Docket No. 50-354

Mr. R. L. Mittl, General Manager
Nuclear Assurance and Regulation
Public Service Electric & Gas Company
P.O. Box 570, T22A
Newark, New Jersey 07101

Dear Mr. Mittl:

SUBJECT: HOPE CREEK SAFETY PARAMETER DISPLAY SYSTEM (SPDS) AUDIT

As previously discussed with Mr. Bruce Preston of your staff, the NRC will perform the Hope Creek SPDS Design Verification and Design Validation Audit on August 27-28, 1985.

Enclosed for your use in preparing for the audit is the staff's audit plan. This audit plan includes background on the SPDS review and provides an agenda for the audit.

Please call us should you have any questions concerning the audit or the information presented in the enclosure.

Sincerely,

Walter R. Butler, Chief
Licensing Branch No. 2
Division of Licensing

Enclosure: As stated

cc: See next page

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

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for Licensing Branch No. 2
Division of Licensing

Enclosure: As stated

cc: See next page

cc:
Gregory Minor
Richard Hubbard
Dale Bridenbaugh
MHB Technical Associates
1723 Hamilton Avenue, Suite K
San Jose, California 95125

Troy B. Conner, Jr. Esquire
Conner & Wetterhahn
1747 Pennsylvania Avenue N.W.
Washington, D.C. 20006

Richard Fryling, Jr., Esquire
Associate General Solicitor
Public Service Electric & Gas Company
P. O. Box 570 T5E
Newark, New Jersey 07101

Resident Inspector
U.S.N.R.C.
P. O. Box 241
Hancocks Bridge, New Jersey 08038

Richard F. Engel
Deputy Attorney General
Division of Law
Environmental Protection Section
Richard J. Hughes Justice Complex
CN-112P
Trenton, New Jersey 08625

Mr. Robert J. Touhey,
Acting Director
DNREC - Division of
Environmental Control
89 Kings Highway
P. O. Box 1401
Dover, Delaware 19903

Mr. R. S. Salvesen
General Manager-Hope Creek Operation
Public Service Electric & Gas Co.
P.O. Box A
Hancocks Bridge, New Jersey 08038

Susan C. Remis
Division of Public Interest Advocacy
New Jersey State Department of
the Public Advocate
Richard J. Hughes Justice Complex
CN-850
Trenton, New Jersey 08625

Office of Legal Counsel
Department of Natural Resources
and Environmental Control
89 Kings Highway
P.O. Box 1401
Dover, Delaware 19903

Mr. K. W. Burrowes, Project Engineer
Bechtel Power Corporation
50 Beale Street
P. O. Box 3965
San Francisco, California 94119

Mr. J. M. Ashley
Senior Licensing Engineer
c/o Public Service Electric & Gas Co.
Bethesda Office Center, Suit 550
4520 East-West Highway
Bethesda, Maryland 20814

Mr. A. E. Giardino
Manager - Quality Assurance E&C
Public Service Electric & Gas Co.
P. O. Box A
Hancocks Bridge, New Jersey 08038

Mr. Anthony J. Pietrofitta
General Manager
Power Production Engineering
Atlantic Electric
1199 Black Horse Pike
Pleasantville, New Jersey 08232

Regional Administrator, Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

cc:
Mr. B. A. Preston
Project Licensing Manager
Public Service Electric & Gas Co.
P. O. Box 570 T22A
Newark, New Jersey 07101

Ms. Rebecca Green
New Jersey Bureau of Radiation
Protection
380 Scotch Road
Trenton, New Jersey 08628

ENCLOSURE

AUDIT PLAN FOR

EVALUATION OF THE

HOPE CREEK

SAFETY PARAMETER DISPLAY SYSTEM

Background

All holders of operating licenses issued by the Nuclear Regulatory Commission (licensees) and applicants for an operating licensee (OL) must provide a Safety Parameter Display System (SPDS) in the control room of their plant. The Commission approved requirements for the SPDS are defined in Supplement 1 to NUREG-0737.

