

PMSTPCOL PEmails

From: Tai, Tom
Sent: Monday, July 25, 2011 1:06 PM
To: Price, John E
Cc: STPCOL; Scheide, Richard
Subject: RE: STP - Additional Ch 3.9.2 Topics for July 27

John,

I forgot one minor detail:

Dr Samir Ziada cannot make the 2 pm call but he and Yuken and Dr David Ma will join the 9 am telephone conference.

Rocky Foster gave me the tie-line information:

Conference Line - 888-989-3415
Pass Code - 28037

In summary, we'll discuss 3.9.2 in the morning.

In the afternoon, we'll discuss ACSTIC2 and HCU and FMCRD spec and Chapter 3.8.

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From: Tai, Tom
Sent: Monday, July 25, 2011 12:52 PM
To: 'Price, John E'
Cc: STPCOL
Subject: STP - Additional Ch 3.9.2 Topics for July 27

John,

In addition to the two items from last week, Dr. David Ma has two more for this Wednesday's (7/27) telecom. To recap, **the original two** from July 20 are:

1. Analysis Case 4: Ten pumps in-phase and maximum flow rate (i.e., [111%] of core flow). This produces symmetric flow distributions within the reactor vessel. Thus, maximum reactor coolant dynamic pressures would be present in the reactor core and in regions above the core (e.g., top guide and steam separators). This case is bounding because the [111%] flow rate in the maximum achievable at the 100% power level. In WCAP-17371-P, Rev. 2, Section 5.1.2 the applicant stated that the analyses for the internal components, except for the CRDH/CRGTs, ICGT/ICMHs, and stabilizers were done at a more conservative flow rate of [120%].

The staffed noted that only large components in downcomer (i.e., core shroud, shroud support, and shroud head) were analyzed with 120% flow rate in Analysis Case 4 as stated in WCAP-17371-P, Rev. 0, Section 6.2.1. Small components in downcomer (FW and LPCF sparger, RIP Guide Rails) and components above the core (steam separators and lifting rods, HPCP sparger and coupling) and component in lower plenum (CP and RIP DP lines) were not analyzed with a more conservative flow rate 120%.

2. In response to RAI 03.09.02-26 dated November 4, 2010, the applicant listed 4 tests which were performed to validate the CFD approach. These tests include cases of separated flow, rotating flow, branched flow, and turbulent flow. The validation tests results have been compared with theoretical or measured results, and it was concluded that the CFD results were sufficiently accurate for these test cases. Additional validation of the CFD model of the lower plenum was performed by comparing the velocity distributions of Case 4 conditions along a vertical measurement line with the 1/5th scale model test data. Although, good agreement was found between the velocity distribution patterns, the simulation results underestimated the maximum radial inward velocity by 18%. The applicant therefore accounted for this difference by including an additional safety margin of 18% to the computed FIV stresses. We need confirmation that this additional margin is included in the lower plenum component (i.e., CRGT/CRDH assemblies, ICGT/ICMH assemblies, stabilizers, CP DP lines, and RIP DP lines)

The two new items from the review of WCAP 17385 (Unit 3 dryer assessment) are:

(1) Section 5.5.3.6

A full penetration weld is “assumed” for every weld in the dryer and a welding factor of 2 is applied throughout the dryer stress evaluation. This is a major assumption, please validate this assumptions (i.e., all welds are penetration welds).

(2) Section 5.5.3.4

Dead-weight stress is included in the load combination but not the thermal stresses. The report stated that the thermal stresses are small because the entire steam dryer is suspended inside the reactor vessel and all surfaces are exposed to the same conditions. However, the staff noted that there are constrains (boundary conditions) used in the dry structural model. Please provide justification that thermal stresses under these boundary conditions are small and insignificant compared to the dryer FIV stresses (i.e., to validate the assumption).

Yuken thought there may be more tomorrow. I've told him he can share with you but there may not be any meaningful discussion if you guys don't have time to prepare.

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Hearing Identifier: SouthTexas34Public_EX
Email Number: 2986

Mail Envelope Properties (0A64B42AAA8FD4418CE1EB5240A6FED1349E0ED753)

Subject: RE: STP - Additional Ch 3.9.2 Topics for July 27
Sent Date: 7/25/2011 1:06:07 PM
Received Date: 7/25/2011 1:06:08 PM
From: Tai, Tom

Created By: Tom.Tai@nrc.gov

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Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	Size	Date & Time
MESSAGE	4287	7/25/2011 1:06:08 PM

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