

APR 22 1988

Docket Nos. 50-245  
50-336

Northeast Nuclear Energy Company  
ATTN: Mr. E. J. Mroczka  
Senior Vice President - Nuclear  
Engineering and Operations Group  
P. O. Box 270  
Hartford, Connecticut 06141-0270

Gentlemen:

Subject: Inspection No. 50-245/87-17 and 50-336/87-15

This refers to your letter dated December 18, 1987, in response to the subject inspection report.


Thank you for informing us of the corrective and preventive actions taken on violations 87-15-01, 02, and 87-17-01. These actions will be examined during a future inspection of your licensed program.

With regard to your discussion of the two deficiencies identified and corrected by NNECO in 1986, i.e., qualification of ideal wire nuts and spray pump motor terminations, we have noted the discrepancies identified by you in our inspection report. The additional qualification information provided by you to support operation of these items in the event of an accident will be given consideration as a part of any forthcoming enforcement actions.

Your cooperation with us is appreciated.

Sincerely,

Original Signed By:

 William V. Johnston, Acting Director  
Division of Reactor Safety

cc w/encl:  
W. D. Romberg, Vice President, Nuclear Operations  
S. E. Scace, Station Superintendent  
D. O. Nordquist, Manager of Quality Assurance  
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Gerald Garfield, Esquire  
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Nuclear Safety Information Center (NSIC)  
NRC Resident Inspector  
State of Connecticut

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bcc w/encl:  
Region I Docket Room (with concurrences)  
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# NORTHEAST UTILITIES



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

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P.O. BOX 270  
HARTFORD, CONNECTICUT 06141-0270  
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December 18, 1987

Docket Nos. 50-245

50-336

A06938

Re: 10CFR50.49

Mr. William V. Johnson, Acting Director  
Division of Reactor Safety  
Region I  
U. S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

Gentlemen:

Millstone Nuclear Power Station Unit Nos. 1 and 2  
Subject: Response to Inspection  
Report Nos. 50-245/87-17 and 50-336/87-15

## I. INTRODUCTION

By letter of November 19, 1987, the NRC Staff transmitted its Inspection Report Nos. 50-245/87-17 and 50-336/87-15 and associated Notice of Violation relating to the Region I Staff's unannounced inspection of July 15-17, 1987, of Millstone Nuclear Power Station, Unit Nos. 1 and 2. In its letter the Staff identified three proposed Severity Level IV violations and requested that Northeast Nuclear Energy Company (NNECO) respond to each within thirty days. In addition, the Staff stated that it was considering enforcement action regarding two other "Equipment Qualification (EQ) deficiencies" which were previously identified and corrected by NNECO (i.e., Ideal wire nuts and spray pump motor terminations without qualification documentation). By this letter, NNECO responds to each proposed violation and provides additional information to the Staff regarding Ideal wire nuts and spray pump motor terminations to assist the Staff in its evaluation.

## II. NNECO RESPONSE TO VIOLATIONS

NNECO's response to the three proposed Severity Level IV violations identified by the Staff is set forth below:

### A. General Electric SIS Wire

#### 1. Staff Statement of the Proposed Violation:

"10CFR50.49(f) requires that qualification of each component be based on testing or experience with identical equipment or with

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similar equipment with a supporting analysis to show that the equipment to be qualified is acceptable.

10CFR50.49(k) requires, that electrical equipment need not be requalified if it was previously required by the Commission to be qualified in accordance with the 'Guideline for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors' (DOR Guidelines). Section 5.2.2 of the DOR Guidelines requires that the type test is only valid for equipment identical in design and material construction to the test specimen, and any deviations should be evaluated.

Contrary to the above, as of July 17, 1987 the licensee was not able to provide documentation to establish qualification by test or analysis of General Electrical (GE) SIS wire used in Valves 2-SI-651, 2-CH-501 and 2-SI-644.

This is Severity Level IV (Supplement I) applicable to Unit 2."

