Exelon Generation®

4300 Winfield Road
Warrenville, IL 60555
630 657 2000 Office

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10 CFR 50.55a

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U.S. Nuclear Regulatory Commission
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Clinton Power Station, Unit 1
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Relief Requests Associated with the Fourth Inservice Testing Interval

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (z)(1), Exelon Generation Company, LLC (EGC) requests NRC approval of the attached relief requests associated with the fourth Inservice Testing (IST) interval for Clinton Power Station (CPS), Unit 1. The fourth interval of the CPS, Unit 1, IST program will comply with the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (i.e., OM Code), 2012 Edition. The latest edition and addenda of the code incorporated by reference in 10 CFR 50.55a(b)(3) of the regulation is the 2012 Edition.

Proposed Relief Request 3201 requests use of an alternate method for waterleg pump testing. Proposed Relief Request 2202 would extend the 5-year IST interval to a 6.5-year IST interval for the 16 safety/relief valves at CPS. The bases for these relief requests are provided in Attachments 1 and 2, respectively.

EGC requests approval of these requests by May 25, 2020, to support implementation of the fourth 10-year IST interval.

There are no regulatory commitments contained within this letter. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

Respectfully,

Patrick R. Simpson
Manager – Licensing

Attachments:
1. 10 CFR 50.55a Relief Request 3201 Related to Waterleg Pump Testing
2. 10 CFR 50.55a Relief Request 2202 Related to Main Steam Safety/Relief Valves

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector – Clinton Power Station

ATTACHMENT 1
10 CFR 50.55a Relief Request 3201 Related to Waterleg Pump Testing

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(1)

1. ASME Code Component(s) Affected

The following waterleg pumps are affected:

Component ID	Description	Code Class	Group
1E21-C002	Low Pressure Core Spray (LPCS) and Residual Heat Removal (RHR) A Waterleg Pump	2	A
1E12-C003	RHR Loop B/C Waterleg Pump	2	A
1E51-C003	Reactor Core Isolation Cooling (RCIC) Waterleg Pump	2	A

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME), "Code for Operation and Maintenance of Nuclear Power Plants," 2012 Edition with no Addenda (ASME OM Code-2012).

3. Applicable Code Requirements

Table ISTB-3000-1, "Inservice Test Parameters," specifies the parameters to be measured during inservice tests.

ISTB-3300, "Reference Values," paragraph (e)(2) states, "Reference values shall be established at the comprehensive pump test flow rate for the Group A and Group B tests, if practicable. If not practicable, the reference point flow rate shall be established at the highest practical flow rate."

ISTB-3400, "Frequency of Inservice Tests," states, "An inservice test shall be run on each pump as specified in Table ISTB-3400-1."

Table ISTB-3400-1, "Inservice Test Frequency," specifies that a Group A pump test shall be performed on a quarterly frequency.

ISTB-5121, "Group A Test Procedure," states, in part, "Group A tests shall be conducted with the pump operating as close as practical to a specified reference point and within the variances from the reference point as described in this paragraph…"

Subparagraph ISTB-5121(b) states, "The resistance of the system shall be varied until the flow rate is as close as practical to the reference point with the variance not to exceed +2% or −1% of the reference point. The differential pressure shall then be determined and compared to its reference value. Alternatively, the flow rate shall be varied until the differential pressure is as close as practical to the reference point with the variance not to exceed +1% or −2% of the reference point and the flow rate determined and compared with the reference flow rate."

4. Reason for Request

In accordance with 10 CFR 50.55a, "Codes and Standards," paragraph (z)(1), an alternative is proposed to the Group A pump testing requirements in the ASME OM Code-2012 paragraphs cited above. The basis of the request is that the proposed alternative would provide an acceptable level of quality and safety.

The waterleg pumps are continuously-running pumps whose safety function is to keep their supported system's pump discharge header piping in a filled condition. This function prevents water hammer and the delay of flow to the reactor upon the supported system's pump start. The actual output and hydraulic performance of the waterleg pumps are not critical to their safety function, as long as the waterleg pumps are capable of maintaining their associated system's pump discharge piping full of water. The amount of flow delivered by each waterleg pump is dependent upon each supported system's leakage rate. The rated flow and differential pressure for the waterleg pumps are contained in the table below.

Component ID	Description	Rated Flow (gpm)	Rated Differential Pressure (ft)
1E21-C002	LPCS and RHR A Waterleg Pump	43	199
1E12-C003	RHR Loop B/C Waterleg Pump	43	199
1E51-C003	RCIC Waterleg Pump	50	130

The subject waterleg pumps' piping systems have been designed with suction pressure instruments on the pump suction headers, and flow and pressure instruments on the pump discharge recirculation piping to allow for testing. These instruments are isolated during normal plant operation by closed isolation valves and are only placed into service to support waterleg pump testing. To use the instrumented recirculation flow paths requires isolating the waterleg pump from its associated supported system. In addition, although there is flow instrumentation in the main system header piping, the ranges of these instruments are not suitable for measuring the low flow rates at which the waterleg pumps are tested.

