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

Report Nos.: 50-424/91-32 and 50-425/91-32

Licensee: Georgia Power Company
P.O. Box 1295
Birmingham, AL 35201

Docket Nos.: 50-424 and 50-425 License Nos.: NPF-68 and NPF-81

Facility Name: Vogtle Nuclear Station Units 1 and 2

Inspection Conducted: November 24 - December 21, 1991

Inspectors: S. E. Sparks for 1/14/92
B. R. Bonser, Senior Resident Inspector Date Signed

S. E. Sparks for 1/14/92
R. D. Starkey, Resident Inspector Date Signed

S. E. Sparks for 1/14/92
P. A. Balmain, Resident Inspector Date Signed

Approved By: Pierce Skinner 1/14/92
P. Skinner, Chief Date Signed
Reactor Projects Section 3B
Division Reactor Projects

SUMMARY

Scope: This routine inspection entailed inspection in the following areas: plant operations, surveillance and maintenance.

Results: One violation was identified involving an entry into a condition prohibited by TS. Actions taken for a previous similar violation associated with the Hydrogen Monitor supply containment isolation valves were inadequately opened on Unit 1, resulting in an uncontrolled entry into TS 3.0.3. (paragraph 2d)

A semi-annual HP drill was observed. The inspectors noted several concerns particularly in the area of coordination and communication with HP personnel during the medical emergency and personnel accountability. The inspectors reviewed the licensee's drill critique and found that the licensee determined that several of the drill objectives were not met and the drill was judged by the licensee to be unsatisfactory. The inspectors noted that the licensee had performed a thorough and critical evaluation of the drill. (paragraph 2g)

DETAILS

1. Persons Contacted

Licensee Employees

*H. Beacher, Senior Plant Engineer
*J. Beasley, Assistant General Manager Plant Operations
W. Burmeister, Manager Engineering Support
*S. Chestnut, Manager Engineering Technical Support
*C. Christiansen, Safety Audit and Engineering Group Supervisor
W. Copeland, Supervisor - Materials
C. Coursey, Manager Maintenance Acting
*R. Dorman, Manager Training and Emergency Preparedness
J. Gasser, Operations Unit Superintendent
*M. Hobbs, I&C Superintendent
K. Holmes, Manager Health Physics and Chemistry
D. Huyck, Nuclear Security Manager
W. Kitchens, Assistant General Manager Plant Support
*R. LeGrand, Manager Operations
*R. Mansfield, Plant Engineer Supervisor
*A. Parton, Chemistry Supervisor
*M. Seepe, Radwaste Supervisor
*M. Sheibani, Nuclear Safety and Compliance Supervisor
W. Shipman, General Manager Nuclear Plant
C. Stinespring, Manager Administration
*J. Swartzwelder, Manager Outage and Planning
*C. Tynan, Nuclear Procedures Supervisor

Other licensee employees contacted included technicians, supervisors, engineers, operators, maintenance personnel, quality control inspectors, and office personnel.

Oglethorpe Power Company Representative

*T. Mozingo

NRC Resident Inspectors

*B. Bonser
D. Starkey
*P. Balmain

*Attended Exit Interview

An alphabetical list of abbreviations is located in the last paragraph of the inspection report.

2. Plant Operations - (71707)

a. General

The inspection staff reviewed plant operations throughout the reporting period to verify conformance with regulatory requirements, Technical Specifications, and administrative controls. Control logs, shift supervisors' logs, shift relief records, LCO status logs, night orders and standing orders, and clearance logs were routinely reviewed. Discussions were conducted with plant operations, maintenance, chemistry and health physics, engineering support and technical support personnel. Daily plant status meetings were routinely attended.

Activities within the control room were monitored during shifts and shift changes. Actions observed were conducted as required by the licensee's procedures. The complement of licensed personnel on each shift met or exceeded the minimum required by TS. Direct observations were conducted of control room panels, instrumentation and recorder traces important to safety. Operating parameters were observed to verify they were within TS limits. The inspectors also reviewed DCs to determine whether the licensee was appropriately documenting problems and implementing corrective actions.

Plant tours were taken during the reporting period on a routine basis. They included, but were not limited to the turbine building, the auxiliary building, electrical equipment rooms, cable spreading rooms, NSCW towers, DG buildings, AFW and the low voltage switchyard.

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

The inspectors verified that the licensee's health physics policies/procedures were followed. This included observation of HP practices and review of area surveys, radiation work permits, postings, and instrument calibration.

