Omaha Public Power District
P.O. Box 399 Hwy. 75 - North of Ft. Calhoun Fort Calhoun, NE 68023-0399
402/636-2000

February 8, 1993
LIC-93-0048

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 93-001 for the Fort Calhoun Station

Please find attached Licensee Event Report 93-001 dated February 8, 1993. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B). If you should have any questions, please contact me.

Sincerely,

W. G. Gates

W. G. Gates
Vice President

WGG/jrg

Attachment

c: J. L. Milhoan, NRC Regional Administrator, Region IV
S. D. Bloom, NRC Project Manager
R. P. Mullikin, NRC Senior Resident Inspector
INPO Records Center

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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Fort Calhoun Station Unit No. 1	05000285	1 OF 5

TITLE (4)
Failure to Satisfy Surveillance Requirement for Boric Acid Tank Level Check

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	08	93	93	-- 001 --	00	02	08	93		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1
POWER LEVEL (10)	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.402(b)		20.405(c)	50.73(a)(2)(iv)	73.71(b)
	20.405(a)(1)(i)		50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)		50.36(c)(2)	50.73(a)(2)(vii)	OTHER
	20.405(a)(1)(iii)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
	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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Craig E. Booth, Shift Technical Advisor	(402) 533-6874

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

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

On January 8, 1993, the Operations Supervisor was reviewing maintenance to be performed on "B" Boric Acid Storage Tank (BAST) level indication (float switch LAS-253) with the Reactor Engineer. A potential problem was discussed regarding the surveillance requirements for a channel check. On review, it was identified that the BAST level surveillance was not being properly performed in that the existing surveillance test involved comparing two level indications (local and remote) from the same sensor (level bubbler), rather than comparing two independent sensors as required by Technical Specification (TS) 3.1, Table 3-2, Item 15.a.

The root cause of the event was determined to be an inadequate surveillance test to monitor the BAST levels. A review of plant records showed that the original 1973 surveillance test incorrectly identified the local and remote indications from the level bubblers as meeting the intent of comparing independent indications.

Temporary "sight glasses" have been installed to provide independent level indication at each tank. Additional actions will include a modification to control room alarm indication for low BAST level to provide individual annunciator windows for float switches LAS-260 and LAS-253 for comparison to level bubbler indications.

BACKGROUND

The Fort Calhoun Station (FCS) Chemical and Volume Control System (CVCS) includes two concentrated Boric Acid Storage Tanks (BASTs). The BAST levels are monitored to ensure that a minimum Technical Specification required volume of boric acid is maintained in the available tank(s) to achieve a cold shutdown condition at any time during core life.

Permanent level indication on the BASTs is provided by two independent methods. The first is a level bubbler and transmitter that provides both a local indication and a remote (control room) level indication for each BAST. The local indicator provides a high level alarm in the control room at 94.2% level. The remote indicator provides alarms in the control room for low level at 80.0% level and low low level at 6.0% level. LIT/LIA-261 provides indication for the "A" BAST and LIT/LIA-254 provides indication for the "B" BAST.

The second level indication is an independent float switch for each BAST that is activated at a level of 82.4%. Annunciator A2, Window C-4U in the control room alarms when a coincident low level is indicated by the float switches on both BASTs. The float switches for the "A" and "B" BASTs are LAS-260 and LAS-253 respectively.

FCS Technical Specification (TS) 3.1, Table 3-2, "Minimum Frequencies for Checks, Calibrations and Testing of Engineered Safety Features, Instrumentation and Controls", Item 15.a, requires a daily check of "Boric Acid Tank Level". The surveillance method specified is to "Compare two independent sensors." This check is addressed by FCS Surveillance Test (ST) OP-ST-SHIFT-0001, "Operations Technical Specification Required Shift Surveillance".

EVENT DESCRIPTION

On January 7, 1993, while operating in Mode 1 at 100% power, the Operations Supervisor was involved in discussions to determine if on-line maintenance could be performed on the "B" BAST level switch (LAS-253), or if the maintenance should be scheduled during an outage. The maintenance was required in order to correct a "false" low level signal being provided by LAS-253 to the coincident alarm circuitry.

