



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

Report Nos. 50-269/82-36, 50-270/82-36, and 50-287/82-36

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

Facility Name: Oconee Nuclear Station

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

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

Inspection at Oconee site near Seneca, South Carolina

Inspectors:	<u>William Orders</u>	<u>21 Oct 82</u>
	W. Orders	Date Signed
	<u>D. Falconer</u>	<u>10/21/82</u>
	D. Falconer	Date Signed
Approved by:	<u>J. Bryant</u>	<u>10/21/82</u>
	J. Bryant, Section Chief, Division of Project and Resident Programs	Date Signed

SUMMARY

Inspection on August 10 - September 15, 1982

Areas Inspected

This routine, announced inspection involved 259 resident inspector-hours on site in the areas of operations, surveillance testing, maintenance and, inspector followup on inoperable batteries.

Results

Of the four areas inspected, no items of noncompliance or deviation were identified in two areas; two items of noncompliance were found in two areas: Violation - Failure to take adequate corrective actions resulting in the violation of a Technical Specification concerning station safety-related batteries (269/82-36-01); (Violation - Failure to perform technical specification required surveillance tests (269/82-36-02);

## DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*J. E. Smith, Station Manager
- J. N. Pope, Supervisor of Operations
- \*T. B. Owen, Supervisor of Technical Services
- \*J. Davis, Supervisor Mechanical Maintenance
- \*R. Rogers, Licensing Engineer
- T. Matthews, Licensing Engineer

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

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on September 10, 1982, with those persons indicated in paragraph 1 above. The licensee voiced cognizance and concern over the findings contained herein.

### 3. Licensee Action on Previous Inspection Findings

Not inspected.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

### 5. Plant Operations

The inspector reviewed plant operations throughout the report period, August 10 - September 15, 1982, to verify conformance with regulatory requirements, technical specifications and administrative controls. Control room logs, shift supervisors' logs, shift turnover records and equipment removal and restoration records for the three units were routinely perused. Interviews were conducted with plant operations, maintenance, chemistry, health physics, and performance personnel on day and night shifts.

Activities within the control rooms were monitored during all shifts and at shift changes. Actions and/or activities observed were conducted as prescribed in Section 3.08 of the Station Directives. The complement of licensed personnel on each shift met or exceeded the minimum required by technical specifications. Operators were responsive to plant annunciator alarms and appeared to be cognizant of plant conditions.

Plant tours were taken throughout the reporting period on a routine basis. The areas toured include but are not limited to 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
- Units 2 and 3 Reactor Building

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

Unit 1 began the report period operating at 100 percent power and operated essentially at this power until August 20, 1982 when both Units 1 and 2 began shutting down as a result of determining that 5 of 6 station 125 VDC I&C batteries were technically inoperable. (Details concerning the batteries are contained elsewhere in this report). Later that day the shutdown was terminated and Units 1 and 2 returned to full power.

Operation continued at 100 percent power until September 10, 1982 when Unit 1 tripped at 11:23 p.m. due to a turbine trip. The turbine trip was caused by a low electro-hydraulic control (EHC) oil pressure due to problems with the B EHC pump. During the trip, RCS pressure, level and temperature responded as expected, no ES setpoints were reached nor was emergency feedwater initiated. Post trip recovery was normal. Criticality was reestablished at 4:30 a.m. on September 11, 1982. That morning at 11:33 a.m. the unit tripped from 14 percent power. The trip was due to high reactor coolant system pressure caused by a feedwater transient. During the trip, RCS pressure, level and temperature responded as expected, no ES setpoints were reached nor was emergency feedwater initiated. Post trip recovery was normal. Criticality was reestablished at 1:00 p.m. on September 11. That evening at 9:51 p.m. the unit tripped from 35% power due to a turbine-generator trip on loss of stator cooling water. Stator cooling water was interrupted when power was lost to bus 1XE which powers the B stator cooling water pump. During the trip, RCS pressure, level and temperature responded as expected, no ES setpoints were reached nor was emergency feedwater initiated. Post trip recovery was normal. Criticality was reestablished at 2:55 a.m. on September 12, 1982. The Unit attained 100 percent power late that day. At the close of the report period the unit was at full power.

