

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9107290073 DOC.DATE: 91/07/22 NOTARIZED: NO DOCKET #  
 FACIL:50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251  
 AUTH.NAME AUTHOR AFFILIATION  
 POWELL,D.R. Florida Power & Light Co.  
 PLUNKETT,T.F. Florida Power & Light Co.  
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-014-01:on 901107,crack discovered in coolant water flexible hose weld.Caused by manufacturing defect.New flexible cooling water hoses successfully retested during remaining EDG acceptance tests.W/910722 ltr.

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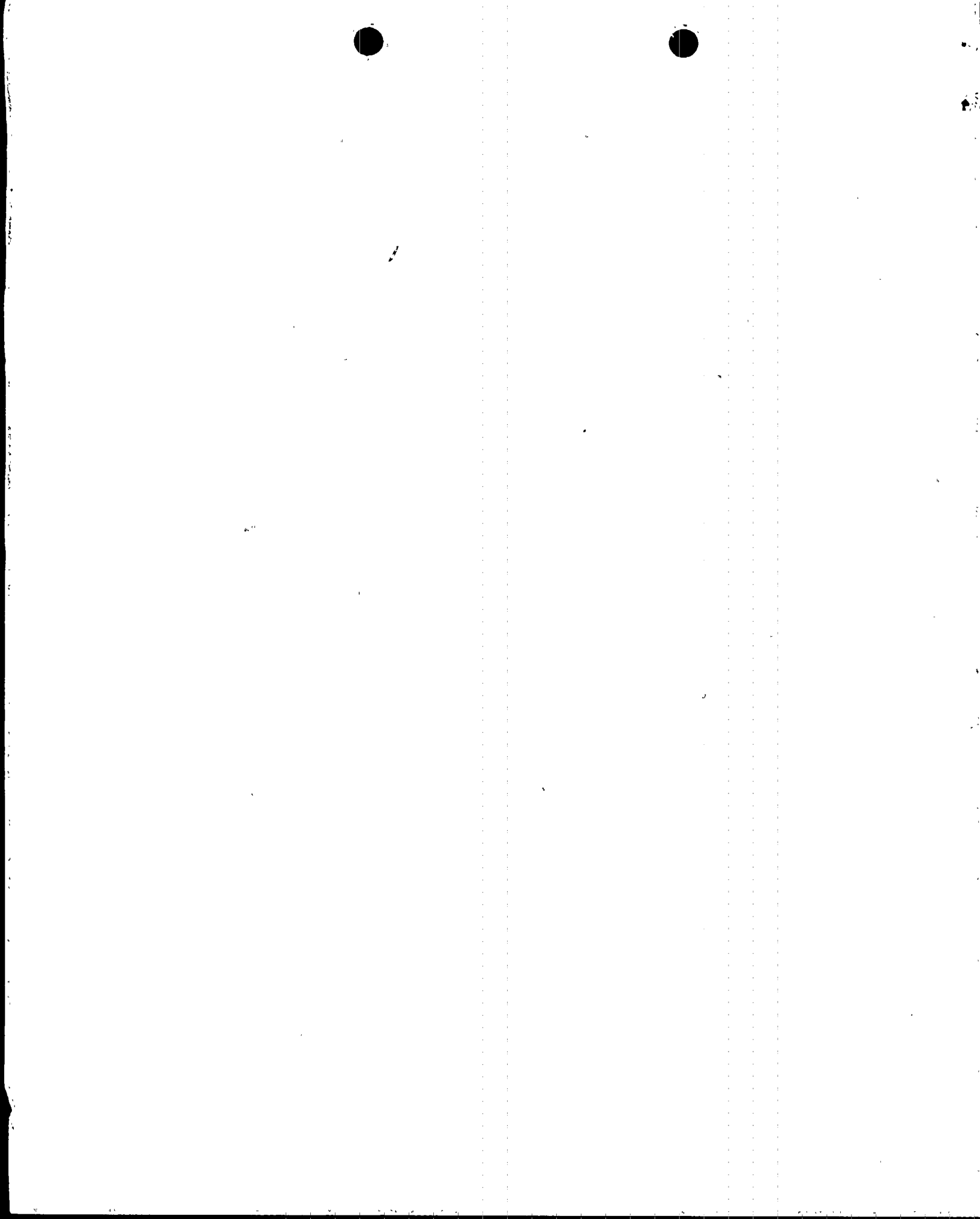
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	AEOD/DSP/TPAB	1 1	AEOD/ROAB/DSP	2 2
	NRR/DET/ECMB 9H	1 1	NRR/DET/EMEB 7E	1 1
	NRR/DLPQ/LHFB10	1 1	NRR/DLPQ/LPEB10	1 1
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	RGN2 FILE 01	1 1		
EXTERNAL:	EG&G BRYCE,J.H	3 3	L ST LOBBY WARD	1 1
	NRC PDR	1 1	NSIC MURPHY,G.A	1 1
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FPL

