



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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P21 9/1/13
Publicly Available

TECHNICAL ISSUE SUMMARY

TIS NO: 91-05

Date: 10/28/91

ISSUE: SEISMIC QUALIFICATION OF INSTRUMENT NESTS

PROBLEM: Foxboro Instrument Nests were seismically qualified with guide rails, bumpers, and dummy loads installed. On September 17, 1991, four Foxboro Instrument Nests in the control room of the Duane Arnold Energy Center (DAEC) were found in a different configuration than that which was tested by Foxboro. They were therefore not seismically qualified per IEEE 344-1975 and Foxboro test report QOAB58.

EVALUATION: The bumpers are small rubber pads installed on the back wall of the nest against which the individual cards rest. The bumpers dampen vibrations encountered during a seismic event. The cards are installed between guide rails. The guide rails are plastic rails attached to the nests to ease installation of the cards. These also limit lateral movement of the cards during a seismic event. The dummy load cards are weighted module cards without electrical connections. They mimic the actual cards in both size and weight. A full nest, including all bumpers and guide rails, is necessary to provide mutual support and dampening. The installed nests were missing various pieces. The subject nests had been purchased and installed separately as design changes. Installation instructions did not adequately point out the required configuration for seismic qualification. An inadequate review of the qualification test report and insufficient documentation of the seismically tested configuration also contributed to the faulty installation. An immediate engineering evaluation of operability was started while the missing parts were identified and ordered from the vendor. Correct installation of the missing parts was completed on September 18, 1991.

LICENSEE/NRC ACTION: Following a detailed review, the Licensee concluded that the nest locations which did not have guide rails and bumper pads could not be assured to remain functional following a design basis event. The qualification tests were performed at significantly higher accelerations than those postulated at the DAEC. The equipment is in a qualified configuration now. The determination was made not to pursue the extensive testing that would be required to positively ascertain the operability of the nest while in the past configuration.

A letter is being issued informing engineering and technical staff personnel of the expected level of review of vendor documentation.

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REFERENCES: NRC Inspection Report 50-331/91-15



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