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Northeast
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Memo

NO-99-0254

December 8, 1999

TO: Northeast Utilities Quality Assurance Program Topical Report Controlled
Copyholders

FROM: 
D. S. Bruce

SUBJECT: NUQAP Topical Report Revision 21, Change 7
(Document No. MP-02-OST-BAP01)

Enclosed is NUQAP Revision 21, Change 7. This change clarifies the relationship between MEPL and quality software in Section 2.1 and Appendix A. The words "quality software" were removed from the sections regarding MEPL, and the following sentence was added. "For quality software, the Software Quality Assurance (SQA) Program provides instructions to classify software and describe the appropriate level of documentation that is warranted for software used to support those functions of structures, systems and components that are affected by the NUQAP."

Please replace the entire contents of the existing Quality Assurance Program, Sections 2.0 and Appendix A, with the enclosed sections.

Change 7 changes are in ***bold and italics*** with a revision bar in the right margin. The footer of the affected section will include a reference to Change 7.

Please insert the summary of changes document in the front of your manual. Please note the effective date of the change is **December 8, 1999**.

If you have any questions, contact D. Bruce at X3185.

Attachments:

1. Summary of changes incorporated as part of Revision 21, Change 7.

Enclosure:

Change 7 to the Northeast Utilities Quality Assurance Program Topical Report Revision 21.

Summary of Changes to NUQAP Rev. 21 Incorporated as Change 7

<u>Section</u>	<u>Summary Description of Changes</u>	<u>Reference</u>
Section 2.0	Modifies Section 2.1, Quality Assurance Program, General Requirements to clarify the relationship between MEPL and quality software. The words "quality software" are removed from the section regarding MEPL, and the following sentence was added. "For quality software, the Software Quality Assurance (SQA) Program provides instructions to classify software and describe the appropriate level of documentation that is warranted for software used to support those functions of structures, systems and components that are affected by the NUQAP."	Request 99-21
Appendix A	Modified Appendix A to clarify the relationship between MEPL and quality software. The words "quality software" are removed from the section regarding MEPL, and the following sentence was added. "For quality software, the Software Quality Assurance (SQA) Program provides instructions to classify software and describe the appropriate level of documentation that is warranted for software used to support those functions of structures, systems and components that are affected by the NUQAP."	Request 99-21

2.0 QUALITY ASSURANCE PROGRAM

2.1 GENERAL REQUIREMENTS

Northeast Utilities (NU) has established a Quality Assurance Program (NUQAP) for the Millstone Power Station which complies with the criteria of 10CFR50, Appendix B, and follows the regulatory documents and their endorsed ANSI/IEEE standards identified in Appendix C with exceptions as identified in Appendix E. The quality assurance requirements set forth in the attached Policy Statement, supplemented by quality assurance procedures, provide the primary basis of this program and the NU policy with regard to quality assurance for all the Millstone Station nuclear power plants. This NUQAP Topical Report is established to accomplish the required level of quality in activities carried out throughout the life of the Station's operating nuclear power plants.

This NUQAP applies in its entirety to all activities affecting the safety-related functions of structures, systems and components of Millstone Units 2 and 3. Safety-Related structures, systems and components are functionally identified in Appendix A of this NUQAP and are designated Category I by Northeast Utilities. Applicability of Appendix A to each FSAR is addressed by existing Nuclear Unit specific Design Bases and Licensing commitments, and also as specifically identified in each FSAR addressing Section 3.2.1 of Regulatory Guide 1.70. This NUQAP is also applicable in its entirety to materials, equipment, parts, consumables and services designated Category I.

This NUQAP applies to other quality programs including Anticipated Transient Without Scram (ATWS) Quality Assurance, which is applicable to MP-2 only (MP-3 commits to Generic Letter 85-06), and to Electrical Equipment Qualification (EEQ), as defined by NU commitments. Portions of this NUQAP are also applicable to Fire Protection Quality Assurance (FPQA), Station Blackout Quality Assurance (SBOQA) and Radwaste Quality Assurance (RWQA) which are delineated in applicable procedures. Quality Assurance provisions for Millstone Unit 1 are governed by a separate program.

The Materials, Equipment, and Parts List (MEPL) Program provides instructions to identify structures, systems, components, materials, equipment, parts, consumables, quality software and activities that need to be identified as safety-related or augmented quality. ***For quality software, the Software Quality Assurance (SQA) Program provides instructions to classify software and describe the appropriate level of documentation that is warranted for software used to support those functions of structures, systems, and components that are affected by the NUQAP.***

The requirements of this NUQAP are implemented by Northeast Utilities Service Company (NUSCO), the Northeast Nuclear Energy Company (NNECO) which

operates Millstone Power Station, and their vendors performing activities affecting quality structures, systems, and components of the Station's nuclear power plants.