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JUL 22 1991

L-91-196  
10 CFR 50.73

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

Gentlemen:

Re: Turkey Point Unit 4  
Docket No. 50-251  
Reportable Event: 90-014-01  
Date of Event: November 7, 1990  
4 B Emergency Diesel Generator (DG) Cooling Water  
Flexible Hose Weld Crack Could Prevent DG From Performing  
Intended Safety Function

The attached supplemental voluntary Licensee Event Report 251-90-014-01 is being provided for information purposes only following the guidance provided by NUREG 1022, Supplement 1, Item 19.1. This supplement contains a revised safety analysis.

If there are any questions please contact us.

Very truly yours,

T. F. Plunkett  
Vice President  
Turkey Point Nuclear

TFP/JEK/jk

enclosures

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

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# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>TURKEY POINT UNIT 4</b>										DOCKET NUMBER (2) <b>05000251</b>			PAGE (3) <b>1 OF 4</b>		
TITLE (4) <b>4 B EMERGENCY DIESEL GENERATOR (DG) COOLING WATER FLEXIBLE HOSE WELD CRACK COULD PREVENT DG FROM PERFORMING INTENDED SAFETY FUNCTION</b>															
EVENT DATE (5)				LER NUMBER (6)			RPT DATE (7)				OTHER FACILITIES INV. (8)				
MON	DAY	YR		YR	SEQ #	R#	MON	DAY	YR		NAME				DOCKET # (S)
11	07	90		90	014	01	07	10	91						
OPERATING MODE (9)			1	<u>10 CFR</u> <u>OTHER Voluntary</u> <small>(Specify in Abstract below and in text)</small>											
POWER LEVEL (10)			100												
LICENSEE CONTACT FOR THIS LER (12)															
David R. Powell, Superintendent of Licensing												TELEPHONE NUMBER			
												305-246-6559			
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)															
CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	NFRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	NFRDS					
B	EK	PSP	X999	N											
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES	(if yes, complete EXPECTED SUBMISSION DATE)										NO	X			
ABSTRACT (16)															
<p>This supplemental voluntary LER is being submitted to revise the safety analysis.</p> <p>On November 7, 1990, with both units operating at 100 percent power, a crack approximately three inches long was discovered in a coolant water flexible hose flange weld. The crack was found during installation of one of the four six inch flexible hoses in the new 4B Emergency Diesel Generator (EDG) coolant system. This inspection was being performed in preparation for part of phase 1 of the FPL acceptance testing prior to turnover to the plant. The two new EDGs are being installed as part of the Emergency Power Systems Enhancement Project (EPS). The two new EDGs are scheduled for turnover to the plant in the summer of 1991. The cause of the weld crack was a manufacturing defect. The wrong material was used in the flexible hose stub by the manufacturer. New flexible hose assemblies were received and installed on both the 4A and 4B EDGs. The new assemblies incorporate a design that does not require the welds which cracked. The existing flexible hoses were removed and returned to the vendor. The new flexible cooling water hoses were successfully retested during the remaining EDG acceptance tests. FP&amp;L Quality Assurance (QA) and Nuclear Engineering are reviewing the generic implications of this event to determine if additional corrective actions are necessary.</p>															



# LICENSEE EVENT REPORT (LER) TEX CONTINUATION

FACILITY NAME DOCKET NUMBER LER NUMBER PAGE NO.  
TURKEY POINT UNIT 4 05000251 90-014-01 02 OF 04

## I. EVENT DESCRIPTION

This supplemental voluntary LER is being submitted to revise the safety analysis.

