Progress Energy

Serial: NPD-NRC-2009-082
April 28, 2009

10CFR52.79

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

SHEARON HARRIS NUCLEAR POWER PLANT, UNITS 2 AND 3
DOCKET NOS. 52-022 AND 52-023
SUPPLEMENT 1 TO RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING THE ENVIRONMENTAL REVIEW

Reference:

1. Letter from Donald Palmrose (NRC) to James Scarola (PEC), dated November 13, 2008, "Request for Additional Information Regarding the Environmental Review of the Combined License Application for Harris Nuclear Power Plant, Units 2 and 3"

2. Letter from Garry D. Miller (PEC) to U.S. Nuclear Regulatory Commission dated February 12, 2009, "Response to Request or Additional Information Regarding the Environmental Review", Serial NPD-NRC-2009-017

Ladies and Gentlemen:

Progress Energy Carolinas, Inc. (PEC) hereby submits a supplemental response to the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) provided in Enclosure 1 of Reference 1.

A revised response to several of the NRC RAI questions is provided in Enclosure 1. Enclosure 1 also identifies changes that will be made in a future revision of the Shearon Harris Nuclear Power Plant Units 2 and 3 (HAR) application. Enclosure 2 provides a list of files included on the attached CD . These files have been prepared in accordance with NRC electronic submittal guidance. A pre-flight report is included as Enclosure 3 which lists the files that do not pass pre-flight, but are deemed acceptable due to the reasons stated in the enclosure.

If you have any further questions, or need additional information, please contact Bob Kitchen at (919) 546-6992, or me at (919) 546-6107.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on April 28, 2009.

Sincerely,

Garry D. Miller
General Manager
Nuclear Plant Development

Enclosures/Attachment

Progress Energy Carolinas, Inc.
P.O. Box 1551
Raleigh, NC 27602

D084
NRO

cc (with 4 copies of Enclosures/Attachment):
Dr. Donald Palmrose, U.S. NRC Environmental Project Manager

cc (without attached CD):
U.S. NRC Director, Office of New Reactors/NRLPO
U.S. NRC Office of Nuclear Reactor Regulation/NRLPO
U.S. NRC Region II, Regional Administrator
U.S. NRC Resident Inspector, SHNPP Unit 1
Mr. Manny Comar, U.S. NRC Project Manager

Shearon Harris Nuclear Power Plant Units 2 and 3
Supplement 1 to Response to NRC Request for Additional Information Regarding the Environmental Review, dated November 13, 2008

NRC RAI #	Progress Energy RAI #	Progress Energy Response
7.4-1	H-0287	February 12, 2009; NPD-NRC-2009-017
5.2.1.3-1	H-0288	February 12, 2009; NPD-NRC-2009-017
5.2.2-1	H-0289	February 12, 2009; NPD-NRC-2009-017
5.2.2-2	H-0290	February 12, 2009; NPD-NRC-2009-017
5.2.2-3	H-0291	February 12, 2009; NPD-NRC-2009-017
2.3.1.3-1	H-0292	February 12, 2009; NPD-NRC-2009-017
2.7-1	H-0293	February 12, 2009; NPD-NRC-2009-017
2.7-2	H-0453	Revised response enclosed – see following pages
5.3.3.1-1	H-0295	February 12, 2009; NPD-NRC-2009-017
5.3.3.1-2	H-0296	February 12, 2009; NPD-NRC-2009-017
7.1-1	H-0297	February 12, 2009; NPD-NRC-2009-017
7.2-1	H-0298	February 12, 2009; NPD-NRC-2009-017
7.2-2	H-0299	February 12, 2009; NPD-NRC-2009-017
7.3-1	H-0300	February 12, 2009; NPD-NRC-2009-017
7.3-2	H-0301	February 12, 2009; NPD-NRC-2009-017
7.3-3	H-0302	February 12, 2009; NPD-NRC-2009-017
9.2-1	H-0303	February 12, 2009; NPD-NRC-2009-017
9.4-1	H-0454	Revised response enclosed – see following pages
9.4-2	H-0305	February 12, 2009; NPD-NRC-2009-017
5.4.2-1	H-0306	February 12, 2009; NPD-NRC-2009-017
4.5-1	H-0307	February 12, 2009; NPD-NRC-2009-017
4.5-2	H-0308	February 12, 2009; NPD-NRC-2009-017
2.5.3-1	H-0309	February 12, 2009; NPD-NRC-2009-017
2.5.3-2	H-0310	February 12, 2009; NPD-NRC-2009-017
2.5.3-3	H-0311	February 12, 2009; NPD-NRC-2009-017
2.4.1-1	H-0449	Revised response enclosed – see following pages
2.4.1-2	H-0450	Revised response enclosed – see following pages
2.4.1-3	H-0314	February 12, 2009; NPD-NRC-2009-017
4.3.1-1	H-0315	February 12, 2009; NPD-NRC-2009-017
4.3.1-2	H-0448	Revised response enclosed – see following pages
4.3.1-3	H-0317	February 12, 2009; NPD-NRC-2009-017
4.3.1-4	H-0318	February 12, 2009; NPD-NRC-2009-017
2.4-2	H-0319	February 12, 2009; NPD-NRC-2009-017
4.3.2-1	H-0320	February 12, 2009; NPD-NRC-2009-017
4.3.2-2	H-0321	February 12, 2009; NPD-NRC-2009-017
4.3.2-3	H-0322	February 12, 2009; NPD-NRC-2009-017

NRC RAI #	Progress Energy RAI #	Progress Energy Response
4.3.2-4	H-0455	Revised response enclosed – see following pages
2.4.2-1	H-0324	February 12, 2009; NPD-NRC-2009-017
6.5.2-1	H-0325	February 12, 2009; NPD-NRC-2009-017
2.4.2-2	H-0326	February 12, 2009; NPD-NRC-2009-017
2.4.2-3	H-0327	February 12, 2009; NPD-NRC-2009-017
2.4.2-4	H-0328	February 12, 2009; NPD-NRC-2009-017
5.3.1.2-1	H-0329	February 12, 2009; NPD-NRC-2009-017
4.3.2-5	H-0330	February 12, 2009; NPD-NRC-2009-017
4.3.2-6	H-0331	February 12, 2009; NPD-NRC-2009-017
5.3.4-1	H-0332	February 12, 2009; NPD-NRC-2009-017
2.4-1	H-0333	February 12, 2009; NPD-NRC-2009-017
4.1.1-1	H-0451	Revised response enclosed – see following pages
3.7-1	H-0452	Revised response enclosed – see following pages
2.5.2-1	H-0336	February 12, 2009; NPD-NRC-2009-017
2.5.2-2	H-0337	February 12, 2009; NPD-NRC-2009-017
2.5.4-1	H-0338	February 12, 2009; NPD-NRC-2009-017
4.4.2-1	H-0339	February 12, 2009; NPD-NRC-2009-017
2.5.2-3	H-0340	February 12, 2009; NPD-NRC-2009-017
4.4.1-2	H-0341	February 12, 2009; NPD-NRC-2009-017
4.4.1-3	H-0342	February 12, 2009; NPD-NRC-2009-017
2.5.2-4	H-0343	February 12, 2009; NPD-NRC-2009-017
10.4.2-1	H-0344	February 12, 2009; NPD-NRC-2009-017
10.4.2-2	H-0345	February 12, 2009; NPD-NRC-2009-017
10.4.1-1	H-0346	February 12, 2009; NPD-NRC-2009-017
10.4.2-3	H-0347	February 12, 2009; NPD-NRC-2009-017
10.4.3-1	H-0348	February 12, 2009; NPD-NRC-2009-017
4.1-1	H-0349	February 12, 2009; NPD-NRC-2009-017
1.2-1	H-0350	February 12, 2009; NPD-NRC-2009-017

