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ACCESSION NBR:9712110174 DOC.DATE: 97/12/05 NOTARIZED: NO DOCKET #
 FACIL:50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co. 05000389
 AUTH NAME AUTHOR AFFILIATION
 FREHAFFER,K.W. Florida Power & Light Co.
 STALL,J.A. Florida Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 97-008-00:on 971107,inadequate CR ventilation
 surveillance resulted in condition prohibited by TS.Caused
 by non-cognitive personnel error.Operating Procedure
 2-1900050 was revised.W/971205 ltr.

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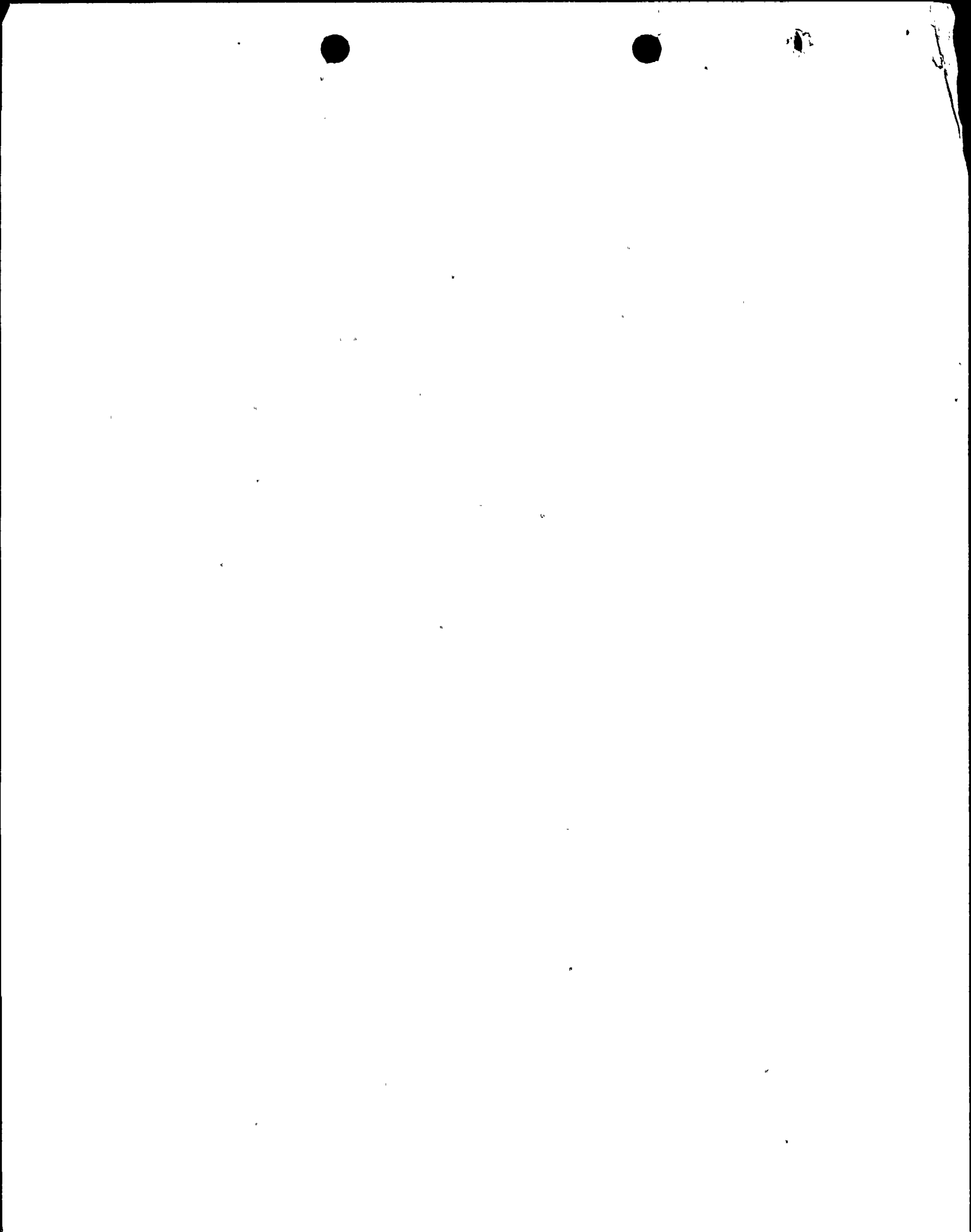
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Florida Power & Light Company, 6351 S. Ocean Drive, Jensen Beach, FL 34957

