UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N. W. SUITE 818
ATLANTA, GEORGIA 30303

IE Inspection Report Nos. 50-269/75-9, 50-270/75-10 and 50-287/75-10

Licensee: Duke Power Company
Power Building
422 South Church Street
Charlotte, North Carolina 28201

Facility Name: Oconee Units 1, 2 and 3
Docket Nos.: 50-269, 50-270 and 50-287
License Nos.: DPR-38, 47 and 55
Category: C, C and B2

Location: Seneca, South Carolina

Type of License: B&W, PWR, 2568, Mw(t)

Type of Inspection: Routine, Unannounced

Dates of Inspection: July 29-31, 1975

Dates of Previous Inspection: May 27-30 and June 3-6, 1975

Principal Inspector: T. N. Epps 8-27-75
T. N. Epps, Reactor Inspector — Date
Facilities Operations Branch

Accompanying Inspectors: None *

Reviewed by: 8/27/75
F. J. Long, Chief — Date
Facilities Operations Branch

* See Details II

SUMMARY OF FINDINGS

I. Enforcement Items

A. Deficiencies

1. Contrary to Technical Specification 6.6.2.1.a, abnormal occurrence report AO-287/75-7 did not include an analysis and evaluation of the safety implications involved in the blowdown of the Unit-3 reactor coolant system nor did the report address the causes and corrective actions taken to prevent recurrence of the incident. (Details I, Paragraph 2) (Unit 3)

II. Licensee Action on Previously Identified Enforcement Matters

Not inspected.

III. New Unresolved Items

None

IV. Status of Previously Reported Unresolved Items

Oconee 1, 2 and 3 (50-269, 50-270 and 50-287)

74-10, 08, 11/7 NSRC Review Capability

This item is closed. (Details I, Paragraph 8)

75-3/1 Analysis of Liquid Waste Samples

This item is closed. (Details II, Paragraph 2)

74-7/2 Activity in the Component Cooling System

This item is closed. (Details I, Paragraph 7)

V. Other Significant Findings

None

VI. Management Interview

A management interview was held on July 31, 1975, with Mr. J. E. Smith and members of his staff. Items discussed included the noncompliance item in Section I of the summary of this report, surveillance testing, two unresolved items in this summary and settlement of Class I structures.

Further discussions were held with licensee corporate management on August 5, 1975, concerning additional information on the Unit 3 blowdown that occurred on June 13, 1975.

DETAILS I

Prepared by: T. N. Epps, Reactor Inspector, Facilities Operations Branch — 8-21-75 Date

Dates of Inspection: July 29-31, 1975

Reviewed by: F. J. Long, Chief, Facilities Operations Branch — 8/21/75 Date

1. Individuals Contacted

Duke Power Company (DPC)

J. E. Smith - Manager, Oconee Nuclear Station
J. W. Hampton - Director, Administrative Services
L. E. Schmid - Operating Superintendent
O. S. Bradham - Maintenance Superintendent
R. M. Koehler - Technical Services Superintendent
T. S. Barr - Technical Services Engineer
R. P. Bugert - Training Supervisor

2. Unit 3 RCS Blowdown

Oconee Technical Specification 6.6.2.1.a requires that written abnormal occurrence reports describe, analyze and evaluate safety implications and outline the corrective actions and measures taken or planned to prevent recurrence.

Contrary to the above the licensee's abnormal occurrence report (AO-287/75-7) did not fully describe, analyze and evaluate safety implications and outline all corrective actions. The licensee's report primarily addressed the excessive cooldown rate of 101°F in one hour rather than addressing the entire reactor coolant system blowdown and the safety implications of the incident.

Apparently the initial transient was caused by a transfer of the turbine into manual while the unit load demand (ULD) was at 65 MWe and reactor power (automatically controlled) at 115 MWe. This eventually caused levels in the once through steam generators to swing causing RCS temperature, pressure and power swings. RCS pressure

spiked to 2267 psi which caused the power actuated relief valve, on the pressurizer, to open. The valve malfunctioned and remained in the open position. In addition a solenoid operated plunger that actuates position indication lights in the control room for the pressurizer relief valve malfunctioned.

As a result of this incident reactor coolant system (RCS) pressure decreased from 2250 psi to 720 psi within 26 minutes. The reactor tripped at 1800 psi and high pressure injection (HPI) initiated at 1500 psi.

The transient was terminated when a block valve was closed isolating the opened relief valve.

During this transient the rupture disc in the quench tank ruptured due to steam from the relief valve building up pressure in the quench tank. Approximately 1500 gallons of primary water were lost through the quench tank to the containment. Insulation on the bottom of the pressurizer was damaged when the rupture disc blew.

The licensee's report did not address the initial cause of the transient and corrective action to prevent recurrence; why the block valve that isolates the pressurizer relief valve was not closed sooner; corrective action to prevent recurrence on all 3 Oconee Units of the problems with the pressurizer relief valve and position indication equipment; possible damage to the pressurizer; or activity released.

