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Callaway Plant

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August 9, 2005

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

Ladies and Gentlemen:

ULNRC-05184
10 CFR 50.55a

DOCKET NUMBER 50-483
UNION ELECTRIC COMPANY
CALLAWAY PLANT
10 CFR 50.55a(a)(3) REQUESTS FOR RELIEF FROM ASME OM CODE PUMP TESTING REQUIREMENTS FOR THIRD 120-MONTH INSERVICE TESTING INTERVAL

Pursuant to 10 CFR 50.55a(a)(3), Union Electric Company (AmerenUE) requests NRC approval of the attached (four) relief requests for the third 10-year inservice testing interval at Callaway. The Code Edition(s) and Addenda applicable to Callaway for its third inservice testing interval, which begins December 19, 2005, are ASME OM Code, 2001 Edition through 2003 Addenda.

The attached requests (identified as PR-01, PR-02, PR-03 and PR-04) pertain to pump testing and conformance to identified ISTB-1400, 3500 and/or -5100 requirements. PR-01 and PR-02 are requests to permit use of installed pressure gauges with a full-scale range that exceeds Code requirements but which can be compensated with appropriate calibration controls applied to the existing gauges. PR-03 is a request to permit use of a test flow path for the boric acid transfer pumps, for which only differential pressure (in lieu of differential pressure and flow) will be measured but which will still provide an adequate means to assess pump performance. PR-04 is a request to allow the Residual Heat Removal pumps to be tested as standby (Group B) pumps when the plant is in Mode 1, 2, 3, or 4, and as routinely operated (Group A) pumps when the plant is Mode 5 or 6. Supporting information, including the justification for each request, is provided in the attached relief requests.

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As indicated above, these relief requests support testing activities for which the applicable ASME OM Code requirements will go into effect on December 19, 2005. AmerenUE therefore respectfully requests review and approval of these requests by that time.

It may be noted that no new regulatory commitments have been made or identified pursuant to this letter and its attachments. Please contact me at 573-676-8659 or Dave Shafer at 314-554-3104 for any questions you may regarding these relief requests.

Sincerely,

Keith D. Young
Manager - Regulatory Affairs

TBE/jdg

Attachments: Relief Request PR-01
Relief Request PR-02
Relief Request PR-03 (with Attachment)
Relief Request PR-04 (with Attachments)

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10 CFR 50.55a Request Number PR-01

RHR Pump Discharge Pressure Gauge Range

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Pump Number	System	Class	Category
PEJ01A	EJ	2	AB
PEJ01B	EJ	2	AB

2. Applicable Code Edition and Addenda

ASME OM Code 2001 Edition through 2003 Addenda

3. Applicable Code Requirement

ISTB-3510(b)(1) – The full-scale range of each analog instrument shall be not greater than three times the reference value.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3), relief is requested from the requirement of ASME OM Code ISTB-3510(b)(1). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The installed discharge pressure gauge range of the Residual Heat Removal (RHR) pumps is 0 – 700 psig. The reference values for discharge pressure during Inservice Testing are between 200 psig and 300 psig. As a result, the instrument range exceeds the requirement of ISTB-3510(b)(1).

10 CFR 50.55a Request Number PR-01

RHR Pump Discharge Pressure Gauge Range (Continued)

5. Proposed Alternative and Basis for Use

Pump discharge pressure indication is used along with pump suction pressure indication to determine pump differential pressure. Reference values for the RHR pumps during Inservice Testing are between 200 psig and 300 psig. Based on ISTB-3510(b)(1), this would require as a maximum, a gauge with a range of 0 to 600 psig (3 X 200 psig) to bound the lowest reference value for pressure. Applying the accuracy requirement of ± 2 % for the Group A test, the resulting inaccuracies due to pressure effects would be ± 12.0 psig (0.02 X 600 psig).

