

Callaway Plant
Post Office Box 620
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August 1, 1994

U. S. Nuclear Regulatory Commission
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ULNRC-3045

Gentlemen:

**DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 94-002-00
TECH SPEC 3.5.2 VIOLATION AND SUBSEQUENT ENTRY INTO
TECH SPEC 3.0.3 DUE TO LEAKING BORON
INJECTION TANK RELIEF VALVE EM8852**

The enclosed Licensee Event Report is submitted in accordance with 10CFR50.73(a)(2)(i)(B), 10CFR50.73(a)(2)(v) and 10CFR50.73(a)(2)(vii) concerning entry into Technical Specification 3.0.3 due to leaking Boron Injection Tank Relief Valve EM8852.

J. D. Blosser
for J. D. Blosser
Manager, Callaway Plant

JDB/TPS/JGB/lrj

Enclosure

cc: Distribution attached

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 8 3	PAGE (3) 1 OF 0 7
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TITLE (4) **Tech Spec 3.5.2 Violation and Subsequent Entry Into Tech Spec 3.0.3 Due to Leaking Boron Injection Tank Relief Valve EM8852**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)																				
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV. NO.	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)																		
0	7	0	8	9	4	9	4	-	0	0	2	-	0	0	0	8	0	1	9	4			0	5	0	0	0		

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR - (Check one or more of the following) (11)									
POWER LEVEL (10) 9 4	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME T. P. Sharkey, Supervising Engineer, Site Licensing		AREA CODE 3 1 4	6 7 6 - 8 3 3 6

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
X	B Q	R V	C 7 I 0	Y						

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)

On 7/8/94 from 0918 CDT to 0928, both trains of the High Head Safety Injection System (HHSIS) were rendered inoperable in order to facilitate a modification to leaking Boron Injection Tank (BIT) relief valve EM8852. This was contrary to the requirements of Technical Specification (T/S) 3.5.2, therefore T/S 3.0.3 was entered at 0918 and exited at 0928. The plant was in Mode 1 at 94% reactor power.

On 4/22/94, a utility equipment operator discovered a small trickle of water running from a tygon hose on the BIT surge tank to a floor drain. Utility engineers determined the source of this water was seat leakage past BIT relief valve EM8852. Utility engineers reviewed applicable code requirements for EM8852 and determined it was no longer required. On 6/15/94, EM8852 was gagged, however the leakage continued to increase. By 7/5/94, leakage had increased to approximately 0.69 gallons per minute. After approval by the plant On-Site Review Committee, EM8852 was replaced with a blank flange on 7/8/94.

Entry into T/S 3.0.3 was required to avoid a shutdown and cooldown transient that would be imposed on the plant by an unnecessary shutdown to Mode 4 conditions. Replacement of EM8852 with a blank flange eliminated the referenced 0.69 gpm leakage, thus maintaining containment bypass leakage into the Auxiliary Building within the 2 gpm plant Final Safety Analysis Report accident assumption.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 8 3 9 4	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REV NO.	0 2	OF	0 7

TEXT (If more space is required, use additional NRC Form 356A's)(17)

BASIS FOR REPORTABILITY:

On 7/8/94 at 0918 CDT, both trains of the High Head Safety Injection System (HHSIS)⁽¹⁾ were rendered inoperable in order to facilitate a modification to the leaking Boron Injection Tank (BIT) relief valve⁽²⁾ EM8852 (Crosby Relief Valve Model #JMAK-B).

Technical Specification (T/S) 3.5.2, Emergency Core Cooling Systems (ECCS), action statement (a) states that:

"With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours, or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours."

Because the maintenance evolution required both HHSIS trains to be declared inoperable, this was a condition prohibited by T/S 3.5.2 and T/S 3.0.3 was entered, the maintenance activity was completed and T/S 3.0.3 was exited at 0928, 10 minutes later.

