

April 30, 2009

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

SUBJECT: SUMMARY OF DISCUSSIONS WITH PROGRESS ENERGY CAROLINAS, INC.  
CONCERNING CERTAIN RESPONSES TO THE REQUEST FOR ADDITIONAL  
INFORMATION FOR THE SHEARON HARRIS NUCLEAR POWER  
PLANT, UNITS 2 AND 3 COMBINED LICENSE ENVIRONMENTAL REVIEW

Dear Mr. Scarola:

In a letter dated November 13, 2008, the U.S. Nuclear Regulatory Commission (NRC) provided a package of requests for additional information (RAIs) to Progress Energy Carolinas, Inc. (PEC), resulting from the environmental review of the Shearon Harris Nuclear Power Plant, Units 2 and 3, combined license application (ML082970534). PEC transmitted the responses to the RAIs in three packages dated February 12 and 13, 2009 (ML090750404, ML090700636, and ML090700636). Subsequent review by the NRC staff and Pacific Northwest National Laboratory (PNNL) contractors determined that not all responses to the RAIs provided the requested information. Based on discussions with PEC staff, a series of telephone calls were scheduled during the week of March 16, 2009, to allow the appropriate NRC Staff and PNNL contractors to discuss the responses to nine RAIs with the appropriate PEC staff and PEC contractors. This letter documents the results of the three teleconferences held during the week of March 16, 2009.

The summary for each teleconference is provided as a separate attachment to this letter. The attachment contains a list of the participants, identifies the RAI in question with the location in PEC's response package; a summary of the issue(s) involved; and a summary of the response with subsequent actions by either the NRC or PEC identified. Enclosure 1 is for the teleconference held on March 17, 2009, involving air quality and accidents. Enclosure 2 is for the teleconference held on March 18, 2009, involving terrestrial ecology, land use, and transmission lines. Enclosure 3 is for the teleconference held on March 20, 2009, involving alternative site selection and aquatic ecology.

The result of the conversations was that PEC would supplement the previous responses for the nine RAIs discussed. The discussion on Air Quality RAI 2.7-2 did not initially require a response from PEC. However, as discussed in Enclosure 1, later discussions between the NRC-PNNL contractor, the State of North Carolina's Division of Air Quality and PEC, determined that information pertaining to construction equipment emissions would need to be assessed by the NRC. Therefore, PEC agreed to provide this information as a supplement to the initial RAI by the end of April 2009.

J. Scarola

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The supplement responses to the RAI's were received on April 30, 2009. The supplement responses are under review for sufficiency and completeness for addressing the RAI's discussed in the enclosures. If you have any questions or need any additional clarification of the information provided in this letter, please contact me at 301-415-3803 or by e-mail at [Donald.Palmrose@nrc.gov](mailto:Donald.Palmrose@nrc.gov).

Sincerely,

*/RA/*

Donald Palmrose, PhD  
Senior Project Manager  
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Division of Site and Environmental Reviews  
Office of New Reactors

Docket No.: 52-022 and 52-023

Enclosures: As stated

cc w/enclosures: See next page

J. Scarola

- 2 -

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Sincerely,

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Enclosures: As stated

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**Shearon Harris COL Environmental RAIs  
RAI Response Discussion Summaries  
Summary of Teleconference  
March 17, 2009**

**Participants:**

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Joseph Pavletich (PEC)

Loren Young (CH2M Hill)

George Howroyd (CH2M Hill)

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Don Palmrose (NRC)

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Roger Dirkes (PNNL)

Cheryl Antonio (PNNL)

Jeremy Rishel (PNNL)

**Air Quality RAI 2.7-2** [PGN RAI ID# H-294 starting on page 49 of 208 in responses to NRC RAIs]

Emissions related to operations are addressed in the RAI response. However, emissions related to construction, such as vehicular emissions, are not addressed. If the area is a maintenance area for ozone, how does the applicant ensure conformance to the NC State Implementation Plan (SIP), especially with regard to transportation conformity (i.e., the motor vehicle emission budgets)? Has the applicant discussed this aspect with the state?

