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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO THE PROCEDURES GENERATION PACKAGE  
NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.  
MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2  
DOCKET NO. 50-336

1.0 INTRODUCTION

Following the Three Mile Island (TMI) accident, the Office of Nuclear Reactor Regulation developed the TMI "Action Plan" (NUREG-0660 and NUREG-0737), which required licensees of operating reactors to reanalyze transients and accidents and upgrade emergency operating procedures (EOPs) (Item I.C.1). The plan also required the NRC staff to develop a long-term plan that integrated and expanded efforts in the writing, reviewing, and monitoring of plant procedures (Item I.C.9). NUREG-0899, "Guidelines for the Preparation of Emergency Operating Procedures," represents the NRC staff's long-term program for upgrading EOPs, and describes the use of a Procedures Generation Package (PGP) to prepare EOPs. Submittal of the PGP was made a requirement by "Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability" (Generic Letter 82-33). The generic letter requires each licensee to submit to the NRC a PGP which includes:

- (i) Plant-Specific Technical Guidelines
- (ii) A Writer's Guide
- (iii) A description of the program to be used for the validation of EOPs
- (iv) A description of the training program for the upgraded EOPs.

This report describes the NRC's review of Northeast Nuclear Energy Company's (NNECO) response to Section 7 of Generic Letter 82-33, which relates to the development and implementation of EOPs for Millstone Nuclear Power Station Unit #2 (MNPS-2).

Our review was conducted to determine the adequacy of NNECO's program for preparing and implementing upgraded EOPs for MNPS-2. Criteria for

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the review of PGPs were not included in the Standard Review Plan (SRP), NUREG-0800, when this review was begun. Therefore, this review was based on NUREG-0899. Criteria for the review of PGPs are now included in SRP Section 13.5.2, "Operating and Maintenance Procedures," Revision 1. Section 2.0 of this report briefly discusses NNECO's submittal, the staff review, and the acceptability of the submittal. Section 3.0 contains the conclusions of the review.

## 2.0 EVALUATION AND FINDINGS

In a letter dated September 1, 1983, from W. G. Council (NNECO) to James R. Miller (NRC), NNECO submitted its PGP for MNPS-2. The PGP for MNPS-2 contained the following sections:

- o Plant-Specific Technical Guidelines
- o Writer's Guide for EOPs
- o EOP Verification Program
- o EOP Validation Program
- o EOP Training Program

The staff conducted a review of the MNPS-2 PGP and identified its findings in a Request for Additional Information (RAI) which was forwarded to NNECO in a letter dated September 24, 1984, from J. R. Miller to W. G. Council. NNECO responded to the RAI items in a letter from Mr Council to Mr. Miller dated January 30, 1985, including Revision 1 to the PGP. This Draft Safety Evaluation Report (DSER) is based on the staff's review of the licensee's response to the RAI and their revised PGP.

### 2.1 Plant-Specific Technical Guidelines (P-STG)

A description of the P-STG program was reviewed to determine if it provided acceptable methods for accomplishing the objectives stated in NUREG-0899. NNECO described a process that will use the Combustion Engineering Owners Group (CEOG) Emergency Procedure Guidelines (EPGs) (CEN-152, Revision 1) with appropriate changes.

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to develop EOPs for MNPS-2. Staff review of CEN-152, Revision 1, is described in a letter dated July 29, 1983, from D. G. Eisenhut to R. W. Wells, titled "Safety Evaluation of Emergency Procedure Guidelines." NNECO indicated that the following source documents will be used to prepare upgraded EOPs for MNPS-2:

- o EOP Writer's Guide
- o CEQG Emergency Procedure Guidelines
- o Technical Specifications
- o Existing Emergency Procedures
- o FSAR
- o Licensing commitment letters related to EOPs
- o Administrative Control Procedures

NNECO also included a table of plant-specific information used to develop EOPs for MNPS-2.

NNECO stated that MNPS-2 is of the same design class as the plant that was used by the CEQG to develop the EPGs. Therefore, there were no safety-significant deviations or additions to the generic EPGs except to incorporate the plant-specific information. NNECO indicated that the generic EPGs and the previously noted source documents constitute the P-STGs. NNECO also stated that CEQG is preparing additional documentation to be included in the EPGs which will identify needed control room instrumentation and controls for operators to use in performing EOP steps. When this effort is completed, NNECO indicated that the information and control needs identified by the CEQG will be compared with the actual instrumentation and controls in the MNPS-2 control room. According to NNECO, the process for making this comparison will be described in their Detailed Control Room Design Review (DCRDR) program plan. The staff will review the program plan and the results of the

DCRDR as they relate to the requirement of Supplement 1 to NUREG-0737 for performing an analysis to identify operator tasks and information and control requirements. This analysis (identified as function and task analysis) supports both the DCRDR and the EOP Upgrade Program.

With adequate resolution to the above-mentioned item on function and task analysis, the licensee's P-STGs program should meet the objectives of NUREG-0899 and should provide adequate guidance for translating the generic guidelines into EOPs. The staff will confirm that the licensee adequately addresses this item, as it relates to the EOP Upgrade Program, in a subsequent safety evaluation report.

