

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8712290157 DOC. DATE: 87/12/22 NOTARIZED: NO DOCKET #
 FACIL: 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co. 05000389
 AUTH. NAME AUTHOR AFFILIATION
 POWELL, J. M. Florida Power & Light Co.
 WOODY, C. O. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-008-00: on 871128, oil fire at reactor coolant pump (RCP). Caused by oil leak from loose packing gland on instrument isolation valve. Leaking valve repaired. Visual insp & leak test conducted on 2A1 RCP oil pans. W/871222 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES L TTR ENCL	RECIPIENT ID CODE/NAME	COPIES L TTR ENCL
	PD2-2 LA	1 1	PD2-2 PD	1 1
	TOURIGNY, E	1 1		
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
	AEOD/DOA	1 1	AEOD/DSP/NAS	1 1
	AEOD/DSP/ROAB	2 2	AEOD/DSP/TPAB	1 1
	ARM/DCTS/DAB	1 1	DEDRO	1 1
	NRR/DEST/ADS	1 0	NRR/DEST/CEB	1 1
	NRR/DEST/ELB	1 1	NRR/DEST/ICSB	1 1
	NRR/DEST/MEB	1 1	NRR/DEST/MTB	1 1
	NRR/DEST/PSB	1 1	NRR/DEST/RSB	1 1
	NRR/DEST/SGB	1 1	NRR/DLPQ/HFB	1 1
	NRR/DLPQ/QAB	1 1	NRR/DOEA/EAB	1 1
	NRR/DREP/RAB	1 1	NRR/DREP/RPB	2 2
	NRR/DRIS/SIB	1 1	NRR/PMAS/ILRB	1 1
	<u>REG FILE</u> 02	1 1	RES DEPY GI	1 1
	RES TELFORD, J	1 1	RES/DE/EIB	1 1
	RGN2 FILE 01	1 1		
EXTERNAL:	EG&G GROH, M	5 5	FORD BLDG HOY, A	1 1
	H ST LOBBY WARD	1 1	LPDR	1 1
	NRC PDR	1 1	NSIC HARRIS, J	1 1
	NSIC MAYS, G	1 1		

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) St. Lucie, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 0 8 9	PAGE (3) 1 OF 0 A
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TITLE (4) OIL FIRE AT REACTOR COOLANT PUMP DUE TO OIL LEAK FROM LOOSE PACKING GLAND ON INSTRUMENT ISOLATION VALVE

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		
1	1	28	8	7	008	1	2	28	NA		
									DOCKET NUMBER(S)		
									0 5 0 0 0		
									0 5 0 0 0		

OPERATING MODE (9) 3

POWER LEVEL (10) 0 0 0

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

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.38(c)(1)	50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
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)	X 50.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)

NAME J. M. Powell, Shift Technical Advisor	TELEPHONE NUMBER	
	AREA CODE 3 0 5	4 6 5 1 3 5 5 0

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
B	A	B R T V	A	1 8 0	Y				

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)

At 1010 hours on November 28, 1987, while in Mode 3 preparing to return to full power operation, St. Lucie Unit 2 experienced an oil fire at the 2A1 Reactor Coolant Pump (RCP). The flames were initially extinguished by the plant Fire Fighting Team within minutes, but some reflash was experienced. The fire was completely extinguished by approximately 1030 hours. An Unusual Event was declared at 1023 hours, and was terminated at 1220 hours, when insulation at the base of the RCP had been removed to ensure all possibility of reflash had been eliminated.

The root cause of the fire was determined to be oil leakage through a packing gland which had apparently vibrated loose on a pressure instrument isolation valve on the discharge header of the 2A1 RCP oil lift pumps.

Corrective actions included valve repair, oil collection system inspections and repair, procedure changes, snubber modification, and an engineering evaluation.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

DESCRIPTION OF EVENT

On November 28, 1987, St. Lucie Unit 2 was in Mode Three. Operations personnel were in the process of performing equipment checkouts preparing to return the unit to full power operation after the completion of unrelated repairs to the turbine generator.

Prior to starting the 2A1 Reactor Coolant Pump (RCP) (EIIS:AB), at approximately 0830 hours, an oil lift pump was started. This pump provides lubricating oil to the RCP lower thrust bearing. Operations personnel in the Control Room noted that the permissive signal for starting the RCP was not received when the oil lift pump was started, and began to investigate to determine the nature of the problem. Possible causes for the failure to receive the start permissive signal are low component cooling water flow, low oil lift system pressure and possible problems in the permissive start circuit:

The oil lift pump was run intermittently while troubleshooting was in progress. When remote troubleshooting failed to identify the cause of the failure of the permissive signal, a containment entry was made by the Nuclear Plant Supervisor (NPS) at approximately 1005 hours. At 1010 hours, an oil fire was discovered in the vicinity of the 2A1 RCP, and the NPS immediately notified Control Room personnel. Power was immediately removed from the oil lift pump and the affected RCP, and the breakers to the two pumps were racked out.

