UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-269/94-22, 50-270/94-22 and 50-287/94-22

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242-0001

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

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

Facility Name: Oconee Units 1, 2 and 3

Inspection Conducted: July 3 - July 30, 1994

Inspectors: _____ 8/25/94
P. E. Harmon, Senior Resident Inspector Date Signed

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Approved by: _____ 8/25/94
R. E. Carroll, Acting Chief Date Signed
Reactor Projects Section 3A

SUMMARY

Scope: This routine, resident inspection was conducted in the areas of plant operations, surveillance testing, maintenance activities, and engineering and technical assistance. A portion of the inspections were conducted during backshift hours.

Results: One Unresolved Item was identified regarding the design basis and operability requirements of the Penetration Room Ventilation System, paragraph 4.b. An Inspector Followup Item regarding Work Control process errors was identified in paragraph 3.a.

During the inspection period Unit 1 was reduced to 65% power to allow work on a main feedwater pump, Unit 2 was shut down to repair leaking Steam Generator tubes, and Unit 3 was shut down to repair leaking Reactor Coolant letdown coolers. Licensee management made conservative, safety conscious decisions regarding each of these outages.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*B. Peele, Station Manager
S. Benesole, Regulatory Compliance Manager
*D. Coyle, Systems Engineering Manager
J. Davis, Engineering Manager
T. Coutu, Operations Support Manager
*B. Dolan, Safety Assurance Manager
W. Foster, Superintendent, Mechanical Maintenance
*J. Hampton, Vice President, Oconee Site
D. Hubbard, Component Engineering Manager
C. Little, Superintendent, Instrument and Electrical (I&E)
G. Rothenberger, Operations Superintendent
R. Sweigart, Work Control Superintendent

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

*Attended exit interview.

2. Plant Operations (71707)

a. General

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, temporary modification log, and equipment removal and restoration records were reviewed routinely. Discussions were conducted with plant operations, maintenance, chemistry, health physics, instrument & electrical (I&E), and engineering personnel.

Activities within the control rooms were monitored on an almost daily basis. Inspections were conducted on day and night shifts, during weekdays and on weekends. Inspectors attended some shift changes to evaluate shift turnover performance. Actions observed were conducted as required by the licensee's 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.

Plant tours were taken throughout the reporting period on a routine basis. During the plant tours, ongoing activities, housekeeping, security, equipment status, and radiation control practices were observed.

b. Plant Status

Unit 1 operated at power the entire reporting period. On July 28, 1994, power was reduced to approximately 65 percent to secure the 1B main feedwater pump for maintenance. The unit remained at approximately 65 percent power for the remainder of the inspection period.

Unit 2 was shut down July 27, 1994, to repair leaking Steam Generator tubes. The unit remained shut down at the end of the inspection period.

Unit 3 operated at full power until July 5, 1994, when the unit was shut down due to both letdown coolers having unacceptable leakage. The unit was returned to power on July 18 and operated at or near 100 percent power for the remainder of the inspection period.

c. Unit 2 Steam Generator Tube Leak and Reactor Shutdown

Unit 2 was shut down on July 27, 1994, due to a primary to secondary leak in the 2A Steam Generator. The leak was calculated to be 0.134 gpm. (Note: The TS limit is 0.35 gpm.) An indication of a leak was first observed on July 10, when the count rate on the Steam Jet Air Ejector (SJAE) exhaust radiation monitor increased from a rate of less than 1,000 cpm to 1,200 cpm. The following day the count rate had increased to 3,800 cpm and a tube leak of 0.0002 gpm was calculated. The count rate continued to increase and at the beginning of the day shift on July 26, the rate had reached 250,000 cpm with a calculated leak rate of .04 gpm. The leak rate increased over the next 24 hours until the rate reached 930,000 cpm and the calculated leak rate was 0.11 gpm.

