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April 7, 1987

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
IE Bulletin 79-14 Inspection Report 50-305/87002 (DRS)

References: 1) Letter from Mr. N. J. Chrissotimos to Mr. D. C. Hintz dated March 5, 1987

The above referenced letter transmitted IE Inspection Report 50-305/87002 which detailed your findings concerning our activities regarding the requirements of IE Bulletin 79-14. In that letter you requested that we provide you a description of our program of corrective actions was presented to you in our meetings on February 13 and February 26, 1987. This letter serves to docket this program and the steps we have taken in response to your inspection findings.

The inspection report cited violations of 10CFR50 Appendix B in the following five areas: Criteria II, Quality Assurance Program; Criteria III, Design Control; Criteria V, Instructions, Procedures and Drawings; Criteria X, Inspection; Criteria XVI, Corrective Action.

Attachment 2 to this letter details the steps we have taken to address the first four findings. Our commitment for periodic audits contained in attachment 4 provides an effective mechanism to identify programmatic weaknesses and assure effective corrective actions to address the fifth audit finding.

The following attachments are provided to document our program and other commitments:

Attachment 1 to this letter describes our piping and hanger reconciliation program.

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1/1

Attachment 2 serves to detail the procedures developed to accomplish the program elements described in Attachment 1.

Attachment 3 is a report on the progress we have made during the 1987 refueling outage. Concerning field measurement of piping systems, we are pleased to report that substantial progress has been made over that committed to in our February 26, 1987 meeting.

Attachment 4 provides commitments to other actions intended to keep you advised of our progress toward resolution of the items of violation and to maintain long-term quality assurance in piping design and construction.

A meeting to discuss small bore piping is scheduled for late May, 1987.

It is our understanding, based on our two meetings, that this information and the commitments are sufficient to resolve your concerns in this matter.

Sincerely,

D. C. Hintz
Vice President - Nuclear Power

DWS/jms

cc - Mr. Robert Nelson, US NRC
Mr. N. J. Chrissotimos-US NRC, Region III
Director, Office of I&E, US NRC

Attachment 1

Piping & Hanger Reconciliation Program

Letter from Mr. D. C. Hintz to Mr. N. J. Chrissotimos

April 7, 1987

PIPING AND HANGER RECONCILIATION PROGRAM

The following program was developed to resolve the issue of the as-built seismic design adequacy of the class 1 piping at KNPP. Additional detail is provided in Attachment 2.

Large Bore Program

Program

This program was prepared in accordance with the provisions of section 4 of our Operational Quality Assurance Program, "Design Control". Procedures have been or will be developed to govern two separate parts of this program. These parts are:

I. Design Verification to Reconcile all Large Bore Piping Systems within the scope of the IE Bulletin.

II. Incorporation of the project requirements into the existing Design Change Program through the development of Engineering Control Procedures.

The Design Verification phase is being performed in accordance with several procedures which incorporate the requirements of the bulletin and which address the concerns which have been identified during recent NRC inspections. For example, training, QA/QC requirements, documentation requirements, and reconciliation are addressed. The scope of this work includes piping geometry and orientation, hanger and restraint locations, and hanger capacity verification.

The end result will be an auditable documentation file which clearly establishes the as-built adequacy of the piping system.

The second phase of the project will be the modification or development of Engineering Control Directives or procedures which will provide the framework to ensure that the documentation and design of the piping systems is kept current.

Prioritization of Inspections

Prioritization of inspections will be determined based on the following criteria:

PRIORITIZATION

I. Hot Shutdown

- Inside Containment
- Outside Containment

II. Engineered Safeguards

III. Other Class One

Furthermore, for piping inspected and reconciled during the 1987 refueling outage the following two subtier prioritization criteria were also applied.

1. Those lines which, based on existing analyses of record, have maximum calculated stresses greater 80% of FSAR allowable limits, and

2. Those lines which, based on existing calculated modal frequencies and seismic spectra input, may have a higher sensitivity to as-built deviations.

Proposed Schedule

Based on this prioritization process, WPSC proposed the following basic schedule during our meeting on February 26, 1987.

- Field inspect the 14 subsystems (analytical parts) indicated in the priority matrix during the 1987 outage. (See Attachment 3.)

- Inspect the remaining analytical parts shown on the matrix in the near term as schedule permits.

- Inspect and reconcile all remaining QA-1, safety related piping systems over the next two years (approximately 100 analytical parts) with a completion date at the end of the calendar year 1989.

A progress report is included as attachment 3 to this letter.

