PSE&G Public Service Electric and Gas Company

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Robert L. Mittl General Manager
Nuclear Assurance and Regulation

June 5, 1985

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, Maryland 20814

Attention: Mr. Walter Butler, Chief
Licensing Branch 2
Division of Licensing

Gentlemen:

SER OUTSTANDING ISSUE NO. 5
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

Pursuant to Hope Creek Generating Station Safety Evaluation Report (SER) Outstanding Issue No. 5, described in SER Section 7.3.2.5, and as discussed at the February 15, 1985, NRC/PSE&G meeting concerning resolution of electromagnetic interference problems; Public Service Electric and Gas Company hereby submits the attached RFI Test Plan Summary for HCGS Class IE Digital Systems.

A commitment to provide the attached test plan for NRC review was made during the meeting referenced above, to demonstrate the adequacy of the Bailey 862 solid state logic modules. Also, as committed during the February 15, 1985, meeting, PSE&G will provide the information noted below by the dates indicated:

	Action Item	Schedule To NRC
(1)	A description and summary of the results from verification tests to demonstrate immunity of the modified Bailey Control system against adverse EMI and RFI effects.	7/15/85 EMI 11/15/85 RFI

A001
1/1

	Action Item	Schedule To NRC
(2)	A summary of final resolution of time delay and in-rush current considerations.	7/15/85
(3)	Additional detail regarding the administrative controls to be applied throughout plant life relative to potential RFI services such as two way radios, and inductive sources such as welding machines.	8/85
(4)	Verification that other solid state components are not effected by the Hope Creek EMI environment.	7/15/85

Should you have any questions in this regard, please contact us.

Very truly yours,

R Sudzinski

Attachment: RFI Test Plan Summary for HCGS Class 1E Digital Systems

C D. H. Wagner
USNRC Licensing Project Manager

A. R. Blough
USNRC Senior Resident Inspector

ATTACHMENT

RFI Test Plan Summary for HCGS Class 1E Digital Systems

SCOPE FOR RFI TESTING

The following HCGS Class 1E digital systems will be tested to determine RFI susceptibility:

1. Bailey 862 Logic System.
2. Emergency Load Sequencer.
3. Redundant Reactivity Control System.
4. Radiation Monitoring System.

The components in these systems are selected for testing since its solid state construction (TTL, CMOS, etc.,) represents the most potentially susceptible equipment to RFI. Since the components in these systems are representative of other solid state systems; the results of these tests will determine what actions, if any, are needed to eliminate RFI.

TASK DESCRIPTION

1. Control Equipment Data and Analysis

   A. Assemble documentation package to include:

      Manufacturers schematics of the four 1E systems and the communications and security radio systems; circuit board layouts; O&M manuals; system block diagrams.

   B. Technical review of 1A to identify potential problem areas.

   C. Assemble RFI/EMI specifications imposed on the manufacturer of the system and RFI test results of delivered equipment.

   D. Technical Review of 1C.

   E. Prioritize systems by sensitivity and establish work schedule.

TASK DESCRIPTION

2. Site Data and Analysis

   A. Assemble architectural drawing package, cable routing, equipment placement, building features, and fixed antenna systems.

   B. Technical review of 2A to determine significant trouble spots.

   C. Review control systems locations to determine effective shielding by building, cabinets, and distance.

   D. Determine frequency and effective radiated power (ERP) of all on-site transmissions.

   E. Maxi' field calculations for all radio emissions.

   F. Electromagnetic Interference (EMI) levels for welding equipment.

   G. Measure trip points of systems under worst case conditions (non-operating).

   H. Measure trip points of live systems in operational and stand-by modes.

3. Summarize and Document Analyses

   A. Generate susceptibility matrix showing the extent of effort required to immunize each system.

   B. Issue report.

4. Solutions

   A. Investigate various solutions for problem systems with respect to workable configurations.