



August 24, 1982
L-82-370

Mr. James P. O'Reilly
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

Re: St. Lucie Unit 2
Docket No. 50-389, 10 CFR 50.55(e); 82-011
Rigid/Flexible Conduit

On June 23, 1982, Florida Power and Light Company (FPL) notified the Region II Office of Inspection and Enforcement in accordance with the requirements of 10 CFR 50.55(e) of a potential deficiency regarding the installation of rigid conduit where flexible conduit was required. Attached please find our final resolution of this issue.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems and Technology

REU/jea

Attachment

cc: Director of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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I. Summary

A potential deficiency was identified in the installation of conduits to various pieces of equipment. Detail drawings specified that flexible conduits were to be installed from pieces of equipment to predetermined points at which the flexible conduits would join with the rigid conduits. However, it was found that in some cases rigid conduits were used for the entire length. Investigations were conducted to ascertain the total number of conduits affected and also whether or not installation of the rigid conduits would adversely effect the operability of the equipment under seismic conditions. As a result of this analysis, approximately half of the 58 conduits were found to be acceptable as is, the other half required either installation of flexible conduits or extra supports.

FPL notified the NRC of this deficiency existing at the St. Lucie Unit 2 site as potentially reportable under 10CFR50.55(e) on June 23, 1982. This final report is submitted to advise the NRC of the description and corrective action that is being taken.

II. Description

Flexible conduits were specified to be connected to certain equipment in order to isolate the equipment from additional seismic forces which could be transmitted to the equipment via the rigid conduit network. Flexible conduits were specified because the seismic tests that were performed on the equipment did not include any conduit loads on the equipment. It was later identified that in the cases in which flexible conduits were specified in design, rigid conduits were sometimes installed. Failure to install flexible conduits where indicated, could adversely affect the operability of the equipment under seismic events. Oscillation of the rigid conduits could have resulted in possible conduit shear or damage to the piece of equipment. This could potentially render the equipment inoperable under a seismic condition

III. Corrective Action

The above event is considered a deficiency in construction in which electrical installation notes were not followed. A survey was conducted to identify all conduits that were required to be flexible but were installed as rigid. Incorrectly installed conduits were re-analyzed to determine the corrective action to be taken. As a result of this re-analysis, approximately half of the 58 improperly installed conduits were found to be acceptable as is. This re-analysis has ascertained that in these cases the use of rigid conduits will not adversely affect the vendor supplied seismic Qualification Report because the length of rigid conduit, from it's last support to the piece of equipment, is deemed negligible. The remaining conduits installed incorrectly have already been corrected, either by replacing the rigid conduit with flexible conduits or by providing additional supports to the rigid conduits. A list of the affected conduits, and affected pieces of equipment including the corrective action will be maintained at the site.

To determine the extent of the problem, all areas were surveyed by Office Engineering and Quality Control Personnel. As a result, the problem was isolated only to those specific instances cited above, all of which were located in Outlying Facilities areas. The cause of the problem was isolated

to the misinterpretation of a requirement contained in the Electrical General Installation Notes, FLO 2998-B-271, versus an approved Field Change Request M180 which indicated that rigid conduit could be used at Class 1E enclosures when the conduit and enclosure are both mounted on same structure (the misinterpretation hinged on the words "same structure").

Since the incorrect installation was not identified by Quality Control during routine in-process inspection, the incident was evaluated to determine if it represented a significant breakdown in the Quality Assurance Program. It was determined the incident does not constitute a significant breakdown since in all cases, the final QC inspection was not complete. Conduit installation is accomplished in two phases and the second phase, seismic/support verification has not yet been accomplished.

To prevent recurrence, Outlying Facilities field supervisors and cognizant Quality Control personnel are being reinstructed in the pertinent requirements of drawing FLO 2998-B-271, "Electrical General Installation Notes". This training is scheduled to be complete by September 1, 1982.

IV. Safety Implications

The above event involved many pieces of safety related equipment, (e.g., the MCC's which feed the fuel pool supply fan, fuel pool pump, diesel generator air compressor, diesel generator fuel oil transfer pumps). Also involved were other electrical equipment items such as local control stations, local starters, power panels and electrical boxes. The vendors seismic testing, as described in the seismic qualification reports, did not include the additional loads which would result if rigid conduits were used. If this deficiency were to have remained uncorrected the safety of the plant could have been adversely affected, sometime during the life time of the plant as the equipment identified above could potentially be rendered inoperable under a seismic event. Therefore, we consider this event as reportable.

V. Conclusion

Corrective action as indicated in Section III of this report has been undertaken. This closes out this item for St. Lucie Unit 2 with regards to the NRC's reporting requirements.