

ENCLOSURE 1

NOTICE OF DEVIATION

Duke Power Company
Oconee Nuclear Station

Docket Nos. 50-269, 270, and 287
License Nos. DPR-38, DPR-47, and DPR-55

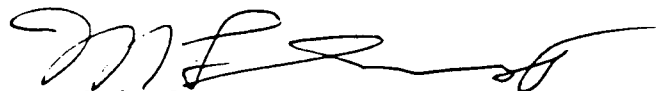
The following deviation was identified during a Nuclear Regulatory Commission (NRC) inspection conducted December 17, 1988 - January 16, 1989.

Duke Power Company correspondence dated February 29, 1988, in response to Notice of Violation 50-269,270,287/87-51-01 committed to develop an enhanced procedure to provide better guidelines and control all freeze plug operations. This procedure was to be complete by December 1, 1988.

Contrary to the above, as of January 16, 1989, a procedure had not been issued providing this guidance.

Please provide to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator, Region II, in writing within 30 days of the date of this Notice, the reasons for the deviation, the corrective steps which have been taken and the results achieved, the corrective steps which will be taken to avoid further deviations, and the date when your corrective action will be completed. Where good cause is shown, consideration will be given to extending the response time.

FOR THE NUCLEAR REGULATORY COMMISSION



Malcolm L. Ernst
Acting Regional Administrator

Dated at Atlanta, Georgia
this 3rd day of February 1989



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W.
ATLANTA, GEORGIA 30323

Report Nos: 50-269/88-35, 50-270/88-35 and 50-287/88-35

Licensee: Duke Power Company
422 South Church Street
Charlotte, N.C. 28242

Docket Nos.: 50-269, 50-270, 50-287 License Nos. DPR-38, DPR-47, DPR-55

Facility Name: Oconee Nuclear Station

Inspection Conducted: December 17, 1988 - January 16, 1989

Inspectors: *[Signature]* 2/2/89
P. H. Skinner, Senior Resident Inspector Date Signed
[Signature] 2/2/89
L. D. Wert, Resident Inspector Date Signed
Approved by: *[Signature]* 2-2-89
T. A. Peebles, Section Chief Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine, announced inspection involved resident inspection on-site in the areas of operations, surveillance testing, maintenance activities, outage activities, and inspection of open items.

Results: Within the areas inspected, the following violations and deviations were identified:

- Reactor Building Cooling System-Inoperability of RBCU dropout plates, paragraph 4.b.
- Deviation from a Commitment to provide a procedure for freeze seals on safety-related piping, paragraph 2.

During this report period Unit 3 had to be shutdown due to fouling of the RBCUs. The degree of fouling was identified by the licensee as part of the ongoing effort to resolve the issue of service induced fouling of the cooling units. The licensee has not yet been able to resolve this issue. A formal task force has been established on this subject and is aggressively pursuing solutions to both the fouling and the dropout plate issues, paragraph 3d.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *M. Tuckman, Station Manager
- C. Boyd, Site Design Engineer Representative
- J. Brackett, Senior QA Manager
- M. Carter, Site Design Engineer Representative
- *J. Davis, Technical Services Superintendent
- R. Dobson, Electrical Engineering
- W. Foster, Maintenance Superintendent
- T. Glenn, Instrument and Electrical Support Engineer
- D. Havice, Instrument & Electrical Engineer
- *C. Harlin, Compliance Engineer
- *D. Hubbard, Performance Engineer
- *E. Leggette, Assistant Engineer, Compliance
- H. Lowery, Chairman, Oconee Safety Review Group
- J. McIntosh, Administrative Services Superintendent
- G. Rothenberger, Integrated Scheduling Superintendent
- *R. Sweigart, Operations Superintendent

Other licensee employees contacted included technicians, operators, mechanics, security force members, and staff engineers.

NRC Resident Inspectors:

- *P.H. Skinner
- *L.D. Wert

*Attended exit interview.

2. Licensee Action on Previous Enforcement Matters (92702)

(Open) Violation 269,270,287/87-51-01: Failure to Follow Procedures Associated With Freeze Sealing Safety-Related Piping. DPC responded to Notice of Violation 50-269,270,287/87-51-01, in correspondence dated February 29, 1988. In this correspondence DPC committed to development of an enhanced procedure to provide better guidelines and control of all freeze plug operations. This procedure was to be complete by December 1, 1988. The inspector reviewed the actions identified in the February letter to ascertain that the action had been taken. Discussions with licensee personnel indicated that guidance has been provided to the station but a procedure had not been issued. This failure to meet the commitment date specified in the February 29, 1988 correspondence is identified as a deviation, 269,270,287/88-35-02; Failure to Meet Commitment Associated With Violation 269,270,287/87-51-01.