**Response:** PEC discussed the issue of maintaining air quality as a maintenance area during the time period of construction with the State of North Carolina's Division of Air Quality. PEC held discussions with the State of North Carolina and was notified that this construction activity would not change the regional attainment values. PNNL would follow up on today's discussion with the State of North Carolina and see if Safety RAI 02.03.02-9 would also help clarify this issue. PEC was contacted by the State of North Carolina and confirmed that construction emissions are subject to the confirmatory determination under 15A NCAC 02D.1601 (state implementation of the Clean Air Act). PEC will supplement this RAI for construction emissions by the end of April 2009.

**Accident RAI 7.1-1** [PGN RAI ID# H-297 starting on page 57 of 208 in responses to NRC RAIs]

Clarification is needed about what sectors will have a change in the Exclusion Area Boundary (EAB) distance (i.e., is it the seven sectors beginning with ESE clockwise through WSW? In addition, the response needs to consider other impacts (beyond accidents) that a change in the EAB distances will cause in other sections within the ER (i.e., dose calculations for normal operations, site and land use descriptions, etc.) and FSAR. These sections and associated calculations are now likely to be inconsistent with respect to the EAB. Finally, does the change to the EAB have any impact on HNP?

**Response:** Initial discussion centered on when AP1000 Rev.17 (Rev 17) would be incorporated into Progress Energy's FSAR in April 2009 and into the ER in June 2009. Additionally, the

response to Safety RAI 15.00.03 would provide some additional clarity. Further discussions involved the Low Population Zone (LPZ) circles as relating to Shearon Harris Unit 1 and the proposed Units 2 & 3. Differences were seen by PNNL for the PAVAN and the XOQDOQ input decks. PEC discussed that one code is run separately for Units 2 and 3 under normal releases (XOQDOQ) versus having a locus point at the center between Units 2 & 3 under accident releases (PAVAN). Follow-up action by PEC would be to confirm how the LPZ circles are applied in PAVAN versus in XOQDOQ. PNNL noted that the reported site LPZ X/Q's in the RAI response differed from the site LPZ X/Q's reported in the ER; this was not expected since the LPZ distance and meteorology are the same in both the ER and RAI response. NRC and PNNL have reviewed Safety RAI 15.00.03 for supporting analysis with Rev 17.

Subsequent discussions in April 2009, centered on PEC applying Regulatory Guide (RG) 1.23 Rev. 1 in the RAI response while the ER Table 7.1-3 relied upon RG 1.23 Rev. 0 as causing the change in LPZ X/Q values.

**Shearon Harris RAIs**  
**RAI Response Discussion Summaries**  
**Summary of Teleconference**  
**March 18, 2009**

**Participants:**

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**Terrestrial RAI 4.3.1-2** [PGN RAI ID# H-316 starting on page 114 of 208 in responses to NRC RAIs]

Need to clarify that not only wetland survey results are requested—we also need the survey of upland habitats for new construction and roadway areas. Need clarification as to whether these will be provided as part of the ‘wetland’ report by the end of April 2009.

**Response:** The reporting of species and habitat is necessary. PNNL asked to clarify the results for all terrestrial resources, not just that of the wetlands. PEC would like to preserve the original intent of the wetlands report, which is to address wetlands and USACE needs. However, PEC understands that habitat has not been clearly described and will provide a supplement to the RAI response. The supplement will be provided by the end of April 2009.

**Terrestrial RAI 2.4.1-1** [PGN RAI ID# H-312 starting on page 104 of 208 in responses to NRC RAIs]

No formal surveys for state-listed or Federal listed species were conducted during the August 2006 surveys. The U.S. Fish and Wildlife correspondence cited in the ER requested that the surveys be conducted at the appropriate time of year to detect the protected plant species Michaux's sumac and harperella. During the site audit, conversations with the contractor indicated that much of the area surveyed during August 2006 provided unsuitable habitat for state and Federal listed species that are listed as important species in the ER. The PEC response to information needs identified at the site audit indicated that the ecological observations report would be updated to include habitat type preferences of important species as defined in the ER, and any pertinent information from ecological field surveys/notes that indicated the suitability of potentially impacted habitats for listed species. The current version of the ecological observations report does not include observations documenting whether habitat exists for important state and Federal listed species. Can the contractors/surveyors provide a more detailed description regarding the suitability of the habitat surveyed for the state and federal listed species?

