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EVERS,K.H. Wisconsin Public Service Corp.
RECIP.NAME RECIPIENT AFFILIATION
MILLER,H.J. Region 3, Ofc of the Director

SUBJECT: Responds to IE Bulletin 79-14 on activities conducted re Insp Repts 50-305/87-02 & 50-305/88-08.Progress rept encl.

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WISCONSIN PUBLIC SERVICE CORPORATION

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October 16, 1989

Mr. H. J. Miller, Director
Division of Reactor Safety
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
IE Bulletin 79-14

References: 1) Inspection Report 50-305/87002 dated March 5, 1987

2) Inspection Report 50-305/88008 dated May 31, 1988

3) Letter from Mr. D. C. Hintz to Mr. H. J. Miller dated October 16, 1987

4) Letter from Mr. D. C. Hintz to Mr. H. J. Miller dated April 15, 1988.

5) Letter from Mr. C. R. Steinhardt to Mr. H. J. Miller dated October 14, 1988

6) Letter from Mr. C. R. Steinhardt to Mr. H. J. Miller dated April 17, 1989

References 1 and 2 documented your findings concerning our activities taken to address IE Bulletin (IEB) 79-14. In response to reference 1, Wisconsin Public Service Corporation (WPSC) committed to develop and apply improved procedures for the inspection of safety-related large bore piping at Kewaunee. We also committed to keep you apprised of our ongoing IEB 79-14 program. References 3, 4, 5 and 6 provided you with our first four periodic progress reports.



IE11

OCT 18 1989

The attachment to this letter provides you with our fifth periodic progress report. This report is a summary of activities in the major functional areas and a compilation of results achieved as of August 27, 1989.

Sincerely,

K. H. Evers
Manager-Nuclear Power

SLB/jms

Attach.

cc - Mr. Robert Nelson, US NRC
US NRC, Region III
Document Control Desk, US NRC

Attachment

To

Letter from K. H. Evers (WPSC) to H. J. Miller (NRC)

Dated

October 16, 1989

# IEB 79-14 Summary Letter

1.0 Background

An NRC inspection of WPSC activities performed in response to IE Bulletin 79-14 was conducted by the NRC for the period of November 13, 1986 to January 29, 1987. As documented in NRC inspection report 50-305/87002, certain of our activities were found to be in violation of NRC requirements. To resolve NRC concerns and to present our program for corrective actions, an enforcement conference was held at the NRC Region III offices on February 13, 1987.

As a result, WPSC committed to a Piping and Hanger Reconciliation Program to resolve the as-built seismic design adequacy of QA Type 1, safety-related, large bore piping. This program was initiated during the 1987 spring refueling outage and will be completed by the end of the 1990 spring refueling outage. The NRC inspection report 50-305/88008 documented the NRC review of our activities for the period of March 21 through April 29, 1988. Four of the previous inspection findings were closed and no new violations or deviations were identified.

To help ensure IEB 79-14 activities adhere to appropriate procedures, WPSC has committed to an annual audit performed by our Quality Assurance Group. The 1989 audit was completed and provides documented evidence that piping reconciliation project activities are being performed by qualified personnel in accordance with approved procedures.

In order to keep you apprised of our progress towards resolution, we committed to provide you with periodic status reports. This is our fifth

report which covers the period from February 26, 1989, to August 27, 1989. A final report will be submitted upon completion of large bore activities (see Current Activities section for schedule).

The remainder of this report will cover the following functional areas: Piping Isometric Drawing Status; Piping Stress Analysis Status; Pipe Support Analysis Status; Resources; Current Activities and Conclusions.

## 2.0 Piping Isometric Drawing Status

New isometric drawings are developed from the piping analysis of record. These drawings serve as the means to document dimensional data describing the piping configuration. Field measurements of pipe lengths, pipe support and valve locations, pipe and valve orientation and other pertinent data are recorded on the drawings for comparison with the stress analysis of record. As necessary, these drawings along with pipe support drawings are then used as input to the re-analysis of the analytical part and revised to reflect design changes which could result from the as-built analysis.

It is anticipated that a total of 133 new isometric drawings for 111 analytical parts will be developed in support of IE Bulletin 79-14 large bore piping work. To date all 133 drawings have been completed and released for walkdown, and 104 of the 133 have been updated to the as-built status.

## 3.0 Piping Stress Analysis Status

The procedures for piping analysis require that a review of the as-built piping data packages be performed to make an initial assessment of system operability within 2 days. If an as-built discrepancy which could jeopardize system operability is identified, a reconciliation or analysis is completed within thirty days.

A total of 111 analytical parts (sub-systems) have been submitted for as-built piping analysis and reconciliation. To date, 91 of the 111 are complete with the analysis reviewed and approved.