3. Plant Operations (71707)

- a. The inspectors reviewed plant operations throughout the reporting period to verify conformance with regulatory requirements, technical specifications (TS), and administrative controls. Control room logs, shift turnover records, and equipment removal and restoration records were reviewed routinely. Discussions were conducted with plant operations, maintenance, chemistry, health physics, instrument & electrical (I&E), and performance personnel.

Activities within the control rooms were monitored on an almost daily basis. Inspections were conducted on day and on night shifts, during week days and on weekends. Some inspections were made during shift change in order to evaluate shift turnover performance. Actions observed were conducted as required by the Licensees Administrative Procedures. The complement of licensed personnel on each shift inspected met or exceeded the requirements of TS. Operators were responsive to plant annunciator alarms and were cognizant of plant conditions.

In the course of the monthly activities, the Resident Inspectors included review of portions of the licensee's physical security activities. The performance of various shifts of the security force was observed in the conduct of daily activities which included; protected and vital areas access controls, searching of personnel, packages and vehicles, badge issuance and retrieval, escorting of visitors, patrols and compensatory posts. The inspectors observed protected area lighting and protected and vital areas barrier integrity, and verified interfaces between the security organization and operations or maintenance.

Plant tours were taken throughout the reporting period on a routine basis. The areas toured included the following:

- Turbine Building
- Auxiliary Building
- Units 1, 2 and 3 Electrical Equipment Rooms
- Units 1, 2 and 3 Cable Spreading Rooms
- Station Yard Zone within the Protected Area
- Standby Shutdown Facility
- Units 1, 2 and 3 Spent Fuel Pool Room

During the plant tours, ongoing activities, housekeeping, security, equipment status, and radiation control practices were observed.

Unit 1 operated during this reporting period at 100% until the reactor trip and switchgear fire as discussed in paragraphs 3.b and 3.c below on January 2 and 3 respectively. Following these events the unit was in its End of Cycle outage.

Unit 2 operated at 100% power for the entire reporting period.

Unit 3 operated at 100% power until January 10, 1989 when it was shutdown to clean the Reactor Building Cooling Units as discussed in paragraph 3.d. The unit was returned to 100% on January 14, 1989.

b. Unit 1 Reactor Trip From 100%

At 1523 on January 2, 1989, Oconee Unit 1 tripped from 100 percent power. The trip was caused by personnel error during Reactor Protection System (RPS) functional testing. A test of RPS channel D was in progress. Channel A of RPS was placed in the tripped condition during most of the testing (as required by TS) because two dummy bistables are in place in the channel A circuitry. The dummy bistables are installed in the high hot leg temperature circuitry and the temperature-pressure circuitry in channel A due to a failure of a hot leg RTD. Before starting the portion of the test involving the channel D Control Rod Drive Breakers, channel A should have been taken out of the tripped condition and placed in bypass but was not. As a result, when channel D was tripped by the technician, this resulted in a "2 out of 4 channels tripped" condition which caused the reactor to trip. Details of this trip are contained in NRC Inspection Report 50-269,270,287/89-03.

c. Fire In Electrical Switchgear - Unusual Event - Unit 1

The licensee declared an Unusual Event (UE) at 7:45 p.m. on January 3, 1989, due to a fire in the 6900 volt switchgear cabinet 1TA. This cabinet contains the circuit breakers for two reactor coolant pumps, the cabinet supply breakers (normal and alternate), and miscellaneous control circuitry for these components. As a result of this fire, the unit was shutdown and taken to cold conditions. The UE was terminated at 1:18 a.m. on January 4, 1989. Information concerning this event is described in detail in Augmented Inspection Team Report Number 50-269,270,287/89-03.

d. Unit 3 Shutdown Due to RBCU Fouling

On January 10, 1989, testing by Performance personnel revealed that the Unit 3 'A' and 'C' RBCUs had fouled to a degree that their heat removal capability had degraded to less than the minimum required to accomplish their intended safety function. The licensee declared the '3A' and '3C' RBCUs inoperable and entered TS 3.0 (the 'B' RBCU is not operating under normal conditions and was not fouled). Unit 3 was taken to hot shutdown by about 10 a.m. on January 11. The testing was being performed as part of the ongoing effort to resolve the issue of service induced fouling of the RBCUs. (LER 287/88-03: Potential Degraded Performance of RBCUs Due to Service Induced Fouling addresses this issue). Inspection Report 269,270,287/88-34 contains details and status of this issue as of December 16, 1988. The RBCU fouling issue has been followed by the residents since May 1987 (Inspection Report 269,270,287/87-13).