Procedures define the required indoctrination and training of personnel performing activities affecting quality, as necessary, to assure that suitable proficiency is achieved and maintained.

Training sessions are documented. The content of the training sessions is described, attendees and attendance date indicated, and the results (e.g., examination results) of the training sessions recorded, as applicable.

Periodic program review of the status and adequacy of this NUQAP is accomplished by Nuclear Oversight audits, surveillances and inspections, by Nuclear Safety Assessment Board (NSAB) reviews, and by the independent review team which performs the annual Management Quality Assurance Review described herein and in QAP 1.0, "Organization", Section 1.5. Organizations outside NU are required to review the status and adequacy of that part of this NUQAP for which they have been delegated responsibility.

2.2 IMPLEMENTATION

2.2.1 GOALS AND OBJECTIVES

The goals of this NUQAP are to maintain quality levels in an effective and efficient manner and to assure a high degree of functional integrity and reliability of Station nuclear power plant quality structures, systems, and components. To meet these goals, the following objectives of this NUQAP have been defined:

- a. Define, through procedures, the quality activities that apply to design, fabrication, procurement, construction, testing, operation, refueling, repair, maintenance and modification of the Station nuclear power plants;
- b. Establish, assign, and document the responsibilities for the conduct of those activities affecting quality structures, systems, and components;
- c. Establish confidence that (a) quality activities for the Station nuclear power plants are performed consistent with NU policies and (b) quality activities are performed by qualified personnel, and are verified through a system of audits, surveillances, and inspections of those organizations with quality responsibilities;
- d. Apprise the Senior Vice President and Chief Nuclear Officer - Millstone (SVP & CNO) of unresolved problems and trends which could have a significant effect on nuclear power plant safety.

2.2.2 PROGRAM DOCUMENTATION

This NUQAP defines the NU nuclear policies, goals, and objectives, and is used as guidance for the development of the various division, department, branch, or section procedures. Revisions to this NUQAP shall be made as needed to reflect current requirements and descriptions of activities prior to implementation. These revisions shall be made in accordance with a NNECO Procedure.

Revisions to this NUQAP, which reduce commitments previously accepted by the NRC, are submitted to the NRC for review and approval prior to implementation.

Revisions which do not reduce previously accepted commitments are periodically submitted to the NRC as required by 10 CFR 50.54 (a)(3) and 10 CFR 50.55 (f)(3).

Quality procedures are developed by the departments performing quality activities. These procedures are reviewed for concurrence by the departments which are responsible for implementing portions of these procedures and are approved by the initiating department. The Nuclear Oversight Department reviews other department quality procedures for compliance with this NUQAP and concurs with such procedures as described in QAP 5.0, "Procedures, Instructions and Drawings". Changes to procedures are subjected to the same degree of control as that utilized in the preparation of the original document.

Each Vice President and Director is responsible for implementation of this NUQAP within their organization which includes individual departmental procedure requirements applicable only to their respective activities. In addition, they are responsible for the preparation, approval, and distribution of those instructions, operating procedures, testing procedures, or other instructions where further guidance is necessary.

2.2.3 STRUCTURES, SYSTEMS AND COMPONENTS

This NUQAP applies to all activities affecting the safety-related functions of the structures, systems and components as addressed in the Safety Analysis Reports (SARs). Safety-Related structures, systems, and components are functionally identified in Appendix A and also as specifically identified in each FSAR addressing Section 3.2.1 of NRC Regulatory Guide 1.70.

For structures, systems and components covered by the ASME Code, NUSCO/NNECO procedures describe the measures taken to assure that the quality assurance requirements contained in the code are supplemented by the specific guidance of the applicable regulatory guides and endorsed ANSI standards listed in Appendix C.

For structures, systems and components, regulatory commitments and NUSCO/NNECO procedures describe the measures taken to assure that the quality assurance requirements are met.

The degree of control over activities affecting quality structures, systems, and components is consistent with their importance to safety. Such controls include use of appropriate equipment, establishment of suitable environmental conditions, and assurance that all prerequisites for a given activity have been satisfied. This NUQAP provides controls over special processes and skills necessary to attain the required quality, and the need for verification of quality by inspection and test.

