PMSTPCOL PEmails

From: Tomkins, James [jetomkins@STPEGS.COM]
Sent: Monday, May 16, 2011 12:40 PM
To: Joseph, Stacy
Subject: Overheads
Attachments: ACRS strainer structural analysis - NRC.pdf

Here are the proposed overheads for the ACRS Action Item on Strainer Structural Analysis. As I indicated, we can have a phone call on Wednesday or Thursday afternoon.

Hearing Identifier: SouthTexas34Public_EX
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Subject: Overheads
Sent Date: 5/16/2011 12:39:57 PM
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From: Tomkins, James

Created By: jetomkins@STPEGS.COM

Recipients:
"Joseph, Stacy" <Stacy.Joseph@nrc.gov>
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MESSAGE	166	5/16/2011 12:40:02 PM
ACRS strainer structural analysis - NRC.pdf	101807	

Options
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ACRS Question Regarding Adequacy of ECCS Strainer Structural Design

- Question: What testing was done to ensure that the complex geometry of the CCI cassette-type strainers is properly accounted in the structural analysis of these strainers under hydrodynamic suppression pool loading?

- CCI prepared structural analyses of the RHR and HPCF replacement strainers for the RJ-ABWR in 2005
  - These strainers are the same design (geometry) as the ones that will be used for STP 3&4

- Methodology for structural analyses of STP 3&4 ECCS strainers will be same as for RJ-ABWR
  - Hydrodynamic loads will be different (per DCD Tier 2 Appendix 3B)
  - Load combinations will be different (per DCD Tier 2 Table 3.9-2)

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ACRS Question Regarding Adequacy of ECCS Strainer Structural Design

Summary of Structural Analysis Methodology

- Hydrodynamic loads on each strainer size (RHR, HPCF and RCIC) defined by Toshiba in ASME Design Spec
  - Loads include: Vent Clearing drag force, Air Bubble formation, Condensation Oscillation, Chugging, SRV discharge
- Geometry-dependent drag coefficient and acceleration drag volume determined by testing for CCI cassette-type strainers
  - SULZER Innotec Report STT.TB98.22 (July 1998)

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ACRS Question Regarding Adequacy of ECCS Strainer Structural Design

Summary of Structural Analysis Methodology

- Loads applied to Finite Element model of strainer to determine stresses in perforated sheets, flange plate, internal ribs
- Resulting membrane, local membrane, membrane + bending stresses compared to allowable stresses for limiting load combinations

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