

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8011250193 DATE: 80/11/18 NOTARIZED: NO DOCKET # 05000335
 FACIL: 50-335 St., Lucie Plant, Unit 1, Florida Power & Light Co.
 AUTH. NAME AUTHOR AFFILIATION
 UHRIG, R.E. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
 EISENHUT, D.G. Division of Licensing

SUBJECT: Forwards responses to NRC 801010 request for info re loss of ac power at facility.

DISTRIBUTION CODE: A0155 COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 8
 TITLE: Onsite Emergency Power Systems

NOTES:

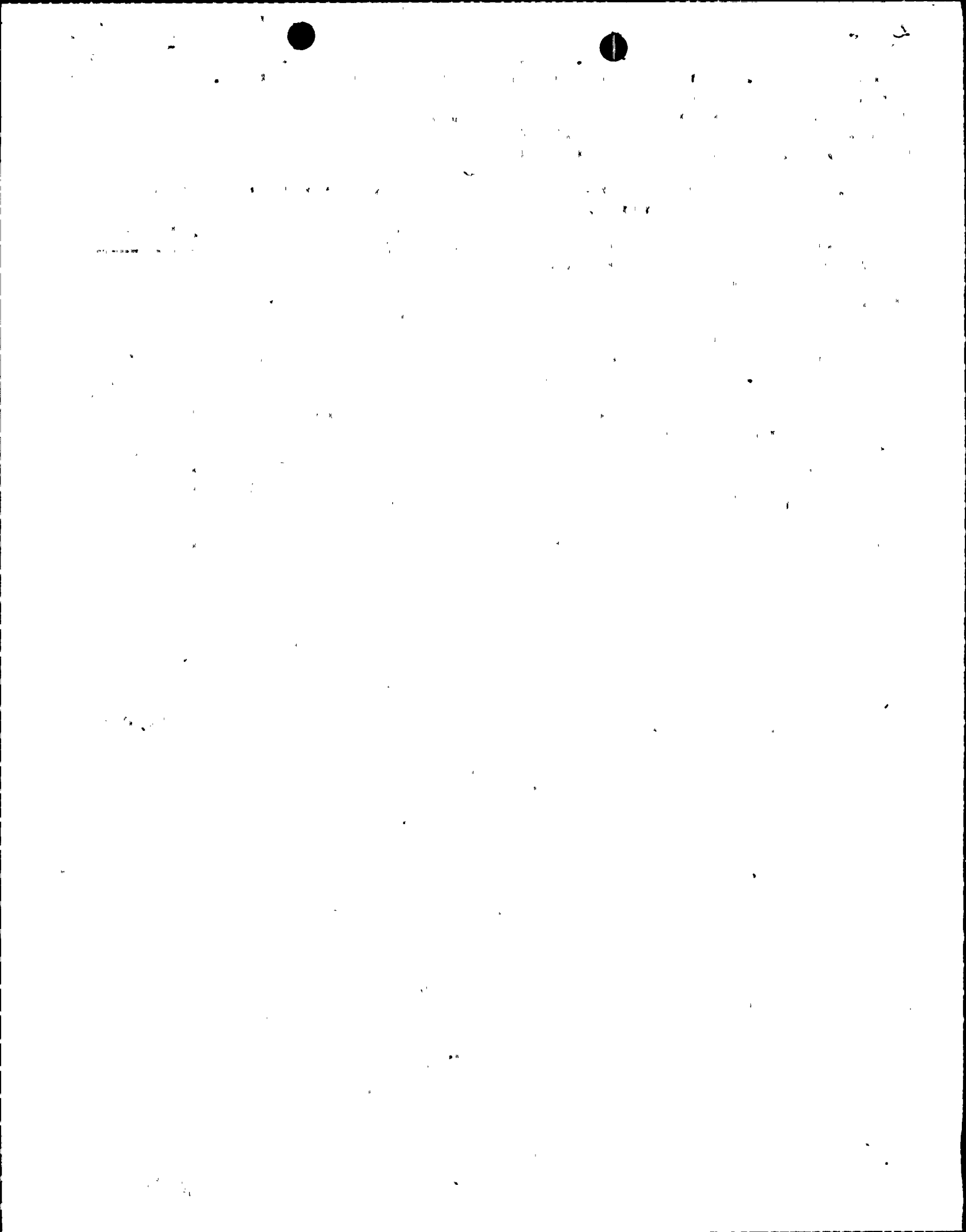
ACTION:	RECIPIENT:	COPIES	COPIES		RECIPIENT:	COPIES	COPIES	
	ID CODE/NAME:		LTR	ENCL	ID CODE/NAME:		LTR	ENCL
	CLARK, R.	04	7	7				
INTERNAL:	AEOD		1	1	GEN ISSUES BR13	1	1	
	I&C SYS BR	09	1	1	I&E	06	2	2
	MPA	18	1	1	NRC PDR	02	1	1
	OELD	17	1	1	OP EX EVALI BR11	1	1	
	OR ASSESS BR	12	1	1	POWER SYS BR	14	1	1
	<u>REG FILE</u>	01	1	1				
EXTERNAL:	ACRS	16	16	16	LPDR	03	1	1
	NSIC	05	1	1				