Since the leak rate was increasing with no indication of abating, plant management decided to shut the unit down and repair the leaking tube(s) prior to reaching the TS limit. A power reduction of 2 MWe per minute was initiated at 9:45 a.m. to reach a 90 percent power level. At this power level, sufficient data was obtained to confirm the leak was not reduced by a power reduction, and unit shutdown was continued. The power level was decreased and the main generator was off-line at 5:39 p.m. As the cooldown continued and Reactor Coolant System (RCS) pressure was reduced to below 1700 psig, the Shutdown Bypass High Pressure Trip was reset to the low setpoint value of 1710 psig. At 1:19 a.m., on July 28, the RCS pressure exceeded the setpoint and an automatic actuation of the Reactor Protection System (RPS) occurred. The RPS actuation (which was reported under 10 CFR 50.72) was attributed to: (1) increased makeup flow to automatically maintain pressurizer level which resulted in raising the RCS pressure and (2) resetting the Shutdown Bypass High Pressure Trip when

operating at near the trip setpoint with unstable RCS pressure conditions.

The inspectors monitored on a daily basis the leak rate and chemistry results. Based on this, the licensee's actions were determined to be proper and the decision to shut down the reactor was conservative.

d. Unit 2 Midloop Operation

On July 28, 1994, the inspectors reviewed the licensee's procedure for reducing the RCS inventory during the Unit 2 outage for the 2A steam generator tube leak repair. The procedure, OP/2/A/1103/11, Draining And Nitrogen Purging Of RC System, revised July 28, 1994, sets forth the requirements for reducing RCS inventory. These include a minimum of two methods of alarmed level indications utilized to monitor vessel levels, boron concentrations for safe shutdown margin, availability of safety equipment, alignment and tagging of systems and equipment, and two independent RCS temperature indications.

The inspector verified on July 30, that the licensee met the requirements specified in the procedure prior to entering a reduced RCS inventory status. The Low Pressure Injection flow rates were being monitored in the control room on the Operator Aid Computer, flow indicators, and alarms on annunciator panel 3SA-3 (windows A8 and A9). RCS temperatures were monitored on the Operator Aid Computer with alarms set at 125 degrees F, on the Inadequate Core Cooling Monitor display, and on the control room instrument panel. RCS level was monitored by permanent instrumentation (LT-5A and B) and Ultrasonics, which were installed temporarily for the condition at mid-loop operation. Levels were alarmed and monitored on control room instruments and on the Operator Aid Computer.

In addition, the inspectors verified that configuration control of containment penetrations was maintained. The equipment hatch was only opened during the outage when it was necessary to move equipment in and out of the reactor building. For the remainder of the time, the hatch remained closed. However, it was necessary for some penetrations to remain open to support the outage work efforts (i.e., cables routed through for eddy current testing of steam generator tubes). Accordingly, a required closure time was addressed in the event of a loss of decay heat removal capability.

The licensee maintained a Risk Summary Sheet for the availability of equipment required to support the plant during reduced inventory. This included the status of systems, electrical power sources, RCS makeup supplies and containment penetrations with the amount of time anticipated for closure. Taking into account the RCS inventory, the "time to boil" was calculated in the event of a loss of cooling.

Based on the above, the inspectors considered the licensee's efforts in controlling and monitoring reduced inventory conditions to be adequate.

e. Unit 3 High RCS Activity and Outage For Letdown Cooler Leaks

Unit 3 was shut down on July 5, 1994, to repair leaks in both letdown coolers. Throughout the inspection period, there was increasing RCS activity, in particular increasing Dose Equivalent Iodine, which indicated fuel pin leaks. Increased letdown flow and cleanup rates required placing both letdown coolers in service. Leaks developed in both coolers, and station management decided to shut down Unit 3 to effect cooler repairs. After replacing one letdown cooler and plugging a leaking tube in the other, Unit 3 was returned to power on July 10. The shutdown and plant conditions which necessitated the shutdown is discussed in detail in paragraph 5.

f. Removal And Restoration Of Station Equipment

A review of the licensee's program to remove equipment from service was conducted by the inspector. The program was outlined in procedure OP/O/A/1102/06, Removal And Restoration Of Station Equipment, and was computerized during the Unit 1 refuel outage which occurred in June 1994. This review was performed by randomly selecting 3 tagged equipment items and verifying that each was in the required status as documented on the Hold Order. The equipment and Hold Tags reviewed are addressed below:

(1) Tag # 056803; The tag was to maintain the #2 Potential Drawer in the closed position. This was necessary because the cabinet door could not be mechanically locked closed. This tag had been installed February 28, 1994, and had been properly logged.

