Entergy

Entergy Nuclear Vermont Yankee, LLC
Entergy Nuclear Operations, Inc.
185 Old Ferry Road
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February 9, 2004
BVY 04-14

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
Technical Specification Proposed Change No. 264 – Supplement 1
Safety Limit Minimum Critical Power Ratio (SLMCPR) Change
Response to Request for Additional Information

By letter dated December 5, 2003[1], Vermont Yankee[2] (VY) proposed to amend Facility Operating License DPR-28 for the Vermont Yankee Nuclear Power Station by revising the Safety Limit Minimum Critical Power Ratio (SLMCPR) for both single and dual recirculation loop operation.

On January 15, 2004, VY received a draft request for additional information (RAI) from the NRC with three questions concerning our SLMCPR submittal. As a result of a January 21, 2004 teleconference with the NRC staff and Global Nuclear Fuel – Americas, LLC (GNF), it was concluded that VY would provide a written response to NRC.

Attachment 1 to this letter is a response to the RAI questions and is considered proprietary information by GNF. In accordance with 10CFR2.790(b)(1), an affidavit attesting to the proprietary nature of the enclosed information and requesting withholding from public disclosure is included with Attachment 1.

Attachment 2 is the same GNF responses to the RAI questions with the proprietary information removed, and is provided for public disclosure.

This supplement to the license amendment request does not change the scope or conclusions in the original application, nor does it change the no significant hazards consideration determination.

[1] Vermont Yankee letter to U.S. Nuclear Regulatory Commission, "Technical Specification Proposed Change No. 264, "Safety Limit Minimum Critical Power Ratio (SLMCPR) Change," BVY 03-114, December 5, 2003.
[2] Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. are the licensees of the Vermont Yankee Nuclear Power Station.

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If you have any questions in this regard, please contact Mr. Jeff Meyer at (802) 258-4105.

Sincerely,

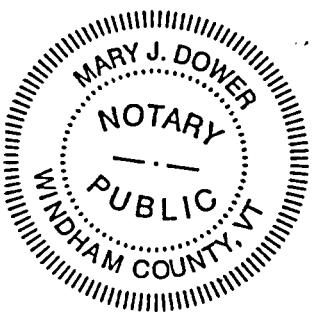
Jay K. Thayer
Site Vice President

STATE OF VERMONT)
)ss
WINDHAM COUNTY)

Then personally appeared before me, Jay K. Thayer, who, being duly sworn, did state that he is Site Vice President of the Vermont Yankee Nuclear Power Station, that he is duly authorized to execute and file the foregoing document, and that the statements therein are true to the best of his knowledge and belief.

Mary J. Dower, Notary Public
My Commission Expires February 10, 2007

cc: USNRC Region 1 Administrator
USNRC Resident Inspector – VYNPS
USNRC Project Manager – VYNPS
Vermont Department of Public Service



Docket No. 50-271
BVY 04-14

Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 264 – Supplement 1

Safety Limit Minimum Critical Power Ratio (SLMCPR) Change

Response to Request for Additional Information

(GNF Proprietary Information)

Affidavit

I, Jens G. M. 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 attachment, "Request for Additional Information Related to Safety Limit Minimum Critical Power Ratio Amendment Request Vermont Yankee Nuclear Power Station Docket No. 50-271," dated February 2, 2004. GNF proprietary information is indicated by enclosing it in double brackets. In each case, the superscript notation $^{[3]}$ refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.

(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) To address the 10 CFR 2.790 (b) (4), 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.

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 2nd day of February, 2004.

Jens G. M. Andersen
Global Nuclear Fuel – Americas, LLC

Docket No. 50-271
BVY 04-14

Attachment 2

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 264 – Supplement 1

Safety Limit Minimum Critical Power Ratio (SLMCPR) Change

Response to Request for Additional Information

REQUEST FOR ADDITIONAL INFORMATION

RELATED TO SAFETY LIMIT MINIMUM CRITICAL POWER RATIO AMENDMENT REQUEST

VERMONT YANKEE NUCLEAR POWER STATION

DOCKET NO. 50-271

By letter dated December 5, 2003, Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (Entergy or the licensee) submitted an amendment request for Vermont Yankee Nuclear Power Station (VYNPS). The proposed amendment would revise the Safety Limit Minimum Critical Power Ratio (SLMCPR) values in Technical Specification 1.1.A.1 to incorporate the results of the cycle-specific core reload analysis for VYNPS Cycle 24 operation.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the information the licensee provided that supports the proposed amendment and would like to discuss the following issues to clarify the submittal:

1. Please identify the design record file to support this amendment, and provide a summary table or figure to show the number of rods that might experience boiling transition as a function of the nominal MCPR.