NOV 26 1980

MR 4

TOTAL NUMBER OF COPIES REQUIRED: LTR 37 ENCL 37

L.S.



RECEIVED DISTRIBUTION
SERVICES UNIT

1980 NOV 24 PM 3 03

US HRC
DISTRIBUTION SERVICES
BRANCH



November 18, 1980
L-80-384

Office of Nuclear Reactor Regulation
Attention: Mr. Darrell G. Eisenhut, Director
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

Re: St. Lucie Unit 1
Docket No. 50-335
Loss of AC Power

The attached information is submitted in response to your letter of
October 10, 1980.

Very truly yours,

A handwritten signature in cursive script, appearing to read "R. Uhrig".

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/MAS/md

cc: J.P. O'Reilly, Region II
Harold F. Reis, Esquire

A015
s
1/1

8011250193

NOTICE

NOV 2 1964

RECEIVED

RE: ST. LUCIE UNIT 1
DOCKET NO. 50-335
LOSS OF AC POWER
Page 1 of 6

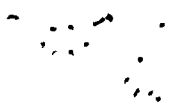
In response to the NRC Atomic Safety and Licensing Appeal Board's Decision (ALAB-603) issued on July 30, 1980, the Florida Power and Light Company initiated a study addressing the issues necessary to demonstrate the ability of St. Lucie Unit No. 2 to be safety controlled through the total loss of ac power. This study includes the additional sources of onsite ac power, the evaluation of vital systems and components, and RCS and steam generator transient responses to the loss of ac power.

Recognizing the parity between St. Lucie Unit No. 2 and St. Lucie Unit No. 1 in this area, Florida Power and Light will modify, as applicable, the results of the study, already in progress, for St. Lucie Unit No. 1 and demonstrate its ability to be safety controlled through a total loss of ac power. This study is expected to be completed by June 1981.

In addition, the following paragraphs address several NRC items listed in its letter of October 10, 1980 on this subject.

- With respect to the adequacy of stored transferrable secondary coolant inventories:

In the event of loss of offsite as well as onsite ac power at St. Lucie Unit 1, water inventory required to remove decay heat from the core through



the steam generators is available in the condensate storage tank. The tank has sufficient volume to allow the reactor to be maintained at hot standby for at least 8 hours following a reactor trip. The 250,000 gallon design capacity tank, of which 116,000 gallons is the minimum technical specification limit, may be supplemented with an additional 1,000,000 or so gallons (design capacity) of fresh water storage on site. It is reasonable to conclude that during the initial 8 hours, when technical specification condensate storage is being consumed, portable pumps or other means can be made available to replenish Unit 1's condensate storage tank, and that core heat up due to lack of steam generator makeup is not a real-world concern.

- Regarding the desirability of using atmospheric steam dump valves for steam flow control:

Removal of decay heat during an ac power outage can be achieved through the operation of the steam turbine driven auxiliary feed water pump and the atmospheric dump valves.

An atmospheric dump valve is connected to each main steam line upstream of the steam line isolation valve. Together the two valves have the capacity to dissipate decay heat at the level existing immediately following reactor shutdown.

The atmospheric dump valves are pneumatically controlled. However, air is not required to maintain safe conditions. The dump valves will fail closed in which case the valves can be operated by local manual means.



In the event of loss of air (i.e., loss of all ac power) the main steam safety valves will provide steam relieving capacity until the dump valves can be brought under local control.