(2) Tag # OPS-94-1117-1; This tag was installed after opening Unit 1 electrical breaker 1TE10 to the 1C Low Pressure Injection Pump to maintain the breaker in the open position. The breaker was opened and tagged on July 6, 1994, to ensure the pump was secured from service while replacing the 1C Low Pressure Injection Pump orifice gasket per Work Order 94042430-01.

(3) Tag # OPS-94-1114-1; Unit 2 breaker 2TC11 was opened and tagged on July 6, 1994, to secure the "C" Low Pressure Service Water Pump during hydrostatic testing of its associated piping. The testing was to be performed per Work Order 94030406-01.

Based on the above, the inspector determined that the program had been adequately implemented.

Within the areas reviewed, violations and deviations were not identified.

3. Maintenance and Surveillance Testing (62703 and 61726)

a. Maintenance activities were observed and/or reviewed during the reporting period to verify that work was performed by qualified personnel and that approved procedures adequately described work that was not within the skill of the craft. Activities, procedures and work orders (WO) were examined to verify that proper authorization and clearance to begin work was given, cleanliness was maintained, exposure was controlled, equipment was properly returned to service, and limiting conditions for operation were met.

The following maintenance activities were observed or reviewed in whole or in part:

(1) Emergency Feedwater Flow Calibration, WO 93081788-01

On July 25, 1994, the inspector observed the calibration of flow transmitter 1FT-129 (emergency feedwater flow to the "A" steam generator, channel "B"). The calibration was necessary due to a 10CFR21 notification regarding a change in the specification for static pressure span shift for Rosemount Model 1152 differential pressure transmitters.

The calibration activities observed were satisfactory; however, the inspector noted that while the transmitter was out-of-service neither the transmitter nor its associated instrument string was in the Removal & Restoration (R&R) log. Additionally, there was no indication on the affected flow instrument in the control room that the flow indicator associated with this transmitter was out-of-service. (Note: There are four flow indicators in the control room, two for each loop.) The control room operators informed the inspector that it was station policy not to include flow transmitters in the R&R book unless Operations valved out the transmitter, and that there was no requirement to provide indication on the affected instrumentation that was out-of-service or unreliable due to calibration activities. The inspectors noted that this instrument string was out-of-service for over 24 hours. Considering this practice to be a weakness in configuration control, the inspectors communicated their concerns to licensee management. Licensee management agreed with the inspectors that there should be some positive indication on the affected instrument when it is out-of-service. The licensee initiated Problem Investigation Process (PIP) 1-094-1009 to address this concern. The inspectors will review the licensee's corrective actions in the future.

(2) Change-Out of Square Root Extractors Associated With Channel "B" of Emergency Feedwater Flow, WO 94043774-01

On July 26, 1994, the inspector observed the subject work activity. The square root extractors were replaced with a new model in order to improve readability at lower flow rates. All activities observed were satisfactory.

(3) Work Request (WR), 94024411, Investigate and Repair Low Pressure Injection Cooler Outlet Temperature Indication and Minor Modification 94040344-01, Add 4 Flanges To The LPI Supply Line To The 1A LPI Cooler

On June 19, 1994, WR 94024411 was initiated to investigate and repair the 1A Low Pressure Injection Cooler outlet temperature indication. The inspector learned that the erroneous indication resulted from crossed leads on temperature element 1LP2-TE2. In support of minor modification 94040344-01, the thermocouple leads had been removed to aid in the removal and installation of the LPI cooler channel head. The leads had subsequently gotten crossed when they were re-landed.

The inspector reviewed the minor modification work documentation associated with the cooler. This modification was completed and post modification testing was performed on May 25, 1994. The testing consisted of a leak check and a functional test. Final QA review and acceptance was documented as completed on June 17, 1994. However, the temperature indicator was not functionally tested after the modification had been completed. Consequently, discovery of the crossed leads and inoperable instrument did not occur until after the instrument was placed in service and operators tried to use it. Additional work activities as specified per WR 94024411 were necessary to change the crossed leads to correct the 1A outlet cooler indication.

