UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 4, 2012

Mr. Jon A. Franke, Vice President
Crystal River Nuclear Plant (NA2C)
ATTN: Supervisor, Licensing & Regulatory Programs
15760 W. Power Line Street
Crystal River, Florida 34428-6708

SUBJECT: CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT – REQUEST FOR ADDITIONAL INFORMATION FOR EXTENDED POWER UPRATE LICENSE AMENDMENT REQUEST (TAC NO. ME6527)

Dear Mr. Franke:

By letter dated June 15, 2011, as supplemented by letters dated July 5, 2011; August 11, 2011 (two letters), August 18 and 25, 2011, October 11 and 25, 2011, December 15, 2011 (two letters), December 21, 2011, January 5, 2012 (two letters), January 19, 2012 (two letters), January 31, 2012, March 19, 2012, March 22, 2012, and April 4, 2012 (two letters), Florida Power Corporation, doing business as Progress Energy Florida, Inc., submitted a license amendment request for an extended power uprate to increase thermal power level from 2609 megawatts thermal (MWt) to 3014 MWt for Crystal River Unit 3 Nuclear Generating Plant.

The U.S. Nuclear Regulatory Commission staff is reviewing the submittal and has determined that additional information is required to complete its evaluation. This request was discussed with Mr. Dan Westcott of your staff on April 10, 2012, and it was agreed that a response to the enclosed request for additional information would be provided within 45 days from the date of this letter.

If you have any questions regarding this matter, I can be reached at 301-415-1564.

Sincerely,

/RA/

Siva P. Lingam, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

REGARDING EXTENDED POWER UPRATE TO INCREASE THERMAL POWER LEVEL

FROM 2609 MEGAWATTS THERMAL TO 3014 MEGAWATTS THERMAL

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

DOCKET NO. 50-302

By letter dated June 15, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML112070659), as supplemented by letters dated July 5, 2011, August 11, 2011 (two letters), August 18 and 25, 2011, October 11 and 25, 2011, December 15, 2011 (two letters), December 21, 2011, January 5, 2012 (two letters), January 19, 2012 (two letters), January 31, 2012, March 19, 2012, March 22, 2012, and April 4, 2012 (two letters) (ADAMS Accession Nos. ML112010674, ML11228A032, ML11234A051, ML11234A427, ML11242A140, ML112860156, ML113040176, ML11354A232, ML11354A233, ML11361A460, ML12011A035, ML12030A209, ML12024A300, ML12024A301, ML120330114, ML12081A293, ML12086A107, ML12097A183, and ML12097A246, respectively), Florida Power Corporation (the licensee), doing business as Progress Energy Florida, Inc., submitted a license amendment request (LAR) for an extended power uprate (EPU) to increase thermal power level from 2609 megawatts thermal (MWt) to 3014 MWt for Crystal River Unit 3 Nuclear Generating Plant (Crystal River 3 or CR-3). In order to complete its review of the above documents, the Nuclear Regulatory Commission (NRC) staff requests additional information originating from our Accident Dose Branch (AADB) related to atmospheric dispersion part:

AADB Requests for Additional Information

1. Please provide detailed information describing how the CR-3 2003 – 2007 meteorological data provided in support of the CR-3 EPU original LAR dated June 15, 2011 (ADAMS Accession No. ML112070659) were measured and processed, and the criteria used to determine the validity of the data. Describe the temporal sequence of the processing steps to generate the hourly data file and criteria for any data substitutions or modifications.

   The NRC staff has noted some apparent anomalies in the five-year data file and provide the following examples, which should not be regarded as all inclusive. Therefore, please reevaluate the data file and provide justification that the 2003-2007 data are accurate or provide a supplemental file with revisions to identify any data as invalid for which such a justification cannot be provided.

   a. Occurrences of data ending in a multiple of 10 for a number of consecutive hours (e.g., 2003, lower level wind direction for day 55, hour 3 through day 57, hour 17; day 58, hour 0 through hour 23; day 66, hour 11 through day 69 through hour 13).

b. Occurrences of identical reported readings for a number of consecutive hours (e.g., 2004, lower level wind direction for day 85, hour 18, through day 86, hour 11; 2004 upper level wind direction for day 260, hour 15, through hour 21).

c. Identical wind direction values reported at both measurement levels (e.g., 2004, day 250, hour 11, through hour 15; 2005, day 222, hour 3 through day 228, hour 9).

2. Page 2.9.2-3 of Attachment 7 to the original LAR states that the main control room (MCR) atmospheric dispersion factors (χ/Q values) were calculated using the Murphy-Campe methodology. The calculation is explained on page 13 of a May 23, 1988 letter (ADAMS Accession No. 8805310306) associated with a prior licensing action request from Florida Power Corporation. These values were approved by the NRC as part of the NUREG-0737, "Clarification of TMI Action Plan Requirements," Item III.D.3.4 review. The Murphy-Campe paper, "Nuclear Power Plant Control Room Ventilation System Design for Meeting General Criterion 19," advises that use of the equation on page 13 may be appropriate for a diffuse source – point receptor case for those cases when dual intakes are adequately separated and meet certain criteria as described in the Murphy-Campe paper. However, it is unclear to the NRC staff that the appropriate criteria are met for the purpose of the current LAR. Regulatory Guide 1.194, "Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants," states that if the previously approved values are based on a misapplication of a methodology, calculational errors are identified in the values, or changes are deemed necessary to ensure adequate protection of the health and safety of the public, the NRC staff will pursue necessary corrections with the licensee or applicant. Therefore, please provide the following information.

a. Confirm that each MCR intake meets the requirements of an engineered safety feature including, as applicable, single-failure criteria for active components, seismic criteria, and missile criteria.

b. Further, confirm that the design details assure that the most contaminated intake is isolated and the least contaminated intake remains in operation to provide control room pressurization.

c. Given that the Murphy-Campe paper provides several equations, to address several different scenarios, provide justification that all of the possible releases for each design basis accident (DBA), including those associated with loss of offsite power or other single failure, meet the criteria which substantiate that use of the equation on page 13 of the May 23, 1988 letter is appropriate.

d. Provide one or more scaled figures, showing true north, with all possible sources and receptors highlighted from which distance and direction inputs can be approximated, for each DBA. Provide the scale of the figure. In addition, provide the height above grade of each source and receptor. Please include figures that show sources and receptors that consider loss of offsite power or other single failure and control room inleakage.

3. Regulatory Guide 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants," states that the selection of χ/Q values to be used in exclusion area boundary (EAB) or low population zone boundary (LPZ) evaluations should be the maximum 0.5 percentile direction dependent (e.g., S, SSW, SW, etc.) χ/Q value or the 5 percent overall site limit χ/Q value for each time interval, whichever is higher. Please provide a summary table for the CR-3 EAB, and a second table for the LPZ, showing all 0.5 percentile direction dependent sector χ/Q values and the 5 percentile site limit χ/Q values. A copy of the EAB and LPZ summary pages from the PAVAN computer code output for CR-3 is acceptable. On these summary pages, highlight each of the EAB and LPZ χ/Q values listed in Table 2.9.2-5 of Attachment 7 to the original LAR and provide justification for selection of each of the highlighted values.

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