On November 7, 1990, with both units operating at 100 percent power, while preparing for Emergency Diesel Generator (EK) (EDG) acceptance tests, a crack approximately three inches long was discovered in a coolant water flexible hose flange weld. The crack was found during installation of one of four six inch flexible hoses in the new 4B Emergency Diesel Generator (EDG) coolant system. This inspection was being performed in preparation for part of phase 1 of the Florida Power and Light (FPL) acceptance testing before turnover to the plant. The two new EDGs are being installed as part of the Emergency Power Systems Enhancement Project (EPS). They are scheduled for turnover to the plant in the summer of 1991.

## II. EVENT CAUSE

### a. Immediate Cause

The immediate cause of this event was a crack in the weld connecting the flexible hose pipe stub (EK) (FCON) and the flange.

### b. Immediate Cause

The manufacturer of the flexible hoses was different from that specified on the drawing received from the vendor.

### c. Root Cause

The cause of this event was a manufacturing error. Two samples of the weld material from the defective flexible hose were analyzed for chemical composition by Florida Power and Light. This analysis and subsequent discussions with the vendor, Morrison-Knudsen Company, Inc., determined that the wrong material had been used by the manufacturer in the flexible hose stub. The filler metal to be used for welds is determined by chemical compatibility and thermal expansion compatibility with the metals being welded. The metals being welded were different from those called for in the plans. Therefore, the weld filler material called for in the plans was no longer applicable. This metal incompatibility resulted in the crack formation and propagation.

## III. EVENT SAFETY ANALYSIS

The Emergency Diesel Generators are necessary to provide on-site power to required safety related loads during a loss of off-site power. An engineering evaluation of this event by FPL engineering concluded that the loss of engine coolant due to the leakage described above could eventually result in engine failure by engine overheating.





# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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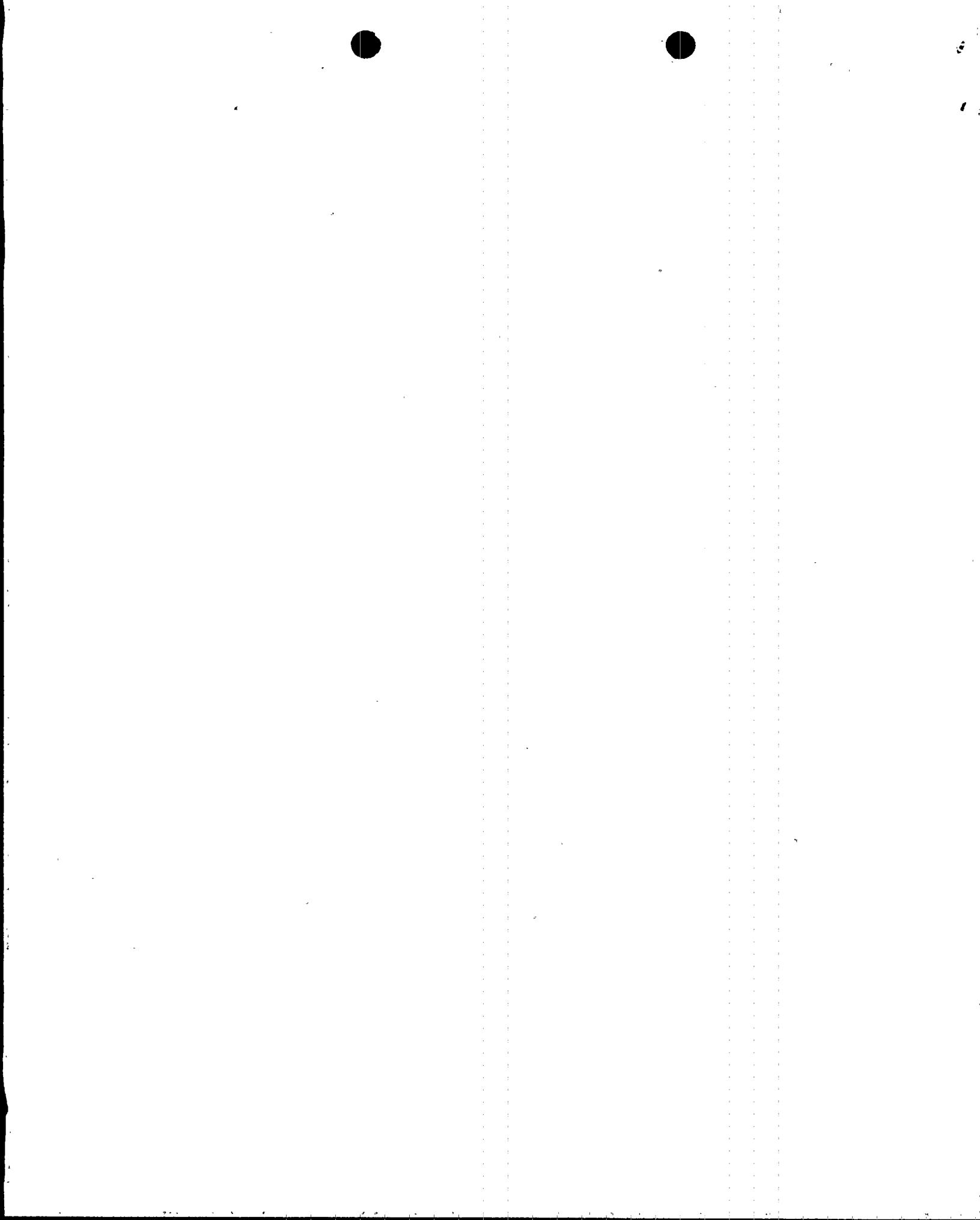
The defect was discovered and corrected prior to turn-over of the subject EDG to the plant. EDGs 3A and 3B have a different type of flexible hose that has not experienced this type of failure.