After a test of the RBCUs on November 1, 1988, the Unit 3 RBCUs had been projected to be operable through January 16, 1989, based on data which at that time was believed to be conservative. While Unit 3 Reactor Building temperatures were observed to be slightly increasing recently, no other indications of severely degraded thermal performance had been noted prior to the testing. After the testing, heavy deposits of boron were observed on the tubes in the '3A' and '3C' RBCUs, consequently the airside of these tubes was cleaned. After a thorough cleaning with a hot solution, the coolers were retested. While the performance of the coolers had improved allowing them to be returned to an operable status it did not improve to levels expected. The licensee is continuing efforts to resolve the overall fouling issue. Unit 3 was returned to 100% operation at about 2344 on January 14, 1989.

Unit 2 RBCU's were tested on January 15, 1989 with satisfactory results. Unit 1 remains in a scheduled refueling outage. Unit 3 RBCUs will be tested again before January 31, 1989. The inspectors reviewed the operability determination and projection documentation. The operability until January 31, 1989 is based on a 1.0 percent per day fouling rate. The actual fouling rate obtained between November 1, 1988 and January 10, 1989 was 0.6 percent. RB temperatures are being closely monitored on Unit 2 and Unit 3 for any changes which might indicate excessive fouling.

The licensee has established a formal task group of personnel to pursue solutions to the questions that have occurred as the result of this rapid change in fouling rate, to provide guidance to more frequently monitor parameters that indicate fouling status and other task force issues that are to be developed. Also, the licensee is developing criteria to monitor Low Pressure Service Water and containment air temperatures in the control room to indicate when RBCU testing is needed.

The resident inspectors are continuing to closely follow the licensee's action on resolution of this issue. A potential violation on the earlier degradation of the Unit 3 coolers had been discussed in Inspection Report 269,270,287/88-28 and in an Enforcement Conference held on October 6, 1988. Based on the information provided in the conference (see Enforcement Conference Summary dated November 1, 1988) and the licensee's commitments to closely monitor the RBCUs (to both ensure operability and to continue resolution of the problem) and the formation of a task force dedicated to this issue, no violation will be issued.

No violations or deviations were identified.

4. Surveillance Testing (61726)

- a. Surveillance tests were reviewed by the inspectors to verify procedural and performance adequacy. The completed tests reviewed were examined for necessary test prerequisites, instructions,

acceptance criteria, technical content, authorization to begin work, data collection, independent verification where required, handling of deficiencies noted, and review of completed work. The tests witnessed, in whole or in part, were inspected to determine that approved procedures were available, test equipment was calibrated, prerequisites were met, tests were conducted according to procedure, test results were acceptable and systems restoration was completed.

b. Reactor Building Cooling Unit (RBCU) Dropout Plates

On January 7, 1989, the licensee notified the resident inspector that Units 2 and 3 had entered Technical Specification 3.0 after declaring all RBCU's inoperable due to a failure of the fusible link drop out plates to perform as described in the SAR during testing that had been conducted on January 6 and 7. See Inspection report 50-269,270,287/88-08 for a description of these plates and the function they are to perform. Inspector Followup Items 269,270,287/88-08-03 and 88-08-04 were opened in April 1988 after the resident inspectors inspected these plates in Unit 2. Since the proper functioning of these plates is relied upon for removal of Reactor Building heat under certain accident conditions, the inspectors were concerned that the plates and their hardware did not appear to be properly maintained and they had never been functionally tested. The inspectors noted several factors which could conceivably prevent the plates from dropping. It was learned that Design Engineering (DE) group had recommended in December 1987 that the plates be functionally tested. The Mechanical Maintenance and Performance groups at the site were in the process of developing a test plan. As a result of the DE recommendation and also to fully resolve the inspectors questions, the licensee performed a functional test of the plates on January 6, 1989. The test was to be performed on the 'B' RBCU since the plate for this unit was in an area that contained more structural interferences. When this test was performed the dropout plate did not drop as designed (the bottom of the plate moved outward but further motion apparently was prevented by adjacent structural material). As a result, the 'B' RBCU on both Unit 2 and Unit 3 were declared inoperable and the limiting conditions for operation of TS 3.3.5 was entered. The test was performed again on January 7 on 1B and 1C RBCUs. The 'C' unit was chosen since it also has some structural interferences. On this test, the plate dropped out on the B unit but did not drop out on the C unit.

