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AEP:NRC:6055-02

Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Donald C. Cook Nuclear Plant Units 1 and 2
REQUEST FOR RELIEF FROM THE PROVISIONS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS CODE FOR INSERVICE TEST REQUIREMENTS

References: 1. Letter from A. Bill Beach, Nuclear Regulatory Commission (NRC), to E. E. Fitzpatrick, Indiana Michigan Power Company (I&M), "Confirmatory Action Letter," Accession Number ML003707112, dated September 19, 1997.

2. Memo from John B. Hickman, NRC, "Donald C. Cook Nuclear Plant, Units 1 and 2, Summary of October 9, 1997 Meeting on RWST Mini-Flow Recirculation Line Valve Testing," dated November 7, 1997.

3. NUREG-1482, Revision 0, "Guidelines for Inservice Testing at Nuclear Power Plants," dated April 1995.

Pursuant to 10 CFR 50.55a(f)(5)(iii), I&M requests relief from the provisions of the American Society of Mechanical Engineers (ASME)/American National Standards Institute (ANSI) OM-1987 Edition, including OMa-1988 Addenda, for the Donald C. Cook Nuclear Plant (CNP) Units 1 and 2 Third Ten-Year Interval.

In Reference 1, the NRC noted a concern with the testing of valves that prevent containment sump water from leaking back to the CNP Refueling Water Storage Tank (RWST) from the Emergency Core Cooling System (ECCS). During a postulated loss-of-coolant accident, emergency cooling water flows from the RWST into the reactor core via the ECCS. When the useable water volume in the RWST has been injected, the ECCS is realigned, and the emergency cooling water is obtained from the containment recirculation sump. In this phase of the accident (the recirculation phase), two potential pathways exist for the release of radioactive material from the ECCS past three valves per unit (six valves total) that perform a pump suction isolation function, into the RWST, and then into the atmosphere via an RWST vent.

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During a meeting between NRC and I&M personnel on November 7, 1997 (Reference 2), I&M personnel noted that the system design would only allow the valves to be tested in the reverse direction (the test pressure differential is opposite to the pressure differential that would exist when the valve is performing its isolation function). The NRC noted in the meeting summary that it was acceptable for I&M to include these valves in the Inservice Test Program as Category B valves and test them in the reverse direction.

During a revision to the Inservice Test Program, I&M concluded that the valves should be categorized as Category A valves because the valves have a leakage requirement. As Category A valves, ASME/ANSI OMa-1988, Part 10, which is invoked by ASME Code, Section XI, requires that the valves be leak tested in the accident direction (the direction that the pressure differential would exist when the valve is performing its isolation function). As noted earlier, the system design does not allow the valves to be tested in this direction. Therefore, I&M requests relief from the requirement to test the valves in the accident direction.

Attachment 1 to this letter provides the relief request. Attachment 2 provides a schematic of the Emergency Core Cooling System during the recirculation phase.

I&M requests approval of the relief request by June 30, 2006, the end of the Third Ten-Year Interval. Per the guidance in Reference 3, Section 3.3.3, it is I&M's understanding that I&M may test the valves in the reverse direction while the relief request is being reviewed by the NRC.

This letter contains no new commitments. Should you have any questions, please contact Mr. Michael K. Scarpello, Regulatory Affairs Supervisor, at (269) 466-2649.

Sincerely

Joseph N. Jensen
Site Vice President

RGV/jen

Attachments:
1. 10 CFR 50.55a Relief Request - REL-021, Relief from the Provisions of The American Society of Mechanical Engineers (ASME) Code in Accordance with 10 CFR 50.55a(f)(5)(iii)
2. Schematic, Emergency Core Cooling System – Recirculation Phase

c: R. Aben – Department of Labor and Economic Growth
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K. D. Curry – AEP Ft. Wayne
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Attachment 1 to AEP:NRC:6055-02

10 CFR 50.55a RELIEF REQUEST - REL-021
RELIEF FROM THE PROVISIONS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE IN ACCORDANCE WITH 10 CFR 50.55a(f)(5)(iii)

