H. 1993. The wild turkey in North Carolina, NCWRC, Raleigh NC.	The site audit identified a data gap: current monitoring data for terrestrial wildlife and habitats are limited and the ER focuses primarily on a two-week survey of the shoreline area to be inundated. As discussed at the site audit, to address the data gap, provide data from historic environmental reports and monitoring data from all recent terrestrial surveys on Harris site. Provide a synthesis of these data along with current NC GAP analysis of potential suitable habitat to describe the likely abundance and distribution of important wildlife species by habitat type including: • Migratory birds, shorebirds, waterfowl and address breeding bird populations • information describing and characterizing the relative abundance and habitat preferences and locations of the amphibians that are found or are likely to be found in or near the wetlands, streams, or open waters on the site

Terrestrial Ecology

RAI Number	Question Summary (RAI)	Full Text (supporting information)
		• information describing and characterizing the relative abundance and habitat preferences and locations of reptile species that are found or are likely to be found on the site • wildlife (including small and large mammals) use of shoreline habitat • data from historic environmental reports, and county game harvest reports to identify the important game species
2.4.1-3 NRC Regulatory Basis: 10 CFR 51.71 (d)	Provide additional information on delineation, characterization, and analysis of impacts to wetlands and terrestrial resources on the Harris site.	Two types of additional information are requested. 1. Detailed information is needed regarding the delineation and characterization methods and analyses conducted to infer limited loss of wetland habitat by raising the lake level. Provide information describing ephemeral wetlands connected to the reservoir and address whether vernal pools exist within the Harris reservoir shoreline. Provide information on the models, topographic and geographic data used to determine the impacts to wetlands and to support stated assumptions regarding new wetland formation. Provide a GIS analysis if necessary to support assumptions and describe the potential for new wetland formation. 2. Provide survey descriptions, survey results and maps describing potential impacts to wetlands or other terrestrial resources from temporary laydown areas, construction parking areas, cooling tower locations for units 2 and 3, and any roadway improvement projects outside the 220 to 240 contour.
4.3.1-1 NRC Regulatory Basis: 10 CFR	Provide additional information regarding potential impacts to terrestrial species and management procedures to avoid impacts to terrestrial	Provide information, maps and documents (in searchable pdf format if possible) describing the known locations of sensitive resources within existing and planned transmission corridors; provide information on management

Terrestrial Ecology

RAI Number	Question Summary (RAI)	Full Text (supporting information)
51.71 (d)	resources in transmission corridors. Provide: "Management of Rare Plant Sites on CP&L Power Line Rights of Way"	plans and procedures for transmission ROW and new/expanded corridors.
4.3.1-2 NRC Regulatory Basis: 10 CFR 51.71 (d)	Confirm the locations of various proposed construction project areas and activities and provide information from the most recent terrestrial and wetland surveys of areas that will be impacted during construction. Also provide RFI-158 CH2M Hill or most current plan and design – for depiction of temporary construction areas.	Discussions held at the site audit indicated that there may be changes to the proposed locations of various construction activities and construction materials sites and/or that some construction and roadway improvement areas have not been surveyed to characterize the resources. Please provide information and figures describing the proposed locations of temporary construction and laydown areas. Provide recent survey data for wetlands and terrestrial habitats, including wildlife and plants that may be impacted by both temporary and permanent construction not addressed in the ER, including but not limited to: temporary laydown areas for unit 3, construction parking areas, cooling tower locations for units 2 and 3, Wastewater Treatment Plant (WWTP) and any expanded WWTP lines, and any roadway improvement or construction projects outside the 220 to 240 contour around the reservoir. Provide the number of acres to be affected and the dominant habitat types for each area.
4.3.1-3 NRC Regulatory Basis: 10 CFR 51.71 (d)	Provide additional information on the impacts of noise on wildlife on the site	Additional information is needed to describe the expected noise levels and impacts related to blasting to develop the pipeline corridor and whether these methods will potentially affect important species.
4.3.1-4 NRC Regulatory Basis: 10 CFR 51.71 (d)	Provide additional information regarding planned and potential mitigation required in accordance with local, state, and federal regulations.	Provide information and details of the identified mitigation requirements and mitigation plan when prepared and as available. Please identify and discuss any potential areas that have been identified for mitigation of wetlands and/or terrestrial wildlife habitats.
2.4-2	Provide ER References: 2.4-007 CH2M HILL, "Secondary and Cumulative	

Terrestrial Ecology

RAI Number	Question Summary (RAI)	Full Text (supporting information)
ER References ER Sections 2.4, 4.3, 5.1, and 6.5	Impacts Master Mitigation Plan: Apex, North Carolina," October 2005. 2.4-016 Blank, Gary B., Douglas S. Parker, and Scott M. Bode, "Multiple Benefits of Large, Undeveloped Tracts in Urbanized Landscapes: A North Carolina Example," *Journal of Forestry* (April/May 2002): 27-32. 4.3-016 Carolina Power & Light Company, "Shearon Harris Wildlife Management Implementation Plan" CP&L Environmental Services Section, December 1984. 5.1-013 Progress Energy Carolinas, Inc., "Vegetation Management in Transmission Corridors," RFI 213, June 1, 2007. 6.5-016 Progress Energy Carolinas, Inc., Environmental Training: Endangered Species, EVC-SUBS-00062, Rev 0. January 2003.	