Response
This question was addressed in the phone conversation on January 21, 2004. The design record file number is already provided on the attachment to the submittal and is sufficient for tracking purposes during an audit. A summary table or figure to show the number of rods that might experience boiling transition as a function of the nominal MCPR is not needed since the SLMCPR is by definition the nominal MCPR value where the number of rods susceptible to boiling transition is 0.1% of the rods in the core.

2. It appears that a 0.04 reduction in the SLMCPR value is on the high end and not a common number according to the conclusion stated in Section 4.2 of NEDC-32694P. Provide the rationale for your core design to achieve this high reduction of the MCPR value and justify that the proposed SLMCPR reduction is conservative while both the Cycle 24 core MCPR distribution and in-bundle power distribution are much flatter than those for Cycle 23.

Response
The expected reduction in the calculated SLMCPR in going from the GETAB method and uncertainties to the revised method with reduced power distribution uncertainties is [[ ]] based on the MCPR distribution and in-bundle power distribution for Cycle 24. The probability that the SLMCPR reduction will be [[ ]] or larger is [[ ]]. Usually for a total reduction of [[ ]] the amount due to the revised method is approximately [[ ]] and the remaining [[ ]] is due to the reduced power distribution uncertainties. For this particular application at EOC for Cycle 24, about [[ ]] of the total [[ ]] reduction is attributed to the reduced uncertainties themselves and the remaining [[ ]] is attributed to the methodology improvements described in NEDC-32694P-A. The primary factor that causes a larger reduction due to the method is [[ ]] The approved Monte Carlo process correctly models these distributions but the method that is used to estimate the reduction does not since it presumes a normal distribution of rod CPRs.

A calculated reduction of 0.04 in the Monte Carlo result is well within the range of probable values.

Note that Table 2 in the attachment to the submittal shows the [[ ]] increase in calculated SLMCPR as a result of the increase in the R-factor uncertainty from [[ ]] to [[ ]] that was conservatively implemented to accommodate increased uncertainty due to potential channel bow. If one conservatively assumes (as is done here) that this impact does not scale with the bundle power uncertainties, then the overall reduction in the calculated SLMCPR attributed to the application of the revised model and the reduced uncertainties could be as high as [[ ]]. Based on the estimation technique, the probability that the SLMCPR reduction will be [[ ]] or larger is reduced to [[ ]]. Even at this reduced probability for the calculated change, the requested DLO SLMCPR is appropriate because it includes an additional conservatism that is discussed in the next response.

3. There is no penalty [[ ]] shown in Table 2 of Attachment 5. Provide the rationale of how to apply this penalty in the proposed SLMCPR values.

Response
Table 2 does not show the [[ ]] penalty [[ ]] that is indicated in the paragraph at the bottom of page 4 of the attachment. This is not called out as a line item in Table 2 because [[

]]. In other words, all the calculated SLMCPR values for Cycle 24 that are shown in Table 2 have at least an additional conservatism of [[ ]] that is not required. The conservatism is at least this amount because it was obtained from two calculations of the DLO SLMCPR using the revised method and reduced uncertainties in order to obtain the smallest estimate of the impact that is already contained in all the calculated SLMCPR values. The only difference in the two calculations performed for DLO at EOC in order to determine the impact on SLMCPR was the threshold for discerning the [[

]]. The SLMCPR values calculated from the GETAB method and uncertainties contain a larger amount of conservatism (that has not been quantified). This is another reason why the SLMCPR reductions that are calculated relative to the GETAB values and presented in column "4" of Table 2 are overestimated.