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Southern Nuclear Operating Company
the southern electric system

October 13, 1995

Docket No.: 50-348

10 CFR 50.73

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

Joseph M. Farley Nuclear Plant - Unit 1
Licensee Event Report 95-007-00

Ladies and Gentlemen:

Joseph M. Farley Nuclear Plant Licensee Event Report 95-007-00 is being submitted in accordance with 10 CFR 50.73. If you have any questions, please advise.

Respectfully submitted,

Dave Morey

DPH:maf MSIVLER.DOC

Attachment

cc: Mr. S. D. Ebneter
Mr. B. L. Siegel
Mr. T. M. Ross

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NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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)
Joseph M. Farley Nuclear Plant - Unit 1	05000348	1 OF 5

TITLE (4)

Control Room Pressurization Units Moisture Controllers Incapable of Performing Their Intended Function

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
						10	13	95	FNP - Unit 2	05000364
09	27	95	95	-- 007 --	00				FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)					
POWER LEVEL (10)	0	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)	X	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
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
R.D. Hill, General Manager - Nuclear Plant	(334)899-5156

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
D	VI	MC	C780	Y						

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION	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 September 27, 1995 with Unit 1 defueled and Unit 2 in mode 1 operating at 100 percent power it was determined that Farley Nuclear Plant (FNP) had been in a condition outside the design basis of the plant. FNP was outside the design basis of the plant due to both the Train A and B control room pressurization units moisture controllers (MCs) being incapable of performing their intended function. The MCs function to reduce outside intake air humidity therefore ensuring adequate iodine removal efficiency for the associated pressurization unit charcoal filter. Because both trains of automatic moisture removal capability were inoperable from a high humidity standpoint, the corresponding postulated accident thyroid dose for control room operators would have exceeded the FNP design basis limit of 30 rem over a 30 day period. An investigation into the automatic capability of the MCs was prompted by a Self-Initiated Safety System Assessment (SSSA) of the control room ventilation system. As a conservative measure, on August 11, 1995 the heater hand switches for both trains were placed in a configuration which would actuate its associated pressurization unit heaters coincident with a fan start, regardless of intake air temperature or relative humidity. The cause of this event was procedural inadequacy in that the MCs were not included in the periodic preventative maintenance (PM) program. Repetitive PM tasks have been established to ensure maintenance and calibration of the MCs. The Train B MC has been replaced. The Train A MC is scheduled for replacement.

Plant and System Identification

Westinghouse -- Pressurized Water Reactor
Energy Industry Identification System codes are identified in the text as [XX].

Description of Event

On September 27, 1995 with Unit 1 defueled and Unit 2 in mode 1 operating at 100 percent power it was determined that Farley Nuclear Plant (FNP) had been in a condition outside the design basis of the plant. FNP was outside the design basis of the plant due to both the Train A and B control room pressurization units [VI] moisture controllers being incapable of performing their intended function.

The moisture controllers function to automatically actuate their associated control room pressurization unit heaters when outside intake air humidity is greater than 70%. (The pressurization unit heaters are also automatically actuated by a separate temperature switch when outside intake air temperature is less than 59° F.) This function ensures adequate iodine removal efficiency for the pressurization unit charcoal filter. Because both trains of automatic moisture removal capability were inoperable from a high humidity standpoint, the corresponding postulated accident thyroid dose for control room operators would have exceeded the FNP design basis limit of 30 rem over a 30 day period.

An investigation into the automatic capability of the moisture controllers was prompted by a Self-Initiated Safety System Assessment (SSSA) of the control room ventilation system conducted in August 1995. This SSSA identified that no repetitive preventative maintenance (PM) calibration tasks were being performed on the moisture controllers. While the moisture controllers are not specifically included in Technical Specifications, an evaluation was conducted to determine their importance as attendant equipment in mitigating control room dose during a design basis event. On August 11, 1995 pending a determination of the operability of the moisture controllers as well as their importance as attendant equipment, the heater hand switches for both trains were placed in a configuration (test position) which would automatically actuate their associated pressurization unit heaters coincident with a fan start, regardless of outside intake air temperature or relative humidity. Prior to implementation of this conservative measure, engineering confirmed that interim operation in this configuration would have no adverse consequences on system operation, including control room heat load.