Aquatic Ecology/Thermophilic Microorganisms

RAI Number	Question Summary (RAI)	Full Text (supporting information)
4.3.2-1 10 CFR 51.71 (d)	Provide construction plans for the proposed Harris Lake makeup water system intake structure on the Cape Fear River, including intake design, aquatic habitats likely to be impacted, information on proposed timing and length of the construction period, any predictions of the need for future dredging in the vicinity of the intake.	Species information for Gulf Creek and Cape Fear River were provided, but detailed information is needed to assess impacts from construction and operation.
4.3.2-2 10 CFR 51.71 (d)	Provide information regarding characterization and dewatering methods to be used for the fire pond during construction activities.	Fire pond characterization was not performed; no management plan was available to describe impacts associated with filling in this water resource.
4.3.2-3 10 CFR 51.71 (d)	Provide construction plans for the proposed Harris Lake makeup water discharge structure and blowdown cooling discharge structures, including discharge design, potential impact to aquatic biota, and information on proposed timing and length of the construction period.	Discharge structures likely to be similar to those for existing HAR unit 1; final plans and construction timeline should address this issue.
4.3.2-4 10 CFR 51.71 (d)	Provide construction plans for the proposed Harris Lake water system intake structure on Harris Lake for units 2 and 3, including intake design, aquatic habitats likely to be impacted, information on proposed timing and length of the construction period, any predictions of the need for future dredging in the vicinity of the intake.	Maintenance reports from existing intake screens for unit 1 are needed to provide estimates for magnitude of potential impingement of new intakes for Harris Lake.
2.4.2-1 10 CFR 51.71 (d)	Provide additional details regarding aquatic biota monitoring for both the Cape Fear River and Harris Lake; specifically any American eel observations, the 2008 monitoring reports for both water bodies, and the 2006 Harris Monitoring Report.	Reports are noted to be in progress for pre-construction monitoring, and should be submitted to NRC staff when available.

Aquatic Ecology/Thermophilic Microorganisms

RAI Number	Question Summary (RAI)	Full Text (supporting information)
6.5.2-1 10 CFR 51.71 (d)	Provide detailed plans for construction and operation monitoring	ESRP sections 6.5.2 states that monitoring programs should cover data collection and analytical methods where causal relationships between construction / operation and potential adverse change may occur (see pages 6.5.2-1 through 6.5.2-3 of NUREG-1555). The monitoring plans for both of these phases (construction and operations) for aquatic resources in the Cape Fear River and Harris Lake are inadequate in the monitoring requirements were described only as "to be determined". Objectives and elements for monitoring plans need to be outlined with details such as measurement and sampling methods, frequency and duration of sampling.
2.4.2-2 10 CFR 51.71 (d)	Provide updates on permitting activities regarding aquatic biota monitoring as they become available	USFWS consultation on Cape Fear shiner needs to be provided.
2.4.2-3 10 CFR 51.71 (d)	Provide a current T&E/SC species list for 4 county area	Species list provided in Table 2.4-2. of the ER is not complete
2.4.2-4 10 CFR 51.71 (d)	Provide the Ecological Field Observations, August 2006 Report Appendix for Benthic Invertebrate and Species List.	Detailed sampling information at the species level was not provided in the ER, Section 2.4.2.1.3 and Table 2.4-5.
5.3.1.2-1 10 CFR 51.71 (d)	Clarify the estimate of the magnitude of the potential impingement and entrainment impacts on aquatic species populations and the aquatic ecosystems in Cape Fear River and Harris Lake.	At the site audit, the impingement/entrainment study for the Cape Fear Power Plant was discussed in terms of understanding the magnitude of 29 million organisms impinged annually.
4.3.2-5 10 CFR 51.71	Provide detailed information regarding locations of wetlands and perennial/intermittent streams to be impacted by construction in ROW.	At the site audit, there was discussion of using existing transmission corridors, but final details such as the need for widening corridors and that impact to wetlands and

Aquatic Ecology/Thermophilic Microorganisms

RAI Number	Question Summary (RAI)	Full Text (supporting information)
(d)		streams had not yet been determined.
4.3.2-6 10 CFR 51.71 (d)	Provide management plan for locations, number of logging roads required, and duration of land clearing activities around Harris Lake	
5.3.4-1 10 CFR 51.71 (d)	Provide documentation of any correspondence with the following state agencies in support of evaluation of thermophilic microorganisms in Harris Lake and surrounding vicinity: • North Carolina Department of Health and Human Services, Division of Public Health. • North Carolina Department of Environment and Natural Resources,Environmental Health Division. • North Carolina Department of Environment and Natural Resources, Division of Public Water Supply. • North Carolina Department of Environment and Natural Resources, Division of Water Quality. • Wake County Public Health Department. • Chatham County Public Health Department	ER section 5.3.4.1 indicates letters of inquiry were sent out, but no information regarding responses by these agencies was referenced.
2.4-1 ER References ER Sections 2.4, 4.3, 5.3, and 5.6	Provide ER References: 2.4-002 Progress Energy Carolinas, Inc., “Harris Nuclear Plant 2004 Environmental Monitoring Report,” Environmental Services Section, New Hill, North Carolina, December 2005. 2.4-003 CH2M-HILL, “Ecological Field Observations: Harris Nuclear Plant,” August 2006.	

