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WMY 80-99

June 25, 1980

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

Attention: Mr. Boyce H. Grier

References:
(a) License No. DPR-36 (Docket No. 50-309)
(b) USNRC Letter to MYAPC dated July 2, 1979
I&E Bulletin No. 79-14; Revision 1 dated July 18, 1979; and supplement dated August 15, 1979
(c) MYAPC Letter to USNRC dated July 24, 1979
(d) MYAPC Letter to USNRC dated September 25, 1979
(e) MYAPC Letter to USNRC dated May 2, 1979
(f) MYAPC Letter to USNRC dated November 7, 1979
(g) USNRC I&E Letter to MYAPC dated November 19, 1979
(h) MYAPC Letter to USNRC dated November 30, 1979
(i) MYAPC Letter to USNRC dated March 4, 1980
(j) MYAPC Letter to USNRC dated March 7, 1980

Enclosures:
(1) Pipe Support As-Built Verification Effort, Maine Yankee Atomic Power Station, March 1980 Stone & Webster Engineering Corp., Boston, MA.
(2) Pipe Stress Reanalysis and Valve Weight Evaluation, Maine Yankee Atomic Power Station, March 1980 Stone & Webster Engineering Corp., Boston, MA.
(3) Letter J. P. Czaika, Stone & Webster to M. M. Allison, YAEC, dated May 15, 1980. Subject: Summary, Field Verified Piping Isometrics, Maine Yankee Atomic Power Station.
(4) Final Report, Piping System Reanalysis and Pipe Support Review to assist YAEC in its NRC I&E Bulletin 79-14 Effort, at Maine Yankee Nuclear Power Station, June 1980. Earthquake Engineering Services, Boston, MA.

Subject: Maine Yankee I&E Bulletin 79-14 Final Report

Dear Mr. Grier:

The total field and analytical effort in support of the subject bulletin requirements were essentially completed on Sunday, March 9, 1980. Reference (j) documented a minor field effort which was completed before the end of March 1980.

The goal of the program was to meet the subject bulletin requirements and provide an accurate data base (drawings and mathematical models) from which to proceed with the reanalysis of Seismic Category I piping. We had originally hoped that the two efforts, Bulletin 79-14 and the reanalysis, would be allowed to progress together and enable one to support the other without unnecessary duplication. When it became apparent that this efficiency would not be permitted, we temporarily abandoned the reanalysis effort to expedite the Bulletin 79-14 work.

The Bulletin 79-14 goals were met before Maine Yankee returned to power on March 13, 1980. The following accomplishments were included in that effort. The attached reports from S&W and EES, Enclosures (1), (2), (3) and (4) provide additional details:

(a) The S&W Co. field effort verified the installed configurations of all FSAR identified Seismic Category I piping 2 1/2 inches in diameter and larger. Several seismic analyses of smaller pipe runs were found in the files; however, it was determined that analyses were neither performed, nor the results used in the design of the pipe runs or their respective supports. These pipe runs and supports were designed by the S&W Company chart method, as were most runs under six inches in diameter. When that trend became apparent a decision was made to omit the smaller lines from the program. Included in the verification were the following features:

1. Piping geometry
2. Support location
3. Support function
4. Support details

See Enclosures (1) and (3) for full details.

(b) Twenty-two piping systems were reanalyzed due to pipe and/or support function or location differences identified in the field effort.

(c) Valve weights were totally re-checked since February 1979. The Bulletin 79-14 effort included a check of all valve weights not checked in the effort required in the lifting of the show cause order of February 1979. Enclosure (2) contains additional details on this subject.

The investigation required on Bulletin 79-14 resulted in 485 non-conformance reports (NCRs). These included support differences which exceeded the design intent as well as those which failed to meet the design requirements. Each of these NCRs were reviewed by competent piping and structural engineers. When design improvements of very minor discrepancies were found, the NCR was dispositioned utilizing sound engineering judgement. Major discrepancies, however, resulted in sufficient stress analysis of the affected structure to ascertain the new structural capability of the pipe or support. Of the total 485, only 112 NCRs were dispositioned to require a repair or support modification. Of these 112, only 30 supports required significant structural modifications. The remainder included maintenance type items such as the repair of grout or the readjustment of spring settings; or minor structural modifications such as the adjustment of clearances between

pipes and supports and the addition of washer plates or filler rings to fill or close down oversized bolt holes.

The containment spray piping and supports were checked in complete detail as far up the containment wall as was possible. The remainder were checked qualitatively by visually and by the use of binoculars. Using these methods it was possible to verify piping geometry, support locations and function. Support configuration details, however, could not be verified due to their extreme height above the floor.

All structural reviews, judgements or required analyses, repairs and/or modifications required for the Bulletin 79-14 program were completed during the refueling outage which ended on March 13, 1980. Some QA and rechecking of analyses as well as some reanalysis in support of engineering judgement remained to be completed after the outage as did the large paperwork effort necessary to document this program.

Still remaining to be completed in this program as allowed by the bulletin are the following which are addressed in general categories:

1. Piping supports which are inaccessible due to high radiation. These include 3-inch reactor coolant lines in the pressurizer cubicle, 8, 2 1/2, and 4-inch primary component cooling lines and chemical volume and control lines in the letdown heat exchanger cubicle 2 and 2 1/2-inch chemical volume and control lines in the reactor coolant loop areas and the pressurizer cubicle. Radiation levels are being monitored in these areas, when safe access levels are attained inspections shall be completed.

2. Pipe runs and supports covered by insulation which could not be removed in January and February due to the possibility of freezing must still be completed. This field verification is now scheduled and will be completed during the summer of 1980.

   This category includes Low Pressure Purification piping, High Pressure Safety Injection piping and Chemical Treatment piping.

3. As a result of higher imposed loads or installed discrepancies, six supports have new seismically applied anchor bolt loads such that their factors of safety are greater than two but less than four. Designs for modifications to these supports which achieve at least a factor of safety of four are complete (except one as explained below) and are scheduled for installation as soon as possible as required by I&E Bulletin 79-02. One containment spray support is located in a high radiation area and has limited access and space to add structure. A modification is now being redesigned which will enable an early resolution to this support problem.

Isometric drawings of the revised piping including support locations and function have been prepared by S&W and are currently being added to MYAPS files. Drawing revision data including field sketches from S&W design sketches by EES and other required data are being prepared. These will provide the basis for revision to pipe support drawings which will be completed as soon as possible so they may be used in the scheduled reanalysis of Maine Yankee Seismic Category I piping.

This letter reports our final status; our findings and the modifications required to resolve them, except for the three categories of open items listed above. We will report to you as these are resolved.

We trust this information is satisfactory and meets the intent of I&E Bulletin 79-14; however, if you have any further questions, please contact us.

Sincerely,

MAINE YANKEE ATOMIC POWER COMPANY

E. W. Jackson for
Donald E. Moody
Manager of Operations

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