

April 13, 2015

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Limerick Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

Subject: Submittal of Relief Request to Utilize OMN-18

Attached for your review is a relief request associated with the third Inservice Testing (IST) interval for Limerick Generating Station, Units 1 and 2. This relief request concerns the use of OMN-18 ("Alternate Testing Requirements for Pumps Tested Quarterly Within $\pm 20\%$ of Design Flow"). The third IST interval complies with the ASME OM Code, 2004 Edition. We request your approval by April 13, 2016.

There are no regulatory commitments contained within this letter.

If you have any questions or require additional information, please call Tom Loomis (610-765-5510).

Respectfully,



James Barstow
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachment: Relief Request GPRR-6, Revision 0

cc: Regional Administrator, Region I, USNRC
USNRC Senior Resident Inspector, LGS
USNRC Project Manager, LGS
R. R. Janati, Bureau of Radiation Protection

Attachment

Relief Request GPRR-6, Revision 0

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Proposed Alternative to Utilize Code Case OMN-18 In Accordance with 10 CFR 50.55a(z)(1)

1. ASME Code Component(s) Affected

0A-P162 & 0B-P162, Control Structure Chilled Water Pumps (Centrifugal / Group A / Class 3)
0A-P548, 0B-P548, 0C-P548 & 0D-P548, Emergency Service Water Pumps (Vertical Line Shaft / Group A / Class 3)
0A-P506, 0B-P506, 0C-P506 & 0D-P506, Residual Heat Removal Service Water Pumps (Vertical Line Shaft / Group A / Class 3)
1(2)A-P206, 1(2)B-P206, 1(2)C-P206 & 1(2)D-P206, Core Spray Pumps (Vertical Line Shaft / Group B / Class 2)
1(2)A-P202 & 1(2)B-P202, Residual Heat Removal Pumps (Vertical Line Shaft / Group A / Class 2)
1(2)C-P202 & 1(2)D-P202, Residual Heat Removal Pumps (Vertical Line Shaft / Group B / Class 2)
1(2)O-P204, High Pressure Coolant Injection Pumps (Centrifugal / Group B / Class 2)
1(2)O-P203, Reactor Core Isolation Cooling Pumps (Centrifugal / Group B / Class 2)
1(2)A-P256 & 1(2)B-P256, Safeguard Piping Fill Pumps (Centrifugal / Group B / Class 2)
1(2)A-P208, 1(2)B-P208 & 1(2)C-P208, Standby Liquid Control Pumps (Reciprocating Positive Displacement / Group B / Class 2)

Component/System Function

Provides minimum flow to meet system requirements under accident conditions.

2. Applicable Code Edition and Addenda

Limerick Generating Station, Units 1 and 2 comply with the ASME OM Code, 2004 Edition.

3. Applicable Code Requirement(s)

- ISTB-3300, "Reference Values," states, in part, that "reference values shall be established within $\pm 20\%$ of pump design flow rate for the comprehensive test," and "reference values shall be established within $\pm 20\%$ of pump design flow for the Group A and Group B tests, if practicable."
- ISTB-3400, "Frequency of Inservice Tests," states that, "an inservice test shall be run on each pump as specified in Table ISTB-3400-1."
- Table ISTB-3400-1, "Inservice Test Frequency," requires Group A and Group B tests to be performed quarterly and a Comprehensive Test to be performed biennially.
- Table ISTB-3510-1, "Required Instrument Accuracy," specifies the instrument accuracies for Group A, Group B, Comprehensive, and Preservice Tests.
- Table ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria," defines the required acceptance criteria for Group A, Group B, and Comprehensive Tests for centrifugal pumps.

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- Table ISTB-5221-1, "Vertical Line Shaft and Centrifugal Pumps Test Acceptance Criteria," defines the required acceptance criteria for Group A, Group B, and Comprehensive Tests for vertical line shaft centrifugal pumps.
- Table ISTB-5321-2, "Reciprocating Positive Displacement Pump Test Acceptance Criteria," defines the required acceptance criteria for Group A, Group B, and Comprehensive Tests for reciprocating positive displacement pumps.
- ISTB-5123, "Comprehensive Test Procedure," provides the comprehensive pump test requirements for centrifugal pumps (except vertical line shaft centrifugal pumps).
- ISTB-5223, "Comprehensive Test Procedure" provides the comprehensive pump test requirements for vertical line shaft centrifugal pumps.
- ISTB-5323, "Comprehensive Test Procedure," provides the comprehensive pump test requirements for positive displacement pumps.