2. NNECO Statement of Position and Root Cause Analysis:

Prior to the July 1987 audit, NNECO was not aware of the difference between the two GE Vulkene SIS wire types. During the July 15-17, 1987 audit, the NRC Staff discussed with NNECO a 1984 letter from GE to Bechtel alleging a substantial difference in performance between General Electric (GE) Vulkene SIS and GE Vulkene Supreme SIS wire. Qualification of the GE Vulkene wire installed at Millstone was based on a walkdown in 1986 and on a 1977 FIRC test report F-C4497-2. From further review it was determined that this report qualifies various Vulkene insulated wires and cables including Vulkene Supreme SIS, but not Vulkene SIS wire which was installed in the plant. Accordingly, NNECO does not contest the violation.

3. Corrective Action Taken:

After notification of the different Vulkene wire types, NNECO reviewed installed applications of the wire and expeditiously replaced the wire in equipment subject to 10CFR50.49 requirements. Subsequent to the removal of the Vulkene SIS wire, NNECO obtained a test report that established qualifiability of the wire. NNECO believes that the conservative actions taken by Millstone Unit No. 2 were consistent with corporate priority placed on Environmental Qualification.

4. Actions Taken to Prevent Further Violations:

The following actions have been taken to minimize the risk of future violations of this type:

- o NNECO had previously completed a review of the EQ program and equipment which provides increased assurance that this situation is isolated.
- o NNECO EQ engineers have been counseled to more closely scrutinize possible model/type differences between installed equipment and equipment qualification files.
- o NNECO will continue to be active in industry EQ group efforts which will assist in identifying any new discrepancies of this nature.

B. Bishop Tape

1. Staff statement of the Proposed Violation:

"10CFR50.49(1) requires that replacement equipment be qualified in accordance with the provisions of this section unless there are sound reasons to the contrary.

Contrary to the above, it was observed on July 17, 1987 that the Bishop cable splice installed on motor operated valve 2-SI-654 on the May 31, 1986 was not qualified to the requirements of 10CFR50.49 and as of July 17, 1987 the licensee had not addressed any sound reasons to the contrary.

This is Severity Level IV (Supplement I) applicable to Unit 2."

2. NNECO Statement of Position and Root Cause Analysis:

During the May, 1986 turbine inspection outage at Millstone Unit No. 2, an inspection was performed on motor operated valve (MOV) 2-SI-654 for the purpose of identifying motor control wire. In the course of this inspection, it was noted that the motor leads were not terminated on a terminal block, but instead were terminated with a taped splice joint. The tape used on the splice joint could not be positively identified at that time and was removed for further inspection and to examine the splice joint itself. It was obviously necessary to rewrap the splice joint prior to restarting. At the time, there was no NUREG-0583 Category 1 splice materials in stock. The only material available to support the outage work schedule was Bishop tape which was considered to be DOR qualified. The decision was made to rewrap the splice using the Bishop tape. Therefore, at the time the splice joint was rewrapped a justification (sound reason) existed for using the DOR qualified Bishop tape and not upgrading. However, this sound reason was never documented in the EEQ file.

Accordingly, NNECO does not contest the violation.<sup>(1)</sup> NNECO contends that due to the underlying circumstances at the time (i.e., unscheduled outage straining the electricity pool and a lack of NUREG 0588 Category 1 splice material on supply for upgrade), Millstone Unit No. 2 acted prudently by replacing the splice and bringing the unit on line.

3. Corrective Action Taken:

The sound reason for not upgrading noted above is now documented in NNECO files.

4. Actions Taken to Prevent Further Violations:

The following actions will help prevent further similar violations:

- o Plant procedures will be revised to more clearly state the need for written "sound reasons" to be on file whenever DOR qualified equipment is replaced and not upgraded to NUREG-0588 Category 1 standards.
- o Appropriate personnel have been cautioned to assure that such written justifications are on file when required, as noted above.

