From: James V Weast <jvweast@duke-energy.com>
To: <kfo@nrc.gov> R2
Date: 04/27/2004 11:39AM
Subject: SSF SER

I am chasing the TIA that you requested. I found the Inspection Report 87-02 and the concern on spurious actuations. I will try to get it to you this afternoon.

(See attached file: SER for SSF.pdf)

#16

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Mail Envelope Properties (408E7E9F.1C0 : 20 : 45504)

Subject:	SSF SER
Creation Date:	04/27/2004 11:36AM
From:	James V Weast <jvweast@duke-energy.com>
Created By:	jvweast@duke-energy.com

Recipients
nrc.gov
ATL_PO.ATL_DO
KFO (Kathleen O'Donohue)

Post Office	**Route**
ATL_PO.ATL_DO	nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	207	11:36:38 AM 04/27/2004
SER for SSF.pdf	1065998	
Mime.822	1460703	

Options

Expiration Date:	None
Priority:	Standard
Reply Requested:	No
Return Notification:	None
Concealed Subject:	No
Security:	Standard

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 28, 1983

Dockets Nos. 50-269, 50-270
and 50-287

Mr. H. B. Tucker, Vice President
Nuclear Production Department
P. O. Box 33189
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

We have completed our review of the Oconee Nuclear Station Standby Shutdown Facility (SSF) described in your letters dated March 28, 1980, February 16 and March 31, 1981, April 13, September 20 and December 23, 1982. The SSF design was to resolve the safe shutdown requirements for fire protection (Appendix R to 10 CFR 50, Sections III.G.3 and III.L), the turbine building flooding issue and physical security requirements. Our Safety Evaluation (SE) is enclosed.

We find your SSF design meets the appropriate requirements with the exception of process monitoring instruments for source range flux monitoring and steam generator pressure indication. It is our understanding that Duke Power Company desires to appeal this staff requirement on the McGuire, Unit No. 2 and Oconee dockets. We believe that a uniform approach should be taken for all of your units. An appeal meeting for all units, as requested by your March 31, 1983 letter on the McGuire docket will be scheduled in the near future.

While the exception noted above is being resolved, we request that your staff continue their work on the Technical Specifications needed to insure the operability of the SSF components agrees with fire, flooding and security assumptions used in the design. We request such Technical Specifications be proposed about 90 days before the final acceptance of the SSF for Oconee, Unit No. 1.

Our interpretation of Appendix R to 10 CFR 50 is that all necessary repairs will be made and cold shutdown achieved in a 72-hour period. Your previous commitment is to be prepared to make all necessary repairs for cold shutdown and depressurization. We acknowledge that your commitment was submitted prior to issuance of Appendix R. In recent discussions with Mr. R. Gill of your staff, we have learned that Duke Power Company is willing to review the previous commitment on the 72-hour requirement of Appendix R, Section III.L.5 and modify their position or request an exemption from this specific regulation. A mutually agreed upon schedule for this review and submittal of the above results has been determined to be congruent with the requested Technical Specifications.

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The information requested herein affects fewer than 10 respondents and, therefore, OMB clearance is not required under P.L. 96-511. If you have any questions on this letter or the enclosed SE, please contact your assigned NRC Project Manager.

Sincerely,

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Enclosure:
Safety Evaluation

cc w/enclosure:
See next page

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OCONEE NUCLEAR STATION STANDBY SHUTDOWN FACILITY

DUKE POWER COMPANY

DOCKETS NOS. 50-269, 50-270 AND 50-287

1.0 *Introduction*

By letter dated February 1, 1978, Duke Power Company (DPC or the licensee) proposed a standby shutdown system for the Oconee Nuclear Station (ONS), Units Nos. 1, 2 and 3. Such a system would augment existing plant capabilities relative to mitigating postulated occurrences such as fires, turbine building flooding and security incidents. Additional information describing the conceptual design of the standby shutdown system was received by letter dated June 19, 1978; subsequent staff approval of the conceptual design was transmitted to the licensee on December 29, 1978.

In accordance with the conceptual design evaluation; the licensee provided a final design proposal for the system, the standby shutdown facility (SSF), in a March 28, 1980 submittal.

Our review of the March 28, 1980 submittal identified areas where additional information concerning the conformance with the NRC Standard Review Plans (NUREG-75/087) Sections 3.7.3, 3.9.2, 3.9.3 and 3.9.6 was requested by letter dated October 27, 1980. In response to our letter, the licensee submitted its response in letters dated February 16 and March 31, 1981, April 13, September 20 and December 23, 1982.