LPCS and RHR A waterleg pump, 1E21-C002, services the LPCS system piping and Loop A of the RHR system. Testing of 1E21-C002 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 Loop A discharge header pressurized and full of water. RHR Loop B/C Waterleg Pump, 1E12-C003, services RHR Loops B and C. A similar alignment is required for testing 1E12-C003, rendering RHR Loop C inoperable during the test.

ASME OM Code testing of the RHR and LPCS waterleg pumps requires declaring portions of the RHR and LPCS systems inoperable. Testing the RCIC waterleg pump, 1E51-C003, requires the RCIC system to be declared inoperable due to the system configuration changes that are necessary to perform the surveillance.

The suction pressure for these waterleg pumps is essentially constant because the suction water sources (i.e., suppression pool and RCIC storage tank) are maintained within a narrow band (historically a five-inch band). This allows the waterleg pumps' operational readiness to be confirmed by monitoring the supported system's main header pressure (i.e., the pressure resulting from the pressure head supplied by the waterleg pumps), eliminating the need to reconfigure the system to allow use of the pressure and flow instrumentation on the waterleg pump recirculation piping.

The flowrate for each of these waterleg pumps varies little during normal operation, and testing of these pumps at a predetermined reference point as described in ISTB-5121(b) is not necessary to detect pump degradation or to establish that these pumps can perform their safety function.

Alternative testing is being requested to eliminate the impact that ASME OM Code compliant waterleg pump testing has on the plant without a compensating increase in the level of quality or safety.

5. Proposed Alternative and Basis for Use

Quarterly monitoring of the discharge pressure (i.e., main system header pressure) and bearing vibration as discussed in Section 5.11 of NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," will be performed to monitor for pump degradation and to assess pump performance (Reference 1).

The RHR and LPCS waterleg pump surveillances are 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 (TS) Section 3.6.2.2, "Suppression Pool Water Level." A review of plant data showed that the suppression pool level has been maintained within a five-inch band, except during refueling outages. 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, 1E51-C003, surveillance is performed with the RCIC storage tank as the suction source. RCIC storage tank volume is also controlled. A review of plant data showed that, except during refueling outages and tank maintenance activities, the RCIC tank water level was maintained within a band of approximately five inches. Therefore, 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 it is a result of a change in pump performance.

The CPS waterleg pumps will be monitored for degradation on a quarterly basis by observing pump discharge pressure (i.e., supported system's main header pressure) and bearing vibration during normal operating conditions. This testing will be performed without

varying the resistance of the system as discussed in ISTB-5121(b). These parameters will then be evaluated and trended to assess the pump's performance. The measurement and trending of these parameters under these conditions will provide satisfactory indication of the operational readiness of the pumps and detect degraded performance. These waterleg pumps will continue to be full flow tested every 24 months in conjunction with the comprehensive pump test performed in accordance with the requirements specified in ISTB-5123, "Comprehensive Test Procedure."

In addition to this quarterly testing, each of these waterleg pump's supported system pump discharge headers have sensors that continuously monitor header pressure and provide an alarm in the main control room when their low pressure setpoint is reached. This will provide indication that the associated waterleg pump is no longer performing its safety function, and allow CPS operators to respond according to station procedures. Moreover, these pumps are currently being monitored under the CPS Vibration Monitoring Program, which is not currently required by any Federal, state or industry mandate. Because rotating equipment faults that can be detected by vibration monitoring will show up any time the equipment is in operation, returning these pumps to a fixed set of operating conditions is not necessary to detect such faults. Lastly, each of these waterleg pump's supported system pump discharge header is verified to be sufficiently filled with water in accordance with TS Surveillance Requirements (SRs) 3.5.1.1 and 3.5.3.1. Any indication that the supported system's pump discharge header piping is not sufficiently filled with water would provide timely indication that the associated waterleg pump's performance has degraded.

In summary, using the provisions of this request as an alternative to the requirements of ISTB-3300(e)(2), ISTB-3400, and ISTB-5121(b) provides a reasonable alternative to the ASME OM Code requirements, and an acceptable level of quality and safety in accordance with 10 CFR 50.55a(z)(1). The actual output and hydraulic performance of the waterleg pumps are not critical to their safety function as long as the pumps are capable of maintaining their supported system's pump discharge header piping full of water. Alarms would promptly alert plant operators of a low-pressure condition indicative of a waterleg pump malfunction (i.e., not maintaining the piping pressure above the set alarm level) or any other condition that allows pressure to degrade (e.g., excessive leakage beyond waterleg pump make-up capabilities). In addition, vibration data trending toward unacceptable values would indicate degradation in pump performance and allow time for CPS personnel to plan and take corrective actions before the pumps fail.

Therefore, the proposed alternative provides reasonable assurance of operational readiness of the subject waterleg pumps because: (1) discharge pressure and bearing vibration are measured and trended, (2) alarms are present in the Main Control Room that provide continuous monitoring for degradation in the pressure of the supported system's pump discharge header, and (3) periodic verification of the supported system's pump discharge header piping being sufficiently full in accordance with CPS TS will verify that the associated waterleg pump is performing its safety function.