C. Curtis L. Terminal Blocks

1. Staff Statement of the Proposed Violation:

"10CFR50.49(e)(1) requires that the electric equipment qualification program must include and be based on the time dependent temperature for the most severe Design Basis Accident during or following which this equipment is required to remain functional.

Contrary to the above, on July 17, 1987, the Curtis L type terminal blocks used in valve I-IC-1 was not qualified based on the time dependent temperature for the most severe Design Basis Accident in that the Limitorque Test Report B0119 qualified these terminal blocks only to 312°F, but was used in an application where the Design Basis Accident temperature was 330°F following which the equipment was required to remain functional.

This is Severity Level IV (Supplement I) applicable to Unit 1."

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(1) By telephone conference between the Region I staff and NNECO, NNECO alerted the staff to discrepancies in Section 5.1 of Inspection Report Nos. 50-245/87-17 and 50-336/87-15 relating to this violation. Based on misunderstandings reflected in communications with the Staff, Section 5.1 does not accurately reflect the violation identified by the Staff. NNECO's understanding of this violation is reflected in Section II.B of this letter.

2. NNECO Statement of Position and Root Cause Analysis: ✓

NNECO failed to fully review the qualification file of the motor operator to identify separately qualified sub component parts. NNECO does not contest the violation.

3. Corrective Action:

The terminal blocks for limitorque actuators inside the drywell at Millstone Unit No. 1 were removed and the motor leads for these actuators have been spliced with NUREG-0588 Category 1 splice material.

4. Corrective Action to Prevent Further Violations:

The following actions have been taken to minimize the possibility of further similar violations:

- o NNECO is performing a review of qualification files where the separately qualified item is a subcomponent of EQ equipment. This will provide further assurance that this violation is an isolated instance of the modified environmental profile not being fully applied to separately qualified subcomponent parts.
- o NNECO qualification engineers have been reminded of the importance of considering the effects of the environmental parameters on each susceptible part of a qualified device.

### III. OTHER EQUIPMENT QUALIFICATION ISSUES

In addition to the three Severity Level IV violations discussed above, the Staff raised two "deficiencies" identified and corrected by NNECO in 1986, i.e., qualification of Ideal wire nuts and spray pump motor terminations. It should be noted that the Staff's description of the two issues contains some discrepancies (e.g., for Ideal wire nuts they were not used in limitorque actuators and were used in 125 VDC and not 480V applications.) NNECO provides in the attachment additional information supporting its conclusion that during the short period of operation with these components e.g., from November 1985 to July 1986, the equipment would likely have operated in the event of accident conditions.<sup>(2)</sup>

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(2) That this information was not requested or supplied to the Staff during its unannounced audit should not impact its consideration in our view. In this regard, NNECO was not aware that the Staff was seeking additional information regarding these two issues until after issuance of the November 19, 1987 inspection report. NNECO's actions in response have been timely.



Mr. William V. Johnson  
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December 18, 1987

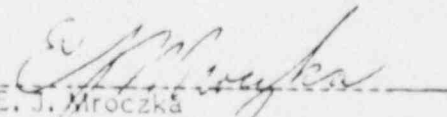
#### IV. CONCLUSION

In conclusion, NNECO does not contest the three proposed Severity Level IV violations identified in the Staff's November 19, letter. The corrective actions noted above will address the specific differences noted and will help prevent similar violations from occurring. In addition to these corrective measures, NNECO is reviewing the resources and structure of the organization tasked to address EQ issues to determine if improvements can be made to the EQ program.

If you have questions regarding the information contained in this letter, we would welcome the opportunity to discuss further these issues.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
E. J. Wroczka  
Senior Vice President

cc: W. T. Russell, Region I Administrator  
M. L. Boyle, NRC Project Manager, Millstone Unit No. 1  
D. H. Jaffe, NRC Project Manager, Millstone Unit No. 2  
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3

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NNECO is aware of Staff policy that information supporting qualification/operation of a piece of equipment should be provided to the Staff during its audit or shortly thereafter. However, NNECO contends that this position applies solely to installed equipment. Application of this policy to equipment no longer installed in the plant is not supported by either Commission regulations or Staff guidance, would not improve public health and safety, and is impractical. For example, this would require complete files on equipment removed from the plant over its entire life to be readily available (not in historical storage) for a Staff EQ audit, or as in this case an unannounced inspection.



