

NORTHEAST UTILITIES



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WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
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August 16, 1985

Docket No. 50-423
AO5058

Mr. R. W. Starostecki, Director
Division of Reactor Projects
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

- References:
- (1) E.C. Wenzinger letter to J.F. Opeka, "Millstone Unit 3 Construction Appraisal Team Enforcement Actions," dated July 12, 1985.
 - (2) J.M. Taylor letter to J.F. Opeka, "Construction Appraisal Team Inspection No. 50-423/85-04," dated May 21, 1985.
 - (3) J.F. Opeka letter to J.M. Taylor, "Millstone Nuclear Power Station, Unit No. 3 Response to Construction Appraisal Team Inspection," dated July 11, 1985.

Dear Mr. Starostecki:

Millstone Nuclear Power Station, Unit No. 3
Response to Construction Appraisal Team Enforcement Actions
I&E Inspection Report No. 50-423/85-04

Pursuant to the provisions of 10CFR2.201, this report is submitted in reply to Reference (1) which informed Northeast Nuclear Energy Company (NNECO) of six apparent Severity Level IV Violations and four Construction Program Weaknesses. These were the result of the Construction Appraisal Team (CAT) inspection conducted from February 19 - March 1 and March 11-22, 1985 at the Millstone No. 3 site. The details of the CAT inspection were provided in I&E Inspection Report 50-423/85-04 and transmitted to us in Reference (2).

Our response to each of the violations is provided in Attachment I to this letter. Our response to each of the Construction Program Weaknesses is provided in Attachment II. Since we previously addressed each of the Construction Program Weaknesses in Reference (3), only an update on these weaknesses is being provided at this time.

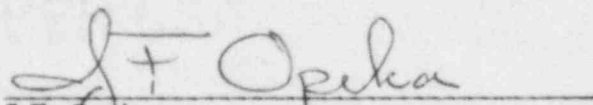
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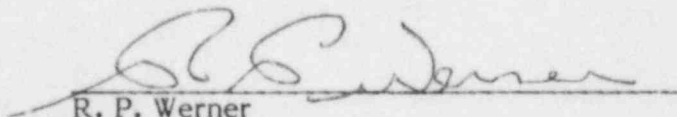
Based on an August 8, 1985 telephone conversation with your Mr. E. C. McCabe, this report is being provided on or before August 16, 1985 rather than August 12, 1985. We trust that the above information satisfactorily responds to your concerns.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

A handwritten signature in cursive script, appearing to read "J.F. Opeka", written over a horizontal line.

J.F. Opeka
Senior Vice President

A handwritten signature in cursive script, appearing to read "R. P. Werner", written over a horizontal line.

R. P. Werner
Vice President

Attachments

cc: J.M. Taylor, Director
NRC Office of Inspection and Enforcement

H.J. Wong, Sr. Reactor Construction Engineer
NRC Office of Inspection and Enforcement

ATTACHMENT I

Millstone Nuclear Power Station, Unit No. 3 Response to CAT Enforcement Actions

I. VIOLATION

10CFR Part 50, Appendix B, Criterion III, as implemented by Northeast Utilities Quality Assurance Program (NUQAP) Topical Report, Quality Assurance Program (QAP) 3.0 requires that measures be established to assure that applicable regulatory requirements are correctly translated into specifications, drawings, procedures and instructions.

Contrary to the above, as of March 22, 1985, the licensee's design control measures for Class 1E wiring did not assure that applicable requirements were correctly translated into appropriate documents, in that eight termination tickets were not revised to incorporate required engineering changes (Section II.B.2.b(6)).

This was determined to be a Severity Level IV Violation (Supplement II).

I. RESPONSE

The eight instances of cable termination discrepancies noted have been corrected by issuing design changes and/or terminations. Based on the large number of terminations reviewed by the NRC CAT inspectors, we believe that discrepancies can be attributed to random error/oversight and not a programmatic concern. Additionally, the program for initiating termination information from engineering to construction had been improved in early 1985 to help preclude such oversights. The policy change required termination tickets to be issued at the same time as the initiating drawing change document (E&DCR, N&D, etc.) to reduce occurrences of document inconsistencies. None of the identified inconsistencies resulted in a technical concern affecting the final configuration of associated circuitry after component checkout in Phase I start-up testing.