The inspectors verified that the security organization was properly manned and security personnel were capable of performing their assigned functions; persons and packages were checked prior to entry into the PA; vehicles were properly authorized, searched, and escorted within the PA; persons within the PA displayed photo identification badges; and personnel in vital areas were authorized.

b. Unit 1 Summary

The inspection period began with the unit officially ending the 1R3 refueling outage when it tied to the grid on November 24. On November 25 & 26, main turbine overspeed testing and turbine balancing were performed. The unit reentered Mode 1 and tied to the grid again on November 27. On December 3, at approximately 98%

power, the unit began to receive OTDT runback alarms which were attributed to the installation of the RTD bypass elimination modification and the introduction of a low neutron leakage core design. DCP's were implemented to change the OTDT and OPDT runback setpoints and lower the RCS average temperature (paragraph 2f). On December 6, the unit decreased power to 70% to suport MFPT "A" vibration/alignment troubleshooting and returned to 98% power on December 7. Following the completion of the OTDT, OPDT, and T-ave reduction DCPs, the unit achieved 100% power on December 20 and remained at full power through the end of this report period.

c. Unit 2 Summary

The unit remained at 100% power throughout this reporting period.

d. Improper Operation Of Hydrogen Monitor Containment Isolation Valves Results In TS 3.0.3 Entry

On November 25, at 7:32 p.m., with Unit 1 in Mode 1, the USS authorized I&C technicians to perform procedure 24551-1, Containment Hydrogen Monitor Train A 1A-12979 Channel Operability Test and Calibration. The technicians subsequently requested Operations to open the Train 'A' hydrogen monitor containment isolation valves to permit trouble shooting of the system. Operations shift management discussed whether it was permissible to open these particular valves and determined that there was no restriction against opening all of the valves simultaneously. Each control room handswitch for the hydrogen monitor valves has attached to it a "Caution Tag" which reads, "Valve is to remain closed at all times except during post accident hydrogen sampling." At 11:39 p.m., inside and outside hydrogen monitor supply containment isolation valves HV-2792A, HV-2792B, and HV-2791B were opened. The operators used as guidance operating procedure SOP 13130-1, Post Accident Hydrogen Control. Control Room personnel failed to observe both a precaution in the Precautions and Limitations section of the SOP, and a caution in the System Operation section of the SOP. The precaution stated that opening both an inside and outside containment Hydrogen Monitor Inlet Valve in the same path during Modes 1, 2, 3, or 4 results in TS 3.0.3 entry and shall not be performed. The caution stated that the isolation valves must remain closed except during Hydrogen Monitor operation while in Modes 5 or 6 or during post accident conditions to ensure containment integrity is maintained. There was also a Standing Order (C-91-07) maintained in the Control Room which stated that opening one of the supply containment isolation valves requires compliance with TS 3.6.3, Containment Isolation Valves, and opening both inside and outside containment isolation valves in the same path during Modes 1, 2, 3, or 4 would result in a TS 3.0.3 entry. The shift supervisor and the unit operators are expected to be familiar with the subject of the Standing Orders. (When the inspector reviewed

Standing Order C-91-07, an error was discovered in that Train A valves were identified as Train B and vice versa. This error was brought to the attention of Operations supervision.). At the time the valves were opened, according to the USS log, TS 3.6.1.1, Primary Containment Integrity, was entered.

At 11:43 p.m., following I&C troubleshooting, the valves were closed. Later in the shift at 1:30 a.m., on November 26, plans were being discussed to open the valves a second time when the Unit 2 USS pointed out that there was a Standing Order prohibiting opening the valves. At this time the Unit 1 USS made a log entry stating that TS 3.0.3 should have been entered during the time the valves were open rather than TS 3.6.1.1. A Deficiency Card (1-91-544) was also written to document this entry into TS 3.0.3.

A similar event occurred in August 1990 when NRC inspectors discovered that the licensee was routinely opening the hydrogen monitor containment isolation valves while conducting surveillances. That finding was documented in NRC inspection Report 50-424,425/90-19 and resulted in a violation and LER 424/90-024. The LER listed four corrective actions that were to be taken to prevent recurrence. Two of those actions addressed procedure revisions to eliminate the need to open the subject valves during testing and the insertion of cautions to ensure the appropriate TS action statement is entered when the valves are opened. The third action was to ensure that each department Procedure Coordinator was briefed regarding the importance of obtaining proper procedure reviews. The fourth corrective action was a TS change request, dated May 3, 1991, to revise TS 3.6.3 to allow the valves associated with the containment hydrogen monitor to be opened on an intermittent basis under administrative control. Approval of the TS change request is pending. With the exception of the TS change request, all the corrective actions stated in the LER were implemented.