## 4.0 Pipe Support Analysis Status

The pipe support analysis consists of the following tasks: field inspection; as-built data acquisition; drafting of as-built pipe support drawings; engineering review; engineering analysis; and documentation of pipe support capability for design loads from as-built piping analysis.

The field inspection consists of field measurements which are recorded either by marking up existing drawings to reflect the "as-built" condition or by resketching the entire support in the field. The marked up drawings or sketches are then reviewed for completeness and accuracy and additional information is gathered when necessary.

When the field data has been accepted, it is submitted to an on-site drafting team which is dedicated to the IEB 79-14 project. The drafting team then produces a new drawing on the Computer Aided Drafting (CAD)

station. The CAD image is reproduced in hard copy form and checked against the field data for accuracy and completeness.

The pipe support drawings and walkdown isometrics are assembled into the final package for transmittal to our architect/engineer (A/E) for analysis. When complete, these drawings become the design drawings of record.

The support analyst reviews each support drawing for completeness and either accepts it for analysis or requests additional information from the field. When all required information has been obtained, the pipe support is analyzed to determine the acceptability of its load carrying capability, using as-built piping analysis loads.

As-built information has been received by our A/E for 1787 supports. Calculated as-built loads have been submitted for pipe support analysis for all 1787 pipe supports. Of the 1787 supports, 1088 supports have been analyzed, reviewed and approved, 564 supports have been analyzed and reviewed, 135 are being analyzed and 6 supports are on hold for additional load information on multiple lines.

To date, 74 design changes have been initiated to modify existing pipe support systems in order to maintain conservative design margins and fully comply with USAR criteria. The as-found pipe support configuration did not affect system operability.

## 5.0 Resources

The resources expended to date have been considerable: a total of 48,980 craft, field engineering & QC man-hours have been used to gather data; 21,000 drafting man-hours to produce new drawings; 17,427 man-hours for piping analysis; 22,817 man-hours for pipe support analysis; and 19,319 man-hours for project management and support. Two CAD systems, three (3) personal computers and the Fluor Daniel mainframe computer are employed in the reconciliation effort.

## 6.0 Current Activities

As previous sections have shown, a substantial amount of work has been completed since the inception of the IEB 79-14 piping reconciliation program. Despite this extensive effort, the proposed completion of large bore activities by the end of 1989 may be optimistic. WPSC discussed a proposed schedule with the NRC during enforcement conferences at the Region III offices on February 13, 1987 and February 26, 1987. The proposed schedule was documented in a letter from D. C. Hintz (WPSC) to Document Control Desk (NRC) dated April 7, 1987. In these earlier discussions, WPSC cautioned that there were several uncertainties which could effect the proposed schedule.

One of these uncertainties which is now impacting the proposed schedule, is the large number of modifications identified since the 1989 refueling outage. Twenty-nine of the 74 design changes initiated as a result of this project have been issued since March of 1989. Furthermore, issues such as

torsional moments and piping operability criteria have taken a significant amount of resources away from the pipe and support analysis. This effort was not accounted for during the development of the proposed schedule. An aggressive schedule will continue to identify and resolve where possible all remaining large bore modifications by the end of 1989. However, the reconciliation process could be delayed due to the impact of modifications on plant operations, the impact on plant resources to support modification work, and the length of time associated with procurement of materials.

In instances where the field work could impact the operability of a system required for plant operation or intentionally place the plant in a limiting condition for operation, the modification work has been scheduled for the spring 1990 refueling shutdown. To date, there have been 3 modifications recommended for postponement until the 1990 refueling outage. WPSC's decision to delay implementation of these modifications until the 1990 refueling outage is based on the minimization of undue risk to the health and safety of the public and to the operation of the plant.

Based on the circumstances discussed above, it is necessary to delay the completion date of the IEB 79-14 large bore piping reconciliation project to the end of the 1990 refueling outage. WPSC has kept the NRC resident inspectors, project manager and Mr. Gavula (NRC, Region III) apprised of this need for an extension to the proposed schedule.

Since the last reporting period, five large bore analytical parts have exceeded the Updated Safety Analysis Report (USAR) criteria for calculated thermal and combined stress. However, all 5 analytical parts were found to have calculated stresses within the operability requirements defined in a letter from Mr. C. R. Steinhardt to Document Control Desk (NRC) dated May 5, 1989. This operability criteria permits operation for an interim period only. Modifications will be made to return these five analytical parts to within USAR allowables.

## 7.0 Conclusion

Continued operability has been shown for all large bore piping systems evaluated to date. Analytical parts which exceed USAR stress allowables will undergo modification before the end of the 1990 refueling outage. All modifications identified in this reporting period are for the purpose of maintaining conservative design margins and strict conformance to USAR limits. No system has shown a calculated stress level greater than the reporting threshold level established for this program.