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SUBJECT: Special rept: on 901017, use of alternate power source makes standby shutdown facility technically inoperable.

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DUKE POWER

November 26, 1990

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287
Special Report Concerning Use of Alternate
Power Source Makes Standby Shutdown Facility
Technically Inoperable Due to Defective Procedure

Gentlemen:

This report is provided for information regarding the use of alternate power source makes the Standby Shutdown Facility technically inoperable.

If you have any questions, please contact Rick Matheson at (803) 885-3119.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'H. B. Barron'.

H. B. Barron
Station Manager

/ftr

Attachment

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NRC Resident Inspector
Oconee Nuclear Station

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1100 Circle 75 Parkway
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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. 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.

FACILITY NAME (1)

Oconee Nuclear Station, Unit 1

DOCKET NUMBER (2)

0 5 0 0 0 2 6 9 1 OF 0 6

PAGE (3)

TITLE (4) Use of Alternate Power Source Makes Standby Shutdown Facility Technically Inoperable Due to Defective Procedure

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)					
1	0	1	7	9	0	9	0	1	1	2	6	9	0	Oconee, Unit 2	0 5 0 0 0 2 7 0
														Oconee, Unit 3	0 5 0 0 0 2 8 7

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10)	1 0 0	20.402(b)		20.405(a)(1)(i)		20.405(c)		50.73(a)(2)(iv)		73.71(b)	
		20.405(a)(1)(ii)		50.36(e)(1)		50.73(a)(2)(v)		50.73(a)(2)(vi)		73.71(c)	
		20.405(a)(1)(iii)		50.36(e)(2)		50.73(a)(2)(vii)		50.73(a)(2)(viii)(A)		<input checked="" type="checkbox"/> OTHER (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)		50.73(a)(2)(ix)		Special Report	
		20.405(a)(1)(v)		50.73(a)(2)(iii)							

NAME

LICENSEE CONTACT FOR THIS LER (12)

TELEPHONE NUMBER

Henry R. Lowery, Chairman Oconee Safety Review Group

AREA CODE

8 0 3 8 8 5 - 3 0 3 4

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On October 17, 1990 at approximately 1420 hours, with Unit 2 in a refueling outage and Units 1 and 3 at 100% full power, operators transferred the power supplies for the Standby Shutdown Facility's (SSF) 600 Volt Motor Control Center (MCC) XSF in preparation for a planned functional test of the Emergency Power Switching Logic (EPSL) system. Management decisions had been made earlier to swap the power supplies in order to prevent unnecessary draining of the SSF batteries. At 1850 hours, prior to the start of the EPSL test, an Operations Coordinator (OC) realized that if an SSF Event occurred power would not be received from the diesel generator without re-alignment to the normal supply. Station Security was notified of the SSF's degraded condition. The OC promptly initiated a restricted change to the SSF Emergency Operating Procedure (EOP) to provide specific operator actions for this event scenario. The root cause of this event is classified Defective Procedure due to the lack of operator instructions in the EOP and lack of cautions in the SSF Normal Power Procedure. A contributing cause of Management Deficiency is also assigned due to deficient procedure control. Procedure changes will be implemented to correct these deficiencies.

BACKGROUND

The Standby Shutdown Facility (SSF) is designed to provide an alternate and independent means to achieve and maintain hot shutdown conditions for one or more of the Oconee units, in order to mitigate the consequences of certain postulated events such as fire, flood or industrial sabotage.

The SSF is in addition to and supplements the current shutdown capability described in the Oconee Final Safety Analysis Report.

The SSF power supply is designed to provide normal and independent emergency sources of AC and DC electrical power, their associated electrical distribution systems and various support systems in the SSF. The SSF diesel generator [EIIS:GEN] serves as a dedicated standby AC power source for the Standby Shutdown Facility in an event that normal 4160 VAC power is not available from the ONS Unit 2 Main Feeder Bus. Manual operator action is required to actuate the system.

The SSF power supply includes 4160VAC, 600VAC, 208VAC, 120VAC, and 125VDC power. This system supplies power necessary for the hot shutdown of the reactor in the event of loss of power from all other power systems.

The 125VDC SSF Power System consists of two 125VDC batteries and associated chargers, two DC distribution centers, and a DC power panelboard. This system is designed to provide an uninterruptible source of power for the Oconee Security System and the SSF equipment controls and instrumentation.

Although it is desirable to maintain the SSF operable to mitigate the consequences of certain postulated events, short periods of inoperability are necessary for testing and maintenance to assure a high degree of reliability for the SSF.

The 600V Motor Control Center XSF receives normal power from the 600V Load Center OXSF. It also has an alternate feed from the 600V Load Center 2X11A (located in the station) that is used whenever power from Load Center OXSF is not available. (See attachment 1). A Kirk-Key Interlock scheme is employed on these two incoming breakers [EIIS:BRK] that prevents them from being closed at the same time.