Aquatic Ecology/Thermophilic Microorganisms

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	2.4-004 North Carolina Department of Environment and Natural Resources, Division of Water Quality, "Basinwide Assessment Report: Cape Fear River Basin," August 2004. 2.4-006 Kiker Forestry & Realty, Inc., "Forest Management," prepared for Progress Energy, June 2004. 2.4-015 North Carolina Department of Environment and Natural Resources, Letter from Harry E. LeGrand, Jr., NCDENR Natural Heritage Program, to Dave Corlett, Progress Energy Carolinas, Inc., responding to request for information on listed, 2006. 2.4-018 North Carolina Wildlife Resources Commission, "Response to Information Request," Letter to Bob Kitchen, Progress Energy Carolinas, Inc., February 27, 2007. 2.4-019 U.S. Fish and Wildlife Service, "Response to Information Request," Letter to Bob Kitchen, Progress Energy Carolinas, Inc., January 29, 2007. 2.4-024 Progress Energy Carolinas, Inc., "Harris Nuclear Plant 2000 Environmental Monitoring Report," Environmental Services Section, New Hill, North Carolina, September 2001. 2.4-027 Carolina Power & Light Company, "Harris Nuclear Power Plant 1992 Environmental Monitoring Report," Environmental Services	

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RAI Number	Question Summary (RAI)	Full Text (supporting information)
	Section, New Hill, North Carolina, 1994. 2.4-029 Bogan, Arthur E., *Workbook and Key to the Freshwater Bivalves of North Carolina*, Raleigh: North Carolina Freshwater Mussel Conservation Partnership, 2002. 2.4-034 Carolina Power & Light Company, "National Pollutant Discharge Elimination System Permit Application," January 12, 2006. 2.4-035 Middle Cape Fear River Basin Assessment, "Annual Report (January 2004 – December 2004)," 2004. 2.4-036 Camp Dresser & McKee, Inc., Hazen and Sawyer, and CH2M HILL, "Draft Environmental Impact Statement: Western Wake Regional Wastewater Facilities," Prepared for Towns of Apex, Cary, Holly Springs, and Morrisville," 2006. 2.4-037 U.S. Fish and Wildlife Service, "Recovery Plan for Cape Fear Shiner (*Notropis mekistochlas*)," prepared by R. Biggins, 1988. 4.3-002 Sargent & Lundy, LLC, "Construction Input for Makeup Water Line and HAR Units 2 & 3," Joint Venture Team – Request For Information 158, January 2007. 4.3-003 CH2M HILL, "Ecological Field Observations: Harris Nuclear Plant," prepared for Progress Energy Carolinas, Inc., August 14-15, 2007.	

Aquatic Ecology/Thermophilic Microorganisms

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	4.3-004 North Carolina Wildlife Resources Commission, “Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality,” August 2002. 4.3-005 Progress Energy Carolinas, Inc., “Progress Energy Carolinas, New Facility Licensing, Harris Nuclear Plant, Wake County, NC – Request of Information on Listed Species and Important Habitats,” January 10, 2007, Prepared for the North Carolina Natural Heritage Program, U.S. Fish and Wildlife Service, and the North Carolina Wildlife Resources Commission. 4.3-014 North Carolina Department of Environment and Natural Resources, “Basinwide Assessment Report – Cape Fear River Basin,” August 2004, Division of Water Quality, Environmental Sciences Section. 4.3-028 Progress Energy Carolinas, Inc., “Harris Nuclear Plant 2004 Environmental Monitoring Report,” Environmental Services Section, New Hill, North Carolina, December, 2005. 4.3-033 Spragins, Lewis, Progress Energy, "Workforce Assumptions and Construction Timeframe – HAR 2 & 3," Joint Venture Team – Request for Information 175, March 8, 2007. 4.3-036 U.S. Fish and Wildlife Service, “Cape Fear Shiner Recovery Plan,” 1988.	

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RAI Number	Question Summary (RAI)	Full Text (supporting information)
	4.3-037 Rabon, D., U.S. Fish and Wildlife Service, Personal Communication, Email Message "Re: Western Wake Project," April 6, 2006. 4.3-039 Progress Energy Carolinas, Inc., "Endangered and Threatened Species," EVC-SUBS-00011, Rev. 2, February 2005. 5.3-001 Sargent & Lundy, LLC, "Conceptual Design and Calculations for Harris Lake Makeup Water System for Harris Advanced Reactors Units 2 & 3," Calc. No.: HAG-XK01-ZOC-001, Rev. 2, June 22, 2007. 5.3-002 U.S. Environmental Protection Agency, "40 CFR Parts 9, 122, et al. NPDES: Regulations Addressing Cooling Water Intake Structures for New Facilities; Final Rule, December 18, 2001. 5.3-004 Progress Energy Carolinas, Inc., Environmental, Health & Safety Services Section, "Cape Fear Plant Impingement Mortality and Entrainment Characterization, September 2005 – August 2006" February 2007. 5.3-005 McLean, Richard, John Beauchamp, Victor Kane, and Paul Singley, "Impingement of Threadfin Shad: Effects of Temperature and Hydrography," Environmental Management Vol.6, No.5 (1982): 431-439, 1982. 5.3-006 Henderson, P.A., and R.M.H. Seaby, "Technical Evaluation of US Environmental	

