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

Report Nos.: 50-424/84-34 and 50-425/84-34

Licensee: Georgia Power Company
P. O. Box 4545
Atlanta, GA 30302

Docket Nos.: 50-424 and 50-425 License Nos.: CPPR-108 and CPPR-109

Facility Name: Vogtle 1 and 2

Inspection Conducted: December 3 - 6, 1984

Inspector: _____ 12-21-84
W. H. Miller, Jr. Date Signed

Approved by: _____ 12-21-84
T. E. Conlon, Section Chief Date Signed
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection entailed 30 inspector-hours on site in the areas of fire protection/prevention.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Licensee Employees Contacted

*J. L. Blocker, AMQC
N. Brooks, Engineering Supervisor/HVAC
*C. M. Burke, Sr., QA Field Representative
*D. E. Carter, Manager Administrative Operations
*G. Dickerson, Safety Supervisor
*D. M. Fiquett, MFCO
*M. H. Googe, Project Construction Manager
H. H. Gregory III, General Manager
*E. D. Groover, QA Site Manager
*S. D. Halton, QA Engineering Support Supervisor
*B. L. Harbin, MQC
*C. W. Hayes, VQAM
*G. A. McCarley, Project Compliance Coordination
D. McCary, Civil/HVAC Supervisor
*R. Sprankle, Plant Engineer (Fire Protection)
W. Sweat, Mechnical QC Surveillance Group
*H. G. Williams, Fire Protection Supervisor

Other Organizations

*J. Asford, Engineering Supervisor, Bechtel
J. Balboa, Project Manager, PKF
C. Cowan, Project Manager, Automatic Sprinkler Corp.
S. Elmore, QA, Pullman Power Products
B. Harrington, QA Supervisor, Pullman Power Products
W. Holcombe, QA Manager, PKF
J. Padula, QA Record, PKF
*A. Strunk, Sr. Engineer, Bechtel
J. Stoops, Civil/HVAC Engineer, Bechtel

NRC Resident Inspectors

*W. F. Sanders
*R. J. Schepens
J. Rogge

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on December 6, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the following inspection findings.

a. Inspector Followup Item (424 and 425/84-34-01), Removal of All Combustible Scaffolding, Planking and Temporary Construction Structures Required Prior to Licensing - paragraph 5.a.

b. Inspector Followup Item (424 and 425/ 84-34-02), Fire Pump Installation Discrepancies - paragraph 6.a.

c. Inspector Followup Item (424 and 425/84-34-03), Two Hour Fire Rated Cabinet Not Provided For Storage of Automatic Sprinkler System Fire Protection Records - paragraph 6.c.

d. Unresolved Item (424 and 425/84-34-04), Apparent Substandard Fire Damper Installation - paragraph 6.d.

e. Unresolved Item (424 and 425/ 84-34-05), Apparent Fire Damper QA Inspection and Documentation Discrepancies - paragraph 6.d.

3. Licensee Action on Previous Enforcement Matters

(Closed) Violation (424 and 425/84-09-01), Failure To Document Surveillance Inspections on the Fire Protection Water System. The licensee's corrective action and response of June 11, 1984, was reviewed. This response stated that procedure QC-T-11, Mechanical Surveillance Program (Revision 2), was revised to clarify the intended purpose of the mechanical surveillance program. The surveillance program is to monitor contractor's work activities on an informal basis to ensure that the installation and testing of mechnical equipment are conducted in accordance with the applicable construction documents. This program is to supplement, but not replace the normal plant QA/QC program. Results of these surveillance inspections are documents as QC type records, but are not retained as permanent type QA documents. Discussion with QC Surveillance personnel indicated that the intent of this program appears to meet the intent of the procedure requirements. Therefore, this item is closed.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. New unresolved items identified during this inspection are discussed in paragraph 6.d (two items).

5. Construction Site Fire Prevention/Protection Program (Module 64051B)

A review of the following was made to verify that approved controls exist relative to fire prevention, protection, and suppression for the construction activities.

a. Procedures

The following procedures in the Field Control Procedure Manual were reviewed:

- SD-T-02, Impaired Fire Protection (Rev. 2)
- SD-T-04, Fire Water Pumps Inspection and Testing (Rev. 6)
- SD-T-05, Fire Protection Equipment Inspection and Testing (Rev. 6)
- GD-T-15, Welding and Cutting (Rev. 3)