December 5, 1997

L-97-303
10 CFR 50.73

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: St. Lucie Unit 2
Docket No. 50-389
Reportable Event: 97-008-0
Date of Event: November 7, 1997
Inadequate Control Room Ventilation Procedure Results
in Condition Prohibited by Technical Specifications

The attached Licensee Event Report is being submitted pursuant to the requirements of 10 CFR 50.73 to provide notification of the subject event.

Very truly yours,

J. A. Stall
Vice President
St. Lucie Plant

JAS/KWF



IE221,

Attachment

cc: Regional Administrator, USNRC Region II
Senior Resident Inspector, USNRC, St. Lucie Plant

9712110174 971205
PDR ADOCK 05000389
S PDR

an FPL Group company

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 60.0 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-8 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20665-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20603.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)

ST LUCIE UNIT 2

DOCKET NUMBER (2)

05000389

PAGE (3)

1 OF 5

TITLE (4)

Inadequate Control Room Ventilation Surveillance Results in Condition Prohibited by Technical Specifications

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
11	7	97	97	-- 008	-- 0	12	5	97	N/A	05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
		20.2201(b)		20.2203(a)(2)(v)		X	50.73(a)(2)(i)		50.73(a)(2)(viii)
POWER LEVEL (10)	100	20.2203(a)(1)		20.2203(a)(3)(i)			50.73(a)(2)(ii)		50.73(a)(2)(x)
		20.2203(a)(2)(i)		20.2203(a)(3)(iii)			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

K. W. Frehafer, Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(561) 468-4284

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	N/A	N/A	N/A						

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On November 7, 1997, St. Lucie Unit 2 was in Mode 1 at 100 percent reactor power. Utility personnel identified a concern with an 18 month control room Technical Specification surveillance procedure while reviewing HVAC surveillance procedures to ensure that the intent of the Technical Specification surveillance requirements were being met. The surveillance procedure did not adequately test control room pressurization on an individual train basis. Operations declared both trains of the Control Room Emergency Cleanup System out of service and entered the 24 hour Technical Specification 3.7.7 ACTION statement. Both trains of the Control Room Emergency Cleanup System were satisfactorily tested to the new test procedure on November 8, 1997, and the ACTION statement was exited.

The cause for the Unit 2 Control Room Emergency Cleanup System surveillance procedure deficiency was non-cognitive personnel error that occurred at the time of plant licensing during the development of the surveillance procedure. Corrective actions included 1) revising the surveillance procedure to provide for train specific testing, and 2) Other HVAC system Technical Specification surveillance procedures were reviewed for adequacy, with no additional issues identified.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
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ST: LUCIE UNIT 2	05000389	97	-- 008	-- 0	2 OF 5

TEXT (If more space is required, use additional copies of NRC Form 366A) (17):

DESCRIPTION OF THE EVENT

On November 7, 1997, St. Lucie Unit 2 was in Mode 1 at 100 percent reactor power. As a result of a previous issue identified with HVAC Technical Specification (TS) surveillance procedures, utility personnel were reviewing HVAC surveillance procedures to ensure that the intent of the TS surveillance requirements were being met. This review identified a concern with the 18 month control room TS surveillance procedure that tests the pressurization of the control room emergency envelope. The issue was the surveillance procedure did not adequately test control room pressurization on an individual train basis. Operations declared both trains of the Control Room Emergency Cleanup System (CRECS) [EIS:VI] out of service and entered the 24 hour TS 3.7.7 action statement.