Cause

The discrepancies are attributed to random error/oversight on the part of electrical designers in that some termination tickets were not issued with design changes.

Corrective and Preventive Actions

Inconsistencies noted during the inspection have been corrected. Based on the number of inconsistencies identified as compared to the number of terminations reviewed during the CAT inspection, there is no indication of a programmatic deficiency in the design and implementation of cable terminations.

Additionally, NNECO's program for initial component Phase I testing demonstrates full functionality and circuit acceptability within the design basis. The project Construction Work Tracking Program is an additional function which assures consistent implementation of design requirements.

In early 1985, engineering modified the method of initiating termination requirements/changes to construction as described above. This method of implementation minimizes the type of inconsistency noted.

2. VIOLATION

10CFR50, Appendix B, Criterion V, requires that activities affecting quality shall be accomplished in accordance with appropriate instructions.

Contrary to the above, as of March 22, 1985, activities affecting quality were not accomplished in accordance with prescribed instructions as evidenced by the following:

- a. Discrepancies involving post-turnover wiring changes for Class 1E cable terminations were discovered and were not documented at the time as required by Section 5 of the NNECO Start-up Manual (Section II.B.2.b.(6)).
- b. Errors in document and specification distribution, filing and updating were identified at the controlled drawing stations. That resulted in lack of the drawing correctness specified in SWEC Construction Methods Procedure 11.1, Job Site Document Control, Revision 0, and SWEC NEAM 32, Supplier Technical Document Review and Distribution - Millstone 3 - NUSCO, Revision 9 (Section VII.B.1).

This was determined to be a Severity Level IV Violation (Supplement II).

2. RESPONSE

- 2a. Section 5 of the NNECO Start-up Manual states that, "If the design drawings and field installation do not agree but testing determines that the design intent is met, a DCR is issued to request that the drawings be changed to conform with the installed condition." Therefore, until testing is complete, in order to make a determination that design intent is met, no action is taken (i.e., no DCR issued).

Seven specific discrepancies were discussed in the CAT report (ref. Table II-4, pages 23 and 24).

For items #10, 14 and 15, DCRs have been issued since Phase I testing has been completed. In addition, design changes have been initiated to revise affected drawings to reflect the as installed/tested conditions.

For items #9, 11, 12 and 13, Phase I testing is presently on-going. When testing for these items is completed, appropriate actions for discrepancies found will be initiated in accordance with established procedures.

- 2b. The Document Control/Drawing Record Card (DC/DRC) systems in effect at the beginning of 1985 have been in effect since the fourth quarter of 1981. In the fourth quarter of 1981, some DC/DRC changes were made in response to NRC open item 81-12-04. NRC item 81-12-04 was closed by the NRC in December 1982, after it was established that 95% - 97% drawing station accuracy was acceptable and achievable. The DC/DRC programs generally performed as expected with the desired drawing station accuracy during calendar years 1982, 1983, and the first half of 1984, as evidenced by the March 1984 NRC Construction Team Inspection (CTI) results which cited these programs as a Millstone 3 strong point. It is important to note some of the reasoning which went into the 1982 determination that 95% - 97% drawing station accuracy was acceptable. Drawing station accuracy is only one of the several parallel and serial elements of a project-wide configuration control process that assures Millstone 3 is built, inspected, and tested according to the latest engineering information.

During the latter half of calendar year 1984 and the first quarter of 1985, some deterioration of drawing station accuracy was detected by internal QA audits and corrective action implemented. However, the increasing demand for rapid document turnaround associated with the existing stage of construction completion and testing, the increasing volume of documents associated with the then growing site engineering staff, and the increasing design confirmation activities contributed to a situation which overtaxed the principle resources assigned for drawing station maintenance. This caused the declining accuracy trend and the inability to quickly correct the drawing station deficiencies identified in a January 1985 comprehensive verification effort.

Several specific corrective measures have been implemented as described below. In addition, an automated computer system will replace the current labor intensive drawing record card system which will provide the project with a comprehensive index of design documents, document status, and change control/document relationship.

Cause

Corrective actions taken to preclude document control inaccuracies were not totally effective as an overtaxing and increasing demand on the existing document control system was not fully anticipated.

Corrective and Preventive Actions

As a result of the documentation errors identified during the CAT inspection, we have developed an interactive computer system designed to assure that Controlled Drawing Stations include and maintain the most current project design information. This system is referred to as MADRIS (Millstone Automated Document Record Information System).