Attachment 2

Piping & Hanger Reconciliation Procedure

Descriptions

Letter from Mr. D. C. Hintz to Mr. N. J. Chrissotimos

April 7, 1987

PIPING AND HANGER RECONCILIATION PROCEDURES

The Piping Reconciliation Project falls under Section 4 of our Operational Quality Assurance Program, entitled "Design Control". The specific activity is described therein as design verification.

Procedures have been developed to define the Project in two parts. These parts are:

I. Design Verification to reconcile all QA-1, Safety Related Large Bore Piping Systems.

II. Develop new Engineering Control Procedures to incorporate the project requirements into the existing Modification Control Directives and Procedures.

These parts are discussed separately below.

Part 1: PIPING RECONCILIATION PROJECT

Six (6) procedures have been developed to control project activities. These procedures are:

I. General Project Control Procedure
II. Pipe Geometry Walkdown Procedure
III. Hanger Inspection Procedure
IV. Pipe Geometry Reconciliation Procedure
V. Hanger Capacity Verification Procedure
VI. Valve Weights and Centers of Gravity

Each procedure is discussed in detail.

General Project Control Procedure

This procedure governs the conduct of the program to assure all requirements are addressed. It references and invokes existing Plant Maintenance and Modification Control Directives, and generic or specific activity procedures as necessary to complete the Piping design verification.

The Procedure Contents includes:

1) Identification and assignment of responsibilities for all project personnel.

2) Documentation Requirements, including ECD 5.2 "Drawing Control", for all as-built piping isometrics and hanger drawings, and specific requirements for communications, Inspections, Independent Audits and Reports.

3) Independent Verification, Auditing, Inspection and Acceptance Criteria to assure adherence to the program, assure adequacy of reviews, analyses and accuracy of work performed.

4) Reportability requirements for any findings in accordance with 10CFR50.72 and 50.73.

5) Personnel Training and Qualification criteria to assure quality work, adherence to accuracy requirements, use of proper and approved techniques or procedures, and the understanding of the general program requirements.

6) Interface with existing Plant Programs such as;

   a) Any inspection findings requiring repair shall be addressed through the existing Plant Maintenance Program and reported to the Plant QC group for ISI program requirements.

   b) Any modifications shall be addressed through the Design Change Program governing plant modifications.

7) Project Specific Procedures will be developed or existing approved procedures will be used to control specific project activities. These procedures are:

   a) Piping Geometry Walkdown Procedure
   b) Hanger Inspection Procedure
   c) Piping Geometry Reconciliation Procedure
   d) Hanger Capacity Verification Procedure

Piping Geometry Walkdown Procedure

This procedure defines the requirements for collecting field as-built data, including the "Critical-To-Design" component dimensions, component orientation with respect to the pipe, independent verification and QC requirements. Specific requirements include:

1) Piping isometric drawings will become a permanent record of the project and the as-built piping documentation.

2) Tolerances for all measurements.

3) Critical-to-design dimensions including

   a) Actual pipe length and pipe leg orientation

   b) Component and hanger location

   c) Pitch of pipe legs

   d) Angular orientation of Power Operated Valves (POV)

   e) Specific hanger orientation with respect to the pipe.

   f) Global coordinates of piping anchor points.

4) Inspection requirements including removal of insulation where required for accuracy, documentation of visually estimated dimensions for inaccessible piping, and required QC surveillance.

The end product will be an accurate isometric drawing, within the measurement tolerance criteria, for the Pipe Stress Analysis/Reconciliation and Hanger Capacity Verification.

Hanger Inspection Procedure

This procedure defines the requirements for collecting the field as-built data necessary to determine the actual hanger load capability to support design loads and orientation with respect to the pipe. Specific requirements include:

1) Generation of dimensionally accurate hanger as-built drawings containing all required information to accurately calculate the hanger load capability to support design loads.

2) Tolerances for all dimensions.

3) Inspection requirements including removal of (where necessary and feasible) insulation and required QC surveillance.

Pipe Geometry Reconciliation Procedure

This procedure defines the requirements for verifying that the as-built pipe geometry is correctly modeled by the pipe stress report of record.

This procedure defines the requirements for:

1) Assembling the field inspection data.

2) Recording appropriate component information.

3) Recording the valve weight and center of gravity information.

4) Performing a complete as-built piping system stress analysis.

OR

Acceptance criteria to be used to resolve all discrepancies between the analyzed and as-built pipe geometry

5) All Independent Verification requirements to assure the accuracy of the as built pipe stress analyses or reconciliation report.

Hanger Capacity Verification Procedure

This procedure contains the requirements for collecting the field as-built data, adding appropriate component information, and documenting the as-built hanger capability to support design loads and reference the verification document on the as-built hanger drawing.

Specific requirements include:

1) Criteria for establishing all hanger catalog component load capacities.