Unit 2 began the report period operating at 100 percent power, and except for the power reduction of August 10, as discussed previously, continued at 100 percent power until the unit tripped on August 24, 1982. The trip was caused by an I&C technician inadvertently initiating a turbine trip which resulted in a reactor trip. Following the trip, RCS pressure, level and temperature responded as expected; no ES setpoints were reached nor was emergency feedwater initiated. The Unit remained shutdown until

September 6, 1982 to repair a leaking pressurizer relief valve. Operation was resumed and continued at 100 percent power through the end of the report period.

Unit 3 continued the 10 year inservice inspection and refueling outage throughout the report period. Installation of the external emergency feedwater header was completed at the end of this report period, and will be detailed in the next report. Currently, the unit is scheduled to be on-line by October 12, 1982.

#### 6. Surveillance Testing

The surveillance tests listed below, as well others as detailed elsewhere herein, were analyzed and/or witnessed by the inspector to ascertain procedural and performance adequacy.

The completed test procedures examined were analyzed for embodiment of the necessary test prerequisites, preparations, instructions, acceptance criteria and sufficiency of technical content.

The selected tests witnessed were examined to ascertain that current written approved procedures were available and in use, that test equipment in use was calibrated, that test prerequisites were met, system restoration completed and test results were adequate.

The selected procedures perused attested conformance with applicable Technical Specifications; they appeared to have received the required administrative review and they apparently were performed within the surveillance frequency prescribed.

<u>Procedure</u>	<u>Title</u>
IP/0/A/275/5Y	EFWPT Initiation Functional Test
IP/0/B/200/11	RC Flow Instrumentation Calibration
IP/0/B/275/56	EMFWP Bearing Temperature and Discharge Pressure Calibration
IP/1/A/305/16	RPS Channel C Temperature Instrument Calibration
IP/1/A/305/1H	RPS Channel D Temperature Instrument Calibration

The inspector employed one or more of the following acceptance criteria for evaluating the area of conformance to surveillance test requirements:

- 10 CFR
- ANSI N 18.7
- Oconee Technical Specifications
- Oconee Station Directives
- Duke Administrative Policy Manual
- Oconee Facility Licensee

Within the areas inspected two items of noncompliance were identified as detailed in this report.

#### Inoperable 125 VDC Instrument and Control Batteries

On August 20, 1982 the licensee determined during the review of completed battery surveillance procedures that 5 of 6 station instrument and control batteries were technically inoperable in that various cells of the batteries had specific gravity or individual voltage out of tolerance.

At the time of discovery Oconee Units 1 and 2 were operating at 100% power and Unit 3 was at cold shutdown. Units 1 and 2 were determined to be exceeding the limiting condition for operation of Technical Specification 3.7.1(e)2 which requires for operation of any two units, that batteries 1CA or 1CB and 2CA or 2CB, and 3CA or 3CB be operable. The licensee commenced shutdown of both units and initiated corrective action to restore the required complement of batteries to service. Later that day batteries 3CB and 1CA were restored allowing both units to return to power. This item was reported to Region II in LER RO-269/82-17.

On April 2, 1982 the requirements of technical specification 4.6.9 (a) and (b) were incorporated into the applicable procedures for the 125 VDC I&C Batteries and the 230 KV Switchyard Batteries. The procedure which describes the surveillance requirement of that specification, IP-0-A-3000-01 requires that, if the surveillance test acceptance criteria are not met, corrective actions shall be taken to correct the deficiencies within 90 days or the battery shall be declared inoperable.

On August 20, 1982, during a non-programmatic review of completed 125 VDC Instrument and Control battery surveillance test procedures, the licensee detected that: (a) the tests contained unacceptable results, (b) corrective actions had not been taken to correct the deficiencies identified during testing (c) the 90 day grace period allowed by Technical Specification had expired and (d) 5 of the 6 125 VDC Instrument and Control Batteries were technically inoperable.

