

March 8, 2000

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

ULNRC-04198

Gentlemen:



**DOCKET NUMBER 50-483  
CALLAWAY PLANT UNIT 1  
UNION ELECTRIC CO.  
FACILITY OPERATING LICENSE NPF-30  
LICENSEE EVENT REPORT 2000-001-00  
Technical Specification 4.6.4.2.b Violation – 'A' Hydrogen Recombiner  
Thermocouple Inoperable for Over 30 Days Due to Swapped Leads**

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

  
R. D. Affolter  
Manager, Callaway Plant

RDA/MKD/mib

Enclosure

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# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Callaway Plant Unit 1</b>	DOCKET NUMBER (2) 0   5   0   0   0   4   8   3	PAGE (3) 1   OF   4
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TITLE (4) **Technical Specification 4.6.4.2.b Violation – 'A' Hydrogen Recombiner Thermocouple Inoperable for Over 30 Days Due to Swapped Leads.**

EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER		Rev No.	MONTH	DAY	YEAR
1	0	2   8	1   9   9   9	2	0   0   0	-	0	0	1
							0	0	
							0	3	0   8   2   0   0   0

FACILITY NAMES	OTHER FACILITIES INVOLVED (8)

OPERATING MODE (9)	5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : (Check one or more of the following) (11)							
POWER LEVEL (10)	0	0	0	20.2201(b)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	50.73(a)(2)(viii)		
				20.2203(a)(1)	<input type="checkbox"/>	50.73(a)(2)(ii)	50.73(a)(2)(x)		
				20.2203(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(iii)	73.71		
				20.2203(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(iv)	OTHER (Specify in		
				20.2203(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(v)	Abstract below or in		
			20.2203(a)(2)(iv)	<input type="checkbox"/>	50.73(a)(2)(vii)	Text, NRC Form 366A)			

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME		AREA CODE	
J. D. Schnack, Supervising Engineer, QA Corrective Action		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)**

Technical Specification 4.6.4.2.b requires Channel Calibration of all Hydrogen Recombiner System instrumentation to prove operability. On 2/7/00, Utility Operations personnel discovered that thermocouple (T/C) #2 for the 'A' Hydrogen Recombiner had incorrect temperature indication. It was determined that leads for T/C #2 were swapped at a junction box. The leads were re-landed at their correct locations and restoration was independently verified.

The T/C leads were last terminated on 10/28/99. The swapping of leads is attributed to failure to follow procedure. With direction being provided by a task director in the control room, the craft in containment did not have the procedure. The craft went to the wrong electrical box. The junction box is electrically the same as the correct terminal box, but more cramped and difficult to work in. The retest was not adequate to identify the swapped leads.

Procedures will be revised to refer to maps for correct locations and restoration. Independent Verification will be required to be performed at the terminal box, which requires the procedure to be with the craft. A retest has been created to ensure operability is verified following termination of the T/C leads. The individuals involved were coached on attention to detail. This event will be added to industry event/operating experience for retraining and future pre-job briefs.

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

**DESCRIPTION OF EVENT:**

On the afternoon of February 8, 2000, it was determined that an inoperable thermocouple caused entry into Technical Specification 3.6.4.2, 30-day action statement for the 'A' Hydrogen Recombiner <sup>(1)</sup>.

At 2152 CST on February 7, 2000, utility licensed Reactor Operators started procedure OSP-GS-00001, Containment H2 Recombiner Functional Test, on the 'A' Hydrogen Recombiner <sup>(1)</sup>. This procedure was performed to provide on-the job training. With the Recombiner heating up, an operator noted that one thermocouple's indication was decreasing while the other two were increasing. During the test, thermocouple #2 was observed to indicate 2424 deg F. An investigation by plant staff verified the temperature indication was incorrect. It was determined that leads for thermocouple #2 were swapped at a junction box inside containment. The leads were re-landed at their correct locations and restoration was independently verified by 1015 CST on February 9, 2000. Operations successfully retested the Hydrogen Recombiner per OSP-GS-00001.

