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

APPROVED BY OMB NO. 3150-0104
EXPIRES 05/31/95

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)

FACILITY NAME (1):	DOCKET NUMBER (2)	PAGE (3)
LaSalle County Station Unit One	05000373	1 of 5

TITLE (4) Recirculation Flow Converter Calibration And Functional Testing Deficiencies Due To Inadequate Procedures

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 NAME	DOCKET NUMBER
									LaSalle County Station Unit Two	05000374
04	22	97	97	020	01	05	01	98	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9): 4
POWER LEVEL (10): 000

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

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(iii)	☐ 73.71(b)
☐ 20.2203(a)(1)	☐ 20.2003(a)(3)(ii)	☐ 50.73(a)(2)(iv)	☐ 73.71(c)
☐ 20.2203(a)(2)(i)	☐ 20.2003(a)(4)	☐ 50.73(a)(2)(v)	☐ OTHER
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)	☐ 50.73(a)(2)(vii)	
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(viii)(A)	(Specify in Abstract
☐ 20.2203(a)(2)(iv)	☒ 50.73(a)(2)(i)	☐ 50.73(a)(2)(viii)(B)	below and in Text,
☐ 20.2003(a)(2)(v)	☐ 50.73(a)(2)(ii)	☐ 50.73(a)(2)(x)	NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
M. Ellsworth, Instrument Maintenance Department	(815) 357-6761 Extension 2278

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)	☒ NO				

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

On April 22, 1997, the System Functional Review Program made a determination that the calibration and functional test procedures for the Unit 1 and Unit 2 Recirculation Flow Converters did not verify overlap to the Average Power Range Monitor channels (APRM) and demonstrate operability of the flow reference signal low value gate to the APRM channels. This did not meet the Technical Specification definition of channel calibration of any series of sequential overlapping or total channel steps such that the entire channel is calibrated. In addition, the power supplies were adjusted prior to recording all "as found" data. This could resulted in a discrepant condition going unidentified or not reported. This event is reportable per 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by the plant Technical Specification.

The cause of this event was inadequate implementation of Technical Specification requirements as applied to this testing sequence. The safety consequences of this event were minimal. The immediate corrective action was to initiate Problem Identification Forms (PIF) #97-2932, 97-2970, 97-2933 to investigate and resolve the calibration and functional testing deficiencies.

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PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 3323 Megawatts Thermal Rated Core Power

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

A. CONDITION PRIOR TO EVENT

Unit(s): 1/2	Event Date: 04/22/97	Event Time: 0800 Hours
Reactor Mode(s): 4/N	Power Level(s): 000/000	RCS [AB] Temperature: Unit 1, < 200 degree F Unit 2, < 140 degree F
Mode(s) Name: Cold Shutdown/Defueled		RCS [AB] Pressure: 0/0 psig, Unit 1/2

B. DESCRIPTION OF EVENT

The System Functional Review Program, provides added confidence that plant documentation is consistent with the Technical Specifications and the Technical Specifications are being appropriately implemented. This program was initiated to establish a level of confidence that selected systems demonstrate performance consistent with the design basis. One of the program elements is to identify required system functions and sub-functions as described in design basis documents including the Technical Specifications. Surveillance testing requirements and procedures and other test documentation are then reviewed to confirm that system functionality is demonstrated.

On April 22, 1997, with both units in an extended shutdown, the System Functional Review Program made a determination that the calibration and functional test procedures for Unit 1 and Unit 2 Recirculation Flow Converters(Flow Unit) did not verify overlap to the Average Power Range Monitors (APRM) [IG] and demonstrate operability of the flow reference signal low value gate to the APRM channels. This issue is reportable because it did not meet the Technical Specification definition of channel calibration of any series of sequential overlapping or total channel steps such that the entire channel is calibrated, ref. Tech Spec 1.4. The verification of a valid flow signal to each APRM is performed once per shift by virtue of the flow biased setpoint check. The weekly flow unit total core flow adjustment verifies the signal to the Rod Block Monitor (RBM) channels. These tests did not test the low value gate feature of each APRM and RBM channel completely. Thus the potential existed for an undetected failure or signal level shift. This low value gate receives 2 total flow signals from 2 independent Flow Units. This feature provides the most conservative flow reference signal, of the

