DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

REPLY TO
ATTENTION OF:

June 19, 2009

Regulatory Division

Action ID No. SAW-2007-01748

Mr. Donald Palmrose, PhD
Sr. Project Manager
Office of New Reactors
U.S. Nuclear Regulatory Commission
Mail Stop T7-E18
Washington, DC 20555

Dear Mr. Palmrose:

Thank you for the additional information you provided in response to our Request for Additional Information (RAI) on the proposal by Progress Energy Carolinas, Inc. (PEC), to create new sources of electricity in and around North Carolina. PEC's preferred alternative for this is to expand the Shearon Harris Nuclear Power Plant (HNP) by adding two new reactors. The additional information you provided is contained within two separate documents entitled: "HAR ER RAI USACE - 15 Attachment B Need for Maximum Harris Reservoir Level"; and "Harris Advanced Reactor (HAR) Section 404(b)(1) Alternatives Analysis". After reviewing these documents, we realize that additional information is needed prior to our concurrence with the methods and conclusions as detailed within each text.

The first document, "HAR ER RAI USACE - 15 Attachment B Need for Maximum Harris Reservoir Level" expands upon the U.S. Army Corps of Engineers' (Corps) regulatory requirements to permit only those impacts to jurisdictional waters which are deemed unavoidable. Your preferred alternative of expanding Shearon Harris includes raising Harris Reservoir by 20 vertical feet to allow for extensive drought conditions. Presently, you have provided little documentation prior to this document for adequate justification of these impacts. Therefore, it is assumed that impacts could be minimized by a reduction in the amount of elevation change.

The document uses the time period from 1985 through 1997 as the drought of record for Harris Reservoir due to historical inflows and meteorology. Within this time period, certain assumptions were made to determine the necessary withdrawals from the Cape Fear River to allow for continuous plant operations. One such assumption is that

the minimum elevation of Harris Reservoir for continuous operation of 3 units would be 220 msl, and that lower levels would necessitate the shutting down of reactors. However, no safety or operational justification for this minimum level is offered. Therefore, it must be assumed that lake elevations lower than 220 could be tolerated which might allow for a maximum lake level less than 240 msl. Additional information on the drought of record is also needed to clarify the study period. It is unclear if the drought of record used for this study also pertains to the Cape Fear River drainage basin. If it does not, it is possible that there was ample water in the Cape Fear River for more than the assumed rate of makeup flow of 43 cfs, even if this included short time periods where the river flow could have supported substantial makeup water intake for augmenting Harris Lake levels. Higher makeup flows could possibly support a more stabile reservoir level requiring a lower maximum elevation.

It is understood that the assumed minimum release of 9.5 cfs is an estimate and may change after the on-going instream flow study which might have implications on justifiable lake levels. It is also understood that the Western Wake Regional Wastewater Management Facilities Environmental Impact Study is currently assessing the possibility of utilizing Harris Reservoir as a discharge point for treated effluent. The Harris study should recognize any nearby project that has the ability to alter assumptions and results.

In addition, information on operational changes should be supplied which would detail the possibility of reducing power output during an extreme drought rather than relying on an elevated lake level at 240 msl. It is unclear if any power output reductions are possible and still remain above the baseline electrical output as well as the reliable generation term as documented in support of the project purpose and need.

The second document entitled "Harris Advanced Reactor (HAR) Section 404(b)(1) Alternatives Analysis" (Alternatives Analysis), provides additional information on alternatives required for Department of the Army(DA) 404 permitting activities. These alternatives should include any which might be applicable to the project, including the No Action Alternative. Each viable alternative is compared against impacts to both the natural and human environment, as well as, its ability to meet the purpose and need of the project.

It appears that some items within the document are better described within the Combined License Application Environmental Report (COLA ER) released earlier in the scoping process. For example, the No Action Alternative is quickly dismissed in your alternatives document without fully considering all applicable actions including measures that do not require a DA permit such as conservation and purchasing power from other entities. The Alternatives Analysis study submitted in support of a 404 permit should be written as a stand-alone document with proper documentation of each alternative studied. By doing so, we can use this document during our review and identification of the Least Environmentally Damaging Practicable Alternative (LEDPA). Therefore, please expand the No Action analysis to properly encompass aspects of this alternative.

