MAR 11 1986

Docket Nos.: 50-443
and 50-444

Mr. Robert J. Harrison
President & Chief Executive Officer
Public Service Company of New Hampshire
Post Office Box 330
Manchester, New Hampshire 03105

Dear Mr. Harrison:

Subject: Request for Additional Information Concerning the Safety Parameter Display System for Seabrook Station

The staff has reviewed your submittal of January 6, 1986 concerning the Safety Parameter Display System and concluded that insufficient information was provided to complete our evaluation. The information needed by the staff to continue the evaluation is defined in the enclosure. I request that you provide me your response by March 18, 1986. If this is not possible, please notify me.

An on-site pre-implementation audit will be required to complete the evaluation, and I expect that this audit will be accomplished within approximately one month following receipt of the additional information requested above.

Sincerely,

/S/

Victor Nerses, Project Manager
PWR Project Directorate No. 5
Division of PWR Licensing-A

Enclosure:
As stated

cc: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Victor Nerses, Project Manager
PWR Project Directorate No. 5
Division of PWR Licensing-A

Enclosure:
As stated

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Enclosure

REQUEST FOR ADDITIONAL INFORMATION CONCERNING THE SEABROOK STATION SAFETY PARAMETER DISPLAY SYSTEM

Each operating reactor shall be provided with a Safety Parameter Display System (SPDS). The Commission approved requirements for an SPDS are defined in NUREG-0737, Supplement 1. In the Regional workshops on Generic Letter 82-33 held during March 1983, the NRC discussed these requirements and the staff's review of the SPDS.

The staff reviewed the SPDS safety analysis provided by Public Service of New Hampshire dated January 6, 1986 (Reference 1). The staff was unable to complete the review because of insufficient information. The following additional information is required to continue the review:

Isolation Devices

Provide the following:

a. For the 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.

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.

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).

d. Define the pass/fail acceptance criteria for each type of device.

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

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.

g. Provide information to verify that the Class 1E isolation is powered from a Class 1E source.

Human Factors Engineering

a. Human Factors Program

Provide a description of the display system, its human factored design, and the methods used and results from a human factors program to ensure that the displayed information can be readily perceived and comprehended so as not to mislead the operator.

b. Data Validation

Describe method used to validate data displayed on the SPDS and how "conservative substitute values" are calculated. Also describe how "conservative substitute values" are made known to the operator.

c. Verification and Validation Program

The SPDS report describes the validation prograr for the Westinghouse Owner's Group (WOG) Emergency Response Guidelines (ERGs). It does not describe the Verification and Validation Program used in the development of the SPDS. This program needs to be described alon.a with a description of results to date and the corrective actions taken to address identified design deficiencies.

d. Unreviewed Safety Questions

Provide conclusions regarding unreviewed safety questions or changes to technical specifications.

e. Implementation Plan

Provide a schedule for full implementation of the SPDS including hardware, software, operator training, procedures and user manuals.

Parameter Selection

As a result of its review, the staff noted that the following variables are not proposed for the Seabrook SPDS:

1. RHR Flow
2. Steam Generator (or steamline) Radiation
3. Stack Monitor
4. Containment Isolation
5. Containment Hydrogen Concentration

During RHR and ECCS modes of cooling when steam generators are not available, RHR flow is a key indicator to monitor the viability of the heat removal system.

Steamline (or steam generator) radiation, in conjunction with containment radiation and reactor stack radiation, gives a rapid assessment of radiation status for the most likely radioactive release paths to accomplish the "Radioactivity Control" safety function. For a rapid assessment of Radioactivity control, the applicant has not demonstrated how radiation in the secondary system (steam generators and steamlines) is monitored by SPDS when the steam generators and/or their steamlines are isolated. The analysis should be expanded to include this discussion.

Containment isolation is an important parameter for use in making a rapid assessment of "Containment Conditions." In particular, a determination that known process pathways through containment have been secured provides significant additional assurance of containment integrity.

Containment hydrogen concentration is a key parameter used in the emergency guidelines to monitor combustible gas control and to indicate a compromise of the "Containment Conditions" safety function.

The above variables do, for given scenarios, provide unique inputs to the determinations of status for their respective Critical Safety Functions (CSFs), which have not been discussed by the applicant as being satisfied by other variables in the proposed Seabrook SPDS list. The applicant should address these variables and their functions by: (1) adding the variables to the Seabrook SPDS, (2) providing alternate added variables along with justifications that these alternates accomplish the same safety functions for all scenarios, or (3) providing justification that variables currently on the Seabrook SPDS do in fact accomplish the same safety functions for all scenarios.

Reference

Letter to V. Noonan from J. DeVincentes, SBN-920, dated January 6, 1986, "NUREG-0737 Task I.D.2, Plant Safety Parameter Display Console."