The inspectors noted that there were several sources available to licensed personnel which would have made them aware that opening the hydrogen monitor valves in Mode 1 would place the unit in a condition prohibited by TS. Specifically, those were (1) A Caution Tag attached to each valve handswitch, (2) A Standing Order prohibiting valve operation, and (3) Precautions in SOP 13130-1. These aids which were available to the operators, as well as the corrective action of LER 90-024 appear to have been inadequate in that those licensed personnel on Unit 1 during this event were not aware of the recent similar event or restrictions imposed upon the hydrogen monitor valves.

The inspectors concluded that had the Unit 1 operators been properly briefed/trained on the use of the hydrogen monitor valves that this similar event would not have occurred. This is identified as Violation 50-424/91-32-01: Violation of 10 CFR 50 Appendix B,

Criterion XVI, Corrective Action - Failure To Implement Adequate Corrective Actions On Use Of Hydrogen Monitor Containment Isolation Valves.

e. Observation of Fire Drill

On December 5, the inspectors observed an announced fire drill. The simulated fire occurred in room RB53 of the Control Building and involved an overheated SOLA transformer. This scenario was similar to an actual event which recently occurred in the same room. Also simulated during this drill was a medical emergency which necessitated the use of search and rescue techniques and response by first-aid personnel. The Burke County fire department and emergency response medical personnel also participated in the drill. The fire team was prompt to respond and was on the scene in a reasonable period of time. Additional personnel were available who assisted the fire team by transporting extra equipment to the simulated fire location. The fire team used good fire fighting techniques and the fire team leader exercised good command and control. The first aid responders were careful to provide the appropriate first aid to an individual with simulated injuries. Burke County emergency personnel arrived on site in a timely manner and assisted the fire team and the first-aid responders. The inspectors had no concerns regarding the conduct of the drill.

f. Narrow Range Hot Leg Temperature Fluctuations

Prior to start up from the third refueling outage, the licensee anticipated changes in the Unit 1 narrow range hot leg temperature measurement due to the installation the RTD bypass elimination modification and introduction of a low neutron leakage core design. The RTD bypass elimination modification installed three thermowell mounted RTDs into each of the RCS hot legs to provide temperature indication. Other plants which have installed these modifications have experienced significant reductions in RCS flow rate measurements apparently due to temperature stratification in the hot leg piping, which affects the RCS T-hot measurement. The condition which produces the hot leg temperature change is discussed briefly in WCAP-12788, Rev. 1, RTD Bypass Elimination Licensing Report for Vogtle Electric Generating Plant. This describes temperature stratification conditions that result from incomplete mixing of the reactor coolant leaving different regions of the core at different temperatures which produces measurable temperature gradients within the hot leg piping.

RCS flow rate is a calculated value. The RCS flow rate measurement surveillance is sensitive to changes in the T-hot measurement because RCS flow rate is calculated by relating the measured RCS temperature differential (T-hot minus T-cold) across each steam generator to the heat removed from each steam generator as measured by the precision heat balance. Prior to performing the RCS flow rate surveillance,

the licensee submitted a proposed TS change to offset this potential for a reduction in measured RCS flow rate, which would possibly have required the unit to reduce power per TS 3.2.5, DNB Parameters, action requirements. This submittal was in addition to TS changes approved previously for the use of Vantage-5 fuel.

On December 2, the inspector observed performance of data collection for procedure 88075-1, Precision Heat Balance for Unit 1. The results of procedure 88075-1 are used in procedure 88014-C, Reactor Coolant System Flow Measurement, to determine the RCS flow rate as required by TS 4.2.5.3 within seven days after exceeding 90% power. This surveillance is performed to confirm that the RCS flow rate is within the limits on the DNB-related parameter for flow required by TS 3.2.5. TS bases state that limits on the DNB-related parameters assure that each of the parameters are maintained within the normal steady state envelope of operation assumed in the transient and accident analyses.

