

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9103260074 DOC. DATE: 91/03/15 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 90-012-00: on 901221, emergency diesel generator  
 acceptance test stopped due to declining coolant water  
 level. Caused by coolant manifold. Defective manifold replaced  
 by vendor. W/910315 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

### NOTES:

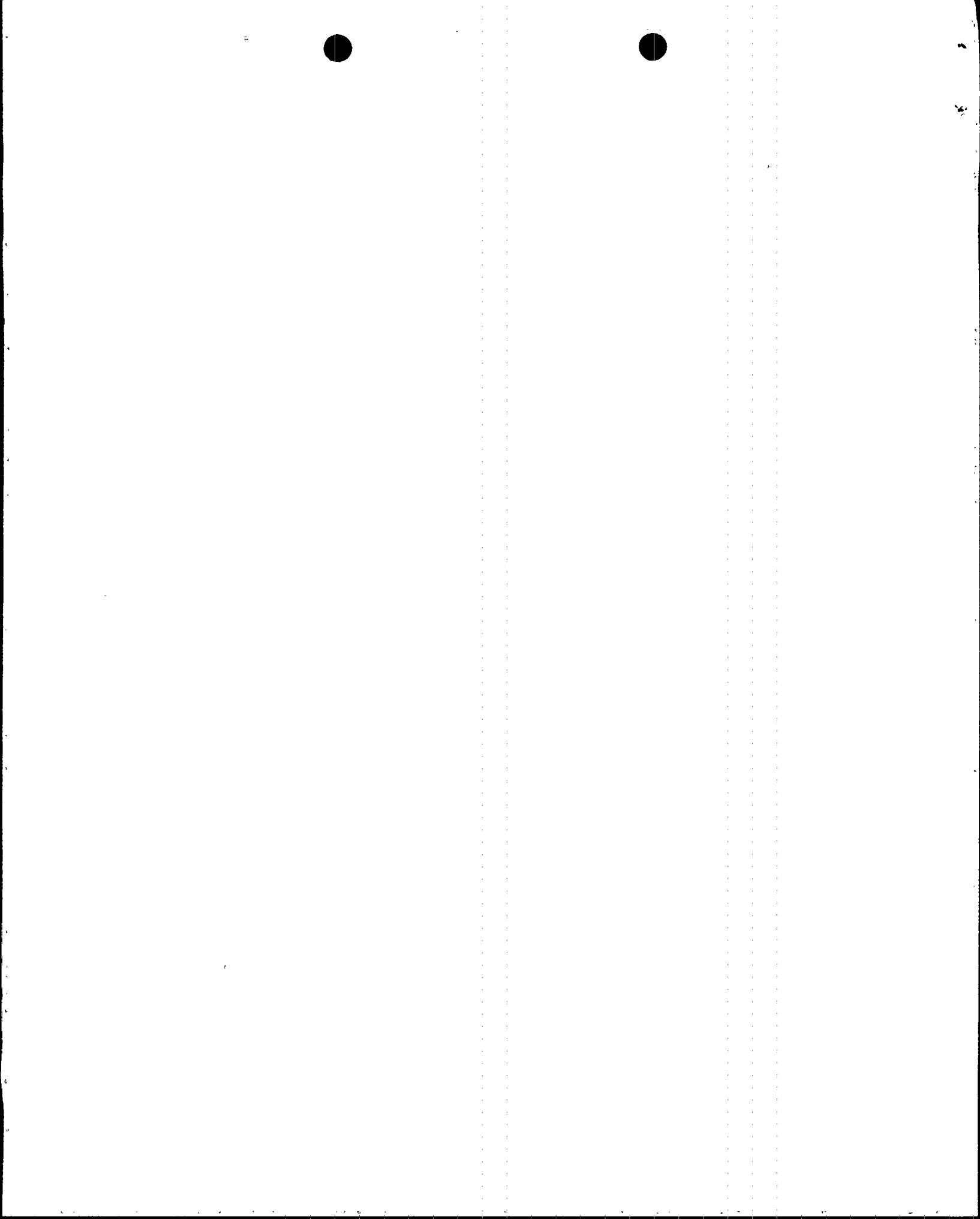
	RECIPIENT ID CODE/NAME	COPIES		RECIPIENT ID CODE/NAME	COPIES	
		LTTR	ENCL		LTTR	ENCL
	PD2-2 LA	1	1	PD2-2 PD	1	1
	AULUCK, R	1	1			
INTERNAL:	ACNW	2	2	AEOD/DOA	1	1
	AEOD/DSP/TPAB	1	1	AEOD/ROAB/DSP	2	2
	NRR/DET/ECMB 9H	1	1	NRR/DET/EMEB 7E	1	1
	NRR/DLPQ/LHFB11	1	1	NRR/DLPQ/LPEB10	1	1
	NRR/DOEA/OEAB	1	1	NRR/DREP/PRPB11	2	2
	NRR/DST/SELB 8D	1	1	NRR/DST/SICB 7E	1	1
	NRR/DST/SPLB8D1	1	1	NRR/DST/SRXB 8E	1	1
	REG <del>FILE</del> 02	1	1	RES/DSIR/EIB	1	1
	RGN2 FILE 01	1	1			
EXTERNAL:	EG&G BRYCE, J.H	3	3	L ST LOBBY WARD	1	1
	NRC PDR	1	1	NSIC MAYS, G	1	1
	NSIC MURPHY, G.A	1	1	NUDOCS FULL TXT	1	1

### NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK,  
 ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION  
 LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED  
 TOTAL NUMBER OF COPIES REQUIRED: LTTR 31 ENCL 31

A04/mt





FPL

P.O. Box 029100, Miami, FL, 33102-9100

MAR 15 1991

L-91-059  
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: 90-012-00  
Date of Event: December 21, 1990  
4 B Emergency Diesel Generator (DG) Water Leak Due to  
Manufacturing Defect Could Prevent DG From Performing  
Intended Safety Function

The attached voluntary Licensee Event Report 251-90-012-00 is  
being provided for information purposes only following the  
guidance provided by NUREG 1022, Supplement 1, Item 19.1.

Very truly yours,

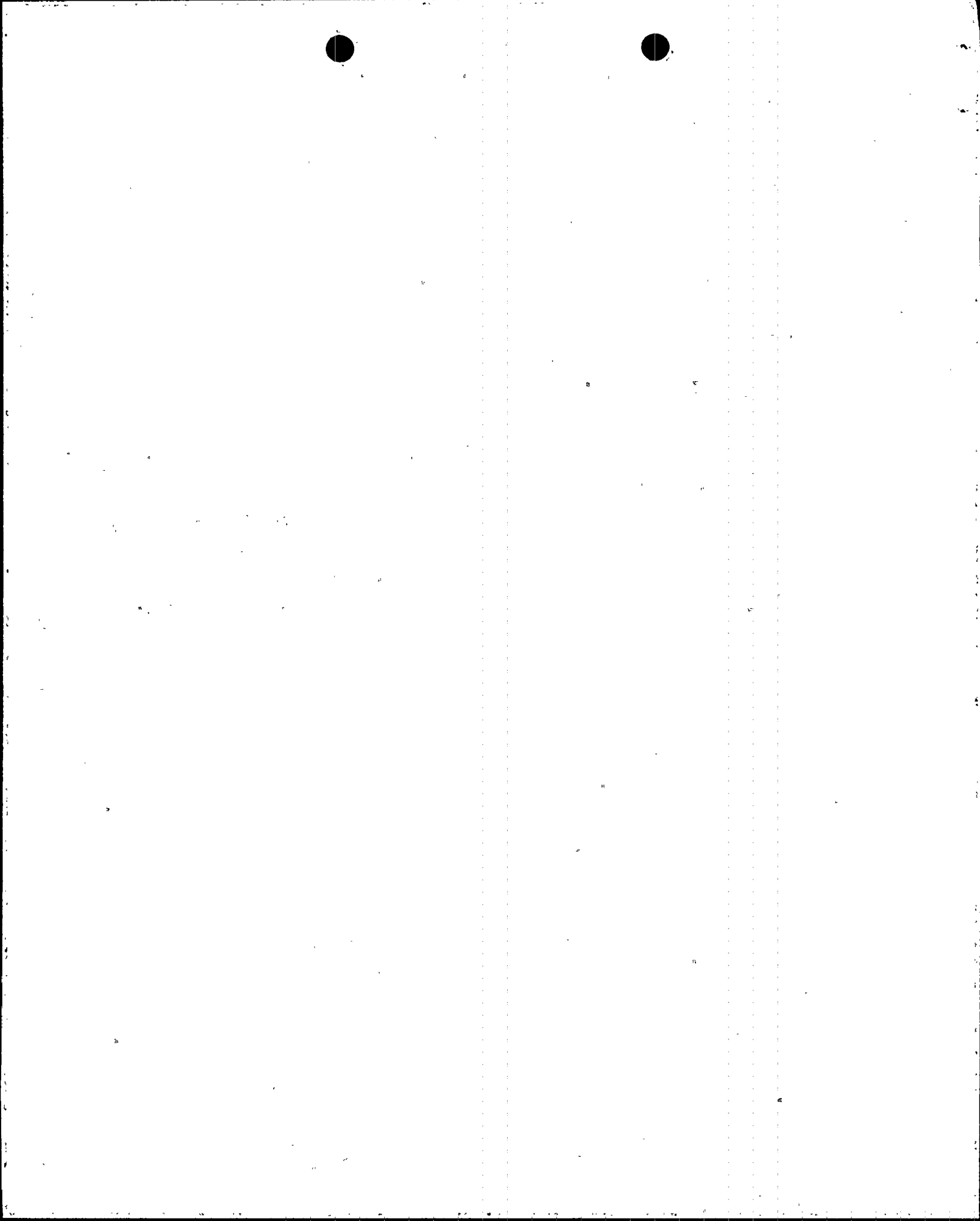
T. F. Plunkett  
Vice President  
Turkey Point Nuclear

