



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W., SUITE 3100  
ATLANTA, GEORGIA 30303

Report Nos. 50-269/80-17, 50-270/80-12 and 50-287/80-11

Licensee: Duke Power Company  
422 South Church Street  
Charlotte, NC 28242

Facility: Oconee Nuclear Station

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

License Nos. DPR-38, DPR-47 and DPR-55

Inspection at Oconee Nuclear Station near Seneca, South Carolina

Inspector: Maryjane Thalam for 5/21/80  
F. Jape Date Signed

Approved by: R. D. Martin 5/23/80  
R. D. Martin, Section Chief, RONS Branch Date Signed

SUMMARY

Inspection on April 1-30, 1980

Areas Inspected

This routine inspection involved 138 resident inspector-hours on site in the areas of plant operations, outage activities, test witnessing, maintenance witnessing, followup on previous inspection findings, compliance with February 7 and April 17, 1980 Show Cause Orders and review of the station surveillance testing program.

Results

Of the seven areas inspected, no items of noncompliance or deviations were identified in six areas; one item of noncompliance was found in one area (Deficiency-Failure to submit thirty day reports when a surveillance test frequency was missed, Paragraph 6).

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## DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*J. E. Smith, Station Manager
- \*J. M. Davis, Superintendent of Maintenance
- \*J. N. Pope, Superintendent of Operations
- \*T. B. Owen, Superintendent of Technical Services
- \*R. T. Bond, Licensing and Projects Engineer
- J. Brackett, Senior QA Engineer

Other licensee employees contacted included 20 operations supervisors, 3 maintenance foremen, 4 technicians, 25 operators, 4 mechanics, 3 security force members, and 3 office personnel.

\*Attended exit interviews

### 2. Exit Interview

The inspection scope and findings were summarized on April 11, 18, and 30, 1980 with those persons indicated in Paragraph 1 above. The item of non-compliance, described in paragraph 6 below, was discussed with licensee management who acknowledged their understanding of the item. Also the unresolved item concerning management of the surveillance program was discussed. Licensee representatives indicated that action would be initiated to resolve the matter.

### 3. Licensee Action on Previous Inspection Findings

- a. (Closed) Infraction (270/79-39) Engineered Safeguards Valves Removed from Service on Wrong Unit. Licensee's response, dated February 4, 1980, stated that an independent verification program would be developed and implemented to remedy this issue. Station Directives 3.3.5 and 4.2.5 have been issued prescribing the program. Implementation was verified by the inspector through examination of Work Requests.
- b. (Closed) Deviation (269/80-05, 270/80-04 and 287/80-04) Housekeeping in Plant Areas Occupied by Safety-Related Equipment. Licensee's response, dated March 14, 1980, addressed this concern. Commitments have been fulfilled and verified by the inspector.

### 4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. A new unresolved item identified during this inspection is discussed in paragraph 6.

## 5. Plant Operations

The inspector reviewed plant operations, throughout the report period, to ascertain conformance with regulatory requirements, technical specifications and administrative directives. The control room logs, shift supervisors' logs, shift turnover records, and the removal and restoration record books for all three units were reviewed. Interviews with plant operations, maintenance, chemists, health physicists and performance personnel were held on the day and night shifts.

Activities within the control rooms were observed and monitored during day and night shifts and at shift changes. The actions and activities were conducted as prescribed in Section 3.08 of the Station Directives. The number of licensed personnel on each shift met or exceeded the minimum required by IEB 79-05C. Operators were assigned special duty as required by IEB 79-05C.

Technical specifications listed below related to safety limits, limiting safety system settings and limiting conditions for operations were reviewed. In all cases, operations were found to be in conformance with the technical specifications.