Aquatic Ecology/Thermophilic Microorganisms

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	Protection Agency Proposed Cooling Water Intake Regulations for New Facilities," Pisces Conservation Ltd., November 2000. 5.3-007 Dixon, D, "Evaluating the Effects of Power Plant Operations on Aquatic Communities, Summary of Impingement Survival Studies," Electric Power Research Institute, October 2003. 5.3-008 ENSR Consulting & Engineering (INC), Inc., "Progress Energy Carolinas, Inc., Clean Water Act Section 316(b) Proposal for Information Collection Cape Fear Steam Electric Plant, NPDES NC0003433," June 2005 5.3-009 Murdy, Edward O., Ray S. Birdsong, and John A. Musick, "Fishes of Chesapeake Bay." 1997. 5.3-011 Carolina Power & Light Company, "Shearon Harris Nuclear Power Plant Units 1, 2, 3, & 4, Environmental Report," January 29, 1982. 5.3-012 Sargent & Lundy, LLC, "Recommendations for Conceptual Design of the Harris Lake Makeup Water Intake," S&L Letter No. SLPEC-2006-005, Project No. 11940-013, June 26, 2006. 5.3-013 North Carolina Administrative Code, "Location of Sampling Sites and Mixing Zones" 15A NCAC 02B.0204. 5.3-016 Progress Energy Carolinas, Inc., "Engineering and Economic Evaluation of the	

Aquatic Ecology/Thermophilic Microorganisms

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	Integrated Heat Rejection Study, Harris Location-Proposed Two Unit AP1000," Final Issue, Not-Safety Related, Report No. HAG-G2-GER-001, Rev.0, 2007. 5.3-019 Progress Energy Carolinas, Inc., "Carolina Power & Light Company, Harris Nuclear Plant and Harris Energy & Environmental Center, National Pollutant Discharge Elimination System, Permit Number NC0039586", January 30, 2006. 5.3-025 U.S. Food and Drug Administration, "Foodborne Pathogenic Microorganisms and Natural Toxins 1992 (Bad Bug Book)," Center for Food Safety and Applied Nutrition, 1996. 5.3-026 Center for Disease Control and Prevention, "Surveillance for Waterborne-Disease Outbreaks – United States, 1993-1994," M.H. Kramer, G.F. Craun, R.L. Calderon, D.D. Juranek, Source: MMWR 45 (SS-1): 1-33, April 12, 1996. 5.6-002 Sargent & Lundy, LLC "230-kV Switchyard Conceptual Design Report, Harris Advanced Reactors Units 2 and 3, HAG-ZBS-GER-001 Rev. 2," June 22, 2007. 5.6-006 Progress Energy Carolinas, Inc., "Request of Information on Listed Species and Important Habitats," January 10, 2007.	

Socioeconomics/Environmental Justice/Land Use/Costs & Benefits/Transmission Lines

RAI Number	Question Summary (RAI)	Full Text (supporting information)
Land Use		
4.1.1-1 ESRP 4.1.1	Please provide citable information summarizing the extent of preconstruction activities <u>including</u> the activity description, and associated land area impacted, volume of soil or earthen material affected (cuts, fills, spoils, barrow, etc.) for the following construction activities: • Clearing the site • Rail modifications • Excavation • Compacted fill • Riprap Protection • Onsite disposal of excess material • Excavation of stormwater ditches • Stone lining of stormwater ditches • Storm sewer piping • Storm manholes • Access roads, plant roads, and miscellaneous site roads • Construction and surfacing of construction parking lots and laydown areas • New saddle dikes • Sewage treatment plant (new or expanded existing) • Flood protection for HEEC	Information provided off-the-record provides details on each of these activities that are not fully characterized in the ER. The staff would like to cite PEC's characterization of these activities as affects land use and land requirements

Socioeconomics/Environmental Justice/Land Use/Costs & Benefits/Transmission Lines

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	• Remedial work for plant foundation • Transport pad, haul road, and assembly pad • Transmission towers affected by lake raising • CWS make-up and discharge piping	
Transmission Lines		
3.7-1 ESRP 3.7 10 CFR 51.71 10 CFR 51.75 10 CFR 51.45 18 CFR 35	Provide (or clarify in ER Section 3.7) the following information in reference to the projected transmission line construction and operation: 1. Identification of the permitting authority for transmission line construction, a description of the transmission line siting procedures that were or are to be followed, and a schedule for environmental reviews that will be conducted as part of the siting procedure 2. Standards/procedures for the interconnection operation, and the right-of-way maintenance 3. Identification of basic electrical design parameters, including transmission design voltage or voltages, minimum conductor clearances to ground, and the maximum induced current to ground from vehicles or obstacles under the transmission line 4. Predicted noise levels resulting from transmission-system operation. 5. Description of land use limitations within the transmission line corridors.	

