



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

Report No.: 50-425/88-46

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

Docket No.: 50-425

Construction Permit No.: CPPR-109

Facility Name: Vogtle 2

Inspection Conducted: August 4 - September 12, 1988

Inspectors: C. J. Schepens
R. J. Schepens, Senior Resident Inspector

9/30/88
Date Signed

O. F. Rogge
O. F. Rogge, Senior Resident Inspector

9/30/88
Date Signed

Approved by: M. V. Sinkule
M. V. Sinkule, Section Chief
Division of Reactor Projects

10/3/88
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed resident inspection in the following areas: fire protection, piping systems and supports, safety related components, auxiliary systems, electrical equipment, raceways and instrumentation, preoperational testing, quality programs and administrative controls affecting quality, and follow-up on previous inspection identified items.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *P. D. Rice, Vice President, Vogtle Project Director
- *R. H. Pinson, Vice President, Project Construction
- G. Bockhold, General Manager
- *T. V. Greene, Plant Support Manager
- *C. W. Hayes, Vogtle Quality Assurance Manager
- *E. D. Groover, Quality Assurance Site Manager - Construction
- *D. M. Fiquett, Project Construction Manager
- A. B. Gallant, Project Compliance Coordinator
- C. L. Coursey, Maintenance Superintendent (Startup)
- *H. M. Handfinger, Assistant Plant Support Manager
- A. W. Harrelson, Construction Electrical Manager
- C. W. Rau, Construction Mechanical Manager
- L. N. Brooks, Construction Civil Manager
- *L. B. Glenn, QC Manager
- R. W. McManus, Readiness Review Manager
- *J. E. Sanders, Assistant Project Manager
- *W. C. Ramsey, Project Engineering Manager
- L. D. Harless, Manager, Quality Concerns
- *J. J. Maddry, Fire Protection Manager
- *J. J. Gilmartin, Construction Mechanical Engineering Supervisor
- *M. J. Ajluni, Operations Superintendent
- *R. A. Ebner, Mechanical Design Engineering Group Supervisor
- *R. E. Hollands, Electrical Compliance Supervisor
- *P. R. Thomas, Readiness Review Team Leader

Other licensee employees contacted included craftsmen, technicians, supervision, engineers, inspectors, and office personnel.

Other Organizations

- C. Marcum, Westinghouse Project Manager
- T. E. Richardson, Project Engineering Manager - Bechtel
- A. J. Ayob, VSAMU, Supervisor - Westinghouse,
- B. Edwards, Site Manager - Pullman Power Products
- J. Miller, Quality Assurance Manager
- *D. D. Smith, Construction Engineer - Oglethorpe Power Company
- *B. A. Dragon, Quality Assurance - Bechtel

NRC Region II Inspector

- *J. J. Lenahan, Civil Engineer Inspector

- *Attended Exit Interview

2. Licensee Action on Previous Enforcement Matters - (92702)

This area was not inspected.

3. General Construction Inspection - (92706)

Periodic random surveillance inspections were made throughout this reporting period in the form of general type inspections in different areas of the facility. The areas were selected on the basis of the scheduled activities and were varied to provide wide coverage. Observations were made of activities in progress to note defective items or items of noncompliance with the required codes and regulatory requirements. On these inspections, particular note was made of the presence of quality control inspectors, supervisors, and quality control evidence in the form of available process sheets, drawings, material identification, material protection, performance of tests, and housekeeping. Interviews were conducted with craft personnel, supervisors, coordinators, quality control inspectors, and others as they were available in the work areas. The inspector reviewed numerous construction deviation reports to determine if requirements were met in the areas of documentation, action to resolve, justification, and approval signatures in accordance with GPC Field Procedure No. GD-T-01.