Attachments on CD	Associated NRC RAI #
001 Attachment 4.3.1-2A	4.3.1-2
002 Attachment 4.3.1-2B	4.3.1-2
003 Attachment 4.3.1-2C	4.3.1-2
004 Attachment 2.4.1-1A	2.4.1-1
005 Attachment 2.4.1-1B	2.4.1-1 & 2.4.1-2
006 Attachment 2.4.1-1C	2.4.1-1 & 2.4.1-2
007 Attachment 2.4.1-2A	2.4.1-2
008 Attachment 2.4.1-2B Part 1	2.4.1-2
009 Attachment 2.4.1-2B Part 2	2.4.1-2

Attachments on CD	Associated NRC RAI #
010 Attachment 2.4.1-2B Part 3	2.4.1-2
011 Attachment 2.4.1-2B Part 4	2.4.1-2
012 Attachment 2.4.1-2B Part 5	2.4.1-2
013 Attachment 4.1.1-1A	4.1.1-1
014 Attachment 9.4-1A	9.4-1
015 Attachment 4.3.2-4A	4.3.2-4
016 Attachment 4.3.2-4B	4.3.2-4
017 Attachment 4.3.2-4C	4.3.2-4

NRC Letter No.: HAR-RAI-LTR-ER-NRC-001

NRC Letter Date: November 13, 2008

NRC Review of Environmental Report

NRC RAI #: 4.3.1-2

Text of NRC RAI:

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.

PGN RAI ID #: H-448

PGN Response to NRC RAI:

Potentially disturbed areas related to temporary and permanent construction, including temporary laydown areas for HAR 3, construction parking areas, cooling tower locations for HAR 2 and HAR 3, wastewater treatment plant (WWTP), any expanded WWTP lines, and any roadway improvement or construction projects outside the 220-ft. to 240-ft. contour around the reservoir, are shown in Attachment 4.3.1-2A. This set of figures was developed based on the information included in RFI-158, as well as available subsequent information regarding construction plans.

Wetland delineation surveys were performed from November 2008 through February 2009. This delineation effort addressed the complete Harris Reservoir shoreline and included planned temporary laydown areas, construction parking areas, cooling tower locations for HAR 2 and HAR 3, and any roadway improvement projects outside the 220-ft. to 240-ft. contour. Additionally the information contained in response to RAI 2.4.1-1 is applicable to the additional areas identified in RFI-158.

The results of wetland delineation efforts are summarized in Attachment 4.3.1-2B. The final U.S. Army Corps of Engineers (USACE) verification visit has not been completed and these results should be considered preliminary until the USACE has approved the jurisdictional delineation. The U.S. Army Corps of Engineers (USACE)-approved Jurisdictional Wetland map will include tables of wetland areas (emergent, fringe, and forested/herbaceous);

individual stream segments identifying length and type of stream (intermittent or perennial); and individual ponds. The summary includes approximate totals of these areas, as the USACE has not given final approval of these areas yet.

Attachment 4.3.1-2B provides an approximate total of intermittent and perennial stream lengths. Previously ER Subsection 2.4.2.2 reported that approximately 89,450 linear ft. of ephemeral streams, 96,860 linear ft. of intermittent stream channels, and 171,490 linear ft. of perennial streams occurred between the 220-ft. and 240-ft. contours. However, these lengths are actually all stream lengths that are shown in HAR ER Appendix 2.4-1 and include lengths above the 240-ft. contour. The ER text and tables will be revised to clarify the lengths associated with the perennial, intermittent, and ephemeral streams and Appendix 2.4-1 will be revised to incorporate the stream data from the wetland delineations. The correct lengths of streams are as follows: approximately 82,300 linear ft. of ephemeral streams, 65,600 linear ft. of intermittent stream channels, and 70,200 linear ft. of perennial streams.

The wetland surveys included identifying fringe area wetlands between the 220-ft. and 221-ft. elevations; which typically covered about 8 ft. width of slope distance. Therefore an approximate area of the potential fringe wetlands can be calculated as 84 ac. by using the current perimeter of Harris Lake and an approximate width of 8 ft. [(457,281 ft. * 8 ft.)/43,560 ft^2/ac. = 84 ac.]. A similar area can be calculated for the potential fringe area at the new lake level of 240 ft. of 144 ac. [(784,327 ft. * 8 ft.)/43,560 ft^2/ac. = 144 ac.].

PEC is coordinating with the USACE Wilmington District, the U.S. Fish and Wildlife Service (USFWS), and the North Carolina Department of Environment and Natural Resources (NCDENR) (including the North Carolina Wildlife Resources Commission [NCWRC]) to develop appropriate mitigation plans for the impacts from the proposed project. No additional surveys are planned at this time.

Additional information related to wetland impacts will be developed as part of the Least Environmentally Damaging Practicable Alternative (LEDPA) analysis. PEC submitted a Request for Proposal (RFP) to perform additional analyses on the alternative sites. Responses to the RFP were received on December 17, 2008. The scope of this work is provided as Attachment 4.3.1-2C to this response. It is anticipated that the LEDPA evaluations will be completed by May 2009.

A desktop analysis will be performed as part of the LEDPA analyses using the wetlands surveys and potentially disturbed areas to quantify wetland and stream impacts. These important areas can be overlaid on the potentially disturbed areas shown in Attachment 4.3.1-2A to identify the areas that may be impacted. It is anticipated that specific information regarding impacts to wetlands from roadways, blow-down lines, inundation, and transmission lines will be evaluated as part of the analyses. Results of the LEDPA analyses will be provided to the NRC for review upon completion.

The following land cover table quantifies the habitat characteristics of the potential areas of disturbance outside of the 220-ft. to 240-ft. contours around the reservoir, as shown on Attachment 4.3.1-2A. Southern yellow pine is the predominant type of land cover that would be impacted, representing almost half, 54 percent, of the total 660 ac. Approximately 20 percent of the impacted area is either bottomland forest / hardwood swamps associated with Harris Reservoir and its embayments. Roadway improvements along US-1, as well as the intake corridor, will primarily impact southern yellow pine habitats with small pockets of bottomland swamps and mixed hardwoods / conifers. Sixty-five acres of managed

herbaceous cover is mostly located adjacent to high intensity developed lands that represent the existing Shearon Harris Nuclear Power Plant Unit 1 (HNP 1).

TABLE 1
Land Cover Summary

Land Cover Category	Acres	% of Total
Southern Yellow Pine	354.0	54%
Bottomland Forest / Hardwood Swamps	138.0	21%
Managed Herbaceous Cover	65.2	10%
Mixed Hardwoods / Conifers	56.5	9%
High Intensity Developed	35.1	5%
Evergreen Shrubland	7.2	1%
Mixed Upland Hardwoods	3.3	0%
Low Intensity Developed	0.1	0%
Deciduous Shrubland	<0.1	0%
Mixed Shrubland	<0.1	0%
Grand Total	**659.4**	

Source: North Carolina Land Cover Data Set, 2005. Based on 2001 source data. ftp://gisdata.lib.ncsu.edu/fedgov/usgs/landcov/nlcd2001/.

Associated HAR COL Application Revisions:

Subsections 2.4.2.2, 4.1.2, 4.3.2.2.1, 4.3.2.2.3, and 5.2.1.1 and Tables 2.4-8, 2.4-9, and 2.4-10 will be updated to revise stream totals to correct lengths associated with the 220-ft. to 240-ft. contour lines. Appendix 2.4-1 will be revised to include the latest information on stream and wetland features from the recent wetland delineations.

Attachments/Enclosures:

See 001 Attachment 4.3.1-2A.pdf, 002 Attachment 4.3.1-2B.pdf, and 003 Attachment 4.3.1-2C.pdf.

NRC Letter No.: HAR-RAI-LTR-ER-NRC-001

NRC Letter Date: November 13, 2008

NRC Review of Environmental Report

NRC RAI #: 2.4.1-1

Text of NRC RAI:

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 CH2M HILL ecological observations report and addendum to address these issues. Provide the completed ecological observations report.

PGN RAI ID #: H-449

PGN Response to NRC RAI:

The executive summary of the requested document is provided in digital format as Attachment 2.4.1-1A to this response. The full document is not being provided due to possible copyright infringement. This document can be purchased by contacting the North Carolina Natural Heritage Program (NCNHP).