As an alternative, for the Group A test, Callaway Nuclear Plant will use the installed discharge pressure gauge (0 to 700 psig) calibrated to less than ± 2 % such that the inaccuracies due to pressure will be less than that required by the Code (± 12.0 psig). Use of the installed pressure gauge calibrated to less the ± 2 % is equivalent in terms of measuring differential pressure.

Using the provisions of this relief request as an alternative to the specific requirements of ISB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) relief from the identified ISTB requirements is requested.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120-month inservice testing interval.

7. Precedents

This relief request was previously approved for the 2nd 120-month inservice testing interval at Callaway Nuclear Plant as Relief Request P-01.

10 CFR 50.55a Request Number PR-02

Centrifugal Charging Pump Suction Pressure Gauge Range

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. **ASME Code Component(s) Affected**

Pump Number	System	Class	Category
PBG05A	BG	2	B
PBG05B	BG	2	B

2. **Applicable Code Edition and Addenda**

ASME OM Code 2001 Edition through 2003 Addenda

3. **Applicable Code Requirement**

ISTB-3510(b)(1) – The full-scale range of each analog instrument shall be not greater than three times the reference value.

4. **Reason for Request**

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3), relief is requested from the requirement of ASME OM Code ISTB-3510(b)(1). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The installed suction pressure gauge range of the centrifugal charging pumps is 0 – 150 psig. The reference values for suction pressure during Inservice Testing are between 30 and 40 psig. As a result, the instrument range exceeds the requirement of ISTB-3510(b)(1).

10 CFR 50.55a Request Number PR-02

Centrifugal Charging Pump Suction Pressure Gauge Range (Continued)

5. Proposed Alternative and Basis for Use

Pump suction pressure indication is used along with pump discharge pressure indication to determine pump differential pressure. Reference values for the centrifugal charging pumps during Inservice Testing are between 30 psig and 40 psig. Based on ISTB-3510(b)(1), this would require as a maximum, a gauge with a range of 0 to 90 psig (3 X 30 psig) to bound the lowest reference value for pressure. Applying the accuracy requirement of ± 2 % for the quarterly Group B pump test, the resulting inaccuracies due to pressure effects would be ± 1.8 psig (0.02 X 90 psig).

As an alternative, for the Group B quarterly test, Callaway Nuclear Plant will use the installed suction pressure gauge (0 to 150 psig) calibrated to less than ± 2 % such that the inaccuracies due to pressure will be less than that required by the Code (± 1.8 psig). Use of the installed pressure gauge calibrated to less the ± 2 % is equivalent in terms of measuring differential pressure.

Using the provisions of this relief request as an alternative to the specific requirement of ISB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), relief from the identified ISTB requirements is requested.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120-month inservice testing interval.

7. Precedents

This relief request was previously approved for the 2nd 120-month inservice testing interval at Callaway Nuclear Plant as Relief Request P-06.

10 CFR 50.55a Request Number PR-03

Boric Acid Transfer Pump Flow Measurement

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Pump Number	System	Class	Category
PBG02A	BG	3	A
PBG02B	BG	3	A

2. Applicable Code Edition and Addenda

ASME OM Code 2001 Edition through 2003 Addenda

3. Applicable Code Requirement

ISTB-5121(c) – Where it is not practical to vary system resistance, flow rate and pressure shall be determined and compared to their respective reference values.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3), relief is requested from the requirement of ASME OM Code ISTB-5121. The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The normal test loop for the subject pumps consists of fixed resistance flow paths to limit flow; however, flow measuring instruments are not installed. See Attachment 1, Boric Acid Transfer Pump Test Diagram. Since the system resistance is fixed and can be assumed to be constant, pump degradation can be detected by comparing successive measurements of pump differential pressure.

10 CFR 50.55a Request Number PR-03

Boric Acid Transfer Pump Flow Measurement (Continued)

5. Proposed Alternative and Basis for Use

An alternate test circuit is available in which flow rate may be measured, however this flow path requires injection of highly concentrated boric acid solution into the reactor coolant system. During the quarterly Group A test at normal power operations, this test is highly impractical since severe power level fluctuations would be created which would lead to a potential transient and subsequent trip of the reactor. Performing this test at cold shutdown intervals would also result in excessive boration of the reactor coolant system resulting in potential difficulties and delays in restarting the plant.

