



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609

April 7, 2000

10 CFR 170.11(b)(1)

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

Gentlemen:

In the Matter of) Docket Nos. 50-296
Tennessee Valley Authority) 50-260

**BROWNS FERRY NUCLEAR PLANT (BFN) - ADDITIONAL INFORMATION TO
SUPPORT TVA'S ORIGINAL REQUEST FOR AN EXEMPTION FROM THE
STAFF'S REVIEW FEE REQUIREMENTS FOR THE BFN UNITS 2 AND 3
RISK-INFORMED INSERVICE INSPECTION (RI-ISI) PROGRAMS
(TAC NOS. MA3989 AND MA5355)**

This letter provides additional information to support TVA's original request for an exemption from the Staff's review fees for the BFN Units 2 and 3 RI-ISI programs. TVA's letters to NRC dated October 23, 1998, and April 23, 1999, respectively, transmitted the BFN Units 2 and 3 RI-ISI programs for review and approval. In each letter, TVA requested the Staff to consider the RI-ISI program for pilot plant status and to provide an exemption from the review fees.

The BFN Units 2 and 3 RI-ISI programs were developed when the NRC encouraged licensees to submit pilot applications for RI-ISI programs. The Units 2 and 3 RI-ISI programs presented generic first-of-kind approaches. For example, they were the first boiling water reactor full scope inspection programs that contained augmented inservice inspection elements, and used an alternate method to calculate failure probabilities. TVA believes these approaches support generic regulatory efforts.

10 CFR 170.21, footnote 4, criterion 3 states that fees will not be assessed for requests or reports submitted to the NRC as a means of exchanging information between industry organizations and the NRC for the purpose of supporting

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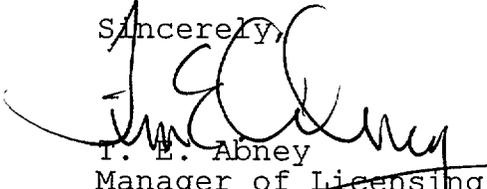
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generic regulatory improvements or efforts. TVA believes that the BFN Units 2 and 3 RI-ISI programs meet the criteria for fee waiver and the program review fees should be exempted.

In 10 CFR Part 170.11(b)(1) it allows the NRC the discretion, to exempt pilot application fees. In accordance with 10 CFR Part 170.11(b)(1), TVA requests an exemption from the 10 CFR Part 170 fee requirements for the Staff's initial review of the BFN Units 2 and 3 RI-ISI programs. The exemption request also includes responses to requests for additional information.

TVA provides in the enclosure additional justification for the exemption request from the Staff's review fees for the BFN Units 2 and 3 RI-ISI programs. There are no commitments contained in this letter. If you have any questions, please telephone me at (256) 729-2636.

Sincerely,



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Enclosure

cc: (Enclosure)

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ENCLOSURE

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 2 AND 3

ADDITIONAL INFORMATION TO SUPPORT TVA'S
ORIGINAL REQUEST FOR AN EXEMPTION FROM
THE STAFF'S REVIEW FEE REQUIREMENTS

I. Purpose/Background

TVA's letters to NRC dated October 23, 1998, and April 23, 1999, respectively, transmitted the BFN Units 2 and 3 RI-ISI programs for review and approval. In each letter, TVA requested the Staff to consider the RI-ISI program for pilot plant status and to provide an exemption from the review fees. TVA subsequently withdrew the Unit 2 RI-ISI submittal and plans to resubmit at a future date. The purpose of this enclosure is to request an exemption from the Staff's review fees for the withdrawn BFN Unit 2 RI-ISI program and the approved BFN Unit 3 RI-ISI program. TVA is not requesting an exemption from the Staff's review fees for the BFN Unit 2 RI-ISI program submittal that will be transmitted to the Staff at a later date.

The BFN Units 2 and 3 RI-ISI programs were developed when the NRC encouraged licensees to submit pilot applications for RI-ISI programs. The Units 2 and 3 RI-ISI programs presented generic first-of-kind approaches. For example, they were the first boiling water reactor full scope inspection programs that contained augmented inservice inspection elements, and used an alternate method to calculate failure probabilities. TVA believes these approaches support generic regulatory efforts.

NRC's letter to TVA dated February 11, 2000, approved the BFN Unit 3 RI-ISI program. In that letter, the Staff stated that the BFN Unit 3 request for pilot status is still under discussion. Section III below justifies why TVA should be given pilot plant status for the BFN Units 2 and 3 RI-ISI programs.

