

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9509010015 DOC. DATE: 95/08/27 NOTARIZED: NO DOCKET #
 FACIL: 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335 P
 AUTH. NAME AUTHOR AFFILIATION
 HOLT, J.W. Florida Power & Light Co. R
 SAGER, D.A. Florida Power & Light Co.
 RECIPIENT AFFILIATION

SUBJECT: LER 95-004-00: on 950801, controlled shutdown of Unit 1 & 2
 was performed & security safeguards partially suspended due
 to indication that hurricane force winds imminent at plant.
 Reinstated safeguard measures. W/950827 ltr. I
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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc. I

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August 27, 1995

L-95-241
10 CFR 50.73
10 CFR 73.71

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

Re: St. Lucie Unit 1
Docket No. 50-335
Reportable Event: 95-004
Date of Event: August 1, 1995
Hurricane Erin at St. Lucie

The attached Licensee Event Report is being submitted pursuant to the requirements of 10 CFR 50.73 and 10 CFR 73.71 to provide notification of the subject event.

The attached material does not contain safeguards information as defined by 10 CFR 73.21.

Very truly yours,

A handwritten signature in cursive script that reads "D. A. Sager".

D. A. Sager
Vice President
St. Lucie Plant

DAS/msd

Attachment

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

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PDR ADDCK 05000335
S PDR

an FPL Group company

Handwritten initials or a signature in the bottom right corner of the page, possibly reading "JES" or similar.

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), 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 5
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TITLE (4) **HURRICANE ERIN AT ST. LUCIE**

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
08	01	95	95	004	0	08	27	95	St. Lucie Unit 2	05000389
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)										
POWER LEVEL (10) 000	20.402(b)			20.405(c)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)			<input checked="" type="checkbox"/> 73.71(b)	
	20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)			73.71(c)	
	20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vii)			OTHER	
	20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)			(Specify in Abstract below and in Text, NRC Form 366A)	
	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)			50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)										
NAME James W. Holt, Licensing Engineer								TELEPHONE NUMBER (Include Area Code) (407)468-4212		

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
x	AB	Seal	B580	y						

SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)		
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO					MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)
 On 8/1/95, information from the National Hurricane Center indicated that hurricane force winds were imminent at the St. Lucie Plant site. In accordance with Hurricane Preparedness Procedures, a controlled shutdown of Unit 1 and Unit 2 to Mode 3 was performed. As the storm approached, security safeguards were partially suspended due to personnel safety concerns. On 8/2/95, utility operators discovered that the 1A2 Reactor Coolant Pump lower seal stage (one of four stages) had failed. Operations personnel attempted to restage the failed seal. This resulted in 2 additional seal stages failing and 2 gpm identified RCS leakage to containment. The operators began a cooldown and depressurization of the Reactor Coolant System. During the cooldown, a valid MSIS actuation signal was received due to failure to block the signal as required by procedure. All valves that receive a MSIS signal were in their actuated positions prior to the MSIS. The root cause for the partial suspension of security safeguards was due to the impending approach of hurricane force winds and the need to ensure personnel safety. The root cause for failing to block the MSIS was due to personnel error on the part of a utility licensed operator. The root cause of the RCP middle and upper seal failure was misapplication of a procedure. Corrective actions were: 1)Safeguard measures were reinstated following passage of the storm, 2) The MSIS was immediately blocked and reset, 3) the licensed operator was counseled on the need to follow procedure, 4) the RCP seal was replaced.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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				95	004	0	

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

DESCRIPTION OF THE EVENT

On 7/31/95 at 1114, with Units 1 and 2 at 100% power, the National Hurricane Center issued a Hurricane Warning which encompassed the St. Lucie Plant site. At 1128, in accordance with Emergency Plan Procedures, an Unusual Event was declared due to projected storm conditions.

On 8/1/95, information from the National Hurricane Center projected that sustained hurricane force winds would occur at the site. In accordance with Hurricane Preparedness Procedures, site management directed the commencement of a controlled shutdown for Units 1 and 2. Both units were shutdown by 1600. Cooldown of the Reactor Coolant System (EIS:AB) to an average temperature of 350 degrees Fahrenheit was performed for both units to allow for enhanced Steam Generator (EIS:AB) heat removal capability with a steam driven Auxiliary Feedwater Pump (EIS:BA). To support any recovery efforts, a storm crew complement was stationed onsite, which included operations, maintenance and engineering personnel.