This system will replace the current labor intensive drawing record card system with an interactive computer information system which will provide a comprehensive index of design documents, document status, and change control/document relationship. A computer terminal linked to the system and staffed with trained personnel will be installed for use in verifying document validity and completeness prior to use by engineering, construction, quality control, or testing personnel. This system is scheduled to be operational by August 30, 1985.

In addition to this specific action taken, we have performed an evaluation of the impact of these documentation errors in relation to plant hardware. This information is included in Attachment III to this letter. The evaluation concluded that the types of errors found would not have created hardware problems primarily because of the Construction Work Tracking Program.

To address control of specifications and Operating, Instruction, and Maintenance Manuals (OIMs), the following is provided:

- o During the CAT inspection, the Project Manager (SWEC) issued a memorandum directing all holders of controlled copies of specifications to verify future updates in a timely manner upon receipt. Those specifications which were specifically identified during the CAT inspection have been corrected. Compliance was verified by FQC surveillances.
- o Distribution of copies of specifications have been reduced. Selected specifications will be filed at specific drawing stations and assigned to Lead Engineers, and Department Heads/Assistant Superintendents for use by their personnel. Additionally, MADRIS will maintain distribution control and status of specifications at work locations. This reduction eliminated unnecessary copies that sometimes accompany backlog files. This revised distribution has been issued and has not posed any availability problems.
- o OIMs are now centrally controlled as opposed to dual filing locations which contributed to the inconsistencies noted during the CAT inspection.
- o The SWEC QA Auditing Program fulfills regulatory requirements with regards to verification of the latest specification and vendor information available and used at the point of installation. However, to clarify this area, audit plans for Document Control activities have been expanded to specifically include checks of specifications and OIMs held by individuals on the controlled distribution lists.

- o FQC will monitor specification maintenance control. A surveillance plan has been prepared and implemented.

3. VIOLATION

10CFR50, Appendix B, Criterion VII and NUQAP QAP 7.0 require that measures be established to assure that purchased equipment conform to the procurement documents.

Contrary to the above, as of March 22, 1985, measures were not adequate to assure that purchased equipment conformed to procurement documents in that vendor supplied tanks and heat exchangers were received, accepted and installed with welds that were undersized or had an unacceptable surface condition (Section IV.B.2).

This was determined to be a Severity Level IV Violation (Supplement II).

3. RESPONSE

It should be noted that the vendor deficiencies identified in the area of tank and heat exchanger fillet welds are currently the subject of I&E Information Notice 85-33. The identified conditions at Millstone 3 include certain vendor supplied tanks and heat exchangers with undersized fillet welds for equipment nozzles and supports. The amount of undersizing observed in the field was between 1/16 and 1/8 of an inch. Each case is being dispositioned by N&Ds within SWEC's QA Program. All of the fillet welds (nozzles and supports) reviewed thus far have been successfully reconciled with the actual stress loadings, but some rework may be required to meet the ASME Code for minimum weld size. Final evaluation and any resulting repair work is scheduled to be completed by October 15, 1985.

Cause

Vendor supplied tanks and heat exchangers identified to date that include undersized fillet welds were procured under SWEC's and Westinghouse's QA Program. The shop inspection aspects of these QA Programs were not totally effective in identifying undersized fillet welds performed by vendors.

Corrective and Preventive Actions

FQC inspected all fillet welds on QA Category I vendor supplied equipment supports and identified those supports which have undersized fillet welds. This inspection resulted in 14 N&Ds involving a total of 52 supports. With regard to undersized nozzle fillet welds, all other subject welds on safety related equipment identified deficient by the NRC inspector have been reinspected by FQC with unsatisfactory conditions documented within SWEC's QA Program. Additionally, FQC is inspecting nozzle fillet welds on the balance of vendor supplied QA Category I tanks and heat exchangers. Where required, repairs will be completed by October 15, 1985.

The SWEC QA Department, in response to internally identified concerns regarding visual weld inspection of vendor supplied equipment, developed a comprehensive weld inspection training program in June of 1984 which was presented to QA/QC personnel, including all PQA inspectors. However, a review of the Purchase Orders for the equipment with undersized welds noted by the NRC indicates that all items were PQA inspected and delivered to the site well before this comprehensive program was presented. Additionally, in response to the NRC CAT Inspection, the SWEC PQA Division has issued a memorandum to all district managers stressing the importance of properly inspecting fillet welds.