- TS 2.1 Reactor Coolant System Pressure and Temperature. Figs. 2.1-1A, 2.1-1B and 2.1-1C.
- TS 2.3 RC Pump Monitor Setpoints
- TS 3.1.3 Minimum Conditions for Criticality
- TS 3.1.5 Chemistry
- TS 3.1.6 Leakage
- TS 3.3 Emergency Core Cooling, RB Cooling, RB Spray, and Low Pressure Service Water Systems.
- TS 3.4 Secondary System Decay Heat Removal.
- TS 3.5.2 Control Rod Group and Power Distribution Limits
- TS 3.6 Reactor Building
- TS 3.8 Fuel Loading and Refueling
- TS 3.9 Release of Liquid Radioactive Waste
- TS 3.12 Reactor Building Polar Crane and Auxiliary Hoist
- TS 3.17 Fire Protection and Detection Systems

- TS 4.0 Surveillance Standards
- TS 4.3 Testing Following Opening of System
- TS 4.20 Reactor Vessel Internals Vent Valves

Plant tours were taken during the inspection period as follows:

- a. Turbine Building
- b. Auxiliary Building
- c. Units 2 and 3 Reactor Buildings
- d. Electrical Equipment Rooms
- e. Cable Spreading Rooms
- f. Station yard areas inside and outside of protected areas

Observations included witnessing work activities in progress, status of operating and standby safety systems, valve positions, suppressor conditions, alarms, instrument readings and recordings, housekeeping, radiation area controls and vital areas inspected. No items of noncompliance or deviations were identified.

#### 6. Surveillance Testing Program

An examination of the licensee's surveillance testing program was conducted by the inspector. Test records for the past 15 months were examined to determine how well the program was being managed and if the technical specifications (TS) related to the program were met. The results revealed one noncompliance item for not submitting a 30 day report for failure to comply with surveillance requirements and an unresolved item concerning scheduling of testing. From the inspector's review of all surveillance testing completed during the past 15 months, two missed surveillances were identified that should have been reported to the NRC as a 30 day LER. These are discussed below.

- a. During a review of operating data, the licensee discovered on February 1, 1979 that the daily surveillance test of safety-related batteries had not been done as often as TS 4.6 required. The incident was investigated by the licensee (Incident Investigation Report B-821), but the event was not reported to the NRC as required by TS 6.6.2.1b(3).
- b. On February 28, 1979, the licensee discovered that the check of reactor building pressure analog channels had not been done as often as TS 4.1 required. An investigation was conducted by the licensee (Incident Investigation Report B-832), but the event was not submitted to the NRC as required by TS 6.6.2.1b(3).

The reportability of these two events was discussed with licensee management on April 30, 1980. Licensee management generally agreed that an error in interpretation had been made and that they could re-examine these events.

The inspector stated that the failure to report would be identified as a deficiency (269/80-17-01).

During review of the overall program the inspector questioned the practice of scheduling testing at the maximum allowable interval rather than the frequency specified in TS 4.0.2. A cursory review of the surveillance records is enclosed. When this issue was discussed, licensee management stated that it was not their intent to stretch out the test interval, but to fulfill the intention of the TS. The licensee representative indicated that this matter would be reviewed and discussed with the inspector at a later date (Unresolved Item 269/80-17-02).

#### 7. Review of Licensee Event Reports

The inspector performed a review of licensee event reports to verify that the report details met license requirements, identified the cause of the event, described corrective actions appropriate for the identified cause, adequately assessed the event, and addressed any generic implications. In addition, the inspector examined selected operating and maintenance logs, records and internal incident investigation reports. Personnel were interviewed to verify that the report accurately reflected the circumstances of the event, that the corrective action had been taken or responsibility assigned to assure completion and that the event was reviewed by the licensee as stipulated in the Technical Specifications.

