



FPL

SEP 25 2001

L-2001-211
10 CFR § 50.73

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

Re: Turkey Point Unit 3
Docket No. 50-250
Reportable Event: 2001-002-00
Date of Event: August 3, 2001
Both Trains of AFW Rendered Inoperable by a Single Event

The attached Licensee Event Report 250/2001-002 is being submitted pursuant to the requirements of 10 CFR § 50.73 to provide notification of the subject event.

If there are any questions, please call Olga Hanek at (305) 246-6607.

Very truly yours,

John P. McElwain
Vice President
Turkey Point Nuclear Plant

OIH

Attachment

cc: Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, Turkey Point Nuclear Plant

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NRC FORM 366 (1-2001)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 6-30-2001						
LICENSEE EVENT REPORT (LER) <small>(See reverse for required number of digits/characters for each block)</small>					Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.						
FACILITY NAME (1) <p style="text-align:center;">Turkey Point Unit 3</p>				DOCKET NUMBER (2) <p style="text-align:center;">05000 0250</p>		PAGE (3) <p style="text-align:center;">1 OF 5</p>					
TITLE (4) <p style="text-align:center;">Both Trains of Auxiliary Feedwater Rendered Inoperable By a Single Event</p>											
EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
08	03	2001	2001 - 02 - 00			09	25	2001	FACILITY NAME	DOCKET NUMBER	
OPERATING MODE (9)		1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)							
POWER LEVEL (10)		100		20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)	
				20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)	
				20.2203(a)(1)		50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)		73.71(a)(4)	
				20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)		73.71(a)(5)	
				20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)		OTHER Specify in Abstract below or in NRC Form 366A	
				20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)			
				20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)			
				20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		x 50.73(a)(2)(vii)			
				20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)			
				20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)			
LICENSEE CONTACT FOR THIS LER (12)											
NAME <p style="text-align:center;">Olga Hanek, Licensing Engineer</p>							TELEPHONE NUMBER (Include Area Code) <p style="text-align:center;">(305) 246-6607</p>				
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX		
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 15 single-spaced typewritten lines) (16)											
<p>On August 3, 2001, with Turkey Point Unit 3 at 100% power, during a shift turnover control board walkdown, the reactor control operator discovered three of the six auxiliary feedwater (AFW) flow control valve hand indicating controllers (HIC) were not set at the correct flow for automatic operation of the AFW system. Both AFW trains were declared out of service on discovery. The correct HIC setpoints were re-established and the system was returned to service. This event is being reported in accordance with 10 CFR 50.73(a)(2)(vii) due to both trains of AFW being rendered inoperable by a single event.</p> <p>The root cause of the event was failure to follow procedure 0-ADM-200, Conduct of Operations, and at risk behavior by placing material on the instrument panel. Personnel involved in the event were held accountable and training briefs were issued to all plant personnel. In addition, protective covers have been placed over the AFW HIC stations.</p>											

LICENSEE EVENT REPORT (LER)
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Turkey Point Unit 3	05000250	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	Page 2 of 5
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

EVENT DESCRIPTION

On August 3, 2001, Florida Power & Light Company's (FPL) Turkey Point Unit 3 was at 100% power. During a shift turnover control board walkdown, the reactor control operator discovered three of the six auxiliary feedwater (AFW) [BA] flow control valve hand indicating controllers (HIC) [FCV:FI] were not set at the correct flow for automatic operation of the AFW system. The HICs are required to be set at 130 gpm. The as-found HIC settings were:

	3A Steam Generator	3B Steam Generator	3C Steam Generator
Train 1	120 gpm	100 gpm	130 gpm
Train 2	130 gpm	95 gpm	130 gpm