During the weekend of August 19, 1988, GPC conducted a major effort to clean up containment. Subsequently, on August 22, 1988, GPC identified a deficiency as a result of the clean up effort relative to spraying down the inside of containment with water. GPC initiated deficiency report Nos. CD-9375 & CD-9377 to document the indeterminate condition inside containment. GPC immediately formed a task force to address this issue in two major areas: 1) Determine and evaluate the extent of water intrusion into specified class 1E and major/significant non-safety related electrical equipment, junction boxes, termination boxes etc., and sample the remainder of class 1E and non-safety related equipment, and 2) Determine and evaluate the effect of chloride/fluoride leaching as a result of wetting down the Nukon piping insulation. The inspector held discussions with appropriate personnel and monitored licensee actions such as witnessing mock up testing of the Nukon piping insulation and observing electrical equipment inspections and rework to dry out wetted equipment to verify the licensee's actions with regard to the identified deficiency. Also, the licensee placed a hold on HFT, not to go above 180°F until this matter was satisfactory resolved. The inspector reviewed this incident with project management relative to a concern to ensure that adequate management coverage was provided during weekends. Project management stated that adequate management coverage was provided in this instance, however, management was not fully aware of the details of the cleaning method thus resulting in the problem. Project management has reinforced to management personnel the importance and necessity of the knowing and understanding major work details to prevent reoccurrence. The inspector will continue to observe management coverage and involvement for weekend work activities during HFT.

No violations or deviations were identified.

4. Fire Prevention/Protection and Housekeeping Measures - (42051C)

The inspector observed fire prevention/protection measures throughout the inspection period. Welders were using welding permits with fire watches and extinguishers. Fire fighting equipment was in its designated areas throughout the plant.

The inspector reviewed and examined portions of procedures pertaining to the fire prevention/protection measures and housekeeping measures to determine whether they comply with applicable codes, standards, NRC Regulatory Guides and licensee commitments.

The inspector observed fire prevention/protection measures in work areas containing safety related equipment during the inspection period to verify the following:

- Combustible waste material and rubbish was removed from the work areas as rapidly as practicable to avoid unnecessary accumulation of combustibles.
- Flammable liquids were stored in appropriate containers and in designated areas throughout the plant.
- Cutting and welding operations in progress have been authorized by an appropriate permit, combustibles have been moved away or safely covered, and a fire watch and extinguisher was posted as required.
- Fire protection/suppression equipment was provided and controlled in accordance with applicable requirements.

During the inspection period, the inspector conducted a review of the following documents which covered the design, construction, & testing of the deluge, water, spray, sprinkler, and halon fire suppression systems.

<u>Procedure No.</u>	<u>Title</u>
X4AX03,R-16	Technical Provisions For Automatic Sprinkler And Halon Fire Suppression Systems
MD-T-22,R-0	National Fire Protection Association Piping Installation
MD-T-23,R-1	Testing Of NFPA Systems
MD-T-24,R-0	NFPA Piping Support Installation
MD-T-25,R-2	In-Process Evaluation Of Separation For Mechanical Commodities

The inspector conducted a walkdown of the train "B" centrifugal charging pump room, the waste gas compressor room and the vestibule and pipe penetration room installed sprinkler systems for compliance with the applicable design and construction requirements. Also, an inspection was conducted of the train "A" pipe penetration room installed sprinkler system hangers. The following drawings were utilized by the inspector in the inspection:

<u>Dwg./Rev.</u>	<u>Title</u>
2X4DF3A239,R-1	Fire Protection Sprinkler System #10 Startup System 2KC-06
2X4DF3A274,R-1	Fire Protection Sprinkler System #101 Startup System 2KC-06
2X4DF3A248-1,R-0	Fire Protection Sprinkler System #20 Startup System 2KC-06
2X4DF3A249-2,R-0	Fire Protection Sprinkler System #20 Startup System 2KC-06
2X4DF2A205-1,R-0	Fire Protection Sprinkler System #62 Startup System 2KC-05
2X4DF2A205-2,R-0	Fire Protection Sprinkler System #62 Startup System 2KC-05
V2-2301-000-S024	Pipe Support Hanger No's. 15, 16, & 17
V2-2301-000-S5023	Pipe Support Hanger No. 75
V2-2301-000-S022	Pipe Support Hanger No's. 68, 108, & 109
V2-2301-000-S016	Pipe Support Hanger No's. 18 & 22

As a result of these walkdowns, the inspector held several meetings with the licensee to discuss concerns with regard to: 1) inspecting sprinkler lines for slope, 2) thoroughness of walkdown inspections, 3) proper density coverage for rooms in accordance with the fire protection construction specification, 4) configuration control, and 5) construction specification not being clear relative to the differences between the design basis for the sprinkler systems in Unit 1 and Unit 2. The licensee has adequately addressed the inspector concerns by: 1) improving walkdown checklist for quality engineers to require inspections for slope and drain valve installation, 2) rechecking rooms with .21 density coverage to ensure compliance with construction specification design requirements for sprinklers systems, 3) adding a step to the design change checklist to verify that modifications do not block fire protection suppression systems nor alter configuration

of piping support system hardware and, 4) revising the construction specification to clearly specify the Unit 1 and Unit 2 sprinkler design basis requirements.

