

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8911200164 DOC. DATE: 89/11/13 NOTARIZED: NO DOCKET #  
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250  
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-018-01: on 880822, ECCS pump suction isolation due to procedure inadequacy.

W/8 ltr.

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L-89-413  
10 CFR 50.73

NOV 13 1989

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

Gentlemen:

Re: Turkey Point Unit 3  
Docket No. 50-250  
Reportable Event: 88-18-01  
Date of Event: August 22, 1988  
Emergency Core Cooling System Pump Suction Isolation Due to  
Procedure Inadequacy

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,

  
K. N. Harris

Vice President  
Turkey Point Plant Nuclear

KNH/JEC/VAK/DRP/DWH/rat

Attachment

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC  
Senior Resident Inspector, USNRC, Turkey Point Plant

8911200164 891113  
PDR ADOCK 05000250  
S PDC

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## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Turkey Point Unit 3										DOCKET NUMBER (2) 0 5 0 0 0 2 5 0					PAGE (3) 1 OF 0 4						
TITLE (4) Emergency Core Cooling System Pump Suction Isolation Due to Procedure Inadequacy																					
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	8	2	2	8	8	8	8	8	0	1	8	0	1	Turkey Point Unit 4				0 5 0 0 0 2 5 1			
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																		
POWER LEVEL (10)			20.402(b)				20.406(c)				60.73(a)(2)(iv)				73.71(b)						
1 0 1 0			20.406(a)(1)(i)				60.36(c)(1)				X 60.73(a)(2)(v)				73.71(c)						
			20.406(a)(1)(ii)				60.36(c)(2)				X 60.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
			20.406(a)(1)(iii)				X 60.73(a)(2)(i)				60.73(a)(2)(viii)(A)										
			20.406(a)(1)(iv)				X 60.73(a)(2)(ii)				60.73(a)(2)(viii)(B)										
			20.406(a)(1)(v)				60.73(a)(2)(iii)				60.73(a)(2)(ix)										
LICENSEE CONTACT FOR THIS LER (12)																					
NAME										TELEPHONE NUMBER											
David R. Powell, Regulation and Compliance Supervisor										AREA CODE		3 0 5 2 4 6 1 - 1 6 5 1 9									
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC											
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 August 22, 1988, Turkey Point Units 3 and 4 were operating in Mode 1 at 100 percent power when it was determined that during the performance of the monthly Emergency Core Cooling System (ECCS) valve cycling surveillance, the Refueling Water Storage Tank (RWST) supply to the ECCS was isolated from both trains of the ECCS including Residual Heat Removal (RHR), Containment Spray (CS) and High Pressure Safety Injection (HPSI). Also during the surveillance, both trains of RHR were isolated from the RWST during cycling of two other valves. The root cause was determined to be procedural inadequacy in that translation of the standard technical specification requirements into O-ADM-021, "Technical Specification Implementation Procedure," did not adequately reflect the Turkey Point design. Some Westinghouse plants have parallel RWST valves unlike the Turkey Point units which have valves in series. Corrective actions included revising the surveillance procedure and O-ADM-021.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 306A's) (17)

DESCRIPTION OF THE EVENT

On August 22, 1988 Turkey Point Units 3 and 4 were operating at 100 percent power when plant procedures 3/4-OSP-206.6, "Emergency Core Cooling System (ECCS) Monthly Valve Cycling," were determined to place the units in a condition that alone could have prevented the fulfillment of a safety function.

The condition was identified by a system engineer (non-licensed contractor) who was investigating the validity of Section 7.0 of procedure 3/4-OSP-206.6, which required the Residual Heat Removal (RHR) (EIIS: BP) pumps being put in the "pull to stop" position in order to prevent an inadvertent start of the RHR pumps during valve testing, in effect removing both trains of RHR from service. Based on current Technical Specifications (TS), this condition is acceptable for one hour only during Modes 5 and 6 (Cold Shutdown and Refueling). Further review of the procedure showed that valves 864 A and B and 862 A and B were momentarily closed for testing during all modes of power.

The 864 A and B valves are the series Refueling Water Storage Tank (RWST) outlet isolation valves to the ECCS. The 862 A and B valves are the series Residual Heat Removal pump suction isolation valves. When either of the 864 valves are closed, both trains of RHR, Containment Spray (CS) (EIIS: BE), and two of four High Pressure Safety Injection (HPSI) pumps (EIIS: BQ) are isolated from their supply of water. With either of the 862 valves closed, both trains of RHR are isolated from their supply of water.

The 864 and 862 valves were cycled 16 times each between the date procedures 3/4-OSP-206.6 were issued and the date of discovery. Each procedure's performance requires each of the valves to be cycled shut then reopened.

