Vogtle PEmails

From: Hoellman, Jordan
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To: Vogtle PEmails
Subject: Revised Draft UIN for ITAAC Index No. 328
Attachments: ITAAC 328 R1.docx

Please see SNC's revised draft Uncompleted ITAAC Notification (UIN) for ITAAC Index No. 328, for discussion at a future public meeting.

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ITAAC 328

ITAAC 2.3.04.02.ii [328] FPS As-built pipe Stress Report is very similar to other ITAAC involving ASME piping design reports which are supported by stress analyses performed to the rules of ASME Section III. One difference that does exist is the use of the term "functional" in the AC for ITAAC 328 as compared to "functional capability" for other piping design ITAAC.

In reference to ITAAC 328; SNC defines "functional" as:

> "Functional" in this context refers to the capability of the piping to withstand the combined normal and seismic design basis loads without a loss of its ability to provide water for firefighting capability.

The basis for this definition is:

1. ITAAC 328 pertains to Fire Protection piping shown on COL Appendix C Figure 2.3.4-2 (the "figure") which is required to remain functional following a safe shutdown earthquake (SSE).
2. UFSAR Subsection 9.5.1.1.1 defines the requirement for fire protection (piping) shown on the figure and states: "Following a SSE, provide water to hose stations for manual firefighting in areas containing safe shutdown equipment."
3. The piping shown on the figure, designated as ASME Class B (JCB) and F (RCF which is analyzed for SSE loads), is designed to provide the functional requirement to provide water for manual firefighting called out in UFSAR Subsection 9.5.1.1.1 and is analyzed to survive normal operating (service) loads and seismic (SSE) loads.
4. Piping that was chosen to survive the normal operating loads and SSE loads that the analyzed design calls for are designed per piping design criteria APP-GW-P1-001.
5. Piping design criteria APP-GW-P1-001 stipulates that the piping (both Class B and F) shown on the figure will remain functional following a SSE. The large bore Class F fire protection piping designated as Functional Seismic Piping (FSP) piping (i.e., piping analyzed for SSE loads) is designed to the same stress limits as the Class B fire protection piping that is penetrating the containment (i.e., equal to the smaller of 3.0 Sh and 2.0 Sy [see Note]). Both the Class B and Class F pipe are designed to not break and continue to provide water for manual firefighting following a SSE. The as-built FPS piping will be analyzed to at least the rules of the ASME Section III, Class 3 (i.e., satisfying associated stress equations and allowable stresses).

ITAAC 328 will demonstrate ITAAC's acceptance by requiring as-built piping to be reconciled with the as-designed stress analyses to demonstrate it remains functional following a SSE. Refer to Figure 2.3.4-2 in VEGP COL Appendix C that depicts boundaries of stress analyses.

Note: Reference piping design criteria APP- APP-GW-P1-001. B31.1 FSP piping that must remain functional after the SSE is classified as functional seismic piping (SC-II FSP). B31.1 Structural Integrity Piping (SIP) that must retain structural integrity during the SSE is classified as (SC-II SIP). The stress limits applied for these portions of FPS piping support the license in that this piping… "Following a SSE, provide water to hose stations for manual firefighting in areas containing safe shutdown equipment." Where Sh is Code Allowable Stress and Sy is Yield Strength. The equations and allowable load combinations are covered in UFSAR Table 3.9-7.

References:

1. APP-GW-P1-001, Piping Design Criteria for AP1000 The scope of these criteria covers the loadings, methods of analysis and acceptance criteria for Seismic Category I ASME III, Seismic Category II and Non-seismic ASME B31.1 Code piping.
2. APP-PCS-PLR-100, "Piping Analysis for Passive Containment Cooling System Piping in Room 12306 Aux. Bldg." The scope of this analysis covers the CNS FPS penetration outside containment (in the Auxiliary Building) and the FPS lines connected to that penetration.
3. APP-FPS-PLR-500, "Fire Protection System Piping from Containment Penetration to the Seismic Stand Pipes and Spray Header inside containment. The scope of this analysis covers the CNS FPS penetration inside containment and the FPS lines connected to that penetration.