Review of past work history showed that the thermocouple leads were last terminated on October 28, 1999, during refueling outage 10.

**BASIS FOR REPORTABILITY:**

Technical Specification Surveillance requirement 4.6.4.2.b requires a Channel Calibration of all Hydrogen Recombiner System instrumentation to prove operability. Since the leads of the #2 thermocouple were swapped and the thermocouple provided erroneous readings, not all instrumentation was operable.

This event is reportable per the requirements of 10 CFR 50.73(a)(2)(i) to report operation or condition prohibited by the plant's Technical Specifications.

**CONDITION AT TIME OF EVENT:**

The plant was in Mode 1, Plant Operations, at 100 percent power at the time of discovery, on February 7, 2000. The plant was in Mode 5, Cold Shutdown, when the thermocouple leads were inadvertently swapped on October 28, 1999.

**ROOT CAUSE:**

The root cause of this event is failure to follow procedure. During a surveillance task performed on October 28, 1999, the leads were landed incorrectly for thermocouple #2. Direction was being provided by the task director who was located in the control room with the procedure in hand. The Instrument and Control (I&C) Technicians in containment did not possess the procedure in an effort to reduce radioactive waste. As a result, the I&C Technicians went to the incorrect electrical box for the 'A' Hydrogen Recombiner. The craft personnel performed the surveillance at a junction box approximately five feet away from the terminal box noted in the surveillance procedure. This junction box is electrically the same as the terminal box that should have been used, but it is in a more cramped location which made handling the leads more difficult.

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

The restoration section of the procedure requires the craft to perform a channel check of the indications from the three thermocouples. Indications were such that restoration was considered satisfactory. However, the thermocouples indicate very close while at ambient temperatures regardless of polarity of wires in conjunction with a reference junction. Therefore, the mis-landed leads did not reveal themselves during the channel check.

**CORRECTIVE ACTIONS:**

1. I&C procedures, ISL-GS-00C1A and ISL-GS-00C1B, Loop-Misc; CTMT Hydrogen Recombiner 'A' and 'B', respectively, will be revised to refer to maps for correct locations and restoration. Independent Verifications (I.V.s) will reference this event and require the I.V. to be performed at the terminal box and not to use remote means. This will require the procedure to be with the technicians in the field for this activity.
2. Sequencing the performance of the I&C procedure prior to procedure OSP-GS-00001, will serve as a backup to Corrective Action #1 above. The I&C department, which normally performs the ISL procedures on-line, has created a retest to the I&C surveillance, the operations surveillance, OSP-GS-00001, to ensure operability is verified following termination of the thermocouple leads.
3. The individuals involved were coached on attention to detail. This event will be added to industry event/operating experience training for retraining of I&C department personnel.
4. This event has also been added to the operating experience history, to be used in future pre-job briefs.

**SAFETY SIGNIFICANCE:**

While the 'A' Hydrogen Recombiner temperature instrumentation was inoperable, the 'A' Hydrogen Recombiner was still capable of performing its intended function. The Recombiner still had 2 of the 3 temperature indicators operable. In addition, the independent, 100% capacity 'B' Hydrogen Recombiner was operable during this time period.

Procedure OTN-GS-00001, Containment Hydrogen Control System, Revision 6, has a note which stated: "A comparison of temperatures will determine if the thermocouples are not working. If the difference in temperature between any two thermocouples exceeds 60 Deg. F, after Recombiner temperature has stabilized, the thermocouples should be considered inaccurate and Recombiner operations controlled by power indication." This procedure is used to place the Recombiner into service following an accident. Therefore, this condition did not present a risk to the public health and safety.

**PREVIOUS OCCURRENCES:**

There have been no previous Licensee Event Reports related to the Hydrogen Recombiner Technical Specification requirements. In addition, there have been no Licensee Event Reports caused by leads being swapped.

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

**FOOTNOTES:**

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

(1) System - BB, Component - RCB