

October 13, 2000

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



Gentlemen:

ULNRC-4325

**DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 2000-006-00
Macrofouling In The A Train Motor Driven Auxiliary Feed Pump
Room Cooler Results In Inoperability Of The Pump In Excess Of
The Time Allowed In The Callaway Plant's Technical Specifications**

The enclosed licensee event report is submitted in accordance with 10CFR50.73(a)(2)(i)(B) to report a condition prohibited by the plant's Technical Specifications.

A handwritten signature in black ink, appearing to read "R. D. Affolter".

R. D. Affolter
Manager, Callaway Plant

RDA/jer

Enclosure

IE22

ULNRC-4325
October 13, 2000
Page 2

cc: Mr. Ellis W. Merschoff
Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Senior Resident Inspector
Callaway Resident Office
U.S. Nuclear Regulatory Commission
8201 NRC Road
Steedman, MO 65077

Mr. Jack N. Donohew (2 copies)
Licensing Project Manager, Callaway Plant
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Mail Stop 7E1
Washington, DC 20555-2738

Manager, Electric Department
Missouri Public Service Commission
PO Box 360
Jefferson City, MO 65102

Mr. Thomas A. Baxter
Shaw, Pittman, Potts & Trowbridge
2300 N. Street N.W.
Washington, DC 20037

Records Center
Institute of Nuclear Power Operations
700 Galleria Parkway
Atlanta, GA 30339

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 3
---	--	----------------------------

TITLE (4) **Macrofouling in the A train Motor Driven Auxiliary Feed Pump room cooler results in inoperability of the pump in excess of the time allowed in the Callaway Plant's Technical Specifications**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	Rev No.	MONTH	DAY	YEAR
0 9	1 4	2 0 0 0	2 0 0 0	- 0 0 6	- 0 0	1 0	1 3	2 0 0 0

FACILITY NAMES	DOCKET NUMBER(S)
0 5 0 0 0	0 0 0
0 5 0 0 0	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)	1 0 0	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)			
		<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(x)			
		<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 73.71			
		<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> OTHER (Specify in			
		<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> Abstract below or in			
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Text, NRC Form 366A)					

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER
NAME J. D. Schnack, Supervising Engineer, QA Corrective Action		AREA CODE 5 7 3 6 7 6 - 4 3 1 9

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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 September 14, 2000 the A train Motor Driven Auxiliary Feed Pump (MDAFP) was determined to have been inoperable in excess of the 72 hour limit allowed by the Callaway Plant's Technical Specifications. This was due to degraded Essential Service Water (ESW) flow through its respective room cooler (SGF02A).

On September 14, 2000 Engineering Personnel were performing flow verification for the 'A' train ESW system. The flow verification was part of an investigation concerning Asiatic clams that were found in another safety related room cooler during maintenance. During the flow testing, flow to the "A" MDAFP room cooler was determined to be below the limit required to support operability of the "A" MDAFP. The cause of low flow was macrofouling by Asiatic clamshells that were conservatively estimated to have infested the system as early as September 5, 2000.

The outlet valve for this room cooler was repositioned from 1 7/8 turns open to 3 turns open to reestablish the required flow to this cooler. Clamshells were cleaned out of the Water Treatment Plant clearwell, and the clearwell was chemically treated to eliminate living Asiatic clams. Plant components utilizing Service Water and Essential Service Water were monitored and flushed as required. A formal root cause analysis will determine further actions.

**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.			
		2 0 0 0	- 0 0 6	- 0 0	0 2	OF	0 3

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

DESCRIPTION OF EVENT:

On September 5, 2000 flow rates were observed to be degrading in the Main Generator Hydrogen Cooler which is supplied by the plant Service Water System. On September 7, 2000 flow degradation was observed on Main Turbine Lube Oil Cooler "A", which is also supplied by Service Water. Subsequent inspection of the Main Turbine Lube Oil Cooler "A" on September 9, 2000 found a significant amount of Asiatic clamshells. On September 12, 2000 the Residual Heat Removal (RHR) "B" room cooler was inspected as part of normal maintenance and Asiatic clamshells were found. The RHR room coolers are supplied by Service Water during normal operation, and Essential Service Water (ESW) during emergency operation.

Discovery of these clamshells within components supplied by the ESW system prompted the performance of flow balance verification on both ESW trains. During the flow balance verification, on September 14, 2000, flow to the Motor Driven Auxiliary Feedwater Pump (MDAFP) "A" room cooler was determined to be below the limit required to support operability of the "A" MDAFP. The outlet valve for this room cooler was repositioned from 1 7/8 turns open to 3 turns open to reestablish the required flow to this cooler.

The MDAFP "A" room cooler had been recently cleaned and inspected on August 30, 2000 and only a few clamshells were observed. These clamshells appear to have been in the room cooler for a significant period of time, due to their discoloration and brittleness and were not attributed to the recent clam infestation. Based on plant performance and inspection data, the earliest date that the Asiatic clamshell infestation affected plant equipment was September 5, 2000. Therefore, it was conservatively determined that the MDAFP "A" became inoperable on this date due to degraded flow to its respective room cooler. This would have yielded the "A" MDAFP inoperable for greater than the 72 hours allowed by the associated Technical Specification action statement (ITS 3.7.5).

BASIS FOR REPORTABILITY:

This event was determined to be reportable per 10CFR50.73(a)(2)(i)(B) as a condition that was prohibited by the plant's Technical Specifications.

CONDITION AT TIME OF EVENT:

Mode 1, Power Operations-100% power

ROOT CAUSE:

The loss of minimum required flow to the MDAFP "A" room cooler has been attributed to blockage caused by Asiatic clamshells originating from the Water Treatment Plant clearwell.

CORRECTIVE ACTIONS:

Clamshells were cleaned out of the Water Treatment Plant clearwell.

**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.	0 3	OF	0 3
		2 0 0 0	- 0 0 6	- 0 0			

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

The clearwell was chemically treated to eliminate living Asiatic clams.

Plant components that utilize Service Water and Essential Service Water were monitored and flushed as required to restore adequate flow margin.

A formal root cause analysis is being conducted to determine further actions to prevent future infestation of Asiatic clams.

SAFETY SIGNIFICANCE:

The risk incurred due to operation for 10 days (9/5/00 - 9/14/00, inclusive) with the Motor-Driven Auxiliary Feedwater Pump "A" inoperable is represented by the corresponding incremental conditional core damage probability, or ICCDP. The ICCDP was determined to be 3.8E-7, which is below risk increase limits espoused in Reg Guides 1.174 and 1.177.

PREVIOUS OCCURRENCES:

No other occurrences have been identified where macrofouling by Asiatic clamshells degraded flow to safety-related components supplied by plant service water systems.

FOOTNOTES:

The system and component codes listed below are from IEEE Standard 805-1984 and IEEE Standard 803A-1983, respectively.

System BI, BA

Component HX, P