Socioeconomics/Environmental Justice/Land Use/Costs & Benefits/Transmission Lines

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	6. General methods of construction for the proposed new lines and upgrades (e.g., tower foundations, stringing, location of access roads, span length, and clearing of rights-of-way)	
Socioeconomics		
2.5.2-1 ESRP 2.5.2 10 CFR 51.45 10 CFR 51.71	Provide the following tax-related information in annual terms: 1. Proportion of Wake County government's annual expenditures that PEC's tax payments over 1998-2007 period 2. Proportion of Chatham County government's annual expenditures that PEC's tax payments represent over 1998-2007 period	
2.5.2-2 ESRP 2.5.2 10 CFR 51.45 10 CFR 51.71	Provide the following: 1. Basis for the final statement in section 2.5.2.7, asserting that the projected capacity of public services is adequate and is expected to expand to meet the demands of slight population growth in the region 2. Current and projected capacities of local hospital and burn units	
2.5.4-1 ESRP 2.5.4 10 CFR 51.45 10 CFR 51.71	Provide discussion of the research approach used to search for the following: 1. Groups that were contacted to search for local subsistence practices or resource dependencies among the population in the immediate vicinity of the Harris site 2. Extent that the academic literature was searched in the effort to identify either special local environmental justice	

Socioeconomics/Environmental Justice/Land Use/Costs & Benefits/Transmission Lines

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	populations or to identify subsistence practices or special resource dependencies among the population in the immediate vicinity of the Harris site	
4.4.2-1 ESRP 4.4.2 ESRP 10.4.1 10 CFR 51.45 10 CFR 51.71	Provide economic information about commercial timber harvesting activities expected, specifically: 1. Volume of merchantable timber that is expected to be harvested for commercial use from the proposed transmission corridor upgrades 2. Stumpage rates that can be expected for merchantable timber in North Carolina 3. Duration of timber harvesting and related activities along the lake.	
2.5.2-3 ESRP 2.5.2 ESRP 4.4.2 10 CFR 51.45 10 CFR 51.71	Provide more detailed description of the specific facilities impacts expected from the lake level increase, specifically: 1. Facilities at Harris Lake County Park that will be impacted and to what extent 2. Specific mitigation that will be implemented for facilities permanently removed from public service as a result of raising the reservoir pool elevation 3. Specific time span that is considered “temporary” in the context of impacts to affected recreation facilities. For example, how long will recreation facilities not be available to the public? 4. Baseline recreation usage statistics for the affected recreation facilities including Harris Lake County Park and the four affected boat ramps 5. Impacts that can be expected on State Gamelands bordering the reservoir as a	

Socioeconomics/Environmental Justice/Land Use/Costs & Benefits/Transmission Lines

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	result of raising the reservoir	
4.4.1-2 ESRP 4.4.1 ESRP 4.1.1 ESRP 4.1.2 10 CFR 51.45 10 CFR 51.71	Describe the additional impacts expected to be associated with logging and other construction related transport on existing roadways.	
4.4.1-3 ESRP 4.1.1 ESRP 4.4.1 ESRP 4.4.2 ESRP 10.4.2	Please provide citable information summarizing potential mitigation of all local recreational infrastructure impacts (apart from transportation infrastructure requested elsewhere) expected as a result of raising the level of Harris Reservoir. Please include the costs of expected mitigation activities.	For example, information provided off-the-record suggests that Progress Energy is considering mitigation options for the Harris Park infrastructure. The Staff would like to reference such information regarding all affected infrastructure in the preparation of the EIS.
2.5.2-4 ESRP 2.5.2 ESRP 5.8.2 10 CFR 51.45 10 CFR 51.71	Provide a geographic summary of the most recent refueling outage workforce sufficient to permit the staff to determine the county of residence for NC workers and the state of residence for non-NC workers, without identifying individual employees.	
Benefits/Costs		
10.4.2-1 ESRP 10.4.2 10 CFR 51.45 10 CFR 51.71	Provide additional explanation and discussion of projected construction costs reported in Section 10.4.2.2 of the ER. For example, the staff notes that costs appear significantly lower for construction of AP 1000 units at the Harris site as compared to Progress Energy Florida's reporting of projected costs for similar units at the Levy site. Please explain factors that account for internal construction costs of $4.4 billion at Harris in the context of similar costs	

Socioeconomics/Environmental Justice/Land Use/Costs & Benefits/Transmission Lines

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	amounting to $16.6 billion at Levy.	
10.4.2-2 ESRP 10.4.2 10 CFR 51.45 10 CFR 51.71	Provide additional explanation and discussion of projected operation costs reported in Section 10.4.2.3 of the ER. For example, the staff notes that costs appear significantly higher for operation of AP 1000 units at the Harris site as compared to Progress Energy Florida's reporting of projected operating costs for similar units at the Levy site. Please explain factors that account for operations costs of 3.1-4.6 cents/kWh at Harris in the context of similar costs amounting to 1.68 cents/kWh at Levy.	
10.4.1-1 ESRP 10.4.1 ESRP 5.8.2 10 CFR 51.45 10 CFR 51.71	Provide estimates of the expected annual tax benefits expected to be paid as a result of constructing and operating two new operating units to the Harris site over the lifetime of the new plants. Include expected property taxes paid to Wake County and Chatham County, expected annual sales taxes paid to the State of North Carolina, and any expected corporate taxes paid to jurisdictions affected by the Harris site.	
10.4.2-3 ESRP 10.4.2	Provide additional explanation and discussion of Federal incentives mentioned in Section 10.4.2.3 of the ER. Please describe how the provisions of the Energy Policy Act of 2005 specifically mitigate projected construction and operations costs over the life of the proposed facilities. Quantify the anticipated amount of Federal incentives likely to apply to the proposed action from the following: • Production tax credit for the first advanced reactors brought on line in the United States	