LER	Event
269/80-1	Control Room Airborne Activity
269/80-2	HPSW Pump Inoperable
269/80-3	Breach in Fire Barrier
269/80-4	HPSW Pump Inoperable
269/80-5	RCS Pressure Transmitter Out of Calibration
269/80-6	DHR Cooler Out of Service
269/80-7	Breach in Fire Barrier
269/80-8	Unqualified Valve Operator
270/80-1	Overpressurized CF Tank
287/80-1	BWST Level Instrument Failure
287/80-2	MFB No. 2 Not Available From SV Transformers
287/80-3	MFB Isolated
287/80-4	Breach in Fire Barrier

#### 8. Test Witnessing

The following test activities were witnessed by the Resident Inspector to ascertain crew performance, conformance with license and procedural requirements and to evaluate test results. Within the areas inspected, no items of noncompliance or deviations were identified.

- a. Visual Examination of Control Rod Assemblies: Unit 2

The rod fingers of selected control rod assemblies were visually examined using an underwater camera. The inspection was recorded on video tape. The purpose of the examination was to look for signs of excessive wear or damage to the rod fingers. Eight rods were examined and the inspector witnessed the first four examinations. Preliminary results indicated no signs of excessive wear or damage. Each control rod assembly was returned to its original core location. The test activity was controlled by procedure TT/2/A/124/01.

b. PORV and Code Safety Valve Position Indication

Reactor coolant system relief (PORV) and code safety valves on Unit 3 have been provided with a positive position indication in the control room. The system was installed as described in Nuclear Station Modification 1391.

Position of the three relief valves, RC-66, RC-67 and RC-68, is monitored by the TEC valve monitoring system. Acoustical accelerations proportional to valve position are generated as flow is established through the discharge piping of the valve. These signals are detected by an accelerometer strapped to the piping and are converted to a voltage signal. The voltage is proportional to position and is displayed in the control room. An alarm module initiates a Statalarm whenever flow rate indicates the valve to be open greater than 25%. Test procedure, TT/3/B/1391/0, "Pressurizer Valve Monitor Calibration" was used for initial checkout and calibration of the system.

Performance of this test was witnessed by the inspector on April 24, 1980. The test was conducted at hot shutdown conditions. The modification performed adequately and met acceptance criteria. In addition, the following procedures were revised to incorporate the modifications:

EP/O/A/1800/1, "Load Rejection"  
EP/O/A/1800/2, "Turbine Trip"  
EP/O/A/1800/3, "Reactor Trip"

These were reviewed by the inspector and found to be adequate.

c. Steam Generator Automatic Level Control

An automatic steam generator level control system has been installed on Unit 3. Details are described in Nuclear Station Modification 1275, Part K.

The system consists of two redundant trains of level control for each steam generator. Whenever there is an emergency start of the motor driven emergency feedwater pumps, the level control system will throttle emergency header valves, FDW 315 and FDW 316, to control the steam generator level at 25 inches. If there is a loss of all four reactor coolant pumps, the level will be controlled at 240 inches.

Test procedure, TT/3/A/275/5W, "Steam Generator Auxiliary Level Control System Testing Procedure", was performed at 15% power on April 30, 1980. The inspector witnessed the test and reviewed the test results. The system is considered operational and testing successfully completed. The level control system is totally independent of the Integrated Control System, and controlled level as expected.

d. Reactor Vent Valve Lock Modification

The four reactor vent valves adjacent to the Z and X axis were removed and a redesigned locking device was installed. The redesign is described in B&W field change authorization FCA-334-00, Nss-9.

The inspector witnessed portions of this activity on Unit 2. The work was controlled by Work Request 96670 and Nuclear Station Modification 1286. Procedures used to perform the work were:

MP/O/A/1200/50, "Disassembly of Reactor Internal Vent Valves"  
MP/O/A/1200/53, "Modification of Reactor Vent Valves Locking Mechanism"  
MP/O/A/1200/11, "Reactor Internal Vent Valve Removal and Replacement"  
TN/2/A/1286/0, "Procedure for Implementation and Verification of  
NSM-ON-1286"

The procedures were followed and the work was successfully completed. Following re-installation, all eight vent valves were exercised, using PT/O/A/200/01, "Reactor Vent Valves Exercise Test".