Detailed information regarding terrestrial wildlife is limited. Table 1 summarizes the wildlife harvest of important terrestrial species in the four counties surrounding the Harris site. A report summarizing the ecological field observations collected at the Harris site in 2006 is provided as Attachment 2.4.1-1B. This report includes a description of terrestrial and aquatic ecology on the Harris site that has been updated to include an appendix of invertebrate and fish species collected during sampling in the summer of 2006. Attachment 2.4.1-1C provides a summary of the environmental monitoring that has been performed on the Harris site since 1979. The wetland delineations completed in late 2008 and early 2009 were conducted during the time of year that is not ideal for surveying many of the important terrestrial species (plants). Habitat descriptions and a summary of the 2006 fieldwork on important species follow.

The August 2006 site investigation was conducted during an optimal time for observing *Rhus michauxii*, as flowering and fruiting of this species may overlap in August. However, this species is identifiable at other times of the year when it is leafless and dormant. The species was not seen by any field teams. Furthermore, the underlying bedrock north and west of the Jonesboro Fault does not produce soils suitable for *Rhus michauxii*. The

majority of the project area, including all proposed laydown areas, extra work spaces, and transportation improvements, is north and west of the Jonesboro Fault. Only the southeastern portion of the 220- to 240-foot NGVD29 contour area lies south and east of the Jonesboro Fault. While the bedrock in this area could produce soils suitable for *Rhus michauxii*, there is no potentially suitable habitat for the species. Based on the lack of observation of the species and the lack of potentially suitable habitat in the project area, *Rhus michauxii* would not occur in the project area.

In North Carolina, the species formerly identified as *Ptilimnium nodosum* has been determined to be a separate species known as *Ptilimnium viviparum* (Reference 2.4.1-1 01). The separation was based on genetic information suggesting that what was formerly considered *Ptilimnium nodosum* actually comprises three separate species that are geographically distinct: *Ptilimnium viviparum* of North Carolina, Virginia, and Maryland; *Ptilimnium nodosum* of Georgia and South Carolina; and *Ptilimnium fluviatile* of Alabama and Arkansas (Reference 2.4.1-1 01). The separation also is supported by the difference in habitat of North Carolina and northward plants from those in South Carolina and Georgia. Plants in North Carolina occur only in rocky riverbeds, while those of South Carolina and Georgia occur in depression ponds and granitic outcrops and never occur in rocky riverbeds. Regardless of the taxonomic classification, the North Carolina plants would remain protected as *Ptilimnium nodosum*. There are no rocky riverbed habitats within the project area. *Ptilimnium viviparum* (*Ptilimnium nodosum*) was not observed during the August 2006 site investigation. July and August are the months when the species is most observable. Based on this lack of observation and the lack of potentially suitable habitat in the project area, *Ptilimnium viviparum* (*Ptilimnium nodosum*) would not occur in the project area.

The only locations within the proposed project area that contain suitable habitat for state-listed plant species are in the areas identified as sensitive habitats. These locations have the suitable concentrations of soil nutrients and micro nutrients, moisture regime, slope, and solar aspect to support state-listed species that could occur in the vicinity of Harris Reservoir. The remainder of the proposed project area is not suitable to support populations of state-listed plant species.

PEC is coordinating with the U.S. Army Corps of Engineers (USACE) Wilmington District, the U.S. Fish and Wildlife Service (USFWS), and the North Carolina Department of Environment and Natural Resources (NCDENR) (including the North Carolina Wildlife Resources Commission [NCWRC]) to develop appropriate mitigation plans for the impacts from the proposed project. No additional surveys are planned at this time.

Table 1

Wildlife Harvest for the Four Counties Surrounding the Harris Site

	Chatham	Harnett	Lee	Wake
		2005-2006		
Black Bear	0	0	0	0
White-tailed Deer	2,446	1,267	448	1,995
Wild Boar	0	0	0	0
Wild Turkey[1]	58	70	41	39
		2006-2007		
Black Bear	0	0	0	0
White-tailed Deer	2,507	1,310	482	2,284
Wild Boar	0	0	0	0
Wild Turkey[1]	89	65	49	49
		2007-2008		
Black Bear	0	0	0	0
White-tailed Deer	3,192	1,555	697	2,584
Wild Boar	0	0	0	0
Wild Turkey[1]	72	51	39	46

Notes:

[1] Wild turkey harvest estimates begin in the spring of the first year listed

Sources: Reference RAI 2.4.1-1 02, Reference RAI 2.4.1-1 03, Reference RAI 2.4.1-1 04

References

Reference RAI 2.4.1-1 01
Weakley, Alan S. 2008. "Flora of the Carolinas, Virginia, Georgia, northern Florida, and surrounding areas," Working Draft. University of North Carolina Herbarium (NCU), North Carolina Botanical Garden. University of North Carolina. April 7, 2008.

Reference RAI 2.4.1-1 02
North Carolina Wildlife Resources Commission. 2006. North Carolina Inland Hunting, Fishing, and Trapping Regulations Digest 2006-2007. Raleigh, NC.

Reference RAI 2.4.1-1 03
North Carolina Wildlife Resources Commission. 2007. North Carolina Inland Hunting, Fishing, and Trapping Regulations Digest 2007-2008. Raleigh, NC.

Reference RAI 2.4.1-1 04
North Carolina Wildlife Resources Commission. 2008. North Carolina Inland Hunting, Fishing, and Trapping Regulations Digest 2008-2009. Raleigh, NC.

Associated HAR COL Application Revisions:

None.

Attachments/Enclosures:

See 004 Attachment 2.4.1-1A.pdf, 005 Attachment 2.4.1-1B.pdf, and 006 Attachment 2.4.1-1C.pdf.

NRC Letter No.: HAR-RAI-LTR-ER-NRC-001

NRC Letter Date: November 13, 2008

NRC Review of Environmental Report

NRC RAI #: 2.4.1-2

Text of NRC RAI:

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.
- 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.

PGN RAI ID #: H-450

PGN Response to NRC RAI:

The requested reference is provided as Attachment 2.4.1-2A to this response. Additional monitoring data for the site have been collected and are included in Attachment 2.4.1-1B "Ecological Field Observations Harris Nuclear Plant." This report includes a description of terrestrial and aquatic ecology on the Harris site and has been updated to include an appendix of invertebrate and fish species collected during the summer of 2006 during sampling and to remove the incorrect reference to vernal pools. No vernal pools were observed during the 2006 or subsequent fieldwork in areas to be impacted by the proposed project. A summary of the terrestrial and aquatic species observed on the site since 1979 is included in Attachment 2.4.1-1C "HNP Environmental Monitoring Reports Summary."
A GAP analysis has also been performed to identify important habitats for terrestrial and aquatic species. This report, included as Attachment 2.4.1-2B "North Carolina Gap Project Analysis for Affected Project Areas," provides a summary of NC GAP analysis data for amphibian, avian, mammalian, and reptilian species with potential habitat in the project area.

Detailed information regarding terrestrial wildlife on the Harris site is limited. No information on game harvests only on the Harris site is available. Table 1 summarizes the wildlife harvest of important terrestrial species in the four counties surrounding the Harris site.

Table 1

Wildlife Harvest for the Four Counties Surrounding the Harris Site

	Chatham	Harnett	Lee	Wake
2005-2006				
Black Bear	0	0	0	0
White-tailed Deer	2,446	1,267	448	1,995
Wild Boar	0	0	0	0
Wild Turkey[1]	58	70	41	39
2006-2007				
Black Bear	0	0	0	0
White-tailed Deer	2,507	1,310	482	2,284
Wild Boar	0	0	0	0
Wild Turkey[1]	89	65	49	49
2007-2008				
Black Bear	0	0	0	0
White-tailed Deer	3,192	1,555	697	2,584
Wild Boar	0	0	0	0
Wild Turkey[1]	72	51	39	46

Notes:

[1] Wild turkey harvest estimates begin in the spring of the first year listed

Sources: Reference RAI 2.4.1-1 02, Reference RAI 2.4.1-1 03, and Reference RAI 2.4.1-1 04

References

Reference 2.4.1-1 02
North Carolina Wildlife Resources Commission. 2006. North Carolina Inland Hunting, Fishing, and Trapping Regulations Digest 2006-2007. Raleigh, NC.