The HICs on each train of AFW are required to be set to achieve a total technical specification required AFW flow of 373 gpm. With an associated instrument uncertainty for AFW flow to three steam generators of ± 16.5 gpm, each of the three flow control valves per train are set at 130 gpm $((373 \text{ gpm} + 16.5 \text{ gpm} = 390 \text{ gpm})/3)$. As indicated above, the as-found condition of the AFW Train 1 and 2 HICs would not provide the technical specification required flow rate to the entrance of the steam generators without manual operator action. Train 1 would have supplied a total of 350 gpm; Train 2 would have supplied a total of 355 gpm. Both AFW trains were declared out of service on discovery at 1835. Unit 3 entered the 2-hour action statement of Technical Specification 3.7.1.2 for two inoperable trains of AFW. At 1850, the correct HIC setpoints were re-established, both trains of AFW were declared operable, and the technical specification action statement was exited. Based on the event investigation, FPL determined that the as-found condition existed for approximately 7.5 hours prior to discovery. This event is being reported in accordance with 10 CFR 50.73(a)(2)(vii) due to both trains of AFW being rendered inoperable by a single event.

ANALYSIS OF THE EVENT

Licensing Bases

The Turkey Point AFW System is a shared system between Units 3 and 4. It uses secondary steam to drive three AFW pump turbines which supply feedwater to the steam generators during transients when the normal feedwater source is not available. Each AFW pump is 100% capacity. The system consists of two independent trains each capable of providing required flows to both units.

The Updated Final Safety Analysis Report (UFSAR) Chapter 14 accident analysis credits AFW for mitigation of several events. The following AFW related transients were reviewed: 1) Loss of Normal Feedwater Flow, 2) Loss of Non Emergency AC to Plant Auxiliaries, 3) Steam Generator Tube Rupture (SGTR), 4) Main Steam Line Break, and 5) Small Break LOCA. The limiting event with respect to required AFW flow is the Loss of Normal Feedwater Flow event.

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The Loss of Normal Feedwater Flow transient is analyzed in Section 14.1.11 of the UFSAR. A loss of normal feedwater results in a reduction in capacity of the secondary system to remove the heat generated in the reactor core. The analysis of the transient described in this section demonstrates that the AFW system is capable of removing the stored and residual heat, thus preventing overpressurization of the Reactor Coolant System and potential loss of water from the reactor core (via pressurizer relief), and returning the plant to safe condition. The analysis assumes that only one AFW pump is available, and that it supplies a minimum required AFW flow of 310 gpm to three steam generators within three minutes of the generation of a low-low steam generator water level signal.

As discussed above, the AFW system would have been able to deliver a minimum of 350 gpm to the steam generators in the as-found condition, minus any instrument uncertainty.

Technical Specifications

Operability of the AFW system is determined by the ability of the AFW system to meet its required technical specification surveillance requirements.

The surveillance requirements in Section 4.7.1.2.1.a.1 and 4.7.1.2.1.a.2 of the technical specifications state that the required independent auxiliary feedwater train shall be demonstrated operable by:

1. verifying by control panel indication and visual observation of equipment that each steam turbine-driven pump operates for 15 minutes or greater and develops a flow of greater than or equal to 373 gpm to the entrance of the steam generators; and
2. verifying by control panel indication and visual observation of equipment that the auxiliary feedwater discharge valves and the steam supply and turbine pressure valves operate as required to deliver the required flow during the pump performance test above.

Taken together, these surveillances define operability by verifying that the system valves operate as required to deliver 373 gpm to the steam generators, when operated for at least 15 minutes. The flow control valves on each train of AFW are required to be set to achieve this total flow value. Given that the associated instrument uncertainty for flow to three steam generators is 16.5 gpm, each of the three flow control valves per train are set at 130 gpm $((373 \text{ gpm} + 16.5 \text{ gpm} \approx 390 \text{ gpm})/3)$. The system must be capable of starting and automatically controlling AFW flow to the prescribed test flow rate without manual adjustment, therefore, the system was considered inoperable in its as-found condition. With the as-found HIC setpoint values, the AFW flow would be 350 gpm for Train 1 and 355 gpm for Train 2. Therefore both trains of AFW are considered inoperable from the time the HIC setpoints were inadvertently bumped, to the time that the condition was discovered and corrected.