Socioeconomics/Environmental Justice/Land Use/Costs & Benefits/Transmission Lines

RAI Number	Question Summary (RAI)	Full Text (supporting information)
	• Federal risk insurance benefits expected as part of the Nuclear Power 2010 Partnership Describe the expected impact of these incentives in terms of their role in making the project economically viable, and the impact on the proposed action in case PEC does not qualify for some or all of the incentives.	
10.4.3-1	Provide additional discussion relative to ER Section 10.4.3. Identify the important conclusions to be drawn from the summary in Table 10.4.1. Identify and discuss the balancing of all internal and external benefits and costs and provide a determination of the net economic benefit (or cost) to society of the proposed action, based on this assessment. For costs and benefits that cannot be precisely determined at this time, provide additional discussion of them in relative terms compared to the expected internal construction and operation costs – to facilitate amplified discussion of the benefit/cost balance.	

Socioeconomics/Environmental Justice/Land Use/Costs & Benefits/Transmission Lines

RAI Number	Question Summary (RAI)	Full Text (supporting information)
4.1-1 10 CFR 51.45(c)	Distinguish between the environmental impacts of construction activities (as defined in 10 CFR 50.10(a) or in 10 CFR 51.4) at the site and the cumulative impact of preconstruction and construction activities. Interim NRC staff guidance concerning this evaluation is available in COL/ESP-ISG-4, available at http://www.nrc.gov/reading-rm/doc-collections/isg/col-esp-isg-4.pdf on the NRC's public Web site.	Only some of the activities associated with the construction of a nuclear power plant are part of the NRC action to license the plant. Activities for which an NRC license is required are defined as "construction" in 10 CFR 50.10(a) and 10 CFR 51.4. Activities associated with building the plant that are not licensed by the NRC as part of the proposed action are grouped under the term "preconstruction". The ER should distinguish between the impacts of these two categories of activities.
1.2-1 ESRP 1.2 10 CFR 51.45(d) 10 CFR 51.70	Provide copies in appropriate format for docketing of all correspondence (including enclosures) resulting from consultations with all Federal, State, regional, local, and affected Native American tribal agencies. For example, the correspondence should include PEC letters dated January 10, 2007; April 18, 2007; February 28, 2008; May 2, 2008 and reply letters from NCDENR DWR dated August 28, 2007, USFWS dated January 29, 2007, NCWRC dated February 27, 2007, NCDENR NHP email dated March 25, 2007 along with any correspondence exchanges with the NC SHPO and any more recent exchanges of information with the above listed agencies.	The Staff needs to document in the DEIS the consultations PEC has pursued with Federal, State, regional, local, and affected Native American tribal agencies to properly document 1) current status of each authorization, 2) environmental concerns of the authorizing agency that are to be addressed by the DEIS section reviewers, and 3) potential problems that may affect granting of any other Federal, State, regional, local, and affected Native American tribal agencies' authorizations.

Enclosure 2
U.S. Army Corps of Engineers' Request for Additional Information

RAI Number	Question Summary (RAI)	Full Text (supporting information)
USACE-1 Chapter 9 Alternatives to the Proposed Action 33 CFR Section 320.4	Please expand the evaluation on all viable alternatives to include the public interest factors of: conservation, economics, aesthetics, general environmental concerns, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. Fatal flaws associated with one or more of the public interest factors may result in elimination of an alternative from further consideration.	These items are required for consideration of the 404(b)(1) Guidelines and public interest review for each alternative. Wetlands and historic structures are also captured under our public interest factors, but not included here since these are captured in the ER or in the following comments.

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USACE-2 9.2.2 Alternatives that Require New Generating Capacity 40 CFR Section 230.10	On any alternative that could be viable as presented in the Environmental Report (even off-site and/or not owned by the applicant) please quantify wetland and stream impacts (both perennial and intermittent) for complete project construction.	The Purpose and Need Statement for the 404 permit will reflect a statement such as "The purpose of the project is to find an additional source of power for the service area that meets a minimum power generation amount". The service area and minimum generation amount needs to be determined by Progress Energy. If any alternative meets this Purpose and Need Statement, the assessment will need to continue until it is proven that this is not a viable alternative, or that it has more impacts to aquatic resources than the preferred alternative (impacts to waters of the U.S. will need to be quantified). If project viability continues, off-site alternatives (away from the Harris site) will need to be included within the evaluation for impacts to waters of the U.S.