During the review of WR 94024411, the inspector noted that the WR was designated as not being related to TS and as a non-TS item. However, the LPI Cooler outlet temperature is monitored to control reactor coolant cooldown within the rates required by TS (Section 3.1.2). Therefore, 1LP2-TE2 should have been designated as an instrument required by TS.

WR 94024411 is a product of the Single Point Of Contact (SPOC) work control process that has been recently implemented at Oconee. The inspectors have been monitoring this program to evaluate its full implementation. The inspectors consider the lack of post-maintenance testing on the temperature monitor and the erroneous classification of the instrument as non-TS related to be errors of low significance. However, the errors were indicative of a lack

of attention to detail by the SPOC team. This failure to properly test 1LP2-TE2 after performing work activities on the instrument and to designate the work on the instrument as not being TS related will be identified as Inspector Followup Item (IFI) 50-269,270,287/94-22-01: Work Control Deficiencies. This IFI will be used to track and document the progress of the restructured work control process and of the SPOC activities in particular.

(4) WR 94025316-01, Rewire Limit Switch IAS7-428

Unit 3 was shutdown during July 1994 for 14 days to repair leaks on the 3B Letdown Cooler and to replace the 3A Letdown Cooler. During this shutdown period, the inspector reviewed the scheduled work which included changing the leads at the "add-on" pack limit switches on valve 3HPI-428 because of a false indication on the panel board in the Secondary Shutdown Facility (SSF). The false indication was determined to have resulted from maintenance performed and completed on this valve on February 12, 1994, during the most recent Unit 3 Refueling Outage. The false indication was discovered on February 17, 1994, as documented in PIP 3-094-0303.

The inspector evaluated the work activities by reviewing Work Orders (WO 94008314-01, WO 94008312-01, WO 94008313-01, and WO 93045431-01) that were utilized to disconnect the operator from the valve, move the operator to the shop for diagnostic testing, and return/reinstall the operator on the valve. The post-maintenance testing on the valve unit was completed on February 12, 1994, per WO 94008314-01, which referenced a leak test and a functional test. However, no reference could be found to document that the status indication in the SSF had been included as part of the post maintenance testing. The false indication was corrected on July 12, 1994, per WR 94025316-01.

The licensee is performing a root cause analysis and proposed corrective actions as required by the associated PIP. Results of the root cause analysis and corrective actions will be monitored by the inspectors. This will be identified as another example of IFI 50-269,270,287/94-22-01: Work Control Deficiencies.

(5) WO 94053791, 1B Main Feedwater Pump Maintenance

On July 28, 1994, the 1B Main Feedwater Pump (MFP) was secured for maintenance activities related to potential problems with the shaft driven oil pump. Vibration data indicated an increasing trend and the MFP was secured to inspect/replace the associated oil pump gears. As of the

end of the inspection period, the MFP had not been returned to service.

The inspectors monitored licensee activities associated with the pump maintenance and inspected the components removed for replacement. The inspectors noted no obvious galling or wear on the gears. However, the licensee replaced the gear set with a matched set of gears. No deficiencies were noted in the licensee activities monitored.

b. Surveillance activities were conducted with approved procedures and in accordance with site directives. The inspectors reviewed surveillance performances, as well as system alignments and restorations. The inspector assessed the licensee's disposition of discrepancies which were identified during the surveillance.

The following surveillance activities were observed or reviewed in whole or in part:

(1) Control Rod Drive Movement, PT/0/A/600/15

On July 18, 1994, the inspector witnessed operator activities during the performance of PT/0/A/600/15. The purpose was to periodically test the Control Rod Drives under actual operating conditions. The activities consisted of inserting each group of rods approximately 2.5 percent and then returning them to their original position. The test was completed and the inspector verified acceptance criteria were met.