The purpose of the SPDS is to provide a concise display of critical plant variables to control room operators to aid them in rapidly and reliably determining the safety status of the plant. NUREG-0737, Supplement 1, requires licensees and applicants to prepare a written safety analysis describing the basis on which the selected parameters are sufficient to assess the safety status of each identified function for a wide range of events, which include symptons of severe accidents. Licensees and applicants shall also prepare an implementation plan for the SPDS which contains schedules for design, development, installation, and full operation of the SPDS as well as a design verification and validation plan. The safety analysis and the implementation plan are to be submitted to the NRC for staff review. The results of the staff's review are to be published in a Safety Evaluation Report (SER).

Section 18.2 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," describes how the staff performs SPDS reviews for applicants of operating licenses. The staff's review process will evaluate the (1) safety analysis report, (2) the implementation plan, and (3) the verification and validation (V&V) plan. In addition, three separate audit meeting/site visits, as described below, may be arranged through the Division of Licensing Project Manager. As dictated by the comprehensiveness of the applicant/licensee's documentation and the schedule for design and implementation of the SPDS, the objectives of these audits may be met in fewer site visits.

Design Verification Audit:

The purpose of this audit meeting is to obtain additional information required to resolve any outstanding questions about the Verification and Validation (V&V) Program, to confirm that the V&V Program is being correctly implemented, and to audit the results of the V&V activities to date. At this

meeting, the applicant should provide a thorough description of the SPDS design process. Emphasis should be placed on how the applicant is assuring that the implemented SPDS will: provide appropriate parameters, be isolated from safety systems, provide reliable and valid data, and incorporate good human factors engineering practice.

Design Validation Audit:

After review of all documentation, an audit may be conducted to review the as-built prototype or installed SPDS. The purpose of this audit is to assure that the results of the applicant/licensee's testing demonstrate that the SPDS meets the functional requirements of the design and to assure that the SPDS exhibits good human factors engineering practice.

Installation Audit:

As necessary, a final audit may be conducted at the site to ascertain that the SPDS has been installed in accordance with the applicant/licensee's plan and is functioning properly. A specific concern is that the data displayed reflect the sensor signal which measures the variable displayed. This audit will be coordinated with and may be conducted by the NRC Resident Inspector.

Based on the advanced state of the design, the staff plans to do a combined Design Verification and Design Validation audit on August 27-28, 1985.

NRC Audit Team

The NRC Audit Team will consist of a representative from the Human Factors Engineering Branch, assisted by two consultants from Lawrence Livermore National Laboratory (LLNL).

Agenda

Day 1:

8:30 A.M. - 10:30 A.M.

Introductions, short entrance briefing (10 Minutes) by NRC, overview of SPDS design program and current status by Public Service Electric and Gas Company including:

1. Human factors analysis, standards, and criteria used in the design process, with emphasis on plant-specifc considerations,

2. reliability/availability:

   (a) design characteristics,

   (b) methods used to estimate reliability/availability,

3. data validation methodology used in SPDS and necessary supporting systems, e.g. Radiation Monitoring System (RMS).

10:30 A.M. - 3:30 P.M. (One hour break for lunch during this period)

Description of Verification of Validation (V&V) Program including:

1. Description of V&V team and demonstration of independence from the design team,

2. scope and depth of V&V Program,

3. available documentation for completed tasks and phases,

4. test cases for validation of SPDS parameters and how they demonstrate the representativeness and useability of selected parameters,

5. human factors aspects,

6. discussion of the acceptance criteria for the "Performance Validation Program" and the results of that program,

7. coordination with other NUREG-0737 initiatives, with emphasis on control room design review (including a short discussion of SPDS-related findings.

3:30 P.M. NRC questions and review of V&V documentation.
5:30 P.M.

Day 2:

8:30 A.M. Short tour of control room or simulator.
9:30 A.M.

9:30 A.M. Demonstration of SPDS page formats in TSC/EOF/Simulator.
12:00 P.M. Walkthrough of a plant-specific scenario* that involves confirmation of containment isolation, monitoring of reactor building radiation levels and trends, and monitoring of gaseous releases.

1:00 P.M. NRC audit of displays, display formats, interface devices,
3:30 P.M. access and response times, etc.

3:30 P.M. NRC caucus.

4:00 P.M. Exit briefing.

* The applicant should develop this scenario. The scenario should be walked-talked-through by an operator that has been familiarized with SPDS operation. Upgraded emergency operating procedures should be used for the walk-through.