

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Callaway Plant Unit 1	0 5 0 0 0 4 8 3	1 OF 0 6

TITLE (4)

Non-Environmentally Qualified Terminal Blocks

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)												
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES					DOCKET NUMBER(S)							
0	2	01	85	85	007	01	03	25	85						0	5	0	0	0		
0	2	01	85	85	007	01	03	25	85						0	5	0	0	0		

OPERATING MODE (8)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following): (11)				
1		20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)	
POWER LEVEL (10)	1 0 0	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)	
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)		
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)		
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)		

LICENSEE CONTACT FOR THIS LER (12)	
NAME	TELEPHONE NUMBER
James Earl Davis - Superintendent, Compliance	AREA CODE 3114 6176 1-182 1316

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC TURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

While reviewing the Callaway Plant's compliance with Generic Letter 84-24, Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants, and NRC Information Notice 83-72, Environmental Qualification Testing Experience, it was discovered between the dates of 2/1/85 and 2/7/85 that six valves did not have environmentally qualified terminal blocks installed in Limitorque Actuators. Three of these valves are Containment Isolation valves identified in Technical Specification 3.6.3 and are required to be operable in Modes 1, 2, 3 and 4. The plant first entered Mode 4 on 8/10/84.

Upon determination that the terminal blocks were not qualified, the valves were declared inoperable and the appropriate actions required by Technical Specifications were taken. The terminal blocks for the six valves were replaced with environmentally qualified Marathon 300 type terminal blocks by 2/13/85. An investigation of the remaining safety grade Limitorque valves in the equipment qualification program was completed 3/5/85. This investigation identified five additional safety grade valves that did not have environmentally qualified terminal blocks. The terminal blocks were replaced and by 3/5/85 all 154 safety grade valves were verified to have environmentally qualified terminal blocks.

There was no damage to plant equipment or release of radioactivity as a result of this incident. At no time was the public health or safety threatened.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/95

FACILITY NAME (1)

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Callaway Plant Unit 1

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

On 12/27/84 Generic Letter 84-24, Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants, was issued by the NRC to have licensees certify compliance to 10 CFR 50.49. This certification of Compliance was to include adherence to numerous NRC IE Information Notices including Notice 83-72, Environmental Qualification Testing Experience, dated 10/28/83.

Union Electric received Generic Letter 84-24 on 1/14/85 and commenced a review of the environmental qualification issues identified. On 1/21/85, while reviewing the documentation associated with the environmental qualification of Limitorque Valve Operators as addressed by IE Information Notice 83-72, a problem with some field inspection checklists involving terminal blocks was discovered. It was noted that on 45 qualified operators, the inspection checklists identified Marathon type terminal blocks but did not specify the model number. In addition, one inspection checklist (LF-FV-95) could not be located. It was therefore determined that a re-inspection of the 46 valves would be performed to verify that environmentally qualified terminal blocks were installed. This inspection began on 2/1/85.

The results of this inspection revealed 6 valves that did not have environmentally qualified terminal blocks. This problem was also included in the Union Electric response to Generic Letter 84-24, ULNRC-1042 dated 2/13/85.

The 6 valves that were identified are as follows:

1. LF-FV-95; Containment Normal Sump Pumps Discharge Header Containment Flow Control Valve.
2. EG-HV-126; Component Cooling Water to Reactor Coolant System Containment Bypass Protection 'A' Hand Control Valve.
3. EG-HV-54; Component Cooling Water Train 'B' Supply Isolation Hand Control Valve.
4. EG-HV-131; Component Cooling Water from Reactor Coolant System Containment EG-HV-59 Bypass Isolation Hand Control Valve.
5. EF-HV-32; Essential Service Water Train 'B' to Containment Air Coolers Outer Containment Hand Control Valve.
6. EF-HV-60; Essential Service Water Train 'B' from Component Cooling Water Heat Exchanger 'B' Hand Control Valve.

