Progress Energy

James Scarola
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Serial: NPD-NRC-2008-030
September 11, 2008

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
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 004 RELATED TO LONG-TERM ATMOSPHERIC DISPERSION ESTIMATES FOR ROUTINE RELEASES

Reference: Letter from Manny Comar (NRC) to James Scarola (PEC), dated August 13, 2008, "Request for Additional Information Letter No. 004 Related to SRP Section 02.03.05 for the Harris Units 2 and 3 Combined License Application

Ladies and Gentlemen:

Progress Energy Carolinas, Inc. (PEC) hereby submits our response to the Nuclear Regulatory Commission's (NRC) request for additional information provided in the referenced letter.

A response to each NRC request is addressed in the enclosure. The enclosure also identifies changes that will be made in a future revision of the Shearon Harris Nuclear Power Plant Units 2 and 3 application.

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

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

Executed on September 11, 2008.

Sincerely,

James Scarola

James Scarola

Enclosure

cc : 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

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Shearon Harris Nuclear Power Plant Units 2 and 3
Responses to NRC Request for Additional Information Letter No. 004 Related to SRP Section 02.03.05 for the Combined License Application dated August 13, 2008

NRC RAI #	Progress Energy RAI #	Progress Energy Response
02.03.05-1	H-0035	Response enclosed – see following pages
02.03.05-2	H-0036	Response enclosed – see following pages
02.03.05-3	H-0037	Response enclosed – see following pages
02.03.05-4	H-0038	Response enclosed – see following pages

NRC Letter No.: HAR-RAI-LTR-004

NRC Letter Date: August 13, 2008

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.03.05-1

Text of NRC RAI:

Please provide a reference to the AP1000 DCD for the building cross-sectional area and containment height used as input to the XOQDOQ model. The staff notes that DCD Section 3.8.1, Rev. 16, states that the containment vessel has a height of 215 feet, 4 inches.

PGN RAI ID #: H-0035

PGN Response to NRC RAI:

The building cross-sectional area was conservatively estimated as the abovegrade, cross-sectional area of the reactor containment vessel. As indicated in DCD Rev 16, the containment vessel has an overall vertical height of 215 feet (ft.) 4 inches (in.); however, 33.5 ft. of the vessel will be below grade. The height calculation accounts only for the abovegrade cylindrical portion of the vessel (i.e., excluding the spherical domed uppermost portion because of its more aerodynamic shape). Therefore the abovegrade height is calculated to be 144 ft., which is the building height specified in the XOQDOQ model. The diameter of the vessel is 130 ft. The cross-sectional area of the vessel (calculated as the upwind surface area of the vessel excluding the domed upper portion) was calculated using these dimensions, with a resulting cross-sectional area of 2730 square meters (m^2). It is noted that the predicted X/Q results are relatively insensitive to building cross-sectional dimension. This is illustrated in FSAR Table 2.3.4-204, which shows the LPZ 30-day PAVAN results with and without building wake effects to be very similar. A reference to the DCD for these dimensions will be made in FSAR Subsection 2.3.5 in a future amendment to the document.

Associated HAR COL Application Revisions:

Revise the following text in FSAR Section 2.3.4.2 from:

Minimum Building Cross-Section:	2730 m^2 (29,385 square feet [ft^2])
Containment Height:	43.9 m (144 ft.)

To read:

Minimum Building Cross-Section:	2730 m^2 (29,385 square feet [ft^2]) (DCD Figure 3.8.2-1)
Containment Height:	43.9 m (144 ft.) (DCD Figure 3.8.2-1)

Revise the following text in FSAR Section 2.3.5.2 from:

- Building Wake Effects – Included

To read:

- Building Wake Effects – Included (See Subsection 2.3.4.2)

Attachments/Enclosures to Response to NRC:

None.

NCR Letter No.: HAR-RAI-LTR-004

NRC Letter Date: August 13, 2008

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.03.05-2

Text of NRC RAI:

Please specify whether the distances provided to the receptors of interest (i.e., milk cow, milk goat, garden, meat animal, resident) are from the center point of the proposed units or from the shortest distance from either proposed unit. Also, please include a reference in FSAR Section 2.3.5 for the receptor distances provided.

