PSNH PUBLIC SERVICE
Company of New Hampshire

SEABROOK STATION
Engineering Office:
1671 Worcester Road
Framingham, Massachusetts 01701
(617) - 872 - 8100

November 25, 1981

SBN-192
T.F.B.4.2.7

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Attention: Eldon J. Brunner, Chief
Projects Branch #1
Division of Resident and Project Inspection

References: (a) Construction Permits CPPR-135 and CPPR-136 Docket Nos. 50-443 and 50-444.

Subject: Response to Combined Inspection 50-443/81-09 and 50-444/81-08

Dear Mr. Brunner:

Pursuant to receipt of your correspondence regarding the results of the subject inspection, we offer the following reply:

NRC Notice of Violation (81-09-01)

10 CFR 50, Appendix B, Criterion V states, in part that: "Activities affecting quality shall be prescribed... and shall be accomplished in accordance with... instructions, procedures, or drawings... (which) shall include appropriate quantitative or qualitative criteria..."

The Seabrook Station PSAR states, in part, in paragrah 17.1.5 that: "Each organization is required to perform their respective quality related activities covered by this program in accordance with documented instructions, procedures, or drawings (which) shall include appropriate quantitative or qualitative acceptance criteria."

United Engineer and Constructors (UE&C) drawing F-102326 (Revision 5), Section 102326J, illustrates plate to embed fillet welds of specific lengths, as determined by noted drawing elevations, for the support of two structural connections. UE&C Engineering Change Authorization (ECA) 01/1367A modifieds the weld configurations for structural welds to embeds where the presence of nailer holes results in the loss of weld capacity.

Contrary to the above, on September 12, 1981, two structural support connections within containment, which had been inspected and accepted in accordance with acceptance criteria other than that provided for weld lengths in UE&C drawing section 102326J, were found to have welds of insufficient length. Additionally, further reduction in connection weld length, caused by nailer hole interference, had been neither identified nor evaluated for one of the supports.

This is a Severity Level IV Violation (Supplement II).

Response:

Corrective Action Taken and Results Acheived

The insufficient weld lengths at elevation (-15) caused by nailer hole interruptions, were documented by Perini on their NCR No. 2179. It was noted that previously issued UE&C Engineering Change Approval (ECA) 01/2533 had given instructons for correcting nailer hole interruptions at another location. Similarly, ECA 01/1367 promulgated typical conditions and acceptable "fixes". Neither of these ECAs were applicable to the item cited, resulting in the Perini NCR which was forwarded to UE&C for approval. UE&C determined that the condition was acceptable "as-is." Further investigation, described below, subsequently resulted in a revised disposition.

The insufficient weld lengths at elevation (-12) was a result of the existence of several drawing references for different elevations for the same embed which caused confusion in determining the correct weld length. Investigations were conducted by UE&C and Perini to determine if weld length and joint configuration was a problem on other field joints and to investigate other potential problem areas. The investigation determined that the weld joint in question was the only case that could be located where the full length weld indicated is not equal to the total length of the part being welded to the embed. This investigation determined that the problem was related to the joint design rather than general drawing practices or methods of inspection. The following actions have been taken to preclude recurrence:

1. The original disposition to Perini NCR No. 2179 (accept-as-is) has been revised and repair instructons have been furnished to Perini via ECA 01/2533.

2. UE&C designers were instructed to show the weld length for any fillet weld joint where the movement of one member over the other within construction tolerances would reduce the required weld length.

3. Perini was directed to assure that designed length is achieved. Differences noted prior to welding are to be reported on an RFI (Request for Information) and differences discovered after welding on an NCR.

4. For other types of fillet welds, UE&C will continue to follow the AWS practice which states that "When fillet welding extends for the full distance between abrupt changes in direction of the welding, no length dimension need be shown on the welding symbol."

Corrective action was accomplished on November 20, 1981.

NCR Notice of Violation (81-09-02)

10 CFR 50, Appendix B, Criterion V states, in part that: "Activities affecting quality shall be ..acomplished in accordance with...instructions, procedures, or drawings." Criterion VII states, in part that: "Measures shall be established to assure that purchase material...conform(s) to the procurement documents."

The Seabrook Station PSAR Units 1 and 2 states, in part, in paragraph 17.1.5 that: "Each organization is required to perform their respective quality related activities covered by this program in accordance with documented instructions, procedures, or drawings: and in paragraph 17.1.7 that: "Each organization purchasing material...is required to establish measures to provide assurance that (it) conform(s) to procurement documents."

Westinghouse drawing 1186F51 (Revision 7) provides design details, including weld sizes and configurations, for portions of the steam generator lower lateral supports, while Teledyne-Brown drawing 21919 indicates as-built conditions for the fabricated supports, in accordance with procurement requirements.

Contrary to the above, as of September 4, 1981, certain pieces of the steam generator lower lateral supports were found in their final field locations to have undersized, shop fillet welds relative to the drawing requirements. The measures established to assure that purchased material conforms to procurement documents did not preclude installation of nonconforming items.

This is a Severity Level IV Violation (Supplement II).

Response:

Corrective Action Taken and Results Achieved

The nonconforming welds identified by the NRC Inspector and those subsequently noted by Yankee and Westinghouse were incorporated into UE&C NCR No. 1086 and were submitted to Westinghouse for engineering evaluation, determination of root cause, and proposed program for corrective action.

Westinghouse has measured steam generator upper lateral and lower lateral support welds on two loops, one set on each unit. The Unit 2 support welds measured were found to be built to design specifications. An analysis by Westinghouse engineering of the percent reduction in throat thickness on the undersized welds found on Unit 1 "C" loop steam generator supports shows that they are more than adequate for the maximum design loads. The maximum percent reduction in throat thickness found on the lower lateral supports was 24%. If the full length of the subject welds was undersized as much as 68.6%, the maximum design stress on them would meet design allowable stress. The maximum percent reduction found in throat thickness on the upper lateral supports was 25%. If the full length of the subject welds was undersized as much as 54.5%, the maximum design stress on them would meet design allowable stress.

Westinghouse has concluded as a result of the measurements taken on the representative sample of welds and the anlaysis of maximum percent reduction found in throat thickness that all the deviations from weld design dimensions are minor and do not affect the structural integrity of the supports.

The undersized 3/4" fillet weld on the lower lateral support (W Dwg 1186F51, Section A-A) is undersized by virtue of a physical lack of space to make a 3/4" weld. The designer neglected to anticipate the possibility of the tolerances being at their extremes during fabrication. The weld in question is acceptable and is stressed to 45% of allowable.

Investigations conducted by Yankee and Westinghouse have determined that the quality programs involved did not break down, but rather failed to identify minor deviations in specified dimension requirements in the many welds on the subject supports. Westinghouse acknowledges that the inspection process of the support welds was not totally effective, however, it does not indicate a significant breakdown of the quality systems.

The discrepancies noted are being used by Westinghouse in training sessions with Quality Assurance and design personnel to prevent recurrence of this type of deficiency.

Corrective action was completed on November 20, 1981.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

W. P. Johnson
Vice President

COMMONWEALTH OF MASSACHUSETTS)
)ss
MIDDLESEX COUNTY )

Then personally appeared before me, W. P. Johnson, who, being duly sworn, did state that he is a Vice President of Yankee Atomic Electric Company, that he is duly authorized to execute and file the foregoing request in the name and on the behalf of Public Service Company of New Hampshire, and that the statements therein are true to the best of his knowledge and belief.

Allen L. Legendre, Jr. Notary Public
My Commission Expires August 5, 1988

ALLEN L. LEGENDRE JR. MASSACHUSETTS NOTARY PUBLIC