

AmerGen

A PECO Energy/British Energy Company

Clinton Power Station

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Docket No. 50-461

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Washington, D.C. 20555

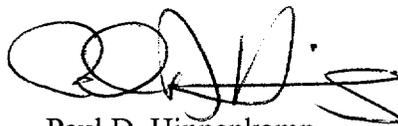
Subject: Clinton Power Station Relief Requests Regarding the Inservice
Testing of Shutdown Service Water System Check Valves

Dear Madam or Sir:

Attached for NRC review and approval are two requests for relief from inservice inspection requirements of American Society of Mechanical Engineers (ASME)/American National Standards Institute (ANSI) Operations and Maintenance (OM) Standards, Part 10 (OM-10). The relief requests concern alternatives involving full- or partial-flow testing (and/or periodic disassembly requirements) for meeting the exercise requirements of OM-10 for the shutdown service water (SX) system pump discharge check valves at Clinton Power Station.

AmerGen Energy Company, LLC respectfully requests NRC review and approval of the attached relief requests by October 1, 2000, to support the examination plan for the Clinton Power Station refueling outage scheduled to begin on October 15, 2000.

Sincerely yours,



Paul D. Hinnenkamp
Manager – Clinton Power Station

JLP/blf

Attachments

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

RGH-001

A047

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST 2201 (Revision 0)

DIVISIONS 1 AND 2 SHUTDOWN SERVICE WATER CHECK VALVE TESTING

SYSTEM/ COMPONENT(S) FOR WHICH RELIEF IS REQUESTED

Division I and II Shutdown Service Water (SX) Pump discharge check valves 1SX001A and 1SX001B. These valves are ASME Code Class 3, 30" Anchor Darling swing check valves.

CODE REQUIREMENT

ASME/ANSI OMa 1988 Part 10, Inservice Tests for Category C Valves, paragraphs 4.3.2.1, 4.3.2.2 and 4.3.2.4(c). Exercising of

check valves to the positions required to fulfill the valves' safety function is required quarterly. However, when system or practical limitations exist, the Code provides options to perform partial stroke testing quarterly and full stroke exercising during cold shutdown or refuel outages.

CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED

Paragraph 4.3.2.2 defines acceptable alternatives to quarterly full stroke testing. CPS seeks relief from Paragraph 4.3.2.2(e) and 4.3.2.4(c). CPS proposes to perform a full flow test or disassembly on-line or during refuel outages in lieu of testing or disassembly during refuel outages.

BASIS FOR RELIEF

According to NUREG 1482, disassembly is an option only when full stroke exercising cannot practically be performed with full

accident flow. However, disassembly of the valve requires draining a large volume from the SX system, increases SX unavailability time, and increases the potential for valve damage due to maintenance.

A system configuration which provides full accident flow through all safety related components with the plant on-line is possible. However, the performance of the test requires pumping lake water (the suction source for the SX pumps) into the Fuel Pool Cooling and Cleanup (FPCC) system which is normally cooled by demineralized water. Therefore, after the test the lake water must be drained from the FPCC system heat exchanger into 55 gallon drums. The water must then be tested for radioactive contamination prior to release to the onsite sediment pond. Full flow testing in this manner also results in two safety-related coolers becoming inoperable. Consequently, performance of this test on a quarterly basis would increase plant risk and decrease system availability.

The pump discharge check valves do not have an external disk position indicator or manual exercise capability. Non-intrusive techniques are also impractical because flow velocity through the system is insufficient to make the disc impact the backstop. For these reasons, full stroke position of the obturator cannot be verified by examination. Full flow testing is therefore impractical and results in a hardship without a compensating increase in the level of quality and safety if performed on a quarterly basis.

ALTERNATE EXAMINATIONS

A partial flow test will be performed on a quarterly basis during the SX Pump operability test, and a full flow test or valve disassembly will be performed on the check valves either during refuel outages as allowed by the Code or during reactor operation on an eighteen-month basis.