At the time of the March 28, 1980 submittal, Appendix R was not effective. On February 19, 1981, the fire protection rule for nuclear power plants, Appendix R to 10 CFR 50 became effective. This rule required all licensees of plants licensed prior to January 1, 1979, to submit by March 19, 1981: (1) plans and schedules for meeting the applicable requirements of Appendix R, (2) a design description of any modifications proposed to provide alternative safe shutdown capability pursuant to Paragraph III.G.3 of Appendix R, and (3) exemption requests for which the tolling provisions of Section 50.48(c)(6) was to be invoked. Section III.G of Appendix R is a retrofit item to all pre-1979 plants regardless of previous SER positions and resolutions. Subsequently; DPC provided submittals regarding the use of the SSF to meet

Appendix R requirements for the ONS. The licensee addressed the ONS's post-fire shutdown capability in six letters dated January 25, February 1 and June 19, 1978, March 28, 1980, and March 18 and April 30, 1981. Additional information was provided in the letters dated January 25, September 28 and December 23, 1982. These submittals discuss the various means used to achieve and maintain safe shutdown conditions, determine whether safe shutdown could be achieved without equipment or cabling in any one fire area, and identify any modifications required due to unacceptable interactions caused by a fire.

2.0 System Description

The SSF is a "bunkered" facility which houses the systems and components necessary to provide an alternate and independent means to achieve and maintain a hot shutdown condition for one or more of the three Oconee units. The SSF was designed to resolve the safe shutdown requirement for fire protection, turbine building flooding and physical security. The SSF is to have the capability of maintaining hot shutdown conditions in all three units for approximately three days following a loss of normal AC power. The subsystems that make up the SSF are described below.

2.1 Reactor Coolant (RC) Makeup Subsystem

The SSF RC makeup subsystem is designed to supply makeup to the reactor coolant system (RCS) in the event that normal makeup systems are unavailable. The capacity of this subsystem is sized to account for normal RCS leakage and shrinkage which results from going from a hot power operating condition to hot shutdown.

The primary component of each SSF RC makeup subsystem is the 26 gpm high head makeup pumps. One pump is provided for each of the three units; each pump will be located in its respective reactor building. The design capacity is sufficient to maintain RCS inventory during the transition from power operations to hot shutdown. The makeup source is either Unit 1 and 2's or Unit 3's spent fuel pool, thus ensuring a large supply of borated water. Letdown, when required, is returned to the spent fuel pool. The letdown valve is powered from the SSF power system and is controlled from the SSF control room. Capability to operate one bank of pressurizer heaters per unit allow pressure control of the RCS by the pressurizer. Overpressurization protection is provided by the existing relief valves. This subsystem is designed to seismic Category I and Quality Group B requirements. Failure of the SSF RC makeup subsystem components will not affect the operation of the normal "in plant" components. The SSF RC makeup subsystem is operated and/or tested only from the SSF control room.

2.2 Auxiliary Service Water Subsystem

The SSF auxiliary service water subsystem (SSFASW) is a high head, high volume system designed to provide sufficient steam generator inventory for adequate decay heat removal for all three units during a loss of normal AC power in conjunction with the loss of the normal and emergency feedwater systems.

The SSFASW pump is the major component of the system, and is housed in the SSF building. The single motor driven pump, powered from the SSF power supply, has a design output of 2250 gpm. A non-isolated 500 gpm recirculation line is provided to protect the pump. This leaves 580 gpm at full system pressure to each of the three units for approximately three days. This is above the calculated 500 gpm required to remove decay heat from a shutdown unit.

The water contained in the buried condenser circulating water (CCW) piping for Unit No. 2 serves as the water supply. The buried portion of the CCW piping is designed to withstand the effects of a seismic event. The SSFASW is designed to seismic Category I and Quality Group B and C requirements. Failure of the SSFASW components will not affect the operation of the normal "in-plant" components. The SSFASW is operated and/or tested only from the SSF control room.

2.3 Electrical Power Supply

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. The SSF diesel generator would be operated only in the event installed normal power systems are inoperable. Manual operator action is required to actuate this system.

The SSF power supply includes onsite 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. It consists of switch-gear, a load center, ten motor control centers, panelboards, remote starters, batteries, battery chargers, two inverters, a diesel powered electrical generator unit, relays, control devices, and interconnecting cable supplying the appropriate loads.

The inverter supplied 120VAC power system supplying the security system circuits in conjunction with the 120VDC instrumentation and control power system supplies continuous control power to all loads that are required for a hot shutdown of the reactor.

2.3.1 Normal AC Power Supply

The 4160 volt SSF power system is provided for normal and backup service and is normally energized from plant switchgear B2T with all breakers on the bus in the closed position. Upon loss of the normal power supply, the 4160 VAC SSF power system will provide power to the necessary loads to safely shutdown the unit by an onsite diesel-electric generator (see Section 2.3.2 for further discussion) which is independent of the normal power distribution system. All of the loads required for hot shutdown of the reactor are supplied power during loss of the normal distribution system from the 4160 VAC SSF power system, either directly (for the high head auxiliary service water pump) or through transformer(s) if at a lower voltage.