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10 CFR 50.55a

RS-10-044
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ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Clinton Power Station, Units 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Response to Request for Additional Information Related to Request for NRC Approval of Relief Requests for Third Inservice Testing Interval (TAC Nos. ME1546, ME1705, and ME1709)

Reference: Letter from J. L. Hansen (Exelon Generation Company, LLC) to U. S. NRC, "Submittal of Relief Requests Associated with the Third Inservice Testing Interval," dated June 16, 2009

In the referenced letter, Exelon Generation Company, LLC (EGC) requested approval of relief requests associated with the upcoming Third IST Interval at Clinton Power Station, Unit 1 (CPS).

During the NRC's review of the referenced document, the NRC found that additional information was required to support its review. The requested information is provided in the attachment to this letter.

There are no regulatory commitments contained within this letter. Should you have any questions concerning this letter, or require additional information, please contact Mitch Mathews at (630) 657-2819.

Respectfully,

Jeffrey L. Hansen
Manager – Licensing and Regulatory Affairs
Exelon Generation Company, LLC

Attachment: Response to NRC Request for Additional Information

RAI 2202-001

Request No. 2202 proposes to extend the test interval for the main steam line safety relief valves to 6.5 years and references Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves," as a basis for extending the test interval. Code Case OMN-17 allows owners to extend the test interval for safety relief valves from 5 years with no grace period to 6 years plus a 6-month grace period. It is preferable to the NRC staff to be consistent with the provisions in Code Case OMN-17. Please discuss if a 6 year plus a six month grace period safety relief valve test interval is acceptable in lieu of a 6.5 year test interval with no grace period.

Response:

Clinton Power Station (CPS) would consider a six year frequency with the allowance for a six month grace period an acceptable alternative to the 6.5 year frequency with no grace period that was proposed in 10 CFR 50.55a Request Number 2202. The six year interval with six month grace period will continue to reduce the number of Safety Relief Valves (SRVs) that are tested over three refueling outages and maintain the site's radiation exposure as low as reasonably achievable.

RAI 3201-001

Please provide the rated flow and differential pressure for each waterleg pump.

Response:

The rated flows and rated differential pressures associated with the subject waterleg pumps are contained in Table 1 below.

Table 1: Rated Flow and Rated Differential Pressure for Waterleg Pumps

Pump	Rated Flow (gpm)	Rated Differential Pressure (ft)
1E12-C003, Residual Heat Removal (RHR) Loop B/C Waterleg Pump	43	199
1E21-C002, Low Pressure Core Spray (LPCS) and RHR A Waterleg Pump	43	199
1E51-C003, Reactor Core Isolation Cooling (RCIC) Waterleg Pump	50	130

RAI 3201-002

Do pressure taps exist in the waterleg pumps' suction and discharge piping where pump suction and discharge pressure can be measured for calculation of differential pressure?

Response:

Yes. The systems associated with the subject waterleg pumps have been designed with suction pressure instruments on the pump suction headers, and flow and pressure instruments on the pump discharge headers to allow for testing. These instruments are isolated during normal plant operation via closed isolation valves and are only placed into service to support

waterleg pump testing. Relief Request 3201 proposes in part, to detect degradation in waterleg pump readiness by recording the supported system's main header pressure on a quarterly basis. As a point of clarification, the waterleg pump discharge pressure as discussed in this relief request is the main system header pressure resulting from the pressure head supplied by the waterleg pumps. The recorded header pressure will be compared to pressures observed in previous tests, and changes in pressure will be evaluated to determine the cause. Relief is requested due to the impact that traditional waterleg pump testing has on the plant without a compensating increase in the level of quality or safety.

The Low Pressure Core Spray (LPCS) waterleg pump (i.e., 1E21-C002) services the LPCS system piping and Loop A of Residual Heat Removal (RHR) system, and 1E12-C003 services RHR Loops B and C. Traditional testing of the RHR and LPCS waterleg pumps requires declaring portions of the RHR and LPCS systems inoperable.

Testing of 1E21-C002 as described in the 2004 American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) requires disabling the main LPCS pump motor, rendering the LPCS System inoperable. Additionally, RHR Loop A is required to be isolated from 1E21-C002, and an abnormal alignment is required to maintain the discharge header pressurized and full of water. A similar alignment is required for testing 1E12-C003, rendering RHR C inoperable during the test.