TFP/DPS/ds

enclosures

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

IE20



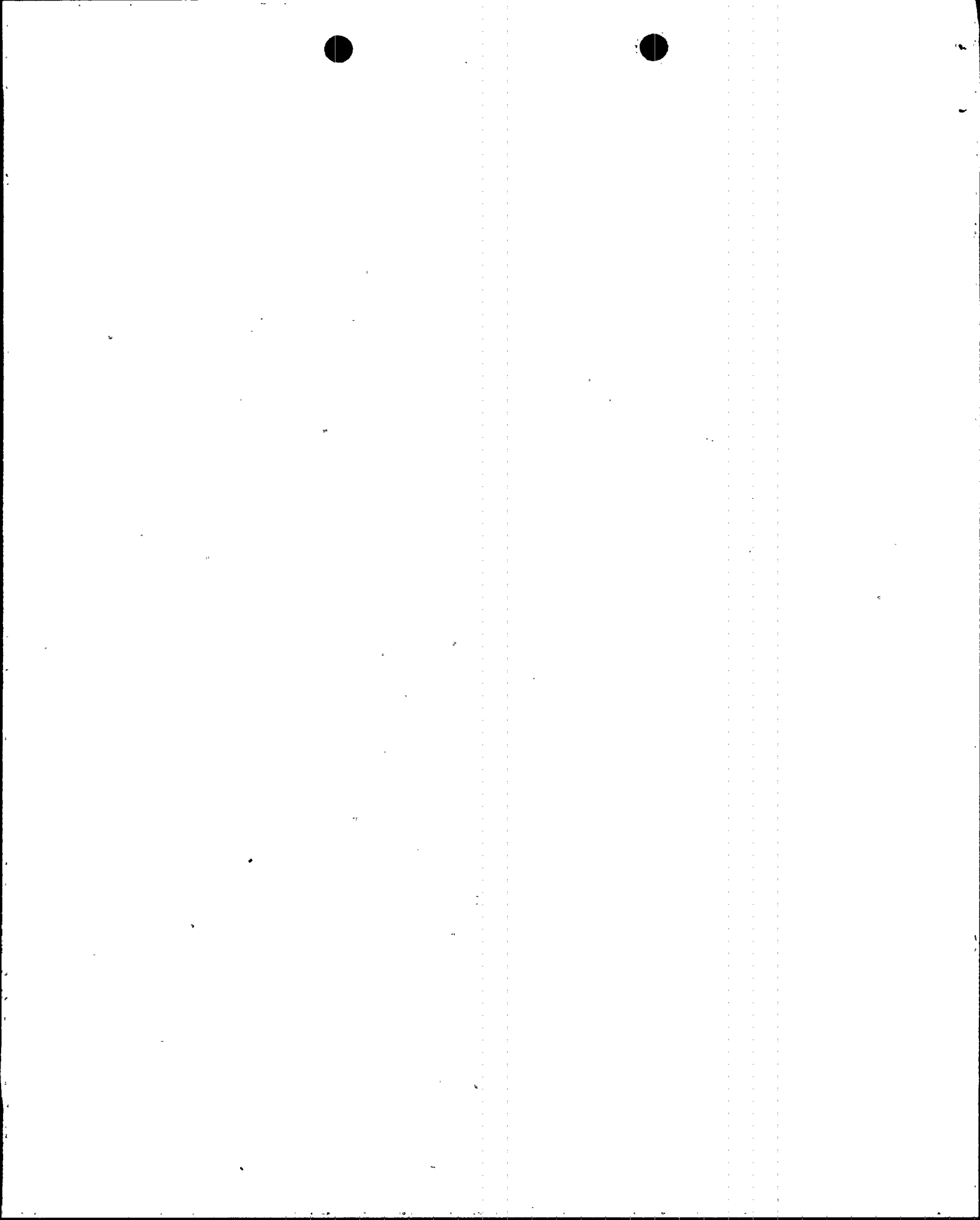
## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Turkey Point Unit 4										DOCKET NUMBER (2) 0 5 0 0 0 2 5 1 1										PAGE (3) 1 OF 0 4			
TITLE (4) 4 B EMERGENCY DIESEL GENERATOR (DG) WATER LEAK DUE TO MANUFACTURING DEFECT COULD PREVENT DG FROM PERFORMING INTENDED SAFETY FUNCTION.																							
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)									
1	2	2	1	9	0	9	0	0	0	1	2	0	0	3	1	5	9	1	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)																					
DF		20.402(b)				20.408(a)				80.73(a)(2)(iv)				73.71(b)									
POWER LEVEL (10)		0 0 0				20.408(a)(1)(i)				80.36(a)(1)				80.73(a)(2)(v)					73.71(a)				
		20.408(a)(1)(ii)				80.36(a)(2)				80.73(a)(2)(vi)				<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 305A)									
		20.408(a)(1)(iii)				80.73(a)(2)(i)				80.73(a)(2)(vii)(A)				Voluntary									
		20.408(a)(1)(iv)				80.73(a)(2)(ii)				80.73(a)(2)(viii)(B)													
		20.408(a)(1)(v)				80.73(a)(2)(iii)				80.73(a)(2)(ix)													
		20.408(a)(1)(vi)				80.73(a)(2)(iv)				80.73(a)(2)(x)													
LICENSEE CONTACT FOR THIS LER (12)																							
NAME D. R. Powell, Superintendent of Licensing										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													
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR							
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)												<input checked="" type="checkbox"/> NO											

ABSTRACT (Limit to 1480 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

This voluntary LER is being submitted following the guidance provided by NUREG 1022, Supplement 1, Item 19.1.

On December 21, 1990, at approximately 2300 EST, with both units defueled, the new 4B Emergency Diesel Generator (EDG) 72 hour acceptance test run was stopped due to declining coolant water level. The 72 hour test run was being performed as part of phase 1 FPL acceptance testing prior to turnover, scheduled for summer 1991, to the plant of two new EDGs that have been installed as part of the Emergency Power Systems Enhancement Project (EPS). A leak was located at the flange connection between the water inlet tube and the number 6 cylinder liner. When the water inlet pipe was removed, the O-ring at this connection was found to be cut. The cause of the event was a coolant manifold which did not meet the manufacturer's dimensional tolerances. This resulted in misalignment of the cooling tube and damage to the O-ring seal. Contributing to the misalignment was an assembly error by the manufacturer in that the manufacturer failed to follow the tech manual instructions for installation of the inlet cooling tube. The defective manifold was replaced by the vendor. The water inlet tubes and replacement O-rings were installed by the vendor in accordance with the technical manual. The EDG 72 hour test was then completed satisfactorily.



