

January 8, 2004

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

ULNRC04935



Ladies and Gentlemen:

**DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 2004-001-00
Manual initiation of Essential Service Water system due to loss of normal
Service Water system**

The enclosed licensee event report is submitted in accordance with 10CFR50.73(a)(2)(iv), to report the manual actuation of the emergency service water system which does not normally operate and serves Callaway as an ultimate heat sink system and backup emergency feedwater system.

Warren A. Witt

Warren A. Witt
Manager, Callaway Plant

WAW/ewh

Enclosure

JE22

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME CALLAWAY PLANT UNIT 1	2. DOCKET NUMBER 05000 483	3. PAGE 1 OF 5
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4. TITLE
Loss of Service Water system requires manual initiation of Essential Service Water.

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	12	2003	2004	001	00	1	8	2004		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR *: (Check all that apply)									
10. POWER LEVEL	100	20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)	
		20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)		50.73(a)(2)(x)	
		20.2203(a)(1)			50.36(c)(1)(i)(A)			X	50.73(a)(2)(iv)(A)		73.71(a)(4)
		20.2203(a)(2)(i)			50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)		73.71(a)(5)	
		20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)		OTHER Specify in Abstract below or in NRC Form 366A	
		20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)			
		20.2203(a)(2)(iv)			50.73(a)(2)(i)(A)			50.73(a)(2)(v)(D)			
		20.2203(a)(2)(v)			50.73(a)(2)(i)(B)			50.73(a)(2)(vii)			
		20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)			
20.2203(a)(3)(i)			50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)					

12. LICENSEE CONTACT FOR THIS LER

NAME Mark A. Reidmeyer	TELEPHONE NUMBER (Include Area Code) (573) 676-4306
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO		MONTH	DAY	YEAR

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On 11/12/03 while restoring the Circulating and Service Water pump house electrical bus lineups to a normal configuration, two out of three electrical buses were de-energized resulting in a loss of the service water system and necessitating manual actuation of the Essential Service Water (ESW) system. The loss of service water coupled with a reduction in circulating water system capacity required Control Room Operators to manually reduce Main Generator electrical loading to prevent a loss of condenser vacuum and automatic main turbine runback.

After operator actions restored service water system operation, power stabilized at approximately 70 percent. An Event Review Team concluded the cause of the event was failure to follow an approved plant procedure. The Licensed Operator selected position 2201-2202 versus the proper position of 2201-2102, which is located on a different selector switch. A contributing cause was the fact the two bus transfer selector switches have identical name plate labels. Once the cause of the event was understood, power was increased to 100 percent and normal operation resumed.

Corrective actions include revising the Main Control Board name plate labels for the bus transfer selector switches and revising plant procedures to reflect the new labels.

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

I. DESCRIPTION OF THE REPORTABLE EVENT

A. REPORTABLE EVENT CLASSIFICATION

This actuation of ESW is reportable per 10CFR50.73(a)(2)(iv) as a manual actuation of emergency service water systems that do not normally run and that serve as ultimate heat sinks. The ESW system also serves as a backup source of auxiliary feedwater to the steam generators and this actuation is reportable per 10CFR50.73(a)(2)(iv) as a manual actuation of a PWR emergency feedwater system.

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

Callaway Plant was in Mode 1 at 100 percent power.

C. STATUS OF STRUCTURES, SYSTEMS OR COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

Circulating and Service Water pump house electrical bus PB122 was cross tied with electrical bus PB121.

D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE TIMES

On 11/12/03 while restoring the Circulating and Service Water pump house electrical bus lineups to a normal configuration, two out of three electrical buses were de-energized resulting in a loss of the service water system and necessitating manual actuation of the Essential Service Water (ESW) system.

Initial electrical bus configurations consisted of:

- electrical bus PB121 being supplied by its normal transformer source XPB121 via closed breaker PB12101,
- electrical bus PB122 normal feeder breaker PB12201 being open and the bus instead being energized by being cross tied with bus PB121 through closed cross tie breaker PB 12102,
- electrical bus PB123 being supplied by its normal transformer source XPB123 via closed breaker PB12301,
- cross tie breaker PB12202 between bus PB122 and PB123 was open.

Initial circulating water and service water pump electrical lineups consisted of:

- circulating water pump PDA2101A being supplied from PB121,
- circulating water pump PDA2101B being out of service for maintenance,
- circulating water pump PDA2101C being supplied from PB123,
- service water pump PEA2101A being supplied from bus PB121,
- service water pump PEA2101B being supplied from bus PB122,
- service water pump PEA2101C, normally supplied from bus PB123, was secured but available for service.

After being instructed to restore electrical bus PB122 to a normal lineup, a licensed operator prepared to perform a "fast bus transfer" where the normal feeder breaker PB12201 is closed and crosstie breaker PB12102 is opened simultaneously using bus paralleling circuitry, thus accomplishing a "bumpless" power supply transfer and no loss of power to downstream electrical loads. Using plant procedure OTN-PB-00001 titled NON-CLASS 1E 4.16KV ELECTRICAL SYSTEM, the licensed operator designated to perform the switching operation read the appropriate procedure step, but grasped the incorrect "CLOSED BUS TRANSFER SELECTOR SWITCH" and placed it in position "2201-2202". Instead of aligning the electrical circuitry to monitor for a parallel operation between cross tie breaker PB12102 and

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normal feeder breaker PB12201, the electrical circuitry was aligned to monitor for a parallel operation between normal feeder breaker PB12201 and cross tie breaker PB12202 which was already open.

