

**NORTHEAST UTILITIES**

THE CONNECTICUT LIGHT AND POWER COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
HOLYOKE WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
NORTHEAST NUCLEAR ENERGY COMPANY

General Offices • Selden Street, Berlin, Connecticut

P.O. BOX 270  
HARTFORD, CONNECTICUT 06141-0270  
(203) 665-5000

November 26, 1985

Docket No. 50-423  
A02959

Director of Nuclear Reactor Regulation  
Mr. B. J. Youngblood, Chief  
Licensing Branch No. 1  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

- References: (1) J. F. Opeka letter to B. J. Youngblood, dated October 16, 1985.
- (2) B. J. Youngblood letter to J. F. Opeka, dated September 10, 1985.
- (3) W. G. Counsil letter to B. J. Youngblood, dated December 7, 1984.
- (4) J. F. Opeka letter to B. J. Youngblood, dated November 8, 1985.

Dear Mr. Youngblood:

Millstone Nuclear Power Station, Unit No. 3  
Supplement I to NUREG-0737  
Safety Parameter Display System

In Reference (1), Northeast Nuclear Energy Company (NNECO) provided additional information regarding the Millstone Unit No. 3 Safety Parameter Display System (SPDS) requested by the NRC Staff in Reference (2). Several of our responses involved items which were scheduled to be completed prior to fuel load. The purpose of this submittal is to inform the NRC Staff that all such items were completed prior to fuel load. Each item is discussed in more detail in Attachment No. 1.

The SPDS was declared operational on November 8, 1985. All Phase I items delineated in Reference (3) have been essentially completed. Some of the existing status tree setpoints need to be revised to reflect more current setpoint information received from the Westinghouse Electric Corporation. These setpoints are scheduled to be revised prior to initial criticality.

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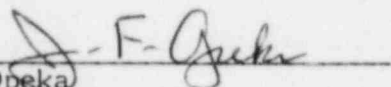
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We consider all SPDS items required prior to fuel load completed.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY  
et. al.

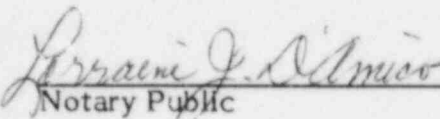
BY NORTHEAST NUCLEAR ENERGY COMPANY  
Their Agent

  
J. F. Opeka  
Senior Vice President

cc: Mr. G. W. Lapinsky, Jr.  
NRC Human Factors Engineering Branch

STATE OF CONNECTICUT   )  
                                  ) ss. Berlin  
COUNTY OF HARTFORD   )

Then personally appeared before me J. F. Opeka, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, an Applicant herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Applicants herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

  
Notary Public

My Commission Expires March 31, 1988

Docket No. 50-423

Attachment No. 1

Millstone Nuclear Power Station, Unit No. 3

Additional Information Regarding the Safety Parameter Display System

November, 1985

### Additional Information Regarding the Safety Parameter Display System

The following item numbers correspond to the items listed in Attachment No. 1 in Reference (1). Only those items for which additional information is necessary are discussed.

#### Item No. 1:

In order to complete its review, the Staff needs the following items for confirmatory review,

- a. Integrated Test Results (in summary form)
- b. Man-in-the-Loop Test Results
- c. Training Plan and Schedule
- f. Commitment to a formal procedure for assuring that the SPDS and the plant Emergency Operating Procedures are consistent with each other.

#### Response:

- a. All thirty-one (31) deficiencies resulting from the Integrated Acceptance Test (IAT) which affect the operability of the SPDS have been resolved and appropriate corrections implemented. Formal documentation of the closure of some of these deficiencies is still in progress.
- b. NNECO indicated in Reference (4) that man-in-the-loop validation was successfully completed on November 7, 1985 and that the results of this validation would be submitted in summary fashion by December 2, 1985. Accordingly, the results of the man-in-the-loop validation are briefly discussed below.

The test method used for the SPDS man-in-the-loop validation was a walk-through/talk-through using a part-task simulation. The SPDS provided the part-task simulation by displaying real-time transient data supplied from computer tapes produced earlier at the Millstone Unit No. 3 simulator. Four (4) crews, comprised of one operator trained as a Supervising Control Operator (SCO) and one operator trained as a Reactor Operator (RO), participated in the validation. The purpose of using both an SCO and RO on each crew was to observe SPDS useability with typical operator communication and movement in the control room between the primary SPDS user (the SCO) and control board personnel (the RO).

Crews were asked to react to each of the scenarios in accordance with their training. Information needed from control board instrumentation was provided by a validation team member when requested by either operator. Each crew participated in the same six (6) plant scenarios described in Reference (1). The six (6) scenarios differed in complexity and were used in various order with the four (4) crews to avoid the potential for bias by presenting them in order of complexity or in the same order for all crews.

Observer data was recorded during each scenario in accordance with pre-established observer data forms. Crews were debriefed following each

scenario. At the conclusion of all six (6) scenarios, each crew completed two (2) questionnaires designed to obtain user reactions to the SPDS. A final debriefing for each crew was performed to solicit any additional operator comments not covered by the questionnaires or previous debriefings.

No major SPDS discrepancies were found as a result of the validation. Some minor items were noted during the validation and further evaluation of the validation results will be performed to determine if any corrective actions are appropriate.

The SPDS was found to be an effective aid to control room operators in rapidly and reliably determining critical safety function status, EOP identification and sensor data support information during each scenario.

- c. At least one (1) Supervising Control Operator (SCO) per shift has been formally trained on the SPDS.
- f. Nuclear Engineering and Operations (NEO) Procedure 3.03, "Preparation, Review, and Disposition of Plant Design Change Requests (PDCRs)," will govern design changes to the Millstone Unit No. 3 SPDS. The PDCR process includes the completion of a thirteen (13) page form consisting of twenty-eight (28) individual steps and requiring the concurrence of all appropriate personnel. One of these steps specifically requires the identification of any necessary changes to plant procedures. Any such procedural changes must be implemented prior to declaring the design change operational. Subsequent to the identification of necessary procedural changes in the PDCR process, approval of the PDCR is required by the Engineering Supervisor, the Plant Operations Review Committee, and the Station, Station Services, or Unit Superintendent. We conclude that the existing NEO 3.03 adequately assures that changes to the SPDS design will be reflected, if applicable, in the Emergency Operating Procedures (EOPs).

Revisions to the EOPs will be processed in accordance with the Procedures Generation Package (PGP). We intend to generate an operations procedure to maintain the PGP as a "living" document. This procedure will specifically address the need to determine whether any SPDS changes are necessary due to any revision to the EOPs. Since EOP revisions necessitating SPDS changes are expected to be infrequent, this procedure will be generated during the first cycle of operation. In the interim, however, EOP revisions will still be reviewed to determine any necessary changes to the SPDS design.

Item No. 3:

The SPDS interface devices and display formats were simple and easy to use and understand. The Staff's audit discovered only one area of concern - the system is vulnerable to disruption from outside the control room because of a simulation capability that can be initiated from the programmer's console. As presently designed, personnel at the programmer's console could conceivably put all five control room consoles into a simulation mode without the knowledge and consent of the control room operators. In addition, the simulation mode displays

were not distinctively identified. The simulation mode is necessary for the man-in-the-loop testing that is yet to be done. However, the Staff feels that the method of identifying simulated data should be improved (red, flashing identifier) and access to the simulation mode should be strictly controlled, e.g., by password, administrative control and key-locking scenario tapes. In addition, the Staff suggested that once the need for the simulation capability no longer exists, it should be deleted from the system.

Response:

The ability to externally stimulate the SPDS has been removed.