USACE-3 9.2.3.1.4 Other Impacts, Coal-Fired Power Generation 40 CFR Section 230.10	Since this is listed as a viable alternative, please quantify wetland and stream impacts (both perennial and intermittent) for complete project construction. Sites to be reviewed may be new plants or upgrades to existing plants found on-site and off-site.	The Purpose and Need Statement for the 404 permit will reflect a statement such as "The purpose of the project is to find an additional source of power for the service area that meets a minimum power generation amount". The service area and minimum generation amount needs to be determined by Progress Energy. If any alternative meets this Purpose and Need Statement, the assessment will need to continue until it is proven that this is not a viable alternative, or that it has more impacts to aquatic resources than the preferred alternative (impacts to waters of the U.S. will need to be quantified). If project viability continues, off-site alternatives (away from the Harris site) will need to be included within the evaluation for impacts to waters of the U.S.
USACE-4 9.2.3.2.3 Other Impacts, Natural Gas Power Generation 40 CFR Section 230.10	Since this is listed as a viable alternative, please quantify wetland and stream impacts (both perennial and intermittent) for complete project construction. Sites to be reviewed may be new plants or upgrades to existing plants found on-site and off-site.	The Purpose and Need Statement for the 404 permit will reflect a statement such as "The purpose of the project is to find an additional source of power for the service area that meets a minimum power generation amount". The service area and minimum generation amount needs to be determined by Progress Energy. If any alternative meets this Purpose and Need Statement, the assessment will need to continue until it is proven that this is not a viable alternative, or that it has more impacts to aquatic resources than the preferred alternative (impacts to waters of the U.S. will need to be quantified). If project viability continues, off-site alternatives (away from the Harris site) will need to be included within the evaluation for impacts to waters of the U.S.

USACE-5 9.2.3.3.2 Environmental Impacts, Determination of Viability of Hybrid Alternatives 40 CFR Section 230.10	Since this is listed as a viable alternative, please quantify wetland and stream impacts (both perennial and intermittent) for complete project construction. Sites to be reviewed may be new plants or upgrades to existing plants found on-site and off-site.	The Purpose and Need Statement for the 404 permit will reflect a statement such as "The purpose of the project is to find an additional source of power for the service area that meets a minimum power generation amount". The service area and minimum generation amount needs to be determined by Progress Energy. If any alternative meets this Purpose and Need Statement, the assessment will need to continue until it is proven that this is not a viable alternative, or that it has more impacts to aquatic resources than the preferred alternative (impacts to waters of the U.S. will need to be quantified). If project viability continues, off-site alternatives (away from the Harris site) will need to be included within the evaluation for impacts to waters of the U.S.
USACE-6 9.3.1 Site Comparison and Selection Process 40 CFR Section 230.10	Please provide cost of creating a complete project on each site.	If cost is used to show that this is not a viable option, then no additional review is necessary. If cost is used to show that this option is more expensive than the preferred alternative, then a total cost comparison between alternatives should be completed to prove this statement. Included within the cost comparisons are all aspects of project completion.

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USACE-7 9.3.1.1 PEC's Site Selection Process 40 CFR Section 230.10	Please confirm the statement that indicates that PEC did not identify any environmentally preferable alternative site in its evaluation.	Confirm that any findings from these RAIs do not change this statement.
USACE-8 9.3.2.1.5 Aquatic Ecology 40 CFR Section 230.10	Please quantify wetland and stream impacts (both perennial and intermittent) for complete project construction at this site.	This information is used to determine the Least Damaging Practicable Alternative. Include all aspects of the project including roadways, blow-down lines, inundation, transmission lines etc.
USACE-9 9.3.2.1.8 Historic, Cultural, and Archeological Resources 33 CFR Section 320.4	Please indicate if any Historic, Cultural, and Archeological Resources are present on the site.	Please clarify the method used to determine presence/absence of Resources on the site.

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USACE-10 9.3.2.2.1.4 Terrestrial Ecology 33 CFR Section 320.4	Please provide evidence and expected amounts of new wetland creation.	The statement that new wetlands would be created because of the inundation appears subjective and imprecise.
USACE-11 9.3.2.2.1.4 Terrestrial Ecology 33 CFR Section 320.4	Please include all impacts to North Carolina Wildlife Resource Commission Game Lands, research areas, endangered species and other important terrestrial impacts.	This information is needed to evaluate a complete project for this site.
USACE-12 9.3.2.2.1.5 Aquatic Ecology 40 CFR Section 230.10	Please quantify wetland and stream impacts (both perennial and intermittent) for complete project construction at this site and confirm the SMALL impact designation as indicated.	This information is used to determine the Least Damaging Practicable Alternative. Include all aspects of the project including roadways, blow-down lines, inundation, transmission lines, etc.

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USACE-13 9.3.2.2.1.5 Aquatic Ecology 40 CFR Section 230.10	Please provide information to verify all stream and wetlands identified within the project boundaries.	This information is needed to evaluate a complete project for this site. Include all aspects of the project including roadways, blow-down lines, inundation, transmission lines etc.
USACE-14 9.3.2.2.1.5 Aquatic Ecology 40 CFR Section 230.10	Please indicate any expected impacts to endangered species.	This information is needed to evaluate a complete project for this site.
USACE-15 9.3.2.2.1.5 Aquatic Ecology 40 CFR Section 230.10	Please provide avoidance and minimization measures on impacts to streams and wetlands.	This information is required for regulatory compliance (example, only unavoidable impacts are allowed).