**Response:** PNNL stated that there is no citable reference for the suitability of habitat for

important species. PEC will provide a citable reference with respect to habitat issues for protected plants (terrestrial protected species) as a supplement to the RAI by the end of April 2009.

**Terrestrial RAI 2.4.1-3** [PGN RAI ID# H-313 starting on page 107 of 208 in responses to NRC RAIs]

Please provide clarification regarding the presence or absence of vernal pools in the 220 to 240 ft contour area that will be inundated. Discussion at the site audit indicated that vernal pools were not present in the inundation area. The current version of the ecological observations report does not address this clearly. If present, provide descriptions and characterization, locations, and acreages of vernal pools with wetland delineation/mapping to be received by the end of April 2009.

**Response:** PNNL indicated that the information is not completely accurate regarding the presence of vernal pools in the ecological observations report. PEC stated that vernal pools do not exist at the site and will supplement the ecological observations report, and clarify the issue in the environmental report and wetlands report. PEC will provide a supplement to the RAI by the end of April 2009.

**Assumptions used for analysis of emergent wetlands (Issue raised by NRC staff):**

With respect to "Shearon Harris Nuclear Power Plant Units 2 and 3 (HAR) Future Wetlands Impact Analysis", the technical criteria for predicting where new wetlands will form once the Harris reservoir pool elevation is raised from 220 ft msl to 240 ft msl is unclear.

For most soils classified as "loams", including sandy loams, silt loams, silty clay loams, and other soils around the HAR reservoir, wetlands will generally form around the newly raised shoreline only where the raised water level comes within about 12 inches of the land surface. This represents the upward extent of the "capillary fringe" extending upward from the new water level. Hence, areas at the edge of the lake below an elevation of about 241 ft should be expected to form new wetlands.

However, the report seems to imply that some areas between 241 and 260 ft will form wetlands once the water level is raised. This needs to be clarified. Above 241 ft, only those areas that are presently wetlands (while the lake remains at 220 feet) will be wetlands once the lake is raised.

**Response:** There may be some value in being able to quantify the net loss or gain in wetlands as a result of increasing the water level from 240 to 260 ft. Net loss or gain of wetlands would be calculated from the 240- to 241-foot contours. This information could be used for adjustment to the level of impact in the ER or EIS but is not likely to be used in the USACE decision-making process. PEC will provide a supplement to RAI 2.4.1-3 by the end of April 2009.

**Land Use RAI 4.1.1-1** [PGN RAI ID# H-334 starting on page 157 of 208 in responses to NRC RAIs]

Staff requested a citable reference for PEC's characterization of construction and preconstruction activities as they affect land use and land requirements.

**Response:** PNNL requested document TE-B-001\_RFI\_158 (Clearing of Site and Additional Information; also known as RFI-158). PEC will docket the document and provide a supplement to the RAI by the end of April 2009.

**Transmission Lines RAI 3.7-1** [PGN RAI ID# H-335 starting on page 158 of 208 in responses to NRC RAIs] (including total acreage of transmission lines)

The reported transmission line corridor acreage (1717 acres) does not appear to account for additional space for the proposed lines, not even the additional 100 ft of width called for in the ER. Independent analysis estimates that affected transmission line corridor acreages are significantly different than acreages reported in the Harris ER. Given the differences, it appears that PEC may not have considered these additional acreages in their assessment in the ER. This calls into question whether they have reliably characterized the affected environment in the areas of land use, terrestrial ecology, and aquatic ecology – perhaps others. Clarification is needed on the following points:

1. Total length of reported transmission line (244.6 km) exceeds total length of reported corridor (228.5 km) by 16 km; need clarification from applicant.
2. Estimated total acreage (1717 ac.) can only account for existing 100-foot corridors and therefore assumes the (3) proposed transmission lines will be placed entirely within existing corridors (no additional acreage).
3. If PEC's conservative estimate of an additional 100 ft is added to existing corridor acreage for the proposed lines, the new total would be approximately 3080 ac. (an additional 1251 ac.).