The fire protection team was immediately dispatched to the scene and began fighting the fire. The flames were initially extinguished within minutes, but reflashed several times. All flames were out by approximately 1030 hours.

At 1023 hours, an Unusual Event was declared because the oil fire had lasted longer than the 10 minute limit proscribed by plant procedures. Official notifications were begun and completed within the required time limits.

After no reflash had been seen for approximately 30 to 40 minutes, plant maintenance personnel were directed to remove insulation from around the base of the RCP. Oil in this insulation was determined to be the source of the fire. At 1220 hours, when the affected insulation was removed from the RCP and it was determined that there was no longer a possibility of reflash, the Unusual Event was terminated.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

CAUSE OF EVENT

The cause of the fire was determined to be oil leakage from a root isolation valve to a local pressure gauge on the discharge header of the oil lift pumps. The root cause of the oil leakage was determined to be that the packing nut on the valve had apparently vibrated loose; the valve stem and handwheel were discovered to be lying next to the valve. Because the oil lift pumps were pumping oil out the disassembled valve, sufficient oil discharge pressure could not be developed to enable the permissive start light for the 2A1 RCP.

ANALYSIS OF EVENT

This event has been deemed reportable as per the requirements of 10 CFR 50.73.a.2.x, "any event that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases."

There is little probability that this event could occur during power operation. The oil lift pumps for each RCP are operated only when the RCP is being started and when the RCP is coasting down after it has been stopped. When the RCPs are running, the lift pumps are not in use. Since the fire was caused by oil leaking out the disassembled root isolation valve due to the discharge pressure of the oil lift pumps, similar leakage would not exist when these pumps are not in service. St. Lucie Unit 2 Technical Specification 3.4.1.1 requires all RCPs to be running in modes 1 and 2. Therefore, this event would not be probable during power operation.

Proper response by the St. Lucie Plant Fire Fighting team resulted in the fire being initially extinguished and under control within minutes of team activation; the declaration of an Unusual Event was a conservative measure taken due to the possibility of reflash. The fire was completely extinguished by approximately 1030 hours, but the event was not terminated until all chance of reflash had been physically eliminated. Therefore it may be concluded that, due to the strict adherence to Emergency Procedures by plant Operations and Management personnel and the response of the Fire Fighting Team, the health and safety of the public were not endangered at any time during the course of this event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

CORRECTIVE ACTIONS

Immediate corrective actions included the following:

1. the leaking valve was repaired
2. a visual inspection and leak test of the 2A1 RCP oil collection system drip pan was conducted to ensure operability; all necessary repairs were made
3. two visual inspections of all other oil collection pans were conducted; one pan required an additional sealant application
4. changes to the procedures which govern the normal operation of the reactor coolant pumps were made to ensure the oil lift pumps are not run for extended periods of time without being visually monitored in containment. Requirements for the inspection of the oil lift systems while in operation were also added.

Long term corrective actions include:

1. the relocation of a snubber which was found to be physically interfering with the 2A1 oil collection pan
2. the Florida Power and Light engineering department has been instructed to evaluate the existing configuration of the oil collection system and/or the RCP insulation to ensure compliance with the requirements of the St. Lucie Unit 2 FUSAR, Appendix R and the St. Lucie Plant Fire Protection Manual.

ADDITIONAL INFORMATION

Component Information

The reactor coolant pump is a Byron-Jackson, vertical limited leakage centrifugal pump. The pump motor is a 6600 volt motor manufactured by Allis-Chalmers with a rated horsepower/speed of 6500/881.

The oil used in the RCPs is Regal Oil type R&O 32, supplied by Texaco, with a flashpoint of 400 F.

The root isolation valve was supplied as a part of the oil lift pump auxiliary system by Allis-Chalmers.

Previous Similar Events

St. Lucie Unit 2 experienced an earlier fire at the 2A2 Reactor Coolant Pump on August 24, 1985, which was due to oil leakage from the RCP itself as the result of high vibrations on the RCP pump shaft. For further information, see Licensee Event Report 389-85-009.



DECEMBER 22 1987

L-87-529
10 CFR 50.73

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

Gentlemen:

Re: St. Lucie Unit 2
Docket No. 50-389
Reportable Event: 87-08
Date of Event: November 28, 1987
Oil Fire at Reactor Coolant Pump Due to Oil Leak
From Loose Packing Gland on Instrument Isolation Valve

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

Very truly yours,

C. O. Wobdy
Executive Vice President

COW/GRM/gp

Attachment

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

GRM/022.LER

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