

May 22, 1996

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Gentlemen:

ULNRC-3377  
TAC NO. M90030

**CALLAWAY PLANT**  
**DOCKET NUMBER 50-485**  
**CALLAWAY PUMP AND VALVE INSERVICE TESTING PROGRAM**

- References: 1) ULNRC-3043 dated July 14, 1994  
2) NRC letter dated June 2, 1995

Reference 1 transmitted the Pump and Valve Inservice Testing Program (IST) for Callaway's second 10-year interval. This program was developed to comply with the rules and regulations of 10CFR50.55a and Section XI of the ASME Boiler and Pressure Vessel Code, 1989 Edition.

The NRC staff, with technical assistance from Brookhaven National Laboratory, reviewed the information concerning the second 10-year IST program. As stated in Reference 2, IST program relief requests were granted or approved for implementation provided action items as identified in Section 5.0 of the Technical Evaluation Report were addressed.

Enclosed please find (1) the resolution of each action item from TER Section 5.0 and (2) Revision 15 of the IST program. Revision 15 incorporates changes made to the IST program as a result of NRC's comments and action items, and provides a general update to the program.

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If you have any questions concerning this  
submittal, please contact us.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Donald F. Schnell".

Donald F. Schnell

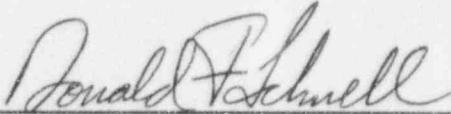
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Attachments: 1) Action Item Resolution  
2) IST Program Revision 15

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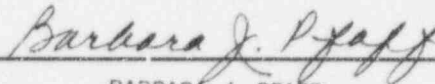
Donald F. Schnell, of lawful age, being first duly sworn upon oath says that he is Senior Vice President-Nuclear and an officer of Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By



Donald F. Schnell  
Senior Vice President  
Nuclear

SUBSCRIBED and sworn to before me this 22nd day  
of May, 1996.



BARBARA J. PFAFF  
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MY COMMISSION EXPIRES APRIL 22, 1997  
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Callaway Plant  
Pump and Valve Inservice Testing Program  
Response to Recommended Action Items

Callaway's second 10-year interval Pump and Valve Inservice Testing Program (IST) complies with the rules and regulations of 10CFR50.55a and Section XI of the ASME Boiler and Pressure Vessel Code, 1989 Edition. The NRC staff, with technical assistance from Brookhaven National Laboratory, reviewed the second 10-year IST program. IST program relief requests were approved for implementation provided the action items in Section 5.0 of the Technical Evaluation Report (TER) were addressed. The resolution of each action item from TER Section 5.0 is discussed below.

NRC Item 5.1

In Pump Relief Request #P02 (TER 2.2.1), the licensee seeks relief from measuring vibration of the submerged fuel oil transfer pumps. It is recommended that interim relief be granted in accordance with 10CFR50.55a(f)(6)(i), for a period of one year, or until the next refueling outage, whichever is later, on a basis of the impracticality of immediately imposing Code requirements. The licensee should subsequently revise and submit this relief request to indicate an alternative course of action, such as the institution of a regular maintenance and spare parts program for these pumps which includes provisions to inspect the pump bearings and perform maintenance when the storage tanks are drained and the bearings are accessible (e.g., once every ten years).

Union Electric Response - Item 5.1

Union Electric will disassemble the Fuel Oil Transfer Pumps to inspect the pump bearings and perform maintenance once every ten years. Relief Request #P02 was revised to reference this ten year bearing inspection and pump maintenance, and included in Revision 15 of the IST Program.

NRC Item 5.2

In Valve Relief Request #V07 (TER 3.2.1), the licensee proposed to use non-intrusive techniques to verify full open capabilities of the ECCS injection line check valves. Relief is not required for this request however, the licensee should confirm that each branch line will have temporary instrumentation installed during the ECCS flow balance.