Reference 2.4.1-1 03
North Carolina Wildlife Resources Commission. 2007. North Carolina Inland Hunting, Fishing, and Trapping Regulations Digest 2007-2008. Raleigh, NC.

Reference 2.4.1-1 04
North Carolina Wildlife Resources Commission. 2008. North Carolina Inland Hunting, Fishing, and Trapping Regulations Digest 2008-2009. Raleigh, NC.

Associated HAR COL Application Revisions:

None.

Attachments/Enclosures:

See 007 Attachment 2.4.1-2A, 008 - 012 Attachment 2.4.1-2B (5 parts), 005 Attachment 2.4.1-1B, and 006 Attachment 2.4.1-1C.

NRC Letter No.: HAR-RAI-LTR-ER-NRC-001

NRC Letter Date: November 13, 2008

NRC Review of Environmental Report

NRC RAI #: 4.1.1-1

Text of NRC RAI:

Please provide citable information summarizing the extent of preconstruction activities including 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;
Remedial work for plant foundation;
Transport pad, haul road, and assembly Pad;
Transmission towers affected by lake raising;
CWS make-up and discharge piping.

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.

PGN RAI ID #: H-451

PGN Response to NRC RAI:

Response to RAI 4.1-1 provides estimates of the percentage of impacts attributable to "construction" and "preconstruction," as well as a summary of the basis for the estimates. Detailed design has not been completed at this time. Therefore, specific information on areas that will be impacted and volumes of materials associated with preconstruction activities will be available as the detailed design progresses. Available information is based on conceptual design information and preliminary assumptions. RFI 158 addresses known laydown areas associated with construction areas and temporary parking areas associated with reactor and cooling tower construction. These areas are shown in Attachment 4.3.1-2A. Attachments A through K of RFI 158 are included with this RAI as Attachment 4.1.1-1A.

Associated HAR COL Application Revisions:

None.

Attachments/Enclosures:

See 013 Attachment 4.1.1-1A.pdf.

NRC Letter No.: HAR-RAI-LTR-ER-NRC-001

NRC Letter Date: November 13, 2008

NRC Review of Environmental Report

NRC RAI #: 3.7-1

Text of NRC RAI:

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.
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).

[Text of NRC Supplemental RAI]:

7. Clarify areas to be impacted by potential expansion of 3 transmission corridors for HAR 3 for GIS verification. Correct discrepancy for impacted values between ER sections 4.1.2 and 4.3.1.5.

PGN RAI ID #: H-0452

PGN Response to NRC RAI:

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 are discussed in the following paragraphs.

   Per Rule R8-62, the NC Utilities Commission (NCUC) requires a certificate of Environmental Compatibility and Public Convenience and Necessity to construct certain transmission lines. A certificate is not required if:

   - The line is designed to operate at 161kV or less.
   - The new line is a replacement or expansion of an existing line with a similar line in substantially the same location or it is rebuilding, upgrading, modifying, modernizing or reconstructing an existing line for the purpose of increasing capacity or widening an existing right-of-way.
   - The FERC has licensing jurisdiction and the NCUC determines that the agency will conduct proceedings substantially equivalent to the proceedings required by Rule R8-62.

- Twenty-five percent or more of the required right-of-way was acquired prior to March 6, 1989.

PEC has implemented a process for determining transmission line routes. The objective of the process is to find an economical route that minimizes social and environmental impacts, while meeting the engineering requirements of the project. The process involves:

1) Defining the project study area.

2) Investigating the study area.

3) Obtaining input from community planners and leaders.

4) Identifying constraints.

5) Developing evaluation criteria.

6) Developing alternative routes.

7) Conducting public workshop(s).

8) Performing route analysis.

9) Selecting the final route.

10) Preparing the environmental report.

11) Notifying landowners of the selected route.

12) Preparing the application for a certificate of Environmental Compatibility and Public Convenience and Necessity.

13) Conducting public hearings if required by the NCUC.

14) Obtaining required environmental permits.

Upon approval of the proposed line by the NCUC, PEC will initiate the permitting in Item 14 above. Following the line route selection process described above, PEC staff will meet with regulators to describe the project, the route, the construction process and sequence, and the steps that will be taken to minimize environmental impacts. Following those meetings, PEC will prepare and submit appropriate permit applications. Typically, those include an erosion control plan, which includes construction stormwater in North Carolina, to the NCDENR, Division of Land Resources; a "wetlands/crossing" (Clean Water Act [CWA] Section 404 and Rivers and Harbors Act Section 10) permit application to the USACE and jointly to the NCDENR, Division of Water Quality, for review (under CWA Section 401).

As conditions of those permits, PEC ensures compliance with other related laws, including the Endangered Species Act (through consultation with the U.S. Fish and Wildlife Service) and the National Historic Preservation Act (through consultation with the SHPO). PEC would also consult with the NCWRC, to the extent the proposed line corridors impact "Game Lands" (private and/or public property managed by the NCWRC through agreements with the underlying property owners).

PEC uses right-of-way clearing and transmission line construction techniques that minimize permitting requirements and ultimately minimize impacts to the environment. For instance, PEC does not remove stumps or grade rights-of-way. Instead, vegetation is cut to near-ground level, so that the remaining root mat can help prevent erosion and can re-sprout so native vegetation can re-populate the right-of-way. Woody debris (non-merchantable cut timber) is chipped, and chips are distributed across the right-of-way to further prevent erosion. Debris and chips are not placed in wetlands or streams. Wetlands are hand-cut to avoid rutting, and stream crossings are avoided if possible. Where stream or wetlands crossings are necessary, mats or portable bridging are used to avoid filling these areas. Structures are "direct embedded" (no concrete foundations) where possible.

Through this process, PEC frequently avoids the need for the above-mentioned CWA 404/401 permits, since there is no "discharge" as defined in CWA Section 404. Such permitting determinations are made in consultation with the USACE.

2. Standards/procedures for the interconnection operation has been requested from PEC and is answered in the following paragraphs:

   PEC evaluates proposed generation additions to the PEC transmission system via our Standard Large Generator Interconnection Procedures (LGIP). The LGIP is documented as Attachment P to the PEC Open Access Transmission Tariff (OATT) procedure. A copy of this procedure can be found at (Attachment P is on page 486 of the pdf file): http://www.oatioasis.com/CPL/CPLdocs/OATT_Effective_Sept_08_2008.pdf

   PEC evaluates the impact that proposed generation additions will have on the transmission grid with respect to line loading, short circuit contribution, and transient and dynamic stability. The purpose of this evaluation is to ensure continued compliance with NERC Reliability Standards, particularly NERC Standards TPL-001 through TPL-004 (system performance). A copy of these NERC Standards can be found at: http://www.nerc.com/page.php?cid=2|20. Right-of-way maintenance will be performed in accordance with PEC standard operating procedures and is discussed in ER Subsection 3.7.5. In addition NUREG-1437, Supplement 33, Sections 2.1.7 and 4.2 of the GEIS discusses this subject in detail.

3. Identification of basic electrical design parameters, including transmission design voltage or voltages, is illustrated in ER Tables 3.7-1 and 3.7-2. Identification of basic electrical design parameters, including the minimum conductor clearances to ground, is discussed in ER Subsection 3.7.2. Identification of basic electrical design parameters, including the maximum induced current to ground from vehicles or obstacles under the transmission line, is discussed in ER Subsection 3.7.5. In addition NUREG-1437, Supplement 33, paragraph 4.2.1, of the GEIS discusses this subject in detail:

   > "By using a computer code called ACDCLINE (Rev. 3.0) that was produced by the Electric Power Research Institute (Progress Energy 2006b), Progress Energy calculated electric field strength and induced current that is produced by its transmission lines. The results of this computer program have been field-verified through electrostatic field measurements by several utilities. Input parameters included the design features of the limiting-case scenario, the NESC requirement that line sag be determined at 120°F conductor temperature, and the maximum vehicle size under the lines as a tractor-trailer. The analysis determined that none of

the transmission lines has the capacity to induce as much as 5 mA in a vehicle parked beneath the lines. The calculated induced currents ranged from 1.1 to 3.1 mA (Progress Energy 2006b), but in reality, the induced currents would be lower because the calculations were performed with the conservative assumption that the line sag was determined at 212°F conductor temperature, instead of at the required 120°F.