**LICENSEE EVENT REPORT (LER) TEXT CONTINUATION**

-----  
FACILITY NAME DOCKET NUMBER LER NUMBER PAGE NO.  
TURKEY POINT UNIT 4 05000251 91-012-00 02 OF 04  
-----

**I. EVENT DESCRIPTION**

On December 21, 1990, at approximately 2300 EST, with both units defueled, during a 72 hour Emergency Diesel Generator (EK)(EDG) acceptance test run, the test was stopped after 27 hours due to a declining coolant level in the new 4B EDG. The 72 hour test run was being performed as part of phase 1 FPL acceptance testing prior to turnover, scheduled for summer 1991, to the plant of two new EDGs that have been installed as part of the Emergency Power Systems Enhancement Project (EPS).

Investigation revealed that a leak had existed at the flange connection (EK)(CON) between the water inlet tube (EK)(TBG) and the number 6 cylinder liner (EK)(LNR). When the water inlet tube was removed, the O-ring (EK)(SEAL) at this connection was found to be cut.

**II. EVENT CAUSE**

**a. Immediate Cause**

The loss of cooling water was the result of water leakage through a cut in the O-ring seal between the water inlet tube and the number 6 cylinder liner. The cut in the O-ring seal was caused during installation of the water inlet tube from the coolant manifold.

**b. Root Cause**

The cause of this event was a coolant manifold which was not manufactured in accordance with the General Motors Electromotive Division's dimensional tolerances. These dimensional defects resulted in excessive handling of the water inlet tubes during alignment which resulted in the cut O-ring.

**c. Contributing Cause**

A possible contributing cause of the event was failure of the manufacturer, to follow Technical Manual instructions on inlet cooling tube installation. The Technical Manual furnished by Morrison-Knudsen Company is entitled: "Installation, Operating, Maintenance, and Parts Manual." Volume 1 of this manual contains sections supplied by the diesel engine manufacturer, General Motors Electromotive Division, entitled "Engine Maintenance." Section 10 "Cooling System Piping," of volume 1 provides instructions on inlet cooling tube installation. The





LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY	NAME	DOCKET	NUMBER	LER NUMBER	PAGE	NO.
TURKEY POINT UNIT 4			05000251	91-012-00	03	OF 04

failure to follow these installation instructions resulted in deformation of the manifold and misalignment of the fitted inlet water tube connection and damage to the O-ring seal.

III. EVENT SAFETY ANALYSIS

The Emergency Diesel Generators (EDGs) are necessary to ensure the capability to mitigate the consequences of accidents. An engineering evaluation of this event by FPL engineering concluded that the loss of engine coolant due to the leakage described above would eventually result in engine failure due to engine overheating. In addition, the evaluation also showed that even if sufficient makeup water were added to the system, water leakage into the air box, would result in a loss of power that could prevent the EDG from performing it's intended safety function.

The defect was discovered and corrected prior to the subject EDG being turned over to the plant.