As stated earlier, alternatives are initially compared against the purpose and need of the project to determine their overall viability. Those that meet purpose and need continue through an in-depth review process against other viable alternatives. We realize that as the proposal develops, slight modifications to the purpose and need statement may be necessary to reflect the current intention of the project. With this in mind, Corps Headquarters has suggested a modification to our original Purpose and Need Statement to include the word "nuclear", so that our review of alternatives is limited to those satisfying additional electrical power through the use of a nuclear facility. Therefore, the Corps sponsored Purpose and Need statement for this proposal is now "The development of new nuclear baseload generating capacity to supply electricity to PEC's service area, using advanced technology to produce reliable generation that is located proximate to its major customer base and that minimizes overall impacts to the environment". We understand that the Nuclear Regulatory Commission (NRC) may adopt a slightly different Purpose and Need statement which may allow for an assessment of other energy sources per their regulations. The Corps will accept the results of the NRC determination on the proper source of generation, and limit our study of alternatives accordingly. To clarify one other item, we have also determined that the use of the term "reliable generation" in the Purpose and Need statement can be used to justify generation during drought conditions as utilized in previous correspondence.

The COLA ER identifies 11 sites for consideration as possible locations for additional energy producing facilities. Seven of these 11 are dropped from further consideration due to factors such as soil liquefaction, seismic readings, inadequate water, etc. The remaining 4 sites are studied in detail.

During a meeting with PEC and the Nuclear Regulatory Commission (via telephone), we discussed the overall scope of the alternative analysis study. Most of the environmental impacts assessed to date for this project had been completed with GIS level data, some of which is not accurate enough for permit consideration. For example, wetland impacts were assessed using National Wetland Inventory (NWI) maps which are not always accurate.

At this meeting, we spoke about the possible inaccuracies with GIS review and stated that we may not be able to support an alternatives study reliant upon GIS data. In fact, we indicated that a complete GIS approach has not been conducted in the Wilmington District at the EIS level. Because of the questionable nature of this approach, we offered to review your draft study plan when it became available to fully consider your approach to the alternative sites. To date, a draft study plan has not been submitted to our office for consideration. Please continue to be aware that our assessment of alternatives must be commensurate with the level of impacts. Due to the large amount of possible impacts associated with this proposal, on-site checking of GIS data may be necessary at all viable alternatives in conjunction with the use of the North Carolina Wetlands Assessment Method dichotomous key for determining correct wetland

types which will facilitate a more accurate representation of impacts. In addition, we strongly recommend that you coordinate with the Environmental Protection Agency (EPA) on a review of this document prior to the release of the Draft EIS due to EPA's Clean Water Act involvement and oversight.

With respect to the 7 original sites identified as candidate areas but dropped early in the evaluation process, some of these sites appear to have been removed for logical reasons that may be supported by the Corps such as soil liquefaction and seismic activity. The others need further information to fully discount. For example some are discounted due to the need for the construction of a dam on the Pee Dee River, or due to consideration of a possible fossil plant and insufficient off-site power voltage, or due to its location outside the PEC service territory. Since we are not sure about the feasibility of some of these factors (such as creating sufficient off-site power voltage, etc.), additional information and/or impact amounts are required to discount these areas from consideration during the 404 permitting process.

The remaining 4 sites were then reviewed in more detail to determine the best overall location for the facility. The facility footprint was determined in each of the 4 sites by utilizing a 400 acre project study area for the power block. It is unclear how 400 acres was chosen for this study. The COLA ER uses a 192 acre site for consideration of a nuclear power plant. Please explain the use of different size criteria. In addition, please clarify if minimization efforts were used to site the power block facilities within this area. Also consistent among each site is the lack of required impacts for total build-out of the project including roadways, all transmission corridors, etc. These totals are required for any viable alternative.

