

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9706040241 DOC. DATE: 97/05/29 NOTARIZED: NO DOCKET #
 FACIL: 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335
 AUTH. NAME AUTHOR AFFILIATION
 FREDER, K.W. Florida Power & Light Co.
 STALL, J.A. Florida Power & Light Co.
 RECIPIENT NAME RECIPIENT AFFILIATION

SUBJECT: LER 97-007-00: on 970502, reactor coolant pump oil collection sys was outside App R design bases. Identified leak sites were repaired & mods to RCP Oil Collection Sys to capture any future leakage from areas. W/970529 ltr.

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Florida Power & Light Company, 6501 South Ocean Drive, Jensen Beach, FL 34957

May 29, 1997

L-97-0137
10 CFR 50.73

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

Re: St. Lucie Units 1 and 2
Docket No. 50-335
Reportable Event: 97-007
Date of Event: May 2, 1997
Reactor Coolant Pump Oil Collection System
Outside Appendix R Design Bases

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

Very truly yours,

J. A. Stall
Vice President
St. Lucie Plant

JAS/KWF

Attachment

cc: Regional Administrator, USNRC Region II
Senior Resident Inspector, USNRC, St. Lucie Plant

9706040241 970529
PDR ADDCK 05000335
S PDR



IE 20/11

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 60.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-8 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

ST LUCIE UNIT 1

DOCKET NUMBER (2)

05000335

PAGE (3)

1 OF 4

TITLE (4)

Reactor Coolant Pump Oil Collection System Outside Appendix R Design Bases

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 NAME	DOCKET NUMBER
5	2	97	97	007	0	5	29	97	St. Lucie Unit 2	05000389
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)				
1	100	20.2201(b)		20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)		20.2203(a)(3)(i)	X 50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.2203(a)(2)(i)		20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)		20.2203(a)(4)	50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)		50.38(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 368A
		20.2203(a)(2)(iv)		50.38(c)(2)	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

K. W. Frehafer, Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(561) 468-4284

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE). X NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On May 2, 1997, St. Lucie Unit 1 was at 100 percent power, and St. Lucie Unit 2 was in Mode 6 and defueled for a refueling outage. An outage inspection of the Unit 2 Reactor Coolant Pumps (RCPs) identified minor external oil leakage at the upper and lower RCP motor oil reservoir locations that was not captured by the RCP Oil Collection System. Appendix R Section III.O requires that the RCP Oil Collection System be designed to collect oil from all potential RCP oil leakage sources.

The cause of this event was due to design deficiencies of the RCP Oil Collection System. Corrective actions include repairs to identified leak sites, and modifications to the RCP Oil Collection System to capture any future leakage from these areas.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL	REVISION	
St. Lucie Unit 1	05000335	97	-- 007	-- 0	2 OF 4

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

DESCRIPTION OF THE EVENT

On May 2, 1997, St. Lucie Unit 1 was at 100 percent power, and St. Lucie Unit 2 was in Mode 6 and defueled for a refueling outage. An outage inspection of the Unit 2 Reactor Coolant Pumps (RCPs) [EIS:AB:P] identified external oil leakage not captured by the RCP oil collection system.

The existing RCP Oil Collection System design consists of three oil drip enclosures and five drip pans on each reactor coolant pump motor. A gravity drain piping system is provided to transport any accumulated oil from these devices to a 225 gallon oil collection tank. The tank is vented and provided with a flame arrestor with a magnetic liquid level gage to provide local indication of oil in the tank. The collection devices are designed to collect oil leakage from the following potential leakage sources:

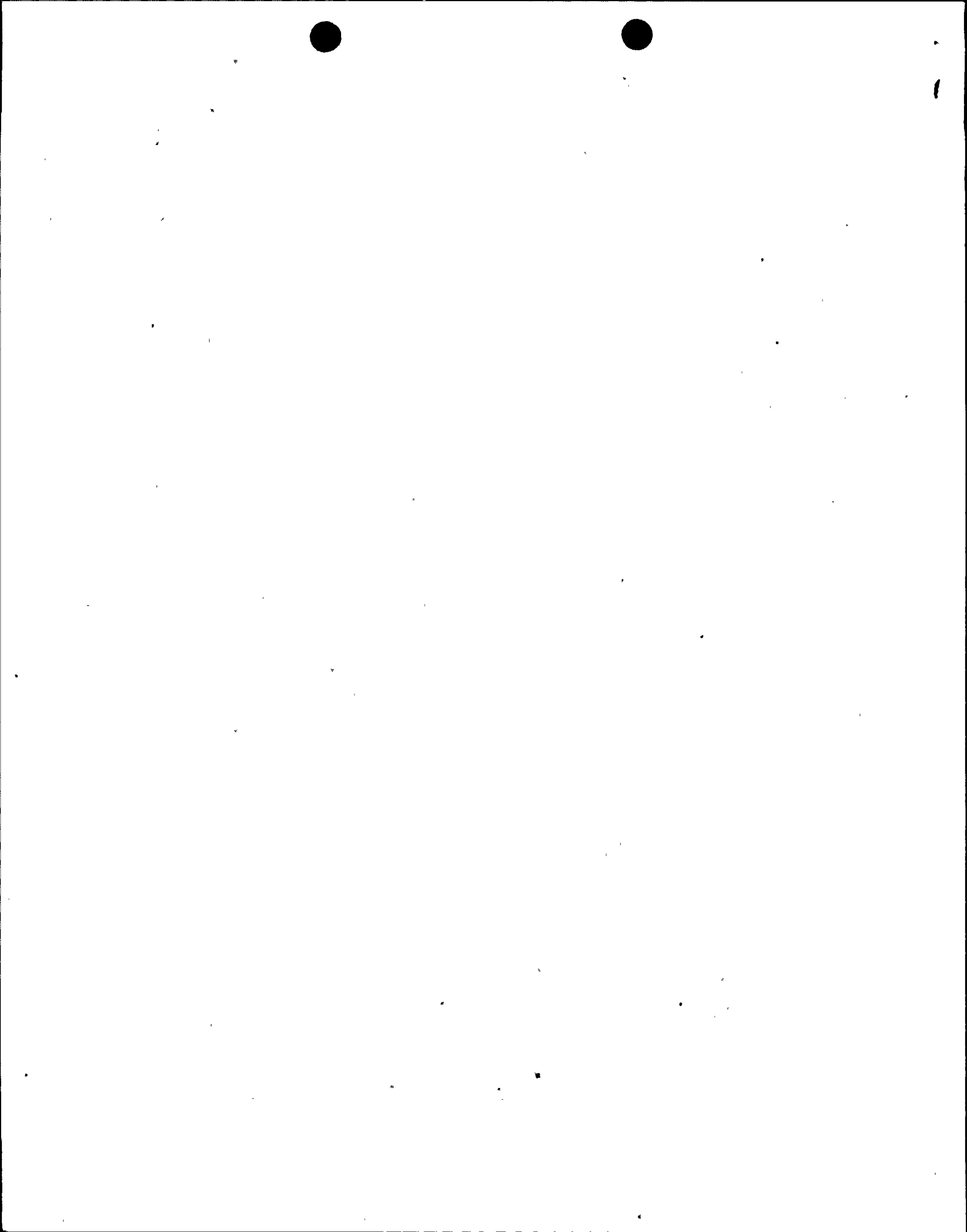
1. The lift oil system,
2. all flanged connections on the oil coolers & circulating oil piping,
3. oil fill and drain lines, and,
4. oil level instrumentation piping.

The Unit 2 RCP inspection noted oil leakage at both the upper and lower RCP motor oil reservoir locations. The investigation into the source of the oil from the lower reservoir identified minor weepage from the "pie pan" (lower oil reservoir top access covers)/RCP shaft seal area. Because of the small amount of oil leakage, it is not possible to positively confirm whether the source is from the RCP shaft seal or the "pie pan" covers. The investigation into the source of leakage from the upper oil reservoir identified a leaking RCP bearing resistance temperature detector (RTD) penetration fitting on the motor top hat, which allowed oil to collect on top of the RCP motor housing and run down the side of the motor.

These leakage sites are at atmospheric or low pressures and are located above the normal upper and lower reservoir oil levels. However, these locations can potentially leak small amounts of oil due to the oil splash caused by the rotating components inside the oil reservoirs. It was therefore determined that the design of the RCP Oil Collection System was deficient in that not all potential oil leakage sources have provisions for collection.

CAUSE OF THE EVENT

The original RCP Oil Collection System design did not consider these component parts to be potential leakage sources because their locations are above the normal operating oil reservoir level. Additionally, the lower reservoir operates only at a slightly positive pressure and the upper reservoir operates at atmospheric pressure. The potential for leakage due to oil splash was not considered in the original design. Therefore, no design features were provided to collect oil from these locations.