(2) Control Rod Drive DC Hold supply, Regulated Supply SCR Gate Drive, and Programmer Checks, IP/0/B/0340/002

The inspector reviewed performance of procedure IP/0/B/0340/002 on July 18, 1994. The purpose of this test was to verify proper operation of regulating supply gate drives, silicon control rectifiers (SCR), programmers, and direct current hold diodes associated with the Control Rod Drive System.

The inspector verified that the calibration equipment was within current calibration and had been properly logged in the test data as required. The test was authorized per Work Order 94051519-01 and the inspector verified that collected data met the acceptance criteria.

(3) Emergency Feedwater System Motor Driven Emergency Feedwater Pump, Non-Safety Instrument Calibration, IP/0/B/0275/005H.

The inspector reviewed activities during calibration of the non-safety instruments associated with the Unit 1 Emergency Feedwater System on July 6, 1994. The exercise was

performed in accordance with procedure IP/O/B/0275/005H, which was authorized per Work Request 94038889-01. Test Gauge OC1AC31223, which was used in the calibration of the instruments, was verified by the inspector to be within its current calibration date (i.e., the next calibration was due on August 16, 1994).

Although the Emergency Feedwater System is a safety-related system, the instruments calibrated were reviewed by the inspector and determined not to perform a safety function. Therefore, the use of a nonsafety-related calibration procedure was acceptable.

(4) Standby Shutdown Facility Diesel-Generator Operation, PT/O/A/600/21

The inspector witnessed performance testing of the SSF Diesel Generator on July 5, 1994. The test, PT/O/A/600/21, is performed on a monthly basis, or after maintenance or modification to the system, to verify that the equipment is operable.

The testing verified the equipment to be operable in that the required acceptance criteria were met. In addition, the inspector determined that the test activities had been properly authorized, each of the steps performed had been signed off, and the test was performed in accordance with the steps of the procedure.

(5) Low Pressure Service Water (LPSW) Pump Test, PT/3/A/0251/01

The inspector observed portions of the quarterly operability test for the two Unit 3 LPSW pumps on July 20, 1994. The test was performed in accordance with procedures and the inspector verified that all acceptance criteria were met.

(6) Operation of the ND9900 Gamma Spectroscopic Analysis System, HP/O/B/1001/26

This procedure is utilized to process/count RCS samples to determine activity, dose equivalent iodine (DEI) levels, etc. The inspector observed this procedure for the morning sample taken July 28, 1994, for Unit 3. All activities observed were satisfactory.

(7) Testing Keowee Overhead ACBs, TT/O/A/610/11

This temporary test procedure was conducted to obtain data on the operation of the Keowee Air Circuit Breakers (ACBs) when the air supply is not available. The test was performed on ACBs 1 and 2 (Keowee overhead breakers), and consisted of isolating the air supply to the ACB and cycling

the breaker. The breakers were cycled at an initial accumulator pressure of 150 psig for one test and at 140 psig for the second test.

The inspectors observed the performance of the temporary test and reviewed the data obtained. At an initial accumulator pressure of 140 psig, the pressure in the accumulator dropped to approximately 116 psig when the breaker was opened. This pressure was above the breaker interlock of 112 psig decreasing that would prevent reclosing the breaker.

(8) Condenser Circulating Water Valve Stroke Test, PT/0/A/0150/22K

This performance test stroked valves CCW-8, CCW-9, 2CCW-7, 3CCW-93, 1CCW-1, 1CCW-2, 1CCW-3, 1CCW-4, 1CCW-5, and 1CCW-6 to verify valve operability per the requirements of ASME Section XI.

The inspectors reviewed the test procedure and observed the performance of the test. During performance of the test, valve 1CCW-2 failed to meet the acceptance criteria established in the procedure for stroke time in the open direction. The valve was declared inoperable and the problem identification process was initiated to identify and correct the problem. As of the end of the inspection period, the cause of the unacceptable stroke time had not been determined. The inspectors will review this item during the next inspection period.

Within the areas reviewed, licensee activities were satisfactory and no violations or deviations were identified.