In the GEIS (NRC 1999), the NRC staff found that electrical shock is of SMALL significance for transmission lines that are operated in adherence with the NESC criteria for limiting hazards."

4. Predicted noise levels resulting from transmission-system operation are briefly discussed in ER Subsection 3.7.3. There are no requirements for noise levels for transmission lines in North Carolina. Transmission lines are very quiet during normal operating conditions. Audible noise from transmission lines are related to Corona effect during humid conditions and are very difficult to predict. Transmission lines are designed to reduce Corona effects. The Corona noise is reduced to extremely low levels at the edge of the right-of way.

5. A description of land use limitations within the transmission line corridors is discussed in ER Subsection 3.7.1.2.

6. General methods of construction for the proposed new lines and upgrades (for example, tower foundations, stringing, locations of access roads, span length, and clearing of rights-of-way) are discussed in ER Subsection 3.7.2.

[PGN Response to NRC Supplemental RAI]:

7. The following table summarizes the linear distances and areas to be impacted by the potential expansion of three transmission corridors for HAR 3. The impacted area per transmission line corridor assumes a 50-foot buffer on both sides of the line for a potential total corridor width of 100 feet. A total of 1,250.2 acres or 2 square miles (5.1 square kilometers) have the potential to be impacted by the transmission corridor expansion.

Transmission Line	Length (Kilometers)	Length (Miles)	Length (Feet)	Impacted Area (Acres)
Erwin	47.9	29.8	157,282	361.1
Fort Bragg	57.2	35.5	187,671	430.8
Wake	60.9	37.8	199,654	458.3
Total	166.0	103.1	544,607	1,250.2

The revised lengths are based on information provided by Progress Energy in July 2006 and are the most current GIS information available. Revised text will be included in ER Rev. 1, as presented in the next section of this RAI response.

Associated HAR COL Application Revisions:

ER Subsections 2.2.2, 3.7.1.1, 3.7.1.2, 4.1.2, 4.1.2.2, 4.1.2.6.2.1 and 4.3.1.5, 5.6, 10.2.1.1, and 10.3.1.8, as well as Figure 2.2-3, will be revised in ER Rev. 1 to correct discrepancies in values impacted by revised GIS data. These revisions also use the correct buffer width of 100 feet total width (Rev 0 of the ER previously used 200 feet total width for the buffer calculations). The revised sections are presented below.

4.1.2 APPURTENANT FACILITIES AND OFF-SITE AREAS

ER Section 3.7 describes the three new transmission lines (within existing transmission corridors) and the associated switchyard that will be developed to support HAR 3. Seven 230-kV transmission lines currently connect the HNP to the transmission system (Reference 4.1-001). Three new transmission lines will connect the 230-kV HAR 3 switchyard to the PEC electric grid. These transmission lines will be connected to the existing Fort Bragg, Erwin, and Wake substations. The existing maintained transmission corridors will be widened no more than 100 ft. to accommodate the proposed lines for HAR 3. The Fort Bragg, Erwin, and Wake lines run through primarily agricultural and undeveloped land. Of the 5.1 km^2 (2.0 $mi.^2$) or 1250.2 ac that would be impacted by widening the existing lines, approximately 2 percent is residential land (ER Figure 2.2-3). Further, approximately 6 percent is open water and wetlands. More than 90 percent of the land impacted by the widening of the three existing corridors is agricultural or undeveloped land. Once specific effects from construction are identified, appropriate measures will be taken to minimize the disturbances. Because the new lines are expected to be adjacent to or within existing maintained transmission corridors, impacts are expected to be SMALL.

4.1.2.2 Transmission Line Construction

The Fort Bragg, Erwin, and Wake lines run through primarily agricultural and undeveloped land (Figure 2.2-3). Of the total 5.1 km^2 (2.0 $mi.^2$) or 1250.2 acres that would be impacted by widening of the existing lines, approximately 2 percent is residential land and less than 5 percent is wetlands. The majority, over 90 percent, of the lands potentially impacted by the widening of the three existing corridors are agricultural or undeveloped. More detail is provided in ER Section 2.2. Construction activities would include vegetation clearing and logging of existing forested land along potential ROWs. This impact will not be significant or noticeably alter significant existing land uses because the existing ROWs traverse land in active agricultural production. Minimal plots of land would be removed from agricultural production where new transmission towers would be sited. Land-clearing or construction activities in the ROWs would follow BMPs and would be mitigated to the extent possible. As a result, impacts of new transmission construction are expected to be SMALL.

4.1.2.6.2.1 Long-Term Physical Changes in Land Use as a Result of Transmission Line Construction

Minor long-term physical changes in land use are expected from construction in the anticipated transmission corridor. Of the 5.1 km^2 (2.0 $mi.^2$) or 1250.2 ac. that would be impacted by widening the existing lines, less than 2 percent is residential land, and less than 5 percent is wetlands. When constructing the new transmission lines, floodplains and wetlands will be identified and avoided to the degree possible. Impacts that can not be

avoided will be minimized and mitigated as required by applicable permit requirements. Adverse effects to water courses, wetlands, and floodplains within a transmission ROW will be avoided to the extent possible. Section 4.6 describes mitigation measures. Widening of the transmission corridors is not expected to change residential or agricultural land use in the areas impacted.

4.3.1.5 Transmission Corridors

"...transmission corridors that will be expanded include the existing Fort Bragg, Erwin, and Wake lines. The expanded corridors will impact an area totaling no more than 5.1 km^2 (1250.2 ac. or 2.0 $mi.^2$) within 50 feet immediately adjacent to either side of the existing lines (ER Figure 2.2-3), of which more than 90 percent is agricultural and undeveloped land. Assuming the entire 100-ft. wide corridor is disturbed, approximately 316 ha (782 ac. or 1.2 $mi.^2$) of forest will be impacted during expansion of the existing corridors. Approximately 6 percent is wetlands or open water and approximately 2 percent is residential. Appropriate measures will be taken to minimize disturbances that could be caused by these activities during construction. The appropriate state and federal resource agencies will be consulted on the expansion and operation of these transmission lines, including the implementation of any associated mitigation measures.

2.2.2 TRANSMISSION CORRIDORS AND APPURTENANT AREAS

While the HAR will increase the electrical output of the site, this section only describes existing transmission corridors. The transmission system and any proposed changes to it, including proposed transmission lines associated with the HAR and HNP are more fully described in Section 3.7.

The HNP Final Safety Analysis Report (FSAR) identifies seven 230-kilovolt (kV) transmission lines connecting HNP to the electric system. An eighth line is planned for 2011. These lines are summarized in the following paragraphs; the system itself is described in more detail in ER Section 3.7. The lines generally have 30-meter (m) (100-foot [ft]) corridors, with some exceptions in places.

- Siler City – This line terminates at Siler City, 30.2 mi. from HNP, but formerly extended to Asheboro, approximately 55 mi. from the plant. The new Siler City substation was completed in 2006.

- Cape Fear North – This is the original Cape Fear line considered in the operations FES. It connects HNP with the Cape Fear Steam Plant 7.4 mi. southwest of HNP (Figure 3.7-1).

- Cape Fear South – This newer line was not considered in the FES for operation of HNP. It connects the plant with the Cape Fear Steam Plant following a more southerly 6.5-mi. route than the north line (Figure 3.7-1).