Following the determination of appropriate testing criteria, tests conducted on the control room pressurization unit moisture controllers indicated that the moisture controllers would have been incapable of performing their intended function.

In parallel, an engineering analysis was performed to determine the apparent worst case consequences of a design basis accident assuming a failure of the moisture controllers. High intake air humidity would reduce the iodine removal efficiency of the charcoal filters and correspondingly increase the potential accident thyroid dose for control room operators above the FNP design basis limit of 30 rem over a 30 day period. Dose to the whole body and skin would not have been significantly affected.

The original FNP design criteria for the control room ventilation system was that the postulated accident dose for control room operators would not exceed 5 rem to the whole body, or the equivalent to any part of the body. The thyroid equivalent of 5 rem to the whole body was accepted as 30 rem to the thyroid during original plant licensing.

It was determined that the moisture controllers were to be considered as attendant equipment. Furthermore, testing indicated that prior to placing the moisture controllers in the test configuration, both trains of moisture controllers were incapable of automatically performing as required. It was also determined that sufficient time may not have been available to take adequate compensatory actions in order to maintain the postulated thyroid dose to the control room operators less than 30 rem over a 30 day period. Therefore, this event is being reported as an event or condition that resulted in FNP being outside the design basis of the plant.

Cause of Event

The cause of this event was procedural inadequacy in that the moisture controllers were not included in the periodic preventative maintenance (PM) program.

Safety Assessment

The health and safety of the public was unaffected by this condition. There are no failure modes for the moisture controllers that could have resulted in initiation of an accident.

Under worst case conditions of high outside intake air humidity and outside intake air temperature above 59° F, the effectiveness of the charcoal filtration units would have been diminished. If a design basis accident were to have occurred during this time, the postulated thyroid dose to control room operators would have exceeded original FNP design criteria of 30 rem over a 30 day period. However, the postulated thyroid dose of approximately 47 rem would have been less than the 10 CFR 20 limit of 50 rem for annual occupational exposure to the thyroid and would not have impaired the ability of the operators to safely shut down the reactor.

In addition, existing procedures would have prompted early sampling of the control room environment in response to an accident. If the levels of iodine had been greater than allowed for continuous occupational exposure, it could be reasonably concluded that dose to workers would have been mitigated by use of filter masks and/or recirculation of air through portable charcoal filter banks. Further, it could be reasonably concluded that emergency support personnel would have diagnosed the cause for elevated control room dose and manually actuated the pressurization unit heaters to lower the intake air humidity.

This event would not have been more severe if it had occurred under different operating conditions.

Corrective Action

As an interim conservative measure, both trains of the control room pressurization units heater hand switches were placed in a configuration which would actuate its associated pressurization unit heaters coincident with a fan start, regardless of intake air temperature or relative humidity.

Repetitive PM tasks have been established to ensure maintenance and calibration of the moisture controllers.

The Train B moisture controller has been replaced.

The Train A moisture controller is scheduled for replacement.

Additional Information

Similar moisture controllers for the penetration room filtration system were found to be appropriately maintained and calibrated with repetitive PM tasks already established.

The FNP SSSA program has involved a comprehensive review of 13 systems to-date. The SSSAs have occasionally identified inadequate maintenance and/or calibration of system components. As a result, verification of appropriate maintenance and calibration has been a priority in performance of the SSSAs.

The following LERs involved a failure to perform surveillance testing due to procedural inadequacy:

LER 91-011 (Shared) - Inadequate testing of component cooling water sample cooling supply check valves.

LER 91-012 (Shared) - Failure to verify the interlock action of the RHR system from the RCS.

LER 93-002 (Shared) - Failure to perform Train B slave relay testing for the TDAFW pump.