

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9009050417 DOC. DATE: 90/08/30 NOTARIZED: NO DOCKET #  
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light Co 05000250  
 AUTH. NAME AUTHOR AFFILIATION  
 POWELL, D.R. Florida Power & Light Co.  
 HARRIS, K.N. Florida Power & Light Co.  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-016-00: on 900801, Tech Spec 3.0.1 entered to repair  
 boric acid filter discharge isolation valve 3-348.  
 W/9 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6  
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EXTERNAL:	EG&G BRYCE, J.H	3 3	L ST LOBBY WARD	1 1
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AUG 30 1990

L-90-308  
10 CFR 50.73

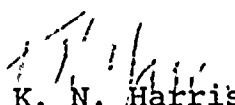
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Attn: Document Control Desk  
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Gentlemen:

Re: Turkey Point Unit 3  
Docket No. 50-250  
Reportable Event: 90-016  
Date of Event: August 1, 1990  
Technical Specification 3.0.1 Entered to Repair  
Boric Acid Filter Discharge Isolation Valve 3-348

The attached Licensee Event Report is being provided pursuant to the requirements of 10CFR50.73 as notification of the subject event.

Very truly yours,

  
K. N. Harris  
Vice President  
Turkey Point Nuclear Plant

KNH/DRP/dwh

Attachment

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

9009050417 900830  
FDR ADOCK 05000250  
S FDC



## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Turkey Point Unit 3										DOCKET NUMBER (2) 0 5 0 0 0 2 1 5 0 1										PAGE (3) OF 4	
TITLE (4) Technical Specification 3.0.1 Entered To Repair Boric Acid Filter Discharge Isolation Valve 3-348																					
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 0						
0 8	0 1	9 0	9 0	0 1	6	0 0	0 8	3 0	N/A						0 5 0 0 0 0						
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)																			
1		20.402(b)				20.405(e)				50.73(a)(2)(iv)				73.71(b)							
POWER LEVEL (10)		20.405(a)(1)(i)				50.38(e)(1)				50.73(a)(2)(v)				73.71(e)							
1 0 0		20.405(a)(1)(ii)				50.38(e)(2)				50.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)							
		20.405(a)(1)(iii)				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)(ix)											
LICENSEE CONTACT FOR THIS LER (12)																					
NAME David R. Powell, Licensing Superintendent										TELEPHONE NUMBER											
										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 NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		
X	C	B	I	S	I	V	G	2	5	7	N										
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE '15'											
YES (If yes, complete EXPECTED SUBMISSION DATE)										X NO											

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

On July 29, 1990, with Unit 3 in Mode 1 at 100 percent power, a leak of approximately 1 drop/minute was noticed in the area of boric acid filter discharge isolation valve 3-348. A flow path from the boric acid tanks to the Reactor Coolant System (RCS) was established via the boric acid filter bypass line and valve 3-348 was closed to reduce valve leakage. Valve 3-348 is a diaphragm valve. The diaphragm also serves as the gasket between the valve body and bonnet mating surfaces. Upon inspection, the diaphragm exhibited waved edges on two sides which appeared significant enough to degrade the seal between the valve body and bonnet. This deformation was caused by exposure to higher than normal temperatures which reduced the normal life expectancy of the diaphragm. In order to repair valve 3-348, the boric acid filter bypass line must be isolated. This configuration results in no flow path from the boric acid tanks to the RCS. Technical Specification (TS) 3.6 requires system piping, interlocks and valves to 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 the RCS when the reactor is critical. At 0950, on August 1, 1990, with Unit 3 in Mode 1 at 100 percent power, Unit 3 entered TS 3.0.1 to repair valve 3-348. The valve was repaired and returned to service at 1038. Unit 3 exited TS 3.0.1 at this time.

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TEXT !!! more space is required, use additional NRC Form 366A's !!! (17)

DESCRIPTION OF THE EVENT

On July 29, 1990, with Unit 3 in Mode 1 at 100 percent power, a leak of approximately 1 drop/minute was noticed in the area of boric acid filter discharge isolation valve 3-348 (EIIIS:CB, Component:ISV). Upon investigation, a leak of approximately 5 drops/second was confirmed to be coming from the 3-348 valve bonnet gasket. Valve 3-348 is a diaphragm valve. The diaphragm also serves as the gasket between the valve body and bonnet mating surfaces. A flow path from the boric acid tanks to the Reactor Coolant System (RCS) was established via the boric acid filter bypass line and valve 3-348 was closed to reduce valve leakage.

