

Docket No. 50-346

License No. NPF-3

Serial No. 1086

September 25, 1984



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Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz
Operating Reactor Branch No. 4
Division of Operating Reactors
United States Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Stolz:

This letter is in response to your letter dated July 26, 1984 (Log No. 1561), requesting additional information to support the Toledo Edison Safety Analysis Report of November 30, 1983 (Serial 1011) for the Safety Parameter Display System (SPDS).

- Item a: For each type of device used to accomplish electrical isolation, describe the specific testing performed to demonstrate that the device is acceptable for its application(s). This description should include elementary diagrams when necessary to indicate the test configuration and how the maximum credible faults were applied to the devices.
- Item b: Data to verify that the maximum credible faults applied during the test were the maximum voltage/current to which the device could be exposed, and define how the maximum voltage/current was determined.
- Item c: Data to verify that the maximum credible fault was applied to the output of the device in the transverse mode (between signal and return) and other faults were considered (i.e., open and short circuits).
- Item d: Define the pass/fail acceptance criteria for each type of device.

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Response -

a, b, c, d:

The isolation devices used for inputs to the SPDS from safety related equipment fall into four categories. Signals from the Reactor Protection System (RPS); signals from the Safety Features Actuation System (SFAS); signals from the Auxiliary Shutdown Panel (ASP); and signals from equipment installed to meet the requirements implemented following the TMI-2 accident. When a signal leaves a Class 1E system, an isolation device is used. In the case of the RPS and SFAS, the devices used for isolation of signals going to the SPDS are the same as those isolation devices used for other "non-1E" signals from these systems. A discussion of these devices, their characteristics, and testing is included in the Davis-Besse Nuclear Power Station, Unit 1, FSAR beginning on Page 8-21.

The isolation devices used for Class 1E signals from the ASP are the same as originally used. A discussion of their characteristics is outlined on Page 8-21a(9) of the Davis-Besse Nuclear Power Station, Unit 1, FSAR.

Where we supply signals to the SPDS from the Class 1E equipment installed to comply with post TMI-2 accident requirements, we used a Foxboro Model 2A0-VAI for isolation. A review of the Foxboro test data for these modules indicates that they meet the requirements as described in the Davis-Besse Nuclear Power Station, Unit 1, FSAR.

Item e: Provide a commitment that the isolation devices comply with the environmental qualifications (10 CFR 50.49) and with the seismic qualifications which were the basis for plant licensing.

Response:

The equipment used to isolate the safety related signals to the SPDS is located in a mild environment and therefore is not subject to the requirements of 10 CFR 50.49. Each isolation device has been seismically tested, and meets or exceeds the seismic qualifications which were the basis for plant licensing.

Item f: Provide a description of the measures taken to protect the safety systems from electrical interference (i.e., Electrostatic Coupling, EMI, Common Mode and Crosstalk) that may be generated by the SPDS.

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Response:

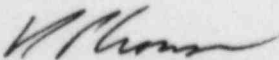
The inputs to the SPDS are supplied through a Validyne HD310 high speed data acquisition system. Each analog input signal is fed through an operational amplifier which prevents feedback from the SPDS. In addition, the data link between the multiplexer and the SPDS computer is optical which is immune to electrostatic coupling, EMI, and crosstalk, which may be generated by the SPDS.

Additional documentation used in developing this response are:

B&W Topical Report (BAW-10003),
Foxboro Test Report (QOAAA-20-1), and
Consolidated Controls Report (ER 7054).

Toledo Edison concludes that these devices are qualified isolation devices, and will perform as required.

Very truly yours,



RPC:LCS:SGW:nlf
cc: DB-1 NRC Resident Inspector