As an alternative to measuring differential pressure and flow during the group A quarterly test, only the differential pressure will be measured and compared to its reference value. Additionally, vibration measurements are also recorded and compared to their reference values. The Group A test will be performed using the fixed-resistance mini-flow path shown on Attachment 1. The reference value is approximately 112 psig at a flow rate of 15 gpm. At this flow rate, the point on the pump curve is relatively flat such that a ± 25% change in flow would result in less than 1 % change in differential pressure. Based on this, it is not necessary to install additional instrumentation to ensure flow is measured and compared to its reference value.

During the comprehensive inservice test when flow may be measured, full-spectrum vibration analysis will be performed which is beyond vibration analysis required by the Code. The vibration measurements will be recorded and compared to their reference values. Thus, when performing the comprehensive pump test, all required parameters will be measured and compared to their reference values.

The performance of full spectrum analysis, in addition to continued quarterly and comprehensive testing, will ensure that an accurate assessment of pump health and operational readiness is determined. This alternative provides an acceptable level of quality and safety.

Using the provisions of this relief request as an alternative to the specific requirement of ISTB-5121(c) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) relief from the identified ISTB requirement is requested.

10 CFR 50.55a Request Number PR-03

Boric Acid Transfer Pump Flow Measurement (Continued)

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120-month inservice testing interval.

7. Precedents

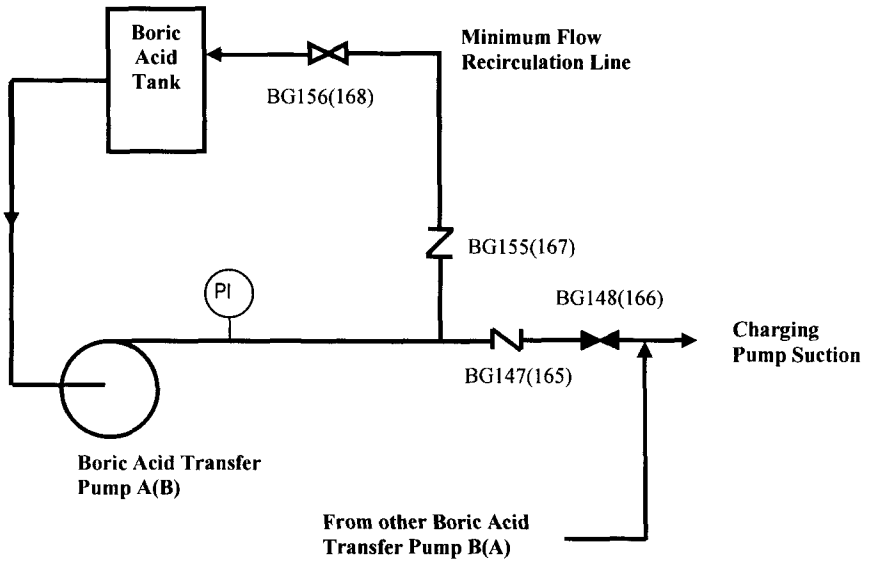
This relief request was previously approved for the 2nd 120-month inservice testing interval at Callaway Nuclear Plant as Relief Request P-09.

10 CFR 50.55a Request Number PR-03

Boric Acid Transfer Pump Flow Measurement (Continued)

Attachment 1

Boric Acid Transfer Pump Test Diagram



10 CFR 50.55a Request Number PR-04

Categorization of RHR Pumps as Both Group A and Group B

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Pump Number	System	Class	Category
PEJ01A	EJ	2	AB
PEJ01B	EJ	2	AB

2. Applicable Code Edition and Addenda

ASME OM Code 2001 Edition through 2003 Addenda

3. Applicable Code Requirement

ISTB-1400(b) requires Callaway to "identify each pump to be tested in accordance with the rules of this Subsection and categorize it as either a Group A or Group B pump and list the pumps in the plant records (see ISTB-9000)." It further states, "A pump that meets both Group A and Group B definitions shall be categorized as a Group A pump."