Pre-operational inspections and tests were developed to locate infantile problems similar to the crack discussed above. The tests and inspections are performed before the equipment can be declared operational.

At the time of this event, with both units operating, EDGs 3A and 3B were operable as required by Technical Specifications. The Dual Unit Outage had not yet begun and the Emergency Power Systems Enhancement Project EDGs 4A and 4B were still undergoing pre-operational and acceptance testing. If off-site power had been lost to Turkey Point Nuclear Power Plant, at that time, the site had available the two safety related diesels (3A and 3B), which are designed to auto start and provide power to the safety related emergency buses. Thus, the health and safety of the public were not affected by this event.

## IV. CORRECTIVE ACTIONS

1. The defective flexible hose and one of the other three flexible hoses associated with the 4B EDG were returned to the vendor for analysis and replacement on January 30, 1991.
2. The vendor supplied a complete set of new flexible hose assemblies for both 4A and 4B EDGs. The new assemblies were manufactured by the company specified on the vendor drawings. The new assemblies incorporate a design that uses a floating coupling in place of the weld that cracked. The new flexible hoses were installed on both 4A and 4B EDGs. The old flexible hoses were removed and returned to the vendor.
3. The new flexible cooling water hoses were successfully retested during the remaining EDG acceptance tests (phase II testing).
4. The Turkey Point Independent Safety Engineering Group (ISEG) has independently reviewed documentation of this event and recommended further review of quality activities and possible generic implications. The final determination of further corrective actions by FP&L Quality Assurance (QA) and Nuclear Engineering is scheduled to be completed by July 31, 1991.



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## V. ADDITIONAL INFORMATION

### 1. Similar LERs:

Voluntary LER 251-90-012-00 issued March 15, 1991, also reported problems with the coolant water system on the new EDGs.

### 2. Vendor/Manufacturer:

Florida Power & Light Turkey Point EDGs. 4A and 4B were assembled by Morrison-Knudsen Company, Inc. The diesel portion of the EDG was manufactured by the Electro-Motive Division of General Motors. The engine is a 20 cylinder, skid-mounted diesel. The engine model number is 20-645F4B. The failed flexible hose assembly was manufactured by Air Craft Metal Products. The replacement assembly and the one called for in the vendor drawings was manufactured by Flexonics.

The generator portion of the EDG was manufactured by NEI Peebles-Electric Products.

### 3. The vendor, Morrison-Knudsen Company, has worked with FPL during this event.