JUSTIFICATION FOR THE GRANTING OF RELIEF

The proposed full flow test or valve disassembly either on-line or during refuel outages is justified for the following reasons:

1. The quarterly partial flow test will continue to be performed to demonstrate proper valve function. The partial flow test uses a flow rate that is approximately 85% of the accident flow rate needed to satisfy a full stroke exercise. Due to the size of the valve involved, this additional flow would be expected to produce a very small change in disc position.
2. The accident condition flow test (or disassembly) will be performed on the same frequency as the ASME Code required frequency, except the test may be performed during reactor operation.
3. The SX pump discharge valves (1SX001A and 1SX001B) have never failed a test.

IMPLEMENTATION SCHEDULE

This Relief Request applies to the second ten-year interval at the Clinton Power Station.

Clinton Power Station

ASME Section XI Relief Request

RELIEF REQUEST 2202 (Revision 0)

DIVISION 3 SHUTDOWN SERVICE WATER CHECK VALVE TESTING

SYSTEM/ COMPONENT(S) FOR WHICH RELIEF IS REQUESTED	Division 3 Shutdown Service Water (SX) pump discharge check valve, 1SX001C. This valve is an ASME Code Class 3, 10" Anchor Darling swing check valve.
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CODE REQUIREMENT	ASME/ANSI OMa-1988 Part 10, Inservice Tests for Category C Valves, paragraph 4.3.2.4 (a) requires demonstration of valve obturator movement through direct observation of position indicating devices, or by other indicator(s) such as flow rate, level, temperature, seat leakage testing, or other positive means.
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CODE REQUIREMENT FROM WHICH RELIEF IS REQUESTED	CPS requests relief from paragraph 4.3.2.4(a)
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BASIS FOR RELIEF	Full stroke exercise of the Division 3 SX check valve can be satisfied by passing accident flow rate through the valve by aligning system loads that are the same as accident conditions on a quarterly basis. However, in addition to the system loads, worst case assumptions include initiating backwash through the Shutdown Service Water strainer during the accident. As the attached figure shows, the flow measured by the flow element does not account for flow through the backwash strainer. The backwash strainer flush line is located upstream of the flow measuring element. The system piping configuration does not provide enough space to install temporary flow measuring equipment. Although full flow can be passed through the system, the design flow rate (including strainer backwash flow) through the check valve cannot be measured directly.
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The pump discharge check valve does not have an external disk position indicator or manual exercise capability. Non-intrusive techniques are also impractical because flow velocity through the system is insufficient to make the disc impact the backstop. For these reasons, full stroke position of the obturator cannot be verified by examination. At the same time, for the reasons described above, the direct measurement of flow through the check valve is impractical. Strict compliance with the full-flow exercise requirement therefore results in a hardship without a compensating increase in the level of quality or safety.