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CAUSE OF THE EVENT

The root cause of the event was failure to follow procedure 0-ADM-200, Conduct of Operations, and at risk behavior by placing material on the instrument panel. A review of work activities in the vicinity of the HICs revealed that maintenance was performed on a control console switch adjacent to the AFW HIC station earlier in the day. Plant personnel on shift during the maintenance activity observed that an individual supporting the activity rested a binder on the console near the AFW HIC station. The HIC adjustment thumbwheels protrude above the HIC face plate and would be in direct contact with a binder laying on top of the controllers. The HICs are located among the first row of instruments above the control console railing and would be within the zone of impact of a binder resting on the console and console railing. The two HICs affected on train 1 are situated side-by-side and were likely bumped by a common object. Based on the above, FPL determined that the HIC thumbwheels were inadvertently bumped at around 1100 on August 3, 2001, when the binder was resting on the console.

Section 5.6.4 of 0-ADM-200 lists general operating practices to be followed by individuals in the Operations Department to ensure safe plant operation. Step 9 of this section provides guidance on using books, binders and other reference material in the control room surveillance area. It states that:

- a. Books, binders and other reference material may be placed on the control room console provided they are maintained as follows: May be placed on top of console and the flat portion sloped away from the instrument and controls.
- b. The material whether open or closed shall be laid down flat on the console (not on end).
- c. The material may be placed side by side, but is not allowed to be stacked.
- d. No material is allowed on the instrument/control section of the console.

The material may remain on the console only during use, and shall be removed as soon as the work requiring use is complete.

Contrary to the above, a binder was place on the instrument/control section of the console.

SAFETY SIGNIFICANCE

The inability of the AFW system to automatically provide 373 gpm at the entrance of the steam generators is not safety significant. The 373 gpm flow requirement is only a test flow rate used to demonstrate operability in accordance with plant technical specifications. Operation of the AFW system with the as-found Train 1 and Train 2 HIC setpoints would have satisfied all design basis accident scenarios.

The flow control valves on each train of AFW are required to be set to achieve this total flow value. Given that the associated instrument uncertainty for flow to three steam generators is 16.5 gpm, each of the three flow control valves per train are set at 130 gpm $((373 \text{ gpm} + 16.5 \text{ gpm} \approx 390 \text{ gpm})/3)$.

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As discussed above, the limiting single unit event is a loss of normal feedwater event. Under these conditions, the AFW system is required to deliver 310 gpm to the affected unit assuming the failure of one piping train. With the as-found flow control valve setpoints, the minimum AFW flow delivered to the affected unit would be 350 gpm from Train 1 (120 gpm + 100 gpm + 130 gpm = 350 gpm), minus any instrument uncertainty. Since the instrument uncertainty for flow to three steam generators is ± 16.5 gpm, a minimum flow delivery rate of 333.5 gpm can be credited from a single train in the as-found condition. This flow delivery rate exceeds the 310 gpm AFW flow rate assumed in the loss of normal feedwater accident analysis.

Since the assumptions and results of the analysis in the UFSAR bound the conditions of the actual event, this event did not compromise the health or safety of plant personnel or the general public.

CORRECTIVE ACTIONS

The following corrective actions have been completed:

1. Protective covers have been placed over the AFW HIC stations.
2. Personnel involved in the event have been held accountable.
3. One individual was removed from licensed duties.
4. An Operations Department Night Order was issued to alert Operations personnel of the event.
5. An Information Bulletin was issued to all plant personnel reviewing the expectations and emphasizing the importance of adherence to the strict controls already in place per O-ADM-200, when performing work in the Control Room.

ADDITIONAL INFORMATION

There were no similar events identified.

EIIS Codes are shown in the format [EIIS SYSTEM: IEEE component function identifier, second component function identifier (if appropriate)].