- Apex-U.S. Highway 1 – This line terminates approximately 5.0 mi. northeast of HNP, but formerly extended another 7 mi. to the Cary Regency Park substation. In the Operating License Engineering Report, this line was referred to as the "Method Line."

- Erwin – This line was called the "Harris-Fuquay-Erwin North line" in the FES for operation. It is 29.8 mi. long. The Harris-Lillington-Erwin South line described in the Operating License Engineering Report was never constructed.

- Fort Bragg – Woodruff Street – This line terminates at the Woodruff Street substation on the Fort Bragg post, approximately 35.5 mi. from HNP. It formerly extended another 21 mi. to Fayetteville, North Carolina.

- Wake – This 230-kV line was built, in part, along the same corridor that was created for the originally planned 500-kV line to Wake County identified in the revised operating permit FES. This line is approximately 37.8 mi. long.

- Planned RTP – This line will terminate at a RTP Substation. A portion of the existing transmission system between Apex and Green Level will be upgraded from 115 kV to 230 kV. Right of way acquired initially for the 115-kV line will accommodate the 230-kV line.

The corridors for the Erwin, Fort Bragg and Wake lines will be expanded a maximum of 100 feet to accommodate new lines to support HAR 3. The land use in the area affected by the proposed expansion is provided in Figure 2.2 3. More detail is provided in Sections 3.7 and 4.1.

CP&L designed and constructed all HNP transmission lines in accordance with industry guidance that was current when the lines were built. Ongoing surveillance and maintenance of HNP related transmission facilities ensure continued conformance to design standards.

3.7.1.1 Utility Grid Description

The seven transmission lines that are currently in service are connected to the Cape Fear Plant Switchyard (North and South lines), Fort Bragg Woodruff Street Substation, Siler City Substation, Erwin Substation, Wake Substation, and Apex-U.S. 1 Substation (Reference 3.7-003). The planned RTP line will terminate in 2011 at the future RTP 230 KV Substation. Table 3.7-1 provides the termination points, nominal voltage, power transmission capacity, and approximate lengths of these transmission lines.

Three transmission lines will connect the 230-kV HAR 3 switchyard to the PEC electrical grid. These transmission lines will be connected to the existing Fort Bragg Woodruff Street Substation, Erwin Substation, and Wake Substation. (Reference 3.7-001) Table 3.7-2 provides the termination points, nominal voltage, power transmission capacity, and approximate lengths of these transmission lines. The proposed routing of the new lines for HAR 3 are being evaluated to be adjacent to or within the existing maintained transmission corridors for the HNP and only small environmental impacts are anticipated from the expansion efforts.

3.7.1.2 Transmission Line Corridors (Existing and Proposed)

Figures 3.7-1 and 3.7-2 (Reference 3.7-003) present the current configuration of the transmission system, with seven 230-kV transmission lines connecting HNP to the regional grid as well as a depiction of the planned RTP line. These lines generally run through 100-ft.-wide corridors with a 15.2-m (50-ft.) easement on either side. Some areas, such as the short segment of ROW immediately south of the switchyard that holds five lines, are as

wide as 106.7 m (350 ft.) But these wide segments are exceptions to the rule, making up a small proportion of the approximately 244.9 km (152.2 mi.) of transmission corridor associated with HNP (Reference 3.7-003). These seven lines and the planned eighth line are described in more detail in the paragraphs that follow:

- **Siler City** – This line terminates at Siler City, 48.6 km (30.2 mi.) west of HNP. The new Siler City substation was completed in 2006.

- **Cape Fear North** – This line connects HNP with the Cape Fear Steam Plant at a point 11.9 km (7.4 mi.) southwest of HNP.

- **Cape Fear South** – This line connects the plant with the Cape Fear Steam Plant following a more southerly 10.5-km (6.5-mi.) route than the north line.

- **Apex-U.S. 1** – This line terminates approximately 8.0 km (5.0 mi.) northeast of HNP but formerly extended another 11.3 km (7 mi.) to the Cary Regency Park substation.

- **Erwin** – This line is approximately 47.9 km (29.8 mi.) long, connecting HNP to southeastern Harnett County.

- **Fort Bragg – Woodruff Street** – This line terminates at the Woodruff Street substation on the Fort Bragg post, approximately 57.2 km (35.5 mi.) south of HNP.

- **Wake** – This 230-kV line was built, in part, along the same corridor that was created for the originally planned 500-kV line to Wake County, which is identified in the revised operating permit Final Environmental Statement (FES). This line is approximately 60.9 km (37.8 mi.) long, extending to the east past the City of Raleigh to terminate at Knightdale.
  (Reference 3.7-003).

- **Planned RTP Line** – This planned line is not included in the HAR-related activities, though it is planned to eventually extend from the HNP to terminate at the RTP Substation. A portion of the existing transmission system between Apex and Green Level will be upgraded from 115 kV to 230 kV. The ROW acquired initially for the 115-kV line will also accommodate the planned 230-kV line. Route selection has not been completed for this new line; however, it is anticipated that the route will start at the HNP and will parallel the Apex line to U.S. 1, where it will turn north. When the line is north of U.S. 64, it will turn east until it is parallel to the proposed I-540 outer loop around Raleigh. It will run parallel to I-540 until it reaches the RTP, where it will tie into an existing transmission line at the new RTP substation.

As stated previously, three new transmission lines will connect the new HAR 3 switchyard to the PEC grid. The proposed routing of the new lines for HAR 3 are being evaluated to be adjacent to or within the existing maintained transmission corridors for the HNP (Figure 3.7-3). The new corridors for HAR 3 are conservatively estimated to require an additional 100 ft. of width. The three new lines will originate at the HAR 3 switchyard and terminate at the following existing substations (Reference 3.7-003):

- **Erwin (New)** — This new line will terminate at the Erwin substation.
- **Fort Bragg – Woodruff Street (New)** — This new line will terminate at the Woodruff Street substation on the Fort Bragg post.
- **Wake (New)** — This new line will terminate at the Wake substation.

In total, for the specific purpose of connecting HNP to the transmission system, PEC has approximately 166.0 km (103 mi.) of transmission corridor that will be impacted by expansion within or adjacent to these existing lines .

The expanded corridors will impact an area totaling no more than 5.1 km^2 (1250.2 ac. or 2.0 $mi.^2$) within 50 feet immediately adjacent to either side of the existing lines. As discussed in ER Subsection 4.1.2.2, most of these corridors pass through land that is primarily agricultural and forest land. The areas are mostly remote, with low population densities. The longer lines cross numerous state and United States highways. The effect of these corridors on land usage is minimal; farmlands that have corridors passing through them generally continue to be used as farmland (Reference 3.7-003).

Table 3.7-1
Existing and Proposed Transmission Lines That Connect HAR 2 to the PEC Transmission System

Termination	Nominal Voltage (kV)	Thermal Capacity	Approximate Length
Cape Fear (North Line)	230	793 MVA	11.9 km (7.4 mi.)
Cape Fear (South Line)	230	797 MVA	10.5 km (6.5 mi.)
Apex US 1	230	797 MVA	8.0 km (5.0 mi.)
Ft. Bragg Woodruff St.	230	1077 MVA	57.2 km (35.5 mi.)
Erwin	230	797 MVA	47.9 km (29.8 mi.)
Siler City	230	797 MVA	48.6 km (30.2 mi.)
Wake	230	637 MVA	60.9 km (37.8 mi.)
Future RTP Line[a]	230	1195 MVA	35.4 km (22 mi.)