## 2.2 Writer's Guide

The writer's guide was reviewed to determine if it described acceptable methods for accomplishing the objectives stated in NUREG-0899. NNECO stated that the MNPS-2 writer's guide is a plant-specific document that is intended to establish sound writing principles, provide instruction on writing EOPs, and promote consistency among all EOPs and their revisions independent of the number of EOP writers. NNECO also stated that the MNPS-2 writer's guide is based on the industry document "Emergency Operating Procedures Writing Guideline" (INPO 82-017). NNECO indicated that the writer's guide will be added to ACP-QA-3.02, Station Procedures and Forms, as Attachment B. The EOPs will use a dual column format and will contain the following sections: Purpose, Entry Conditions, Operation Instructions and Figures.

Based on the staff's review of the MNPS-2 writer's guide and NNECO's response to the RAI, Revision 1 of the MNPS-2 writer's guide should accomplish the objectives stated in NUREG-0899 and

should provide adequate guidance for translating the technical guidelines into EOPs that will be useable, accurate, complete, readable, convenient to use, and acceptable to control room operators.

### 2.3 Verification and Validation Program

The description of the verification and validation program was reviewed to determine if it provided adequate methods for accomplishing the objectives stated in NUREG-0899. The verification program described in the PGP has three objectives: (1) to confirm the written correctness of the procedures, (2) to ensure that applicable generic and plant-specific technical information has been incorporated properly, and (3) to check that the human factors aspects presented in the writer's guide were properly applied. The objective of the validation program is to determine that the actions specified in the procedure can be performed by the operator to manage emergency conditions effectively. The EOP verification is to be accomplished by a combination of the following: (1) operations review during requalification training, (2) table-top review by the EOP project team consisting of licensed plant operators, engineers, and licensed training staff, (3) control room walkthrough, (4) review by the Plant Operations Review Committee, and (5) review of selected EOPs by the Northeast Utilities Safety Analysis Branch. The EOP validation is accomplished by exercising the EOPs on the CE training simulator and using control room walkthroughs and table-top reviews to address those sections of the EOPs that cannot be run on the generic simulator.

Based on the review of MNPS-2's verification and validation program descriptions and NNECO's response to the RAI, the staff finds that

MNPS-2's verification and validation program should accomplish the objectives stated in NUREG-0899 and should provide assurance that the EOPs adequately incorporate the guidance of the writer's guide and the technical guidelines and will guide the operator in mitigating emergency conditions.

As a result of reviewing Revision 1 to the verification and validation program, the staff has the following additional comments. These comments are provided for information, with the recommendation that NNECO consider incorporating resolutions to the comments in the next revision of the MNPS-2 PGP. No formal response to these items is required.

- A. Since the EOPs were exercised on a generic simulator, we suggest that they be exercised using the MNPS-2 simulator as soon as it is operational. This should provide additional assurance of the effectiveness of the validation program.
- B. As a result of a recent human factors review of another NNECO plant where numerous human factors-type discrepancies were identified between the writer's guide and the EOPs, it is suggested that the human factors expert participating in the DCRDR program be asked to compare one or more EOPs with the writer's guide to determine the effectiveness of the human factors review by nonexpert reviewers. The results of the sample review should permit NNECO to determine if an additional review by human factors experts is needed.

#### 2.4 Training Program

A description of the program for training operators on the MNPS-2 upgraded EOPs was reviewed to determine if it provided acceptable methods for accomplishing the objectives stated in NUREG-0899. The



training program as described in the PGP consists of the following three parts: (1) individual study, (2) classroom presentation and discussion, and (3) simulator instruction for hands-on experience under control room operating conditions. A written examination and an operating performance evaluation also were included in the program description.

Based on the review of NNECO's Revision 1 to the Training Program and the response to the RAI, the staff has identified one concern. The training program description indicates that all operators will be trained on the new procedures. The description should also indicate that all EOPs will be exercised by all operators prior to implementation. This should also apply to major revisions to the EOPs made in the future.

With adequate resolution to the above-mentioned item, the licensee's training program should meet the objectives of NUREG-0899 and should provide assurance that the operators are adequately trained on the EOPs prior to their implementation.

### 3.0 CONCLUSIONS

The staff concludes, from its review of the MNPS-2 PGP and response to the RAI, that, with the exceptions noted in Section 2.0, the PGP submitted by NNECO for the MNPS-2 adequately addresses the requirements stated in Generic Letter 82-33 (Supplement 1 to NUREG-0737) and provides acceptable methods for accomplishing the objectives stated in NUREG-0899. The Training Program portion of the PGP should be revised to address the training-related item described in Section 2.0 and resubmitted. The staff will report its review in a subsequent safety evaluation report. The staff understands that the function and task analysis to identify operator information and control needs will be performed as part of the DCRDR for MNPS-2. The staff will review the

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results of the function and task analysis, as it applies to the EOP Upgrade Program, and will submit its findings in a subsequent safety evaluation report. TMI Action Plan Item I.C.1 is considered open until the above-mentioned items are satisfactorily addressed.

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