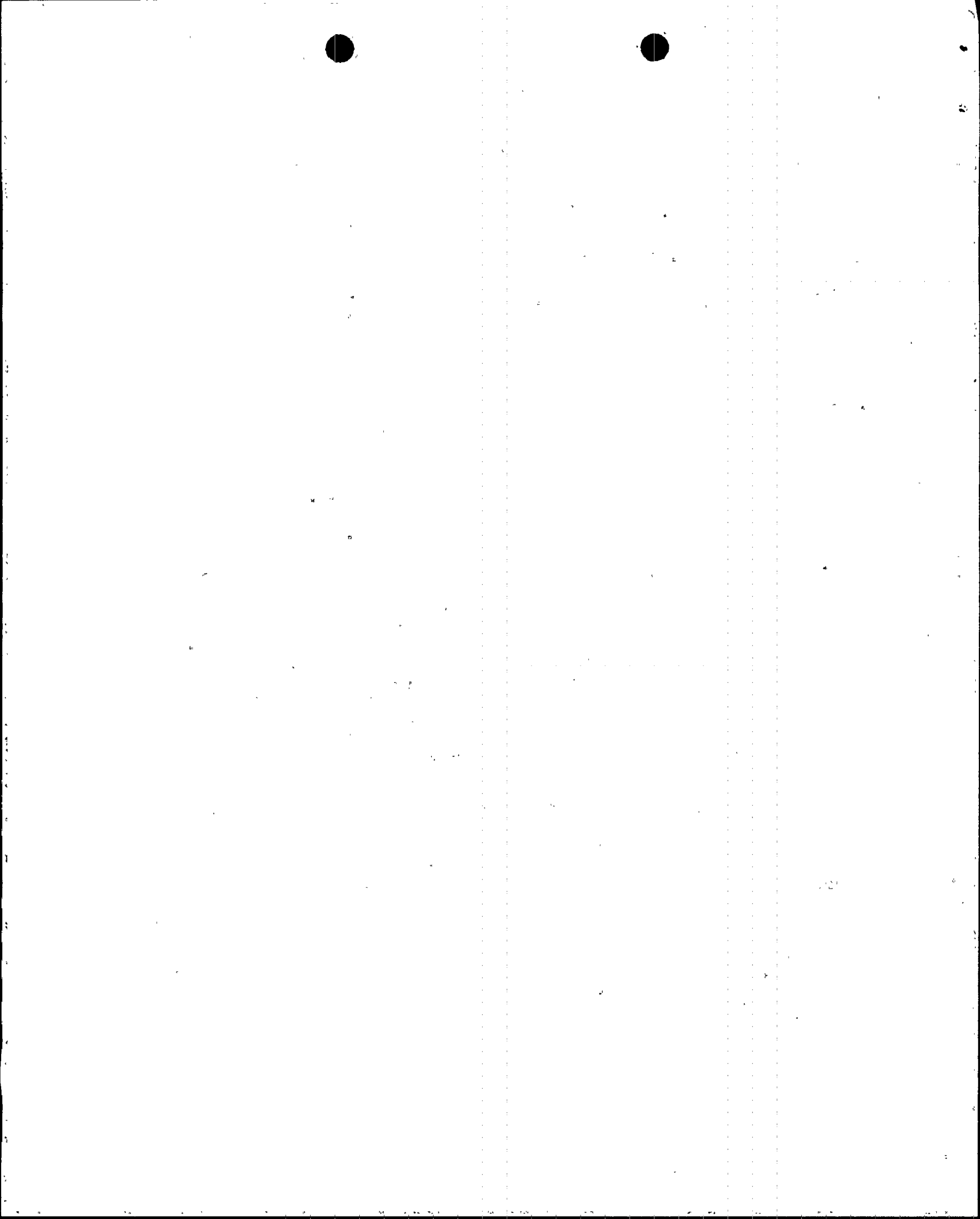
Pre-operational tests had been developed to locate problems similar to the leak discussed above before the equipment being tested would be declared operational and thus relied on to perform intended safety functions. Since this defect was discovered and repaired before the EDG completed final acceptance testing, the EDG was never relied on to be available to provide emergency power. Both units are defueled and EDGs 4A and 4B are not required to support the spent fuel pool or any other required equipment. Thus the health and safety of the public were not affected.

IV. CORRECTIVE ACTIONS

Both manifolds and associated hardware, including the cut O-ring, were removed and replaced by the Morrison-Knudsen Company, Inc. The water inlet tubes were installed in accordance with the Technical Manual noted above. The EDG acceptance tests were then continued. No additional corrective actions are deemed necessary by Florida Power & Light to correct the discovered deficiencies.

The other new EDG on site, from the same manufacturer, EDG 4A, was examined and found to not have the deformed manifold, or the out of tolerance condition on the cooling water manifold.

Morrison-Knudsen Company, Inc. has been notified of this event.



**LICENSEE EVENT REPORT (LER) TEXT CONTINUATION**

FACILITY NAME	DOCKET NUMBER	LER NUMBER	PAGE NO.
TURKEY POINT UNIT 4	05000251	91-012-00	04 of 04

**V. ADDITIONAL INFORMATION**

1. Similar LERs:

None

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



100