e. Integrated Control System Loss of Power Test

As a result of experience gained from the Crystal River-3 incident of February 26, 1980, a modification to the power supply for the non-nuclear instrumentation (NNI) was designed by DPC and has been installed on Oconee Unit 3. The modification is described in Nuclear Station Modification 1531, (NSM 1531). This NSM provides a redundant source of power to all indications and control loops in the Integrated Control System, (ICS), necessary to reach and maintain the reactor at hot shutdown upon loss of the normal power supply to the NNI. The indications and controls needed to maintain the plant at hot shutdown are stated in an April 1, 1980 letter from DPC to NRC. NSM 1531 incorporated these indications and controls.

Following the installation of NSM 1531, a series of tests were performed to verify system performance. This test is described in TI/3/B/320/05, "Integrated Control System Loss Power Test". An NRC order confirming DPC's commitment to perform such a test was issued April 17, 1980. The test was conducted on April 16, 1980.

Prior to running the test, comments on the test procedure were discussed with licensee representatives and resolved. The test was witnessed by the inspector. Several discrepancies identified during the testing

have been reviewed by the licensee and either resolved or corrected and retested. The inspector concurred with the resolution in each case.

Results of the testing have been incorporated into Emergency Procedure EP/3/A/1800/31, "Loss of 3KI Bus (And Control Room Indicators Powered From 3KI)". A training program was established by the licensee to ensure that each supervisor and licensed operator was familiar with the NSM and test results.

The inspectors reviewed EP/3/A/1800/31 and had only minor comments. Also, the inspector discussed the NSM and testing with several operators and supervisors to verify that they were acquainted with the changes. The inspector found that the personnel assigned to Unit 3 were familiar with the modification and had an understanding of the EP. All plant operations personnel are receiving training and instruction on this NSM through the requalification training program.

f. Unit 2 Refueling

The inspector witnessed portions of the refueling activities on Unit 2. The items observed included, adherence to the procedure, containment integrity was within technical specification requirements, boron concentration was as specified by technical specifications, communications between control room and refueling bridge was maintained and qualification of personnel assigned the jobs were within regulatory requirements. No problems or concerns were identified by the inspector.

Observations were conducted on all three shifts and included shift changes. An accurate core map was maintained in the control room during the refueling period.

Following completion of fuel movements, core verification map was conducted using underwater video equipment. No discrepancies were noted. Also the burnable poison rod retainers were verified as being in place at this time. Installation of the retainer is covered in TT/2/A/150/02, "Installation of Burnable Poison Rod Assembly Retainers". The inspector witnessed portions of this activity. No problems were identified.

9. Radioactive Waste Systems

The inspector examined the liquid and gaseous radioactive effluent releases and effluent release control instrumentation to verify that adequate administrative controls were employed and appropriate effluent control instrumentation was used.

The inspector examined the radioactive waste release records during the period of April 20-26, 1980. The selected liquid and gaseous waste release documentation indicates apparent compliance with applicable Technical Specifications 3.9 and 3.10 during the period. The records also reveal

that release approvals were obtained promptly and required pre-release sampling was accomplished.

The inspector witnessed preparation for selected releases and verified that the preparation and the releases were apparently performed in accordance with technically adequate approved procedures. The procedures reviewed include:

OP/1/A/1102/12 Degasification of RC System and Pressurizer  
OP/1/A/1102/14 Reactor Building Purge System  
OP/1/A/1104/16 Penetration Room Vent System  
OP/1/A/1103/02 Filling and Venting Reactor Coolant System

The inspector examined the effluent release control instrumentation designed to terminate releases upon exceeding predetermined activities. Through record review and observation it was determined that the required instrumentation was apparently operable and in use during the releases occurring between April 20-26, 1980.

Within the areas inspected no noncompliance or deviation was identified.

