December 6, 1990

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

Distribution:
See attached list

LICENSEE: Duke Power Company

FACILITY: Oconee Nuclear Station, Units 1, 2 and 3

SUBJECT: SUMMARY OF NOVEMBER 14, 1990 MEETING WITH DUKE POWER CONCERNING REVISION TO OCONEE'S INSERVICE TESTING PROGRAM

On November 14, 1990, representatives of Duke Power Company (DPC) made a presentation to the NRC concerning revisions to the inservice testing (IST) program at the Oconee Nuclear Station and the associated DPC response to Generic Letter (GL) 89-04. The meeting was held at DPC's request in order to brief the appropriate NRC technical staff on the significant changes to the program and discuss the schedule for implementation of the changes.

The DPC presentation began with an overview of the history of the IST program development at Oconee. This was followed by a discussion of the scope of valve testing under the new program. DPC indicated they were including valves in the testing program that were important to safety but not required by FSAR Chapter 15 analyses and in addition were creating a 10 CFR 50, Appendix B valve testing program. The NRC representatives noted that the NRC had never interpreted IST testing to be restricted to components considered safety significant by FSAR Chapter 15 analyses. A discussion was also held on the general subject of pressure isolation valve testing.

An open discussion was then held on DPC's response to GL 89-04. The discussion focused on check valve testing and various methods of verifying proper functioning of check valves when reverse flow testing is not practical. The meeting concluded with a discussion of the implementation schedule of the revised program, with the NRC expressing concern at the extended time period for implementing both steps of the program. This schedule will be the subject of future discussions between the licensee and NRC staffs.

Meeting attendees are listed in Enclosure 1. A meeting agenda and a handout distributed during the presentation are provided in Enclosure 2.

Original signed by:

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Enclosures:
As stated

cc w/encl:
See next page

PM:PDII3	D:PDII3
LWiens:sa	DMatthews
12/4/90	12/4/90

OFFICIAL RECORD COPY
Document Name: OCONEE MEETING SUMMARY 11/14

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Enclosure 1

ATTENDEES

NAME	ORGANIZATION
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Ken Dempsey	EMEB, NRR
Len Wiens	PDII-3, NRR
Keith Poertner	Oconee Res. Insp.
James Witherspoon	Duke Power Co.
Leland Hawthorne	Duke Power Co.
Otto Kohler	Duke Power Co.
Mark E. Patrick	Duke Power Co.
Stephen G. Benesole	Duke Power Co.

Enclosure 2

AGENDA
NOVEMBER 14, 1990

I. **Oconee Design History**
- Prior to Section XI, valves and pumps were tested in accordance with Tech Specs.
- Valve testing was not much more than checking remote indications from Control Room.

II. **Original IST Program**
- April 1976 - 10CFR50.55a incorporated ASME Code, Section XI.
- October 1976 - Oconee submitted its first IST program and Tech Specs incorporated Section XI.
- April 1977 - NRC requested additional information on Oconee's first submittal.
- March 1978 - NRC granted blanket approval based on the IST program being an upgrade from Tech Specs.
- March 1982 - Detailed review completed and NRC issues SER for all three units.
- 1984 - Second IST program interval which was a rollover of the first interval.

III. **Active Valve List**
- Originally requested February 1987
- Why: Design needed way to maintain list of valves taken credit for in different scenarios/conditions to better evaluate Design Basis questions (without recreating Design Basis every time).
- Also helped:
  1) QA for QC inspections of active components;
  2) Performance for IWV Testing;
  3) Maintenance for determining which valves to put into program.
- In creating, AVL looked not only at Design Basis questions, but other lists created by other groups (Maintenance, Performance) to verify all necessary valves covered.
- AVL was well established when GL89-04 issued.
- With new Design Basis Documents being prepared, AVL is subject to change and IST program will be changed accordingly.

AGENDA
NOVEMBER 14, 1990

IV. **IST Upgrade/Appendix B Development**
- Significant number of valves changed to full flow.
- Increase in the number of components tested under these programs.

V. **89-04 Response**
- Open discussion

RLG

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DUKE POWER

November 1, 1990

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

Subject: Oconee Nuclear Station
Docket Nos. 50-269, 50-270, 50-287
Generic Letter 89-04

NRC Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing (IST) Programs, was issued on April 3, 1989. Our October 3, 1989 letter in response to GL 89-04 stated that, by today's date, the Oconee Nuclear Station (ONS) IST Program would be reevaluated and updated in light of the GL 89-04 guidance, and forwarded to the NRC. Clarifying information, as requested by the NRC, was provided in our letters of January 12, 1990 and April 19, 1990.