An inspector review of completed procedures reveals that subsequent to April 2, 1982, the 125 VDC I&C batteries were technically inoperable for the periods indicated below until the discovery on August 20, 1982:

<u>Unit</u>	<u>Battery</u>	<u>Date</u>
1	CA	Battery 1CA was out of service for virtually the entire period for maintenance. When tested on July 12, 1982 after maintenance it too was technically inoperable.

	CB	Entire Period
2	CA	NA (operable)
	CB	July 28, 1982 - August 20, 1982
3	CA	Entire Period
	CB	Entire Period

The review of completed procedures also revealed that of the 12 procedures performed on the stations' 125 VDC Instrument and Control Batteries during that period, one per month, for the months of April through July, for each of the units, all contained out of tolerance test data, yet all had been reviewed and verified by station supervisory personnel as having met all acceptance criteria. The station appears to have operated in violation of Technical Specification 3.7.1(e) the entire period.

It should be noted that the I&C batteries were discharge (capability) tested as delineated below:

<u>Unit</u>	<u>Date</u>
1	July 12, 1982
2	July 17, 1982
3	December 28, 1981

The discharge test places a 600 amp load on the batteries for 1 hour. The 600 amp load is a conservative estimate of accident condition battery loads, assuming single failure of 1 of each units' batteries. Although the batteries were technically inoperable as a result of failure to take corrective action, the results of the discharge tests indicated that the batteries would have functioned as designed if called upon to do so. Thus the impact of this event on the health and safety of the public is minimal.

The cause of this event appears to be the licensee's failure to take the procedural and Technical Specification required corrective action to return the subject batteries to operable status within the allowed 90 day period. This in turn led to the violation of Technical Specification 3.7.1(e)2, identified on August 20, 1982, when it was determined that Oconee Units 1 and 2 were operating at full power with 5 of 6 125 VDC batteries technically inoperable.

10 CFR 50, Appendix B, Criterion XVI, Corrective Action as implemented by Duke Power Company Quality Assurance Topical Report, Duke-1-A Section 17.2.16 Corrective Action through the Duke Power Company Administrative Policy Manual For Nuclear Stations Sections 3.2.2.6 and 3.1.3 Status of Structures, Systems and Components and Oconee Nuclear Station Directive 3.1.4.1 July 31, 1981, Operating Status Reviews and Housekeeping Tours requires that structures, systems and or components which are in other than operable or normal status be identified and corrected so the affected equipment can be returned to operable status.

Failure to take the required corrective action is a Violation (269/82-36-01).

### Isolation of Reactor Coolant Pump Seal Return

At 3:36 p.m. on August 11, 1982, while Unit 2 was operating at full power, valve 2HP-21, the reactor coolant pump seal return isolation valve, was inadvertently closed during the performance of an Engineered Safeguards (ES) on-line test. The cause of the event was the failure of the licensee to abide by the requirements of the test procedure in use. The licensee was performing procedure IP-0-A-310-13A, Engineered Safeguards System Logic Subsystem 2 High Pressure Injection and Reactor Building Isolation Channel 2 On Line Test.

The purpose of the test is to functionally check the operation of the associated ES logic. One section of the test, 10.9.5, verifies the logic which serves to close valve 2HP-21 when ES channel 2 is actuated. Step 10.9.5.6 of that section requires two actions be performed; the depression of the AUTO button for 2HP-21 on the RZ (Control) panel and the depression of the OPEN button, on the same panel. These actions return the logic to the "as found" position prior to removing the logic from the TEST state.

On August 11, the I&E technician performing the test instructed an operator to depress the AUTO but did not request to have the OPEN button depressed. In essence, this left the logic in a tripped state such that when the I&E technician returned the logic to service by closing an electrical link which had been opened, valve 2HP-21 closed, isolating seal return.