Docket No. 50-336  
A06938

Attachment

Millstone Unit No. 2  
Additional Information - Wire Nuts/Motor Terminations

December 1987

The drawings detailing the design and materials specified for the 5KV termination found on these motors have been evaluated. Two components manufactured by AMP Products Corporation, AMPLISEAL Tape and AMP Sealing & Dielectric Compound, were used. The materials used in the manufacture of these components were identified by AMP. Since the formulation of these products had been changed, each of the possible compounds was evaluated against the normal and accident plant parameters. Accident radiation is the limiting parameter, and in each case the radiation tolerance values exceeded the required plant qualification values.

It is therefore concluded that these motor terminations were operable as required for both normal and accident environments.

ATTACHMENT

ADDITIONAL EQUIPMENT QUALIFICATION INFORMATION

-NRC INSPECTION REPORT NO. 50-336/87-15

The following details are submitted as additional information relevant to findings 5.2 and 5.3:

(A) Qualification of Wire Nuts

Ideal Model 74B wire nuts were observed only in certain junction boxes associated with 16 Air Operated Valves. No wire nuts were observed in any Limitorque Motor Operator compartments.

The materials of construction for the Model 74B wire nut were obtained from Ideal. For the environmental zones where these wire nuts were found, the limiting parameters for thermal life, radiation and accident conditions were evaluated. For all parameters except accident temperature, the material properties of the wire nut envelop the plant parameters. Further evaluation of the specific installation was performed, and it was determined that the heat transfer lags induced by the junction boxes were sufficient to preclude the short duration peak temperature spikes from raising the actual wire nut temperature to the material's limiting temperature. It was, therefore, concluded that these wire nuts were operable as required for both normal and accident environments.

(B) Qualification of Motor Termination

Subsequent to the 1986 outage walkdown and licensee letter dated December 10, 1986, additional specific data was located which identifies the motor termination method observed on Containment Spray Pump motors P.43A and P.43B. This documentation supports our previous statement regarding the engineering of and materials used in the splices.

The Containment Spray Pumps are part of the Containment Spray System which is one of the MP2 Engineered Safety Features (ESF) for containment heat removal. The two pumps are located in two of the three ESF rooms in the Auxiliary Building. They are required to operate only for accidents inside containment, and radiation is the only harsh environment to which the pump motors and terminations are exposed during their accident mitigating function.

The drawings detailing the design and materials specified for the 5KV termination found on these motors have been evaluated. Two components manufactured by AMP Products Corporation, AMPLISEAL Tape and AMP Sealing & Dielectric Compound, were used. The materials used in the manufacture of these components were identified by AMP. Since the formulation of these products had been changed, each of the possible compounds was evaluated against the normal and accident plant parameters. Accident radiation is the limiting parameter, and in each case the radiation tolerance values exceeded the required plant qualification values.

It is therefore concluded that these motor terminations were operable as required for both normal and accident environments.

**NORTHEAST UTILITIES**

THE CONNECTICUT LIGHT AND POWER COMPANY  
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 HOLYoke WATER POWER COMPANY  
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December 10, 1986

Docket No. 50-336  
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*Cathy to*

*C. Anderson ✓*  
*T. Reblinski*

*Thax,*

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*12/16*

Office of Nuclear Reactor Regulation  
 Attn: Mr. Ashok C. Thadani, Director  
 PWR Project Directorate #8  
 Division of PWR Licensing - B  
 U.S. Nuclear Regulatory Commission  
 Washington, D.C. 20555

→ 1. *Pacheco*  
 2. *Chen*  
 3. *Hoshy*  
*AK* *Stetson*  
*of EQ*

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2  
Environmental Qualification Review