PGN RAI ID #: H-0036

PGN Response to NRC RAI:

The distances to the receptors of interest that are provided in FSAR Subsection 2.3.5 are measured from the mid-point location between the proposed units. An explanation of this, which is provided in FSAR Subsection 2.3.4.2 for the short-term calculations, will also be provided in FSAR Subsection 2.3.5.2 in a future amendment to the FSAR.

Associated HAR COL Application Revisions:

Insert the following sentence prior to the last sentence in FSAR Subsection 2.3.5.1:

"All distances are measured from a location defined by the mid-point of the two proposed units."

Attachments/Enclosures to Response to NRC:

None.

NCR Letter No.: HAR-RAI-LTR-004

NRC Letter Date: August 13, 2008

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.03.05-3

Text of NRC RAI:

Please confirm the accuracy of the D/Q estimates for the nearest resident receptor for the north through south-southeast downwind sectors as presented in FSAR Table 2.3.5-202. For example, in the north sector the meat animal and resident are located at the same distance, however, the D/Q values differ by 242%.

PGN RAI ID #: H-0037

PGN Response to NRC RAI:

The predicted D/Q values for the north through south-southeast sectors were incorrectly reported as duplicates of the south through north-northwest sectors. The correct D/Q values for the nearest residence will be incorporated into FSAR Table 2.3.5-202 (Sheet 2 of 3) in a future amendment.

Associated HAR COL Application Revisions:

The values for the nearest residence D/Q in FSAR Table 2.3.5-202 (Sheet 2 of 3) will be revised from:

Sector	D/Q (m^{-2})
N	3.80E-10
NNE	6.10E-10
NE	7.20E-10
ENE	2.40E-10
E	3.50E-10
ESE	4.50E-10
SE	5.70E-10
SSE	1.80E-09

To read:

Sector	D/Q (m^{-2})
N	1.30E-09
NNE	1.70E-09
NE	1.00E-09
ENE	2.80E-10
E	1.00E-09
ESE	4.70E-10
SE	5.50E-10
SSE	3.20E-10

Attachments/Enclosures to Response to NRC:

None.

NCR Letter No.: HAR-RAI-LTR-004

NRC Letter Date: August 13, 2008

NRC Review of Final Safety Analysis Report

NRC RAI #: 02.03.05-4

Text of NRC RAI:

In accordance with AP1000, Rev. 16, DCD Tier 2 Section 2.3.6.5 please include a table in FSAR Section 2.3.5 that shows that the maximum annual average site characteristic X/Q value is within the bounds of the corresponding site parameter value.

PGN RAI ID #: H-0038

PGN Response to NRC RAI:

FSAR Table 2.0-201 provides a comparison of the HAR maximum average annual site characteristic X/Q value and the DCD site boundary average annual X/Q. The HAR X/Q is within the bounds of the DCD value.

During the course of providing this response it was noted that in FSAR Table 2.0-201 the HAR maximum average annual site characteristic X/Q value was listed as 1.78×10^{-6} seconds per cubic meter (sec/m^3), which is incorrect. The correct value, as indicated in FSAR Subsection 2.3.5.2 "Calculations" and in Table 2.3.5-201 is 8.80×10^{-6} sec/m^3, which remains bounded by the DCD Site Parameter of 2.0×10^{-5} sec/m^3.

Associated HAR COL Application Revisions:

Change the HAR maximum average annual site characteristic X/Q value in FSAR Table 2.0-201 (Sheet 8 of 9) from 1.78×10^{-6} sec/m^3 to 8.80×10^{-6} sec/m^3. Change the reference for this value from Table 2.3.4-205 to Table 2.3.5-201.

Insert the following new text into FSAR Subsection 2.3.5.2 at the end of the subsection:
"The DCD site boundary average annual X/Q is 2.0×10^{-5} sec/m^3. This bounds the HAR average annual EAB X/Q value. Table 2.0-201 provided a comparison of the HAR site characteristics with the DCD design parameters."

Attachments/Enclosures to Response to NRC:

None.