Notes:
a) This line is planned to primarily support HNP operations but may be used by HAR 2 if deemed necessary by PEC to support HAR 2 operations. Routing studies are still being evaluated and the RTP line length may ultimately change.

kV = kilovolt
MVA = megavolt ampere
RTP = Research Triangle Park

Table 3.7-2
Proposed Transmission Lines That Will Connect HAR 3 to the PEC Transmission System

Termination	Nominal Voltage (kV)	Thermal Capacity	Approximate Length
Ft. Bragg Woodruff St. (New Line)	230	1,256 MVA	57.2 km (35.5 mi.)(a)
Wake (New Line)	230	1,256 MVA	60.9 km (37.8 mi.)(a)
Erwin (New Line)	230	1,256 MVA	47.9 km (29.8 mi.)(a)

Notes:
a) Routing studies are still being evaluated and line lengths may vary depending on the outcome of the studies.

kV = kilovolt
MVA = megavolt ampere

5.6 TRANSMISSION SYSTEM IMPACTS

In total, for the specific purpose of connecting the HAR site to the transmission system, PEC has approximately 166 km (103 mi.) of corridors that occupy approximately 5.1 km^2 (1250.2 ac. or 2.0 $mi.^2$). The corridors pass through land that is primarily agriculture and forest. The areas are mostly remote, with low population densities. The longer lines cross numerous state and United States highways (Reference 5.6-001).

10.2.1.1 Land Use

- Erwin (New) – This new line will terminate at the Erwin substation.

10.3.1.8 Transmission Lines

- Erwin (New) – This new line will terminate at the Erwin substation.

Attachments/Enclosures:

None.

NRC Letter No.: HAR-RAI-LTR-ER-NRC-001

NRC Letter Date: November 13, 2008

NRC Review of Environmental Report

NRC RAI #: 2.7-2

Text of NRC RAI:

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 non-attainment 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.

PGN RAI ID #: H-453

PGN Response to NRC RAI:

Since the February 2008 submittal of the HAR COLA, Wake County has been re-designated as a maintenance area for ozone. Wake County is also designated as a maintenance area for carbon monoxide (CO). The requirements of 40 CFR 51, Subpart W, specify that a conformity analysis is not required in any air quality maintenance area if the individual project-related emissions of nitrogen oxide (NOx), volatile organic compounds (VOCs) (i.e., ozone precursor pollutants) or CO will be less than 100 tons per year (tons/yr). The estimated maximum annual emissions during the operation of the HAR facility (proposed Shearon Harris Nuclear Power Plant Units 2 and 3 [HAR 2 and 3]) will be well below this threshold, as follows:

Pollutant	HAR Operating Emissions (tons/yr)
NOx	16.4
VOC	3.5
CO	2.4

These emissions will be attributable to the infrequent operation (maintenance and testing) of diesel-fueled emergency generators and fire pump engines. There will be no other sources of these pollutant emissions from the HAR facility. The operation of the existing Shearon Harris Nuclear Power Plant Unit 1 (HNP 1) is expected to generate a lesser quantity of emissions than HAR 2 and 3 and the total combined emissions from both facilities will also be well below the 100 ton/yr threshold.

The maximum potential annual emissions during the construction of the HAR facility were estimated based on the projected construction activity during the peak year of construction, which has been assumed to occur as early as 2012. At peak construction, air emissions were conservatively estimated based on the following assumptions:

- 3300 construction workers (commuting daily to the site, 50-mile round trip)
- 10-hour construction days
- 6 days/week construction
- Construction equipment (diesel powered) operates an average of 8½ hours/day
- Onsite concrete batch plants and mix-truck fleet
- Rail and truck traffic delivery of all materials to the site

The estimated maximum annual emissions during the construction of the HAR facility are estimated to be as follows:

Pollutant	HAR Construction Emissions (tons/yr)
NOx	1134
VOC	115
CO	901

Since the emissions of NOx, VOCs, and CO during the construction period will each exceed 100 tons/year, a conformity analysis and demonstration will be required to demonstrate that the construction of the plant will conform to the requirements of North Carolina's State Implementation Plan (SIP). It is anticipated that the emissions associated with the construction of the plant have already been accounted for in general construction emissions in North Carolina's SIP. Specific conformity requirements and demonstrations will have to be evaluated and discussed with the North Carolina Department of Environment and Natural Resources (NCDENR) prior to the commencement of construction to determine if any mitigation will be required. Given the highly conservative nature of the emissions estimate and the localized nature of the emissions, it is not expected that the actual emissions during the construction period will represent a significant impact on ambient air quality in Wake County for either ozone or CO.

In addition, the HAR construction emissions are highly conservative and based on assumptions that represent the "worst case" or maximum potential emissions. The following assumptions were used in the calculation and are considered to be conservative in nature; EPA's MOBILE6.2 and NONROAD2005 emissions estimating models, single occupancy for all on-road vehicles, continuous and simultaneous operation of all off-road construction equipment, and construction activities conducted 6 days/week for the duration of the project.

Associated HAR COL Application Revisions:

The second and third paragraphs of ER Subsection 2.7.2 "Regional Air Quality" will be revised from:

"The HAR site is located in Wake County, which is currently designated by the U.S. Environmental Protection Agency (USEPA) as being in non-attainment of the NAAQS for 8-hour Ozone Subpart I and in attainment for the remaining NAAQS (Reference 2.7-007). Wake County is also designated as a CO maintenance area. The county was re-designated as being in attainment for CO on September 18, 1995 (Reference 2.7-008).

The North Carolina Department of Environment and Natural Resources (NCDENR) operates a network of ambient air quality monitoring stations throughout the State. The

NCDENR separates the State into seven regions. The HAR site is located in the Raleigh region, which includes 13 monitoring locations. Three of the monitoring stations are located within Wake County. These stations monitor for various NAAQS criteria pollutants (i.e., ozone, PM2.5, particulate matter of 10 µm and smaller [PM10], sulphur dioxide [SO2], and CO) (Reference 2.7-008 and Reference 2.7-009). 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."

to read:

"The HAR site is located in Wake County, which is currently designated by the U.S. Environmental Protection Agency (USEPA) as a maintenance area for the 8-hour Ozone standard and in attainment for the remaining NAAQS (Reference 2.7-007). Wake County is also designated as a CO maintenance area. The county was re-designated as being in attainment for CO on September 18, 1995 (Reference 2.7-008).

The North Carolina Department of Environment and Natural Resources (NCDENR) operates a network of ambient air quality monitoring stations throughout the State. The NCDENR separates the State into seven regions. The HAR site is located in the Raleigh region, which includes a network of monitoring locations. Several of the monitoring stations are located within Wake County. These stations monitor for various NAAQS criteria pollutants (i.e., ozone, PM2.5, particulate matter of 10 µm and smaller [PM10], sulfur dioxide [SO2], and CO) (Reference 2.7-008 and Reference 2.7-009). Although Wake County is currently designated by USEPA and NCDENR as a maintenance area for ozone and CO, the operation of the HNP facility (including the proposed units) should not result in a measurable increase in ozone or CO levels at any location because there will be no significant emissions of any ozone forming or CO pollutants from the facility during operation. During the peak construction period, air emissions will be localized but should have no significant or lasting impacts on ozone or CO levels in the county. Because the construction-related emissions of ozone forming pollutants and CO are expected to exceed the thresholds in 40 CFR 51, Subpart W (Determining Conformity of General Federal Actions to State or Federal Implementation Plans), a conformity determination by the State of North Carolina will be required."

A revision will also be required for ER Table 2.7-3 (Sheet 2 of 2), which will be revised to remove Wake County from the list of nonattainment areas for the 8-hour ozone and for the CO standard.

The third paragraph of FSAR Subsection 2.3.1.2.6 "Inversions and High Air Pollution Potential" will also be revised to reflect the re-designation of Wake County from "nonattainment area" to "maintenance area" for ozone and CO.

Attachments/Enclosures:

None.

NRC Letter No.: HAR-RAI-LTR-ER-NRC-001

NRC Letter Date: November 13, 2008

NRC Review of Environmental Report

NRC RAI #: 9.4-1

Text of NRC RAI:

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.

PGN RAI ID #: H-454

PGN Response to NRC RAI:

The following information will be incorporated into Subsection 9.3.1.1 in a future revision of the ER in order to address the comment.