The surveillance testing method did not adequately ensure that each individual train of the CRECS was capable of meeting its design requirements with respect to the capability of the system to maintain at least a 1/8" water gage (w.g.) positive pressure while limiting Outside Air Intake (OAI) to ≤ 450 cfm. The Unit 2 CRECS is designed as a two train system capable of withstanding a single active failure coincident with a loss of offsite power. TS surveillance 4.7.7.e.3 requires a verification that the system maintains a 1/8" w.g. positive pressure relative to outside atmosphere with ≤ 450 cfm outside air intake. This surveillance is performed via Operating Procedure 2-1900050, "Control Room Pressure Periodic Test."

The existing test procedure did the following:

- 1) allows the use of either supply fan HVE-13A or HVE-13B;
- 2) closes both toilet exhaust valves (FCV-25-18 and FCV-25-19);
- 3) closes both kitchen exhaust valves (FCV-25-24 and FCV-25-25); and
- 4) allows the use of either the north or south outside air intake valves.

The intent of the surveillance is to demonstrate that control room integrity is sufficient to maintain a 1/8" w.g. positive pressure with not more than 450 cfm of filtered outside air makeup in order to protect against unfiltered air in-leakage.

Control room integrity is a function of both the leak-tightness of the control room envelope and the capability of the ventilation system to provide the necessary makeup air to pressurize the control room envelope. To this extent, the use of either the -13A fan or -13B fan is immaterial since each fan train is separately tested to ensure proper system filtration and flow capabilities; however, there are train-related aspects to both the ability to establish control room integrity and the ability to control the amount of OAI.

The kitchen and toilet exhaust lines are each provided with two isolation valves, as noted above. One of these two valves is powered from train A and the other from train B. By testing with both valves in the closed position, the ability of a single valve to provide sufficient isolation (i.e., to establish integrity of the control room envelope) is not assured. The possibility exists that one of the two valves does not provide adequate isolation capabilities such that it may represent a threat to control room integrity in the event of a failure of the opposite valve.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

DESCRIPTION OF THE EVENT (cont'd)

Similarly, each OAI duct (north and south) has both an A train and a B train isolation valve. Under a design basis accident scenario, all four OAI isolation valves would go closed. Control room operators, monitoring outside radiation levels, would then select either the north or south OAI duct as a makeup path and open the appropriate valves. While the existing test procedure provided verification that OAI flow can be throttled (to limit OAI to ≤ 450 cfm) from either the north side or the south side, procedurally it did not test the ability to throttle from the untested side.

Working in conjunction with the OAI valves are return air modulating dampers D-39 (A train) and D-40 (B train). These dampers are located in series in the common return duct and are controlled by a pressure differential indicating controller which is set at 1/8" w.g. The existing test procedure did not address these dampers. As such, both dampers were allowed to operate during the test which could result in masking a failed damper.

The control room Technical Specification surveillance procedure OP 2-1900050, "Control Room Pressure Periodic Test," was revised as 2-OSP-25.01, "Control Room Pressure Periodic Test," and a successful surveillance was completed on November 8, 1997. Operations declared CRECS back in service, and the Technical Specification ACTION statement exited.

CAUSE OF THE EVENT

The cause for the CRECS surveillance procedure deficiency was non-cognitive personnel error that occurred at the time of plant licensing during the development of surveillance procedure 2-1900050, "Control Room Pressure Periodic Test." The procedure as written did not meet the intent of the Technical Specification surveillance requirements because control room pressurization on an individual train basis was not adequately tested.

ANALYSIS OF THE EVENT

The existing test procedure did not adequately ensure that each individual train of the CRECS is capable of meeting its design requirements. This condition was determined to constitute a missed technical specification surveillance which is reportable per 10 CFR 50.73(a)(2)(i)(B), as a condition prohibited by technical specifications.