#### 10. Radiation Protection

The inspector examined the area of radiation protection in order to verify the operability and calibration of selected radiation protection instrumentation, the adequacy of radiation work permits issued, and posting and control of high radiation areas pursuant to 10 CFR 20.

Selected radiation and high radiation areas were observed to verify adequate posting and control as stipulated in 10 CFR 20.203; compliance appeared adequate.

The inspector examined selected radiation protection instrumentation to verify equipment operability and current calibration. Observation of the selected instrumentation and review of calibration records indicate satisfactory compliance with current requirements.

Selected radiation work permits were examined to verify that the permits were being complied with at the job site, that the RWPs were current and that the permits appeared technically adequate for the applicable job.

Within the areas inspected, no items of noncompliance or deviation were identified.

#### Reactor Building Purging During Operation

DPC has responded to the NRC letter of 11/29/78 concerning containment purging and venting during normal operation. The correspondence continues and the issue remains open as of this report. No new administrative controls have been instituted.

Design of the purge system continually maintains an automatic trip signal to the purge valves and fans. The inspector verified this design feature through review of ES logic diagrams. If a close signal is received through the ES channels, the purge valve receives a close signal which overrides all other signals to the components.

12. Fire Protection Flow Alarms

NRC Inspection Report 50-369/79-34 and 50-370/79-20 at the McGuire Nuclear Station, identified a concern over the use of a paddle-type water flow alarm. To determine if this concern exists on the fire suppressions systems at Oconee Nuclear Stations, an inspection was conducted. Results revealed that this device is not in use, nor is planned to be installed at Oconee Nuclear Station.

13. IE Information Notice 79-37, "Cracking in Low Pressure Turbine Discs"

During the cycle 5 refueling outage on Unit 2, the turbine generator was dismantled for maintenance and inspection. One of the examinations scheduled was an ultrasonic test of the low pressure wheels. The Resident Inspector requested the Regional Office to followup on this special, metallurgical activity.

A specialist from RII performed an inspection and reported his findings in IE Report 50-270/80-10. One of the issues raised and discussed in this report concerned personnel qualifications and test procedure. These were received from General Electric Company through DPC on April 24, 1980. Copies were forwarded to the RII office for review. Followup on this matter will be found in IE Report 50-270/80-10.

ENCLOSURE

Review of Surveillance Records

<u>Unit</u>	<u>Test</u>	<u>Title</u>	<u>Dates</u>	<u>Frequency</u>	<u>Interval</u>	<u>Tech Spec</u>
1	PT/O/A/302/04	Incore Neutron Detector Function Test	06/06/79 to 08/09/79	Monthly	63 days	Yes
2	"	"	09/11/79 to 10/25/79	Monthly	44 days	Yes
1	PT/O/A/0110/05/E	Gas Waste Disposal	08/19/77 to 12/12/78	Annually	15 Mo 23 Days	Yes
1	"	"	12/12/78 to 02/20/80	Annually	14 Mo 8 Days	Yes
3	"	"	06/30/77 to 12/20/78	Annually	17 Mo 20 Days	Yes
1	PT/O/A/0150/3	Reactor Bldg ILRT	08/03/71 to 03/24/76	3 Years	4 Yr 7Mo 21Days	Yes
2	"	"	07/09/73 to 08/01/77	"	4 Yr 1Mo	Yes
1	PT/O/A/0150/05	Rx Bldg Elec Pent LRT	10/21/74 to 02/08/76	Annually	15Mo 17Days	Yes
1	PT/O/A/0202/12	HPI Inj Test	12/26/74 to 03/27/76	Annually	15Mo 1Day	Yes
1	"	"	03/27/76 to 09/24/77	Annually	17Mo 27Days	Yes
1	PT/O/A/016/03	Hydrogen Purge System	02/10/76 to 07/05/77	Annually	16Mo 25Days	Yes
1	"	"	07/05/77 to 12/13/78	Annually	17Mo 9 Days	Yes