These procedures, for the items covered, provide sufficient guidance to help assure that a satisfactory fire prevention program is implemented for construction site activities. However, these procedures do not prohibit the use of combustible forms, scaffolding, planking, etc. and erection of temporary combustible structures within the plant structures as stipulated by normal industry practice. National Fire Protection Association (NFPA) Standard 241, Safeguarding Building Construction and Demolition Operations, Section 2-3 states that unnecessary accumulation of combustible forms or form lumber during construction operations shall be avoided and Section A-2-3 suggested that steel scaffolding or approved fire retardant treated lumber be used on both the inside and outside of buildings under construction. NFPA-803, Fire Protection for Light Water Nuclear Power Plants, Section 16-2(g) states that the use of noncombustible scaffolds, form work, decking and partitions are to be specified for both inside and outside permanent buildings of plants under construction. International Guidelines for the Fire Protection of Nuclear Power Plants (Second Edition) published by the Swiss Pool for the Insurance of Nuclear Risks, Section 15.6 stated that during plant construction, combustible materials should be kept to a minimum and that noncombustible materials should be used wherever possible for form work, scaffolding, decking and partitions.

The inspector pointed out to the plant staff, the consequence of using combustible materials such as scaffolding within safety-related areas of the plant. These materials provide a source of combustion which could increase the size of and amount of damage in the event of fire. Also, since 10 CFR 50 Appendix R Section III.K.8 and NUREG 0800 Section 9.5.1 Item C.2.i prohibit the use of combustible wood in safety-related areas of operating plants, the existing use of wood for forms, scaffolding, planking, etc., must be discontinued and removed from the plant prior to licensing. This item is identified as Inspector Followup Item (424 and 425/84-34-01) Removal of All Combustible Scaffolding, Planking and Temporary Construction Structures Required Prior To Licensing, and will be reviewed during a subsequent NRC inspection.

The above procedures also did not require a periodic inspection of the control valves in the temporary construction fire protection water systems for the main power plant structures. The correct alignment of

these valves is important to assure that a water supply is available to the interior fire hose stations in the event of a fire or emergency. Therefore, the licensee proposed to initiate a procedure to inspect these valves weekly for correct alignment and document valve positions at least monthly. This program will be reviewed during subsequent NRC inspections.

A number of the permanent plant fire protection systems formerly maintained by the construction group as part of the construction fire protection program have been turned over to the operations group. Most of these systems were turned over during November 1984. The operations group has developed the following temporary fire protection procedures which should assure that sufficient surveillance is provided for these systems:

- TFPP-4 Fire Hose Surveillance
- TFPP-403 Fire Hydrants Monthly Visual Inspection
- TFPP-411-C Fire Suppression System - Quarterly PIV Cycle
- TFPP-413-C Fire Pump Starting Batteries - Quarterly Specific Gravity Test
- TFPP-420-C Fire Hydrants - Semi-Annual Barrel Inspection and Lubrication
- TFPP-433-C Fire Hydrants Annual Operational Test
- TFPP-437-C Fire Suppression System - Annual Operational Test

b. Surveillance of Fire Protection Systems

The surveillance inspection records for the following systems on the indicated dates were reviewed and found to be satisfactory, except as noted:

- X7BA01-C2Q, Post Indicator Valves Weekly Inspection, January 3, through October 29, 1984.

- X7BA01-C3Q, Fire Hose Box Monthly Inspection, January 30 through October 23, 1984.

- X7BA01-C7Q, Halon Fire Protection Systems, February 29, 1984. The August 1984 inspection and test data was not available for review in the QA Records Storage Vault. Subsequent investigation by the licensee determined, based on a review of the contractor craft time sheets, that the halon systems were apparently weighed, checked, and inspected on August 21-23, 1984. The completed test records were apparently not sent to the records vault.

- X7BA01-C4Q, Fire Pump Weekly Test, January 4 through October 24, 1984.

The fire pumps have been turned over to the operations group. This group is now performing the weekly surveillance on the pumps. The inspector witnessed the pump tests on December 5, 1984, in which the pumps appeared to perform satisfactory.

c. Fire Brigade

(1) Organization

The construction site fire brigade is composed of volunteers from the Georgia Power construction and security groups. A total of 54 personnel are involved and are assigned as follows: Security - 16; Shift A - 20; Shift B - 5; Shift C - 12; and Shift D - 1. During shifts B and D and off shift hours prime dependence is placed on the trained fire brigade personnel from the security group. For fire fighting operations, the licensee stated that sufficient fire brigade personnel are normally on duty to respond to a fire if required. The inspector suggested that the the offsite and shift D hours be monitored by the licensee to verify that sufficient trained personnel are on duty for those hours.

