

December 29, 1999

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

ULNRC-4167



Gentlemen:

**DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 99-009-00
RCS Leakage Detection Systems are Outside of Design Basis
Because a 1 gpm Leak Cannot be Detected Within 1 Hour**

The enclosed licensee event report is submitted in accordance with 10CFR50.73(a)(2)(ii)(B) to report a condition that was outside the design basis of the plant.

Walter A. Witt For
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Manager, Callaway Plant

RDA/gag

Enclosure

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ULNRC-4167
December 29, 1999
Page 2

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**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 9 9	SEQUENTIAL NUMBER - 0 0 9	REV NO. - 0 0	0 2	OF	0 3

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

DESCRIPTION OF EVENT:

At 1430 CST on 12/2/99, it was identified that the Containment Normal Sump Level Measurement System^(1,2) and Containment Air Cooler Condensate Flow Rate System⁽¹⁾ may not be capable of performing their design function because they could not in all cases detect a 1 gpm leak within 1 hour. These systems are required per Technical Specification 3.4.6.1 b & c as Reactor Coolant System (RCS) Leakage Detection Systems. The Final Safety Analysis Report (FSAR) states that these systems meet General Design Criteria 30 (Quality of Reactor Coolant Pressure Boundary) and the requirements of Regulatory Guide 1.45 (Reactor Coolant Pressure Boundary Leakage Detection Systems). These documents require the leakage detection system to be able to detect a 1 gpm leak within 1 hour.

The Containment Normal Sump Level Measurement System and Containment Air Cooler Condensate Flow Rate System measures changes in sump or standpipe level, converts this change in level to gallons, then divides by the amount of time since the pump stopped or the valve closed to determine leakage rate. The time is currently reset when the pumps turn off or the valves close following pumping down the sumps⁽²⁾ or draining the standpipe. If a leak occurred after there has been a long period of little or no leakage, the calculated leak rate could be low because the time by which the change in sump level is divided, becomes a large number. This may have prevented a 1 gpm leak from being detected within 1 hour.

BASIS FOR REPORTABILITY:

These events are reportable per 10CFR50.73(a)(2)(ii)(B) as a condition that was outside the design basis of the plant.

CONDITION AT TIME OF EVENT:

Mode 1, Power Operations - 100% power

ROOT CAUSE:

The root cause of this event was attributed to a design error from plant startup. In 1997, this issue was identified and software changes to fix this error were initiated. Due to personnel oversight, the software changes were not completed in a timely manner and this item was not identified as being reportable when the deficiency was discovered.

CORRECTIVE ACTIONS:

To correct the design error, changes to the leak rate program were implemented via software revisions on 12/08/99. These changes ensure that a 1 gpm leak can be detected within 1 hour. In addition, Operations procedures have been revised to reflect the new calculation methodology. To assure that similar design errors do not exist in the Plant Computer, a review of calculations that use similar time-dependent methodology is being performed.

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Callaway Plant Unit 1	0 5 0 0 0 4 8 3	9 9	- 0 0 9	- 0 0	0 3	OF	0 3

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This event will be reviewed with Engineering and Quality Assurance staff to heighten awareness of corrective action program requirements to perform timely corrective actions and reportability reviews. Further causal analysis is being performed to identify additional corrective action to address human performance concerns.

SAFETY SIGNIFICANCE:

Other RCS leakage detection systems (Containment Atmosphere Particulate Radioactivity Monitoring System and Containment Atmosphere Gaseous Radioactivity Monitoring System) were not affected by the design error and were capable of identifying a 1 gpm leak within 1 hour.

Based on conservative calculations, the Containment Normal Sump Level Measurement System was capable of identifying a 4.3 gpm leak within 1 hour. The Containment Air Cooler Condensate Flow Rate System was capable of identifying a 1.26 gpm leak within 1 hour. These values are well within the capabilities of the Reactor Makeup System.

Therefore, this event did not pose a threat to public health and safety.

PREVIOUS OCCURRENCES:

None

FOOTNOTES:

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

- (1) System - ID, Component - CPU
- (2) System - IJ, Component - DRN