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SUBJECT: Forwards suppl to 840928 response to Reg Guide 1.97, as addressed in Suppl 1 to NUREG-0737 re comparison of plant specific variables. Mods to replace accident monitoring instrumentation will be implemented during outages.      D  
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**DUKE POWER**

April 29, 1993

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

Subject: Duke Power Company  
Oconee Nuclear Station  
Docket No. 50-269, 270, 287  
Regulatory Guide 1.97

By letter dated September 28, 1984 Duke Power Company submitted it's response to Regulatory Guide 1.97 as addressed in Supplement 1 in NUREG-0737. In this response the Comparison of Plant Specific Variables With Regulatory Guide 1.97, Rev. 2, Variable D-30, Component Cooling Water Flow To ESF Systems, on page 5-64, stated in part, Low Pressure Service Water (LPSW) header pressure is a valid measurement of system and pump operation. Based on the results of recent LPSW testing, Duke has found this indication alone does not provide data in sufficient detail to fully monitor the performance of the LPSW System in regards to flow balance. As a result of this conclusion Duke is in the process of replacing the instrumentation monitoring LPSW flow to the LPI Coolers with instrumentation meeting Type A, Category 1 requirements (as clarified in Section 5.5 of the September 28, 1984 response) of Regulatory Guide 1.97. The modifications to replace the instrumentation will be implemented during the up coming refueling outages for each unit. The current schedule is as follows: Unit 1 EOC15, April 1994; Unit 2 EOC 13, April 1993; Unit 3 EOC 14, December 1993.

Until such time this instrumentation can be replaced Duke will continue to use the existing instrumentation. This instrumentation and power cables are in a mild environment and are not subject to post accident conditions. The power supply for the instrumentation comes from nonload shed, safety batteries giving them an uninterruptable, reliable power supply. The instrumentation is mounted in accordance with the design specification requirements for QA Condition 4 seismic qualification. The Rosemount model 1151 electronic transmitters and Dixon indicators currently installed, while not QA, are with a few minor exceptions physically equivalent to the QA instruments to be installed to meet the Regulatory Guide requirements for Type A, Category 1 instrumentation and have a proven history of reliability. Based on the above, the existing instrumentation is acceptable to monitor the performance of LPSW flow to the LPI cooler until the instrumentation is replaced as scheduled above.

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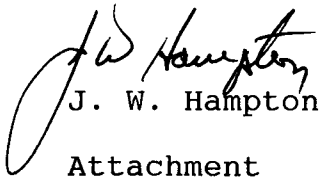
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Attached is Revision 7 to the Duke Power Company Oconee Nuclear Station Response to Supplement 1 To NUREG-0737, addressing the revised position for the variable discussed above.

If you have any questions or need further information you may contact M. E. Patrick at (803) 885-3292.

Very truly yours,

  
J. W. Hampton  
Attachment

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DUKE POWER COMPANY  
OCONEE NUCLEAR STATION

Response to Supplement 1 To NUREG-0737  
Document Revision Transmittal

Revision Number 7

Instructions

Revise Volume 2 as Described Below:

Remove

Page 5-3, Revision 6  
.....  
Page 5-64, Revision 6

Insert

Page 5-3, Revision 7  
Page 5-26a, Revision 0  
Page 5-64, Revision 7

## 5.5 DUKE POWER COMPANY POSITION ON ACCIDENT MONITORING INSTRUMENTATION

### 5.5.1 Accident-Monitoring Instrumentation

The criteria and requirements contained in ANSI/ANS-4.5-1980, "Criteria for Accident Monitoring Functions in Light-Water Cooled Reactors," are considered by Duke Power to be generally acceptable for providing instrumentation to monitor variables for accident conditions subject to the clarifications defined below.

#### 5.5.1.1 TYPE A Variables

Type A variables are defined as those variables which are monitored to provide the primary information required to permit the Control Room operator to take specific manually controlled actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for design basis accidents. Primary information is defined as that which is essential for the direct accomplishment of the specified safety functions; it does not include those variables associated with contingency actions which may also be identified in written procedures.