4. Onsite Engineering (37551)

During the inspection period, the inspectors assessed the effectiveness of the onsite design and engineering processes by reviewing engineering evaluations, operability determinations, modification packages and other areas involving the Engineering Department.

a. Operability Evaluation for Low Pressure Service Water System

On July 26, 1994, the licensee made a 10 CFR 50.72 report concerning the past inoperability of the Low Pressure Service Water (LPSW) system. During the planning process to repair the Elevated Water Storage Tank (EWST) outlet altitude valve (HPSW-25), the licensee determined that the EWST was required to support the operation of the LPSW system since the EWST supports the suction flow to the LPSW pumps by sealing the air inleakage path at the shafts of the condenser circulating water pumps during a loss of offsite power event. Loss of sealing water would result

in loss of the suction to the LPSW pumps in the siphon mode of operation, (i.e., CCW pumps not operating and lake level below the value required for gravity flow to the LPSW pump suctions).

The licensee determined that on two occasions since 1985 the EWST had been drained for maintenance activities. Specifically, in 1985 the inside of the EWST was painted and in 1990 the altitude valve was rebuilt. The licensee determined that these activities constituted a single failure vulnerability and resulted in the inoperabilty of the LPSW systems greater than the Technical Specification (TS) allowed time frames.

The adequacy of the HPSW system with respect to operation of the emergency condenser circulating water/low pressure service water system had been questioned by the inspectors in NRC Inspection Report 269,270,287/93-13 and presently remains under NRC review. The inspectors will follow this item by review of the associated Licensee Event Report.

b. Penetration Room Ventilation System Design Basis Issues

On July 26, 1994, the inspector noted that Units 2 and 3 entered the 12 hour action statement of TS 3.15.1a, due to their Penetration Room Ventilation System (PRVS) being declared inoperable. The Unit 2 and 3 PRVSs were declared inoperable due to Auxiliary Building Ventilation System (ABVS) Exhaust Fan-17 being taken out of service for preventive maintenance. OP/0/A/1104/41, Auxiliary Building Ventilation, provided Operations with a Control Room Ventilation System (CRVS) and PRVS operability determination table which required certain combinations of ABVS air handling units (AHU) and exhaust fans to be operable. The inspector questioned why the status of a non-safety/non-TS ABVS fan or AHU would have any impact on the operability of the PRVS, which is safety-related and addressed in TS (PRVS and ABVS are separate systems). The inspector was informed that testing conducted during 1992 revealed that PRVS and CRVS operability could be affected by ABVS AHU/fan combinations. This was because these combinations could result in Auxiliary Building rooms adjacent to the penetration rooms being at a lower pressure than the penetration rooms. The current Design Basis Specification for the PRVS (Spec. OSS-0254.00-00-1023, Rev. 3) states:

> "The purpose of the PRVS is to control and minimize the release of radioactive materials from the Reactor Building (RB) to the environment during post-accident conditions. It is designed to collect and process potential post-accident RB penetration leakage to minimize environmental radiation levels. During operation, the system will establish and maintain a negative pressure in the penetration room with

respect to the surrounding areas (outside atmosphere and Auxiliary Building) to ensure inleakage."

- and -

"Creating and maintaining a negative pressure in the penetration room and filtering the air leaving the penetration room is required to ensure that the thyroid and whole body doses at the exclusion area boundary and the low population zone are minimized following a loss of coolant accident."

Since the testing conducted in 1992 demonstrated that the PRVS could not maintain a negative pressure with respect to the Auxiliary Building with a non-safety ABVS fan or AHU inoperable, the inspector questioned the licensee on how they met their design basis for the safety-related PRVS. In response, the licensee stated that the Design Basis Document was in error in stating that the PRVS had to maintain a negative pressure with respect to the Auxiliary Building, and that their previous entries into TS 3.15.1a due to inoperable ABVS equipment were conservative. The licensee's basis for this position were several statements in the Final Safety Analysis Report (FSAR) which read as follows:

"The RB penetration room is maintained at a negative pressure of greater than 0.06 inches water with respect to the outside atmosphere when the penetration room fans are in operation." (FSAR Section 6.5.1.3)

"If during operation the leakage increases causing a decrease in negative pressure below 0.06 inches water with respect to the outside atmosphere, ..." (FSAR Section 9.4.7.2)

