Union Electric
Callaway Plant

PO Box 620
Fulton, MO 65251

April 12, 2002

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

ULNRC-04640

Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 2002-005-00
Inaccurate Steam Generator Low-Low Level setpoints due to Vendor Design Calculation error

The enclosed licensee event report is submitted in accordance with 10CFR50.73(a)(2)(i)(B), 10CFR50.73(a)(2)(ii)(B), and 10CFR50.73(a)(2)(v)(A)to report inaccurate Steam Generator Low-Low Level trip setpoints due to errors in a Westinghouse design calculation.

John T. Patterson
Superintendent,
Work Control, Mechanical

JTP/ewh

Enclosure

IE22

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NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
CALLAWAY PLANT UNIT 1	05000 483	1 OF 3

4. TITLE

Inaccurate Steam Generator Low-Low Level setpoints due to Westinghouse Design Calculation error.

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
										05000
2	28	2002	2002	- 005 -	00	4	12	2002	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR ': (Check all that apply)							
10. POWER LEVEL		20.2201(b)		20.2203(a)(3)(ii)	X	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)		50.73(a)(2)(iv)(A)		73.71(a)(4)	
		20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)	X	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	
		20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		Specify in Abstract below or in NRC Form 366A	
		20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)			
		20.2203(a)(2)(v)	X	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	TELEPHONE NUMBER (Include Area Code)
MARK A. REIDMEYER	(573) 676-4306

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	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO				

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

On 2/18/02, Callaway Plant received Westinghouse Letter SCP-02-14, which transmitted Nuclear Safety Advisory Letter (NSAL) 02-03. This NSAL addressed an error in the Westinghouse Steam Generator (S/G) water level setpoint analysis in which the pressure drop across a mid-deck plate internal to the S/G separator assembly was not accounted for in analysis calculations. This pressure drop adversely affected S/G low-low setpoint uncertainty calculations. On 2/28/02, Callaway staff engineers determined that this situation was applicable to Callaway with the S/G low-low setpoints being nonconservative and that the S/G Low-Low Trip function might not provide protection against a Main Feed Line Break (MFLB) inside Containment. A decision was made to reduce reactor power to approximately 30 percent and adjust the S/G Low-Low Trip setpoints to 21.6 percent narrow range level for normal containment environment and 27 percent narrow range level for adverse containment environment, which would satisfy the safety analysis requirements. Additional corrective actions included revision of plant procedures utilizing the S/G Low-Low Trip values.

FACILITY NAME (1)	DOCKET (2) NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Callaway Plant Unit 1	05000483	2002	- 005 -	00	2 OF 3

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 event is reportable under: (1) 10CFR50.73(a)(2)(i)(B), a condition prohibited by Technical Specifications,
(2) 10CFR50.73(a)(2)(ii)(B), an unanalyzed condition, and
(3) 10CFR50.73(a)(2)(v)(A), a condition that could have prevented fulfillment of a Safety Function to shutdown the reactor and maintain it in a safe shutdown condition.

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

On 2/28/02, Callaway Plant was in Mode 1 at 100 percent reactor power.

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

After it was determined that the Westinghouse NSAL letter was applicable to Callaway, this rendered the portion of the Reactor Protection System responsible for a S/G Low-Low Level Trip, Inoperable.

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

On 2/18/02, Callaway Plant received Westinghouse Letter SCP-02-14, which transmitted Nuclear Safety Advisory Letter (NSAL) 02-03. This NSAL addressed an error in the Westinghouse Steam Generator (S/G) water level setpoint analysis in which the pressure drop across a mid-deck plate internal to the S/G separator assembly was not accounted for in analysis calculations. This pressure drop adversely affected S/G low-low setpoint uncertainty calculations. Based upon a review of information provided by Westinghouse and Operating Event 13294 from Diablo Canyon regarding S/G Narrow Range Low-Low Level trips not responding as expected, an assessment was performed of the S/G Narrow Range (NR) Low-Low Level trip setpoints at Callaway.

On 2/28/02, this assessment determined that the Low-Low Level trip setpoint of 14.8 percent did not account for uncertainties associated with the differential pressure (dP) created by the steam flow past the mid-deck plate in the moisture separator section of the S/G. This dP phenomena would cause the S/G NR level channels to read higher than actual water level at high steam flow rates. Callaway staff engineers determined that this situation rendered the S/G low-low setpoints nonconservative. A decision was made to reduce reactor power to approximately 30 percent where engineering calculations indicated that the S/G mid-deck plate dP condition no longer resulted in non-conservative setpoints and then to adjust the S/G Low-Low Trip setpoints. The setpoints were reduced to 21.6 percent narrow range level for normal containment environment and 27 percent narrow range level for adverse containment environment, which would satisfy the safety analysis requirements. After the new S/G Narrow Range Low-Low Level Trip setpoints values were installed, reactor power was returned to 100 percent.

Additional corrective actions included revision of plant procedures utilizing the S/G Low-Low Trip values.

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

This problem was discovered after receiving Westinghouse NSAL 02-03.

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

II. EVENT DRIVEN INFORMATION

A. SAFETY SYSTEMS THAT RESPONDED

Not applicable.

B. DURATION OF SAFETY SYSTEM INOPERABILITY

The RPS S/G Narrow Range Low-Low-Level Trip function was declared inoperable from1625, 2/28/02, until 1354, 3/1/02 when all setpoints had been revised. The total inoperable time span was 21 hours, 29 minutes.

C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT.

The increase in Core Damage Frequency (delta CDF) determined for this issue, using values from the Callaway Probabilistic Risk Assessment (PRA) and conservative assumptions, is 4.4 E-7 per year.

III. CAUSE OF THE EVENT

The cause of the event was an error in design calculations as documented in Westinghouse NSAL 02-03.

IV. CORRECTIVE ACTIONS

Corrective actions consist of adjusting the S/G Narrow Range Low-Low Level Trip setpoints to new corrected values, revision of plant procedures that reference or utilize this setpoint, and revising plant specific calculations as necessary. Additionally, a revision to Callaway Plant Technical Specifications and Bases is being pursued.

V. PREVIOUS SIMILAR EVENTS

A search of Callaway Action Request System documents from 1999 until present, yeilded 5 separate documents addressing NSAL issues involving S/G level accuracy concerns. They were CARs 200200503, 200201103, 200201157, 200201170, and 200201328. A similar review was conducted of LERs written at Callaway for the time frame of 1999 until present and there were no LERs involving NSAL S/G level accuracy issues.

VI. ADDITIONAL INFORMATION

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

System: JG

Component: 94 RLY