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FACIL:50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
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SUBJECT: LER 89-015-00:on 891019,charging pumps declared inoperable due to inadequate troubleshooting techniques.

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P.O. Box 14000, Juno Beach, FL 33408-0420

L-89-420
10 CFR 50.73

NOV 16 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: 89-15
Date of Event: October 19, 1989
Charging Pumps Declared Inoperable Due to Inadequate Troubleshooting Techniques used to Determine the Cause for Reduced Charging Flow to the Reactor Coolant System

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/DRP/DH/rat

Attachment

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

IE22
1/1

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO 3150-0104
EXPIRES 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Turkey Point Unit 3	0 5 0 0 0 2 5 0	1 OF 0 3

TITLE (4) Charging Pumps Declared Inoperable Due To Inadequate Troubleshooting Techniques Used To Determine The Cause For Reduced Charging Flow To The Reactor Coolant System.

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)
									N/A	0 5 0 0 0
1 0	1 9	8 9	8 9	— 0 1 5	— 0 0	1 1	1 6	8 9		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 4 5	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		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)	X 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
David R. Powell, Regulation and Compliance Supervisor	AREA CODE 3 0 5 — 2 4 6 — 6 5 5 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
X	C B	P	U 0 5 5	Y					

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 October 19, 1989, at 1030, with Unit 3 in Mode 1 at 45 percent power, all three charging pumps were declared out of service (OOS). An evaluation of reduced charging flow to the Reactor Coolant System (RCS) revealed that none of the pumps singularly could maintain proper pressurizer level with a 45 gpm letdown orifice in service. Only two charging pumps are required to be operable for unit operation. Technical Specification (TS) 3.6.d.1 allows 1 of 2 operable charging pumps to be OOS for 24 hours. Failure to meet TS 3.6.d.1 Limiting Condition for Operation (LCO) placed Unit 3 in TS 3.0.1 which requires the unit to be in hot standby within 7 hours. Inadequate troubleshooting techniques used to investigate the reduced charging pump flow condition led to the incorrect determination that the 3A and 3C charging pumps were inoperable. The 3B charging pump internal discharge valves and valve guides were found to be worn and the center suction valve guide was found to be "backed out." This allowed flow from the 3A and 3C charging pumps to be recirculated through the idle 3B charging pump. This also affected performance of the 3B charging pump. Upon isolation of the 3B charging pump for venting, charging flow increased. The 3A and 3C charging pumps were declared operable based on the ability to maintain pressurizer level with a 60 gpm orifice in service. At 1120, Unit 3 exited TS 3.0.1.

DESCRIPTION OF THE EVENT

At 2228, on October 18, 1989, with Unit 3 in Mode 1 at approximately 45 percent power, a decrease in pressurizer (EIIS:AB) level was observed by the Reactor Control Operator (RCO). Charging pump (EIIS:CB) flow to the Reactor Coolant System (RCS) was noted to decrease from 84 gpm to 50 gpm. Operations personnel attributed the reduced flow condition to a leaking charging pump discharge relief valve based on previous problems of this nature. Troubleshooting was initiated to determine which of the three charging pump relief valves was leaking. Isolation of each relief valve did not correct the reduced charging pump flow condition.

At 1030, on October 19, 1989, with Unit 3 in Mode 1 at 45 percent power, all three charging pumps were declared out of service. An evaluation of reduced charging flow to the (RCS) revealed that none of the pumps singularly could maintain pressurizer level with a 45 gpm letdown orifice in service. (Each charging pump is required to provide sufficient capacity to make up for the normal RCS letdown flow of 60 gpm plus allowance for the normal Reactor Coolant Pump (RCP) seal leakage of 9 gpm.) Unit 3 entered Technical Specification (TS) 3.0.1 at this time.

Each Turkey Point nuclear unit has 3 charging pumps. Only two charging pumps are required to be operable for unit operation. Technical Specification (TS) 3.6.d.1 allows 1 of 2 operable charging pumps to be taken out of service for 24 hours. With three charging pumps out of service, TS 3.6.d.1 Limiting Condition for Operation (LCO) could not be met. Therefore, Unit 3 was placed into TS 3.0.1 which requires the unit to be in Hot Standby within 7 hours.

Subsequent troubleshooting determined that the reduced flow condition was associated with the 3B charging pump. With the 3A and 3C charging pumps running, the 3B charging pump was isolated for venting. Upon isolation of the 3B charging pump, an increase in charging flow was observed. The 3C charging pump was stopped and the 3A charging pump was able to maintain pressurizer level with a 60 gpm letdown orifice in service. At 1107, the 3A charging pump was declared back in service. Unit 3 exited TS 3.0.1 and entered a 24 hour LCO per TS 3.6.d.1 at this time.

The 3C charging pump was then started and the 3A charging pump was stopped. The 3C charging pump was able to maintain pressurizer level with a 60 gpm letdown orifice in service. At 1120, the 3C charging pump was declared back in service and Unit 3 exited the TS 3.6.d.1 LCO.

CAUSE OF THE EVENT

The cause for the TS 3.0.1 entry was inadequate troubleshooting techniques used to determine the cause for the reduced charging pump flow condition. Failure to isolate the 3B charging pump while troubleshooting the reduced charging pump

flow condition led to the incorrect determination that the 3A and 3C charging pumps were inoperable.

The charging pumps at Turkey Point are of the positive displacement type. Inspection of the 3B charging pump revealed that the pump internal valves and valve guides on the discharge side of the pump were worn. Also, the center suction valve guide was found to be "backed out." This condition allowed flow from the 3A and 3C charging pumps to be recirculated through the idle 3B charging pump. This also affected performance of the 3B charging pump.

ANALYSIS OF THE EVENT

The basis for Technical Specification 3.6 is to ensure three flow paths for injection of borated water into the RCS. The flow paths are: from the Boric Acid Tanks through the Boric Acid Transfer Pumps to the suction of the charging pumps; from the Refueling Water Storage Tank (RWST) to the suction of the charging pumps; and from the RWST to the suction of the safety injection pumps.

With three charging pumps declared out of service, the normal and alternate boration flow paths to the RCS were not available. However, the safety injection pumps remained operable during this time, thus, providing a flow path from the RWST to the RCS for injection of borated water. Sufficient shutdown capability for the most severe anticipated cooldown transient (main steam line break), assuming the most reactive rod control cluster to be fully withdrawn, is achieved via the use of boron from the RWST through the safety injection system.

During the time Unit 3 was in TS 3.0.1, charging flow was never completely lost. The 3A and 3C charging pumps remained running, providing flow to the RCP seals and a minimum flow of approximately 20 gpm to the RCS.

CORRECTIVE ACTIONS

1) The three suction/discharge valves on the 3B charging pump were overhauled in accordance with procedure 0-PMM-047.8. The 3B charging pump was satisfactorily tested and returned to service at 0510 on October 22, 1989.

2) FPL has obtained recommended torque values for the charging pump suction/discharge valve guides from the Union Pump Company. These values will be incorporated into procedure 0-PMM-047.8 by December 8, 1989.

3) Off-Normal Operating Procedures 3/4-ONOP-047.1, "Loss of Charging Flow in Modes 1 Through 3," will be revised to contain guidance for troubleshooting reduced charging pump flow conditions. These procedure revisions will be completed by December 29, 1989.

ADDITIONAL INFORMATION

No similar Licensee Event Reports have been located.