Union Electric Response - Item 5.2

Valve Relief Request #V07 has been removed from Revision 15 of the IST Program. Temporary instrumentation is installed on each branch line during the ECCS flow balance to measure individual branch line flow.

NRC Item 5.3

In Valve Relief Request Nos. EN-01, EN-02, EN-03, EP-02, and FC-01, it is recommended that the proposed alternative testing of check valve disassembly and inspection be authorized provided that all criteria of Position 2 is complied with, including adherence to the sample composition (e.g., all valves in the group must be the same size and see the same service conditions. Two of the valves identified in EN-02 are 10 inch pump discharge valves and the other two are 12 inch pump suction valves). The licensee should revise relief request EN-02 and ensure that the information to support compliance with Position 2 guidance is documented in the IST Program, as GL-89-04 requests.

Union Electric Response - Item 5.3

Relief Request #EN-02 was revised to remove the Containment Spray Pump discharge check valves, ENV0004 and ENV0010. These check valves were placed in a new relief request, #EN-05. This new grouping complies with Position 2 of Generic Letter 89-04. Relief Requests Nos. EN-01, EN-02, EN-03, EN-05, EP-02, and FC-01 have been revised to include information to support compliance with the guidance given in Generic Letter 89-04, Position 2.

NRC Item 5.4

General comments on programmatic aspects of deferral testing are as follows:

(a) If a check valve has two safety positions, i.e., open and closed, the licensee must provide a discussion of the impracticality of verifying both positions quarterly, and at cold shutdowns, as the case may be. Although the forward flow exercise may be impractical quarterly or during cold shutdowns, the licensee may practically verify closure without testing the forward flow. For example, the impracticality of verifying closure quarterly or during cold shutdowns is not discussed in deferrals #EM-01 and #EM-05. Also, in some cases (e.g., #EM-03), the impracticality of part-stroke exercising is not explained.



(b) The valve table could be enhanced if the test frequencies for each test were added to the table, e.g., quarterly, cold shutdown, refueling outage, as the case may be. Also, for safety/relief valve testing either a 5 year or 10 year frequency should be noted.

(c) It is recommended that the licensee review all the systems in the program and verify that safety and relief valves that fall under OMa-1988, Part 10, ¶ 3.4, which references the safety and relief valve testing requirements of OM-1-1987, are in the program. There are numerous cases where relief valves installed in Code Class piping are omitted from the IST Program (e.g., KAV703, 704, 705, 706; EGV170, 159; ENV057; EP8855A-D, KJV716A, B, 717A, B; and the valves identified in TER Section 5.12).

#### Union Electric Response - Item 5.4

(a) Cold Shutdown and Refueling Justifications #AL-01, #BG-04, #BG-05, #EM-01, and #EM-05 have been added to Revision 15 of the IST Program. In response to the comment regarding partial-stroke testing of EM8815 in Refueling Justification #EM-03, this Refueling Justification, as well as other Refueling or Cold Shutdown Justifications have been clarified by specifying full or partial stroke exercising as appropriate.

(b) The valve table has been enhanced by the addition of test frequencies for each test contained in the table.

(c) Per ASME/ANSI OMa-1988, Part 10, Table 1 only active safety/relief valves need to be included in the IST Program. All of the relief valves removed from Revision 14 of the IST Program are classified as passive valves.

#### NRC Item 5.5

Deferral requests #BB-08, #BB-11, and, #BB-07 and #BG-02 relate to the RCP pump seals. #BB-11 deals with the inlet component cooling water supply to the thermal cooling coils where the licensee concludes appropriately that these valves should be tested at refueling outages when the RCPs are stopped. #BB-08 deals with the outlet component cooling water supply to the thermal barrier cooling coils where the licensee concludes that testing at cold shutdowns is appropriate. #BB-07 deals directly with the seal water injection flow where the licensee concludes appropriately that these valves should be seat leak closure tested at refueling outages. #BG-02 deals directly with seal water return flow and the licensee concludes that testing at cold shutdowns is appropriate. The conditions for

seal damage are nearly as great at cold shutdowns as they are during operation, and consequently the licensee is being asked to review deferral requests #BB-08 and #BG-02.

