

Davis-BesseNPEm Resource

From: CuadradoDeJesus, Samuel
Sent: Tuesday, September 13, 2011 11:16 AM
To: 'custerc@firstenergycorp.com'; dorts@firstenergycorp.com
Cc: Davis-BesseHearingFile Resource
Subject: D- RAI Related to Aging Management of Letdown Coolers/Teleconference request.
Attachments: RAI 2 3 3 18-4 Letdown Cooler Replacement Frequency -R1.doc

Cliff:

Attached is the second RAI you'll be receiving in our upcoming RAI letter. We'll like to have a teleconference on it as well. Let me know when can we have the teleconference.

Regards,

Samuel Cuadrado de Jesús

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Subject: D- RAI Related to Aging Management of Letdown Coolers/Teleconference request.
Sent Date: 9/13/2011 11:15:57 AM
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From: CuadradoDeJesus, Samuel
Created By: Samuel.CuadradoDeJesus@nrc.gov

Recipients:

"Davis-BesseHearingFile Resource" <Davis-BesseHearingFile.Resource@nrc.gov>
Tracking Status: None
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Tracking Status: None

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MESSAGE	469	9/13/2011 11:15:59 AM	
RAI 2 3 3 18-4 Letdown Cooler Replacement Frequency -R1.doc			35322

Options

Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
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RAI 2.3.3.18-4

Background:

The response to RAI 2.3.3.18-3, in part, provided the following information:

- 1) The letdown coolers performed acceptably from initial startup in 1978 until 1991, when plant personnel detected contamination in the component cooling water (CCW) system, and replaced both letdown coolers in 1993. Then, in 2009, plant personnel identified a small, active reactor coolant leak, and again replaced both letdown coolers in 2010.
- 2) A failure analysis had not been performed on the leaking letdown coolers to determine the specific leak location or to verify the failure mechanism because of high radiation dose rates associated with that effort.

SRP-LR Section A.1.2.3.4, "Detection of Aging Effects" states that nuclear power plants are licensed using the principles of redundancy, and diversity, and that degraded components reduce the reliability of the systems, challenge safety systems, and contribute to plant risk. The SRP-LR continues by stating that the effects of aging on a component should be managed to ensure its availability to perform its intended function(s) as designed when called upon, and notes that a program based solely on detecting component failure should not be considered as an effective aging management program for license renewal.

Issue:

Based on the information provided in this recent response, as well as the information provided in response to RAI 2.3.3.18-2 for the same issue, the staff did not consider that the applicant has provided sufficient bases to justify the replacement frequency of every seventh refueling outage (approximately 14 years) for the letdown coolers in the makeup and purification system. The bases for the staff's position are as follows:

- a) The applicant established the replacement frequency based on a qualified life, which was empirically derived using two plant-specific data points of 13 and 16 years, after identifying reactor coolant leakage into the component cooling water system.
- b) The applicant has not determined the flaw location, performed flaw sizing, or verified flaw characteristics to allow prediction of flaw stability or growth rate. Without having this information, operation of the letdown cooler with ongoing leakage is risking a failure, which would challenge the pressure relief capability of the component cooling water system and the isolation function of the valves in the makeup and purification system.
- c) While past operating experience (although limited) may have shown that the flaw was stable for some period of time, the replacement frequency determination did not appear to consider normal operational pressure transients that the letdown coolers would be expected to experience.
- d) The letdown cooler replacement frequency appears to be based on overall calendar time and not actual operational time, considering both refueling and extended outages.

Request:

Provide a letdown cooler replacement frequency that includes adequate margin to initiation of tube leakage and provide the basis for the margin, or propose an aging management program that will adequately manage these components that are within the scope of license renewal.