2 available, to each channel of APRMs and RBM. When a flow unit is taken out of the operate position, 15 volts is sent out to each low value gate. This forces each APRM and RBM channel to select the flow reference signal from the other Flow Unit. This design allows for one flow unit per trip system to be bypassed for a short time. There are no adjustments to the low value gate. Verification of this signal selection was not performed as a dedicated subsection of the Flow Unit or APRM calibrations. There is an unintentional non credited test of the low value gates whenever a Flow Unit mode switch is taken out of operate. There is a moment of time between the flow reference signal and the 15 volts (out of operate) which is 0 volts. This is why there is a high probability of a half scram when a Flow Unit is removed from operate mode. A thorough test of the low value gate requires a test sequence which proves that the APRM and RBM channels follow the low value.

The other issue is the Flow Unit calibration methodology in that not all "as found" values are captured prior to the 15 volt regulators being checked and possibly adjusted. The flow transmitters are calibrated first. The next step is the 15 volt regulator adjustment. The Flow Unit is then calibrated. Adjustment of 15 volt regulators may predispose subsequent steps to be in spec when they may have been out of spec before. This may result in a discrepant condition going unidentified and unreported. This is the sequence order provided by the vendor manual. The NSSS supplier was contracted to prepare the original instrument procedures for LaSalle Station. The UFSAR states that the neutron monitoring systems are to be calibrated per procedures listed in instruction manuals.

The calibration and functional test deficiencies date back to the original versions which were drafted by the supplier of the equipment. Subsequent reviews and revisions of the procedures failed to identify these deficiencies.

Three PIFs were initiated to identify the concerns (# 97-2932, 97-2933, 97-2970). These PIFs generated NTS Items 373-200-97-00051 (closed 5/22/97), 373-225-97-00295 (closed 7/17/97) and 373-201-97-00112 (closed 5/16/97) respectively.

This condition was reportable per 10 CFR 50.73(a)(2)(i)(B) due to a condition prohibited by the plant's Technical Specifications.

C. CAUSE OF EVENT

This event was caused by inadequate reviews of test procedures and systems for implementation of Technical Specification requirements. The definition of what constitutes the complete channel or what design feature are to be proven on a routine basis was not documented.

D. ASSESSMENT OF SAFETY CONSEQUENCES

The safety consequences of this event were minimal. The plant safety analysis assumes the upper limit "clamped" values for the trip setpoint and allowable value to be applicable at all levels of recirculation drive flow, thus any errors or failures which may have existed in the APRM flow reference signal did not effect the validity of the analysis, ref. FSAR questions and answers Q31.159-4. The "as found" Flow Unit setpoints issue is not significant since the associated rod blocks are not credited in any transient/accident. The "as found" Flow Unit flow reference signals are not significant for they were maintained to represent true core flow on a weekly basis via LIS-NR-107/207. These signals are verified to the RBM channels. The redundancy of having 6 APRM channels and the flow biased set points verified on a once per shift basis assures the presence of the flow reference signal to each APRM channel.

E. CORRECTIVE ACTIONS

1. Engineering evaluated the identified procedure deficiencies and has initiated the appropriate corrective actions required prior to either Unit startup. (NTS 373-180-97-02001)

2. A supplemental LER has been developed which summarizes the actions taken to resolve the deficiencies. These actions follow Engineering evaluations and consist of procedure changes to lis-RR-101 and LIS-RR-201. The changes revise the procedures to add testing of the low value auction circuitry and address Tech Spec requirements. (NTS 373-180-97-02002) The procedure revisions and procedure performance are being tracked by the following NTS items (due date):

   Revise LIS-RR-101 NTS 373-180-97-02003.00
   Revise LIS-RR-201 NTS 373-180-97-02004.00
   Perform Revised LIS-RR-101 prior to L1F35 restart
   NTS 373-180-97-02005.00
   Perform Revised LIS-RR-201 prior to L2R07 restart
   NTS 373-180-97-02006.00

3. The System Functional Review Program has been completed. These reviews provide a level of confidence that the previous interpretations and understanding are being challenged to a high level of conservatism.

F. PREVIOUS OCCURRENCES

LER NUMBER	TITLE

None.

G. COMPONENT FAILURE DATA

Since no component failure occurred, this section is not applicable.