A second licensed operator performed a peer review but did not identify that the wrong switch had been grasped. When the performing licensed operator tried to close PB122 normal feeder breaker PB12201, with the electrical paralleling circuitry being incorrectly aligned, bus PB121 normal feeder breaker PB12101 and cross tie breaker PB12102 opened and bus PB122 normal feeder breaker PB 12201 remained open. This resulted in both buses PB121 and PB122 being de-energized and a loss of circulating water pump PDA2101A, service water pump PEA2101A, and service water pump PEA2101B. Circulating water pump PDA2101C remained in service, and service water pump PEA2101C received an auto start signal but failed to run due to experiencing a low lube water pressure condition. The low lube water pressure condition was an expected result with a single service water pump supplying all non-safety and safety-related service water loads.

With a loss of all three service water pumps, cooling was lost to both non-safety and safety related service water loads. Following Immediate Action steps contained in Annunciator Response Procedure, OTA-RL-RK012, control room operators isolated non-safety related service water (SW) from safety related essential service water (ESW) and manually actuated the ESW pumps to restore cooling to the safety related loads.

As a result of having only circulating water pump PDA2101C operating, condenser backpressure began to increase. Additionally, with no service water in operation, cooling to the main generator stator cooling water system was lost. Main turbine electrical loading was manually reduced to maintain condenser vacuum and prevent an automatic turbine runback from occurring due to increasing stator cooling water temperature. A non-licensed operator responded to the Circulating and Service Water pump house and reset electrical breaker lockouts for service water pump PEA2101C. PEA2101C auto-started again and had sufficient lube water pressure to sustain normal operation. With service water cooling restored, stator cooling water system temperatures returned to normal and the main generator electrical load reduction was stopped. Power was stabilized at approximately 70 percent and an Event Review Team (ERT) was assembled to review the event.

The ERT reviewed the work activity that was being performed, plant response to the attempted electrical bus switching, and potential human performance factors. During the ERT, it was determined that the cause of the event was failure to follow an approved plant procedure which resulted in operation of the incorrect "CLOSED BUS TRANSFER SELECTOR SWITCH" by a licensed operator. No time or situational pressure contributed to the event, but poor switch labeling was considered a contributing factor. At the conclusion of the ERT, with the cause of the event being understood, a decision was made to increase power and return to normal operation.

E. METHOD OF DISCOVERY OF EACH COMPONENT, SYSTEM FAILURE, OR PROCEDURAL ERROR

The event was self-evident upon the loss of electrical busses PB 121 and PB122.

A review of the event determined that the cause was failure to follow an approved plant procedure.

II. EVENT DRIVEN INFORMATION

A. SAFETY SYSTEMS THAT RESPONDED

The Essential Service Water system was manually actuated and operated properly.

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B. DURATION OF SAFETY SYSTEM INOPERABILITY

No safety system was rendered inoperable due to this event.

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT.

As a result of manually actuating ESW, an 8-hour Emergency Notification System (ENS) telephone notification was made at 2001, 11/12/03. This was performed per 10CFR50.72(b)(3)(iv)(A) requirements and was recorded as Event # 40317.

A Probabilistic Risk Assessment Evaluation Request (PRAER) was performed and this event was determined to be of very low risk significance.

III. CAUSE OF THE EVENT

The cause of the event was failure to properly follow an approved plant procedure. The Licensed Operator selected position 2201-2202 versus the proper position of 2201-2102, which is located on a different selector switch. A contributing cause was the fact the two bus transfer selector switches have identical name plate labels, "CLOSED BUS XFR SELECTOR SW".

IV. CORRECTIVE ACTIONS

Corrective actions included revising the Main Control Board name plate labels for the bus transfer selector switches and revising plant procedures to reflect the new labels. This event was discussed with all Operations Department Licensed Operators to emphasize the importance of proper human performance factors and attention to detail.

V. PREVIOUS SIMILAR EVENTS

A review of the Callaway Action Request System (CARS) covering the period between 11/12/00 through 11/12/03. The review consisted of text searches using the following text:

- peer check
- procedure error
- operator error

Additionally a keyword search was conducted using the following keywords:

- procedure adherence
- operator error

The "procedure error" search identified CAR 200103259 with a similar root cause. In this event, non-licensed personnel were performing maintenance using an approved plant procedure when they operated an incorrect switch and caused an electrical breaker to trip open.

A review of LERs issued by Callaway between 2000 and present did not identify any similar LERs involving operation of incorrect controls while performing approved plant procedures.

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VI. ADDITIONAL INFORMATION

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

System: N/A

Component: N/A

This section is not applicable because this event was not the result of a component failure.