Introduction

Northeast Nuclear Energy Company (NNECO) has recently completed a comprehensive review of equipment qualification (EQ) at Millstone Nuclear Power Station, Unit No. 2, taking advantage of increased equipment availability for inspection during the current refueling outage. While some discrepancies were identified during the review, none were of safety significance warranting reporting pursuant to 10 CFR 50.72 or 50.73. NNECO believes that the results of the review reflect the overall success of implementation of previous EQ commitments for Millstone Unit No. 2. The purpose of this letter is to inform the Staff of the results of the reverification program and to assure the Staff that all discrepancies noted (as described in Attachment 1) have been corrected to support power operation. Also, this letter provides additional information in response to IE Information Notice 86-53 related to Raychem splices at Millstone Unit No. 2.

Overview of the Reverification Program

Specific elements of the reverification program include the following:

- o Reverification of the EQ master list to assure completeness and accuracy.
- o Review of maintenance records to locate areas where additional information was needed to fully integrate qualification requirements and maintenance procedures.
- o Inspection of certain equipment in the Millstone Unit No. 2 EQ program to reverify pertinent as-built conditions.

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- o Evaluation of discrepancies and identification of corrective actions.
- o Initiation of corrective actions with the goal of completion prior to start-up from the current outage.
- o Review of discrepancies identified for reportability pursuant to 10 CFR 50.72 and 50.73.

The program is, to a large extent, an independent review of the initial EQ program developed for Millstone Unit No. 2. The results of the program are discussed below.

#### Results of the Reverification Program

The reverification program constitutes a comprehensive review and analysis of the EQ status at Millstone Unit No. 2. In large measure, the results of the program reflect the success of the initial Millstone Unit No. 2 qualification efforts. A detailed discussion of the discrepancies identified and corrective actions taken are set forth in Attachment 1.

Each discrepancy noted was evaluated pursuant to 10 CFR 50.72 and 10 CFR 50.73. Based on these evaluations, no prompt notification or LER reportability requirements are applicable, since in each case it was determined that the specific equipment would have been able to perform its safety function. A revised EQ master list will be provided to the Staff during the first quarter of 1987.

#### IE Information Notice 86-53

During the reverification program, NNECO decided to reevaluate the installation of heat shrinkable tubing (IE Information Notice 86-53) at Millstone Unit No. 2. This issue had been previously addressed during a routine safety inspection conducted by Mr. A. Finkel of the NRC Region 1 Office on July 7-11, 1986.<sup>(1)</sup> During the Staff inspection, the installation procedures, Quality Control (QC) records and three Plant Design Change Requests (PDCRs) were reviewed and determined to be in order. The inspector observed sample splices being terminated using the Raychem material. This inspection closed out this issue. However, as a result of increased NRC concerns and our involvement with the Nuclear Utility Group on Equipment Qualification (NUGEQ), NNECO decided to further review this issue.

Installational procedures, PDCRs and work orders were reviewed and yielded results similar to those reported in the NRC inspection. A sample of Raychem termination inspections verified that the appropriate documentation was in order and that the terminations were properly installed. A detailed discussion of this review is set forth in Attachment 1.

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(1) S.D. Ebner letter to J.F. Opeka, dated August 8, 1986, "IE Inspection Report No. 50-336/86-14 (July 7-11, 1986)".



Regulatory Guide 1.97 Items

During the reverification program, previous decisions impacting the qualification program were reviewed and, in some cases, modified to take a more conservative posture regarding certain Regulatory Guide 1.97 equipment. As a result, we have identified the need to qualify certain equipment to conditions more severe than previously required. Since this particular Regulatory Guide 1.97 equipment is not governed by the schedule in 10 CFR 50.49 and only applies to the criteria contained in Regulatory Guide 1.97, the resolution of this issue will be addressed in a future submittal to the NRC on or about January 30, 1987.