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USACE-16 9.3.2.2.1.8-1 Historic, Cultural, and Archeological Resources 33 CFR Section 320.4	Please indicate if any Historic, Cultural, and Archeological Resources are present on the site.	Please clarify the method used to determine presence/absence of Resources on the site.
USACE-17 9.3.2.2.2.4 Terrestrial Ecology 40 CFR Section 230.10	Due to accuracy concerns, wetland impact estimates should not be based solely on NWI maps. We recommend a combination of different information sources such as soils maps, NWP maps, LIDAR, etc. (Add what you deem appropriate).	NWI maps, as stand-alone information, are not considered accurate enough for selection of the Least Environmentally Damaging Practicable Alternative. Include all aspects of the project including roadways, blow-down lines, inundation, transmission lines etc.
USACE-18 9.3.2.2.2.4 Terrestrial Ecology 40 CFR Section 230.10	Please indicate any expected impacts to endangered species.	This information is needed to evaluate a complete project for this site.

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USACE-19 9.3.2.2.2.5 Aquatic Ecology 40 CFR Section 230.10	Please quantify stream impacts (both perennial and intermittent) for complete project construction at this site.	This information is used to determine the Least Damaging Practicable Alternative. Include all aspects of the project including roadways, blow-down lines, inundation, transmission lines etc.
USACE-20 9.3.2.2.2.5 Aquatic Ecology 40 CFR Section 230.10	Please indicate any expected impacts to endangered species.	This information is needed to evaluate a complete project for this site.
USACE-21 9.3.2.2.2.8 Historic, Cultural, and Archeological Resources 33 CFR Section 320.4	Please indicate if any Historic, Cultural, and Archeological Resources are present on the site.	Please clarify the method used to determine presence/absence of Resources on the site.

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USACE-22 9.3.2.2.3.4 Terrestrial Ecology 40 CFR Section 230.10	Due to accuracy concerns, wetland impact estimates should not be based solely on NWI maps. We recommend a combination of different information sources such as soils maps, NWP maps, LIDAR, etc. (Add what you deem appropriate).	NWI maps, as stand-alone information, are not considered accurate enough for selection of the Least Environmentally Damaging Practicable Alternative. Include all aspects of the project including roadways, blow-down lines, inundation, transmission lines etc.
USACE-23 9.3.2.2.3.5 Aquatic Ecology 40 CFR Section 230.10	Please quantify stream impacts (both perennial and intermittent) for complete project construction at this site.	This information is used to determine the Least Damaging Practicable Alternative. Include all aspects of the project including roadways, blow-down lines, inundation, transmission lines etc.
USACE-24 9.3.2.2.3.5 Aquatic Ecology 40 CFR Section 230.10	Please indicate any expected impacts to endangered species.	This information is needed to evaluate a complete project for this site.

USACE-25 9.3.2.2.3.8 Historic, Cultural, and Archeological Resources 33 CFR Section 320.4	Please indicate if any Historic, Cultural, and Archeological Resources are present on the site.	Please clarify the method used to determine presence/absence of Resources on the site.
USACE-26 9.3.2.3 Evaluation of Population Density for Alternative Sites	Please confirm the $600 million cost for transmission upgrades for the Brunswick site (page 9-78).	This conflicts with earlier statements of $300 million needed for Brunswick upgrades (page 5-53).

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USACE-27 9.3.3-1 Summary and Conclusions 40 CFR Section 230.10	Please confirm the statement that impacts to the aquatic environment at the HNP site is not expected to be greater than the impacts at the alternative sites.	This information is used to determine the Least Damaging Practicable Alternative. Include all aspects of the project including roadways, blow-down lines, inundation, transmission lines etc.
USACE-28 9.3.3 Summary and Conclusions 33 CFR Section 320.4	Please provide a conceptual mitigation plan to compensate for unavoidable aquatic impacts for the preferred alternative.	Necessary as a component of the 404 permit review process for unavoidable impacts. However, a Department of the Army (DA) cannot be authorized on the basis of a conceptual plan. A final mitigation plan must be reviewed and approved prior to DA permit issuance.
USACE-29 9.4.2.1 Intake and Discharge Systems 33 CFR Section 320.4	Please provide evidence and expected amounts of new wetland creation.	The statement that new wetlands would be created because of the inundation appears subjective and imprecise. These areas would need to be quantified, reviewed and approved by all resource agencies and if agreed to as an acceptable form of compensatory mitigation, would need to be monitored for an agreed upon time. At this present time, there are no known cases in NC where this has been an acceptable approach to compensatory mitigation.

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USACE-30 Chapter 10 Environmental Consequences of the Proposed Action	Please provide an assessment of secondary and cumulative impacts associated with the project including impacts to streams and wetlands.	This information is needed to evaluate a complete project for this site. Items to be assessed could include a rise in water temperature at Harris Lake, plant operation impacts such as loss of water through steam, safety items, planned upgrades to support growth, downstream impacts, loss of water within the Cape Fear River, etc.
USACE-31 10.4.2.4.1 Land Use	Please indicate if the new interchange off US 1 is included in these impacts.	This information is needed to evaluate a complete project for this site.