The inspector reviewed portions of the test data and verified data accuracy. The inspector also verified that test instrumentation and computer points used to perform the precision heat balance were calibrated within seven days of performing the surveillance as required by TS 4.2.5.3. The reactor coolant system flow rate determined by the precision heat balance was within TS 3.2.5.c limits and a power reduction was not required based on this measurement.

While approaching full power on December 3, the unit began to receive OTDT runback alarms and bistable actuations on loop 3 at approximately 98% power. The actuation logic for an OTDT or OPDT runback or reactor trip requires 2 out of 4 channels (loops) for an actuation. The OTDT runback functions to improve plant availability by preventing unnecessary reactor trips. The runbacks on both OTDT and OPDT are not assumed or required for accident mitigation in any of the accident analysis presented in the FSAR, however, the receipt of these alarms prevents the unit from achieving 100% power, since the receipt of 2 bistables would have caused a turbine runback or reactor trip actuation. Strip chart recorders monitoring each of the loops indicated spiking on loops 2 and 3 with the spikes on loop 3 being the most dramatic.

The licensee initially implemented DCP 91-V1N0225-0-1 to revise the OTDT runback setpoint from 3% below the OTDT reactor trip setpoint to 1% below the reactor trip setpoint to eliminate the OTDT runback alarms by providing an additional 2% margin to the runback. The OTDT reactor trip setpoint was not revised. The inspector reviewed the 10 CFR 50.59 evaluation prepared for this DCP and had no concerns.

As power was increased to approximately 99% on December 8, following implementation of the OTDT runback setpoint change, the unit received several short duration OTDT runback alarms, OPDT runback alarms and an OTDT trip bistable all on loop 3. Power was then reduced to approximately 98%, pending further investigation.

The licensee obtained vendor assistance to evaluate the temperature spiking problem. The vendor representative determined that the alarm actuations were due to a combination of physical factors including the Vantage-5 transition core and the replacement of the bypass manifold with thermowell mounted RTDs. Calculational factors in the form of numerical penalties placed in the calculation of the OTDT setpoint to account for the unit's planned power uprate and the transition core design also contributed to actuating the alarms and bistables. From data collected on strip charts it was determinted that the fluctuations occurred when temperature measured on the two lower RTDs in the loop 3 hot leg increased momentarily which caused T-avg and delta-T to increase also. This evaluation also noted that the fluctuations in loop 2 occurred simutaneously but in the opposite direction. T-avg is used as an input to the OTDT setpoint calculation and an increase in T-avg causes a corresponding decrease in the OTDT setpoint. This decrease also incorporates a gain factor which magnifies the setpoint reduction in relation to the T-avg increase, which when compared to the increasing delta-T actuates the alarms and bistables. The spikes occurred approximately every three to four hours and had a 15-20 second duration.

Following this investigation, the licensee implemented DCP 91-V1N0233 to lower RCS average temperature 2 deg-F from a nominal value of 588.4 deg-F to 586.4 deg-F. This change essentially maintains 588.4 deg-F as the nominal T-avg for protection functions but would reconfigure the control systems to operate the plant at the reduced T-avg. The two degree difference in the protection and control T-avg would allow the unit to reach 100% power without actuating the OTDT or the OPDT runback alarms. In addition to T-avg reduction the licensee also revised the OPDT runback to 1% below the OPDT reactor trip setpoint. To accomplish the T-avg reduction, the licensee rescaled rod control, pressurizer level control, and the steam dump control systems. The new operating conditions also required the revision of several Emergency Operating Procedures. The inspector verified that these procedures were revised and available in the Control Room.

On December 20, Unit 1 returned to 100% power successfully. The licensee determined that the average margin to the OTDT reactor trip was approximately 14-15%. During a typical T-hot spike the minimum margin to the OTDT reactor trip was approximately 5%. The licensee will continue to monitor the fluctuations and expects the magnitude of the fluctuations to gradually decrease as the core ages. The licensee will consider returning the runback setpoints to their original values later in the cycle based on this monitoring and intends to operate at the reduced T-ave throughout the cycle.

g. Emergency Drill

On December 9, the licensee conducted a semi-annual HP drill. The objectives of the drill were to complete all onsite and offsite notifications, to timely activate all onsite ERFs, to respond to simulated elevated radiation measurements in the environment, to perform onsite personnel accountability, to classify an abnormal event, to properly respond to a security event involving protected area intruders, and to properly respond to a medical emergency. The inspectors observed the drill from the TSC, OSC, and the site of the medical emergency.