PQA has instituted corrective actions to assure that equipment with the indicated conditions would not be accepted today and released for shipment.

4. VIOLATION

10CFR Part 50, Appendix B, Criterion VIII and NUQAP QAP 8.0 require that measures be established for the control of materials, parts and components to prevent the use of incorrect or defective items.

Contrary to the above, as of March 22, 1985, the material traceability and control of some fasteners, including bolts for mounting large pump motors, have not been adequate to assure the use of correct materials in that:

- a. Unmarked mounting bolts were used for the motors on the Quench Spray Pumps (3QSS*P3A, B), Safety Injection Pump (3SIH*P1B), Chemical Volume Control Pumps, (3CHS-P1A, B, 3CHS*P3A,B,C), and Component Cooling Charging Pumps (3CCE*P1A,B).
- b. Unmarked bolts were used in the battery rack assemblies in the five battery rooms in the Control Building.
- c. Unmarked bolts were used in motor control centers to connect adjacent cabinets.
- d. Unmarked bolts were used for mounting Control Board Termination Cabinet (3CES-TBMB30).

(Section VI.B.1.b(4))

This was determined to be a Severity Level IV Violation (Supplement II).

4. RESPONSE

The concern noted by the NRC appears to be primarily attributable to the vendors not adequately marking/identifying the bolting materials used and not adequately assuring through shop inspection that the materials used during component fabrication comply with material requirements specified in design/seismic qualification documents.

Site practice has been for FQC to perform a receipt inspection for each of these site supplied fasteners to assure that fasteners of the proper QA Category and ASTM designation were received. These fasteners were segregated by QA Category and issued to the field by QA Category. Site supplied ASME III bolting is procured, controlled and certified under the SWEC Quality Assurance and Control Manual ASME III and therefore, is not a concern.

Vendors supplying QA Category I seismically qualified components are required by SWEC specifications to implement a 10CFR50, Appendix B QA Program which assures the fabricated components comply with design documents.

As such, it is the vendors primary responsibility to design, fabricate, inspect and supply a component that complies with the SWEC specification and representative of the design seismically qualified by the vendor through testing or analysis.

Cause

Vendor control of subject materials was not adequate to prove by independent means that correct bolting materials were used.

Corrective and Preventive Actions

- 4a. Engineering evaluation of this concern dictates two options to resolve cited conditions of unmarked bolting: 1) accept as is the unmarked bolts based on availability of adequate evidence that material meets or exceeds the original material specifications (i.e., testing of unmarked bolts, verification from the vendor that their QA program assures material supplied is acceptable) or (2) based on accessibility and economics, replace indeterminate bolting materials with the required material specification bolt.

In addition, a review will be performed on a sample of other Category I pumps to ensure adequate traceability and hardware determination (i.e. bolting) exist. Any necessary actions will be taken, pending the results of the sample review. Complete resolution of this issue is expected by September 15, 1985.

- 4b. As a result of this finding, N&D 11498 was issued to implement corrective action. Samples of unmarked bolts from each battery room were selected for testing by Bridgeport Testing Laboratory. Results indicated that all 97 bolts tested were in conformance to ASTM A-307 material specification. No further action is deemed necessary concerning this issue.

- 4c. A sample of bolts used in motor control centers to connect adjacent cabinets will be selected and tested by Bridgeport Testing Laboratory. Appropriate actions based on test results will be taken. Final resolution of this issue is expected by October 1, 1985.
- 4d. Unmarked bolts used for mounting Control Board Termination Cabinet (3CES*TBMB30) will be replaced with the required marked bolts by September 1, 1985. The CAT inspector randomly sampled other cabinets and found no other unsatisfactory conditions. This issue is considered to be an isolated case and no further action is deemed necessary.

To prevent these occurrences in the future, the specification on mechanical installation will be revised to include a FQC attribute to inspect vendor bolting materials. Any new specification will include this attribute.

5. VIOLATION

10CFR Part 50, Appendix B, Criterion X and NUQAP QAP 10.0 require that a program for inspection of activities affecting quality be established and executed to verify conformance with design documents.