4. Reason for Request

The ASME Code committees have approved Code Case OMN-18, "Alternate Testing Requirements for Pumps Tested Quarterly within $\pm 20\%$ of Design Flow." This Code Case has not been approved for use in Regulatory Guide 1.192, Revision 1, "Operation and Maintenance Code Case Acceptability, ASME OM Code," August 2014.

This Code Case allows the Owner to not perform the Comprehensive Pump Test (CPT) with the associated acceptance criteria, if the quarterly test is performed at $\pm 20\%$ of design flow and the instrumentation meets the accuracy requirements of Table ISTB-3510-1 for the Comprehensive and Preservice Tests. The basis for the testing strategy in this Code Case is that a quarterly Group A pump test, performed at the CPT flow rate with more accurate instrumentation, is more effective in assessing a pump's operational readiness, through trending, than a standard Group A test in conjunction with a biennial CPT. The only exception to the accuracy requirements is contained in Relief Request No. 90-PRR-1 (Safety Evaluation Report dated November 17, 2009, ML093080382), which allows the use of analog flow instrumentation that does not meet the 2% accuracy requirement noted in Table ISTB-3510-1. This relief request only pertains to the Control Structure Chilled Water Pumps (0A-P162 & 0B-P162). In addition to the accuracy requirements in Table ISTB-3510-1, ISTB-3510 requires that the full scale range of each analog instrument shall be not greater than three times the reference value. The relief request demonstrates that when both the 2% accuracy requirement of full scale and the requirement that full scale be not greater than three times the reference value are considered, the installed instrumentation yields a permissible inaccuracy of $\pm 6\%$ of the reference value.

Additionally, ISTB allows the Owner to test a pump that otherwise meets the requirements of Group B, as a Group A pump, and test according to the provisions of Code Case OMN-18. In doing this, the Owner is obtaining additional data (vibration) quarterly, rather than once every two years.

As a result of the increased requirements on the parameters imposed by the proposed alternative during applicable quarterly tests, there is no added value in performing the biennial comprehensive test on the subject pumps.

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5. Proposed Alternative and Basis for Use

Limerick Generating Station, Units 1 and 2 is proposing to utilize the provisions of Code Case OMN-18 and performing a modified Group A test in lieu of performing the Code-required CPT. The modified Group A test will be run quarterly at $\pm 20\%$ of the pump's design flow rate using $\pm 1/2\%$ accurate gauges to determine the pump differential pressure for centrifugal and vertical line shaft, and pump discharge pressure for reciprocating positive displacement pumps. Vibration tests will be performed and the vibration acceptance criteria for the proposed alternative test will remain identical to the standard Group A test. Additionally, Limerick will utilize an Acceptable Range high limit of 106% or lower for quarterly testing.

The use of more accurate pressure gauges and a more limiting Acceptable Range during every modified quarterly Group A test compensates for the elimination of the CPT. Regular testing with more accurate instrumentation and tighter acceptance criteria will provide for better trending of pump performance. Instead of performing seven tests with pressure instruments with $\pm 2\%$ accuracy and then performing the eighth test with pressure instruments with $\pm 1/2\%$ accuracy, all eight tests will be performed with the same $\pm 1/2\%$ accurate instruments. Due to the improved accuracy, consistent testing methodology, and the addition of quarterly vibration monitoring on Group B pumps, deviations in actual pump performance indicative of impending degradation are more easily recognized during quarterly performance trending activities.

Using the provisions of this request provides a reasonable alternative to the Code requirements based on the determination that the proposed alternative will provide adequate indication of pump performance, permit detection of component degradation, and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(z)(1), Limerick Generating Station, Units 1 and 2 requests approval of this alternative to the specific ISTB requirements identified in this request.

6. Duration of Proposed Alternative

The proposed alternative identified will be utilized during the third IST interval which started on February 18, 2010, and is scheduled to conclude on January 7, 2020.

7. Precedents

A similar Relief Request (PR-01) was approved for the Oyster Creek Nuclear Generating Station as discussed in the U.S. Nuclear Regulatory Commission's Safety Evaluation Report dated June 21, 2012 (ML120050329).

A similar Relief Request (PR-9) was approved for the St. Lucie, Units 1 and 2 as discussed in the U.S. Nuclear Regulatory Commission's Safety Evaluation Report dated July 1, 2011 (ML11143A077).

A similar Relief Request (PR-3) was approved for the Perry Nuclear Power Plant, Unit 1 as discussed in the U.S. Nuclear Regulatory Commission's Safety Evaluation Report dated October 8, 2009 (ML092640690).

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A similar Relief Request (PR-02) was approved for the Three Mile Island Nuclear Station, Unit 1 as discussed in the U.S. Nuclear Regulatory Commission's Safety Evaluation Report dated August 15, 2013 (ML13227A024).