

NORTHEAST UTILITIES



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

General Offices • Seiden Street, Berlin, Connecticut

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

March 25, 1992

Docket No. 50-423

B14075

Re: Self-Assessment

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Gentlemen:

Millstone Nuclear Power Station, Unit No. 3
Electrical Distribution System Self-Assessment

Background

The purpose of this letter is to further the NRC Staff's awareness of Northeast Nuclear Energy Company's (NNECO) self-assessment and enhancement efforts conducted to the Electrical Distribution System (EDS). This effort is intended to assess that the EDS's function as designed in accordance with the General Design Criteria, current NRC requirements, and current industry standards.

Initial efforts began in 1990 with the development of Design Document Assessment Matrices. In the fall of 1991 a formal readiness assessment commenced. This readiness assessment was followed by an independent review conducted by an outside consultant. Tasks resulting from both of these activities were prioritized and tracked. Those tasks not yet completed have been scheduled for completion in a timely manner as discussed below.

Readiness Self-Assessment

This effort started in the fall of 1991. The initial efforts involved assessments as to readiness in the following areas:

- Existing Design Documents
- Generic Electrical Distribution System Functional Inspection (EDSFI)
 - Issues vis-à-vis NRC Findings
- EDS Studies
- EDS Study Programs
- Specific EDSFI Issues Readiness
- EDS Plant Procedure Review

For each of the areas identified above, the assessment consisted of identifying and obtaining the appropriate documentation, reviewing the documentation for clarity and technical scope, reproducing documentation for future use and retention, and identifying areas which potentially would warrant enhancement, reconciliation, or revision task. Findings warranting revision, reconciliation, or enhancement were prioritized and work was initiated.

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1. Existing Design Documents

This effort consisted of identifying, locating, copying, and reviewing documentation likely to be requested for review during the conduct of an EDSFI. This documentation included not only calculations, but also design and procurement specifications, FSAR sections, operation, maintenance and surveillance procedures, P&IDs, one-line and elementary drawings, plant layout drawings, vendor manuals, vendor correspondence, surveillance test results, and other relevant documents.

All documents requested by the NRC⁽¹⁾ to be available to the NRC inspectors have been identified, located, copied, and indexed to facilitate NRC use.

2. Generic EDSFI Issues vis-à-vis NRC Findings

This effort consisted of compiling a list of NRC findings from industry experiences including previous EDSFIs conducted at other nuclear facilities, as well as from Haddam Neck and Millstone Unit No. 1, and assessing the comprehensiveness of the existing documentation to address the technical issues underlying the findings. Where the available documentation did not provide a definitive disposition on the technical issue, tasks were initiated to locate additional documentation or to develop the necessary technical analysis.

3. EDS Studies

This effort consisted of examining a series of documents to evaluate the EDS on a system basis. System studies included evaluation of: faults, load profiles, voltage drops, motor starting, coordination, equipment size and rating, EDG loading and sequencing, on-site and off-site power source independence, commercial grade dedication, and other similar system-based subjects. Where enhancements were determined to be desirable, tasks were initiated to provide the enhancements. One significant NU enhancement initiative was the decision to obtain the OPAL load management computer program. OPAL is a computer-based QA electrical engineering analysis program which is being factored into NNECO's design change process. In addition, by modeling the EDS with the QA software, NNECO is able to look at all cases and allow OPAL to select the worst case. Moreover, when acquired and loaded with data for Millstone Unit No. 3, OPAL will provide an efficient and accurate method to verify the existing studies and provide an enhanced method for design control in the future.

(1) J. P. Durr letter to J. F. Opeka, "Electrical Distribution System Functional Inspection (EDSFI) for Millstone Unit 3 Nuclear Power Station," dated December 17, 1991.

4. EDS Study Programs

This effort involved a review of the programs used in establishing design control. Programs such as specification control, electrical load monitoring and control, setpoint calculational control, design modifications, temporary modifications, field initiated design control, switchyard configuration, protective device coordination, and cable separation programs were assessed. Where enhancements to the programs were deemed appropriate, tasks were initiated to provide the enhancements. An example of an enhancement is the improved Setpoint Control Program that went into effect in January 1992.

5. Specific EDSFI Issues Readiness

This effort consisted of identifying specific electrical EDS issues from existing Millstone Unit No. 3 licensing commitments relative to the EDS and other independent sources, and assessing the ease with which available documentation provides the technical basis to address the issues. Where the existing documentation did not directly address the issue, tasks were initiated to provide a direct assessment of the relevant technical issue.