Contrary to the above, as of March 22, 1985, the licensee's inspection program was not executed to verify conformance with design documents in that:

- a. FQC acceptance criteria for placement of pipe supports and restraints were different than engineering design. That resulted in support attachment locations which were not as depicted by design drawings, as noted in five specific support attachment locations, and as indicated by a lack of accounting for wide location changes in support/restraint design calculations and in the associated FQC acceptance criteria (Section III, B.2.b).
- b. FQC accepted equipment foundation bolting connections which were not installed as designed (Section III.B.5.b).
- c. Accepted welds in skewed pipe supports were not of the size required by design (Section IV.B.3).

This was determined to be a Severity Level IV Violation (Supplement II).

5. RESPONSE

To determine the extent of the concerns expressed as a result of the CAT inspection, INECO has retained an independent consultant to perform a review in this area. A full report will be prepared and available for NRC review by September 15, 1985.

Cause

- 5a. The overall cause for this item can be attributed to an FQC/Construction misinterpretation of Engineering requirements due to imprecise specification wording in certain installation and inspection requirements.
- 5b. Although the specific cause for these discrepancies is not known at this time, it may be attributable to incomplete inspection by SWEC FQC or unauthorized loosening/removal of subject pump foundation bolting.
- 5c. The cause of the problem appears to be that inspections of skewed angle (30° - 80°) fillet welds are difficult to perform with absolute consistency, due to gage access difficulties, weld profile variations, and some inherent geometric interpretations which must be made on the part of the inspector. Concerning the cutback issue, for skewed angles between 30° - 45° , the Pipe Support Sketch (PS) sheet apparently was not clear enough to construction and inspection personnel to consistently determine the required fillet leg length and, consequently, the cutback requirement.

Corrective and Preventive Actions

- 5a. The two specific issues cited include inconsistency between FQC interpretation and engineering requirements regarding (1) pipe support attachment tolerances to structural steel, and (2) a conflict between the pipe support location tolerance accounted for in the pipe stress analysis and the dimensions shown on the support details.

With regards to the pipe support attachment tolerances to structural steel, we are reviewing the extent and effect of this condition. To date, no hardware changes have resulted and preliminary review indicated none are anticipated. The results of this review are expected by September 30, 1985.

Concerning the second issue of conflict between pipe support location tolerance being accounted for in the pipe stress analysis, engineering has conducted a review of all pipe support drawing packages and identified a total of 123 designs sharing similar support configurations (64 are Category I; 59 Category II). Results of this review indicate all installations of the subject supports are acceptable with no design modifications required. Engineering has issued a memorandum to design personnel to preclude this concern for new designs.

- 5b. All QA Category I mechanical equipment foundation bolting has been reinspected for proper nuts, washers, and required torque values. A total of 84 pieces of equipment were involved with 42 pieces rejected. Thirty-eight (38) pieces have been satisfactorily reworked with the remaining four (4) pieces scheduled to be completed by September 1, 1985. Preventive action associated with this concern is included in item 6c.

- 5c. Instruction has been provided to construction supervision and inspection personnel to improve techniques for examining skewed angle welds against the design requirements. The applicable PS sheet for 30°-45° angle fillet joints has been revised with clarification of the weld leg size and cutback requirements. A specification change has been issued to require a fit-up inspection of skewed joints between 30°-45°.

To address completed installations, Engineering has evaluated this problem in two parts:

- o Two-sided welds - skewed angle joints with only toe and heel welded.
- o Three or four-sided welds - skewed angle joints welded on the toe and two sides or welded all four sides.

The majority of skewed angle joints specify the three or four-sided weld design. The generic implications of undersized toe welds for three or four-sided weld designs has been analyzed in a SWEC calculation. Since typical skewed joint designs utilize the weld length equal to the cross sectional perimeter and not the actual "footprint" length, the strength of the side welds increases proportionately to the increase in the skewed angle. The calculation concludes that any strength lost due to the reduced toe weld is compensated by the increased side weld not considered in the original analysis. Both the concern regarding the potential lack of cutback on the toe preparation between 30° - 45° angle joints and the undersized skewed fillet for joints between 30° - 80° are addressed in the calculation.