**Response:** PNNL is having difficulty replicating information discussed in the ER on land area affected by T-lines. PEC is aware of inconsistencies in ER sections 3.7 and 4.1.1.2. PEC will describe the approach to calculating the impacted area and confirm or correct the data and provided the information as a supplement to this RAI by the end of April 2009.

**Shearon Harris RAIs**  
**RAI Response Discussion Summaries**  
**Summary of Teleconference**  
**March 20, 2009**

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**Alternative Site Selection RAI 9.4-1** [PGN RAI ID# H-304 starting on page 76 of 208 in responses to NRC RAIs]

The RAI 9.4-1 requests data and information demonstrating a quantifiable/defensible alternative site selection process. It was unclear how the region of interest was screened to provide legitimate candidate areas; potential sites within the candidate areas; and candidate sites. The RAI response clarified how the ROI was screened to provide the candidate areas, however, two issues remain:

1. How the candidate areas were screened to provide the eleven potential sites. The RAI response says they screened both the ROI and candidate areas using the same criteria, although screening the candidate areas "required a more detailed review". It also says it was an iterative process; there should be detailed information regarding how sites/areas were precluded/eliminated from further review.
2. How potential sites were evaluated and reduced to 4 candidate sites. An acceptable method should follow a reasonable set of criteria with established weighting and ranking. This can be either qualitative or quantitative; in either case, the threshold for inclusion/exclusion should be clarified and applied directly to each potential site leading to a clear evaluation of the methodology deployed for candidate site selection (the 4 remaining sites). For example, Potential Site #7 in the ER, pg. 9-83, was rejected in part because it had inadequate cooling water resources. However, knowing that the candidate area was screened for cooling water resources, how would this site have been included as a potential site? PEC also states in the RAI response that the screening of the candidate areas included consideration for potentially containing wetlands; however, Potential Site #6 indicates that it was rejected in part due to wetlands. Again, if the candidate area was screened correctly, how would this be included as a potential site?

A measurable analysis of how the potential sites were selected and then how the candidate sites were selected is needed.

**Response:** The discussion about going from potential sites to the four candidate sites needs to be improved to clearly explain the thresholds for reducing the candidate area (also considered to represent the ROI) to the eleven potential sites and explaining the thresholds for reducing the eleven potential sites to the four candidate sites. PEC understands the site selection process needs to be a measurable and consistent process to capture how the potential sites were selected and then how they were reduced to the four candidate sites. The supplement to this RAI will be provided by the end of April 2009.

**Aquatic Ecology RAI 4.3.2-4** [PGN RAI ID# H-323 starting on page 125 of 208 in responses to NRC RAIs]

ER and RAI responses do not address impacts from construction of new intake structures on the Thomas Creek Branch of Harris Reservoir. In particular, RAI 4.3.2-4 asks for final construction plans, timing and length of construction period, design details, etc. The response was "will provide when final". There is little to no information in the ER with regard to this intake, and the couple of sentences in Section 5.3.1.1 that describe the intake indicate that "The deepwater intake port supplying water to the raw water pumphouse is to be located at the 12-m (40 ft.) depth contour and supported above the lake bottom". This sentence is in error as the current bathymetry (Fig. 2.3-17) shows max depth at 9 ft, and even with a 20 ft. elevation of surface water, the max depth is still below 30 ft.

Additionally, the status of the 2008 Environmental Monitoring for Shearon Harris Nuclear Power Plant Unit 1 was requested.

**Response:** There is a discrepancy on the depth of this intake structure and PEC will provide additional information to correct this as well as provide information on the footprint and cross-section of the intake structure as a supplement to this RAI by the end of April 2009. PEC noted that the construction of this intake structure would require the use of cofferdams (i.e., wet construction). The 2008 Environmental Monitoring report should be in final review, and PEC will notify the NRC when this annual report is sent to the NRC