

REQUEST FOR ADDITIONAL INFORMATION

TECHNICAL SPECIFICATIONS TASK FORCE

TRAVELER TSTF-554, "REVISE REACTOR COOLANT LEAKAGE REQUIREMENTS"

(EPID L-2019-PMP-0181)

RAI - 1

Background

Section 2.3, "Reason for the Proposed Change," states the following:

"There is disagreement on what is required for isolation. The industry has historically held that isolation must be within the expected capabilities of the isolation device and some normal leakage past the isolation device is acceptable. This position is consistent with other uses of the term "isolate" in Standard Technical Specifications and in Section XI of the ASME Code. The NRC position has been that isolation must be complete with no leakage past the isolation device."

Request

State the basis for how Section XI of the ASME Code supports the historical industry position of some normal leakage past the isolation device being acceptable or delete "and in Section XI of the ASME Code".

RAI - 2

Background

Section 2.4 "Description of the Proposed Change," states in part that:

The new Condition A provides a clear action to follow if pressure boundary leakage exists. The Bases for Required Action A.1 states that normal leakage past the isolation device is acceptable and it is included in identified or unidentified LEAKAGE and subject to the TS limits. The Bases also state that if there is no available isolation device or if the flaw cannot be isolated from the RCS due to physical or operational reasons, then Condition C (an immediate plant shutdown) applies.

Leakage past the isolation device is acceptable because the isolated flaw is no longer part of the RCS pressure boundary and any further degradation would not have any significant effect on the RCS. Other considerations, such as boric acid deposition in pressurized water reactors, effects of the leakage on other plant systems, and correction of the flaw, are addressed by existing plant programs, such as the corrective action process and the operability determination process. Normal leakage may be evaluated using engineering judgement, historical performance, or other means, and does not imply that a limit on normal leakage must be established.

Allowed leakage past the isolation device is permitted as described in each model technical specification change, ACTIONS A.1. However, aside from the clause in the definition of IDENTIFIED LEAKAGE which states that leakage cannot interfere with the operation of leakage detection systems, the change does not define limits on the allowable amount of leakage. The NRC staff is concerned that extensive leakage beyond the isolation device could lead to further degradation that could potentially compromise the structural support function of the pipe during a seismic event.

Take for example a flaw downstream of a closed isolation device that is leaking. Though the pipe has a pressure boundary function that is known to no longer be functional, it may still need to function as a "link" in the structural support system. Leakage beyond the isolation device may result in continued degradation of the downstream flaw and resultantly cause the pipe to fail its structural support function.

Request

Define normal leakage past the isolation valve and state the basis for why leakage past the isolation device could not lead to further degradation of the flawed area such that the structural support function of the component could challenge the structural support of the isolation device.

RAI – 3

Background

BASES, ACTIONS A.1 of the Babcock & Wilcox, Westinghouse, Combustion Engineering, and AP1000 Standard Technical Specifications states in part that:

If there is no available isolation device or if the flaw cannot be isolated from the RCS due to physical or operational reasons, then Condition C applies.

Similarly, BASES, ACTIONS A.1 of the General Electric BWR/4 and General Electric BWR/6 Standard Technical Specifications states in part that:

If there is no available isolation device or if the flaw cannot be isolated from the RCS due to physical or operational reasons, then Condition D applies.

These statements, though captured in the BASES, are not reflected in the in the Technical Specifications (TS) changes in the Action tables. The proposed TS changes only assign a COMPLETION TIME of "Immediately" and the REQUIRED ACTION states "Initiate action to isolate affected component, pipe, or vessel from the RCS by use of a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve." The NRC staff has raised concern in the usage of the term "Initiate Action..." in lieu of "Isolate..." There is no completion time for isolation of the flaw. For example, initiating action can be the installation of a blind flange, which will require a significant engineering, planning, and work execution effort without any intermediate isolation of leakage.

Requests

- a. ~~Provide the bases for why the requirements to enter Conditions C.1 and C.2 or D.1 and D.2 when there is no available isolation device or if the flaw cannot be isolated from the RCS are not being captured in the Technical Specification changes.~~

Commented [HM1]: Brian Mann had a lot to say about this RAI. Did his commentary clear up the issue? Do we still need this RAI? Do we want to revise the request? If we keep this RAI, what would be consider an acceptable definition for "normal" leakage?

~~State the bases for the need for the term "Initiate action" and Explain why the Required Action statement does not start with "Isolate..." Initiation of an action could potentially be followed by a long period of time where the flaw continues to leak have a completion time for isolation of the flaw.~~

RAI - 4

Background

Section 2.2 states (emphasis added):

Note that the Reactor Coolant System pressure boundary considered in the RCS Operational LEAKAGE TS and the corresponding definitions **are not equivalent** to the reactor coolant pressure boundary as defined in 10 CFR [50.2], "Definitions."

The NRC staff doesn't believe the definitions in 10 CFR 50.2 and the STS are meant to imply a difference. They are complementary to one another because any RCPB leakage requires a shutdown period. The only way the licensee can avoid the shutdown is to isolate the leakage in accordance with the definition in 10 CFR 50.2 (i.e., isolating the fault from the RCS by closing two valves between the fault and the RCS). The valves must remain closed as indicated in the definition, and Action required per the TS.

Request

Clarify why the definitions are not the same or remove the sentence.

Commented [HM2]: Ravi, Please discuss with Vic on Friday or Monday. His door was shut Thursday afternoon, so I was not able to talk with him after you left.