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (a)(3), relief is requested from the requirement of ASME OM Code ISTB-1400(b). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The Residual Heat Removal (RHR) pumps meet the categorization requirements of Group A pumps in that they are operated routinely during plant shutdowns (Mode 5-6). However, these pumps also meet the requirements of Group B, in that during normal operation (Modes 1-4) they are not operated except for testing.

10 CFR 50.55a Request Number PR-04

Categorization of RHR Pumps as Both Group A and Group B (Continued)

During normal power plant operations, Modes 1-4, the RHR pumps are in a standby condition and are considered an essential part of the Emergency Core Cooling System (ECCS). The pumps start automatically upon receipt of a safety injection signal, taking suction from the RWST during the injection phase of an accident. The pumps are then aligned to take suction from the containment sump during the recirculation phase of an accident. The pumps discharge to the reactor coolant system via the residual heat removal heat exchangers.

The pumps may also be aligned to pump to the suction of either the safety injection pumps or the containment spray pumps depending on plant emergency conditions. During normal plant shutdowns, the RHR pumps are used to cool down the reactor coolant system (shutdown cooling). This shutdown cooling function is not required for safe shutdown or accident mitigation.

ASME ISTB-1400(b) states that if a pump meets both Group A and Group B definitions, it shall be categorized as a Group A pump. The RHR pumps are tested during normal operation, Modes 1-4, using the minimum flow recirculation loop. This current test is essentially a Group B test in that the pump is operated at low flow conditions (approximately 600-625 gpm) on minimum flow recirculation. The design flow rate of the RHR Pumps is 3,800 gpm. This flow rate can only be achieved during shutdown periods (Modes 5-6) when injection into the reactor coolant system is possible. See Attachment 1, RHR System Diagram. Attachment 2, RHR Pump Characteristic Curve is also supplied.

The performance of a Group A test at these low flow conditions does not reflect the intent of the Code for Group A tests. Additionally, these pumps can not be tested as Group A or comprehensive in these modes due to using the minimum flow recirculation line.

5. Proposed Alternative and Basis for Use

Callaway Nuclear Plant will test the RHR pumps as standby (Group B) during Modes 1-4 and as routinely operated pumps (Group A) when the plant is in Modes 5-6. When in cold shutdown or refueling, a comprehensive test may be substituted for the Group A test should the comprehensive test come due. ISTB-5000 permits substitution of a comprehensive test for a Group A test.

10 CFR 50.55a Request Number PR-04

Categorization of RHR Pumps as Both Group A and Group B (Continued)

Testing the RHR pumps as Group B during Modes 1-4 and as Group A during Modes 5-6 provides reasonable assurance of the operational readiness of the pumps and provides an acceptable level of quality and safety.

Using the provisions of this relief request as an alternative to the specific requirement of ISTB-1400(b) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) relief from the identified ISTB requirement is requested.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120-month inservice testing interval.

7. Precedents

a) Similar relief request PR-12 was previously approved for Calvert Cliffs Nuclear Power Plant on May 16, 2002.

Docket Nos. 50-317 and 50-318
TAC Nos. MB3782 and MB3783

b) Similar relief request PR-04 was previously approved for Three Mile Island Nuclear Power Plant on July 7, 2005.