The following variables are those determined to be Type A for Oconee Nuclear Station, as defined above:

- Reactor Coolant System Pressure
- Incore T/C Temperature
- Pressurizer Level
- Degrees of Subcooling
- Steam Generator Level
- Steam Generator Pressure
- Borated Water Storage Tank Level
- High Pressure Injection Flow
- Low Pressure Injection Flow
- Reactor Building Spray Flow
- Reactor Building Hydrogen Concentration
- Upper Surge Tank Level
- Low Pressure Service Water Flow to Low Pressure Injection (LPI) Coolers

#### 5.5.1.2 TYPE B and C Variables

Type B and C variable selection is based on the SPDS Critical Safety Functions. The SPDS is provided as an aid to the Control Room operating crew in monitoring the status of the Critical Safety Functions. The Critical Safety Functions monitored are those defined in the SPDS Critical Safety Function Fault Trees. The SPDS provides continuous status updated at regular intervals of the Critical Safety Functions.

Since these Critical Safety Functions constitute the basis of the Oconee SPDS, it is Duke Power's position that they should also be identified as the plant safety functions for accident monitoring (i.e., the basis for Type B & C variable selection).

OCONEE NUCLEAR STATION

REGULATORY GUIDE 1.97, REV. 2 REVIEW

A-13 Variable: Low Pressure Service Water Flow to Decay Heat  
D-30 Removal Coolers (Low Pressure Injection-LPI Coolers)

Range: 0 to 8000 GPM

Category: 1

Existing Design: The Oconee system for providing cooling water to the Decay Heat Removal Coolers (LPI Coolers) is the Low Pressure Service Water System (LPSW). Primary indication of proper LPSW operation to support the LPI Coolers is inlet and outlet flow through each of the two LPI Coolers. The indicated range is 0 to 6000 GPM. The instruments are located in a mild environment. The existing instrumentation is powered from the vital instrumentation and control inverters.

Compliance: The instrumentation presently available for monitoring LPSW flow through the LPI Coolers does not comply with the seismic qualification recommendations in RG 1.97, Rev. 2.

Display: Two Indicators (one per train)  
Two Computer Points  
Two Channels continuously recorded

Position: One upgraded QA Condition 1 channel of flow instrumentation, per train, for the LPSW Flow to LPI Coolers will be installed. These instrumentation loops will be powered from safety grade emergency power sources. The indication readouts will be located in the control room in a mild environment. The range for the readouts will be 0-8000 GPM. The upgraded instrumentation will be adequate for the intended monitoring function. This variable is an addition to the existing Type A/Category 1 variables list due to operator monitoring requirements during postulated plant conditions.

Implementation Schedule: These changes will be implemented on Oconee Unit 1 during EOC-15 refueling scheduled April 1994, on Oconee Unit 2 during EOC-13 refueling scheduled April 1993 and on Oconee Unit 3 during EOC-14 refueling scheduled December 1993.

## OCONEE NUCLEAR STATION

### REGULATORY GUIDE 1.97, REV. 2 REVIEW

D-30 Variable: Component Cooling Water Flow to ESF Systems

Range: 0 to 110% Design Flow

Category: 2

Existing Design: The Oconee system for providing cooling water to ESF components is the Low Pressure Service Water System (LPSW). Primary indication of proper LPSW system and pump operation is line pressure measured in each of two headers. The indicated range is 0 to 160 psig for a system design pressure of 78 psig. These instruments are pneumatic and are supplied by the normal Station Air System. The instruments are located in a mild environment. Additional instruments provide backup indication in the control room of proper system operation. These include LPSW pump motor amperage, valve position indication on valves operated in the control room, inlet and/or outlet cooling water flow for certain ESF coolers, and flow and pressure alarms.

Compliance: The measured variable is different than the recommendation of RG 1.97, Rev. 2. The power source of the measured variable does not meet Category 2 recommendations. Some of the backup instrumentation does not meet Category 2 recommendations.

Display: Two indicators

Position: LPSW header pressure is a valid measurement of system and pump operation and Duke considers the existing indications to meet the intent of RG 1.97, Rev. 2 as clarified in Section 5.5 with the exception of the Low Pressure Injection (LPI) Coolers. A power supply (air or electrical) that meets Category 2 recommendations (as clarified in Section 5.5) will be provided for the LPSW header pressure instruments. For backup variables, a design qualification of Category 3 is adequate for the intended monitoring functions and consistent with the performance expectations of the instrumentation. For LPSW flow to the LPI Coolers, Duke proposes to add one channel of QA Condition 1 instrumentation, per train, to adequately monitor LPSW flow during certain postulated plant transient conditions. See RG 1.97 Variable A-13 for further details.

Implementation Schedule: Implementation of changes proposed as part of the Oconee RG 1.97, Rev. 2 Review, will be integrated with changes identified in HED solutions as part of the Control Room Design Review. RG 1.97, Rev. 2 related changes will be completed prior to or in conjunction with the scheduled final completion of HED solutions as described in Appendix D to Section 3.4.