This event is thus reportable per 10CFR50.73(a)(2)(i)(B), 10CFR50.73(a)(2)(v), and 10CFR50.73(a)(2)(vii). A four hour notification was made to the NRC on 7/8/94 at 1004 in accordance with 10CFR50.72(b)(2)(iii).

PLANT CONDITIONS AT TIME OF EVENT:

Mode 1 - Power Operations

94 % Reactor Power

DESCRIPTION OF EVENT:

On 4/22/94 during routine rounds, a utility equipment operator discovered a small trickle of water running from a tygon hose which was routed from the BIT surge tank to a floor drain in the BIT room. Investigation by utility engineers determined the source of this water was seat leakage past BIT relief valve EM8852. During times when the Centrifugal Charging Pumps (CCP) were in operation, water was leaking past the seats on BIT supply bypass isolation valves EMHV8837A and EMHV8837B⁽³⁾, entering the BIT, leaking through EM8852 to the BIT surge tank and out the tygon hose referenced above. (See Figure 1)

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 8 3 9 4	LER NUMBER (6) YEAR SEQUENTIAL NUMBER REV NO. - 0 0 2 - 0 0	PAGE (3) 0 3 OF 0 7
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TEXT (If more space is required, use additional NRC Form 386A's)(17)

A review of code requirements by utility engineers indicated that EM8852 was no longer a required relief valve for the BIT. EM8852 was originally designed to prevent the BIT from exceeding its design pressure of 2735 psig. Heat tracing on supply and discharge piping to the BIT created the potential for the tank to exceed 2735 psig. Per the plant Final Safety Analysis Report (FSAR), Section 6.3.2.2, provisions of heat tracing were made in the BIT system to accommodate highly concentrated boric acid. Prior to receipt of the Operating License, it was determined that the boron concentration of the Refueling Water Storage Tank is sufficient for plant safety considerations and the highly concentrated boron in the BIT was determined not to be required. The heat tracing has been disabled and thus EM8852 is no longer required.

On 6/15/94, utility maintenance personnel placed a gagging device on EM8852, however, leakage continued to increase. By 7/5/94, leakage had increased to approximately 0.69 gallons per minute. At this rate of increase, it was evident that containment bypass leakage would reach the 2 gpm accident assumption per the plant FSAR before the next plant shutdown currently scheduled for Spring 1995.

Based on a safety evaluation by utility engineers, utility management personnel determined that rather than placing the plant through a shutdown and cooldown transient to Mode 4 conditions, it would be prudent to enter T/S 3.0.3 for a short period of time to remove EM8852 in Mode 1. A special procedure, "Removal of EM8852 (ETP-EM-01002)", was drafted and reviewed by the On-Site Review Committee (ORC). Subsequent to ORC approval on 7/7/94, a pre-job brief was performed with pertinent personnel. The Operations crew conducted simulator training for the evolution, practicing Loss of Coolant Accidents (LOCAs) and an inadvertent Safety Injection (SI) with High Head Safety Injection isolated.

On 7/8/94, another pre-job brief was performed and the initial conditions stated in procedure ETP-EM-01002 were verified. Per ETP-EM-01002, BIT inlet valves EMHV8803A, EMHV8803B, EMHV8837A and EMHV8837B were verified closed and the BIT was depressurized. A freeze seal was established on the inlet piping to the relief valve and the valve outlet flange bolting was removed. On 7/8/94 at 0918 CDT, power was removed from the BIT inlet valves and T/S 3.0.3 was entered. Utility mechanics removed EM8852 and replaced it with a blank flange per Callaway Modification Package 94-1018A. Power to the BIT inlet valves was then restored, the T/S 3.5.2 Limiting Condition for Operation was satisfied, and T/S 3.0.3 was exited at 0928 CDT.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET NUMBER (2)	YEAR	LER NUMBER (6) SEQUENTIAL NUMBER	REV NO.	PAGE (3)
Callaway Plant Unit 1	05000483	94	002	00	04 OF 07

TEXT (If more space is required, use additional NRC Form 366A's)(17)

ROOT CAUSE:

The root cause of this event was seat leakage past BIT relief valve EM8852 of approximately 0.69 gpm. Entry into T/S 3.0.3 was made to avoid a shutdown and cooldown transient that would be imposed on the plant by an unnecessary shutdown to Mode 4 conditions and to maintain containment bypass leakage into the Auxiliary Building within the 2 gpm FSAR accident assumption. The replacement of EM8852 with a blank flange was necessary to eliminate the 0.69 gpm of containment bypass leakage.