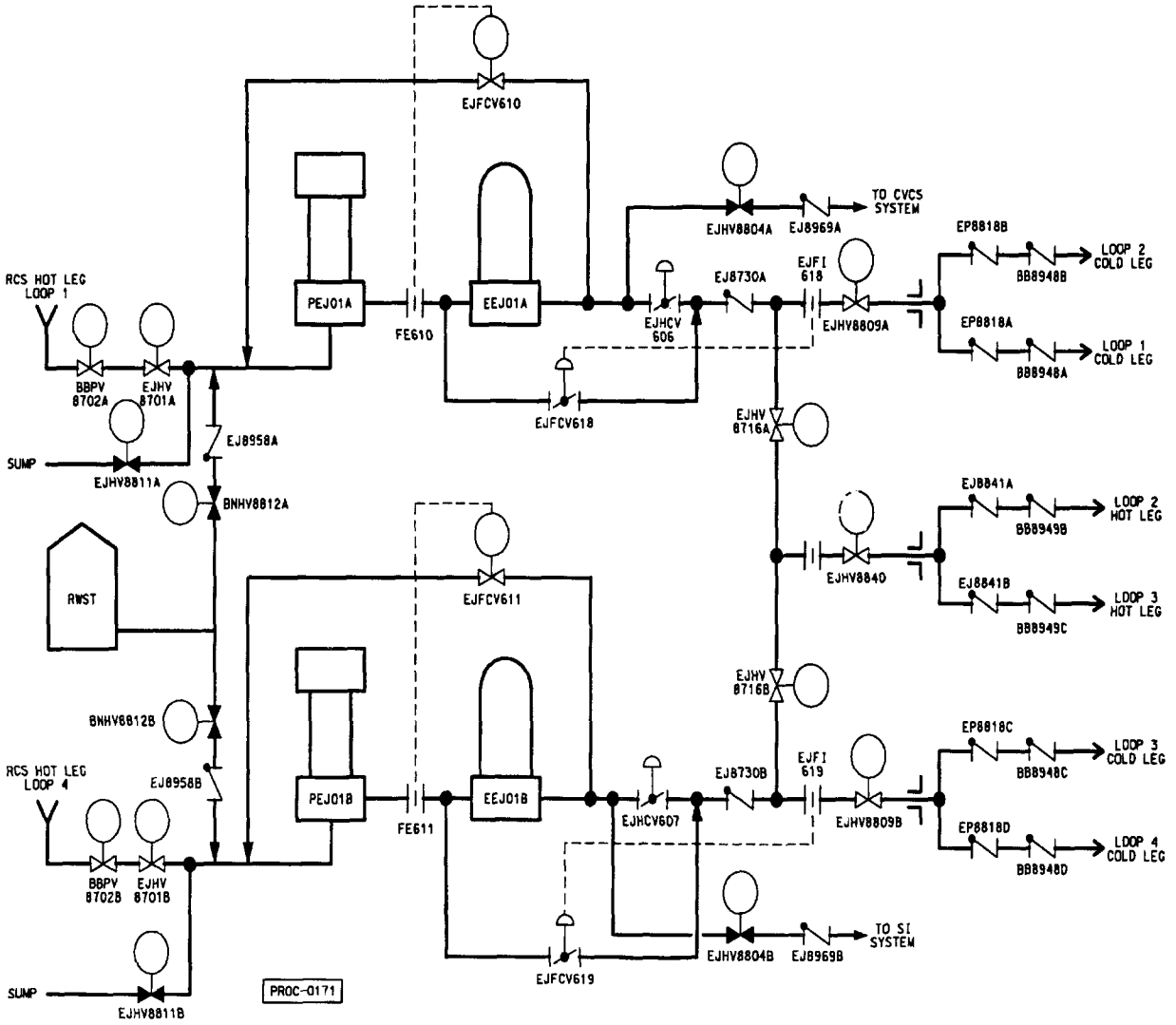
TAC No. MC2558

10 CFR 50.55a Request Number PR-04

Categorization of RHR Pumps as Both Group A and Group B (Continued)

Attachment 1

RHR System Diagram



10 CFR 50.55a Request Number PR-04

Categorization of RHR Pumps as Both Group A and Group B (Continued)

Attachment 2

RHR Pump Characteristic Curve