(2) Training

All fire brigade members attend an annual offsite 40 hour fire fighting training course. Followup monthly classroom and periodic drills are conducted. A review of the 1984 training records for 13 brigade members indicated that all had received the annual training, but the average attendance at the monthly meetings was approximately 65%. The inspector suggested that the licensee review this item periodically to verify that the training attendance was adequate to meet the intent requirements of above Procedure SD-T-05.

d. Plant Tour

A tour was made of the plant to review the implementation of the above construction fire prevention/protection procedures. The general housekeeping was considered typical for a nuclear power plant under construction. No unsatisfactory storage or handling of combustible or flammable liquids or gases were noted. Two welding operations were observed within the control building. Each of these operations was being performed under an approved "hot work" permit and the applicable fire prevention requirements of Procedure GD-T-15 were being adhered to.

A large quantity of ordinary combustible wood is being used for scaffolding, supports, temporary enclosures, etc., throughout the plant structures. The reactor internals are located beneath a combustible platform enclosure erected above the equipment room on the refueling floor of the containment building. However, as noted above the licensee's procedures do not prohibit the use of combustible wood during the construction operations.

The two diesel driven fire pumps, interior fire hose and equipment box Nos. 8, 21, 24 and 54, hydrant hose and equipment house No. 30, and fire extinguishers in equipment cages on 220' and 240' elevations of the control building were inspected and found to be in service and operational.

Within the areas examined, no violations or deviations were identified.

6. Permanent Plant Fire Protection Features

a. Fire Pump (Module 64053B)

Three 100% capacity fire pumps are to be provided for the plant. Two pumps are diesel driven and are located in one pump house. The third pump is electric driven and is located in a separate pump house. The two diesel driven pumps have been turned over to operations. A number of discrepancies have been identified by the licensee on these pumps. These include: eccentric type suction reducer not provided in piping connection to pump (Deficiency Report (DR) T-84-68); incorrect type valve (butterfly) in suction pipe to pumps (DR T-1-84-90); drain valve not provided for test header (DR T-1-84-90); and, unlisted or unapproved type valves provided for test header (DR T-1-84-90).

The installation of the power supply to the electric fire pump is not yet complete. However, the piping connection to the automatic starting pressure switch is 3/8" in lieu of ½" as specified by NFPA-20, Centrifugal Fire Pumps. This deficiency item is identified by the licensee as DR T-1-84-233. The fire pump is to be powered by 4160 VAC switchgear and is not provided with a standard fire pump controller. The licensee is making a point by point comparison between the installed pump's features and the NFPA-20 Code requirements to assure that the installation will meet the NRC guidelines. This evaluation will be reviewed during a subsequent NRC inspection.

The licensee does not consider licensee identified fire protection design, construction, or installation discrepancies to be reportable to the NRC. Therefore, the above pump discrepancies are identified as Inspector Followup Item (424 and 425/84-34-02), Fire Pump Installation Discrepancies, and will be reviewed during a subsequent NRC inspection.

b. Fire Protection Piping System (Module 64053B)

Most of the primary fire protection water system has been installed. The following inspection and test record data was reviewed to verify that the systems were installed under QA/QC program to ensure that the systems are installed in accordance with the design and construction documents. No discrepancies were noted.

Inspection/Test No.	Pipe Location	Final QC Inspection Date	*Hydrostatic Test Date
1-2301-23	220' 240' of Control Bldg.	11-6-84	11-7-84
C-2301-29	Supply to Control Bldg.	7-15-84	7-15-84
C-2301-41	Supply to Control Bldg.	7-29-84	7-29-84
C-2301-53	Discharge from South Pump House	9-28-83	10-1-83
C-2301-58	Discharge from North Pump House	8-17-84	8-19-84

*NOTE: Hydrostatic tests were conducted at 205 - 220 psi for at least 2 hours. This meets NFPA requirements.

c. Automatic Sprinkler Systems

Installation of the sprinkler systems are in process with completion of mechanical portions of the first system scheduled for summer 1985. All mechanical portions of the sprinkler systems are scheduled to be completed in early 1986.

