

December 21, 1990

U. S. Nuclear Regulatory Commission Document Control Desk Washington, DC 20555

ULNRC-2347

Gentlemen:

DOCKET NUMBER 50-483 CALLAWAY PLANT UNIT 1 FACILITY OPERATING LICENSE NPF-30 LICENSEE EVENT REPORT 90-016-00 REACTOR TRIP ON LOW STEAM GENERATOR LEVEL WHICH RESULTED FROM A TURBINE TRIP ON A SPURIOUS MOISTURE SEPARATOR REHEATER HIGH LEVEL SIGNAL

The enclosed Licensee Event Rev. is submitted pursuant to 10 CFT 50.73 (a)(2)(v) concerning a crbine trip due to a spurlous moisture separator reheater high level signal. The subsequent low steam generator levels resulted in reactor trip and engineered safety feature actuations.

Blasser

J. D. Blosser Manager, Callaway Plant

JDB/TPS/MKD/djr

Enclosure

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#### BASIS FOR REPORABILITY

On 11/24/90 at 0051 CST, a turbine  $\binom{(1)}{2}$  trip occurred due to a spurious 'A' Moisture Separator Reheater (MSR) <sup>(2)</sup> high level trip. Subsequent low Steam Generator (S/C) <sup>(3)</sup> levels initiated a Reactor Protection System (RPS) reactor trip. As a result of the RPS actuation, a Feedwater Isolation (FWIS) and Auxiliary Feedwater Actuation (AFAS) were generated by de ign. Since these actuations were not part of a preplanned sequence during reactor operation or testing, this event is reportable per 10 CFR 54.73 (a)(2)(v)

## PLANT CONDITIONS AT TIME OF EVENT

Mode 1 · Power Operations 48 percent Reactor Power at the time of the trip Reactor Coolant System (RCS)<sup>(4)</sup>: Temperature (average) · 571 degrees F; Pressure - 2235 paig.

## DESCRIPTION OF EVENT

A plant shutdown was commenced at approximately 2300 because RCS sulfate levels exceeded vendor recommendations for continuous operation. At 0051, with the plant at 46 percent power and load being reduced at 20 percent per hour, a turbine trip occurred on a high MSR level signal.

A reactor trip occurred within ten seconds due to low steam generator levels which had resulted due to the turbine trip. Engineered Safety Features (ESF)<sup>(5)</sup> FWIS and AFAS actuations occurred in accordance with plant design. Plant equipment operated as designed to perform its safety function, however, steam generator levels did not respond as expected based on power generation design basis. The licensed operators immediately stabilized the plant in accordance with plant procedures. The plant was restored to full power operation at 1808, on 11/25/90.

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LICENSEE EVENT TEXT CONTIN	ESTIMATED BURDEN PER RENPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST BOD HIS FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE FLORIDS AND REPORTS MARAGEMENT BRANCH (P.830), U.S. NUCLEAR REGULATORY COMMISSION WARHINGTON, DC 20665, AND TO THE FAPERWORK REQUESTION PROJECT GIRDOIDAL OFFICE OF MANADEMENT AND BUDDET WASHINGTON, DC 20663					
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# ROOT CAUSE

- One of the three 'A' MSR level devices<sup>(6)</sup> had been inadvertantly installed upside down by utility Instrument and Controls (I&C) technicians on 10/30/90, causing one high level signal to lock in, thus reducing the MSR turbine trip logic to 1 out of 2. The procedures/work instructions failed to ensure proper performance of this work activity.
- 2. The spurious actuation of the second MSR level channel is attributed to the narryw trip and reset tolerance values. This resulted in the MSR level device switches being set in such a way that the switch action was very sersitive to vibration. The second channel probably tripped due to the vibrations caused by the power reductions. An actual high MSR level had not occurred.
- 3. Under the Final Safety Analysis Report power generation design basis III for the steam dumps, the plant should be capable of withstanding a 50% electrical step load reduction without reactor trip. However, in this specific case, the initial conditions were more restrictive than those assumed in the transient analysis.

## CORRECTIVE ACTIONS

- 1. "ne incorrectly installed MSR level switch was inverted and correctly calibrated. More detailed procedures/work instructions will be provided for use prior to the next calibration of these switches. This will ensure proper set-up of the switch as well as the 2 out of 3 logic verification.
- All 12 switches were adjusted to achieve a more positive actuation that would make them less susceptible to vibration-induced spurious actuations. Other similar level switches in the plant are being evaluated for potential set-up problems due to tight calibration tolerances.
- An evaluation will be performed to verify plant performance observed during this event is consistent with the existing 50% load reduction transient analysis.

LICENSEE EVENT REP TEXT CONTINUAT		APPROVED OME NO. 5150-0104 EXFIRES 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION RESULET SOLT HRE. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F 530) U.S. NUCLUAR REGULATORY COMMISSION, WASHINGTON, DC 20565 AND TO THE FARERWORK REDUCTION PROJECT (3150-0164). OFFICS OF MANAGEMENT AND BUDGET WASHINGTON, DC 20503					
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SAFETY SIGNIFICANCE							
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PREVIOUS OCCURRENCES							
None							
FOOTNOTES							
The system and component codes 803A-1983, respectively.	below are from the IEEE	Standards 805-1983 ar	id				
<ol> <li>System - TA, Component - TR</li> <li>System - SB, Component - RH</li> <li>System - AB, Component - SG</li> <li>System - AB</li> <li>System - JE</li> <li>System - SB, Component - LS</li> </ol>	TR						