

Omaha Public Power District
444 South 16th Street Mall
Omaha, Nebraska 68102-2247
402/636-2000

March 28, 1990
LIC-90-0251

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

Reference: Docket No. 50-285

Gentlemen:

Subject: Licensee Event Report 90-02 for the Fort Calhoun Station

Please find attached Licensee Event Report 90-02 dated March 28, 1990.
This report is being submitted pursuant to 10 CFR 50.73(a)(2)(iv).

If you should have any questions, please contact me.

Sincerely,

W. G. Gates

W. G. Gates
Division Manager
Nuclear Operations

WGG/tcm

Attachment

c: R. D. Martin, NRC Regional Administrator
A. Bournia, NRC Project Manager
P. H. Harrell, NRC Senior Resident Inspector
INPO Records Center
American Nuclear Insurers

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Fort Calhoun Station Unit No. 1										DOCKET NUMBER (2) 0 5 0 0 0 2 1 8 5										PAGE (3) 1 OF 0 3			
TITLE (4) Inadvertent Actuation of Containment Isolation Actuation Signal																							
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)													
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES N						DOCKET NUMBER(S) 0 5 0 0 0								
0	2	2	6	9	0	9	0	0	0	2	0	0	0	3	2	8	9	0	0	5	0	0	0
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) 01 0 0		20.402(b)				20.405(e)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)									
		20.405(a)(1)(ii)				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)									
		20.405(a)(1)(iii)				50.36(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text NRC Form 366A)									
		20.405(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)													
		20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)													
		20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)													
LICENSEE CONTACT FOR THIS LER (12)																							
NAME John C. Adams, Reactor Engineer										TELEPHONE NUMBER 4 10 12 5 1 3 1 - 1 6 1 3 0													
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																							
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS													
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)

On February 26, 1990 at 1632 hours, an inadvertent actuation of a Containment Isolation Actuation Signal (CIAS) occurred at Fort Calhoun Station while the plant was in a refueling shutdown condition. CIAS is an Engineered Safeguards Feature. The CIAS resulted from accidental actuation of a lockout relay by a craftsman who was working in a control room cabinet. The CIAS actuated a Ventilation Isolation Actuation Signal (VIAS), which terminated a containment purge in progress. All affected equipment was promptly restored to normal configuration by Control Room operators. A four-hour report was subsequently made to the NRC at 1723 hours pursuant to 10CFR50.72(b)(2)(ii).

Short term corrective actions included revision of the modification procedure and cautioning of appropriate personnel. Longer term actions include evaluations to identify improvements in present administrative guidance and controls for activities which could result in inadvertent actuations of safety systems.

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TEXT CONTINUATION

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

The Containment Isolation System and its associated Containment Isolation Actuation Signal (CIAS) are an Engineered Safeguards Feature (ESF) and, as such, are normally maintained in a standby condition when the reactor is critical. During a refueling outage, some of the features of the ESF system are blocked or bypassed. For example, actuation of containment isolation valves by the CIAS relays is bypassed. However, the CIAS also is designed as a redundant method of actuating the Ventilation Isolation Actuation Signal (VIAS) to isolate containment ventilation, even though the primary actuators of a VIAS are other Engineered Safeguards systems. The ability to initiate a VIAS by CIAS actuation is maintained even when the plant is in cold shutdown.

On February 26, 1990, Fort Calhoun Station was in a refueling shutdown condition (Mode 5). A craftsman was working in a Control Room cabinet on a modification to replace the ESF sequencer timers, which function to sequence equipment onto safety related buses when an accident-initiated signal is received. The construction package for the modification required that wire leads connected to lockout relays in the ESF system be disconnected for the purpose of attaching new labels on the wires. The cabinets which contain the lockout relays have extremely limited work space. Therefore, in order to establish enough room to remove a wire lead from lockout relay 86B1/CPHS, the craftsman removed the protective cover from lockout relay 86B1/CIAS which is located directly beneath the first relay. At 1632 hours, while the craftsman was reaching into the cabinet to remove the lead, his arm bumped against the trip arm of relay 86B1/CIAS which was exposed when the cover was removed. This action caused the CIAS lockout relay to actuate a VIAS which caused the containment purge fans to shut down and two of the purge isolation valves to close. The sample flow to the containment radiation monitors was also isolated. The craftsman immediately notified control room operators who reset the relay and restored equipment to normal.

After the inadvertent actuation of CIAS, all equipment operated as designed. Shutdown cooling was not affected and there was no impact on the safety of the plant. This event was considered an ESF actuation. A four-hour report was subsequently made to the NRC at 1723 hours pursuant to 10CFR50.72(b)(2)(ii).

The post-incident investigation determined that the root cause of this event was the failure of the design and modification process to anticipate the difficulty which the craftsman would encounter while performing the sequencer replacement modification. The cabinet in which some of the work was taking place did not allow adequate access to perform the required work without interference with adjacent components, specifically ESF lockout relays. The installation procedure failed to provide adequate direction to prevent inadvertent actuation, and did not prohibit manipulation of adjacent components. The craftsman's lack of familiarity with the actuation mechanism of this type of lockout relay or the consequences of actuation was a contributing factor.

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TEXT (If more space is required, use additional NRC Form 386A's) (17)

Short term corrective action to reduce the probability of recurrence during the current outage include the following:

- (1) The installation procedure for the sequencer timer modification was revised to require a review of the consequences of inadvertent actuation of any lockout relay when the protective cover is removed. The consequences of actuation must be explained to the craftsman, and control room operators must be notified prior to removing a cover.
- (2) All craftsmen associated with this modification were briefed on the operation of lockout relays and the potential seriousness of accidental actuation.
- (3) The plant manager issued a memorandum to all badged personnel outlining specific rules to be followed when working in control panels. These include maintaining an awareness that components adjacent to those being worked on can cause actuation of equipment throughout the plant. The necessity of notifying operations personnel immediately in unexpected situations was emphasized.

To address the problem generically, the following actions will be taken:

- (1) A review of engineering modification design procedures will be conducted to ensure that guidance regarding potential inadvertent actuation of ESF circuitry is appropriately addressed. This review will be completed by August 1, 1990.
- (2) Plant management will evaluate present administrative guidance and controls for work which could affect electrical control equipment. The purpose of this evaluation will be to identify programmatic improvements which could prevent unplanned actuations of safety systems. This evaluation will be completed by August 1, 1990.

Similar inadvertent actuations of ESF control circuitry have been reported by LER's 87-05, 87-06, 87-08, 87-09, 87-12, 87-24, 88-15, 88-26, 88-38, and 90-06.