ALTERNATE EXAMINATIONS

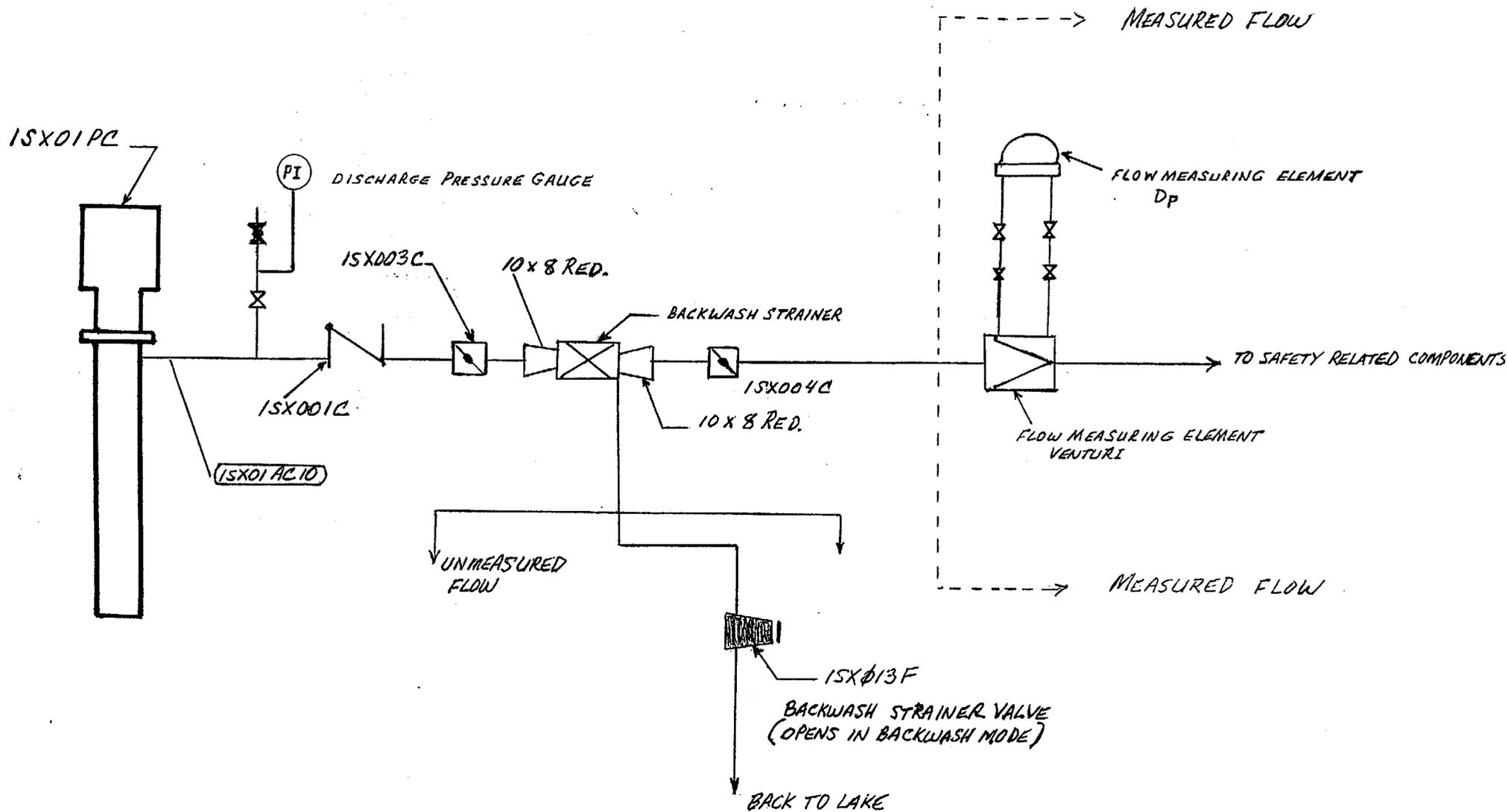
A full-flow test will be performed on a quarterly basis with all accident condition loads aligned to the system. Total flow to all loads downstream of the check valve, except the strainer, will be measured at the installed flow measuring element and confirmed to be at or above total safety-related design flow. Concurrent full flow through the backwash strainer will be verified by observation that the strainer motor is operating and by observation of the open position of the backwash strainer valve. The acceptance criteria for the test will be that the flow limit to the safety-related components, excluding strainer backwash flow, is met or exceeded.

JUSTIFICATION FOR THE GRANTING OF RELIEF

Passing the design flow to all safety-related components while the backwash system is operating duplicates the conditions assumed during the accident. This provides assurance that the check valve will perform its intended safety function because the test exercises the check valve to the position required to perform its safety function.

IMPLEMENTATION SCHEDULE

This Relief Request applies to the second ten-year interval at the Clinton Power Station.



Note: Intermittent flow thru strainer
in backwash cycle increases
flow approximately 200 GPM