2) Acceptance criteria for actual hanger capacity calculations results.

3) All Independent Verification requirements to assure the accuracy of the load calculations on reconciliation report.

Valve Weights and Centers of Gravity

This procedure provides a methodology for verification of valve weights and centers of gravity (CG) to be used in the piping reconciliation procedure.

The procedure elements include:

1) Identification of applicable piping subsystems (analytical parts).

2) Approved methods of obtaining weights and CG.

3) Documentation requirements.

The end product will be a document with reference to the information source for valve weights and CG.

Part 2: INCORPORATION OF PIPING DESIGN VERIFICATION REQUIREMENTS INTO THE EXISTING MODIFICATION CONTROL DIRECTIVES AND PROCEDURES.

To assure the maintenance of the piping design verification, ECD 4.1 "Design Change Control" will be revised to include those requirements by referencing the specific Engineering Control Procedures to be developed.

These procedures will be developed from the project control procedures and include all the tolerances, acceptance criteria and independent verification requirements of IE Bulletin 79-14.

Attachment 3

Refueling 1987 Progress Report

Letter from Mr. D. C. Hintz to Mr. N. J. Chrissotimos

April 7, 1987

The status of IE Bulletin 79-14 work is presented below:

Inside Containment[a]

Part Description	Freq. Sens.	80% Ratio	Status
*MS - Anch. elbows to MSIV (1A & 1B)	X	X	3
*MS - SG 1A to anch. elbow			4
*MS - SG 1B to anch. elbow			4
*RC - Loop A & B cold leg to pzr., aux. spray		X	3
*SW - Pen. to cntmt. FCU's (4 parts)		X	4
*SW - FCU's (inc. CRDM FCU's) to pen.(5 parts)		X	2
*CC - RCP 1B to pen. 32E		X	2
*CC - RCP 1B to pen. 33E			2
CC - RCP 1A to pen. 32N			3
CC - RCP 1A to pen. 33N			
*AFW - Pen. 46E to SG 1B			4
*AFW - Pen. 46W to SG 1A			4
RC - Loop A RTD Bypass line			
RC - Loop B RTD Bypass line			
RC - Pzr. to PRT			
RC - 6" R.V. header to 10" header			
SW - Supply to cntmt. hose station			
CC - Pen. 39 to excess LD Hx			
CC - Pen. 40 to excess LD Hx			

Outside Containment[b]

Part Description	Freq. Sens.	80% Ratio	Status
*AFW - Pen. 46W (1A) to int. anchor	X	X	4
MS - 1A supply to TDAFWP	X		
MS - 1B supply to TDAFWP	X		
*SW - CC Hx & SFP Hx to Std. pipe	X		2
*CC - Pumps 1A & 1B to CC Hx 1A & 1B		X	4
*CC - Return header to pumps		X	2

a - All hot shutdown analytical parts inside containment.
b - Highest priority hot shutdown analytical parts outside containment.
* - Scheduled for 1987 outage.

Status Notes:

1. Measurements in progress.
2. Measurements complete, data packages being prepared for transmittal to analyst.
3. Transmitted to analyst.
4. 48-hour evaluation complete.
5. Analysis complete.
6. Modifications complete.

It should be noted that a total of 22 large bore analytical parts were measured during the 1987 outage. This is a substantial increase over the 14 parts which we committed to doing during the February 13, 1987 meeting. This is indicative of our resolve in completing this effort in a responsible and timely manner.

Attachment 4

Additional Commitments

Letter from Mr. D. C. Hintz to Mr. N. J. Chrissotimos

April 7, 1987

In addition to the activities presented in attachments 1, 2 and 3, WPSC will perform the following, which will address all remaining concerns and long-term corrective actions.

1. WPSC will submit a status report to the NRC every six months until the project is completed. The next status report will be submitted approximately October 15, 1987.

2. WPSC is essentially finished with its first audit of IE Bulletin 79-14 field work and is well into an audit of our A/E's reconciliation tasks.

   Yearly audits of IE Bulletin 79-14 activities will be performed until project completion.

3. In a parallel effort to the work discussed above, WPSC will verify and document the weights and centers of gravity for valves installed in all QA-1 piping systems which have been dynamically analyzed. This information will be compared to and reconciled with the analyses of record for large bore piping. The information regarding small bore valves will be compared to the analyses of record. The results of this comparison will be evaluated as part of our overall review of small bore piping and appropriate actions will be taken.

4. ECD 3.2, "Requirements for Procedures for Safety Related Engineering Activities" will be revised by August 1, 1987 to provide more detailed guidance on the requirements to be addressed in large engineering programs.