The drill scenario involved a radwaste truck carrying contaminated underwater filtration units. The simulated event was initiated when the truck's transmission was accidentally engaged and the truck crashed through a security gate and entered the protected area. The truck subsequently overturned, spilled its radioactive contents, injured the one passenger of the truck and dazed the truck driver who then wandered off into the plant.

The inspectors, after observing the drill, were concerned that the licensee had not met all the drill objectives particularly in the areas of communication and coordination of HP personnel during the medical emergency and accountability of personnel. The inspectors reviewed the licensee's drill critique and found that the licensee determined that several of the drill objectives were not met and the drill was judged by the licensee to be unsatisfactory. The inspectors noted that the licensee had performed a thorough and critical evaluation of the drill. Specifically, the following deficiencies were noted by the licensee: 1) Not all personnel in the PA heard the signals or the announcements for the Alert; 2) Notifications to onsite facilities outside the PA were made, but the information was not further disseminated throughout those facilities; 3) The HP radiological response team was slow to arrive on the scene, was inadequately staffed, and had insufficient equipment to accomplish their task; 4) Command and control of HP personnel was poorly coordinated between the TSC and the OSC; 5) Thirty minutes after declaration of an Alert forty-seven persons were still missing; 6) The medical response team was extremely slow to arrive on the scene; 7) Command and control of HP medical response was poorly coordinated between the TSC and the OSC; 8) Security personnel failed to respond to the simulated injured victim even when asked for help; and, 9) The Operations Shift Superintendent never activated the 911 pager system.

The licensee has addressed each of these deficiencies and plans to conduct another HP emergency drill early in 1992. The inspectors concurred with the licensee that numerous deficiencies surfaced during this drill. The inspectors will monitor future drills to verify corrective actions have been successfully implemented.

One violation was identified.

3. Surveillance Observation (61726)

Surveillance tests were reviewed by the inspectors to verify procedural and performance adequacy. The completed tests reviewed were examined for necessary test prerequisites, instructions, acceptance criteria, technical content, data collection, independent verification where required, handling of deficiencies noted, and review of completed work. The tests witnessed, in whole or in part, were inspected to determine that approved procedures were available, equipment calibrated, prerequisites met, tests were conducted according to procedure, test results were acceptable and system restoration was completed.

Listed below are surveillances which were either reviewed or witnessed:

Surveillance No.	Title
14425-1	Power Range Quarterly ACOT NI-41
24525-1	Pressurizer Pressure Protection Channel I 1P455 ACOT

No violations or deviations were identified.

4. Maintenance Observation (62703)

The inspectors observed maintenance activities, interviewed personnel, and reviewed records to verify that work was conducted in accordance with approved procedures, TSs, and applicable industry codes and standards. The inspectors also verified that redundant components were operable, administrative controls were followed, clearances were adequate, personnel were qualified, correct replacement parts were used, radiological controls were proper, fire protection was adequate, quality control holdpoints were adequate and observed, adequate post-maintenance testing performed, and independent verification requirements implemented. The inspectors independently verified that selected equipment was properly returned to service.

Outstanding work requests were reviewed to ensure that the licensee gave priority to safety-related maintenance activities.

The inspectors witnessed or reviewed the following maintenance activities:

MWO No.	Work Description
19104778	Install Potentiometer on 1PV3020
19105698	Replace Channel Test Board - LED Did Not Illuminate During Loop 3 DT/TAVE ACOT

19105716	Main Feedwater Pump 'A' Vibration
29103842	Re-Lug Conductors On 1HV11600

No violations or deviations were identified.

5. ACCW System RCP Thermal Barrier Isolation Valves

On December 11, 1991, the Vogtle site became aware of a non-conforming condition on the Unit 2 reactor coolant pump thermal barrier isolation valves. A comparison of valve thrust requirements (supplied by Anchor/Darling) to the as-left thrust data from MOVATS testing of motor operated thermal barrier isolation valves 2HV19051, 2HV19053, 2HV19055, and 2HV19057 indicated that these valves may not have been capable of closing to isolate a thermal barrier tube rupture.

The ACCW system transfers heat from reactor auxiliary components to the NSCW system. The ACCW system forms an intermediate system or barrier between components which could possibly release radioactivity and the NSCW system which is open to the atmosphere. The four RCP thermal barrier isolation valves in question are safety-related motor-operated gate valves designed to prevent a spill of reactor coolant from a postulated breached thermal barrier should a break occur in the nonsafety-related ACCW piping downstream of the common thermal barrier isolation valve. Each of the four valves is interlocked with a flow transmitter which will cause each to close automatically should an abnormal condition occur.