The Nuclear Oversight Department and applicable NUSCO/NNECO technical organizations jointly determine and identify the extent quality assurance controls are applied to quality structures, systems, and components. The quality assurance controls are in conformance with this NUQAP, which complies with the 18 criteria set forth in Appendix B to 10 CFR 50.

2.2.4 PARTICIPATING ORGANIZATIONS

The organization for Millstone Power Station activities affecting the quality of structures, systems, and components is identified in QAP 1.0, "Organization", which also briefly describes assigned responsibilities.

The Nuclear Oversight Department is responsible for: a) the development, coordination, and administrative control of this NUQAP including coordination of Nuclear Oversight Department procedure review and approval; b) assuring issuance of this NUQAP Topical Report as a controlled document (as described in QAP 6.0, "Document Control", and; c) the review and concurrence with quality procedures and revisions written by other departments. Procedure reviews shall be performed in accordance with QAP 5.0, "Procedures, Instructions, and Drawings".

Northeast Utilities (NU) requires that its approved vendors performing quality activities invoke upon their subvendors, via purchase orders/contracts, requirements for a quality assurance program to meet the applicable criteria of Appendix B to 10 CFR 50, including the applicable elements of the regulatory guides and their endorsed

ANSI/IEEE standards identified in Appendix C. However, NU retains overall responsibility for the Millstone Power Station Quality Assurance Program. The specific quality activities performed by these organizations are specified in the procurement documents. Nuclear Materials and Document Management is responsible for the review and approval of these vendors' quality assurance programs prior to initiation of contracted activities.

The object of the review is to verify that these vendors have an adequate quality assurance program to meet applicable requirements of 10 CFR 50, Appendix B.

In addition to the initial review, Nuclear Materials and Document Management is responsible for the subsequent performance, as appropriate, of audits, surveillances, and inspections of approved vendor's quality assurance programs to assure continued implementation of quality requirements. Nuclear Materials and Document Management assures that the quality assurance programs of vendors that perform quality activities are periodically reviewed to assure that the vendors are implementing adequate programs. Evaluation, review, and monitoring of vendor quality programs is conducted in accordance with section QAP 7.0, "Control of Purchased Material, Equipment and Services".

Vendors may be delegated the execution of quality assurance functions by Contract. These Contracts are reviewed and approved in accordance with this NUQAP. These vendors may be contracted to perform quality activities under their approved quality assurance program or directly under the requirements of this NUQAP.

2.2.5 INDOCTRINATION AND TRAINING

A program is established and maintained for quality assurance indoctrination and training which provides confidence that the required level of personnel competence and skill is achieved and maintained in the performance of quality activities. Quality procedures delineate the requirements for an indoctrination program to assure that personnel responsible for performing quality activities are instructed in the purpose, scope, and implementation of quality procedures and that compliance to these documents is mandatory. Each NUSCO/NNECO Department is responsible for assuring assigned personnel who perform quality activities have been appropriately indoctrinated and trained.

Nuclear training programs shall be developed and implemented to provide training for all individuals attached to or associated with the Station nuclear power plants. Additional guidance is established in NUSCO/NNECO procedures.

Procedures describe the nuclear training program requirements which assure that:

- a. Documentation of formal training and qualification programs includes the objective, content of the program, attendees, date of attendance; and results (e.g., examination results), as applicable.
- b. Proficiency of personnel performing and verifying activities affecting quality is established and maintained. Personnel proficiency is established and maintained by training, examination/testing, and/or certification based upon the requirements of the activity. Acceptance criteria are developed to determine if individuals are properly trained and qualified;
- c. Certificates or other documentation of qualification clearly delineate the specific functions personnel are qualified to perform and the criteria used to qualify personnel in each function.

This program also requires the head of each department to be responsible for a training plan which assures that personnel performing quality activities are trained in the principles and techniques of the activity being performed.

2.2.6 MANAGEMENT PARTICIPATION

Millstone Power Station Vice Presidents and Directors are responsible for implementing this NUQAP within their organization. The Director - Nuclear Oversight will assist in development, coordination, and review of the program.

The SVP & CNO assures that a management review of this NUQAP is conducted on an annual basis by an independent team to assess the scope, status, implementation, and effectiveness, and to assure compliance with NRC licensing commitments. The SVP & CNO has delegated the responsibility for the management review to the VP-NORA.

Actions considered by the Management Quality Assurance Review may include, but are not limited to:

- a. Review of selected procedures and documents;
- b. Verification of the implementation of selected procedural requirements;
- c. Review of past audit results and other inspection/review results such as those from previous Management Quality Assurance Reviews, the NRC or other departments.