When the valve shut, the control room received alarms indicating high seal leakage and low seal return flow. The operator recognized what had occurred and immediately reopened the valve.

No permanent damage resulted from the event although seal leakage increased slightly on one of the reactor coolant pumps.

The above constitutes a violation in that the licensee failed to follow a written approved procedure which violates Technical Specification 6.4.1(j) requiring nuclear safety-related periodic tests be performed in accordance with approved procedures.

In that the above delineated violation meets the criteria set forth in current NRC enforcement policy designed to encourage licensee initiative for self-identification and correction of problems, a notice of violation will not be issued.

## 7. Maintenance Activities

Maintenance activities were observed and/or reviewed throughout the report period to ascertain that the work was being performed by qualified personnel, that activities were accomplished employing approved procedures or the activity was within the skill of the trade. Limiting conditions for operation were examined to ensure that Technical Specification requirements were satisfied. Activities, procedures, and work requests were examined to

ensure adequate fire protection, cleanliness control and radiation protection measures were observed and that equipment was properly returned to service.

Acceptance criteria employed for this review included but was not limited to:

Station Directives  
Administrative Policy Manual  
Technical Specifications  
Title 10 CFR.

Detailed below are eight maintenance activities which were observed and/or reviewed during the report period:

<u>Work Request Number</u>	<u>Component</u>
46677	3CF-31
50411B	1CA Batteries
20733	1RCP 3A1 Seal Leakage
52198B	3A Decay Heat Cooler
52208B	3B Decay Heat Cooler
19952	3B Component Cooling Cooler
19992	3MS-84
15968	3HP-115

Within the areas inspected no items of noncompliance were identified.

#### 8. License Amendment Implementation Review

An inspector review of recent facility license amendments revealed four examples of apparently inadequate licensee review and/or implementation of the requirements contained therein. The inadequacies appear to indicate a programmatic deficiency concerning the performance of accurate, comprehensive reviews of both submitted and approved license amendments. Further, three of the examples concern the failure to incorporate surveillance requirements which consequently rendered associated safety-related equipment technically inoperable.

The four examples are detailed below:

- a. On September 2, 1982, the licensee determined that four reactor building penetrations on each of Units 1, 2 and 3 had not been leak rate tested in accordance with Technical Specification 4.4.1.2, Table 4.4-1, Items 46, 55 60 and 61. License Amendment 104/104/101, incorporating these leak rate requirements into the facility Technical Specifications, was approved on November 6, 1981. The revised Technical Specification required type B local leak rate testing of reactor building mechanical penetrations 46, 55, 60 and 61. These revised Technical Specification requirements were not incorporated into applicable procedures, from the date of issue of the requirement, until



September 2, 1982 when the licensee determined that type B testing was technically inappropriate for those penetrations. Type C testing was performed during the period described above. Subsequent discussions with NRC staff revealed that type C testing was the correct characterization for these penetrations and that the Technical Specifications were incorrect in indicating type B. The amendment was approved as submitted, indicating an inadequate pre-submittal, as well as post-approved review. Currently, there is a proposed Technical Specification under NRC staff review which would correct the requirement.

- b. On July 6, 1982, the licensee determined that surveillance testing of emergency feedwater (EFW) initiation circuitry, as required by Technical Specification 4.1.1, Table 4.1-1 Items 53a and 53b, was not performed. As detailed in report 82-27, License amendment 110/110/107 incorporating these requirements into the facility Technical Specifications was approved on April 8, 1982. On July 6, 1982, the licensee discovered that the requirements had not been implemented and initiated corrective action consisting, in part, of successful testing of the EFW circuitry and incorporating the testing requirements.
- c. On March 8, 1982, the licensee determined that the heatup and cooldown limitations of Technical Specifications 3.1.2.1 were not compatible with the Unit 1 reactor coolant Pump (RCP) net positive suction head (NPSH) requirements at lower temperature and pressure regions.