Reevaluation of the ONS IST Program is complete, and the ONS IST Program has been updated. Attachment 1 describes how specific NRC positions in GL 89-04 are addressed, and provides schedule information regarding implementation of further program upgrades. Attachment 2 is the revised ONS IST Program. Attachment 3 lists components included in the "Appendix B" pump and valve testing program.

The revised IST Program fully meets the guidance in GL 89-04, including justification of alternatives to full flow testing for eight check valves on each Oconee unit. In addition, components not subject to 10 CFR 50.55a and ASME Section XI, but which are required to function for safe operation during postulated events, are to be tested within the ONS Appendix B Program. This program, which goes beyond the scope of GL 89-04, meets Criterion XI of 10 CFR 50 Appendix B.

The ONS Active Valve List, as described in Attachment 1, is a part of the technical basis for the scope of the ONS IST Program and Appendix B Program. The Active Valve List is subject to revision, particularly through the Duke Design Basis Documentation Program. In combination with continuing review of the test programs themselves, this causes the Active Valve List, IST Program, and Appendix B Program to be "living documents" which are frequently upgraded. Reporting of changes to the IST Program will continue in accordance with the ONS Technical Specifications. Changes to the Active Valve List and Appendix B Program will normally be made without notification to the NRC.

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Substantial upgrades to the testing programs and their implementing procedures have been necessary to meet GL 89-04 guidance. Inclusion of additional components into the IST implementing procedures, as a result of GL 89-04 guidance, began during the refueling outages of November, 1989 (Unit 3), April, 1990 (Unit 1), and September, 1990 (Unit 2). The total number of components to be tested within the IST and Appendix B Programs has increased from about 1480 to about 1710. Plant modifications have included addition of a full flow test loop for the Emergency Feedwater System (complete on Unit 2).

A meeting to discuss the ONS response to GL 89-04, involving members of my staff and representatives of the Office of Nuclear Reactor Regulation, has been scheduled for November 14, 1990 at the NRC Offices in White Flint, Maryland. I believe that a good understanding of the technical issues involved will be reached in this meeting.

For further information, please contact my staff through normal licensing channels.

Very truly yours,

M. S. Tuckman for

TDC

ATTACHMENTS: 1) Generic Letter 89-04 - Oconee Nuclear Station Positions

2) Oconee Nuclear Station Inservice Testing Program

3) Pumps and Valves Included in Appendix B Program

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GENERIC LETTER 89-04
OCONEE NUCLEAR STATION POSITIONS
Attachment 1

1. Full Flow Testing of Check Valves

As a result of upgrades made to the IST program, the number of check valves that are partial-stroke tested will be reduced from approximately 25 to 8 per Unit. This will have a large impact on ONS resources, but full flow testing will be performed where possible.

In the event check valves cannot be full flow tested the NRC has established check valve disassembly as an acceptable alternative. For the ONS check valves which cannot be full flow tested, factors such as service conditions, failure history, test flow versus design flow, and ALARA considerations should be evaluated when determining whether disassembly should be performed and how often. Disassembly of equipment is not without risk since damage to internals, seating surfaces or misalignment can occur. The effectiveness of partial-stroking should be reviewed on a case-by-case basis.

Based on the above position, ONS has reviewed testing for the 8 valves per Unit that will not be full-stroked under the revised program and determined partial-stroke testing for these valves is an acceptable alternative. Below are the valves to be partial-stroked and justification for acceptability of partial stroking.

<u>CF-11,13 (Units 1, 2, and 3) Core Flood Outlet Check Valves</u>

These valves are partial-flow tested and also leak tested each refueling outage which proves disk movement and alignment. Review of station work history and NPRDS data shows a low incidence of operational failure for these particular model/size valves. These are pressure seal valves and are difficult to disassemble/reassemble. Disassembly could also involve significant radiation exposure to maintenance personnel.

To verify that current testing and previous maintenance history are sufficient indicators of valve performance, these valves will be disassembled one time to verify valve integrity and that service conditions do not adversely affect the valve. If these valves are found in unsatisfactory condition, a disassembly/PM will be performed on the valves on a frequency that will maintain the valves in a satisfactory condition.