II. Exemption Criteria

10 CFR 170.11 (b) (1) states the Commission may, upon application by an interested person, or upon its own initiative, grant such exemptions from the requirements of this part as it determines are (1) authorized by law and (2) are otherwise in the public interest.

II. Exemption Criteria (Continued)

10 CFR 170.21, footnote 4, criterion 3 states that fees will not be assessed for requests or reports submitted to the NRC as a means of exchanging information between industry organizations and the NRC for the purpose of supporting generic regulatory improvements or efforts.

Authorization By Law

In 10 CFR Part 170.11(b)(1) it allows the NRC the discretion to exempt pilot application fees. Therefore, in accordance with 10 CFR 170.11(b)(1), the NRC is authorized to grant this exemption request.

Public Interest

As stated in the Staff's February 11, 2000, safety evaluation report for the BFN Unit 3 RI-ISI program, the implementation of the BFN Unit 3 RI-ISI program will result in a reduction in piping weld examinations, with an associated reduction in occupational radiation exposure, with little or no change in risk to the public due to piping failures.

III. Exemption Justification for Generic Regulatory Improvements or Efforts

The BFN Unit 2 RI-ISI program represented new and unique generic regulatory information. Specifically, the Unit 2 RI-ISI was a full scope RI-ISI program that contained American Society of Mechanical Engineers (ASME) Section XI Code Class 1, 2, and 3 piping. The Unit 2 program also included an alternative to Generic Letter 88-01 augmented inspection requirements for intergranular stress corrosion and cracking (IGSCC) associated with Categories A through G welds.

In addition, the Unit 2 program represented the initial use of the WinPRAISE code to calculate failure probabilities. TVA and the NRC Staff held several meetings and telephone discussions concerning the Staff's review of the Unit 2 RI-ISI submittal. The Staff's letter to TVA dated April 7, 1999, provides a summary of discussions held between TVA and the Staff. In that letter, the Staff stated that the Unit 2 RI-ISI methodology was substantially different (e.g., inclusion of IGSCC) from the methodology approved for previous RI-ISI applications.

III. Exemption Justification for Generic Regulatory Improvements or Efforts (Continued)

As a result of these communications, and at the Staff's request, TVA complied and withdrew the BFN Unit 2 RI-ISI program. The BFN Unit 2 RI-ISI program was withdrawn because of the industry initiatives regarding an approach to reduce the scope of the GL 88-01 IGSCC augmented inspections. Considering the generic regulatory information, the requirements for fee waiver in 10 CFR Part 170, and the substantial review cost, TVA believes the Unit 2 RI-ISI program met the requirements for pilot plant status and the review fees should be waived.

NRC's letter to TVA dated February 11, 2000, approved the Unit 3 RI-ISI program. The Staff stated in the letter that TVA's request for pilot plant status is still under discussion. TVA believes that the approved BFN Unit 3 RI-ISI program contains generic, first-of-kind-approaches that support generic regulatory improvement activities. Furthermore, TVA believes that the program meets criterion three of Footnote 4 to 10 CFR 170.21 and should be given pilot plant status. Footnote 4, criterion three states that fees will not be assessed for requests or reports submitted to the NRC as a means of exchanging information between industry organizations and the NRC for the purpose of supporting generic regulatory improvements or efforts.

NRC's letter to TVA dated April 7, 1999, identified differences from previous submitted RI-ISI programs (i.e., Surry Nuclear Plant). In that letter, the Staff noted in the results summary section that BFN met the intent of Risk Informed regulation. While the BFN Unit 3 RI-ISI program contains plant specific information, it also includes generic, first-of-a-kind approaches that will provide valuable input into industry initiatives. For example, Boiling Water Reactors (BWRs) have different component materials, plant water chemistry, and containment designs than those found in pressurized water reactors (PWRs). In a letter to NRC dated November 10, 1999, TVA invited the Staff to the BFN site offices to review the BFN Unit 3 RI-ISI (BWR) engineering analyses and support information. The Staff accepted the invitation and conducted an audit of the BFN Unit 3 documentation. As stated in the Staff's letter to TVA dated December 21, 1999, the purpose of the audit was to gain clear understanding of the BFN unit 3 RI-ISI program methodology. During the NRC audit review, TVA provided the Staff with a better understanding of the RI-ISI differences between a BWR and a PWR.