This situation is not applicable to Unit 1. Although the designs are generally similar, the Unit 1 and Unit 2 Technical Specifications treat the systems differently. The Unit 1 Technical Specifications refers to a singular "control room emergency ventilation system" which consists of two booster fans, two isolation valves in each duct, etc. whereas the Unit 2 Technical Specifications refers to "two independent control room emergency air cleanup systems." Though not a Technical Specification compliance issue, the Unit 1 control room pressure periodic test procedure was enhanced to provide for train specific testing.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

ANALYSIS OF THE EVENT (cont'd)

For the purposes of this assessment the three train related components of system operation are discussed below. These train related components are: (1) kitchen and toilet exhaust valves; (2) north and south OAI valves; and (3) return dampers D-39 and D-40. Note that although there are A and B train emergency fans, these fans are separately tested to ensure proper performance; therefore, fan operability is not a train related aspect of the pressurization test.

Exhaust Valves

The kitchen and toilet exhaust lines are each equipped with A and B train isolation valves. These valves form a part of the control room envelope and are required to isolate upon receipt of a containment isolation signal (CIS). The existing control room pressurization test did not demonstrate the ability of each individual train to provide an adequate boundary since the test required both the A and B valves to be closed prior to the test. Although they have not been periodically tested as a part of the pressurization test, the isolation valves have been verified to automatically close as a part of other plant testing.

Since these valves close upon receipt of a CIS, they are tested as a part of the integrated safeguards test procedure (Operating Procedure 1-0400050, Appendix O). Although this testing does not demonstrate the leak tightness of the valves, it does verify that the valves actuate to their closed position. With the valves closed, any leakage would be limited to relatively insignificant seat leakage rather than the gross leakage associated with a partially or fully open valve. The integrated safeguards testing is performed at the same frequency as the pressurization test (18 months).

OAI Valves

The north and south OAI lines are each equipped with A and B train isolation valves. Control room operators, monitoring outside radiation levels, select either the north or south OAI duct as a makeup path and open the appropriate valve(s). The existing test procedure did not test the ability to use both the north and south intake ducts.

The ability to draw makeup air from either the north or south duct is not critical to system operation nor is the ability to remotely actuate the OAI valves. Failure of a makeup path is addressed in UFSAR Table 9.4-3. This table notes that in the event one intake path becomes inoperable, the redundant path may be used and that the intake valve may be manually opened. Thus, the failure to test each OAI isolation valve does not significantly affect system operation.

Return Dampers

Return dampers D-39 (A train) and D-40 (B train) are installed in series in the common air return duct. Each damper is controlled by its own pressure differential indicating controller and modulates to maintain a positive pressure in the control room. The existing test procedure did not address these dampers. Since both dampers were allowed to operate during the test, a failed damper could potentially go undetected.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

ANALYSIS OF THE EVENT (cont'd)

The dampers are designed to modulate in the open direction upon decreasing control room differential pressure and are designed to fail open upon a loss of power or a loss of control signal. Because the fail open position is beneficial from the standpoint of maintaining a positive pressure in the control room, the inability of the test procedure to identify a failed damper is not significant from a system performance standpoint.

Conclusion

The failure of the previous TS surveillance procedure to verify individual CRECS train capability to pressurize the control room would not significantly increase the dose to operators during an event. The effects of postulated undetected failures are not significant enough to jeopardize the capability of the CRECS. Any postulated exhaust valve leakage would be limited to minor seat leakage such that the CRECS could still maintain the control room at a positive pressure. The ability to draw makeup air from either the north or south duct is not critical to system operation. The modulating return dampers are designed to modulate in the open direction upon decreasing control room differential pressure and are designed to fail open upon a loss of power or a loss of control signal. Therefore this event had no adverse impact on the health and safety of the public.

CORRECTIVE ACTIONS

- 1) Operating Procedure 2-1900050, "Control Room Pressure Periodic Test," was revised to provide for train specific testing. This procedure was reissued as Operations Surveillance Procedure 2-OSP-25.01 on November 7, 1997.
- 2) Both trains of the control room emergency cleanup system were satisfactorily tested to the new test procedure on November 8, 1997.
- 3) All test procedures related to technical specification surveillances of HVAC systems were reviewed for adequacy with no additional issues identified.

ADDITIONAL INFORMATION

Failed Components Identified:

None

Similar Events:

LER 389/97-007, "Inoperable Containment Cooling Fan Results in Operation of Facility Outside Design Basis."