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SUBJECT: LER 90-016-00:on 900529,invalid testing of fuel handling blg emergency exhaust filtration unit.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR 1 ENCL 1 W/9 ltr. SIZE: 4
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NOTES:Application for permit renewal filed. 05000400

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R. B. RICHEY
Manager
Harris Nuclear Project

JUN 2 6 1990

Letter Number: HO-900111 (O)

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

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
LICENSE NO. NPF-63
LICENSEE EVENT REPORT 90-016-00

Gentlemen:

In accordance with Title 10 to the Code of Federal Regulations, the enclosed Licensee Event Report is submitted. This report fulfills the requirement for a written report within thirty (30) days of a reportable occurrence and is in accordance with the format set forth in NUREG-1022, September 1983.

Very truly yours,

R. B. Richey, Manager
Harris Nuclear Project

RBR:msb

Enclosure

cc: Mr. R. A. Becker (NRR)
Mr. S. D. Ebneter (NRC - RII)
Mr. J. E. Tedrow (NRC - SHNPP)

YPM/LER-90-016/1/OS1

IE22
1/1

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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)	DOCKET NUMBER (2)	PAGE (3)
SHEARON HARRIS NUCLEAR POWER PLANT,	0 5 0 0 0 4 0 0	1 OF 0 3

TITLE (4) INVALID TESTING OF FUEL HANDLING BUILDING EMERGENCY EXHAUST FILTRATION UNIT DUE TO FLOWRATE MEASUREMENT INACCURACIES

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 5	2 9	9 0	9 0	— 0 1 6	— 0 0	0 6	2 6	9 0	N/A	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
4	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 1 0 0	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 (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	X 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
Andrew J. Howe, Sr. Specialist	AREA CODE 9 1 9 — 3 6 2 — 2 7 1 9

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 fifteen single-space typewritten lines) (16)

On May 29, 1990, an investigation into a flowrate indication discrepancy between the Main Control Board (MCB) instrumentation and test measurements used for the B train Fuel Handling Building Emergency Exhaust Filtration Unit concluded that a previous test was conducted with flowrates outside of Technical Specification (TS) 4.9.12 requirements. A flowrate of 6600 cubic feet per minute (cfm) +/- 10% is specified, and this flowrate is required by TS to be determined using duct traverse air flow measurements. During testing on March 30, 1990, a flowrate of 6340 cfm was measured in the duct, while the MCB instrumentation indicated approximately 7500 cfm. Further testing and evaluation showed that the location of the test measurement was a turbulent airflow region with some backflow. Actual flowrates measured in a more laminar flow region confirmed the accuracy of the MCB indication.

The filtration unit had not been declared operable following testing pending resolution of the flowrate discrepancy. When the deficiency was identified in the test measurement location, the test procedure was rerun and completed satisfactorily on April 27.

A review of previous test results determined that the testing performed on June 29, 1988, was most likely conducted at actual flowrates below the 6600 cfm +/- 10% criteria, which does not comply with TS requirements. Since the test was completed satisfactorily on April 27 without filter changes, the June 29 testing should have been satisfactory if it had been conducted at the correct flowrate.

The A train of the system was not similarly affected due to the location of flowrate measurements. A review of other TS filtration testing revealed no similar problems.

The test procedure will be revised to provide criteria for verifying acceptable locations for the flowrate measurement, and comparison to the MCB indication to ensure accuracy of both indications.

EVENT DESCRIPTION

On March 30, 1990, the plant was operating at full power. Testing was in progress per Surveillance Requirements 4.9.12 for the B train of the Fuel Handling Building (FHB) Emergency Exhaust System, per procedure RST-004. Testing of the filtration unit is required by Technical Specifications (TS) to be conducted at a flowrate of 6600 cubic feet per minute (cfm) +/- 10%. This flowrate is established by traversing the duct to establish the velocity profile and calculating the flowrate. This method of determining the flowrate for filter testing is required by TS in a reference to ANSI N510-1980. A flowrate of 6340 cfm was established and testing of the filtration unit was completed satisfactorily. However, it was noted during the test that the flowrate indicated at the Main Control Board (MCB) was approximately 7500 cfm. Since this flowrate is outside of the 6600 cfm +/- 10% criteria, the unit was not declared operable and an evaluation was begun to resolve the flowrate discrepancy. Any inaccuracy in the MCB instrumentation is of concern because this flow transmitter is used to automatically control the fan flowrate, and because the flowrate indication is used in other test procedures to establish the 6600 cfm +/- 10%.

Further flowrate measurements were taken in the duct at the previous test location and other locations. These readings confirmed that the MCB indication was properly indicating flow, and that the location which RST-004 measures flow was inaccurate due to turbulence in the duct.

Retesting of the B FHB Emergency Exhaust System was satisfactorily completed on April 27 using a new location for flowrate measurements, and the unit was declared operable.

A review of previous test results was then conducted to determine if testing had been conducted within the 6600 cfm +/-10% criteria, after applying a correction factor to account for the discrepancy observed. It was determined that testing conducted on June 29, 1988, was probably conducted at 5899 cfm, which is 41 cfm below the low limit of TS. Since the filtration unit was satisfactorily tested on April 27, 1990, and no filter changes had been made, the June 29 testing should have been successful if the flowrate had been within the required band.

Cause:

The cause of this event was an inadequate location of duct flowrate measurements. The calculation for flowrate based on duct traverses does not account for the possibility of negative flowrates at some traverse locations in the duct, since it assumes the test location is in a laminar flow region.

SAFETY SIGNIFICANCE:

The FHB Emergency Exhaust System consists of two safety-related filtration units and exhaust fans, one of which is required to operate following the postulated failure of the cladding of an irradiated fuel assembly. The system maintains a negative 1/8 inch water gauge pressure in the FHB to ensure that all radioactive material released will be filtered through the High Efficiency Particulate (HEPA) filter and charcoal adsorber prior to discharge to the atmosphere.

The flowrate measurement discrepancy affected only the B train FHB Emergency Exhaust System. The system was capable of performing its intended function despite the improper test flowrate, based on successful completion of the test with flow in band.

This event is reportable per 10CFR50.73 (a)(2)(i)(B) as a condition prohibited by TS, because the TS requirement specifying the required flowrate for filter testing was not met.

CORRECTIVE ACTIONS:

1. The B FHB Emergency Exhaust System was satisfactorily tested and returned to service on April 27, 1990.

2. A review of other TS filtration units revealed no similar problems having occurred.

3. The test procedure for TS filtration units will be revised to identify criteria for verifying acceptable locations for flowrate measurements, and to require comparison to the permanent instrumentation to verify the accuracy of the flowrate indications.

EIIS CODES:

None of the EIIS codes are applicable to the Fuel Handling Building Emergency Exhaust System.