SSF loads powered from MCC XSF are:

- * Fire Protection Systems [EIIS:KP]
- * Sump Pumps
- * Heating Ventilation and Air Conditioning [EIIS:UE]
- * Lighting Panelboard SFL
- * Diesel Engine Auxiliaries
- * Power Panelboard KSF
- * Battery Chargers CFS and CSFS

Operations Management Procedure 2-7 requires the Shift Supervisor to immediately notify Security if the SSF is degraded. Security then implements required action per the Security Plan.

EVENT DESCRIPTION

Prior to the approval of the Emergency Power Switching Logic (EPSL) [EIIS:EK] Test procedure (PT/2/A/0610/01J) on September 17, 1990, the use of the alternate power path through 2X11A was discussed among Performance, Operations Staff, Instrument and Electrical Engineering, and Design Engineering. The decision was made to use this alternate source of power to prevent discharging the Standby Shutdown Facility (SSF) batteries during the EPSL test, which was estimated to take 8 hours.

On September 26, 1990 a restricted procedure change was issued for the Standby Shutdown Facility Emergency Operating Procedure (OP/0/A/1600/11). This procedure change was required so that general maintenance could be performed on the Unit 2 Main Feeder Bus #2 [EIIS:EA]. In order to conduct this maintenance, it was necessary to power the MCC XSF from the alternate power source (2X11A). An Operations Coordinator realized that a procedure change was necessary while power was being supplied from 2X11A. This change provided the operator with instructions to transfer power from the 2X11A power path to the normal supply (OXSF) in the event that it was necessary to power the SSF loads from the diesel generator. This restricted procedure change expired on October 4, 1990 when maintenance was completed on the Unit 2 Main Feeder Bus #2.

On October 17, 1990, at approximately 1420 hours, with Unit 2 in a refueling outage and Units 1 and 3 at 100% full power, operators transferred power on the 600V MCC XSF from the normal to the alternate supply using the SSF Normal Power Procedure (OP/0/A/1600/05). This action was taken to satisfy the prerequisites of the EPSL test procedure, based on management's earlier decision.

At approximately 1650 hours, an Operations Coordinator (OC) remembered that if an SSF Event occurred while the MCC XSF was powered from the alternate source the MCC XSF would not automatically receive emergency power from the diesel generator to supply needed SSF loads. Consequently, the SSF had been technically inoperable for a 2.5 hour period.

At approximately 1655 hours, Security was notified of the SSF degraded condition. The OC initiated a restricted procedure change to add steps to the SSF Emergency Operating Procedure that would direct the operator to transfer the power supply to OXSF in the event that power was needed from the diesel generator. The SSF was declared operable at 1815 hours on October 17, 1990 after approval of the restricted procedure change.

CONCLUSIONS

The root cause of this incident is Defective Procedure, incomplete information. This is due to inadequate procedural guidance to instruct the operator to transfer Motor Control Center (MCC) XSF to its normal supply (OXSF), which would allow power to be supplied from the Standby Shutdown Facility (SSF) diesel generator to the SSF loads if operation of the SSF was required. The SSF Normal Power procedure did not provide any actions or precautions that stated the SSF could be inoperable when using the alternate power path.

A contributing cause of this problem is Management Deficiency, deficient procedure and issuance. Before the Emergency Power Switching Logic Functional Test Procedure was approved, the use of the alternate power source, 2X11A, to prevent discharge of the SSF batteries was discussed. Management should have ensured that proper procedural instructions were in place before the test began. Three weeks earlier a restricted change was made to the SSF Emergency Operating Procedure that should have been installed into the procedure as a permanent change.

This is not a recurring problem.

No component/equipment failure was associated with this incident, therefore, it is not NPRDS reportable. There were no radioactive material releases, radiation exposures or personal injuries as a result of this incident and the health and safety of the public were not compromised.

CORRECTIVE ACTIONS

Immediate

1. Operations notified Security of the technical inoperability of the Standby Shutdown Facility (SSF) and proper compensatory measures were taken per the Security Plan.
2. A restricted change was issued for the Standby Shutdown Facility Emergency Operating Procedure (EOP) OP/O/A/1600/11 which gave the operator instructions to return from alternate power to normal power in the event that the diesel generator was needed. This change was restricted for the duration of the Emergency Power Switching Logic Test during this refueling outage.

Planned

1. Operations will make a permanent procedure change to the SSF EOP to specify the appropriate steps for the proper alignment to the normal power supply. Training will be provided to the operators on the procedure change.

2. Operations will incorporate a caution into the SSF Normal Power procedure to provide information concerning SSF operability when MCC XSF is powered from the alternate source. Training will be provided to the operators on the procedure change.
3. A design basis review of the Standby Shutdown Facility will be performed by Duke's on-going Design Basis Documentation (DBD) program. Information with respect to the alternate power source (2X11A) and its emergency power limitations in regard to this event will be addressed in this future DBD.