The two-sided weld joint (toe and heel only) is a less prevalent design and represents a more difficult engineering problem on a generic basis. Since no side welds exist, there is no increase in weld area for which to take credit and only the increase in section modulus of the weld "footprint" can be considered to compensate for a reduced toe weld. Therefore, the amount of undersized weld in the toe and the cutback assumptions utilized are more critical to the evaluation of the two-sided weld. A SWEC engineering study of the two-sided weld assumes that the cutback preparation for joints between 30° - 45° was undersized due to misinterpretation of the weld PS sheet. It concludes that a modest increase in weld stress will occur. However, since a skewed joint less than 45° with a two-sided weld was found in the field with no cutback evident, a reinspection of two-sided welds on skewed joints was deemed necessary.

A program was developed to identify two-sided welds in skewed joints between 30° - 80°. A 100 percent review was performed to determine which supports were affected. All supports identified were then analyzed by engineering to determine if field modifications were required. Preliminary results indicated only 17 out of 65 supports required additional weld at the skewed connection. This additional welding has been performed. Final review of these 17 supports determined that the originally installed welds would have been acceptable using the normal procedures for weld qualification.

A review of other subject supports in the plant identified an additional 68 cases. None of these required modification.

6. VIOLATION

10CFR Part 50, Appendix B, Criterion XVI and NUQAP QAP 16.0 require measures to assure that conditions adverse to quality are promptly identified and corrected, including action to avoid repetition.

Contrary to the above, as of March 22, 1985, the licensee had not:

- a. Promptly identified and corrected numerous separation deficiencies in vendor or modified vendor wiring installations within the main control boards (Section II.B.2.b.(2)).
- b. Provided measures to bring about prompt action to avoid recurrence of significant nonconformances noted in N&Ds and IRs (Section VIII.B.1.b(1)).
- c. Adequately corrected previously identified deficiencies in the area of preventive maintenance after turnover of equipment to operations (Section VIII.B.1.b(2)).
- d. Adequately corrected identified document control deficiencies (Section VIII.B.1.b.(4)).

This was determined to be a Severity Level IV Violation (Supplement II).

6. RESPONSE

- 6a. Several separation violations were noted during the CAT inspection in the main control board. These included separation violations between field modified internal wiring and existing vendor installed wiring. No concerns were raised during the CAT inspection in regards to separation of vendor installed wiring as delivered. At the time of the CAT inspection, extensive field modifications had been performed on the main control board. The internal wiring affected by these modifications had not yet been permanently trained to meet the separation requirements.

In general, permanent training to meet separation criteria is performed after termination has been completed. Inspection for separation internal to panels is performed prior to building turnover after most field modifications are complete. Therefore, this condition could exist in any panel containing redundant Class 1E wiring and/or non-Class 1E wiring in which field modifications have been performed prior to building turnover. Project procedure NEAM 128 includes the scope of Quality Control inspection requirements for field modifications to internal panel wiring. As a result of the CAT inspection, it was identified that NEAM 128 and the Electrical

Installation specification (E-350) did not clearly state for Quality Control to inspect separation for field modifications to vendor wiring. NEAM 128 has been clarified to address this concern. Quality Control will inspect all panels which contain either redundant Class IE wiring or Class IE and non-class IE wiring to verify that in the area(s) where field modifications were made or external cable routed, that the vendor wiring, external cabling modifications and field wiring modifications meet the separation criteria.

This inspection will be performed prior to building turnover. If any panel modification is performed after the panel inspection, either SWEC FQC or NNECO QC will perform a separation inspection. A change to the electrical installation specification (E-350) has implemented the necessary QC inspection in support of the above program.

In addition to the above, FQC inspection requirements are outlined in QCI No. FM3-D10.18-030. Also, training has been held to outline the separation requirements to all applicable personnel.

- 6b. Preventive action associated with N&Ds/IRs is dependent on analyzing quality trends for each activity as stated in the QAM, Section 15, paragraph 3.1, "Nonconformances are analyzed by Quality Assurance on a quarterly basis for each project." Adverse trends and recommended action are brought to Project management attention. This has proved to be effective since the beginning of the project.

Trending activity is developed from Unsatisfactory Inspection Reports and Quality Control Index Trend Charts are issued to SWEC management monthly. Additionally, N&Ds are trended by the Trend Analysis and Corrective Action Committee (FCP 335) which is composed of Site Construction, Engineering, and Field Quality Control Management. Also, a combined IR and N&D Quality Trend Report is issued by SWEC QA to identify long term trends which may be adverse to quality, to review corrective actions undertaken as a result of site identified short term trends and to recommend corrective action for previously identified problem areas.