The inspector agreed that these statements did not specifically address the required penetration room pressure relative to the Auxiliary Building. However, the inspector did not agree with the licensee that these statements encapsulated the design basis requirements for the PRVS. The inspector noted that these FSAR statements had recently been amended and that the previous versions did not have the phrase "with respect to the outside atmosphere." Furthermore, Section 6.2.4.2 of the FSAR stated:

"All penetrations except the following are grouped within or vented to the penetration room. Any leakage that might occur from these penetrations will be collected and discharged through high efficiency particulate air (HEPA) filters and charcoal filters to the unit vent as described in Section 6.5....In this manner, leakage which might occur from these penetrations will be isolated from leakage which might occur through the Reactor Building itself." - (Note: The above is also on pages 5-46 of the original SAR.)

Additionally, page 14-63 of the SAR states:

> "It is assumed that 50 percent of the RB leakage will go into the penetration rooms which will be maintained at a negative pressure as described in 6.5. The atmosphere in these rooms is discharged through charcoal filters to the unit vent. The charcoal filters are assumed to be 90 percent efficient for iodine removal. The remaining 50 percent of the RB leakage is assumed to escape directly to the atmosphere. By this method a maximum of 55 percent of the iodine released from the RB is ultimately released to the atmosphere."

The inspectors concluded from these statements, as well as corresponding statements in the Safety Evaluation Report, that the licensing basis assumes all leakage into the penetration room would get filtered prior to release, and that there was no provision for any leakage short-circuiting the PRVS via leakage into the Auxiliary Building. The inspectors concluded that the only means for ensuring all leakage into the penetration room gets filtered is to either have the penetration rooms air tight, or at a negative pressure with respect to its surroundings (both atmosphere and Auxiliary Building) during the accident. The licensee agreed to furnish the inspectors with their rationale as to why the above statements did not constitute design basis requirements for the PRVS. This matter is identified as Unresolved Item 50-269,270,287/94-22-02: Design Basis Requirements for the Penetration Room Ventilation System.

No violations or deviations were identified.

5. Plant Support (71750)

The inspectors assessed selected activities of licensee programs to ensure conformance with facility policies and regulatory requirements. During the inspection period, the following areas were reviewed: radiological controls; radiological effluent, waste treatment, and environmental monitoring; physical security, and fire protection.

Throughout the inspection period primary coolant samples revealed steadily increasing Dose Equivalent Iodine (DEI) for Unit 3. The high DEI was indicative of failed fuel pins in Unit 3 (believed to be fuel pins in first burn assemblies). The licensee's sampling and tracking has identified specific instances where four separate fuel pin leaks have occurred. The fuel pin failures follow no specific pattern, and have not been directly related to any particular activity or event. The licensee has consulted with the manufacturer in an attempt to identify the failure mechanism. At the end of the inspection period, no conclusions had been reached regarding the failure mechanism or cause. At a DEI level of greater than 25 microcuries per milliliter, the licensee enters AP/3/A/1700/21, High Activity in RC System, which requires in part that letdown flow be increased through the

Demineralizers. The inspectors closely monitored DEI levels throughout the inspection period.

On June 28, 1994, DEI exceeded 25 microcuries per milliliter for Unit 3. Letdown flow was subsequently increased from 70 to 90 gpm. In order to achieve the required flow without exceeding letdown temperature limits, the 3B letdown cooler was placed in service along with the 3A cooler (Oconee design uses two non-regenerative letdown coolers per unit). On June 29, 1994, letdown flow was increased to 120 gpm. Shortly after increasing flow, increased activity in the Unit 3 Component Cooling (CC) system revealed a minor leak of reactor coolant into the CC system via the 3A letdown cooler. The 3A cooler was removed from service and letdown flow reduced to 70 gpm. The leak rate from the 3A cooler was calculated to be approximately .01 gpm. On July 5, 1994, the 3B cooler developed leakage into the CC system. The 3B cooler leakage was calculated to be approximately 2 gpm; therefore, the 3B cooler was isolated and the 3A cooler was placed in service since it had relatively minor leakage. Later that same day the leakage from 3A dramatically increased (approximately 5 gpm). Due to having both letdown coolers with unacceptable leakage, the licensee shut down Unit 3 on July 5, 1994.

