

April 5, 2005

10 CFR 54

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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Washington, D.C. 20555-0001

Gentlemen:

In the Matter of)	Docket Nos. 50-259
Tennessee Valley Authority)	50-260
		50-296

**BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 -
LICENSE RENEWAL APPLICATION (LRA) - RESPONSE TO NRC REQUEST
FOR ADDITIONAL INFORMATION ON GALL RAI 7.2.5-2, ASME
EQUIVALENT SUPPORTS AND COMPONENTS (TAC NOS. MC1704, MC1705,
AND MC1706)**

By letter dated December 31, 2003, TVA submitted, for NRC review, an application pursuant to 10 CFR 54, to renew the operating licenses for the Browns Ferry Nuclear Plant, Units 1, 2, and 3. As part of its review of TVA's LRA, the NRC staff, through an informal request on March 8, 2005, identified additional clarification information needed for GALL RAI 7.2.5-2, ASME Equivalent Supports and Components.

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The enclosure to this letter contains the specific NRC request for additional information and the corresponding TVA response.

If you have any questions regarding this information, please contact Ken Brune, Browns Ferry License Renewal Project Manager, at (423) 751-8421.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 5th day of April, 2005.

Sincerely,

Original signed by:

T. E. Abney
Manager of Licensing
and Industry Affairs

Enclosure:
cc: See page 3

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Enclosure

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(Via NRC Electronic Distribution)

Enclosure

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cc: continued page 4

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s://Licensing/Lic/submit/subs/BFN LR Clarification ASME Equivalent Supports and
Components Letter.doc

ENCLOSURE

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, AND 3
LICENSE RENEWAL APPLICATION (LRA),

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION (RAI)
GALL 7.2.5-2, ASME EQUIVALENT SUPPORTS AND COMPONENTS

(SEE ATTACHED)

**TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, AND 3
LICENSE RENEWAL APPLICATION (LRA) ,**

**RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION (RAI)
GALL 7.2.5-2, ASME EQUIVALENT SUPPORTS AND COMPONENTS**

By letter dated December 31, 2003, TVA submitted, for NRC review, an application pursuant to 10 CFR 54, to renew the operating licenses for the Browns Ferry Nuclear Plant, Units 1, 2, and 3. As part of its review of TVA's LRA, the NRC staff, through an informal request on March 8, 2005, identified additional clarification information needed for GALL RAI 7.2.5-2, ASME Equivalent Supports and Components. This enclosure contains the specific NRC request for additional information and the corresponding TVA response.

NRC's RAI 7.2.5-2

LRA Table 3.5.2.26 (Structures and Component Supports - Summary of Aging Management Evaluation), row numbers 5, 6, 10, 14, 15, 16, and 18 indicate that no aging management is required in containment atmosphere, inside air and outside air environments for stainless steel and non-ferrous aluminum ASME Equivalent Supports and Components. Note 3 to Table 3.5.2.26, which applies to all of the cited row numbers, states that there are no applicable aging effects for the material/environment combinations and that this is consistent with industry guidance. The applicant does not credit ASME Section XI, Subsection IWF as an aging management program for license renewal.

It is the project team's understanding that the support components covered by the cited row numbers are required to be inspected under IWF during the current licensing term. Therefore, the project team requested that the applicant explain why this CLB commitment would not continue for the extended period of operation.

In response to the project team's question, the applicant stated that these ASME equivalent supports and components will continue to be inspected consistent with the commitments contained in the Browns Ferry CLB for the ASME Section XI subsection IWF Program requirements in effect during the extended period of operation. The applicant further stated that the specific reference to row numbers noted in the audit team's question all had material and environmental

combinations for which, upon performing the aging management review, it was determined that there were no aging effects that required managing for license renewal.

The project team noted inconsistencies between the applicant's AMR for the cited row numbers, which are not susceptible to general corrosion, and the applicant's AMR for carbon steel ASME Equivalent Supports and Components, which are susceptible to general corrosion. For the cited row numbers, the applicant considers corrosion to be the only age-related mechanism leading to loss of mechanical function. The applicant's position is that the other GALL-listed mechanisms leading to loss of mechanical function (distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads; elastomer hardening) are not age-related. On this basis, the applicant has concluded that aging management for loss of mechanical function is not applicable to the cited row numbers. However, for carbon steel ASME Equivalent Supports and Components, the applicant has identified additional GALL-listed mechanisms as leading to loss of mechanical function (see LRA Table 3.5.2.26, row numbers 2, 4, 12, and 13); and credits IWF as the aging management program for LR.