III. Exemption Justification for Generic Regulatory Improvements or Efforts (Continued)

The following information further justifies why TVA believes the Unit 3 RI-ISI program meets the requirements for pilot plant status and an exemption from the Staff's review fees:

- The BFN Unit 3 RI-ISI program is the first full scope BWR to use the WCAP analysis structure and guidelines. BFN's full scope program includes all Code class 1, 2, and 3 piping within the current ASME Section XI programs, piping systems modeled in the Individual Plant Examination (IPE) for the plant, and various balance of plant fluid systems determined to be important for the Maintenance Rule. The program evaluates plant piping as being either high or low safety significant. Previous applications of the WCAP risk ranking RI-ISI technique have all been performed on PWRs. BWRs have unique system functions and dominant failure mechanisms not found in PWRs.
- The BFN Unit 3 RI-ISI program includes augmented ISI program elements in the analysis. The systems that are most critical to preventing core damage in a BWR are also those systems most susceptible to failure mechanisms examined in the augmented programs. The BFN program directly analyzed the impact of these elements on the probability of core damage frequency (CDF) and risk ranked the piping segments rather than assuming that all augmented examinations would continue to be required. The BFN Unit 3 RI-ISI program provides justification and refinement of existing augmented ISI and degradation analysis programs. The elements of the existing BFN flow accelerated corrosion analysis program were re-enforced.

In addition, the existing IGSCC augmented ISI program is refined. The refinement changes the location and frequency of inspections of IGSCC Category A piping welds. The use of Quantified Element Selection ensures that the welds which most affect CDF due to IGSCC are examined, rather than a random selection which in some cases examined welds with little influence on CDF. The BFN program utilizes a quantified element selection process. By calculating a Risk Reduction Worth (RRW) for each individual element, the BFN program ensures that the welds selected for examination are those which most directly affect CDF.

III. Exemption Justification for Generic Regulatory Improvements or Efforts (Continued)

- The BFN program is the first to use the Nuclear Energy Institute (NEI) submittal template. This technique was developed in an attempt to expedite NRC review of RI-ISI programs developed in accordance with previously approved methods. BFN's use of the template provides the opportunity to determine the feasibility of reviewing programs in this format. The Staff's lessons learned during the BFN review can be applied generically to other industry programs when considering future RI-ISI reviews.
- The BFN Unit 3 RI-ISI program uses the WinPRAISE computer code to calculate failure rates. The WinPRAISE code allows input of the specific parameters which affect the failure probability of a weld. WinPRAISE allows actual values for those elements which determine the failure probability of welds subject to IGSCC (mitigative measures, etc.) to be used. It also allows the use of actual values for those elements which determine the failure probability of welds subject to thermal fatigue (ramp rate, step size, etc.).

WinPRAISE provides the industry with another proven tool to effectively determine the failure probability of welds. It also provides the Staff with the technical information to support other industry RI-ISI programs that utilize WinPRAISE. In addition, WinPRAISE is a Microsoft Windows based program application of pc-PRAISE that was specifically developed and used in the NRC Staff analysis of plant risk factors. The WCAP methodology used by previous RI-ISI submittals used the Westinghouse Structural Reliability and Risk Assessment (SRRA) computer code. This code calculates the probability of failure rates of the piping segments and a Perdue Statistical Evaluation model to select the piping segments for examination. The WinPRAISE computer code allows for the direct selection of piping segments to be examined.

IV. Conclusion

TVA believes that the Staff's review fees for the withdrawn BFN Unit 2 RI-ISI program and the approved BFN Unit 3 RI-ISI program should be waived.

IV. Conclusion (Continued)

The BFN Unit 2 RI-ISI program was withdrawn at the Staff's request, because of the industry initiatives regarding an approach to reduce the scope of the GL 88-01 IGSCC augmented inspections. The BFN Unit 3 RI-ISI is the first BWR full scope program approved by the Staff. It is also the first to include augmented ISI program elements in the analysis and to use the WinPRAISE code to calculate failure probabilities. In addition, the BFN Unit 3 program was submitted in the NEI template format and provides the Staff with the opportunity to determine the feasibility of reviewing submittals in this format. The BFN Unit 3 RI-ISI program elements are generic, first-of-kind-approaches that provide the Staff with a substantial improved and broadened base of RI-ISI application. This first time generic information can also be shared with the nuclear industry. In accordance with 10 CFR Part 170.11 (b) (1), TVA requests an exemption from the 10 CFR Part 170 fee requirements. The withdrawn BFN Unit 2 RI-ISI program and the approved BFN Unit 3 RI-ISI program meet the criteria for an exemption. Therefore, the BFN Units 2 and 3 RI-ISI programs and requests for additional information should be exempted from the Staff's review fees.