The site selection process followed by PEC was consistent with the siting process outlined in ESRP Section 9.3 (Reference 9.4-1 01) as discussed in ER Subsection 9.3.1. The first step of PEC's site selection process was to identify the Region of Interest (ROI). The next step in the site selection process was to identify suitable candidate areas by screening the ROI using exclusionary criteria. Candidate areas refer to one or more areas within the ROI that remain after unsuitable areas have been removed. ROI screening was done at a high level with the purpose of quickly identifying areas within the ROI that would not be suitable for the siting of a nuclear power station.

The criteria used in the ROI screening process to identify candidate areas were consistent with those identified in ESRP Section 9.3 (Reference 9.4-1 01). The criteria included the following, as identified on Attachment 9.4-1A:

Exclusionary criteria used in screening the ROI to identify candidate areas include:

- Proximity to major population centers (that is, not located in an area with greater than or equal to 300 ppsm [or 300 persons per 2.6 km^2]).
- Proximity of adequate transmission lines (that is, within 30 mi. [48.3 km]) of 345-kV or 500-kV transmission lines). The 345-kV or 500-kV transmission lines are needed for the EPR standard grid connection design. It should be noted that areas with proximity to 230-kV lines that could potentially be upgraded were also considered.

- Lack of a suitable cooling water source (that is, within 15 mi. [24.1 km] of an adequate cooling water source).
- Dedicated land (that is, not located within national, state parks, historic sites, or tribal lands).

Publicly held information on GIS database Web sites were used to obtain the screening information. The GIS information was layered to produce a figure that represented the suitable candidate areas for the potential placement of a nuclear power facility (Attachment 9.4-1A).

Next, the candidate areas were screened and evaluated in order to develop a list of potential geographic locations for the placement of the proposed nuclear station. Information used in the screening and evaluation of the candidate areas was obtained from PEC personnel, GoogleEarth™ images, publicly held information on GIS database Web sites, topographic maps showing roads, urban areas, wetlands, parks, and other dedicated lands.

The screening process used to identify the potential sites considered discretionary criteria (that is, distance of a site from population centers, proximity of transmission lines, proximity to suitable source of cooling water) similar to those used in the process of identifying the candidate areas. However, identifying potential sites required a more detailed review of available information (Reference 9.4-1 01). The goal of the screening process was to use a logical process that produced a list of the best potential sites located within the candidate areas. (Reference 9.4-1 01)

The screening process also included consideration of existing site conditions, including whether the site was improved or potentially contained wetlands or floodplains. Aerial screening was used to identify areas within which potential sites were identified. The screening of the potential sites was conducted as an iterative process by applying refined criteria until an appropriate number of potential sites were identified. In addition, the potential sites needed to satisfy PEC's overall business objectives; and offer the ability of constructing and operating future nuclear units to provide PEC customers with reliable, cost-effective electric service.

The screening and evaluation of the Candidate Areas resulted in the identification of the 11 potential sites.

Sites outside the ROI were considered only in specific instances. The Savannah River Site (which is outside the PEC service territory and the ROI) was considered as a potential site because the site aggressively pursued a new nuclear plant with PGN, Duke, and SCANA. PEC eliminated the Savannah River Site from further consideration because it is not close to the PEC service territory and because of high transmission costs and an undesirable cooling water source.

Additionally Attachment 9.4-1A provides further detail on the site selection process, from the definition of the ROI to the selection of the four alternative sites.

References

Reference 9.4-1 01

NRC. 2007. NUREG-1555, "Environmental Standard Review Plan, Section 9.3: Site Selection Process," October.

Associated HAR COL Application Revisions:

The information contained in this response will be incorporated into Subsection 9.3.1.1 in Revision 1 of the ER.

Attachments/Enclosures:

See 014 Attachment 9.4-1A.pdf.

NRC Letter No.: HAR-RAI-LTR-ER-NRC-001

NRC Letter Date: November 13, 2008

NRC Review of Environmental Report

NRC RAI #: 4.3.2-4

Text of NRC RAI:

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.

PGN RAI ID #: H-455

PGN Response to NRC RAI:

The Harris Lake intake structure is shown in Attachment 4.3.2-4A and will have a footprint of approximately 0.5 ac. (approximately 150 ft. parallel to the shoreline of Harris Lake extending 100 ft. perpendicular to the shoreline). ER Figure 3.3-5 incorrectly showed the bottom elevation of the intake bay as 194-ft. elevation. The correct elevation of the bottom of the intake bays is 210-ft.,,as shown in Attachment 4.3.2-4A. ER Figure 3.3-5 will be revised to correct the elevation in a future revision of the ER. The approximate location is shown on ER Figure 2.3-17. The edge of the intake structure would be near the 240-ft. contour line and the structure would extend to approximately the 220-ft. contour. The water depth in this area of Harris Lake is approximately 9 ft. (210-ft. elevation). This area has been previously disturbed as part of construction and operation of HNP 1 and no natural wildlife habitat remains in this area. Small fragmented woodlots are present in the industrial portion but limited habitat is available.

Installation of the intake structure would require excavation of the current elevation (between 240-ft. and 220-ft. elevation) to approximately 206-ft. elevation (210-ft. elevation at top of concrete bottom of intake bays plus an additional 4 ft.). Dredging is not anticipated to be needed in this area of the lake due to the similar elevation of the lake bottom and intake bays; however, this will be further evaluated during final design. Construction techniques are not known at this time but could include mechanical excavation, drilling, and blasting. It is anticipated that cofferdams would isolate the excavated area from Harris Lake. Construction and erosion control measures, as discussed in ER Subsection 4.2.1, are applicable to this area and will be followed during preparation and construction activities. Water quality will be monitored at this location since it could be affected by construction activities. More detail on the specifics of monitoring cannot be provided until additional discussions with state and federal agencies are held as part of the permitting process. The conceptual design calls for the intake structure to have a similar arrangement as the HNP 1 intake structure. Additional detail on the ongoing characterization of wetlands is provided in the response to RAI 2.4.1-3 and 4.3.1-2.

Recent intake structure maintenance reports are included as Attachment 4.3.2-4B. These reports are compiled on a regularly scheduled basis and focus primarily on condition of the screens and siltation at the intake. However, these reports would also include observations of any biological or non-biological matter trapped on the screens at the time of the inspection. The 2008 monitoring results for Harris Lake have been compiled into a summary report that is included as Attachment 4.3.2-4C.

Associated HAR COL Application Revisions:

Revise ER Figure 3.3-5 to show bottom elevation of intake bays as 210 ft.

Attachments/Enclosures:

See 015 Attachment 4.3.2-4A.pdf, 016 Attachment 4.3.2-4B.pdf, and 017 Attachment 4.3.2-4C.pdf.

Listing of Files Included on CD Provided as Attachment

Filename	Description
001 Attachment 4.3.1-2A.pdf	Potentially Disturbed Areas
002 Attachment 4.3.1-2B.pdf	Summary of Wetlands Delineation (Preliminary Results)
003 Attachment 4.3.1-2C.pdf	Support for Clean Water 404 Permitting and Alternatives Analysis
004 Attachment 2.4.1-1A.pdf	An Inventory of Significant Natural Areas in Wake County, NC (Executive Summary)
005 Attachment 2.4.1-1B.pdf	Ecological Field Observations Harris Nuclear Plant
006 Attachment 2.4.1-1C.pdf	Environmental Monitoring Reports Summary
007 Attachment 2.4.1-2A.pdf	Wild Turkey in NC
008 Attachment 2.4.1-2B_part1_of_5.pdf 009 Attachment 2.4.1-2B_part2_of_5.pdf 010 Attachment 2.4.1-2B_part3_of_5.pdf 011 Attachment 2.4.1-2B_part4_of_5.pdf 012 Attachment 2.4.1-2B_part5_of_5.pdf	Gap Project Analysis
013 Attachment 4.1.1-1A.pdf	RFI-158 Attachments A - K
014 Attachment 9.4-1A.pdf	Alternative Site Selection Process
015 Attachment 4.3.2-4A.pdf	Harris Lake Intake Structure
016 Attachment 4.3.2-4B.pdf	Emergency Service Water Intake and Screening Structures Inspections
017 Attachment 4.3.2-4C.pdf	HNP 2008 Environmental Monitoring Report