SAFETY ANALYSIS

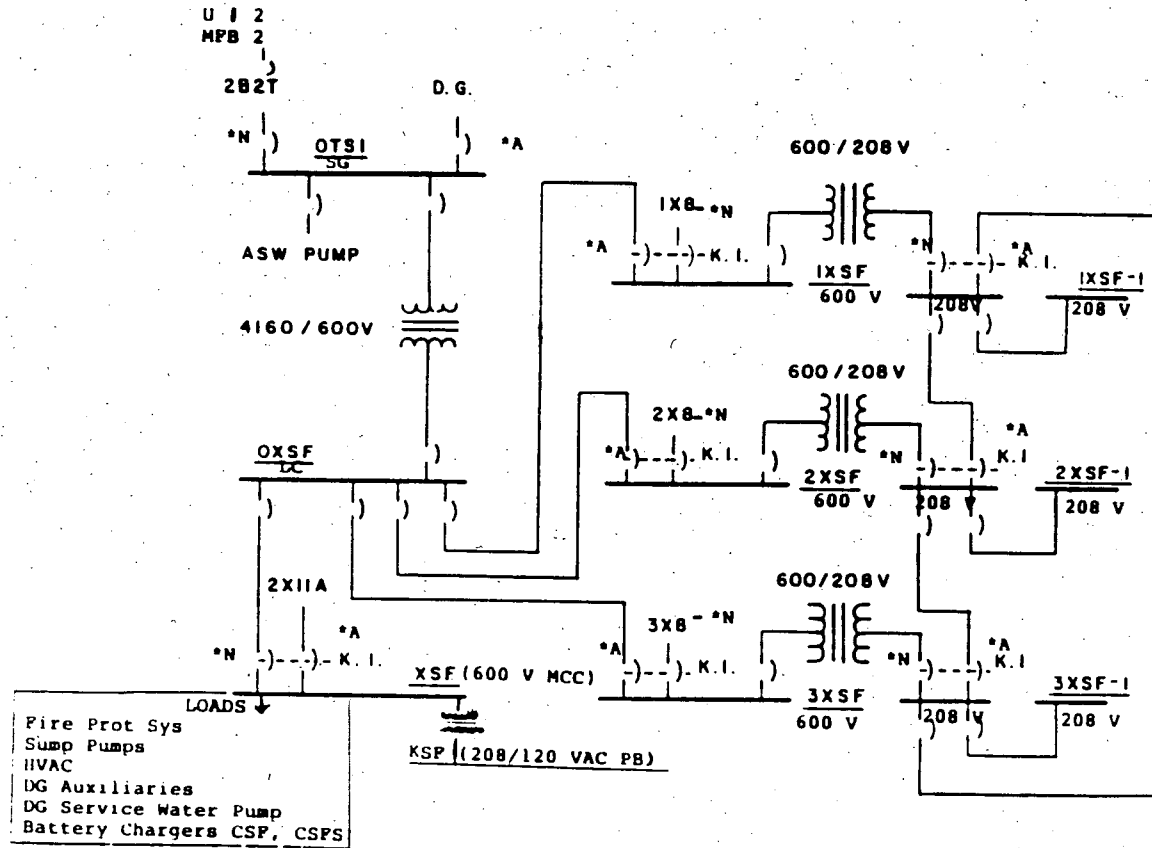
Failure to declare the Standby Shutdown Facility inoperable on October 17, 1990, between the hours of 1420 and 1650, did not adversely impact the safe operation of the station for the following reasons.

1. During the subsequent check of security areas, associated with the SSF compensatory measures, no unusual conditions were observed, indicating that equipment that is usually protected during an SSF degrade would have been available and operable if needed during the time period identified.
2. The security system was not degraded during this event.
3. No unauthorized persons entered the protected area during this event.
4. A security officer was present at Keowee Hydro during this event.

Even though this event required the SSF to be declared inoperable, at no time during this 2.5 hour period was the SSF 600VAC Motor Control Center XSF without power. It was powered from Unit 2's Main Feeder Bus through 2X11A. If an SSF Event had occurred, operator action would have been required to recognize the problem and close in the normal breaker so that required SSF loads could receive emergency power from the diesel generator. However, an SSF Event did not occur, therefore, the SSF diesel generator was not needed. The Oconee Probabilistic Risk Assessment predicts the probability of having an event of this nature to be very small.

The health and safety of the public were not compromised by this incident.

ATTACHMENT 1



SSF ELECTRICAL POWER SYSTEM (EPS)	AC DISTRIBUTION	OC-SSF-EPS-1	6-27-85
		O-0703-K	
		DFR/ARB	
		TRAINING USE ONLY	