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APPROVED OMB NO. 3150-0104

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FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 05000483	LER NUMBER (8)			PAGE (3)	
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		85	007	01	03	OF 06

TEXT (If more space is required, use additional NRC Form 388A's) (17)

Valves LF-FV-95, EG-HV-131, and EF-HV-32 are Containment Isolation Valves identified in Technical Specification 3.6.3 and are required to be operable in Modes 1, 2, 3 and 4. The plant first entered Mode 4 on 8/10/84. Upon determination that the terminal blocks were not environmentally qualified, the valves were declared inoperable and the appropriate actions required by Technical Specifications were taken. By 2/13/85 the terminal blocks for the 6 valves were replaced with environmentally qualified Marathon 300 type terminal blocks.

An engineering evaluation, pertaining to the safety significance of having the non-environmentally qualified terminal blocks installed in the plant, has been conducted and no significant safety concerns have been identified as shown below..

LF-FV-95 - redundant protection for containment isolation is provided by LF-FV-96 which is not a Limitorque valve. Additional protection is provided by the LF system integrity which would act as an isolation boundary.

EG-HV-131 - valve is normally closed and receives a close signal on SIS.

EF-HV-32 - valve is normally open and receives an open signal on SIS.

EG-HV-126 - (same as EG-HV-131 above)

EG-HV-54 - valve is an operator controlled valve used to switch between A&B trains and does not receive an accident signal.

EF-HV-60 - valve is normally open (throttled) and receives a signal to close on SIS or loss of offsite power. If it failed to close, it would add an additional 7,569 GPM to B train ESW flow (LOCA). ESW train B LOCA flow (with EF-HV-60 stuck open) would be 23,894 GPM which is still on the ESW pump curve. The control room would have several indications of this condition which would prompt action. The handswitch indicating lights for EF-HV-60 would show the valve to be open whereas the comparable A train valve EF-HV-59 would be closed. Control room flow indicators EF-FI-54 (B train) and EF-FI-53 (A train) would also indicate a flow mismatch. Control room temperature indicators EG-TI-32 (B train CCW outlet) and EG-TI-31 (A train CCW outlet) would show a temperature mismatch. With the problem identified, EF-HV-60 would be hand cranked closed.

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APPROVED OMB NO. 3150-0104
EXPIRES: 9/31/85

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TEXT (If more space is required, use additional NRC Form 355A's) (7)

In addition, 16 valves for which the original field inspection forms identified the terminal blocks as Marathon 300 type have been inspected as of 3/1/85. All 16 were verified to have environmentally qualified Marathon 300 type terminal blocks installed.

To provide assurance that no additional terminal block discrepancies existed, an investigation of the remaining safety grade Limitorque Valve Operators was initiated 3/4/85 and completed 3/5/85. This investigation revealed five additional operators as having unqualified terminal blocks. They are as follows:

7. BN-HV-8812A; Refueling Water Storage Tank (RWST) to Residual Heat Removal (RHR) pump 'A' Suction Hand Control Valve.
8. BN-HV-8812B; Same as BN-HV-8812A (Train 'B').
9. EF-HV-51; Essential Service Water (ESW) to Component Cooling Water (CCW). Heat Exchanger 'A' Hand Control Valve.
10. EF-HV-52; Same as EF-HV-51 (Train 'B').
11. EF-HV-59; ESW from CCW Heat Exchanger 'A' Hand Control Valve.

An engineering evaluation pertaining to the safety significance of having unqualified terminal blocks installed in these operators has been conducted and no significant safety concerns have been identified as described below.

BN-HV-8812 A/B - The areas in which these valves are located are classified as harsh environment areas strictly due to radiation concerns in the event of a loss of coolant accident. BN-HV-8812 A/B are interlocked with EJ-HV-8811 A/B, RHR pump suction from containment recirculation sumps, and receive an automatic signal to close after EJ-HV-8811 A/B receives an automatic signal to open. This valve swap over switches the suction for the RHR pumps from the RWST to the containment recirculation sumps. This occurs in the event of a safety injection signal (SIS) coupled with a RWST low-low 1 level signal. BN-HV-8812 A/B would only be exposed to a harsh environment area a short period of time until the valve swap over to the containment recirculation sumps was completed. In addition, backflow to the RWST through BN-HV-8812 A/B is prevented by check valves EJ-V-8958 A/B. Based on the above discussion, it is concluded that BN-HV-8812 A/B would have performed their design function in the event of an accident. If BN-HV-8812 A/B did fail open with EJ-HV-8811 A/B also open