Testing the Reactor Core Isolation Cooling (RCIC) waterleg pump currently requires the RCIC system to be declared inoperable due to the system configuration changes that are necessary to perform the surveillance.

The RHR and LPCS waterleg pump surveillances will be performed with the suppression pool as the suction source. Suppression pool level at Clinton Power Station (CPS) is maintained within limits according to CPS Technical Specifications Section 3.6.2.2. A review of plant data showed that the suppression pool level over the past year was maintained within a five-inch band. Therefore, the pumps' suction pressures are essentially constant, allowing waterleg pump readiness to be confirmed by monitoring the supported system's main header pressure. Changes in the supported system's main header pressure identified during testing will be evaluated to determine if they are a result of a change in the associated waterleg pump's performance.

The RCIC waterleg pump (i.e., 1E51-C003) surveillance will be performed with the RCIC Storage tank as the suction source for 1E51-C003. RCIC storage tank volume is also controlled. A review of the past year's plant data showed that the RCIC tank water level was maintained within a band of approximately five inches. As such, 1E51-C003 suction pressure is essentially a constant. The readiness of 1E51-C003 will be confirmed by monitoring the main RCIC system header pressure. Changes in the RCIC system's main header pressure between tests will be evaluated to determine if they are a result of a change in pump performance.

According to the testing methodology proposed in Relief Request 3201, changes in supported system's main header pressure will be evaluated to determine if they are a result of changes in the waterleg pump performance. Testing the waterleg pumps in this manner ensures a level of quality and safety equivalent to the testing methodologies described in the ASME OM Code. Moreover, the waterleg pumps will be tested in accordance with traditional testing

methodologies during the biennial comprehensive pump testing that will be performed in accordance with the ASME OM Code.

In summary, performing the waterleg pump surveillances on a quarterly frequency in accordance with traditional IST pump surveillance methodologies places the unit in a higher risk state without a compensating increase in quality or safety. The testing methodology proposed in Relief Request 3201 would provide an acceptable level of quality and safety without placing the unit in an elevated state of risk.

RAI 3201-003

Are there throttle valves in the waterleg pumps' discharge piping that can be used to set differential pressure?

Response:

Yes.

RAI 3201-004

Are there any flow rate meters, orifices, or other measurement devices installed in the system for measurement of waterleg pump flow rate?

Response:

Yes.

RAI 3201-005

Have any attempts been made to use portable ultrasonic flow instruments to measure waterleg pump flow rates? If not, explain why not.

Response:

No. As previously discussed, the systems were designed and built to allow for waterleg pump testing.

RAI 3201-006

Is there flow instrumentation in the main header piping? If so, explain why this instrumentation can or cannot be used to measure the waterleg pump flow.

Response:

Yes. The flow instrumentation ranges for the main system headers are as follows:

- RHR: 0 - 7000 gpm
- LPCS: 0 - 8000 gpm
- RCIC: 0 – 800 gpm

The ranges for these instruments are not suitable for measuring the low flow rates at which the waterleg pumps are tested.

RAI 3201-007

At what pressure does each low header pressure annunciator alarm? For each of these values, state what percentage it is of the respective waterleg pump operating differential pressure.

Response:

As shown in Table 2 below, Control Room annunciator alarms are based on pressure. The alarm setpoints were compared to the normal operating pressure of their associated headers, and shown as a percentage of that normal operating pressure. As previously discussed, the suction pressures for the waterleg pumps are essentially constant; therefore it is appropriate to consider Control Room alarm setpoints in relation to normal pump discharge/associate system header pressure versus as a percentage of pump differential pressure.

Table 2: Waterleg Pump Parameters Including Control Room Alarm Setpoint as a Percentage of Normal Discharge Pressure

System	ATM (alarm)	Alarm Setpoint (psig)	ATM (pressure)	Normal Operating Pressure (psig)	Alarm Setpoint as Percentage of Normal Operating Pressure (%)
RHR "A"	E12-N654A	58.4	1E12-N653A	~ 94	62.1
RHR "B"	E12-N654B	57.8	1E12-N653B	~ 88	65.7
RHR "C"	E12-N654C	21.6	1E12-N653C	~ 91	23.7
LPCS	E21-N654	35	1E21-N654	~ 94	37.2
RCIC	E51-N654	39	1E51-N652	~ 55	70.9