Conclusion

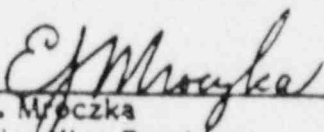
The purpose of this letter is to inform the Staff of the results of the NNECO EQ reverification program. Results of the program reflect the general success of the initial qualification efforts at Millstone Unit No. 2. For the discrepancies identified, corrective actions noted in Attachment 1 have been completed. No discrepancies have been determined to be reportable pursuant to 10 CFR 50.72 or 10 CFR 50.73.

The extensive nature of the reverification program provides reasonable assurance that all equipment governed by 10 CFR 50.49 is on the master list and qualified, as indicated in Attachment 1, to support power operation. As EQ issues evolve, the possibility exists that additional qualification activities will be required.

If you have any questions, please contact us.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
\_\_\_\_\_  
E.J. Mroczka  
Senior Vice President

cc: T.E. Murley



## ATTACHMENT I

### Results of Millstone Unit No. 2 Equipment Qualification Reverification & Supplemental Walkdown

A comprehensive review of electrical equipment qualification required by 10 CFR 50.49 was recently completed at Millstone Unit No. 2. Discrepancies identified and corresponding corrective actions taken. For all discrepancies, reportability evaluations have been done in accordance with 10CFR50.72 and 10CFR50.73.

#### I. Terminations

1. During the reverification program, reinspection of certain junction boxes and terminal boxes associated with equipment qualification (EQ) devices was performed. As a result of these inspections, qualification of two types of terminations was further evaluated. These were dispositioned as follows:
  - a) Numerous taped terminations were found of the Bishop Tape type normally used in the past. (Bishop Tape terminations have been shown to be qualified to DOR guidelines at other NU nuclear power plants.) Rather than researching the work order records for the documentation to complete the walkdown file, it was decided to remove the tape to inspect the lug-conductor condition and retape using a NUREG-0588 qualified method. These reworked terminations are now specifically documented in the EQ walkdown files. Since it was determined that these terminations would have performed their safety function, this discrepancy was determined to be not reportable.
  - b) Several conductor terminations were found utilizing Ideal Model 74B wirenuts. Qualification of these devices was evaluated for the appropriate scenarios against the known physical properties of the wirenut. For the environmental zones in which these wirenuts were located, the limiting material parameters would not have been exceeded during either normal or accident conditions and the end devices would have performed their safety functions. Although the existing termination method was determined to be adequate, these wirenuts were removed and the terminations were remade using NUREG-0588 qualified methods. This discrepancy was determined to be not reportable.
2. An inspection of the termination of all EQ Master List motors was conducted. The qualification of three sets of motor terminations was evaluated as a result of these findings. These were dispositioned as follows:
  - a) The Containment Spray Pump motors P-43A and P-43B were found to have original plant installation terminations for which no specific design documentation was found. Original installation procedures required an engineered termination method for motors of this nature, and the EQ walkdown inspections indicated that the subject

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terminations were well engineered, were in excellent condition, and utilized typical tape system materials of that time. A review of the appropriate accident scenarios concluded that the motor terminations as found would not have failed and would not have prevented the pumps from performing their safety function. Since the qualification of these terminations could not be fully demonstrated, the motors were reterminated using a NUREG-0588 qualified method. This discrepancy was determined to be not reportable.