This discrepancy on these valves was identified during a licensee review for Generic Letter 89-10, Safety Related Motor-Operated Valve Testing And Surveillance. Thrust requirements for the valve operators were never specified in the Motor Operated Valve Setpoint Manual; only the limit switch settings and the nominal and maximum torque switch settings were specified. These valves were setup during Unit 2 startup in accordance with the original torque switch settings. When the site was notified of the valve discrepancies, Unit 2 entered the seven day action statement for TS 3.7.12, Reactor Coolant Pump Thermal Barrier Cooling Water Isolation, and several options to resolve the problem were considered.

The licensee's evaluation of the MOVATS test data for three of the thermal barrier isolation valves (2HV19051, 2HV19053 and 2HV19055) concluded that the torque switch settings for the valves should be increased to ensure adequate thrust to close under all applicable accident conditions. The torque switch of the fourth valve, 2HV19057, could not be adjusted to reliably provide adequate torque to allow the valve to close under design flow conditions. On 2HV19057 a temporary modification (a jumper) was installed which bypassed the close torque switch such that upon valve closure the valve motor would remain energized until the motor stalls. This modification ensures the MOV generates sufficient torque under design basis flows, however, motor damage would be expected to occur when the valve reaches its seat.

The inspector was concerned about the effects on other components of bypassing the close torque switch and reviewed the safety evaluation for the modification. The evaluation considers the potential for damage to the valve motor and identifies that any potential electrical damage would be limited to the motor itself. Also, the safety function of the valve is to close, which is not affected. There is no safety related requirement for the valve to be able to open. Also, before the valve is stroked for the TS required operability test, the torque switch jumper would be removed. After reviewing the safety evaluation, the inspector was satisfied that the modification had been given appropriate consideration.

The Temporary Modifications were implemented on all four valves on December 13 and the 7 day TS Action statement was exited. The licensee is preparing a LER on this condition since Unit 2 had operated in a condition prohibited by TS 3.7.12 for an extended period. However, once the licensee determined the condition of these valves, prompt action was taken to resolve the problem.

No violations or deviations were identified.

6. Security/Safeguards - Meeting

On December 8, 1991, a meeting was held in the licensee's Corporate Offices in Birmingham, Alabama, to discuss various revisions to the Vogtle Physical Security Plan, the renovation of the Plant Entry Security Building and appropriate compensatory measures to be taken upon the failure of the security computer. Also discussed at the meeting was the anticipated submittal of a revised PSP in January 1992, regarding the Access Authorization Rule, the recently restructured Security Organization, and compensatory measures to be taken in the event of a computer outage. The PESB project was discussed and is near completion with the exception of the interior wall which will remain appropriately compensated. Attendees at the meeting were:

Southern Nuclear
J. Bailey, Licensing Manager
A. Paige, Project Engineer

Vogtle
D. Huyck, Security Manager
W. Authrey, Security Specialist

Region II
W. Tobin, Senior Safeguards Inspector

7. Followup (92701)

a. (Open) Unresolved Item 424/89-31-02, 425/89-36-02: PSV Temperature Correction Factor

The Vogtle pressurizer safety valves are tested pursuant to the requirements of ASME Section XI Subsection IWV paragraph IWV-3512 which in part states "Safety valve and relief valve set points shall be tested in accordance with ASME PTC 25.3-1976".

The ASME Performance Test Code 25.3-1976 in paragraph 0.01 states that "...if the temperature of the medium used to test the valve differs substantially from the temperature to which the valve is subjected while in service, the opening and closing pressures as well as the blowdown will be different from the test pressures. In this case, it is necessary to develop appropriate corrections of the valve under test to account for these differences....". It should be noted that the Vogtle pressurizer safety valves are installed with an uninsulated water loop seal.

Prior to commencing commercial operation both Unit 1 and Unit 2 pressurizer safety valves were set pressure verified/tested using steam as the test medium.

In August 1988, the NRC issued IN-88-68 which stated that the use of a hydraulic assist device to determine the safety valve setpoint may give inaccurate results when subjected to water or two phase flow.

During 1R1, October 1988, 1PSV8010A was tested using a hydraulic assist device (Furmanite Trevitest) with the loop seal drained (i.e., test medium was saturated steam).

