Florida Power
CORPORATION

Crystal River Unit 3
Docket No. 50-302

May 29, 1992
3F0592-19

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

Subject: Licensee Event Report (LER) 92-05

Dear Sir:

Enclosed is Licensee Event Report (LER) 92-05 which is submitted in accordance with 10 CFR 50.73.

Sincerely,

Gary Boldt

G. L. Boldt
Vice President
Nuclear Production

EEF:mag

Enclosure

xc: Regional Administrator, Region II
Project Manager, NRR
Senior Resident Inspector

IE22

NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HOURS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
CRYSTAL RIVER UNIT 3 (CR-3)	0 5 0 0 0 3 0 2	1 OF 0 3

TITLE (4)

Emergency Diesel Generator Could Exceed Maximum Rating For Certain Makeup Pump Operational Lineups Due To Not Analyzing The Condition Of Loss Of Offsite Power Coincidental With Engineered Safeguards Actuation During Surveillance Testing

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)
0 4	2 9	9 2	9 2	0 0 5	0 0	0 5	2 9	9 2	N/A	0 5 0 0 0
									N/A	0 5 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)			
1	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 6 3	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 (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	20.405(a)(1)(iv)	X 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	TELEPHONE NUMBER
W. A. Stephenson, Nuclear Safety Supervisor	AREA CODE 9 0 4 7 9 5 - 6 4 8 6

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

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

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On April 29, 1992, Crystal River Unit 3 was operating in MODE 1 (POWER OPERATION) at 63% of RATED THERMAL POWER. It was determined by Florida Power Corporation engineering that during surveillance testing of either Emergency Diesel Generator (EDG) with the EDG running in parallel with its respective 4160 volt ES bus, if a loss of offsite power (LOOP) were to occur coincident with an Engineered Safeguards (ES) actuation, the EDG engine could be overloaded beyond its maximum rating of 3500 kilowatts (kw) and may stall. In this scenario, the overloading of the affected EDG will only occur if the running makeup pump (MUP) is not selected for ES response and is being powered from the ES bus associated with the testing. This potential for overloading the EDG is a result of not recognizing and analyzing the consequences of a LOOP event, coincident with ES actuation, with EDG surveillance testing in progress. Both EDGs were being maintained in normal standby at the time of identification of this condition. No immediate action was required. Plant surveillance procedures for monthly functional testing of both EDGs are being revised to specify that the running MUP be ES-selected if powered from the ES bus associated with the test. Other plant procedures which involve running an EDG paralleled to the switchyard are also being reviewed.

EVENT DESCRIPTION:

On April 29, 1992, Crystal River Unit 3 was operating in MODE 1 (POWER OPERATION) at 63% of RATED THERMAL POWER and 579 MW_e. At 1230, it was determined by Florida Power Corporation engineering that during surveillance testing of either Emergency Diesel Generator (EDG) [EK] with the EDG running in parallel with its respective 4160V (volt) ES bus, if a loss of offsite power (LOOP) were to occur coincident with an Engineered Safeguards (ES) actuation, the EDG engine could be overloaded beyond its maximum rating of 3500 kilowatts (kw) and may stall. In this scenario, the overloading of the affected EDG will only occur if the running makeup pump (MUP) [CB, P] is not selected for ES response and is being powered from the ES bus associated with the testing. If this MUP selection is not made, during the ensuing block loading, the running EDG would attempt to power two MUPs as well as the other ES loads associated with that bus. Both EDGs were being maintained in normal standby at the time of identification of this condition. No immediate action was required. The event was reported to the Nuclear Regulatory Commission at 1308 via the Emergency Notification System per 10CFR50.72(b)(1)(ii)(B). This report is being submitted in accordance with 10CFR50.73(a)(2)(ii)(B).

CAUSE OF EVENT:

The potential for exceeding the EDG maximum loading limitation of 3500 kw is a result of not recognizing and analyzing the consequences of a LOOP event, coincident with ES actuation, with EDG surveillance testing in progress.

EVENT ANALYSIS:

Assuming that surveillance testing of one of the EDGs is underway and the running MUP is not ES-selected and is being powered from the same 4160V ES bus that the EDG is aligned to in parallel with the switchyard [FK], an unlikely situation could occur where both the "A" and "B" trains of ES would be rendered unavailable simultaneously. This postulated scenario would involve a Loss-of-Offsite-Power (LOOP) event, coincident with ES actuation, with the single failure of the remaining EDG to start. The running MUP would not be tripped on undervoltage at the onset of the LOOP event since the EDG under surveillance is already running and is thus maintaining the voltage on the bus. Upon block loading of the EDG, there will be two running MUPs loaded onto the EDG in addition to the other ES loads on the bus, resulting in the maximum loading limitation of 3500 kw being exceeded. This loading has been verified via engineering calculations.

It is important to note that there is no design feature for automatic tripping of the EDG output breaker [BKR] on overload once the following conditions are met: ES actuation has occurred; an undervoltage condition exists on the associated 4160V ES bus; and the EDG output breaker has closed. Sustained overload beyond the EDG rating could cause the EDG engine to stall. Assuming a failure of the other EDG

to start upon receipt of an automatic or manual start signal, there would be no power to either ES bus; and thus no running ES equipment once the overloaded EDG engine stalled.

Although the specific set of circumstances leading to this plant configuration is considered highly improbable, the loss of all alternating current (AC) power to the ES buses, i.e., station blackout, is a casualty addressed by the plant's abnormal operating procedures. The initial goal of the relevant procedure is to establish the plant in steady state MODE 3 (HOT STANDBY) conditions, until an AC power source can be established, using equipment that would still be available. Most notably, this would include the turbine [TRB] driven emergency feedwater pump [BA, P], the atmospheric dump valves [PCV], and a minimum of direct current powered equipment. This procedure has been tested repeatedly utilizing CR-3's plant specific simulator, which has a remote shutdown panel and models remote shutdown features, and has proven to be extremely effective at enabling plant operators to achieve and maintain stable plant conditions while recovering the plant's vital AC sources and equipment. The procedural guidelines place heavy emphasis on maintaining the health and safety of site personnel and the general public.

CORRECTIVE ACTION:

The plant surveillance procedures for monthly functional testing of both EDGs, EGDG-1A and EGDG-1B, are being revised to specify that the running MUP be ES-selected if powered from the ES bus associated with the test. This action will be completed prior to the next scheduled surveillance testing of either EDG. Additionally, other plant procedures which involve running an EDG paralleled to the switchyard are being reviewed for similar situations.

PREVIOUS SIMILAR EVENTS:

There have been 18 LERs submitted since 1980 related to the EDGs.