- b) The LPSI Pump motors P-42A&B and the Charging Pump motors P-18A, B&C were found to have terminations that had been replaced subsequent to original plant installation. As found, these terminations were a Bishop Tape type normally used in the past. Since the terminations were scheduled to be disassembled for normal plant maintenance purposes, the motors were scheduled for retermination using a NUREG-0588 qualified method. As of this date, only P-18A has not been completed, and this pump will not be declared operable until qualified terminations are installed. These new terminations are now fully documented in the EQ walkdown files. Since it was determined that these terminations would have performed their safety functions, these discrepancies were determined to be not reportable.
3. To address the concerns identified in IE Information Notice 86-53, an inspection of a sample of installed Raychem terminations was conducted as discussed below:
    - a) Containment Electrical Penetrations - 15 percent of these were inspected in accordance with the Raychem inspection criteria and the inspections were documented on QA Work Orders. All inspected terminations were found to be acceptable and qualified for 40 years per Raychem test reports.
    - b) Rosemount Transmitters (ECSA buttsplice) - 100 percent of these were inspected in accordance with the Raychem inspection criteria and the inspections were documented on QA Work Orders. NNECO decided to inspect 100 percent of these particular splices because their installation procedures specified an overlap of one and one half (1½) inches rather than the two (2) inches recommended by Raychem. The inspections verified that the overlap length was consistent with the existing documentation. All inspected buttsplices were found to be acceptable and qualified for 10 years per Toledo Edison and TVA qualification testing of Raychem splices. As a matter of plant convenience, these splices were reterminated to achieve 40-year qualified lives per Raychem test reports. Evaluation of these findings determined them not to be reportable.

## II. Limitorque Motor Operators

In response to IE Information Notice 86-02 and 86-03, special attention was directed to Limitorque operators during the walkdown. Five issues related to

these operators evolved during the walkdown. These are addressed as follows:

1. The walkdowns determined that T-drains had not been installed on 2-RC-405, 2-SI-614, 2-SI-624, 2-SI-634, 2-SI-644, 2-SI-651, and 2-SI-652. A review of the accident scenarios concluded that the lack of T-drains would not have prevented these valves from performing their safety function. Although the existing installation was determined to be adequate, T-drains were installed in these operators. This discrepancy was determined to be not reportable.
2. Eleven other Limitorque operators were found to have lug and tape type terminations for the motor lead wire termination. Since this was not a Limitorque tested configuration, these valves were evaluated for operability. The terminations were of the plant standard Bishop Tape method, and a review of the accident scenarios concluded that this configuration would not have prevented the valves from performing their safety function. In each case, the existing tape was removed to inspect the lug/conductor condition and the termination was remade using a NUREG-0588 qualified method. This discrepancy was determined to be not reportable.
3. Four operators were found to contain slidewire resistors. Since this was not a Limitorque tested configuration, these valves were evaluated for operability. A review of the accident scenarios concluded that the installed slidewire resistors do not affect the MOV's ability to perform their safety function. Therefore, the only corrective action was to update the documentation to include this information. This condition was determined to be not reportable.
4. During the May, 1986 turbine inspection, NNECO inspected five (5) randomly chosen Limitorque actuators out of a total of forty-two (42) so as to perform a visual inspection of the internal wiring. The results of this inspection were reported to the Staff via an August 5, 1986 letter<sup>(1)</sup>. As stated in that letter, it was NNECO's intention to inspect the remaining thirty-seven (37) Limitorque actuators during the refueling outage scheduled to begin in September, 1986. These actuators were in fact all inspected and were verified to be environmentally qualified. Therefore, all wiring internal to each EQ Master List Limitorque operator has been visually confirmed as qualified. This action resolves the concern identified in IE Information Notice 86-03.
5. To address the concerns identified in IE Information Notice 86-02, motor serial numbers which were verified during the walkdown will be submitted to Reliance Electric Company. This will determine which

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(1) J.F. Opeka letter to T.E. Murley, dated August 5, 1986, "Millstone Nuclear Power Station, Unit Nos. 1 and 2 - Inspection Report Nos. 50-245/85-30; 50-336/85-35."

motors, if any, contain magnesium rotors. While the currently installed motor operators are not located in areas which will experience the environments noted in the General Electric tests cited in IE Information Notice 86-02 and are still qualified by test reports, we will ensure that information from Reliance is added to our EQ files. This status report is being provided for informational purposes only.

### III. Solenoid Operated Valves and Limit Switches

Three SOV's and the associated limit switches in the Control Room HVAC System were identified as requiring qualification and not listed in the EQ Master List. These devices had been installed as qualified and have been maintained as qualified. They have been added to the EQ Master List. This discrepancy was determined to be not reportable.