At 2323, plant management made the decision to partially suspend safeguards in accordance with the St. Lucie Physical Security Plan due to the impending high winds and the resulting potential for personnel safety concerns. The area affected included portions of the perimeter intrusion detection system. The NRC was notified at 2336 through the open phone line as required by 10 CFR 73.71.

On 8/2/95, at approximately 0100, the eye of Hurricane Erin made landfall approximately 20 miles north of the St. Lucie Plant site. The maximum wind speed recorded onsite was less than 45 mph. After the storm center had passed the site at 0400, field teams were dispatched to inspect the material condition of the plant. No flooding or wind damage was noted which could have adversely impacted safety related equipment or prevented either unit from returning to full power operation. Additionally, at no time were operations personnel hampered in their ability to maintain either unit in a safe shutdown condition.

At 0404 on 8/2/95, safeguards was fully restored and notification was made to the NRC via the open phone line at 0433.

At 0542 on 8/2/95, the Unusual Event was terminated and notification was made to the NRC via the open phone line at 0547. After a satisfactory assessment of Emergency Plan capabilities, the decision to return both units to service was made. Unit 2 was returned to service on 8/5/95 at 0052.

At 0805 on 8/2/95, while Unit 1 was in Mode 3 with RCS pressure at 1550 psia, operators detected that the 1A2 Reactor Coolant Pump (RCP)(EIS:AB) lower stage seal had failed as indicated by middle seal cavity pressure approximately equal to Reactor Coolant System (RCS) pressure. The required actions of ONOP 1-0120034, "Reactor Coolant Pump Off-Normal Procedure" were taken which included an increase in the frequency of RCP parameter monitoring.

LICENSEE EVENT REPORT (LER)
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				95	004	0	

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

DESCRIPTION OF THE EVENT (Continued)

Although continued operation with the failed lower RCP seal is procedurally acceptable, a plant decision was made not to operate with the failed seal. The two alternatives were to cooldown and replace the seal or to attempt to restage the lower seal. Based on discussions among plant and corporate engineers, a decision was made to attempt to restage the seal. Restaging is a procedure that sequentially depressurizes the seal cavities from top to bottom in order to introduce a differential pressure across the leaking seal, thereby restaging the seal. At 1702, Operations personnel entered containment to attempt to restage the first stage seal per OP 1-120020, "Filling and Venting the RCS". During the restaging evolution, the RCP middle seal failed and the upper and vapor seals degraded. At 1750, control room indications of controlled bleedoff flow and seal cavity pressures revealed that both the lower and middle seals had failed. At 1810, the Operators began to cooldown and depressurize the Reactor Coolant System in accordance with the RCP off-normal procedure, to maintain lower seal cavity temperature below 300 degrees. At 1840, the 1A2 RCP was secured. As expected, lower RCP seal cavity temperature quickly increased necessitating the need to cool down and depressurize the RCS.

At 1854, with RCS temperature being decreased, the annunciators for Main Steam Isolation Signal (MSIS) Block Permissive (EIS:IB) alarmed in the control room and were acknowledged by a utility licensed operator. The operator was in the process of lowering VCT hydrogen concentration per OP 1-0210021, "VCT H₂ and N₂ Concentration Control." The operator determined that all valves affected by an MSIS actuation were already in their actuated positions and concluded that blocking MSIS was not necessary. The other utility licensed operators were involved in the cooldown and depressurization process and were not aware of the block-permissive annunciators. A short time later, a shift technical advisor(STA) in the control room observed the block permissive alarms and questioned whether MSIS should be blocked. The operator and the STA discussed the situation; however, Off-Normal OP 1-0030131, "Plant Annunciator Summary" was never consulted. At 1900, the annunciator for MSIS actuation alarmed. A single channel had gone below the MSIS setpoint of 600 psig, but MSIS had not yet actuated (two-out-of-four logic). At that point, the other utility licensed operator on-shift became aware of the situation and requested a block of the actuation. Before action could be taken, MSIS actuated. Since those valves affected by an MSIS were already in the actuated position, no valve changed state upon receipt of the signal. At 1907, MSIS was blocked and reset.

