

CCNPP3COLA PEmails

From: Steckel, James
Sent: Friday, July 01, 2011 1:41 PM
To: CCNPP3COLA PEmails
Subject: FW: Draft RAI No 46 CIB1 1437.doc (P)
Attachments: Draft RAI No 46 CIB1 1437.doc

From: John Rycyna
Sent: Friday, January 09, 2009 2:55 PM
To: Poche, Robert
Cc: CCNPP3COL Resource; Charles Hammer; David Terao; Michael Miernicki; Joseph Colaccino; James Biggins; Adam Gendelman
Subject: Draft RAI No 46 CIB1 1437.doc (P)

Rob,

Attached is DRAFT RAI No. 46. You have until January 23, 2009 to review it and to decide whether you need a conference call to discuss it. After the call or after January 23, 2009 the RAI will be finalized and sent to you. You then have 30 days to respond.

John Rycyna, PE
Sr. Project Manager
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Office of New Reactors
U.S. Nuclear Regulatory Commission
301-415-4122

Hearing Identifier: CalvertCliffs_Unit3Cola_Public_EX
Email Number: 2616

Mail Envelope Properties (0AA17736E4C4154CA37233EEBFC8DEB27400C0E629)

Subject: FW: Draft RAI No 46 CIB1 1437.doc (P)
Sent Date: 7/1/2011 1:41:13 PM
Received Date: 7/1/2011 1:41:27 PM
From: Steckel, James

Created By: James.Steckel@nrc.gov

Recipients:
"CCNPP3COLA PEmails" <CCNPP3COLA.PEmails@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

| Files | Size | Date & Time |
|-------------------------------|-------------|------------------------|
| MESSAGE | 700 | 7/1/2011 1:41:27 PM |
| Draft RAI No 46 CIB1 1437.doc | 34926 | |

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Request for Additional Information No. 46 Revision 0
DRAFT
1/9/2009

Calvert Cliffs Unit 3
UniStar

Docket No. 52-016

SRP Section: 03.09.06 - Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints
Application Section: 3.9.6

QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects)
(CIB1)

03.09.06-1

Question - Fully describe the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 mechanical equipment qualification (MEQ) program or modify the FSAR to detail the MEQ's compliance with ASME Standard QME-1-2007, including example descriptions of component qualification.

Discussion - 10 CFR 52.79(a)(11) requires a COL applicant to provide a description of the program(s), and their implementation, necessary to ensure that the systems and components meet the requirements of the ASME Boiler and Pressure Vessel Code and the ASME Code for Operation and Maintenance of Nuclear Power Plants in accordance 10 CFR 50.55a (e.g., pre-service and inservice testing programs). The Statements of Consideration associated with this requirement clarifies that an ITAAC for an [operational] program should not be necessary if the program and its implementation are "fully described" in the application and found to be acceptable by the NRC at the COL stage. In this context, fully described should be understood to mean that the program is clearly and sufficiently described in terms of the scope and level of detail to allow a reasonable assurance finding of acceptability. Required programs should always be described at a functional level and at an increased level of detail where implementation choices could materially and negatively affect the program effectiveness and acceptability (see also SECY-05-0197 and Regulatory Guide 1.206, Section C.IV.4).

Inasmuch as the CCNPP Unit 3 FSAR incorporates by reference the inservice testing (IST) program described in the U.S. EPR design certification application (with additions only as they relate to the site-specific, ultimate-heat-sink makeup water system), the COL applicant appears to be relying on the DC applicant to fully describe its IST program. Similarly, the COL applicant appears to be relying on the DC applicant to fully describe its program to ensure the functional design and qualification of mechanical equipment. A clearly defined MEQ program forms the basis, or foundation, on which an inservice testing program should be built. The DC application provides a description of an IST program; however, it does not fully describe the MEQ program to allow a reasonable assurance finding of acceptability. Specifically, the MEQ program for the U.S. EPR has not been "fully described" in that many implementation choices remain unanswered which could materially and negatively affect the program effectiveness and acceptability.