The project team requests the applicant to (1) submit a detailed description of all supports covered by LRA Table 3.5.2.26, row numbers 5, 6, 10, 14, 15, 16 and 18; and (2) for each support, provide the technical basis for concluding that every GALL-listed mechanism (corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads; elastomer hardening) leading to loss of mechanical function is not applicable. As an alternative, the applicant may credit IWF as an aging management program for LR.

TVA's Response to RAI 7.2.5-2

For row numbers 5, 6, 15, and 16 of Table 3.5.2.26, the table will be revised to credit IWF as the aging management program.

The supports for row number 10 are the typical pipe supports comprised of steel structural shapes, welded or bolted together and attached to the concrete structure/building with base plates or attached to other steel structural shapes of the building. The aging effect for GALL III.B1.2.1-a is "Loss of Material" and not "Loss of Mechanical Function" as noted in the question. The AMR is consistent with the reference to Note 3 of Table 3.5.2.26. Additionally, this is consistent with the proposed revision to GALL for Item number

III.B1.2-5 (TP-5) for this material and environment combination. The AMR conclusion for the proposed GALL revision to GALL for Item number III.B1.2-5 (TP-5) is "no aging effects are applicable"; therefore, no AMP is required.

The supports in-scope for row number 14 of Table 3.5.2.26 are integral welded lugs to the process pipe. The lug material is the same as the process pipe (aluminum). Aluminum external surfaces are not susceptible to corrosion unless their surfaces are wetted or exposed to an aggressive environment. Since periodic wetting or exposure to aggressive environments of component external surfaces in an inside air environment will not occur, loss of mechanical function due to corrosion is not considered plausible and the other aging mechanisms (distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads; elastomer hardening) do not apply.

The supports in-scope for row number 18 of Table 3.5.2.26 are integral welded lugs to the process pipe. The lug material is the same as the process pipe (stainless steel). The in-scope piping system is located in the Residual Heat Removal Service Water (RHRSW) Tunnels (LRA Section 2.4.3.5). Since the piping and supports are located within the RHRSW Tunnels and are exposed to an inside air environment and are not exposed to an outside air environment as noted in the AMR table, Row 18 can be deleted. Row number 10 (applicable GALL item - III.B1.2.1-a) is the applicable AMR line item for the material and environment combinations of these stainless steel supports in the RHRSW Tunnel.

Replace Rows 1 through 18 of Table 3.5.2.26 in the LRA with the attached rows.

Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG – 1801 Vol. 2 Item	Table 1 Item	Notes
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.1.1-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion. Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.1.1-a	None	G, 1
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	None	None	III.B1.1.2-a	None	I, 2

Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG – 1801 Vol. 2 Item	Table 1 Item	Notes
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.1.3-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS	Stainless Steel	Containment Atmosphere	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.1.3-a	None	F, 1
ASME Equivalent Supports and Components	SS	Stainless Steel	Inside Air	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.1.3-a	None	G, 1

Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG – 1801 Vol. 2 Item	Table 1 Item	Notes
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of material due to general corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.1-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of material due to general corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.1-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.1-a	None	G, 1
ASME Equivalent Supports and Components	SS	Stainless Steel	Inside Air	None	None	III.B1.2.1-a	None	F, 3
ASME Equivalent Supports and Components	SS	Stainless Steel	Submerged	Loss of material due to crevice corrosion, pitting corrosion.	Chemistry Control Program (B.2.1.5) One Time Inspection (B.2.1.29)	III.B1.2.1-a	None	F, 1

Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG – 1801 Vol. 2 Item	Table 1 Item	Notes
ASME Equivalent Supports and Components	SS	Carbon and Low Alloy Steel	Containment Atmosphere	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.2-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS and/or SS(NSR)	Carbon and Low Alloy Steel	Inside Air	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.2-a	3.5.1.32	B
ASME Equivalent Supports and Components	SS	Non-ferrous - aluminum	Inside Air	None	None	III.B1.2.2-a	None	I, 3

Table 3.5.2.26: Structures and Component Supports - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG – 1801 Vol. 2 Item	Table 1 Item	Notes
ASME Equivalent Supports and Components	SS	Stainless Steel	Containment Atmosphere	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.2-a	None	F, 1
ASME Equivalent Supports and Components	SS	Stainless Steel	Inside Air	Loss of mechanical function due to corrosion, distortion, dirt, overload, fatigue due to vibratory and cyclic thermal loads.	ASME Section XI, Subsection IWF Program (B.2.1.33)	III.B1.2.2-a	None	G, 1
ASME Equivalent Supports and Components	SS	Cast Iron and Cast Iron Alloys	Outside Air	Loss of material due to crevice corrosion, general corrosion, pitting corrosion.	ASME Section XI, Subsection IWF Program (B.2.1.33)	None	None	J, 1
This row deleted.								