Union Electric
Callaway Plant

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September 30, 1998

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

ULNRC-3901

Gentlemen:

DOCKET NUMBER 50-483
CALLAWAY PLANT UNIT 1
UNION ELECTRIC CO.
FACILITY OPERATING LICENSE NPF-30
LICENSEE EVENT REPORT 98-009-00
INADVERTENT DELETION OF REQUIRED ADMINISTRATIVE CONTROLS DURING PROCEDURE REVISION LED TO INADEQUATE GUIDANCE FOR SAFE SHUTDOWN DURING A FIRE REQUIRING CONTROL ROOM EVACUATION

The enclosed licensee event report is submitted in accordance with 10CFR50.73(a)(2)(v) due to a situation in which inadequate procedural guidance potentially could have led to prevention of the fulfillment of safety function needed to maintain the reactor in a safe shutdown condition..

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RDA/HDB/tmw

Enclosure

IE22

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LICENSEE EVENT REPORT (LER)

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TITLE (4) **Inadvertent Deletion of Required Administrative Controls During Procedure Revision Led To Inadequate Guidance For Safe Shutdown During a Fire Requiring Control Room Evacuation**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
0 8	3 0	9 6	9 8	- 0 0 9	- 0 0	0 9	3 0	9 8		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	POWER LEVEL (10)
1	1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : *(Check one or more of the following)* (11)

20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
20.2203(a)(1)	20.2203(a)(3)(i)	50.73(a)(2)(ii)	50.73(a)(2)(x)
20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71
20.2203(a)(2)(ii)	20.2203(a)(4)	50.73(a)(2)(iv)	OTHER *(Specify in Abstract below or in Text, NRC Form 366A)*
20.2203(a)(2)(iii)	50.36(c)(1)	X 50.73(a)(2)(v)	
20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
H. D. Bono, Supervising Engineer, QA Regulatory Support	AREA CODE 5 7 3 6 7 6 - 4 4 2 8

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO EPIX

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

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

OTO-ZZ-00001,"Control Room Inaccessibility" gives guidance for safe shutdown during a fire requiring control room evacuation. On 8/7/1998, Utility personnel identified a concern with OTO-ZZ-00001, revision 15. PBG05B, "Centrifugal Charging Pump B" provides borated makeup water to the reactor coolant system and reactor coolant pump seals. BGLCV0112C, "Chemical Volume Control System, Volume Control Tank (VCT) Outlet Downstream Isolation Valve" is closed to ensure gas used to pressurize the VCT does not gas bind PBG05B and cause it to fail. OTO-ZZ-00001, revision 15, closed the valve via BGHS0112C, "VCT Outlet Downstream Isolation BGLCV0112C Local Hand Switch." The review determined BGHS0112C did not have redundant control power fusing. In the postulated fire scenario, a short circuit could blow the circuit fuse prior to circuit isolation. This would not be evident to operators manipulating BGHS0112C and could have resulted in failure to close the valve. Until 8/30/1996, OTO-ZZ-00001 also contained guidance to manually close the valve. This was deleted based on knowledge that BGHS0112C was added during initial construction to address the fire scenario. It was assumed that it had redundant fuses like other switches added at that time. It is indeterminate why the architect engineer's design did not have redundant fusing for BGHS0112C. OTO-ZZ-00001 was corrected on 8/19/1998.

DESCRIPTION OF EVENT:

NRC Licensing basis for nuclear power plant fire protection requires the capability to shutdown the plant from outside the control room in the event of a control room fire. The Callaway Plant Final Safety Analysis Report (FSAR) section 9.5 describes plant design and general administrative controls for achieving safe shutdown in conjunction with a fire. NRC approval of the FSAR and our design was documented in supplement 4 to NUREG-0830, "Safety Evaluation Report related to Operation of Callaway Plant, Unit No. 1." Approval was based on review of the Standardized Nuclear Unit Power Plant System (SNUPPS) fire protection reviews submitted via letters SLNRC 82-046 (dated 11/15/1982), SLNRC 84-106 (dated 8/10/1984), and SLNRC 84-109 (dated 8/23/1984). These reviews break the fire response down into phases A through E to be completed within 60 minutes, and phase F for long-term operation. These phases are implemented by procedure OTO-ZZ-00001, "Control Room Inaccessibility".