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TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

ANALYSIS OF THE EVENT

The RCP Oil Collection System design is required to meet the requirements of 10CFR50 Appendix R Section III.O, which states that "the system shall be so designed, engineered, and installed that failure will not lead to fire during normal operation or design basis conditions and that there is reasonable assurance that the system will withstand the Safe Shutdown Earthquake. Such collection systems shall be capable of collecting lube oil from all potential pressurized and unpressurized leakage sites in the reactor coolant lube oil systems." However, the St. Lucie RCP Oil Collection System design is deficient in that not all potential oil leakage sites have provisions for being collected. Therefore, it was determined that this condition was reportable because the RCP Oil Collection System was outside of the Appendix R Section III.O design bases.

ASSESSMENT OF SAFETY SIGNIFICANCE

Because Unit 1 and Unit 2 have similar RCP motors and oil collection systems, the design deficiencies associated with the upper oil reservoir top hat area and the lower oil reservoir shaft seal/"pie pan" area are applicable to both Units 1 and 2. The following assessment was made to determine the fire potential resulting from any uncollected oil at these locations.

The identified leakage sites were assessed in order to characterize any postulated leakage and resultant fire potential. The potential leakage sites are either unpressurized or only slightly pressurized and are located above the normal operating level of the oil reservoirs. Any postulated leakage would be from the oil splash caused by the rotating components inside the oil reservoirs. Therefore, oil escaping from the reservoir would not be sprayed (atomized), but would result in only minor drips of uncollected oil. The fire potential of such leakage is minimal; if a drip were to come in contact with a hot surface (temperature over the ignition temperature) it would not accumulate; the drop would burn but not support further combustion. If it comes in contact with a cool surface it could locally accumulate, but would eventually migrate to the floor. Oil landing on the floor will be directed to floor drains based on floor slope. Lubricating oil on the floor or in the sump is not subject to ignition because the floor is a vast heat sink which will maintain the oil at a low temperature and prevent it from reaching its ignition point. Therefore, the potential for a fire resulting from minor oil leakage from these locations is not considered credible.

In addition, RCP motor upper and lower oil reservoir levels are trended and reviewed on a monthly basis to ensure that RCP lube oil leaks are identified during plant operation. Although changes in the containment temperature and pressure can cause small variations in indicated RCP oil reservoir level, any appreciable loss of RCP lube oil is detectable. There have been no safety significant RCP lube oil leaks identified on either Unit 1 or 2.

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

FACILITY NAME (1)	DOCKET	LER NUMBER (8)			PAGE (3)
		YEAR	SEQUENTIAL	REVISION	
St. Lucie Unit 1	05000335	97	007	0	4 OF 4

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

ASSESSMENT OF SAFETY SIGNIFICANCE (Cont.)

Continued operation of Unit 1 is justified based on the above discussion and the following additional information. Currently, the System Engineer has concluded that no significant oil leaks are present in any of the Unit 1 RCPs, based on data collected over the last six months. Additionally, the inspection of the RCPs, during the recent Unit 1 Short Notice Outage (SNO) on April 19, 1997, did not identify any significant external oil leaks. An oil film on the 1A1 RCP and platform was noted. Even though the precise source of this oil film is not known, it is evident that the existing minor oil leakage has not come in contact with an ignition source in containment. Thus, it is reasonable to assume that further leakage from the same location would also not come in contact with ignition sources, and that a fire in containment from existing potential leakage sources is not likely.

CORRECTIVE ACTIONS

1. The uncollected oil was cleaned up.
2. Work orders were issued to repair the identified leaking penetrations and to resolve leaks on the lower reservoirs.
3. A step was added to the RCP General Inspection and Repair Master PWO task description to address proper installation of the lower reservoir "pie pan" covers.
4. The RCP instrumentation removal/reinstallation Master PWO task description will be revised to ensure adequate provisions for installing and sealing penetration fittings.
5. PCM 97-025 was implemented on the Unit 2 RCP Oil Collection System to ensure that any future oil leakage from the mechanical penetrations would be captured by the system.
6. Similar modifications will be implemented on the Unit 1 RCP Oil Collection System during the Fall 1997 refueling outage.

ADDITIONAL INFORMATION

None.