General Design Criteria (GDC) 4 requires, in part, that structures, systems, and components (SSCs) important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. As documented in numerous NRC generic communication and issuances (e.g., Generic Letters 89-10 and 96-05, Regulatory Issue Summary 2000-03, NUREG-1275), weaknesses in licensees' mechanical equipment qualification programs have lead to situations in which SSCs may not have been able to perform their safety-related function(s) under design-basis conditions as required by GDC 4. As a result of these lessons learned from operating experience, NUREG-0800 (Section 3.9.6), Regulatory Guide 1.206 (Section C.III.1, C.I.3.9.6.1), and QME-1 have been revised to provide guidance related to the functional design and equipment qualification of safety-related pumps and valve. The provisions of the ASME Code alone do not adequately assess the functional design and qualification of safety-related pumps and valves. Specifically, the ASME Code does not require testing and/or analysis to ensure that each pump and valve is capable of performing its intended function for a full range of system differential pressure and flow, ambient temperatures, and available voltages (as applicable) under all conditions ranging from normal operating to design-basis accident conditions. As such, an IST program which satisfies the provisions of the ASME Code is not, in and of itself, sufficient to satisfy GDC 4. Therefore, the COL applicant should fully describe its MEQ program, or specify implementation of QME-1-2007, including example descriptions of component qualification.

03.09.06-2

Question - Fully describe the CCNPP Unit 3 IST program to the extent that implementation choices that could materially or negatively affect the program effectiveness and acceptability are clearly specified.

Discussion - 10 CFR 52.79(a)(11) requires a COL applicant to provide a description of the program(s), and their implementation, necessary to ensure that the systems and components meet the requirements of the ASME Boiler and Pressure Vessel Code and the ASME Code for Operation and Maintenance of Nuclear Power Plants in accordance 10 CFR 50.55a (e.g., pre-service and inservice testing programs). The Statements of Consideration associated with this requirement clarifies that an ITAAC for an [operational] program should not be necessary if the program and its implementation are "fully described" in the application and found to be acceptable by the NRC at the COL stage. In this context, fully described should be understood to mean that the program is clearly and sufficiently described in terms of the scope and level of detail to allow a reasonable assurance finding of acceptability. Required programs should always be described at a functional level and at an increased level of detail where implementation choices could materially and negatively affect the program effectiveness and acceptability (see also SECY-05-0197 and Regulatory Guide 1.206, Section C.IV.4).

The CCNPP Unit 3 FSAR incorporates by reference the inservice testing (IST) program described in the U.S. EPR design certification application (with additions only as they

relate to the site-specific, ultimate-heat-sink makeup water system) The DC application provides a description of an IST program; however, it does not fully describe the program to allow a reasonable assurance finding of acceptability. In order for the NRC staff to reach a conclusion that the systems and components meet the requirements of the ASME OM Code, the staff needs a complete and unambiguous description of the program. For example, statements like the following do not fully describe an IST program:

- “The IST program complies with the requirements of Reference 2 [the 2004 version of the OM Code], Subsection ISTC, to the extent practical.”
- “The IST program incorporates nonintrusive techniques to periodically assess the degradation and performance of selected valves.”
- “Additional tests: Various other tests may be required to confirm that an adequate margin exists in MOV capability.”
- “The IST program for POVs includes programmatic features similar to the Joint Owners Group (JOG) Program in response to Reference 4.”
- “If these test methods are impractical for certain check valves, or if sufficient flow cannot be achieved or verified, a sample disassembly examination program verifies valve obturator movement.” [However, no check valves were identified as falling into this category.]

Without more definitive statements about the IST program (e.g., to correct ambiguities like those noted above and to clearly describe how disassembly and inspection, nonintrusive testing, and diagnostic testing will be used), the NRC staff is unable to conclude that the applicant meets the ASME Code requirements and assess whether or not the COL applicant’s implementation choices, related to the IST program, will materially or negatively affect the program effectiveness and acceptability. The applicant’s IST program should outline methods for measuring the reference values and IST values for power-operated valves (POVs), including motor-operated valves (MOVs), air-operated valves (AOVs), hydraulically-operated valves (HOVs), and solenoid-operated valves (SOVs). The applicant’s IST program should also incorporate the lessons learned from the resolution of weaknesses in the design, qualification, and testing of MOVs into the IST program for safety-related POVs, including MOVs. Consequently, the COL applicant will be required to make and describe those implementation choices necessary to fully describe its IST program.