In order to repair valve 3-348, the boric acid filter bypass line must be isolated. This configuration results in no flow path from the boric acid tanks to the RCS during valve repair. Technical Specification (TS) 3.6 requires system piping, interlocks and valves to 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 the RCS when the reactor is critical.

Replacement of the diaphragm on valve 3-348 was estimated to take less than one hour. At 0950, on August 1, 1990, with Unit 3 in Mode 1 at 100 percent power, TS 3.0.1 was entered to replace the diaphragm on boric acid filter discharge isolation valve 3-348. At 1038, on August 1, 1990, valve 3-348 was repaired and returned to service. Unit 3 exited TS 3.0.1 at this time.

CAUSE OF THE EVENT

The cause for the diaphragm failure on valve 3-348 is exposure to higher than normal temperatures. This condition reduced the normal life expectancy of the diaphragm.

An inspection of the valve 3-348 diaphragm revealed no evidence of cracking or tearing. The valve body and bonnet mating surfaces were not observed to be degraded. However, the diaphragm did exhibit rippled or waved edges on two sides which appeared significant enough to degrade the seal between the valve body and bonnet.

The as-found condition of the diaphragm was conveyed to a representative of the valve vendor. Based on the information available, the vendor representative stated that the waved

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104  
EXPIRES 8-31-85

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edges of the diaphragm was indicative of exposure to higher than normal temperatures over the life of the diaphragm which would reduce the diaphragm life expectancy. Two possible causes for this condition were suggested: (1) an overheating event, and (2) the valve bonnet being heat traced.

A review of documented problems with the heat tracing circuit associated with valve 3-348 revealed an over-temperature event in November 1987. The affected heat tracing circuit was found to be operating between 188 degrees Fahrenheit (F) and 192 degrees F. The normal temperature range for this circuit is between 160 degrees F and 170 degrees F. Additionally, one wrap of heat tracing was discovered on the valve 3-348 bonnet upon disassembly for repair.

Under the operational conditions experienced by valve 3-348, the normal service life of the diaphragm is expected to be approximately five years. The last diaphragm replacement on valve 3-348 occurred about three years and four months ago.

#### ANALYSIS OF THE EVENT

No credit is taken for the concentrated boric acid contained in the boric acid tanks in any of the Design Basis Accidents described in the Turkey Point Final Safety Analysis Report (FSAR). Sufficient shutdown margin under hot shutdown conditions for the most severe anticipated cooldown transient (main steam line break (MSLB)), assuming the most reactive rod 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 MSLB analysis does allow the reactor to return to criticality due to positive reactivity inserted from cooldown, provided no core damage occurs. A Westinghouse analysis demonstrates that no core damage will occur during cooldown. The boric acid tanks and the boric acid transfer pumps provide a source of concentrated boric acid to be added to the RCS to offset reactivity changes caused by normal plant operating transients, changes in power level, and in order to attain and maintain cold 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 (refueling water storage tank to the charging pumps and to the safety injection pumps) were available throughout the event.

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CORRECTIVE ACTIONS

1. The diaphragm has been replaced on valve 3-348. The one wrap of heat tracing was re-routed away from the valve 3-348 bonnet.
2. The diaphragm on valve 4-348 will be replaced during the next Unit 4 refueling outage. The associated heat tracing circuit will be verified not to be wrapped around the valve bonnet after the diaphragm is replaced.
3. On May 8, 1990, Corrective Maintenance Electrical procedure 0-CME-048.3, "Heat Tracing Circuit Maintenance," was revised to indicate that only valve bodies need to be heat traced.
4. This event has been discussed during a weekly electrical maintenance shop meeting.

ADDITIONAL INFORMATION

Similar events have been reported to the NRC in LER 50-250/89-013 and LER 50-251/89-009. However, these events did not share the same root cause as this event.

Valve 3-348 is a 2 inch Grinnell diaphragm valve, drawing number WREF-4-SS or Westinghouse designation 2-X42D.