During the shutdown, DEI peaked at 11 microcuries per milliliter. After the unit was shut down, the RCS was cleaned via the letdown demineralizers by utilizing the LPI system, which bypasses the letdown coolers. While at cold shutdown, the 3A cooler was replaced with a new cooler of the same type and the 3B cooler had 1 tube plugged. No actions were taken to correct the failed fuel. The cooler repairs were completed and the unit returned to power on July 18, 1994. The cause of the cooler leaks was not determined. However, after discussions with the cooler vendor, the decision was made to operate continuously with both coolers in operation in order to eliminate stressing the coolers when increased letdown was required. Shortly after the return to power DEI again exceeded .25 microcuries per milliliter. Letdown flow was subsequently increased from 70 to 100 gpm. As of the end of the inspection period DEI was .48 microcuries per milliliter.

The inspectors attended management and status meetings during which the decisions were made to conduct the shutdown and perform the cooler repairs. The inspectors witnessed portions of the shutdown and startup, and reviewed the outage plan. The decisions made were conservative, and the evolutions were well planned and executed.

No deviations or violations were identified.

6. Inspection of Open Items

The following open items were reviewed using licensee reports, inspection record review, and discussions with licensee personnel, as appropriate:

a. (Closed) Violation 269,270,287/93-17-03, Inadequate Control Rod Drive (CRD) Rod Drop Time Test Controls.

This violation was issued for failure to provide adequate test controls to ensure operability of the control rods with respect to drop times. The licensee procedure allowed multiple rod drops prior to achieving acceptable drop times. This practice resulted in Unit 1 restarting with two control rods exceeding the required maximum drop time of 1.66 seconds. A one-time emergency TS change was subsequently implemented until the control rods were replaced in the End of Cycle 15 Refueling Outage.

The inspectors reviewed the licensee's violation response and verified that the associated procedure was revised to provide adequate controls for rod drop time testing.

b. (Closed) Inspector Followup Item 269,270,287/93-09-01, Technical Specification 3.2.2 Bases Revision.

This item addressed a revision to the TS bases for TS 3.2.2 that stated that a bleed transfer pump was functionally equivalent to a concentrated boric acid storage tank (CBAST) pump, that a 7 gpm capability was acceptable for a CBAST pump, and that a 36 hour injection time was acceptable.

The 10CFR 50.59 evaluation performed to modify the TS bases was reviewed by the Office of Nuclear Reactor Regulation and found acceptable.

No violations or deviations were identified.

7. Review of Licensee Event Reports (92700)

The below listed Licensee Event Report (LER) was reviewed to determine if the information provided met NRC requirements. The determination included: adequacy of description, compliance with Technical Specification and regulatory requirements, corrective actions taken, existence of potential generic problems, reporting requirements satisfied, and the relative safety significance of each event. The following LER is closed:

a. (Closed) LER 269/92-12, Deficient Technical Specification Due To Management Deficiency and Design Deficiency Leads To Less Than Adequate Engineering Safeguards System Configuration.

This LER addresses numerous design deficiencies in the low pressure service water (LPSW) system that would have resulted in the inability to achieve required flows through safety-related components. This issue was addressed in NRC Inspection Report 269,270,297/92-24 and review of the short-term corrective actions identified in the LER were reviewed in the Inspection Report.

The planned corrective actions identified in the LER included completion of the LPSW design bases document, revision of the TS to adequately reflect the appropriate operability requirements, and performance of periodic LPSW flow testing. The inspector verified that the planned corrective actions had been completed.

No violations or deviations were identified.

8. Exit Interview

The inspection scope and findings were summarized on August 3, 1994, with those persons indicated in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings addressed in the summary and listed below. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection.

Item Number	Description/Reference Paragraph
50-269,270,287/94-22-01	IFI: Work Control Deficiencies (paragraph 3.a).
50-269,270,287/94-22-02	URI: Design Basis Requirements for the Penetration Room Ventilation System (paragraph 4.b).