PRECURSOR DESCRIPTION SHEET

LER No.: 237/85-044
Event Description: Unavailability of Emergency Power
Date of Event: December 13, 1985
Plant: Dresden 2

EVENT DESCRIPTION

Sequence

The power cable to the Unit 2 swing diesel generator (DG 2/3) cooling water pump was found damaged during a routine inspection. It is believed personnel inadvertently damaged the cable by standing on a connector box, thus wearing away the sheathing and causing a burnout. The Unit 3 dedicated DG was tested and failed in test because of a failed bearing in the turbocharger and a bent shaft. A Unit 2 shutdown was initiated at 0610 h. At 1400 h the shutdown was canceled when DG 2/3 was returned to service.

Corrective Action

The swing DG 2/3 was repaired expeditiously and restored to service.

Plant/Event Data

Systems Involved:
Emergency power

Components and Failure Modes Involved:
DG 2/3 cable — failed in operation
DG 3 bearing — failed in test

Component Unavailability Duration: Unknown, 360 h assumed
Plant Operating Mode: 1 (100% power)
Discovery Method: Testing and inspection
Reactor Age: 15.0 years
Plant Type: BWR

Comments

None

Event Identifier: 237/85-044

MODELING CONSIDERATIONS AND DECISIONS

Initiators Modeled and Initiator Nonrecovery Estimate

LOOP (postulated event)	Base case

Branches Impacted and Branch Nonrecovery Estimate

Emergency power	1.0	Not considered restorable within 30 min

Plant Models Utilized

BWR plant Class B

Event Identifier: 237/85-044

CONDITIONAL CORE DAMAGE CALCULATIONS

LER Number: 237/85-044
Event Description: Unavailability of Emergency Power
Event Date: 12/13/85
Plant: Dresden 2

UNAVAILABILITY, DURATION= 360

NON-RECOVERABLE INITIATING EVENT PROBABILITIES

LOOP	1.597E-03

SEQUENCE CONDITIONAL PROBABILITY SUMS

End State/Initiator	Probability
CV	
LOOP	(3.369E-08)
Total	(3.369E-08)
CD	
LOOP	3.203E-06
Total	3.203E-06
ATWS	
LOOP	6.199E-07
Total	6.199E-07

DOMINANT SEQUENCES

End State: CD Conditional Probability: 1.783E-06

238 LOOP EMERG.POWER -SCRAM SRV.CHALL/LOOP.-SCRAM -SRV.CLOSE ISOL.COND HPCI

End State: ATWS Conditional Probability: 6.522E-07

243 LOOP EMERG.POWER SCRAM

SEQUENCE CONDITIONAL PROBABILITIES

Event Identifier: 237/85-044

	Sequence	End State	Seq. Prob	Non-Recov**
238	LOOP EMERG.POWER -SCRAM SRV.CHALL/LOOP.-SCRAM -SRV.CLOSE ISOL.COND HPCI	CD	1.783E-06 *	1.938E-01
240	LOOP EMERG.POWER -SCRAM SRV.CHALL/LOOP.-SCRAM SRV.CLOSE HPCI	CD	1.495E-06	1.938E-01
243	LOOP EMERG.POWER SCRAM	ATWS	6.522E-07 *	3.400E-01

* dominant sequence for end state
** non-recovery credit for edited case

Note:

Conditional probability values are differential values which reflect the added risk due to observed failures. Parenthetical values indicate a reduction in risk compared to a similar period without the existing failures.

MODEL: b:bwrbtree.cmp
DATA: b:drprob.cmp

No Recovery Limit

BRANCH FREQUENCIES/PROBABILITIES

Branch	System	Non-Recov	Opr Fail
TRANS	1.142E-03	1.000E+00	
LOOP	1.305E-05	3.400E-01	
LOCA	3.250E-06	3.400E-01	
SCRAM	4.100E-04	1.000E+00	
SLC.OR.RODS	1.000E-02	1.000E+00	4.000E-02
PCS/TRANS	1.700E-01	1.000E+00	
PCS/LOCA	1.000E+00	1.000E+00	
SRV.CHALL/TRANS.-SCRAM	1.000E+00	1.000E+00	
SRV.CHALL/TRANS.SCRAM	1.000E+00	1.000E+00	
SRV.CHALL/LOOP.-SCRAM	1.000E+00	1.000E+00	
SRV.CHALL/LOOP.SCRAM	1.000E+00	1.000E+00	
SRV.CLOSE	1.650E-02	1.000E+00	
EMERG.POWER	2.850E-03 > 1.000E+00 ***	5.100E-01 > 1.000E+00	
Branch Model: 1.OF.2			
Train 1 Cond Prob:	5.000E-02		
Train 2 Cond Prob:	5.700E-02		
FW/PCS.TRANS	2.900E-01	3.400E-01	
FW/PCS.LOCA	4.000E-02	3.400E-01	
HPCI	1.000E-01	5.700E-01	
ISOL.COND	2.000E-02	1.000E+00	
CRD	1.000E-02	1.000E+00	4.000E-02
SRV.ADS	6.700E-03	1.000E+00	4.000E-02
COND/FW.PCS	1.000E+00	3.400E-01	
LPCS	2.000E-03	3.400E-01	
LPCI	1.000E-03	3.400E-01	
FIREWTR.OR.OTHER/LPCS.LPCI/TRA	1.000E+00	1.000E+00	

Event Identifier: 237/85-044

FIREWTR.OR.OTHER/LPCS.LPCI/LOD	1.000E+00	1.000E+00
FIREWTR.OR.OTHER/LPCS.LPCI/LOC	1.000E+00	1.000E+00
SDC	2.898E-03	3.400E-01
LPCI(CC)	1.000E-03	3.400E-01
LPCI(CC)/LPCI	1.000E+00	1.000E+00
C.I.AND.V/LPCI	1.000E+00	3.400E-01

*** forced

Austin
08-14-1986
12:45:28

Event Identifier: 237/85-044