CORRECTIVE ACTIONS:

Utility engineers determined relief valve EM8852 is no longer required since a high concentration of boric acid in the BIT has not been required and the associated heat tracing system has been disabled. EM8852 was therefore removed and replaced with a blank flange.

SAFETY SIGNIFICANCE:

The HHSIS was isolated on 7/8/94 from 0918 CDT to 0928 CDT in order to ensure that the freeze seal would not be compromised in the event of a Safety Injection System (SIS) actuation. Prior to authorizing entry into T/S 3.0.3, an evaluation of the resulting effects on the Callaway Core Damage Frequency (CDF) due to rendering HHSIS inoperable was performed by utility engineers. This evaluation indicated that the resulting increase in CDF due to rendering HHSIS inoperable would be offset by ensuring the remaining systems modeled in the PRA were maintained operable. These systems included the following:

- Auxiliary Feedwater⁽⁴⁾
- Chemical and Volume Control System⁽⁵⁾
- Service Water
- Essential Service Water⁽⁶⁾
- Component Cooling Water⁽⁷⁾
- Residual Heat Removal⁽⁸⁾
- Safety Injection
- Standby Generation⁽⁹⁾

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Callaway Plant Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 4 8 3	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REV NO.		
	9 4 -	0 0 2 -	0 0	0 5	OF	0 7

TEXT (If more space is required, use additional NRC Form 365A e)(17)

Auxiliary Feedwater Room Cooling⁽¹⁰⁾

A requirement to maintain both trains of the above systems operable during this evolution was subsequently placed in procedure ETP-EM-01002 which was used to perform the modification.

In addition to maintaining the above listed systems operable during this evolution, the following actions were taken prior to entering T/S 3.0.3:

- Work activities including surveillances which could distract the Control Room operators or which could perturb the Reactor Coolant System were verified not to be in progress.
- A pre-job brief was conducted with all involved personnel stressing the importance of expeditious completion of the maintenance and actions to take in the event of an SIS.
- All required tools and materials were pre-staged at the work location, as well as equipment for contingency actions.
- The day prior to performing the modification, licensed utility Control Room operators conducted simulator training for Loss of Coolant Accidents (LOCAs) and an inadvertent SI with High Head Safety Injection isolated.

These actions and the brief duration of the work activity ensured that this work evolution did not present a threat to the public health and safety.

PREVIOUS OCCURRENCES:

None.

FOOTNOTES:

The system and component codes listed below are from IEEE Standards 805-1984 and 803A-1984 respectively.

- (1) System - BQ
- (2) System - BQ, Component - RV
- (3) System - BQ, Component - ISV

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	YEAR	LER NUMBER (6) SEQUENTIAL NUMBER	REV NO.	PAGE (3)
Callaway Plant Unit 1	0 5 0 0 0 4 8 3	9 4	0 0 2	0 0	0 6 OF 0 7