CAUSE OF THE EVENT

O-ADM-021, "Technical Specification Implementation Procedure," was derived from Westinghouse's version of Technical Specifications applicable to Westinghouse Plants. O-ADM-021 required monthly cycling of RWST outlet valves. This was interpreted to mean 864 A and B and 862 A and B. The root cause was determined to be procedural inadequacy, in that translation of the Standard Technical Specification requirement (O-ADM-021) did not adequately reflect the Turkey Point design. Some Westinghouse plants have parallel RWST valves unlike the Turkey Point units which have valves in series.

ANALYSIS OF THE EVENT

The valves identified are in series, and during normal operation are locked open with power removed. During the conduct of the identified surveillance tests, the valves were cycled shut, then immediately reopened. During the limited time the

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

valves were being cycled (estimated at less than 5 minutes per valve per performance), the High Pressure Safety Injection, Containment Spray, and/or RHR pumps were without a supply of water, with the RHR pump start feature being disabled.

The consequences of a Design Basis Accident with the ECCS pumps isolated, taking into consideration the expected operator intervention, have been assessed. The design basis accidents assessed were the Large Break Loss of Coolant Accident (LBLOCA), the Small Break LOCA (SBLOCA), the non-LOCA, and Steam Generator Tube Rupture (SGTR) accidents. These cases are described below.

### Large Break LOCA

A factor that should be considered in assessing this LER is the licensed leak-before-break technology as approved for the Turkey Point Plants. For accident events, such as a LBLOCA, the Commission has recognized that the catastrophic failure of a major component (such as the double-ended cold leg guillotine (DECLG) break assumed in the LBLOCA analysis) would be very unlikely. Such a break would be preceded by much smaller through-wall ruptures. The DECLG results from the propagation over a discrete time period of these small through-wall ruptures.

In accordance with 10CFR50.73, credit for the Leak Detection System as installed for Turkey Point can be taken. In the event of a through-wall opening, the operator would be alerted and would be expected to respond accordingly, irrespective of the valve cycling. The brief interruption of water source from the RWST to the RHR pumps due to valve cycling during testing (and the fact that the RHR pump start feature is disabled during the test) would not exhibit significant safety consequences because of the continued availability of High-Head Safety Injection flow from the non-accident unit's RWST and the recognized ability to bring the plant to a safe shutdown condition in response to the Leak Detection System annunciator.

### Small Break LOCA

During SBLOCAs, Reactor Coolant System pressure will remain above the RHR pump shutoff head, thus, when the RHR pump(s) are started, they will operate on their minimum recirculation flow path. Although the pump suction source was isolated during valve testing, the RHR pumps would not have started since the RHR pump start feature was disabled during the test. Sufficient time is available to return the RHR system to operable status well before it is required for core protection.

Since the plant is in a Technical Specification action statement during ECCS valve testing, no single failure needs to be postulated. Thus, with the Unit 3 RWST outlet isolation valve(s) and the RHR system suction isolation valve(s) closed, the RHR system and the Containment Spray system will be unavailable. However, since two of the four HHSI pumps are aligned with suction from the Unit 4 RWST, these two pumps are considered operable and available for accident mitigation. The current SBLOCA accident analysis assumes that only two HHSI pumps are in operation. The Containment Spray system is not needed to mitigate SBLOCAs. The RHR system is not required during the SBLOCA injection phase; however, the RHR system is required to be available for long term core cooling (recirculation phase) following the SBLOCA transient. As noted earlier, during SBLOCAs Reactor

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Coolant System pressure will remain above the RHR pumps' shutoff head, thus, when the RHR pump(s) are started, they will operate on their minimum recirculation flow path. Although the pump suction source was isolated during valve testing, the RHR pumps would not have started since the RHR pump start feature was disabled during the test. Sufficient time is available to return the RHR system to operable status well before it is required for core protection.

Therefore, since two HHSI pumps were operable, the Final Safety Analysis Report (FSAR) conclusions concerning the SBLOCA would not have been violated.

#### Non-LOCA and Steam Generator Tube Rupture Accidents

As with the SBLOCA, the non-LOCA and SGTR accidents do not depend on the RHR system or the CS system for accident mitigation. However, the current accident analyses assume two HHSI pumps are available. Since, as noted above, two HHSI pumps are available, the FSAR conclusions concerning the non-LOCA and SGTR accidents would not have been violated.

#### Conclusions

As discussed in the preceding sections, the FSAR conclusions concerning the SBLOCA, non-LOCA and SGTR accidents remain valid despite the inoperability of the RHR system, the Containment Spray system, and partial inoperability of the HHSI system as a result of the ECCS valve surveillance testing. In addition, the Leak detection System ensures an extremely low probability of a LBLOCA to lines 8 inches in diameter and larger.

#### CORRECTIVE ACTION

- 1) On August 23, 1988, procedures 3/4-OSP-206.6 were revised to exclude monthly cycling of the RWST outlet valves.
- 2) On September 29, 1988, procedure 0-ADM-021 was revised to delete the requirement for monthly cycling of the RWST outlet valves.

#### ADDITIONAL INFORMATION

No similar Licensee Event Reports have been identified.