The Monthly Quality Index is reviewed at the monthly project meeting by Northeast Utilities and SWEC Management Personnel (Vice-Presidents, Project Manager, Project Engineers, Construction and FQC Superintendents/Managers, etc.). Adverse trends are discussed and immediate corrective actions are imposed and followed up as required.

- 6c. From its initiation, the Preventive Maintenance (PM) Program has relied on initial component Phase I testing to establish a sound basis to begin the operational preventive maintenance activity for each piece of plant equipment. Because of larger than anticipated numbers of system deficiencies and consequent delays in Phase I testing, the original assumptions were not always valid for some Category I equipment. Therefore, Northeast Utilities recognized the need to evaluate the storage PM program for carryover post-turnover and proposed the following maintenance procedure revisions. These revisions adequately resolved the inspectors' concerns and are identified as follows.

Maintenance Procedure 3704A, "Preventive Maintenance," has been revised to include:

- o Formalized review guidelines to evaluate the Stone & Webster "Equipment History Storage Cards" for storage preventive maintenance activities to be included in the Maintenance PM program.
- o Review of Maintenance PM activity first performed date versus Stone & Webster PM activity last performed date for storage PM activities carried forward from Stone & Webster PM program to the Maintenance PM program.
- o Evaluation of the equipment for the effects of storage PM activities not performed for two periods or more with any required corrective action documented.

Maintenance Procedure 3719MB, "Mechanical Equipment General Inspections," has been issued to document general inspection criteria for mechanical equipment. Equipment inspections will be grouped by area and documented by Work Order.

The procedure revisions discussed above were completed on April 15, 1985. Review of all previously turned over equipment will be complete by October 31, 1985.

- 6d. This item references Section VIII.B.1.b(4) in the CAT Report which lists four concerns. The first two involve document record cards (DRCs) and site drawing stations. These two issues are addressed in the response to Violation 2.b.

The latter two issues are discussed below:

6d.1 NRC CONCERN

Increasing number of design documents overdue for updating.

6d.1 RESPONSE

This concern is not viewed as a failure by NNECO to promptly identify conditions adverse to quality but more of a situation where project attention to the existing incorporation requirement was decreased for reasons of anticipation and knowledge of requirement changes.

In 1984, we instituted a policy of documenting all design changes, with certain exceptions, on E&DCRs as opposed to drawing revisions. This was done to ensure work tracking completion of all design changes implemented late in the project. In effect, the drawing revisions process was only maintained for recording as-designed conditions. Subsequent to that decision, more appropriate requirements for incorporating E&DCRs into design documents based on this revision to design change policy were being finalized. This resulted in a change to Project Procedure NEAM 38.

The original "6x4" incorporation guideline was established in support of the construction phase of this project. This guideline requires that after the sixth change is made to any given document, the Project has four months to incorporate these changes and reissue the revision to this document. For the current turn-over/start-up test phase of the project, the current policy in NEAM 38 is appropriate and effective.

Up to the time of this transition, the project had maintained detailed tracking mechanisms to assure compliance to the "6x4" guideline. This included a weekly publication of documents approaching the time limitations, as well as review of any documents which exceeded this requirement. This report was reviewed by project management and lead engineers weekly and was limited to a manageable number of overdue documents as verified by the CAT inspector. Only during early 1985 did the overdue documents increase significantly in anticipation of the revised incorporation requirements.

6d.2 NRC CONCERN

Improved procedure for relating Engineering and Design Coordination Reports (E&DCRs) to originating Project Change Requests (PCRs) was not implemented.

6d.2 RESPONSE

As a result of a CTI finding, a procedural change to NEAM 117 was initiated requiring the PCR Coordinator to obtain the implementing document associated with a design change PCR from the responsible engineer. The implementing document is also required to be included on the PCR cross reference report against the associated PCR. In addition, a backfit was performed at the time with all implementing engineering documents identified and inputted in this report.

Cause

With the relocation of PCR administration to the site, a change in PCR Coordinators also took place. New personnel assigned these responsibilities did not fully understand the new requirements and as a result, requests made to the responsible engineer for identification of implementing engineering documents were not followed up by the PCR Coordinators.