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APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 05000483815	LER NUMBER (6)			PAGE (3)		
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		815	007	01	05	OF	06

TEXT (If more space is required, use additional NRC Form 388A-1 (17))

the RWST would drain faster requiring the containment spray pump suction to be switched from the RWST to the containment recirculation sumps earlier than anticipated. This does not pose a safety concern as an adequate water supply is available from the containment recirculation sumps. Also, the control room would receive an alarm if BN-HV-8812 A/B failed thus initiating operator action.

EF-HV-51-Located in a mild environment area, this valve, which is normally closed, will receive an open signal in the event of a SIS or loss of offsite power. If EF-HV-51 failed to open the control room would have several indications of this condition which would prompt action. The handswitch indicating lights for EF-HV-51 would show the valve to be closed whereas the comparable 'B' train valve, EF-HV-52, would be open. Control Room flow indicators EF-FI-53 (A train) and EF-FI-54 (B train) would indicate a flow mismatch. Control room temperature indicators EG-TI-32 (B train CCW outlet) and EG-TI-31 (A train CCW outlet) would show a temperature mismatch. With the problem identified, EF-HV-51 would be manually opened.

EF-HV-52-This valve is the B train counterpart of EF-HV-51. However, unlike EF-HV-51, this valve is normally open and receives a confirmatory open signal in the event of a SIS or loss of offsite power.

EF-HV-59-Located in a mild environment area, this valve, which is normally closed, receives a confirmatory closed signal upon a SIS or loss of offsite power.

The cause of this event was the original inspection criteria which only specified the verification of pre-molded type terminal blocks versus the mechanical type. The mechanical type terminal blocks were replaced with pre-molded Marathon 300 series terminal blocks. At the time of the original inspection, the non-environmentally qualified terminal blocks, Kulka 622's, had not been specified as being non-environmentally qualified. Therefore, it was not deemed critical at that time to differentiate between the Marathon 300 series and Kulka 622 series terminal blocks. In some cases, however, this was done and later led to the assumption that it had been done in all cases. When it was determined that Kulka 622 terminal blocks were not environmentally qualified, a review of the inspection records was performed and work requests generated to replace those terminal blocks identified as Kulka 622's. Based on the results of the reviews conducted and the original inspection criteria, it was determined that an investigation of all 154 safety grade valves and/or records was appropriate.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 9/21/95

FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 0500048385	LER NUMBER (3)			PAGE (3)	
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TEXT (If more space is required, use additional NRC Form 365A's) (17)

By 3/5/85 all 154 safety grade valves were verified to have environmentally qualified terminal blocks. This appears to be an isolated incident, which was due to a misunderstanding of data in the original inspection packages, and alleviates the need for any additional corrective actions.

There was no damage to plant equipment or release of radioactivity as a result of this incident. At no time was the public health or safety threatened.

Previous occurrences: Final 10 CFR 50.55(e)/Part 21 Report U-82 transmitted via ULNRC-82/ dated 5/22/84 and Generic Letter 84-24 transmitted via ULNRC-1042 dated 2/13/85.

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CALLAWAY PLANT

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March 25, 1985

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

ULNRC-1067

Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 85-007-01
NON-ENVIRONMENTALLY QUALIFIED TERMINAL BLOCKS

The enclosed Licensee Event Report is submitted to amend
LER 85-007-00, transmitted by ULNRC-1060 dated 3/4/85, concerning
non-environmentally qualified terminal blocks found in Limitorque
Operators.

Andrew P. Neuhalfen
for S. E. Miltenberger
Manager, Callaway Plant

WRR/RCW/drs
Enclosure

cc: Distribution attached

IE22
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cc distribution for ULNRC-1067

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