### IV. Providing Additional Conservatism to Previous Decisions

In the reverification process, previous decisions regarding qualification activities were evaluated. In the cases noted below, while the end conclusions (i.e., that the environment would not adversely affect the operability of the equipment) were not altered, additional qualification efforts were implemented to provide added assurance.

1. Investigation into the Auxiliary Feed Pumps, the DC Switchgear Room Fans and the Enclosure Building Filtration System Fans determined that the motors for these devices should be qualified as a conservative measure for certain HELBs in their respective locations. The qualification of each of these motors has been established as follows:

- a) The qualification of the Auxiliary Feed Pump motors has been confirmed through the vendor. The motor terminations were found to have been replaced subsequent to original plant installation. The terminations were a Bishop Tape type normally used in the past. Rather than researching the work order records for the documentation to complete the walkdown file, it was decided to ~~remove the tape to inspect the conductor condition and reterminate using a NUREG-0288 qualified method.~~ These reworked terminations are now fully documented in the EQ walkdown files, and the motors have been added to the EQ Master List. Since it was determined that these terminations would have performed their safety function, these discrepancies were determined to be not reportable.

- b) The DC Switchgear Room Fan motors have been confirmed as qualifiable by the vendor and appropriate documentation is being procured. Qualification of these motors will replace previously credited manual actions. The motor terminations were found to have been replaced subsequent to original plant installation. The terminations were a Bishop Tape type normally used by the plant in the past. Rather than researching the work order records for the documentation to complete the walkdown file, it was decided to



remove the tape to inspect the lug/conductor condition and reterminate using a NUREG-0588 qualified method. These reworked terminations are now fully documented in the EQ walkdown files, and the motors have been added to the EQ Master List. Since it was determined that these terminations would have performed their safety functions, these discrepancies were determined to be not reportable.

- c) The qualification of the Enclosure Building Filtration System Fan motors has been confirmed through the vendor. The motor terminations in each case were inspected and determined to be original plant installation, and qualified to DOR Guidelines. The motors have been added to the EQ Master List. These discrepancies were determined to be not reportable.
2. A review of Solenoid Operated Valves resulted in a decision to qualify eleven devices that had previously been evaluated as not requiring qualification. These original evaluations had been made based on their immediate function at the onset of a design basis accident, prior to being exposed to any harsh environment. A decision was made to fully qualify these SOVs for post-accident environments to provide additional assurance of safety function. This has been accomplished as follows:
- a) Three of these SOVs were qualified types as installed and have been maintained as qualified. These have been added to the EQ Master List. These discrepancies were determined to be not reportable.
  - b) Seven of the SOVs were not qualified types as installed and were evaluated against the appropriate accident scenarios for long term operability. For the environmental zones in which these SOVs were located, the limiting material parameters would not have been exceeded during either normal or accident conditions and they would have performed their safety functions. Although the existing installations were determined to be adequate, each SOV was replaced with a NUREG-0588 fully qualified component and added to the EQ Master List. These discrepancies were determined to be not reportable.
  - c) The remaining SOV was not a qualified type as installed and was evaluated against the appropriate accident scenario for long-term operability. For the environmental zone in which this SOV was located, the limiting material parameters would not have been exceeded during either normal or accident conditions and it would have performed its safety function. Although the existing installation was determined to be adequate, this SOV was replaced with a NUREG 0588 qualified component and added to the EQ Master List. During pre-startup testing, it was discovered that the replacement SOV as installed caused the closure time for the main valve to exceed the Technical Specification requirement. The original SOV had to be reinstalled to correct the closure time problem. Since this valve had been added to the EQ Master List, it will be declared

operable with a justification for continued operation (JCO) in place until a suitable fully qualified replacement is available. This replacement SOV will be installed during operation following start-up. This discrepancy was determined to be not reportable.