The TS requirements for BAST level indications were reviewed by the Operations Supervisor and a Shift Supervisor. The level indication at that time consisted of one channel, LIT/LIA-254 (local/remote), on "B" BAST and two channels, LIT/LIA-261 (local/remote) and LAS-260, on "A" BAST. This was considered an allowable configuration, however, it was noted that the loss of one level channel on "A" BAST would put the plant in a 24-hour Limiting Condition for Operation (LCO).

On January 8, 1993, the Operations Supervisor reviewed the issue and its implications with the Reactor Engineer. The Reactor Engineer expressed concern that a problem could exist with the Surveillance Requirements for a channel check. On review it was identified that the BAST level surveillance specified that LIT-254 be compared to LIA-254, and that LIT-261 be compared to LIA-261. The surveillance method specified in TS 3.1, Table 3-2, Item 15.a, is to "Compare two independent sensors". The ST, therefore, did not compare "independent sensors", but rather compared two different indicators from the same sensor.

On January 9, 1993, administrative controls were established to maintain "A" BAST at a minimum level above the alarm setpoint of LAS-260. This would allow the level surveillance to be performed on "A" by comparing the indication from LIT/LIA-261 to the alarm condition on Window C-4U, which, due to the continuous low level signal from LAS-253, would now annunciate on a low level signal from LAS-260.

On January 12, 1993, a temporary modification was installed that would allow monitoring of both BASTs' levels locally. This modification installed a temporary "sight glass" on each BAST. The Auxiliary Building Operator began logging the "sight glass" level indication every two hours in addition to the local level indication. Surveillance Test OP-ST-SHIFT-0001 was then revised to address comparing "sight glass" and bubbler readings.

This event resulted in the identification of a failure to meet the TS 3.1 requirement for a daily comparison of independent sensors of boric acid tank level. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B).

SAFETY ASSESSMENT

The event did not impact nuclear safety. BAST levels are logged every two hours and unexplained trends in level would have been identified by the operators. (Similar logs have been taken since before 1977.) An increasing level would provide indication of a plugged bubbler or unexplained BAST in-leakage. Corrective action would then be taken to identify and correct the problem. Historically, the LAS float switches are generally a highly reliable method for monitoring a minimum tank level. A condition resulting in an actual low level, below that needed to reach cold shutdown, would have been identified by the available instrumentation.

CONCLUSION

The root cause of the event has been determined to be an inadequate surveillance test to monitor the BAST levels. A review of plant records showed that the original 1973 surveillance test incorrectly identified the local and remote indications from the level bubblers (originally designated LIA-254 X & Y and LIA-261 X & Y) as meeting the intent of comparing independent indications.

A principle contributing factor in this event was found to be that incomplete action was taken in responding to one corrective action identified in LER 91-008. The LER indicated that each surveillance procedure would be reviewed to ensure they met the intent of TS surveillance requirements. Individuals were assigned to review each surveillance procedure except OP-ST-SHIFT-0001, which, because of its multiple parts, was to be divided among several reviewers. However, due to an administrative oversight, the intended multi-reviewer review of OP-ST-SHIFT-0001 was not assigned, and therefore was not completed.

CORRECTIVE ACTIONS

The following corrective actions have been or will be completed:

1. Temporary Modification 93-005 installed a temporary "sight glass" level indication on each BAST, and OP-ST-SHIFT-0001 was revised to address comparing "sight glass" and bubbler readings, in order to meet TS 3.1, Table 3-2, Item 15.a.

2. Surveillance Test OP-ST-SHIFT-0001 has been reviewed and determined to adequately meet the intent of associated TS surveillance requirements.

3. Modification MR-FC-93-001 has been initiated to split the current single annunciator associated with LAS-260 and LAS-253. The modification will provide each BAST with an individual annunciator window. Necessary procedure changes, including a change to OP-ST-SHIFT-0001 to specify LAS-260 and LAS-253 as the independent sensors for comparison to LIT/LIA-261 and LIT/LIA-254 respectively, will be completed when the modification is accepted for operation. This modification will be installed at the first outage of sufficient duration to support the work, but not later than the 1993 Refueling Outage.

PREVIOUS SIMILAR EVENTS

LERs 91-008, 91-001, 89-002, 88-008, 87-037 and 87-010 discuss other events involving surveillance tests that did not meet TS surveillance requirements.