



LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

P.O. BOX 618, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

April 16, 1980

SNRC-471

Mr. Robert T. Carlson, Chief
Reactor Construction and Engineering Support Branch
U. S. Nuclear Regulatory Commission, Region 1
631 Park Avenue
King of Prussia, Pennsylvania 19406

NRC Inspection No. 79-07
Raceway/Cable Separation
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

Dear Mr. Carlson:

As part of the design and construction efforts undertaken on the Shoreham project, an independent separation analysis was performed which provides one means of ensuring that no single, credible event will be capable of disabling sufficient equipment to prevent reactor shutdown or decay heat removal. The analytical approach was developed in response to generic NRC concerns with the adequacy of fire protection in nuclear power plants. In addition, the analysis is being used as an engineering and construction check of routed class IE cable in the reactor building. It is a direct application of the NRC's "defense-in-depth" concept, based on criteria which have been conservatively applied to Shoreham. The analysis demonstrates that concurrent with the loss of offsite power and assuming loss of all components in a given area, hot and cold shutdown can be accomplished with limited manual operations using only safety-related systems and equipment.

The analysis, as applied to cable separation, is based on a shutdown model developed for use in assessing the impact of the assumption that operability of all components associated with a given area is lost. It establishes affected areas taking into consideration the reactor building arrangement, identifies all class IE cables and their respective safety related components associated with the area, and assumes that the components are lost. The analysis constitutes a detailed, area-by-area review of the reactor building.

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Specifically, each elevation of the secondary containment is divided into eight 45° segments. Upon completion of the analysis of all segments of each elevation, each 45° segment is rotated 22.5° and the analysis is repeated to ensure that no particularly sensitive interface boundaries exist.

The approach utilizes a computer program to compare raceway location (manually derived) with raceway cables (computer list), resulting in a listing of class IE cables vs. area. This information is then re-entered into the computer, along with a tabulation of shutdown components vs. cables, in order to generate a list of shutdown components vs. area. This approach was utilized because it eliminated the need to postulate a failure mechanism and simultaneously demonstrated that multiple shutdown capabilities are inherent in the Shoreham design. This approach has been used to demonstrate the adequacy of cable separation on operating units, and it is being used extensively in the Shoreham design and construction effort.

Formal completion of the analysis will coincide with completion of the installation of all class IE cable and its associated equipment. At that time, an "as-built" review will be performed to ensure the validity of the inputs to the analysis, as well as to check the engineering and construction efforts.

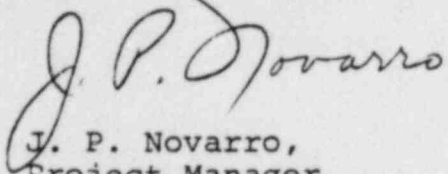
The analysis and backup material are available for review and verification at the site. We believe that this effort constitutes a major, independent control of design and construction activities on the site. For this reason, we take exception to the inspection finding that the conditions identified and reported (NRC Inspection Report 79-07) constituted a nonconformance. This analytical effort supports the position established in Section 3.12.3.5.1 of the FSAR. It also supports the fact that corrective action in compliance with criterion XVI of Appendix B to 10CFR50 has been and is being taken with respect to the identified conditions. In those few cases where deviations from the minimum separation criteria were required due to field conditions, such as those indicated by Inspection Report 79-07, the analysis demonstrated that the consequences of a failure would not have a significant impact. That is, since the analysis assumed that all the cables in an affected area were lost, whether or not minimum separation was maintained, the required deviation will not compromise the safe shutdown capability.

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If requested, the results of the analysis could be submitted to the NRC, allowing approximately four months for formal preparation and review of an FSAR amendment and/or supplement. However, we believe that the concerns raised by NRC Inspection Report 79-07 can best be resolved by an on-site review of the separation analysis by I&E.

Very truly yours,



J. P. Novarro,
Project Manager
Shoreham Nuclear Power Station

RH/cc

cc: J. Higgins
J. N. Wilson