Union Electric Response - Item 5.5

Relief Requests #BB-08 and #BG-02 have been revised to specify testing during refueling outages as opposed to cold shutdown frequencies.

NRC Item 5.6

It is not evident why the IST valve program table identifies the need for leak testing Category C check valves EJ8969A, B. This testing is not described in deferrals #EJ-02 and #EJ-09. The licensee should review these deferrals, and revise if required.

Union Electric Response - Item 5.6

The test code "LT" has been removed from the "Tests Performed" column of the IST valve program table for EJ8969A, B in Revision 15 of the IST Program. These valves will not be leak tested.

NRC Item 5.7

In deferral request #KA-01 for the compressed air system's air-operated isolation valve, KAV0029, the valve is required to be fail-safe tested but the frequency is missing. The licensee should revise this deferral to include fail-safe testing and its frequency.

Union Electric Response - Item 5.7

Fail-safe testing of KAFV0029 is performed during the valve stroke test. The requirement to perform the fail-safe test at the same frequency as the valve stroke test, e.g., on a cold shutdown frequency, was implied in Relief Request #KA-01. For clarity, a reference to the fail-safe test of this valve was added to Relief Request #KA-01 in Revision 15 of the IST Program.

NRC Item 5.8

Prior to performing an IST systems review, a comparison of the valves in the IST program under Section XI, IWV, and under OMA-1988, Part 10, was made for deferral testing by using the previous Callaway IST program SERs (Ref. 14 thru 20). The



following items were found but changes in testing or test configuration may explain the differences:

(a) ALV006, 9, 12, 15, essential service water supply check valves to the suction of the auxiliary feedwater pumps. Valve table indicates full-stroke exercising but does not identify disassembly/inspection. The SER of August 19, 1987 (Ref. 16) states valves will be disassembled/inspected. These valves were not identified in the present relief requests for disassembly/inspection. Although relief is not required the licensee should advise if this is still the case. The present valve table indicates quarterly full-stroke exercising.

(b) BMHV0001, 2, 3, 4, the steam generator blowdown isolation valves. The previous SER (Ref. 15) states these valves cannot be exercised during power operations because failure of a valve in the closed position during testing would isolate normal blowdown flow, which would disrupt steam generator chemistry limits, which would require a plant shutdown and could cause steam generator damage. These valves would be exercised during cold shutdowns and refueling outages. The valve table indicates quarterly full-stroke exercising. The licensee should review the test procedure for these valves.

(c) EMHV8802A, B are the isolation valves in the safety injection headers to the RCS hot legs, and cannot be exercised during power operations because they are required to remain closed with power removed from their actuators by plant Technical Specifications. These valves must open to allow safety injection hot leg recirculation. The valve table indicates quarterly full-stroke exercising. The licensee should review the testing for these valves and document a test deferral, if necessary.

#### Union Electric Response - Item 5.8

(a) Check valves ALV0006, 9, 12 and 15 are tested per OMA-1988, Part 10, Section 4.3.2.4.b, therefore, disassembly is not required.

(b) Relief Request #BM-01 was removed from the IST Program in Revision 11 as the basis for relief was no longer valid. Plant operating experience and chemistry calculations have shown that these valves may be closed for up to 96 hours before chemistry conditions will force plant shutdown. Following removal of Relief Request #BM-01, the subject valves were placed on a quarterly test frequency.

(c) As a result of a recent evaluation, we determined that EMHV8802A and B may be exercised during power operations as long as EMHV8821A and B are maintained closed and Technical Specification Action Statement 3.5.2.a is entered. Therefore, Relief Request #EM-06 was removed from the IST Program and these valves were placed on a quarterly test frequency.

