

U.S. Nuclear Regulatory Commission
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Enclosure 1 to this letter lists the specific NRC questions and provides TVA's responses. Enclosure 2 provides a revised Table 2, which includes material deemed proprietary by GNF. GNF has requested that the proprietary information be withheld from public disclosure pursuant to 10 CFR 2.790. Accordingly, an application and affidavit, as required by 10 CFR 2.790(b)(1), is also contained in Enclosure 2. Enclosure 3 provides a non-proprietary version of the revised Table 2.

TVA has reviewed the no significant hazards consideration for TS-420 submitted on October 25, 2002, and concluded it remains valid for the addition of this supplemental information. Similarly, the categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9) continues to be valid. In accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Alabama State Department of Public Health.

There are no regulatory commitments associated with this submittal. This letter is being sent in accordance with NRC Regulatory Issue Summary 2001-05, Guidance on Submitting Documents to the NRC by Electronic Information Exchange or on CD-ROM. If you have further questions about TS-420 or this response, please contact Tim Abney at (256) 729-2636.

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 11, 2003.

Sincerely,



R. G. Jones
Plant Manager

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Enclosures:

1. TVA Response to Request for Additional Information
2. Affidavit and Proprietary Copy of Revised Table 2
3. Non-Proprietary Copy of Revised Table 2

cc (Enclosures):

State Health Officer
Alabama State Department of Public Health
RSA Tower - Administration
Suite 1552, P.O. Box 303017
Montgomery, Alabama 36130-3017

Enclosure 1

Technical Specifications (TS) Change 420 Safety Limit Minimum Critical Power Ratio (SLMCPR) Unit 2 Cycle 13 Operation

TVA Response to Request for Additional Information

NRC Question 1

Please provide the rationale for changing the fuel bundles and the core loading pattern shown in Figure 2 of the submittals dated October 25, 2002, and December 20, 2002. Also, provide the reason for increasing the beginning of cycle shutdown margin, and describe the relationship between core loading design/bundle design and increasing the beginning of cycle shutdown margin.

TVA Response

The bundle and core design changes for Unit 2 Cycle 13 provided in the December 20, 2002, supplement to TS-420 were prompted by a predicted shortfall in reaching the assumed minimum cycle exposure for the current Cycle 12 operation. The reasons for this were two-fold. First, a mid-cycle outage was performed to remove leaking fuel bundles from the Cycle 12 core after the original Cycle 13 core design was completed. This resulted in a reduction in the projected Cycle 12 fuel burn-up. Secondly, there is a potential that TVA may start the Unit 2 refueling outage earlier than originally planned, which would similarly reduce the fuel burn-up for Cycle 12.

With a Cycle 12 shortfall, the once-burnt fuel (fresh in Cycle 12) that will be reloaded for Cycle 13 will be more reactive than was assumed in the original core design. Hence, additional shutdown margin (SDM) is required at the Beginning of Cycle (BOC) 13. To provide the additional SDM, twenty four of the high enrichment bundles have been modified with two additional low Gadolinium containing fuel rods. These additional poison rods reduce the reactivity worth in these bundles at BOC conditions. As shown in the core loading map provided as Figure 1 of the December 20, 2002, submittal, these modified bundles will be placed in locations to control the limiting SDM control cells. Additional bundle shuffles were also made to re-optimize the core design as shown in Figure 1. The resulting modified

core design was reanalyzed in accordance with the requirements of GESTAR-II.

NRC Question 2

Please provide your justification that the analysis performed for Unit 2, Cycle 13, single loop operation (SLO) as shown in Table 2 of Enclosure 2, which only provides the results of one case at the beginning of the cycle, is sufficient. Also, describe the impact on the safety limit minimum critical power ratio value for SLO due to end-of-cycle penalty of top-peak power shape.