6. EDS Plant Procedure Review

This task consists of reviewing operations, surveillance, maintenance, instrumentation & control, calibration & test, training, tagging, design, and procurement procedures for the EDS. The review is for completeness and consistency with other procedures, calculations, and other documents. This effort is ongoing and is scheduled to be completed by the summer of 1992.

Independent Mini-EDSFI Audit

In February 1992, NU engaged a vendor to conduct a mini-EDSFI audit on Millstone Unit No. 3. The vendor is the technical consultant to the nuclear industry EDSFI Clearinghouse and has conducted numerous similar mini audits. The mini audit was developed considering NRC Temporary Instruction, TI 2515/107, and NRC EDSFI inspection reports.

The preliminary results of this audit indicated that the Millstone Unit No. 3 EDS was adequate to perform its intended safety function. During the review, the independent reviewers asked over 200 questions, most of which were successfully addressed by the conclusion of the audit. The remaining were resolved shortly thereafter.

The review identified 24 findings and 4 observations. In addition, the review identified 13 strengths and 5 weaknesses. As a result of the efforts described above, NU had already initiated actions on four of these weaknesses. The findings ranged from minor inconsistencies between the FSAR and

calculations to a finding that indicated a proposed license amendment to clarify EDG test conditions was necessary.

Tasks to address the 24 findings, 4 observations, and the remaining weakness have been initiated and prioritized. Those with a high priority currently are scheduled to be completed by late Fall 1992.

No inoperable equipment or systems were identified by the independent review.

A copy of the independent review will be available at NNECO's offices for your information and use.

EDSFI Enhancements

The following is a list of significant existing or soon to be implemented enhancements to the ongoing Millstone Unit No. 3 EDS efforts:

1. Development and issuance of a formal Setpoint Control Specification.
2. Acquired the load management computer program OPAL, loaded it with Millstone 3 data, validated the load profile calculations, and are in the process of validating the short circuit calculations.
3. Initiated actions to test the EDGs using both Kw and KVARs when performing the monthly EDG surveillance test.
4. Developing and implementing an enhanced Millstone Unit No. 3 Fuse Control Program to be part of an overall Millstone site fire control program.
5. Evaluate a Molded Case Circuit Breaker Testing Program.
6. A license amendment request to clarify use of prelubing when conducting the 18-month EDG surveillance testing initiated.
7. Evaluating the dynamic loading effects on the EDG.
8. Evaluating increasing the battery surveillance test frequency.
9. Enhancing the usefulness of the Calculation Tracking Program.
10. Enhancing the clarity of the AC and DC coordination study curves by adding additional detail.
11. Improving the clarity of the calculations by adding additional detail to assumptions and bases.
12. Taking affirmative actions to achieve the goal of reducing the modifications backlog.

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The above activities have consumed a significant amount of engineering time. Over 10,000 person-hours have been expended and an additional 10,000 person-hours are estimated to complete the enhancements. It is our understanding that this expenditure is generally consistent with that expended by other utilities in the preparation for EDSFI inspections.

Summary

NNECO performed an extensive preparation effort in anticipation of the previously scheduled March, 1992 NRC EDSFI. This effort included readiness self-assessments and an independent Mini-EDSFI Audit by an outside vendor. Based on these activities, NNECO has identified many enhancements that have been or will be implemented. From our perspective, the combination of self-assessment, independent review, and reconciliation and enhancement activities is useful information to the Staff in establishing the priority for the conduct of an NRC EDSFI at Millstone Unit No. 3.

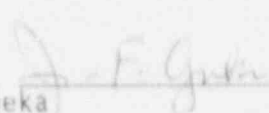
NNECO would be pleased to meet with the NRC Staff to discuss in more detail the above described self-assessment activities, if such additional detail would be useful to the NRC. A meeting in the May - June time frame could readily be supported.

NNECO anticipates performing a similar EDS Self-Assessment for Millstone Unit No. 2. Currently, significant NNECO resources are being devoted to the upcoming Millstone Unit 2 outage, which includes replacement of the steam generators. Included are some of the same resources which would be necessary to support an EDSFI or EDS self-assessment. This outage is currently scheduled to commence May 30, 1992, for approximately 130 days, i.e., until October 1992. At this time, NNECO anticipates commencing Millstone Unit No. 2 EDSFI Self-Assessment activities early this fall.

Please contact G. P. van Noordennen at (203) 665-3288 if you have any questions concerning this issue.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY


J. F. Opeka
Executive Vice President

cc: T. T. Martin, Region 1 Administrator
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2
V. L. Rooney, NRC Project Manager, Millstone Unit No. 3
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3
E. V. Imbro, Office of Nuclear Reactor Regulation/Special Inspection Branch