#### NRC Item 5.9

The review performed for this TER did not include verification that all pumps and valves within the scope of 10CFR50.55a and Section XI are contained in the IST Program, and did not ensure that all applicable testing requirements have been identified. The scope of the IST Program, however, was reviewed for several systems. The pumps and valves for the reactor coolant, chemical and volume control, high pressure coolant injection, safety injection, residual heat removal, main steam, feedwater, component cooling water, and essential service water systems were reviewed against the requirements of Section XI and the regulations. Technical input was obtained from the Callaway FSAR (Ref. 12) and IPE (Ref. 13). In general, the scope of the Callaway IST program for selected systems appears complete, however, certain valves were identified that may be within the scope of IST. It is recommended that the following valves be reevaluated for inclusion in the IST Program if the valves are Code Class 1, 2, or 3, and the function of the valves is credited in the plant's safety analysis.

##### 5.9.1 Chemical and Volume Control System

- BGHV8145, pressurizer auxiliary spray control valve, a 3 inch air-operated globe valve, normally closed, which opens to supply pressurizer spray if normal spray is lost.
- BBV0084, 2 inch check valve, normally closed, which opens to allow pressurizer auxiliary spray from the CVCS.
- If throttle valves BGHV8357A, B to the RCP seals are open during an accident then check valves BGV0589, 590 should also open.
- Relief Valve: BG8124 - CCP suction header, 1 inch.

##### 5.9.2 High Pressure Coolant Injection System

- If the boron injection tank (BIT) has been replenished with boric acid since the SER of October 26, 1987 (Ref. 16), as

would be indicated by deferral #BG-04, then AOVs EMHV8883, EMHV8870A, B should be put back into the program to close, if in the recirculation mode, since they receive an SIS signal to close in an accident.

- Relief Valves: EM8853A, B: RHR pumps discharge, 3/4 inch.  
EM8858A, B: SI pumps suction, 3/4 inch.  
EM8851: SI cold leg injection, 1 inch.

#### 5.9.3 Residual Heat Removal System

- Relief Valves: EJ8856A, B: RHR pumps discharge, 3/4 inch.  
EJ8842: RHR hot leg recirculation, 3/4 inch.  
EJV156, 157: RHR pump cooling, 3/4 inch.  
EJV084: RHR heat exchanger, 1/2 inch.

#### 5.9.4 Main Steam System

- ABV0345, 0346, 0347, 0348, 0349, 0350, 0351, 0352 - Air supply and nitrogen backup supply to the steam generators PORVs. Loss of air and nitrogen supply will cause S/G PORVs to remain closed. (It appears that these valves are Code Class 3 based on the piping designation (i.e., HBC).)

### Union Electric Response - Item 5.9

5.9.1 Union Electric has determined that BBV0084 and BGHV8145 are not credited in the Callaway Plant safety analysis. Therefore, these valves need not be included in the IST Program. Check valves BGV0589 and 0590 are added in Revision 15 of the IST Program. Refer to the response to Item 5.4(c) for discussion on BG8124.

5.9.2 Callaway Plant modification CMP 90-1008 removed the Boron Injection Tank, EMHV8883, and EMHV8870A, B from the system. Relief Request #BG-04 has been revised to reference the boron injection header instead of the Boron Injection Tank. Refer to the response to Item 5.4(c) on Page 3 for discussion of the relief valves.

5.9.3 Refer to the response to Item 5.4(c) for discussion of the relief valves.

5.9.4 Union Electric has determined that valves ABV0345, 0346, 0347, 0348, 0349, 0350, 0351, 0352 and similar valves ALV0148, 0149, 0150, 0151, 0152, 0153, 0154, 0155 are not ASME Code Class components. These valves were purchased as appurtenances to the valve operators. The valve operator data sheets show

the check valves to be commercial grade components. Therefore, they are not required to be in the IST Program.

Additional Information

The TER, Section 3.1.1 discusses why Relief Request #V02 is not required. Therefore, Relief Request #V02 has been removed from the IST Program.