

NRR-PMDAPEm Resource

From: Saba, Farideh
Sent: Tuesday, September 09, 2014 5:43 PM
To: Williams, Gordon Robert (grwilliams1@tva.gov)
Cc: Green, Daniel (dgreen@tva.gov)
Subject: Follow up RAI FOR BFN regarding TS 3.6.1.3, PRIMARY CONTAINMENT ISOLATION VALVES (PCIVs), TS-485. (MF3124, MF3125, and MF3126)
Attachments: MF3124-6_BFN1-3 SBPB 2nd-round RAIs REVISE THE LEAKAGE RATE THROUGH MSIVS TS-485.docx

Importance: High

Gordon,

By letter dated November 22, 2013, Tennessee Valley Authority (TVA, the licensee) requested a change to the Technical Specifications (TSs) to Browns Ferry Nuclear Plant Units 1, 2, and 3. The amendment proposes to change TS 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," specifically for decreasing the allowable leakage rate of each of the main steam isolation valves (MSIV) and decreasing the combined leakage rate of all four MSIV.

The NRC staff has performed a review of Browns Ferry's License Amendment Request (LAR) for modifying TS 3.6.1.3 (TS-485). In addition, the staff has reviewed RAI responses in the letter dated August 15, 2014 that resulted in the attached RAI. The additional information requested in the attachment is necessary to complete the evaluation of this amendment request.

Please provide your responses to the attached RAI by September 30, 2014, for the staff to be able to complete its review of the LAR in a timely manner.

Thanks,

Farideh

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Created By: Farideh.Saba@nrc.gov

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Tracking Status: None

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Tracking Status: None

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Options

Priority: High
Return Notification: No
Reply Requested: Yes
Sensitivity: Normal
Expiration Date:
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REQUEST FOR ADDITIONAL INFORMATION (RAI)
FOR BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3
REGARDING TO TECHNICAL SPECIFICATION 3.6.1.3
PRIMARY CONTAINMENT ISOLATION VALVES (PCIVS), TS-485.
(TAC NOS. MF3124, MF3125, AND MF3126)

SBPB RAI-1 01

From BWROG Report NEDC-31858P (ML993440253), "BWROG Report for Increasing MSIV Leakage Rate Limits and Elimination of Leakage Control Systems," it states (Section 3.3, "Condition required Control of MSIV Leakage" - page E-31) that the following conditions for which control of MSIV leakage may be appropriate.

- * High main steam line radiation
- * High area radiation level near the main steam lines
- * High control room air intake radiation
- * High off-site radioactivity release rate
- * High secondary containment HVAC exhaust radiation
- * High turbine building HVAC exhaust radiation
- * High offgas pretreatment radiation
- * High drywell pressure
- * High drywell radiation
- * Low RPV water level

The licensee in its response dated August 15, 2014, for SBPB RAI-1 part b of the original RAI, stated that:

There are no instruments available for the main control room (MCR) operators to know if the primary pathway is unavailable. Although there are no instruments for the MCR operators to know if the primary pathway is unavailable, when a drywell radiation alarm is received, operators are procedurally directed to open the upper main steam line drain valve (FCV-1-58) and the lower main steam line drain valve to the condenser (FCV-1-59). By opening these valves, a portion of the secondary pathway has been established that bypasses the orifice.

- a. Describe if there are any other entry conditions for opening the ALT pathway via valves FCV-1-58 and FCV-1-59. If the drywell radiation alarm is the sole entry condition for the ALT pathway, describe the rationale for why other entry conditions and other alarms conditions (such as high drywell pressure or steam line high radiation) are excluded.
- b. Describe the drywell radiation equipment number(s) or detector number(s) and describe if these instruments are reliable in accordance with Regulatory Guide (RG) 1.97, "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants."
- c. In addition, confirm that the actions necessary to establish either the primary or secondary ALT pathway are performed from the main control room (MCR) and not from other locations outside the MCR.
- d. Regulatory Guide (RG) 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," dated July 2000 (ADAMS Accession No. ML003716792), Regulatory Position 1.3 defines the scope of required analyses which include

post-accident access shielding (NUREG-0737, "Clarification of TMI Action Plan Requirements," Action Item II.B.2, "Post-Accident Access Shielding"). If the actions necessary to establish either the primary or secondary ALT pathways are performed outside the control room, provide an analysis demonstrating that there will be access to vital areas within the plant (consistent with NUREG 0737 item II.B.2) necessary to establish either of these pathways.

SBPB RAI-3 01

From BWROG Report NEDC-31858P (ML993440253), "BWROG Report for Increasing MSIV Leakage Rate Limits and Elimination of Leakage Control Systems," it states the following: (Section 6.1.1, "Isolated Condenser and Main Steam Drain Lines" - page 6-2)

The feasibility of increasing MSIV leakage rate limits rely on use of the main steam piping and the condenser for fission product attenuation. Section 4.3 identifies this leakage treatment pathway as the "isolated condenser" method. The utility will evaluate the plant capability to divert MSIV leakage from the main steam drain line to the main steam condenser following a design basis LOCA. The evaluation will consider the following requirements.

- (1) The main steam drain line downstream of the outboard MSIV should be used to convey MSIV leakage to the condenser.
- (2) The internal cross-sectional area of the drain line should nominally be 1.0 square inches or larger. The radiological dose methodology described in Appendix C provides a detailed discussion regarding the basis for the required plant-specific drain line flow area.

In response to part d of SBPB RAI-3, the licensee stated that:

The 0.25-inch orifices have socket weld connections and are not readily accessible for visual inspections. Unlike the orifice around FCV-1-58, the orifices around FCV-1-168, FCV-1-169, FCV-1-170 and FCV-1-171 are located in a position that is difficult to perform a radiography inspection. TVA will not add the orifices around FCV-1-168, FCV-1-169, FCV-1-170 and FCV-1-171 to the existing commitment to perform radiography exams periodically.

- a. Since the BWROG Report NEDC-31858P states that the internal cross-sectional area of the drain line should nominally be 1.0 square inches or larger, justify why the ALT primary pathway is acceptable.
- b. Specifically, some of the ALT primary pathway piping sizes are less than 1 inch square, describe in detail your inspection plans or outage flow testing to verify an open flow path exists (similar to the radiography exam on the 0.1875-inch orifice around FCV-1-58). This should include the four 0.25-inch orifices around FCV 1-168, FCV 1-169, FCV 1-170, FCV 1-171, 1-inch diameter globe valve 525, and other areas of possible flow restrictions.