On 8/7/1998, Utility personnel performing a review of OTO-ZZ-00001, revision 15, against commitments contained in the licensing basis documents (FSAR per Nuclear Energy Institute 96-05, "Guidelines for Assessing Programs for Maintaining the Licensing Basis") described above identified a concern. Phase D of the fire response is required to occur within 30 minutes of control room evacuation. During this phase, BGLCV0112C[1], "Chemical Volume Control System, Volume Control Tank (VCT) Outlet Downstream Isolation Valve" is closed to ensure gas used to pressurize the VCT is isolated from the inlet to PBG05B[2], "Centrifugal Charging Pump B" in order to ensure the pump does not become gas bound. OTO-ZZ-00001, revision 15, closed the valve via BGHS0112C[3], "VCT Outlet Downstream Isolation BGLCV0112C Local Hand Switch." The review determined that BGHS0112C did not have redundant control power fusing. In the postulated fire scenario, a short circuit could occur and blow the control circuit fuse before the circuit was isolated. This failure would not be evident to operators responsible for operating BGHS0112C. This could have resulted in failure to close the valve, which in turn could lead to gas binding of the centrifugal charging pump PBG05B used to provide borated makeup water to the reactor coolant system and reactor coolant pump seals.

The concern was documented on an internal corrective action document for further evaluation and transmitted on 8/10/1998 to Utility Engineers and Operations personnel. Investigation by Operations personnel determined that prior to 8/30/1996, procedural guidance required operators to manually close BGLCV0112C in addition to operating switch BGHS0112C. Guidance for manual operation was removed because it was thought the handswitch was sufficient to close the valve. Operations personnel processed a temporary change notice to OTO-ZZ-00001 on 8/19/1998 to reinsert the guidance for manual closure of the valve.

On 9/3/1998, Utility Engineers completed their evaluation and determined that the proposed scenario was valid and could lead to gas binding and damage to PBG05B if no action was taken to secure the pump. However, OTO-ZZ-00001 assigns an operator to locally monitor PBG05B. Initially it was thought that this operator could reasonably be assumed to identify the onset of gas binding in sufficient time to shutdown the pump and preclude damage. Callaway Plant's station blackout review provides bases that the plant could cope without

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

PBG05B for approximately 4 hours after a plant trip. It was felt that this would give Operations personnel sufficient time to identify the misaligned valve and re-establish flow via PBG05B.

After further review, it was decided on 9/14/1998 that the amount of time the pump could experience gas binding without damage could not be determined. Therefore, it was decided to assume the pump would fail and to report this concern.

BASIS FOR REPORTABILITY:

The postulated failure of centrifugal charging pump PBG05B could prevent fulfillment of safety functions needed to maintain the reactor in a safe shutdown condition. Therefore, this event is being reported in accordance with 10 CFR 50.73(a)(2)(v).

CONDITION AT TIME OF EVENT:

This event was discovered while the plant was in Mode 1, 100 percent power. However, the condition has existed from procedure revision 12 on 8/30/1996 until the procedure was corrected on 8/19/1998.

ROOT CAUSE:

An investigation of the concern found that until OTO-ZZ-00001, revision 12 was issued on 8/30/1996, the procedure contained guidance to manually close the valve in addition to the guidance for closing the valve with the handswitch. The guidance for manually closing BGLCV0112C was deleted due to inadequate technical review.

The procedure revision was based on the knowledge that the isolation switches had been added during initial construction (approximately 1983) to address the postulated fire scenario. However, the plant architect engineer's design for BGHS0112C did not address the need for redundant fusing. It is indeterminate why this was missed.

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CORRECTIVE ACTIONS:

Procedure OTO-ZZ-00001 was changed without reviewing the design details of the isolation switches. A review could have avoided an erroneous assumption that the switches contained redundant fuses. However, the assumption is considered reasonable given that the design was to assure isolation of certain components from the effects of a control room fire. Further review of the switch design at the procedure revision stage is not considered necessary. This incident has been discussed with all involved personnel. No further corrective actions relative to the procedure revision process are necessary.

All isolation switch circuits utilized by OTO-ZZ-00001 were reviewed. Two additional circuits were identified that do not have redundant fusing with associated equipment that do not fail to the required position for the fire response plan. The two circuits were for equipment that had been evaluated to meet the criteria for long-term Hot Standby (Phase F) systems, which allows minor repairs such as fuse replacement. Therefore, these items were encompassed by our existing fire response plan. Revision 16 to OTO-ZZ-00001 was approved on 9/11/1998 to further clarify guidance for equipment operation and fuse replacement. The existing Utility design change program contains the necessary controls to prevent reoccurrence of this type of design error.

SAFETY SIGNIFICANCE:

Procedure OTO-ZZ-00001 assigns an operator to locally monitor the pump and adjust its flow during an event. It is likely that had an actual event occurred, the operator would have identified gas binding of the pump and taken necessary actions to correct the problem. Callaway has never had a significant fire-related event and the safety and health of the public was never threatened.

PREVIOUS OCCURRENCES:

None

FOOTNOTES:

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

1. System CB, Component - V
2. System CB, Component - P
3. System CB, Component HS