Partial stroke-relief requests for these valves were approved by the NRC for the first ten year interval. The evaluation agreed that testing in accordance with ASME Code was impractical due to possible hydraulic shock to core internals and contamination that full flow testing could create and that partial-stroke testing is the only test possible with the piping configuration of the system.

BS-5,6 (Units 1, 2, and 3) Suction Check Valves from BWST and BS-11,16 (Units 1, 2, and 3) BS Pump Discharge Valves

These valves require 1500 gpm to full flow test where the test loop will only supply approximately 1200 gpm due to a 3" recirculation line. The ability of these valves to pass approximately 1200 gpm through a recirculation line is a sufficient functional test. Periodic disassembly of these valves would not yield any better indication of valve performance.

A partial-stroke relief request was also approved by the NRC for these valves for the first ten year interval. The evaluation agreed that full-stroke exercising was impractical since full-stroke testing would require spraying the containment with borated water and that partial stroking was an acceptable alternative.

BS-14,19 (Units 1, 2, and 3) RB Spray Discharge Check Valves

Due to the physical location, any flow testing of these valves with liquid would subject the containment to actual spray header flow. For this reason, an air flow test is performed which passes air through the valve to the spray header. Since these valves do not see any flow during normal service (non-accident), valve degradation should be nonexistent. Partial flow testing of these valves with air should be adequate. To verify this testing method, these valves will be disassembled one time to verify valve integrity and that service conditions do not adversely affect the valve. If these valves are found in unsatisfactory condition, a disassembly/PM will be performed on the valves on a frequency that will maintain the valves in a satisfactory condition.

The evaluation by the NRC of the first ten year interval relief request also agreed with the impracticality of full flow testing these valves and the acceptability of using partial flow testing to verify the operability of BS 14 and 19.

2. **Alternative to Full Flow Testing of Check Valves.**

See position 1 above.

3. **Back Flow Testing of Check Valves**

Back flow testing of check valves will be performed in accordance with GL 89-04 guidance. Examples of methods used to verify valve closure are as follows:

Pump discharge check valves - verified closed by parallel pump acceptance criteria met while cross-connected.

Appendix J Testing

Measure back flow through valve using open vent on backside or ultrasonic flow measurement techniques

Pressure drop across pump

Visual observation of external indication on valve stem

Pump windmilling

When system configuration does not allow back flow testing, the valve will be disassembled. Frequencies for disassembly will be per the generic letter but may be extended based on results of disassembly.

4. **Pressure Isolation Valves.**

Pressure isolation valve testing as defined in Oconee Technical Specifications will be performed in accordance with GL 89-04 guidance.

5. **Limiting Values of Full-Stroke Times for Power Operated Valves.**

Reference stroke times for each valve will be established based on acceptable stroke time values. Limiting stroke times will be a reasonable deviation from the reference time. If a valve has a Tech. Spec. or safety analysis limiting stroke time, the smallest of the limiting stroke times will be used.

6. **Stroke Time Measurement for Rapid Acting Valves**

Stroke time measurements for rapid-acting valves are currently established in accordance with the GL guidance.

7. **Testing Individual Control Rod Scram Valves in BWRs**

N/A

8. **Starting Point for Time Period in Tech. Spec. Action Statements.**

Tech. Spec. action statements will be entered upon recognition that surveillance data is within the required action range. The equipment may subsequently be declared operable based on an engineering evaluation.

9. **Pump Testing Using Minimum Return Flow Line With or Without Flow Measuring Devices**

ONS Unit 1 and Unit 3 Motor Driven Emergency Feedwater Pumps are the only pumps that are in a situation similar to those described in position 9. These pumps are currently tested through minimum flow lines quarterly with pump differential pressure and vibrations monitored. At refueling frequency, these pumps are full flow tested with all parameters shown in Table IWP-3100-1 monitored. A full flow test line has been installed on Unit 2 to allow quarterly full flow testing with all the parameters shown in Table IWP-3100-1 monitored. Current plans are to modify Unit 1 and Unit 3 at their next scheduled refueling outage. At that point, none of the ONS pumps in the IST program will be in the situation described in position 9 of GL 89-04.

10. **Containment Isolation Valve Testing.**

CIV testing is currently performed in accordance with the GL guidance and requirements of 10 CFR 50, Appendix J as outlined in ONS Technical Specifications.