- With respect to the integrity of RCP seals following a loss of component cooling:

The integrity of the reactor coolant pump seals of the type used in the St. Lucie Unit 1 reactor coolant pumps was tested in a simulated environmental qualification test conducted at the pump manufacturers test facility. This full-scale test simulated all the conditions of temperature, pressure and fluid flow that would be experienced in a loss of ac power event when seal cooling is interrupted and the pump shaft stopped. It was the intent of the test to observe the effects of loss of cooling to the seals over a four hour period which would represent an extended loss of ac power event. After four hours without any cooling water flow there was no observed increase in seal leakage although the seal temperatures had quickly risen to over 400 °F and system pressure was maintained at 2500 psi. The test was continued for over 50 hours and at no time did seal leakage increase. This test has demonstrated that the reactor coolant pump seals will maintain their integrity through an extended loss of ac power event. Although this test was performed to satisfy a commitment associated with the St. Lucie Unit 2 loss of ac power review, the information is directly applicable to St. Lucie Unit 1 which utilizes duplicate RCP seals. The test reaffirms that the RCP seals used in St. Lucie Unit 1 will withstand

the environment associated with a sustained loss of ac power and will not degrade the reactor coolant pressure boundary.

- Regarding the availability of instrumentation and lighting:

The safety related instrumentation is fed from the Nuclear Instrumentation Inverters 1A, 1B, 1C, and 1D. The 1A and 1C inverters receive their power from the A battery while the 1B and 1D inverters receive theirs from the B battery. Thus safety related instrumentation is independent of loss of ac power.

As a backup to St. Lucie Unit No. 1 normal/emergency ac lighting system, there are battery packs capable of supplying four hours of lighting necessary to allow the orderly maintenance and continuance of plant operations. In addition to this lighting, the control room is supplied with redundant emergency dc lighting energized from separate station batteries.

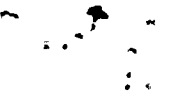
- With respect to the existence of an ac power independent AFW pump and flow path:

During a loss of all ac power at St. Lucie Unit 1, the steam turbine driven auxiliary feedwater pump is capable of providing condensate to the steam generators for decay heat removal. The water flow path from the condensate storage tank through the pump to the steam generators may be established by local manual means. The valves required to be positioned are presently AC motor driven; however, in the event of power loss, handwheels are provided for emergency hand operation.

The steam turbine driven auxiliary feedwater pump operated with steam from the steam generators is capable of local manual control. Upon loss of ac power, remote automatic and remote manual control from the control room is lost. However, the turbine's throttle valve is provided with a hand wheel for manual operation. The steam generator inventory may be brought back to its normal level and maintained. It should be noted that the operation of the auxiliary feedwater system independent of ac power is presently being investigated in relation to other NRC guidance along with the TMI Lessons Learned AFW system modifications.

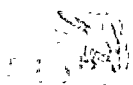
- Regarding the need for periodic testing of diesel generators per Regulatory Guide 1.108:

Florida Power and Light Company has had several discussions with the NRC staff concerning the application of Regulatory Guide 1.108 testing requirements to the St. Lucie Unit 1 emergency diesel generator sets. Based on these discussions and correspondence with our diesel generator set manufacturer, FPL has committed to a periodic testing program that is responsive to the intent of Regulatory Guide 1.108. This commitment was contained in a letter from FPL to the NRC (R.E. Uhrig to V. Stello, letter No. L-78-289) on September 5, 1978. Certain modifications to R. G. 1.108 testing criteria that were necessitated by our particular diesel generator set design were also described and explained in that letter along with the detailed technical specifications that have been incorporated into the St. Lucie Unit 1 procedures. FPL is committed to



PSL 1
DOCKET NO. 50-335
LOSS OF AC POWER
Page 6 of 6

a testing program designed to assure the reliability of our onsite emergency power supply.

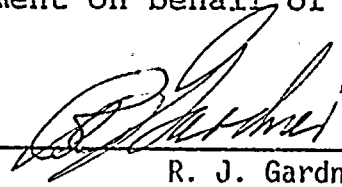


STATE OF FLORIDA)
) ss.
COUNTY OF DADE)

 R. J. Gardner , being first duly sworn, deposes and says:

That he is Vice President of Florida Power & Light Company, the Licensee herein;

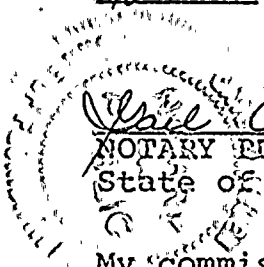
That he has executed the foregoing document; that the statements made in this said document are true and correct to the best of his knowledge, information, and belief, and that he is authorized to execute the document on behalf of said licensee.



R. J. Gardner

Subscribed and sworn to before me this

18th day of November, 19 80



 C. Allen
NOTARY PUBLIC, in and for the County of Dade,
State of Florida

My commission expires: NOTARY PUBLIC STATE OF FLORIDA AT LARGE
 MY COMMISSION EXPIRES APR. 2 1982
 FOUNDED THRU GENERAL INS. UNDERWRITERS

10/10/10

RECEIVED
10/10/10