6. Duration of Proposed Alternative

This request, upon approval, will be applied to the CPS fourth 10-year IST interval, which begins on July 1, 2020, and is scheduled to end on June 30, 2030.

7. Precedent

This relief request was previously approved for the third 10-year IST interval at CPS as documented in Reference 2.

8. References

1. NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," Revision 2

2. Letter from S. J. Campbell (U.S. NRC) to M. J. Pacilio (Exelon Generation Company, LLC), "Clinton Power Station, Unit No. 1 – Safety Evaluation of Relief Request Nos. 2201, 2202, and 3201, for the Third 10-Year Inservice Testing Interval (TAC Nos. ME1546, ME1705, ME1709)," dated June 10, 2010

ATTACHMENT 2
10 CFR 50.55a Relief Request 2202 Related to Main Steam Safety/Relief Valves

Proposed Alternative in Accordance with 10 CFR 50.55a(z)(1)

1. ASME Code Component(s) Affected

The following Main Steam Safety/Relief Valves (SRVs) are affected:

Component ID	Description	Code Class	Category
1B21-F041A	Main Steam SRV	1	C
1B21-F041B	Main Steam SRV	1	C
1B21-F041C	Main Steam SRV	1	C
1B21-F041D	Main Steam SRV	1	C
1B21-F041F	Main Steam SRV	1	C
1B21-F041G	Main Steam SRV	1	C
1B21-F041L	Main Steam SRV	1	C
1B21-F047A	Main Steam SRV	1	C
1B21-F047B	Main Steam SRV	1	C
1B21-F047C	Main Steam SRV	1	C
1B21-F047D	Main Steam SRV	1	C
1B21-F047F	Main Steam SRV	1	C
1B21-F051B	Main Steam SRV	1	C
1B21-F051C	Main Steam SRV	1	C
1B21-F051D	Main Steam SRV	1	C
1B21-F051G	Main Steam SRV	1	C

2. Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME), "Code for Operation and Maintenance of Nuclear Power Plants," 2012 Edition with no Addenda (ASME OM Code-2012).

3. Applicable Code Requirement

ISTA-3130, "Application of Code Cases," subparagraph (b), states, "Code Cases shall be applicable to the edition and addenda specified in the test plan."

4. Reason for Request

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (z)(1), an alternative is proposed to ISTA-3130(b) requirements for implementing Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves." The

basis of the request is that the proposed alternative would provide an acceptable level of quality and safety.

ISTA-3130(b) states, "Code Cases shall be applicable to the edition and addenda specified in the test plan." ASME has approved Code Case OMN-17, Revision 0. This Code Case is unconditionally approved for use in Regulatory Guide (RG) 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," Revision 2. The Clinton Power Station (CPS) Code-of-Record for the 4th IST interval is the ASME OM Code-2012. However, Code Case OMN-17 indicates in the Inquiry (Applicability) section that it is applicable for use in lieu of the ASME OM Code 1995 Edition through the OMb-2006 Addenda. CPS will be implementing the ASME Code OM-2012 and proposes to also implement Code Case OMN-17 for extending the test frequencies of the Class 1 Main Steam Line SRVs to a 72-month (6-year) test interval, with the allowed 6-month grace period, providing all the requirements of the Code Case continue to be satisfied. The previously authorized request 2202 for the CPS 3rd interval (i.e., Reference 1) provided alternative testing requirements equivalent to Code Case OMN-17.

5. Proposed Alternative and Basis for Use

The proposed alternative to ISTA-3130(b) would allow CPS to implement Code Case OMN-17, although the Code Case Inquiry (Applicability) statement addresses only the 1995 Edition through the 2006 Addenda and ISTA-3130(b) requires applicability to the edition specified in the test plan, which would be the ASME OM Code-2012. Code Case OMN-17 was issued in 2007 and first published in the ASME OM Code-2009 Edition. A review of the 2012 Edition of the OM Code and Code Case OMN-17 confirmed that there are no changes in the applicable Code sections referenced within the Code Case when comparing the 2009 edition to the 2012 edition.

RG 1.192, Revision 2, Table 1, "Acceptable OM Code Cases," lists Code Case OMN-17 (2012 Edition) as acceptable to the NRC for application in a licensee's IST program without conditions.

Using the provisions of this request as an alternative to the requirements of ISTA-3130(b) will continue to provide assurance of the Main Steam SRVs' operational readiness and provides an acceptable level of quality and safety pursuant to 10 CFR 50.55a(z)(1).

6. Duration of Proposed Alternative

This request, upon approval, will be applied to the CPS fourth 10-year IST interval, which begins on July 1, 2020, and is scheduled to end on June 30, 2030.

7. Precedent

None

8. References

1. Letter from S. J. Campbell (U.S. NRC) to M. J. Pacilio (Exelon Generation Company, LLC), "Clinton Power Station, Unit No. 1 – Safety Evaluation of Relief Request Nos. 2201, 2202, and 3201, for the Third 10-Year Inservice Testing Interval (TAC Nos. ME1546, ME1705, ME1709)," dated June 10, 2010

2. Code Case OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves"

3. NRC Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," Revision 2, dated March 2017