At 2018, while cooling down and depressurizing the RCS further, annunciators for high reactor cavity leakage alarmed. Reactor cavity leakage was at approximately 2 gpm (prior to the event it was 0.25 gpm). Although the RCS leakage was well below the Technical Specification limit of 10 gpm for identified leaks, the potential existed for further degradation of the RCP seals leading to an increased leak rate.

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

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		95	004	0	

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

DESCRIPTION OF THE EVENT (Continued)

Due to the potential for increased leakage, an Unusual Event was declared at 2125 based on occurrences that warrant increased awareness. The State and NRC notifications were made. ONOP 1-0120031, "Excessive Reactor Coolant System Leakage", was entered and all safety functions were verified to be met. On 8/3/95, RCS leakage had decreased due to the on going RCS cooldown and depressurization. Based on stable plant conditions and a decrease in RCS leakage, at 0630 the Unusual Event was terminated and the State and NRC were notified .

CAUSE OF THE EVENT

The root cause for the partial suspension of safeguards was due to the impending approach of hurricane force winds at the site and the need to ensure personnel safety.

The root cause for failing to block the MSIS was due to personnel error on the part of a utility licensed operator. The operator who acknowledged the block permissive did not refer to the Annunciator Summary procedure to determine if MSIS was required to be blocked.

The root cause of the 1A2 RCP lower seal failure is under investigation. The preliminary root cause of the middle, upper and vapor seal failure/degradation has been attributed to performance of the lower RCP seal restaging procedure at RCS temperatures above 200 degrees on a rotating pump. Based on available documentation, the restaging procedure had not been previously performed under the existing plant conditions.

ANALYSIS OF THE EVENT

In accordance with Hurricane Preparation procedures, both St. Lucie Unit 1 and St. Lucie Unit 2 were placed in a safe shutdown condition prior to the potential onset of sustained hurricane force winds. As a result of the approaching sustained hurricane force winds, plant management decided to partially suspend safeguards with the purpose of ensuring personnel safety. This partial suspension of safeguards was reportable under 10 CFR 73.71 (b)(1). The subject 10 CFR 50.73 report fulfills the 30-day written report requirement as described in 10 CFR 73.71(d). The electronic security system remained operable during the partial suspension of safeguards.

The Main Steam Isolation Signal (MSIS) actuation event is reportable under 10 CFR 50.73 (a)(2)(iv); any event or condition resulting in manual or automatic actuation of any Engineered Safety Feature. There were no safety consequences resulting from this event as the reactor was shutdown at the time of the MSIS actuation. The function of MSIS is to terminate blowdown of steam from the steam generators and isolate normal feedwater flow to the steam generators in the event of a steam line break accident. The reactor was shutdown at the time of the MSIS actuation and all MSIS actuated components were in their required safeguards position during the cooldown sequence.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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ST. LUCIE UNIT 1	05000335	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 5
		95	004	00	

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

ANALYSIS OF THE EVENT(continued)

The RCP seal failure description is provided as additional information and to aid in thoroughly describing the sequence of events. The RCP seal failure did not meet any of the 10 CFR 50.73 reporting criteria; however, the chronology, root cause, and corrective actions are provided for additional information.

The health and safety of the public were not affected by these events.

CORRECTIVE ACTIONS

1. Safeguards measures were reinstated following passage of the storm and the NRC was notified.
2. The main steam isolation signal (MSIS) was blocked and reset.
3. The utility licensed operator who failed to block MSIS was counseled on the need to follow procedure and discipline is pending.
4. The failure to block MSIS will be included in licensed operator training to emphasize procedural compliance, proper communication within the control room team, and the importance of crew supervision maintaining an overall view of activities.
5. The 1A2 RCP seal was replaced. In addition, the 1A1 seal was replaced due to degraded performance.
6. Engineering is performing a root cause evaluation of the 1A2 lower seal failure.
7. Plant policy will be revised and strengthened to address the required additional review necessary prior to use of a procedure (e.g., RCP staging) that is being executed under plant conditions different from those under which it had previously been executed.

ADDITIONAL INFORMATION

Failed Component Identification

Manufacturer: Byron Jackson Co.
Model Number: 35X35X43 DFSS
Device: Seals for Reactor Coolant Pump

Previous Similar Events

LER 389 85-10 documents an SIAS due to personnel error. The operator failed to block SIAS as required by the plant cooldown procedure.