1.0 ASME Code Components Affected

ASME Code Class 2 Safety Injection (SI) System Valves:

1-IMO-261, Refueling Water Storage Tank (RWST) to SI pumps shutoff valves
2-IMO-261

1-IMO-910, RWST to charging pumps Train "A" shutoff valves
2-IMO-910

1-IMO-911, RWST to charging pumps Train "B" shutoff valves
2-IMO-911

2.0 Applicable Code Edition and Addenda

ASME/American National Standards Institute OM 1987 Edition including the OMa-1988 Addenda

3.0 Applicable Code Requirement

OMa-1988, Part 10, Paragraph 4.2.2.3(b), "Differential Test Pressure," which states:

"Valve seat leakage tests shall be made with the pressure differential in the same direction as when the valve is performing its function . . . ."

4.0 Impracticality of Compliance

These valves were reclassified as Category A valves (valves requiring a seat-leakage test) based on the concern raised in Information Notice 91-56, "Potential Radioactive Leakage to Tank Vented to Atmosphere," and reevaluation of the category definitions. Originally, the valves were categorized as Category B valves. Category B valves are valves that require full stroke exercising but whose ". . . seat leakage in the closed position is inconsequential for fulfillment of their required function(s). . . ." Indiana Michigan Power Company (I&M) has determined that these valves, because they have a seat leakage requirement, should be categorized as Category A valves. The Category A classification requires that the valves be leak tested in accordance with the code requirements.

Donald C. Cook Nuclear Plant, Units 1 and 2, was constructed and licensed prior to the concern about back-leakage to the RWST being identified. As a result, the system in which these valves are located is not designed and constructed to allow accident-direction

testing. Accident-direction testing is where the pressure differential exists in the same direction as when the valve is performing its isolation function. There are no isolation valves for the RWST return. The attached schematic reflects the actual plant configuration and is included for illustrative purposes. Thus, there is not a practical means to measure seat leakage with pressure applied in the accident direction. Attempting to quantify leakage through these valves by monitoring the RWST level is not an accurate means of measuring seat leakage. Additionally, system configuration does not allow leakage determination by using the "test-volume makeup" method. This method also would not yield accurate results.

5.0 Burden Caused by Compliance

There is presently no practical means of leak testing these valves in accordance with the code requirements. Compliance with the code requirements would require a system modification to allow isolation of the RWST.

6.0 Proposed Alternative and Basis for Use

These valves will be tested in a reverse direction (the test pressure differential is opposite to the pressure differential that would exist when the valve is performing its isolation function) using the static head from the RWST.

The valves are 8-inch, 150-pound flex wedge gate valves. The seat seal for these valves is created by a combination of internal pressure and mechanical wedging force. At line pressures under approximately 100 pounds per square inch (psi), the pressure force alone is not sufficient to create a seal, and the mechanical force resulting from the disc being wedged between the seat rings provides the additional force necessary to provide a seal. Testing these valves in the reverse direction tests the valves' leak tightness when the line pressure is below 100 psi, and provides evidence of any leakage past the valves.

As can be seen in the Attachment 2 system schematic, valve IMO-261 is in series with check valve SI-101, and valves IMO-910 and IMO-911 are in series with check valve SI-185. The check valves are Category A valves and are leak tested in compliance with the code, providing additional assurance that the back leakage to the RWST from these flow paths will meet the system requirements.