The inspector stated to Oconee site personnel and later to Duke Power Company corporated personnel that whenever rapid uncontrolled depressurization of the primary system occurs causing HPI initiation and loss of some primary coolant, abnormal degradation of the primary coolant boundary has occurred even if blowdown is through an isolable fault if the fault is not isolated.

The licensee agreed to submit supplemental information on this subject.

3. Surveillance

The inspector reviewed several surveillance testing procedures and results including the following subject areas.

RCS Chemistry
RCS Leakage
Control Rod Movement

Emergency Feedwater Pump Testing
Secondary Coolant Activity
Spent Fuel Pool Water Samples
Electrical Systems
HPI and LPI Pumps
Some Reactor Building Local Leak Tests

Within the scope of this review no noncompliance items were identified.

4. Operator Requalification Program

A licensee representative stated that NRC licensing personnel reviewed some operator requalification examinations that were given at Oconee.

The requalification program received final approval June 18, 1975.

5. Settlement of Class I Structures

The inspector inquired as to whether the licensee has a program for measuring differential settlement of class I structures, such as, the reactor building and auxiliary building. The licensee stated that such a program does not exist at Oconee since the facility is built on solid rock.

6. NSRC Review Capability

The licensee furnished information to the effect that one permanent member of the NSRC has an M.S. degree in Materials Engineering and provides capability for reviewing metalurgical considerations. This item is closed.

7. Activity in the Component Cooling System

The licensee's letter to the NRC's Region II office dated May 9, 1975, stated that a modification had been installed which added additional isolation valves between the component cooling drain tank pump discharge header and the miscellaneous waste transfer pump discharge header. The level of activity in the component cooling system has decreased. The licensee stated in the letter that monitoring of component cooling system activity will continue until the activity decays to normal background. This item is closed.

8. Bingham Pump Bolts

The inspector questioned licensee personnel about testing done on Bingham Pump hold-down bolts. A licensee representative stated that during ISI baseline testing these bolts were UT tested and found to be acceptable. Samples of these bolts will be retested at regular intervals such that all will be tested in the 10 year ISI cycle.

DETAILS II

Prepared by: W. L. Britz 8-31-75
Date

W. L. Britz, Radiation Specialist
Environmental Protection, Materials
Radiological Protection, and
Special Projects Section
Radiological and Environmental
Protection Branch

*Date of Inspection: July 22, 1975

Reviewed by: R. L. Bangart 8/22/75
Date

R. L. Bangart, Senior Health Physicist
Environmental Protection, Materials
Radiological Protection, and
Special Projects Section
Radiological and Environmental
Protection Branch

1. Individuals Contacted

J. W. Hampton, Director, Administrative Services (Acting Plant Manager)
D. L. Davison, Assistant Health Physics Supervisor

2. Analysis of Liquid Waste Samples (75-3/1)

A. The licensee is required to measure quantities and concentrations of radioactive material in effluents from his facility. During previous independent measurement checks of June, September, and October, 1974, the licensee's ability to measure radioactivity in test standards and plant effluent split samples was evaluated. Some results of the licensee's measurements of gamma emitters and strontium in liquid were in disagreement. It was also determined that gross beta analyses had not been normalized against results of total isotopic analyses when used to determine values for reporting releases of liquid effluents. See IE Report Nos. 50-269/75-3, 50-270/75-3, and 50-287/75-3.

B. On March 18, 1975, liquid and gas split samples were collected by the Division of Radiological Health, State of South Carolina and analyzed by the licensee's laboratory and the NRC's reference laboratory. There were eighteen measurement comparisons. Twelve comparisons were in agreement, four were in possible agreement, and two in disagreement. The disagreements were on antimony-124 in the liquid sample and krypton-85 in the gas sample which were not detected by the licensee, but were reported present in concentrations greater than 10% of 10 CFR 20 Appendix B, Table II, by the NRC's reference laboratory. It appears that these two isotopes were not detected due to the short counting times used. The licensee has committed to count future split samples for about one hour to achieve lower sensitivities. The gamma emitting measurements are now resolved.

* The inspection action was an in-office evaluation of analytical results, which were discussed by telephone with the licensee representative on July 22, 1975.

C. On April 3, 1975, strontium test standards in a liquid sample and on a particulate filter were sent to the licensee's laboratory for analysis to resolve the disagreements of June and September, 1974. The licensee's laboratory procedures were also reviewed by the NRC's reference laboratory. Comments provided to the licensee's laboratory by the NRC's laboratory included: use of Sr-85, Ba-133, and Y-88 as gamma tracers to check various steps in the procedure for removal or yield factors, more exact control of pH, filtering rather than centrifuging in one step, and controlling temperature in another step. The results of four measurement comparisons for Sr-89 and 90 were three agreements and one possible agreement. The previous strontium measurements on the March 18 liquid analysis were also in agreement. The strontium measurements are now resolved.

D. The licensee in a letter of April 11, 1975, reported he has now determined and is using a normalization factor on the gross beta analysis, based on total isotopic analysis, when making radioactive liquid releases based on the gross beta analysis. This item is now resolved.