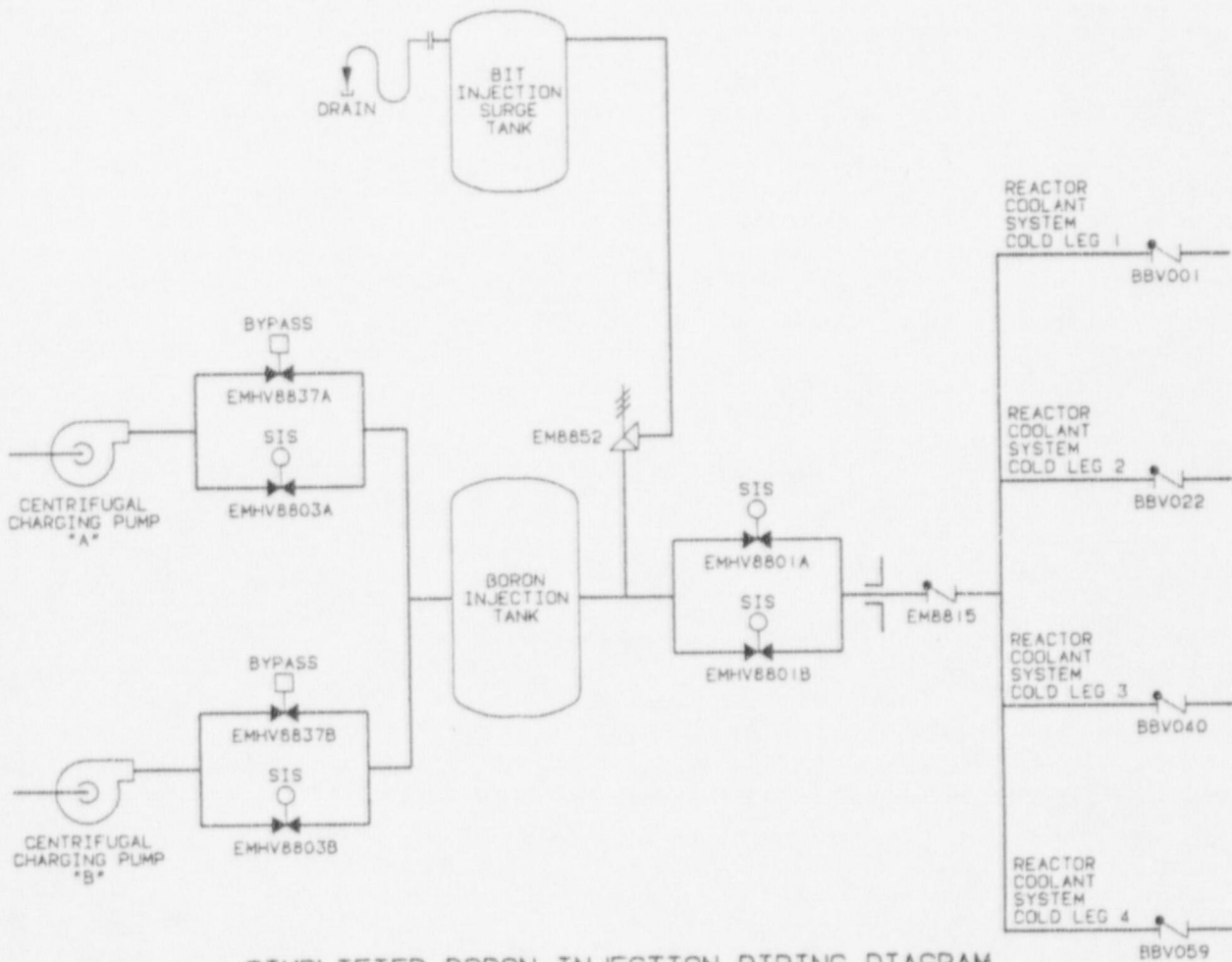
TEXT (If more space is required, use additional NRC Form 286A's)(17)

- (4) System - BA
- (5) System - CB
- (6) System - BI
- (7) System - CC
- (8) System - BP
- (9) System - EK
- (10) System - VF

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
Callaway Plant Unit 1	05000483	YEAR	SEQUENTIAL NUMBER	REV NO.	07	OF	07
		94	002	00			

TEXT (If more space is required, use additional NRC Form 366A's)(17)



SIMPLIFIED BORON INJECTION PIPING DIAGRAM

CAD-02B7

Figure 1