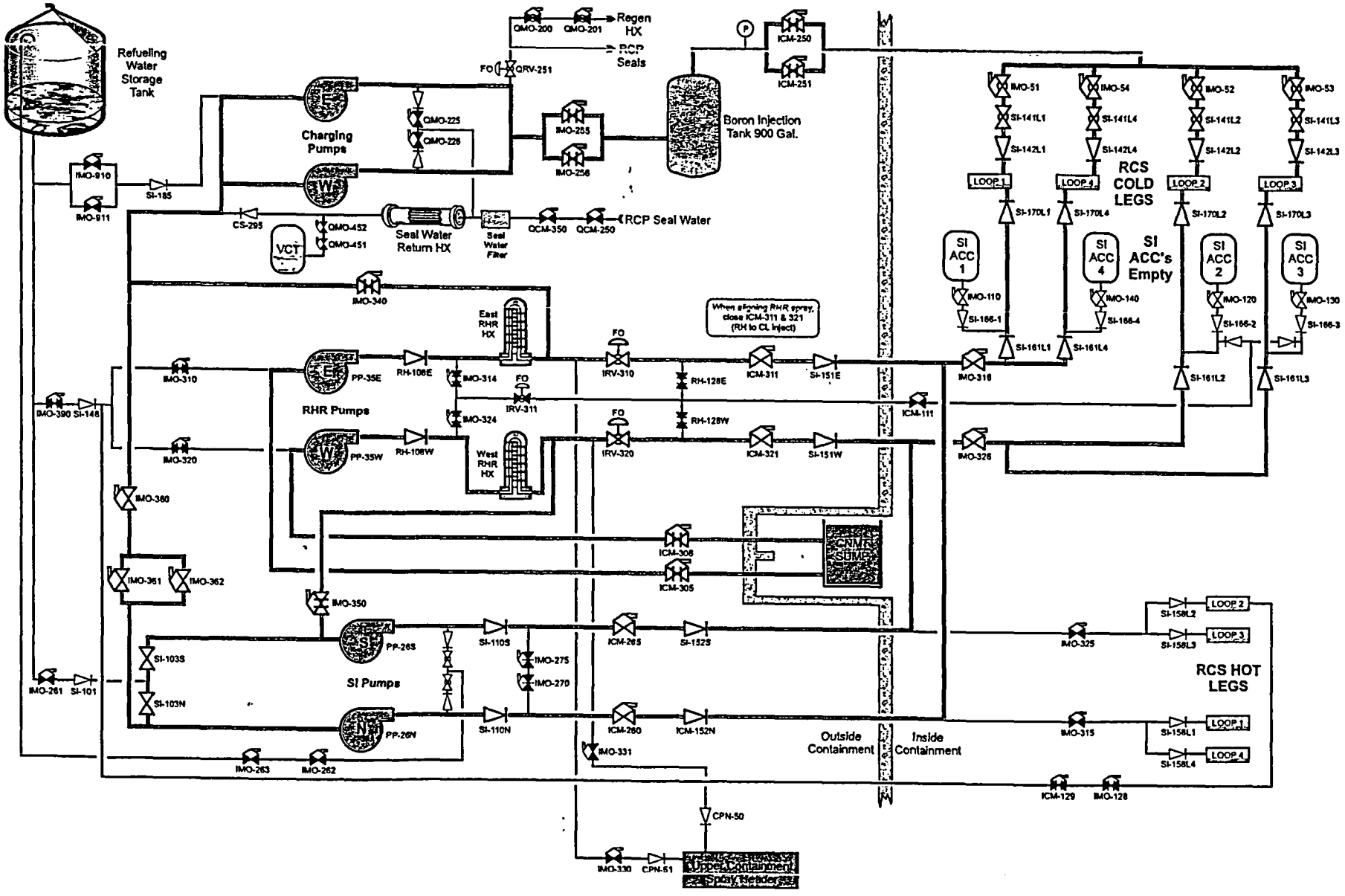
It is I&M's opinion that the proposed leak testing of the gate valves, combined with the leakage testing of the check valves in series with them, provides reasonable assurance that the system leakage requirements will be met under accident conditions.

7.0 Duration of Relief

Relief is requested for the remainder of the Third Ten-Year Interval.

Attachment 2 to AEP:NRC:6055-02

SCHEMATIC
EMERGENCY CORE COOLING SYSTEM – RECIRCULATION PHASE




Emergency Core Cooling System – Recirculation Phase