The Management Quality Assurance Review's findings of deficiencies and recommendations for program improvement are forwarded to the SVP & CNO who shall assure appropriate corrective action is taken.

APPENDIX A

NORTHEAST UTILITIES QUALITY ASSURANCE PROGRAM (NUQAP) TOPICAL REPORT - MILLSTONE POWER STATION

CATEGORY I STRUCTURES, SYSTEMS AND COMPONENTS

The Materials, Equipment, and Parts List (MEPL) Program provides instructions to identify structures, systems, components, parts, materials, and consumables that need to be safety-related and designated as Category I. ***For quality software, the Software Quality Assurance (SQA) Program provides instructions to classify software and describe the appropriate level of documentation that is warranted for software used to support those functions of structures, systems, and components that are affected by the NUQAP.***

The following structures, systems, and components of a Millstone Station nuclear power plant, including their foundations and supports, are designated as Category I. The pertinent quality assurance requirements of Appendix B to 10 CFR 50 are applied to all activities affecting the safety-related function of the structures, systems, and components as listed below and to other items and services specifically identified by NU in each FSAR addressing Section 3.2.1 of NRC Regulatory Guide 1.70.

- (a) The reactor coolant pressure boundary.
- (b) The reactor core and reactor vessel internals.
- (c) Systems or portions of systems that are required for (1) emergency core cooling; (2) post-accident containment heat removal or; (3) post-accident containment atmosphere cleanup (e.g., hydrogen removal system).
- (d) Systems or portions of systems that are required for (1) reactor shutdown; (2) residual heat removal or; (3) cooling the spent fuel storage pool.
- (e) Those portions of the steam and feedwater systems of pressurized water reactors extending from and including the secondary side of steam generators up to and including the outermost containment isolation valves, and connected piping of 2-1/2 inches or larger nominal pipe size up to and including the first valve (including a safety or relief valve) that is either normally closed or capable of automatic closure during all modes of normal reactor operation.
- (f) Cooling water, component cooling and auxiliary feedwater systems or portions of these systems including the intake structures, that are required for: (1) emergency core cooling; (2) post-accident containment heat removal; (3) post-accident containment atmosphere cleanup; (4) residual heat removal from the reactor or; (5) cooling the spent fuel storage pool.

- (g) Cooling water and seal water systems or portions of these systems that are required for functioning of safety-related reactor coolant system components such as PWR reactor coolant pump seals.
- (h) Systems or portions of systems that are required to supply fuel for emergency equipment.
- (i) All electrical and mechanical devices and circuitry between the process and the actuated devices involved in generating or responding to signals that provide protective functions of safeguard systems.
- (j) Systems or portions of systems that are required for (1) monitoring of systems safety-related and; (2) actuation of systems safety-related.

"Required for monitoring," i.e. Those parameters that provide information that is essential to permit the control room operator to take specific manually controlled actions for the direct accomplishment of the specified safety function.

- (k) The spent fuel storage pool structure, including the fuel racks.
- (l) The reactivity control system (e.g., control rods, control rod drives, and boron injection system).
- (m) The control room, including its associated equipment and all equipment needed to maintain the control room with safe habitability limits for personnel and safe environmental limits for vital equipment.
- (n) Primary and secondary reactor containment.
- (o) Systems other than radioactive waste management systems not covered by items (a) through (o) above which contain or may contain radioactive materials and whose postulated failure would result in conservatively calculated potential offsite doses (using meteorology as prescribed by Regulatory Guides 1.3 and 1.4) which are more than 0.5 rem to the whole body or its equivalent to any part of the body.
- (p) The Class IE electric systems, including the auxiliary systems for the onsite electric power supplies, that provide the emergency electric power needed for functioning of plant features included in items (a) through (p) above.
- (q) Those portions of structures, systems, or components whose continued function is not required but whose failure could reduce the functioning of any plant feature included in items (a) through (q) above to an unacceptable safety level or could result in incapacitating injury to occupants of the control room should be designed and constructed so that the SSE would not cause such failures.
- (r) Items and services associated with Radioactive Material Transport Packages as described in 10CFR71.

CONSUMABLES

The following specific consumables when utilized in safety-related systems shall be included in those portions of this NUQAP, as applicable.

1. Emergency generator diesel fuels
2. Hydraulic snubber fluids
3. Reagents
4. Resins
5. Boric Acid
6. Lubricants
7. Gas Turbine Fuel