A review was made of Georgia Power audit Report No. MD12-84/74 of the audit which was conducted October 23 - 26, 1984 on the fire protection contractor, Automatic Sprinkler Corporation of America (ASCOA). This audit identified two discrepancies involving, material verification for conformance with applicable drawings, and two nonconforming unistrut clamps not being documented on a nonconformance report as required. Corrective action has been taken on the second item and the first item is being evaluated by the contractor with followup review to be accomplished by the QA group. However, the inspector noted that the records storage being used by ASCOA did not meet the requirements of ASCOA's QA/QC Procedure Section 17, Quality Assurance Records - Indexing and Filing Records, Item B.2.a. A 2-hour fire rated filing cabinet is not provided for storage of records as required. This discrepancy had previously been identified to the licensee and two 2-hour fire rated record storage caninets had been ordered. This discrepancy is identified as Inspector Followup Item (424 and 425/84-34-03), Two Hour Fire Rated Cabinet Not Provided For Storage of Automatic Sprinkler System Fire Protection Records, and will be reviewed during a subsequent NRC inspection.

d. Fire Dampers

An inspection was made of the following fire dampers to verify that the installations were in conformance with the construction documents and the manufacturers requirements, and that the appropriate QA inspection records were provided:

Damper No.	Location	PKF QA/QC Records
A-1531-S7-510	Control Room	Incomplete
A-1531-S7-513	Control Room	No records
A-1531-S7-514	Control Room	Incomplete
A-1551-S7-524	Aux. Bldg. Level 1	No records
1-1551-S7-627S	Aux. Bldg. Level 2	Incomplete
A-1533-S7-678	Spreading Room	Incomplete
1-1561-S7-214	Control Bldg. Level C	Incomplete

In general, the installed fire dampers did not conform to the requirements of NFPA 90A, Air Conditioning and Ventilation Systems, and the manufacturers installation instructions in that:

- Dampers are being mounted in damper sleeves by 1" welds on 6" centers on near face of dampers less than 24" x 24" and with larger dampers ½" welds on 8" centers on both near face and far face. The damper manufacture's instructions, Air Ballance, Inc., appear to require the dampers to be attached to the sleeves on both the far and near sides for all dampers regardless of size.

- Damper sleeves are being installed within fire walls and floors with clean space opening of two inches between sleeve and wall or floor. Some openings are provided with several feet of clearance. NFPA-90A, Section 3-3.7.2.2 requires dampers to be installed in accordance with manufacturer's installation instructions. The manufacturer requires dampers to have a clearance of no more than 1/8" per foot of damper height and width.

- A metal cover plate is being provided on each side of the penetration and is to be welded to the duct sleeve. The manufacturer's instructions require the damper sleeves to be secured in place by steel angles having a minimum size of 1½" x 1½" x 1/8".

The licensee stated that the installed dampers met the construction design documents and the dampers were in accordance with an approved tested damper configuration. However, records were not available on

site to substantiate this position. This item is to be further evaluated by the licensee and is identified as Unresolved Item (424 and 425/84-34-04), Apparent Substandard Fire Damper Installations, and will be reviewed during a subsequent NRC inspection.

QA inspection records were not available on two of the above dampers and the records on the remaining dampers were incomplete. Therefore, additional dampers were selected to determine if the dampers had received a receipt inspection by the licensee and the required QA/QC inspections and tests by the licensee's contractor. The results of this review is as follows:

Damper No.	Georgia Power Receipt Inspection No.	PKF QA Records
1-1553-S7-315	30325	Incomplete
1-1551-S7-316	30325	Incomplete
1-1553-S7-323	30325	No data
1-1551-S7-324	30325	Incomplete
1-1553-S7-325	31138	Incomplete
A-1553-S7-310	30324	Incomplete
A-1553-S7-311	30324	No data
A-1553-S7-312	30324	No data
A-1553-S7-313	30324	No data
A-1553-S7-314	17032	Incomplete

As noted the QA/QC inspections required by Procedure QP-10.7, HVAC Fire Damper Cycling and Inspection, had not been completed on any of the dampers. However, there was no records available to indicate that any of the required inspections had been conducted in four of the ten dampers selected. Furthermore, records were not available to indicate that all of the preliminary required tests and inspections of the procedure had been accomplished. This can probably be attributed to the fact that Procedure QP-10.7 was revised effective July 31, 1984, and that all of the current required inspection records have not yet been placed in the contractor's QA records storage. The inspector advised the licensee that it appeared that the damper inspection program needed to be further evaluated to assure that the required inspections and tests on the fire dampers are being properly conducted and documented. This item is identified as Unresolved Item (424 and 425/84-34-05), Apparent Fire Damper QA Inspection and Documentation Discrepancies, and will be further evaluated during a subsequent NRC inspection.

Within the areas examined, no violations were identified.