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ACCESSION NBR: 8809280002 DOC. DATE: 88/09/21 NOTARIZED: NO DOCKET #
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
 AUTH. NAME AUTHOR AFFILIATION
 LYONS, E. Florida Power & Light Co.
 CONWAY, W.F. Florida Power & Light Co.
 RECIPIENT NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-019-00: on 880822, boric acid transfer pump seal failure results in no flow path from boric acid tank to RCS. W/8 ltr.

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 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

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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 3
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TITLE (4) **Boric Acid Transfer Pump Seal Failure Results in No Flow Path from Boric Acid Tank to Unit 3 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)
08	22	88	88	019	00	09	21	88	N/A	0 5 0 0 0

OPERATING MODE (9) **1**

POWER LEVEL (10) **1.00**

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(e)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.406(a)(1)(i)	<input type="checkbox"/> 50.38(c)(1)	<input type="checkbox"/> 50.73(e)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.38(c)(2)	<input type="checkbox"/> 50.73(e)(2)(vi)	<input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)
<input type="checkbox"/> 20.406(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(e)(2)(i)	<input type="checkbox"/> 50.73(e)(2)(vii)(A)	
<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(e)(2)(ii)	<input type="checkbox"/> 50.73(e)(2)(viii)(B)	
<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(e)(2)(iii)	<input type="checkbox"/> 50.73(e)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Edward Lyons, Compliance Engineer	TELEPHONE NUMBER
	AREA CODE 3 0 5 2 4 6 - 6 7 3 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
B	CA	SEAL	G 2 0 0	N					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On August 22, 1988, at 1757, Unit 3 entered Technical Specification 3.0.1 for 22 minutes when the 3A Boric Acid Transfer Pump (BATP) (EIIIS:CA, Component:P) was declared out of service. At the time of the event, the Unit 3 BATP's were aligned in their normal configuration, with the 3A pump aligned to the Unit 3 Charging Pumps and the 3B BATP aligned to recirculate the B Boric Acid Tank. At 1757, while making normal rounds, Operations' personnel discovered that the seal pot, which provides seal cooling water, had no visible water level and zero nitrogen pressure. Operations' personnel were directed to align the 3B pump to the Unit 3 Reactor Coolant System via the Charging pumps. This was successfully completed 22 minutes later, and the unit exited Technical Specification 3.0.1. The cause of the 3A pump being out of service was a failure of the pump seal. The pump seal was replaced and the pump returned to service. The design of the seal is being evaluated and will be modified to remove the seal pot.

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PDR ADOCK 05000250
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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER				
Turkey Point Unit 3	0 5 0 0 0 2 5 0	8 8	0 1 9	0 0	0 2	OF	0 3	

TEXT (If more space is required, use additional NRC Form 368A's) (17)

Description of the Event

On August 22, 1988, at 1757, Unit 3 entered Technical Specification 3.0.1 for 22 minutes when the 3A Boric Acid Transfer Pump (BATP) (EIIIS:CA, Component:P) was declared out of service. Unit 3 was operating at 100 percent power with the 4B BATP out of service for planned maintenance. Under normal operating conditions, the 4A and 4B BATP's are aligned to take suction from the A Boric Acid Tank (BAT) and discharge to the suction header of the Unit 4 Charging Pumps; the 3A BATP is aligned to take suction from the C BAT and discharge to the suction of the Unit 3 Charging Pumps; the 3B BATP is aligned to recirculate the B BAT. At the time of the event, the Unit 3 pumps were aligned in their normal configuration. At 1757, the 3A BATP was declared out of service when Operations' personnel making normal rounds, discovered that the seal pot, which contains seal cooling water under Nitrogen (N2) pressure, was under zero N2 pressure and had no visible water level. These normal rounds are performed on a four hour interval. Since the 3B BATP was aligned to recirculate the B BAT, there was no flow path established from the BAT's to the Unit 3 Reactor Coolant System (RCS). Technical Specification 3.6.d requires that during power operation, "System piping, interlocks and valves shall be operable to the extent of establishing one flow path from the boric acid tanks, and one flow path from the refueling water storage tank, to each Reactor Coolant System." Unit 3 entered Technical Specification 3.0.1 which requires that within one hour, action be initiated to shutdown the unit. Following the discovery, Operations' personnel were directed to align the 3B BATP to the Unit 3 RCS via the Charging Pumps. This was accomplished 22 minutes later at 1819, and Unit 3 exited Technical Specification 3.0.1.

Cause of the Event

The event was caused by a failure of the pump seal on the 3A BATP. The cause of the seal failure has been determined to be one of two possible failure mechanisms. The first possibility is that frequent pump starts and stops caused axial shaft movement which results in separation of the seal faces. This allows the process fluid (12% boric acid) to come in contact with the seal faces. The particles are flushed out by the seal water, however, repetitive occurrences develop a clearance between the seal faces and the pump shaft. This allows the seal water, which is at a higher pressure than the process fluid, to pass from the seal pot into the process fluid. The second potential failure mechanism involves the seal cooling lines. The routing of the lines may not promote optimal circulation of the seal cooling water. This may result in the seal faces becoming dry and failing.

This event is reportable because the current Turkey Point Technical Specifications do not allow any time to realign operable portions of the system that are normally used to recirculate the BAT's.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Turkey Point Unit 3	DOCKET NUMBER (2) 0 5 0 0 0 2 5 0	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		88	— 0119	— 010	03	OF 03

TEXT (If more space is required, use additional NRC Form 368A's) (17)

Analysis

No credit is taken for the concentrated boric acid contained in the BAT's in any of the design basis transients. Sufficient shutdown capability for the most severe anticipated cooldown transient (main steam line break) assuming the most reactive control cluster to be fully withdrawn is achieved via the use of boron from the refueling water storage tank through the safety injection system. The BAT's and the B ATP's provide a source of concentrated boric acid to be added to the reactor coolant system to offset reactivity changes caused by normal plant operating transients, changes in power levels, and in order to maintain shutdown conditions. An additional means of providing borated water is from the refueling water storage tank through the charging pumps to the RCS. These flow paths were available throughout the event. Based on the above, the health and safety of the public were not affected.

Corrective Actions

- 1) The 3B B ATP was realigned to provide a flow path to the Unit 3 RCS.
- 2) The 3A B ATP seal was replaced and the pump returned to service.
- 3) The current seal design is under evaluation and will be modified to remove the seal pot. The Engineering work required for this modification is scheduled to be completed by December 31, 1988.
- 4) Turkey Point has submitted draft Technical Specifications to the NRC for review. This draft version would provide an action statement to realign the required flow paths under the situation described in this report.

Additional Information

The B ATP's are manufactured by Goulds, Inc model number 3196-ST-8. The seals are manufactured by Durametallic.

Similar occurrences: previous B ATP seal failures have been reported in LER 250-88-05 and LER 250-87-17.



SEPTEMBER 21 1988

L-88-423
10 CFR 50.73

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: 88-19
Date of Event: August 22, 1988
Boric Acid Transfer Pump Seal Results in No Flow Path
from Boric Acid Tank to Unit 3 Reactor Coolant System

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

Very truly yours,

W. F. Conway
Senior Vice President - Nuclear

WFC/SDF/gp

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator,
Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

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