The licensee at this time (6 p.m. on January 7, 1989) declared all RBCU's on Units 2 and 3 inoperable and entered TS 3.0 (12 hours to be in hot standby). This failure was also reported by red phone to the NRC as required by 10 CFR 50.72 (b)(2)(iii)(B). The licensee made entries into the Unit 2 and 3 containments to physically remove the dropout plates to place the RBCU's in their emergency lineup. The plates were removed from all three trains on Unit 2 and from trains A and C on Unit 3. The licensee exited from TS 3.0 on both units at approximately 10 p.m. on January 7. Unit 3 remained in the LCO (7

days) associated with the B unit since the plate could not be removed during the entry. A 10 CFR 50.59 was generated for operation with the RBCU fusible dropout plates removed. The licensee is continuing to investigate this problem and is evaluating available corrective actions. During the removal of the plates it was noted that the Unit 1 'C' RBCU plate had metal links installed in lieu of the required fusible links. Apparently the fusible links on 2 of the 6 rods were replaced by similarly shaped metal links at some earlier date. These metal links would definitely have adversely affected the ability of the plate to dropout under the circumstances required. The inspectors have reviewed the licensee's actions and the 10 CFR 50.59 performed as a result of the failure of the dropout plates. The correct functioning of these plates is essential to the ability of the RBCUs to perform their intended safety function under certain conditions. During a LOCA if the ductwork below the plates became flooded or was severely crimped (or the RBCU dampers malfunctioned) these plates would serve as the only exit path for the RBCUs air flow. The failure to test and properly maintain the dropout plates resulted in an apparent violation of TS 3.3.5, Reactor Building Cooling System, 269,270,287/88-35-01: Inoperability of RBCU Dropout Plates.

5. Maintenance Activities (62703)

Maintenance activities were observed and/or reviewed during the reporting period to verify that work was performed by qualified personnel and that approved procedures in use adequately described work that was not within the skill of the trade. Activities, procedures and work requests were examined to verify proper authorization to begin work, provisions for fire, cleanliness, and exposure control, proper return of equipment to service, and that limiting conditions for operation were met.

No violations or deviations were identified.

6. Outage

As a result of the fire in the 1TA electrical switchgear, Unit 1 commenced the end of cycle (EOC) 11 refueling outage on January 4, 1989. The EOC 11 outage had been scheduled to commence on January 27, 1989, but due to the extensive damage caused by the fire and that total capacity for this core load was within the target values, a decision was made to enter the outage. Although the licensee entered the outage without having all preparations in place, good progress has been made to date. At this time the outage is scheduled to conclude on February 13, resulting in a 42 day effort. Major activities being accomplished at this time are the repairs caused by the fire, eddy current testing of all tubes in each generator, inspection of fuel assemblies for leaks, RBCU cleaning, reactor coolant pump motor maintenance and replacement of high pressure extraction piping from the main turbine to the moisture separator reheaters. Various outage activities are being witnessed by the inspectors during routine tours.

7. Inspection of Open Items (92700)

The following open items are being closed based on review of licensee reports, inspection, record review, and discussions with licensee personnel, as appropriate:

- a. (Closed) Inspection Followup Item 269/88-08-04; Functional Verification Testing of Reactor Building Cooling System Dropout Plates. As a result of the apparent violation discussed in paragraph 4.b., this item is closed.
- b. (Closed) LER 270/88-03: Turbine/Reactor Trip Due to Equipment Malfunction. The inspectors reviewed the trip report and corrective actions taken to preclude a similar occurrence. Units 1 and 3 were checked for similar problems and corrective actions taken on all units. Based on this review and the actions taken by the licensee, this item is closed.

8. Exit Interview (30703)

The inspection scope and findings were summarized on January 17, 1989, with those persons indicated in paragraph 1 above. The following items were discussed in detail:

<u>Item Number</u>	<u>Status</u>	<u>Description/Reference Paragraph</u>
269,270,287/88-35-01	Open	Inoperability of RBCU Dropout Plates, paragraph 4.b.
269,270,287/88-35-02	Open	Failure to Meet Commitment Associated With Violation 269,270,-287/87-51-01, paragraph 2.
LER 270/88-03	Closed	Turbine/Reactor Trip Due To Equipment Malfunction, paragraph 7.b.
269,270,287/87-51-01	Open	Failure to Follow Procedures Associated with Freeze Sealing Safety-Related Piping paragraph 2.
269/88-08-04	Closed	Functional Verification Testing of Reactor Building Cooling System Dropout Plates, paragraph 7.a.