Duke Energy

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November 19, 2002

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

ATTENTION: Document Control Desk

SUBJECT: Duke Energy Corporation
McGuire Nuclear Station - Units 1 and 2
Docket Nos. 50-369 and 50-370
Catawba Nuclear Station - Units 1 and 2
Docket Nos. 50-413 and 50-414
Topical Report DPC-NF-2010 (Nuclear Physics Methodology for Reload Design),
Revision 2 - Update to Chapter 3

Attached is a proposed revision to page 3-1 for Topical Report DPC-NF-2010. This change is similar in nature to changes that were submitted to the NRC in August 2001 and approved October 1, 2002[1]. This change was inadvertently not included with the proposed changes previously submitted.

The proposed change removes a statement from Section 3.2 (Secondary Sources of Input Data) to avoid the implication that the fuel temperature data needed for core neutronics calculations is based on a specific fuel performance code calculation. The original statement applies to COMETHE-IIIK and TACO-2 specifically and to fuel performance codes in general. The fuel temperature data input into a core simulator (nuclear physics) code is derived internally, whereas fuel temperature data input into a fuel performance code is based on a specific fuel performance code calculation.

[1] NRC letters to Duke Energy Corporation, dated October 1, 2002, "Catawba Nuclear Station, Units 1 and 2 RE: Issuance of Amendments (TAC Nos. MB3343 and MB3344) and McGuire Nuclear Station, Units 1 and 2 RE: Issuance of Amendments (TAC Nos. MB3222 and MB3223)."

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The intent of the original statement was to indicate the data needs for reactor physics calculations. Since this is a miscellaneous type of data, it was not necessary to present the specific detail or data source. Other fuel temperature data may be available that are better suited for core neutronics calculations.

NRC approval is requested by the end of May 2003 in order to support design activities for the McGuire Unit 2 Cycle 17 reload design.

If there are any questions or additional information is needed on this matter, please call A. Jones-Young at (704) 382-3154.

Very truly yours,

M. S. Tuckman

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ATTACHMENT

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ATTACHMENT

3. NUCLEAR CODE SYSTEM

3.1 Introduction

Nuclear design calculations performed for Westinghouse reactors employ the EPRI-ARMP code system[1] and the CASMO-2 code[2] or the CASMO-3/SIMULATE-3P code system. A summary description of each code is given in Appendix A. The ARMP/CASMO-2 and the CASMO-3/SIMULATE-3 code sequences have been reviewed and approved by the NRC for use in the design of reload cores for the McGuire and Catawba Nuclear Stations by Duke Power[28,32].

Presented in this section will be a description of the sequence, cross section preparation and parameterization, and reload design modeling procedures.

The nuclear calculational system enables the nuclear engineer to numerically model and simulate the reactor core. The ARMP/PDQ code system sequence used by Duke Power for McGuire and Catawba is outlined in Figure 3-1. The CASMO-3/SIMULATE-3 code system sequence is outlined in Reference 28.

3.2 Sources of Input Data

The determination of nuclear fuel loading patterns and core physics characteristics requires an accurate database consisting of:

1. Core operating conditions
2. Dimensional characteristics
3. Composite materials and mechanical properties
4. Nuclear cross sections

The UFSAR, supplemented by vendor reports and open literature, is the primary source of data for Items 1 to 3. These data are used as input to the cross section generators and core simulators. ~~A secondary data source for the core simulators are estimates of fuel pellet volume averaged temperatures which are calculated by fuel performance codes as a function of power and burnup~~.

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