TVA Response

The safety limit minimum critical power ratio (SLMCPR) for SLO at End-of-Reactivity (EOR) was also calculated. Since a top-peaked power shape exists at EOR, this EOR calculation used the higher uncertainties and biases associated with the top-peaked power shape together with the higher uncertainties that apply for SLO. Even with these considerations for SLO at EOR, the SLMCPR value for SLO at BOC (where no top peaking occurs) is the highest value for the cycle and thus it is the value that was reported in Table 2 of the December 20, 2002, supplement to TS-420.

A revised Table 2 showing EOR results for SLO are provided in Enclosures 2 and 3 (proprietary and non-proprietary revisions, respectively).

Enclosure 2

Technical Specifications (TS) Change 420
Safety Limit Minimum Critical Power Ratio (SLMCPR)
Unit 2 Cycle 13 Operation

Affidavit and Proprietary Copy of Revised Table 2

Enclosure 3

Technical Specifications (TS) Change 420
Safety Limit Minimum Critical Power Ratio (SLMCPR)
Unit 2 Cycle 13 Operation

Non-Proprietary Copy of Revised Table 2

Table 2

Net Adjustment to SLMCPR to Account for Top-Peaked Power Shapes

Step		Dual Loop Ops.			Single Loop Ops.	
		BOC	MOC	EOC	BOC	EOC
	Calculated M/C SLMCPR	[[]]
2,3	[[]]
4	Credit for Reduced Uncertainties	[[]]
	[[]]
	Adjusted SLMCPR with rounding	1.08	1.05	1.07	1.10	1.09
	SLMCPR for Tech Spec Submittal	DLO 1.08			SLO 1.10	
Step 5 credit applies only for OLMCPR and is not relevant for Tech Specs under review						



Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Hitachi

Affidavit

I, Jens G. Andersen, state as follows:

- (1) I am Fellow and project manager, TRACG Development, Global Nuclear Fuel – Americas, L.L.C. (“GNF-A”) and have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.
- (2) The information sought to be withheld is contained in the report, “Additional Information Regarding the Cycle Specific SLMCPR for Browns Ferry Unit 2 Cycle 13,” February 4, 2003.
- (3) In making this application for withholding of proprietary information of which it is the owner or licensee, GNF-A relies upon the exemption from disclosure set forth in the Freedom of Information Act (“FOIA”), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4) and 2.790(a)(4) for “trade secrets and commercial or financial information obtained from a person and privileged or confidential” (Exemption 4). The material for which exemption from disclosure is here sought is all “confidential commercial information,” and some portions also qualify under the narrower definition of “trade secret,” within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).
- (4) Some examples of categories of information which fit into the definition of proprietary information are:
 - a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by GNF-A’s competitors without license from GNF-A constitutes a competitive economic advantage over other companies;
 - b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;
 - c. Information which reveals cost or price information, production capacities, budget levels, or commercial strategies of GNF-A, its customers, or its suppliers;
 - d. Information which reveals aspects of past, present, or future GNF-A customer-funded development plans and programs, of potential commercial value to GNF-A;
 - e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a. and (4)b., above.

- (5) The information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GNF-A, and is in fact so held. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in (6) and (7) following. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GNF-A, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence.
- (6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge, or subject to the terms under which it was licensed to GNF-A. Access to such documents within GNF-A is limited on a "need to know" basis.
- (7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GNF-A are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.
- (8) The information identified in paragraph (2) is classified as proprietary because it contains details of GNF-A's fuel design and licensing methodology.

The development of the methods used in these analyses, along with the testing, development and approval of the supporting methodology was achieved at a significant cost, on the order of several million dollars, to GNF-A or its licensor.

- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GNF-A's competitive position and foreclose or reduce the availability of profit-making opportunities. The fuel design and licensing methodology is part of GNF-A's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

The research, development, engineering, analytical, and NRC review costs comprise a substantial investment of time and money by GNF-A or its licensor.

Affidavit

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GNF-A's competitive advantage will be lost if its competitors are able to use the results of the GNF-A experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GNF-A would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GNF-A of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing and obtaining these very valuable analytical tools.

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information, and belief.

Executed at Wilmington, North Carolina, this 5 day of February, 2002.

Jens G. Andersen

Jens G. Andersen

Global Nuclear Fuel – Americas, LLC