License Amendment 107/107/104 incorporating the revised heatup and cooldown requirement into the facility Technical Specifications was approved on February 22, 1982. The revised Technical Specification did not allow sufficient suction pressure at lower temperatures to operate the Unit 1 RCPs.

Licensee amendment 107,107,104 was approved as submitted by the licensee, which indicates another example of inadequate presubmittal review.

- d. On September 11, 1981, the licensee determined that Technical Specification required surveillance testing of safety-related station batteries was not performed according to the specification.

Technical Specification 4.6.9(a) and (b) detail the weekly and quarterly surveillance testing requirements for the Station Instrumentation and Control Batteries, Keowee Hydro Station Batteries and 230 Kv Switchyard Batteries.

License Amendment Nos. 82/82/79, incorporating these surveillance requirements into the facility Technical Specifications, was approved on May 2, 1980. On September 11, 1981, the licensee detected that the requirements had not been incorporated into the applicable procedures and initiated corrective action. The licensee reported this incident

to the NRC in Licensee Event Report Number RO-269/81-18. The surveillance requirements were incorporated into the procedure for Keowee Hydro Station Batteries and approved on September 29, 1981. The surveillance requirements were not incorporated into the procedures for the Station Instrumentation and Control Batteries nor the 230 KV Switchyard Batteries until April 2, 1982.

Examples a and c involve the inclusion of technically inappropriate requirements into the Technical Specifications as the result of an apparently inadequate review, were licensee identified and corrected. Example b was previously detailed in report 50-269/82-27. The three of them are employed herein to emphasize the apparent programmatic nature of the issue. In the cases of the emergency feedwater initiation logic, the reactor building penetrations and the batteries, the equipment was rendered technically inoperable as a function of having failed to perform Technical Specification required surveillance testing. In each case however, surveillance testing per se, was being performed on the equipment, and the equipment was apparently capable of performing its intended function. Thus it is not considered that the technical inoperabilities posed a threat to the health and safety of the public.

A review of enforcement history reveals a related occurrence detailed in report 80-33/29/26. On October 7, 1980, surveillance testing of the Unit 3 low pressure injection (LPI) pump was not performed pursuant to Technical Specification 4.1.2 in that procedure PT/3/A/0203/06, LPI Performance Test, did not incorporate the Technical Specification surveillance requirement of venting the pump casing prior to testing as stated in Table 4.1-2, Item 10. Similar to the four examples previously discussed, the licensee failed to incorporate the technical specification requirements into the applicable procedures.

Each of the above examples details the failure to perform an adequate review of either submitted or approved license amendment and/or failure to implement the approved license amendment. Collectively, the examples indicate an apparent programmatic breakdown in the license amendment review and implementation process.

10 CFR 50 Appendix B, Criterion V, Instructions, Procedures and Drawings, as implemented by Duke Power Company Quality Assurance Topical Report, Duke-1-A, section 17.2.5 Instructions, Procedures, and Drawings through the Duke Power Company Administrative Policy Manual for Nuclear Station, section 3.2.2 Periodic Testing and Oconee Nuclear Station Directive section 3.2.2. Responsibility For and Scheduling of Surveillance Requirements requires a comprehensive review of proposed and revised Technical Specifications, the identification of new or revised surveillance requirements, the preparation of necessary procedures to implement the new requirements and the scheduling and completion of the tests.

Contrary to those requirements, the requisites of Technical Specification 4.6.9(a) and (b), approved May 2, 1980, which requires specific surveillance

testing of the specific gravity, voltage and electrolyte level of the 125 VDC Instrument and Control Batteries and the 230 KV Switchyard Batteries were not implemented in that the surveillance requirements were not incorporated into the applicable procedures nor were the specific surveillance tests performed for those batteries from the date of issue of the requirements until April 2, 1982.

It is the obligation of the licensee to provide positive programmatic controls to ensure compliance with license requirements. This topic should be discussed in the reply to the above violation. This is a Violation (269/82-32-02)