One of the sites, the Marion alternative is a new-location facility near the Pee Dee River. Originally, it was carried forward because it contained all the aspects required for a nuclear power plant, including water. After further review, one of the concerns found with this site is the need for a new dam on the Pee Dee River. This criterion was already used for early dismissal of other sites, and was not found to inhibit the Marion site until drought safeguards were discussed which leads to questions on whether this alternative meets the Purpose and Need of the proposal. However, no in-depth drought data is provided for our concurrence with the assessment of this site, nor are alternative drought remediation measures discussed. In addition, high wetland amounts were found by using Natural Resource Conservation Service data on hydric soils without any field confirmation to determine if the other two aspects of jurisdictional wetlands occur (hydrology and vegetation). If this is determined to be a viable alternative, accurate wetland and stream impacts will need to be quantified for the entire project. If it is determined that this alternative meets the Purpose and Need, complete information on the full range of impacts to the human and natural environment are needed for fair disclosure of all impacts.

Another site, the Robinson Plant, is dismissed due to impacts from expanding Lake Robinson to supply adequate water to augment the thermal stress within the Lake during a drought. The Robinson Plant passed the initial screening criteria for adequate water supply, which appears to contradict this study. In addition, no alternatives for the thermal regulation of the lake were given within the document; therefore, it must be assumed that other possibilities exist, but were not studied. This information is needed for a fair comparison between alternatives. Wetland function impacts are discussed resulting from right-of-way creation, but these impacts are not quantified for comparison with the Harris alternative. If it is determined that this alternative is viable and meets the Purpose and Need, complete information on the full range of impacts to the human and natural environment would also be needed for fair disclosure. This would include impacts from all required project components at this site.

The Brunswick site is the third site studied, and has sufficient water cooling capacity for this proposal. However, it was determined that 1,115 acres of wetlands would be functionally impacted from conversion of forested wetlands to emergent during the right-of-way. It appears that the NWI dataset was used for this determination. As indicated before, we have accuracy concerns with the use of this dataset; therefore, if access is possible, field checking and/or verification will need to take place to validate these amounts and reduce the overall inaccuracies inherent with this approach. Also absent in the report is the width of the line used to determine these impacts, as well as, any avoidance and/or minimization measures in line routes used to reduce impact amounts. It is also questionable if all impacts have been accounted for from complete construction at this site including roadways, blow-down lines, etc.

Please be aware that comparing functional impacts between alternatives could become problematic. For example, Harris proposes to functionally impact between 25 - 50 miles of streams by altering them to a lentic system, which would not result in a functioning stream. However, the Brunswick site would functionally change over 1,000 acres of forested wetland to emergent/herbaceous wetlands, all of which would still reflect a functioning wetland. Therefore, it is questionable which functional impact would be considered least damaging between projects.

Cost associated with the construction of the transmission line is listed as a factor with the Brunswick site, due to $300 million required for the complete installation of these lines. However, it remains to be determined if the Brunswick expansion is, or is not cost effective. If so, total costs including complete build-out and mitigation for both projects must be listed for a fair comparison between sites.

In addition, entrainment and impingement are also listed as concerns with the Brunswick plant with regards to aquatic organisms including endangered and threatened species. However, no information from the National Marine Fisheries Service or the U.S. Fish and Wildlife Service are included to support this statement. Similar information is also lacking regarding possible impacts to protected species in and around the

transmission lines. In addition, little information is presented on methods to prevent these situations or to minimize the results. In-depth consultations with the agencies listed above are required before federally protected species can be used to eliminate a viable alternative.

Jurisdictional verification of aquatic features by the Corps has been started on the Harris site, but not completed. Even so, impacts from field work were used for the Harris site and then compared against GIS level impacts at other sites. This is not an equitable comparison due to the inherent error associated with GIS work. Field checking of GIS data on other sites may be needed to reduce this error and provide for a fair comparison. Furthermore, two of these sites (Marion County and Robinson) are located outside the Corps Wilmington District boundaries. We are currently coordinating with the Corps Charleston District for previous information on these two sites and will continue this coordination if field visits are warranted. Also, please be aware that we have not concurred with the statement that fringe and emergent wetlands will be naturally created to offset impacts to similar features due to concerns with the timing of wetland formation and estimations of actual amounts. Finally, we will continue to work with you and the NRC to fully assess secondary and cumulative effects of the project and document this within the EIS document.

Should you have any further regulatory information on this project, please contact Mr. Monte Matthews at 919-876-8441, extension 30.

Sincerely,

Jean B. Manuele

Jean B. Manuele
Chief, Raleigh Regulatory
Field Office

cc:

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