

NRR-PMDAPEm Resource

From: Alan I Hassoun [hassouna@dteenergy.com]
Sent: Wednesday, July 01, 2015 1:08 PM
To: DiFrancesco, Nicholas; Wyman, Stephen
Subject: [External_Sender] Clarification of DTE's Response to NRC's Question Regarding the Fermi ESEP Report

The following discussion is intended to clarify the response to NRC staff Question-4 (RAI-4) regarding the Fermi 2 Expedited Seismic Evaluation Process (ESEP) Report as provided in DTE Electric Company (DTE) correspondence number NRC-15-0065, dated May 28, 2015.

In the response to Question-4, the term “boxed” was used to describe the application of the “rule of the box” concept. This methodology estimates High Confidence of Low Probability of Failure (HCLPF) capacities for the panels and cabinets based on the Conservative Deterministic Failure Margin (CDFM) approach. The resulting HCLPF values represent the functional capacity of the cabinet and contents. Additionally, the HCLPF capacity of the cabinet anchorage is evaluated by analysis of the plant-specific configuration. The smaller of the two HCLPF values applies to the cabinet as well as to all devices and components mounted inside the cabinet. In most cases, the functional capacity is more limiting than the anchorage capacity.

The seismic capacity is represented by plant-specific test response spectra and Generic Equipment Ruggedness Spectra (GERS) at the base of the cabinet, while the seismic demand is represented by the clipped in-structure response spectra also at the base of the cabinet. Further, the GERS capacity is reduced by 10% in accordance with EPRI guidelines in order to obtain the CDFM.

Specific relays identified on the Expedited Seismic Equipment List (ESEL) are evaluated using plant specific relay fragilities and/or relay GERS supplemented by the high frequency GERS resulting from recently-completed high frequency testing program conducted by the Electric Power Research Institute (EPRI). In this case, the seismic demand is represented by the clipped in-structure response spectra at the base of the cabinet amplified by the cabinet amplification factor in accordance with the EPRI guidelines.

The application of the GERS is justified on the basis of plant walkdowns which confirmed that the associated caveats are satisfied. This is documented as part of the Expedited Seismic Evaluation Process (ESEP) Report.”

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Hearing Identifier: NRR_PMDA
Email Number: 2192

Mail Envelope Properties (OF50F85F76.CF1A09DE-ON85257E75.005E284A-85257E75.005E2856)

Subject: [External_Sender] Clarification of DTE's Response to NRC's Question Regarding the Fermi ESEP Report
Sent Date: 7/1/2015 1:08:27 PM
Received Date: 7/1/2015 1:10:50 PM
From: Alan I Hassoun

Created By: hassouna@dteenergy.com

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Files	Size	Date & Time
MESSAGE	2963	7/1/2015 1:10:50 PM

Options
Priority: Standard
Return Notification: No
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