An NRC inspector on site during 1R1 questioned the effect temperature and steam had on the valve setpoint versus water. This was identified as inspector followup item 50-424/88-51-01.

Vogtle's response to this IFI was based on conversations with Crosby, the valve manufacturer. It was concluded at that time that the medium had no effect on setpoint but temperature did. However, since the test had been conducted in a relatively short period of time after draining the loop seal, it was believed that the test was adequate.

On October 19, 1989, Westinghouse issued a letter (GP-14629) stating that based on testing performed at the WSC, "it has been determined that set pressure changes as a function of temperature. Plants setting their valves on steam and installing them on hot or cold water loop seals have a resultant set pressure higher than 2485 psig ± 1 percent".

DC No. 1-89-1[illegible].0 was written by the licensee as a result of this Westinghouse letter but the DC was dispositioned as "no deficiency exists". The basis for this disposition was that the Westinghouse test methodology was different than that used at Vogtle.

The NRC conducted an inspection of the Vogtle IST program during October/November 1989 and took exception to the Vogtle position regarding the testing of pressurizer safety valves (Inspection Report 50-424/89-31 and 50-425/89-36). The NRC inspector did not consider the effects of temperature and test medium on the valve's setpoint had been adequately addressed. Unresolved item 424/89-31-02, 425/89-36-02 was issued at that time.

In December 1989, the NRC issued IN 89-90 which informed licensees about possible problems resulting from operating pressurizer safety valves in environments different from that used to establish the safety valve lift setpoints.

Based on the significance of this issue and NRC concerns, the Westinghouse Owners Group (WOG), decided to pursue resolution of this issue as a group effort. The findings of the WOG were published in WCAP-12910, Pressurizer Safety Valve Set Pressure Shift, issued in March 1991.

The WOG findings/recommendations as they pertain to Vogtle were summarized in a letter from C. K. McCoy to W. B. Shipman, Log: MSV-00575, dated May 13, 1991. This letter identifies specific actions to be taken to ensure the Vogtle pressurizer safety valve test program is in compliance with ASME Section XI and the WOG recommendations/findings.

All actions identified in the letter have not been implemented. In addition, the NRC is currently reviewing WCAP-12910 and until all questions and concerns are resolved associated with this issue this UNR will remain open.

b. (Closed) Violation 424/89-31-01, 425/89-36-01, Failure to Adequately Test PORV Circuitry in Accordance with TS 4.4.4.1.

The NRC reviewed the licensee's response, dated January 16, 1990, in which the licensee denied the violation. In a letter dated December 20, 1991, from A. F. Gibson to W. G. Hairston, III, the NRC provided the basis for our conclusion that the violation referenced above occurred as stated. This item is considered closed.

8. Exit Meeting

The inspection scope and findings were summarized on December 20, 1991, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection.

Item No.	Description and Reference
VIO 50-424/91-32-01	Violation of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action - Failure to Implement Adequate Corrective Actions on Use of Hydrogen Monitor Containment Isolation Valves (paragraph 2d)

9. Abbreviations

ACCW	Auxiliary Component Cooling Water System
ACOT	Analog Channel Operability Test
AFW	Auxiliary Feedwater System
CFR	Code of Federal Regulations
Deg-F	Degree Fahrenheit
DCP	Design Change Package
DG	Diesel Generator
DNB	Departure from Nucleate Boiling
ERF	Emergency Response Facility
ESF	Engineered Safety Features
HP	Health Physics
I&C	Instrumentation and Control
LCO	Limiting Condition for Operation
LER	Licensee Event Report
MFPT	Main Feed Pump Turbine
MOV	Motor Operated Valve
MOVATS	Motor Operated Valve Actuating Testing System
MWO	Maintenance Work Order
NSCW	Nuclear Service Cooling Water
NPF	Nuclear Power Facility
NRC	Nuclear Regulatory Commission
OSC	Operations Support Center
OTDT	Over Temperature Differential Temperature
OPDT	Over Power Differential Temperature
PA	Protected Area
PESB	Plant Entrance Security Building
pm	post meridian
PSP	Physical Security Plan
RCS	Reactor Coolant System
Rev	Revision

RTD	Resistance Temperature Detector
SOP	System Operating Procedure
T-ave	Temperature Average
TS	Technical Specification
TSC	Technical Support Center
USS	Unit Shift Supervisor