Corrective and Preventive Actions

A review has been performed to identify all outstanding design PCRs which do not identify the implementing engineering document. The review identified 77 PCRs in total. Where identifiable, the implementing engineering document has been identified and submitted to the PCR Coordinator for data entry. As implementing design information becomes available, it will be cross referenced with the associated PCR.

To prevent this problem from recurring, NEAM 117 has been revised to require the PCR Coordinator to identify on a weekly basis, those PCRs which require the identification of the implementing engineering document. This information is transmitted to Lead Engineers for action. Additionally, these new requirements have been explained to personnel responsible for the administration of PCRs and a change to the PCR form now includes an entry for the implementing design document.

ATTACHMENT II

UPDATE REGARDING CONSTRUCTION PROGRAM WEAKNESSES

Reference (3) identified several commitments by NNECO to address resolution of the Construction Program Weaknesses. Listed below is a summary of these commitments with cross reference to specific paragraphs of this response.

1. Review of wiring change control process -
 - o Examine methods to assure initiation of termination tickets -
This commitment is discussed as part of the response to Violation 1.
 - o Exam document control techniques associated with post turnover wiring changes -
This commitment is discussed as part of the response to Violation 2a.
 - o Issue Maintenance Procedure 3719 MB, "Mechanical Equipment General Inspections" -
This commitment is discussed as part of the response to Violations 3b and 6c.
2. Review communication concern -
This commitment is discussed as part of the response to 5a.
3. Implementation of document control computer database -
This commitment is discussed as part of the response to 2b.
4. No specific commitments outstanding

ATTACHMENT III

(Reference: Response to Violation #2)

EVALUATION OF DOCUMENT CONTROL ERRORS

Three categories of inconsistencies/errors were evaluated by checking the listed examples of each category to determine the possible effect on hardware had the equipment been installed/constructed using documents containing the existing inconsistencies/errors.

1. For the examples listed with missing DRCs, the evaluation showed these items to be instrumentation isometrics. These documents are controlled by the SWEC Quality Assurance and Control ASME III Manual. This process includes revision by Construction Revision Notice (CRN) which Document Control posts on DRCs. Had the tubing been installed to the instrument isometric without the CRN, FQC Final Inspection would identify an unsatisfactory installation as the ASME III Manual Control Process requires that all outstanding CRNs be incorporated into the final ISO and that FQC perform a final inspection to that revision of the ISO. The process also provides for FQC verification that all CRNs are incorporated into the final ISO.
2. For the examples listed with DRCs that were not current, the evaluation assumed that the equipment was installed/constructed with the revision of the drawings listed without the use of a DRC. The evaluation was performed by obtaining the latest revision of the DRC to identify the design changes that had not been incorporated into the revision of the drawing found at the sample stations.

The documents identified fell into three (3) categories.

- a. N&Ds which are self closing documents used to address one time only deviations to drawing (or specification) requirements. The dispositions to N&Ds which require the equipment/hardware to be changed for safety related equipment are verified and closed by FQC only after acceptable completion of the work.
- b. E&DCRs which do not require work and are general or generic in nature. These Category I items were reviewed and found to be clarifications, information only, or changes which allowed either of several acceptable methods which did not affect the hardware and needed no verification by FQC.
- c. VIRs which are similar to E&DCRs in their control and ability to effect design control. All VIRs, which had not been incorporated into the sampled drawings for the category of inconsistency/error, were reviewed. All Category I items fell into the same evaluation categories as E&DCRs, as listed in item 2b of this attachment.

3. For the examples listed with two (2) revisions of the same drawing, the evaluation assumed the installation was made with the out of date revision. The record of drawing changes was reviewed to determine what changes occurred between drawing revisions. It was determined that both drawing revisions were made to incorporate E&DCRs only. A review of the E&DCRs which were incorporated showed that all were captured in the site Work Tracking Program as described in item 2(b), or were editorial in nature and did not affect the hardware on the sampled drawings.

In the worst case represented by the examples selected, had the installation been made using the outdated information found to exist at the sampled Drawing Stations, the existing Work Tracking and Inspection Program would have detected and identified the omission. It should be noted that the program for Document Control in CMP 11.1 requires the user of the document to verify its current revision status, notify Document Control when any errors are found (including the three selected inconsistencies/errors), and obtain the most current requirement before continuing with the activity. All site personnel performing work are trained in the Site Document Control Program and all FQC Inspection Personnel must demonstrate proficiency in the use of the program.