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FACIL:50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 95-003-00:on 950210,determined that calibration inaccuracies in FW flow instrumentation resulted in minor error in indicated core thermal power.Caused by drawing errors.Calculations revised.W/950313 ltr.

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March 13, 1995

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

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 95-003-00
PLAS- 625 FILE R41-2

Docket No. 50-388
License No. NPF-22

Attached is Licensee Event Report 95-003-00. This report is being made pursuant to NRC Document SSINS#0200, "Discussion of Licensed Power Level", in that the shift average power level for Unit 2 was exceeded on several occasions between June, 1994 and February, 1995 by less than 1 MWt due to an instrumentation calibration problem.

H. G. Stanley
VP - Nuclear Operations

HL/mjm

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NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
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), U7.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, 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)
Susquehanna Steam Electric Station - Unit 2	0 5 0 0 0 3 8 8	1 OF 0 3

TITLE (4)
Shift Average Maximum Power Level Exceeded

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	DOCKET NUMBER(S)
0 2	1 0	9 5	9 5	— 0 0 3	— 0 0	0 3	1 3	9 5		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 1 : (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	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)	X 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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER AREA CODE
Harrison Lloyd, Jr. - Power Production Engineer	7 1 7 5 4 2 - 3 9 1 7

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	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 fifteen single-space typewritten lines) (16)

On February 10, 1995, with Unit 2 at 100% power, it was determined calibration inaccuracies in Feedwater flow instrumentation had resulted in a minor error in indicated core thermal power. The inaccuracies are a result of calculations which were based on instrument drawings which were incorrect. The magnitude of the error is 0.024% which equates to 0.8 MWt. There were several occasions between June, 1994 and February, 1995 where the eight hour shift average power exceeded the license limit of 3441 MWt by a maximum of 0.8 MWt for short durations. The cause of this event was drawing errors which existed since initial construction. This condition was identified during walkdowns of the instrumentation. This event was determined to be reportable per NRC Document SSINS #0200, "Discussion of Licensed Power Level" (AIFS.F14850HZ), in that the license limit of 3441 MWt for any eight hour shiftly average was exceeded by a maximum of 0.8 MWt. There were no safety consequences or compromise to the public health or safety during this event. Following discovery, core thermal power was reduced by 1 MWt. The calculations were revised and the instruments will be re-calibrated during the next plant outage. The instrumentation drawings will be corrected via a drawing change mechanism.

DESCRIPTION OF EVENT

On February 10, 1995, with Unit 2 in Condition 1 (RUN) at 100% power, it was determined that calibration inaccuracies in the Feedwater flow instrumentation (EIIS Code: JB) had resulted in a minor error in indicated core thermal power. This condition has existed since power uprate was implemented on Unit 2 during the Sixth Refueling and Inspection Outage. These inaccuracies are a result of calculations which were based on instrument line location depicted on drawings incorrectly. The magnitude of the error is 0.024% which is well below the instrument tolerance of 0.25%. However, with the Unit at full power (3441 MWt), and given the introduced error of 0.024%, there were several occasions where the eight hour shift average power exceeded 3441 MWt by a maximum of 0.8 MWt or less for short durations over the cycle. The drawing error involves the instrument taps on the flow elements to which the instrument lines are connected. The instrument depicted as connected to tap #1 are in fact connected to tap #2 and those depicted as connected to tap #2 are in fact connected to tap #1. These taps are located at approximately the same point along the length of the flow element but exhibit slightly different flow coefficients which were determined during pre-installation laboratory testing.

CAUSE OF EVENT

The cause of this event was drawing errors for the subject instruments. These errors have existed since initial construction and were not previously identified because there has been no need or requirement since initial operation to verify them. The errors were identified when a walkdown of the instrumentation was being performed in preparation for re-calibration for power uprate on Unit 1. The walkdowns were performed for verification purposes and for comparing Unit 2 to Unit 1. Power Uprate has been implemented on Unit 2 and will be implemented on Unit 1 in the upcoming Eighth Refueling and Inspection Outage.

REPORTABILITY / ANALYSIS

This event was determined to be reportable pursuant to NRC Document SSINS#0200, "Discussion of Licensed Power Level" (AITS.F1458OHZ) dated August 22, 1980. This document states that the average power level over any eight hour shift should not exceed the full steady state licensed power. Due to the calibration inaccuracies discussed previously, there were several occasions between June, 1994 and February, 1995 when the indicated shift average for core thermal power was between 3440.2 and 3441 MWt. Given the error of 0.8 MWt, the actual shift average power was exceeded by as much as 0.8 MWt. This equates to an error of 0.024%. This condition (calibration inaccuracies) did not exist prior to June, 1994. Until re-calibration of feedwater flow instrumentation for Unit 2 power uprate, a conservatism of approximately 0.1% had existed in both Units. This was eliminated when better technical data was obtained via General Electric SIL 452. The calculations were changed as a result of this SIL which eliminated the 0.1% conservatism. Upon discovery of this condition, power was reduced by 1 MWt to ensure the plant was maintained below the licensed limit of 3441 MWt. A review of thermal limits indicated that none were approached thus the margin of safety was not adversely impacted. There were no safety consequences or compromise to the public health or safety during this incident.

In accordance with guidance provided in NUREG 1022, Supplement 1, Item 14.1, the required submission date for this report was determined to be March 13, 1995.

CORRECTIVE ACTIONS

Core thermal power was reduced by 1 MWt. The calculation for the instrument calibrations were revised to account for actual installed locations of the instruments. The re-calibrations will be performed during the next outage due to the risk involved with performing them at power. Until the re-calibrations or additional engineering analysis is performed, indicated core thermal power will be maintained at less that or equal to 3440 MWt to ensure license limits are maintained. The instrumentation drawings will be corrected via a drawing change mechanism.

ADDITIONAL INFORMATION

Failed Component Identification: None

Previous Similar Events:

There have been no previous LERs identified for either Unit where the average eight hour shift average exceeded the full steady state licensed power due to calibration errors in Feedwater flow instrumentation.