11. **IST Program Scope**

The revised IST program is based on a design study performed by Duke Design Engineering of ONS valves regarding their Design and non-Design Basis Accident functions. The result of this design study was an Active Valve List for ONS. An "active valve" is defined as a valve that must move from its normal position to mitigate the consequences of Design Basis Accidents described in the FSAR Chapter 15 or certain non-Design Basis Events. Also included in this definition are valves that must move in order to reach and maintain shutdown conditions. The Active Valve List is a "living document" and is subject to change as Design Bases review/reconstruction is performed by Design Engineering. Necessary changes will be made to the ONS IST program as changes are made to the ONS Active Valve List.

The scope of the Oconee pump and valve testing programs includes all components which are active in mitigating the consequences of Design and non-Design Basis Events, are required for cold shutdown, provide a containment isolation function, or are designated by station Technical Specifications to be included in testing programs. This scope is further divided into IST testing and "Appendix B" testing.

The scope of the IST program includes ASME Code Class 1, 2, and 3 pumps and valves which meet the definitions in IWP-1100 and IWV-1100. These components are active in mitigating Design Basis Events as described in the FSAR Chapter 15, provide containment isolation or are required to be tested by this program per Tech. Specs. Valves which are active in bringing the Unit to cold shutdown as part of an FSAR Chapter 15 Design Basis Event are also included in the IST program. Those valves required to go to cold shutdown for non-Design Basis Events which are not in the IST program will be included in the Appendix B program described below. A generic relief request is included in the IST program manual that documents the exclusion of Appendix B cold shutdown valves from the IST program.

The Appendix B program encompasses pumps and valves not included in the IST program which are active in certain non-Design Basis Events or are cold shutdown valves not associated with a FSAR Chapter 15 event. These components will be tested in accordance with internal Duke Power procedures and requirements (per 10 CFR 50, Appendix B). Pumps and valves used in mitigation of tornado, station blackout, and loss of Keowee Dam comprise the equipment in this category. The following are specific equipment types and the guidelines that will be referred to in development of testing techniques for pumps and valves included in this program.

Air Operated Valves - ASME Section XI, OM-10, Duke positions regarding GL 89-04.

Check Valves - ASME Section XI, OM-10, Duke positions regarding GL 89-04.

Motor Operated Valves - ASME Section XI, OM-10, exercise on a refueling frequency (this position is based on lack of usable information obtained from "timing" of MOVs).

Manual Valves - ASME Section XI, OM-10, exercise on a refueling frequency.

Pumps - ASME Section XI and OM-6.

SCHEDULE

IST PROGRAM

Due to the amount of additions and changes necessary to station procedures, employee qualification training, etc. to bring the current IST program into conformance with the revised program described above, a two-step upgrade process will be performed.

Step 1 will be to add valves that are not currently in the program but have been identified in the active valve list design study as falling under the scope of the IST program. These additions will begin concurrent with the first refueling outages following November 1, 1990. These additions will be completed during the following refueling outages:

	Planned Startup
Unit 3 EOC 12	April 1991
Unit 1 EOC 13	October 1991
Unit 2 EOC 12	March 1992

Step 2 will be to upgrade testing of valves that have been identified in the active valve list design study as falling under the scope of the IST program and are currently in the IST program but do not meet the requirements of the revised program. These changes will begin after completion of the Unit 3 EOC 12 refueling outage. These changes will be completed during the following refueling outages:

	Planned Startup
Unit 1 EOC 13	October 1991
Unit 2 EOC 12	March 1992
Unit 3 EOC 13	August 1992

APPENDIX B PROGRAM

Additions and changes to ONS procedures necessary to meet the intent of the Appendix B program described above will be made expeditiously recognizing that IST program upgrades will take priority.

DISTRIBUTION FOR MEETING SUMMARY DATED: December 6, 1990

Facility: Oconee Nuclear Station

Docket File	
NRC & Local PDRs	
PDII-3 R/F	
F. Miraglia	12/G/18
J. Partlow	12/G/18
D. Matthews	
R. Ingram	
L. Wiens	
OGC	15/B/18
E. Jordan	MNBB 3302
T. Sullivan	7/E/23
K. Dempsey	7/E/23
K. Poertner	RII
ACRS (10)	P 315
B. Borchardt	17/G/21