No violations or deviations were identified.

5. Reactor Coolant Pressure Boundary and Safety Related Piping - (49053C and 49063C)

Periodic inspections were conducted to observe construction activities of the Reactor Coolant Boundary and other safety-related piping installations inside and outside Containments. Verifications included but were not limited to the following:

- Material and components were being properly handled and stored in order to prevent damage.
- Fit-ups and alignments were within tolerances per specifications and drawings.
- Specified clearances from pipe to pipe and adjacent components were met.
- Piping was installed and inspected in accordance with applicable drawings, specifications, and procedures.
- Those people engaged in the activity are qualified to perform the applicable function.
- Drawing and specification changes (revisions) are being handled and used correctly.

No violations or deviations were identified.

6. Reactor Coolant Pressure Boundary and Safety Related Piping Welding - (55073C and 55083C)

Periodic inspections were conducted during daily plant surveillances on safety-related pipe welding at various stages of weld completion. The purpose of the inspection was to determine whether the requirements of applicable specifications, codes, standards, work performance procedures and QC procedures are being met as follows:

- Work was conducted in accordance with a process sheet which identifies the weld and its location by system, references procedures or instructions, and provides for production and QC signoffs.
- Welding procedures, detailed drawings and instructions, were readily available in the immediate work area and technically adequate for the welds being made.

- Welding procedure specification (WPS) were in accordance with the applicable Code requirements and that a Procedure Qualification Record (PQR) is referenced and exists for the type of weld being made.
- Base metal, welding filler materials, fluxes, gases, and insert materials were of the specified type and grade, have been properly inspected, tested and were traceable to test reports or certifications.
- Purgas and/or shielding gas flow and composition were as specified in the welding procedure specification and that protection was provided to shield the welding operation from adverse environmental conditions.
- Weld joint geometry including pipe wall thickness was specified and that surfaces to be welded have been prepared, cleaned and inspected in accordance with applicable procedures or instructions.
- A sufficient number of adequately qualified QA and QC inspection personnel were present at the work site, commensurate with the work in progress.
- The weld area cleanliness was maintained and that pipe alignment and fit-up tolerances were within specified limits.
- Weld filler material being used was in accordance with welding specifications, unused filler material was separated from other types of material and was stored properly and that weld rod stubs were properly removed from the work location.
- That there were no evident signs of cracks, excessive heat input, sugaring, or excessive crown on welds.
- Welders were qualified to the applicable process and thickness, and that necessary controls and records were in place.

During the inspection period, the inspector observed in-process work activities on rework of the PSARV ring assembly flange to align with the pressurizer code safety relief valve No. 2PSV-8010B flange in accordance with process sheet No. 2X4DL4D20

No violations or deviations were identified.

7. Reactor Vessel, Integrated Head Package, and Internals - (50053C and 50063C)

The inspection consisted of examinations of the Reactor Vessel installed in containment, and the Integrated Head package which is tensioned in support of hot function testing. Inspections also determined that proper storage protection practices were in place and that entry of foreign objects and debris was prevented.

No violations or deviations were verified.

8. Safety Related Components - (50073C)

The inspection consisted of plant tours to observe storage, handling, and protection; installation; and preventive maintenance after installation of safety-related components to determine that work is being performed in accordance with applicable codes, NRC Regulatory Guides, and licensee commitments.

During the inspection the below listed areas were inspected at various times during the inspection period to verify the following as applicable:

- Storage, environment, and protection of components were in accordance with manufacturer's instructions and/or established procedures.
- Implementation of special storage and maintenance requirements such as: rotation of motors, pumps, lubrication, insulation testing (electrical), cleanliness, etc.
- Performance of licensee/contractor surveillance activities and documentation thereof was being accomplished.
- Installation requirements were met such as: proper location, placement, orientation, alignment, mounting (torquing of bolts and expansion anchors), flow direction, tolerances, and expansion clearance.
- Appropriate stamps, tags, markings, etc. were in use to prevent oversight of required inspections, completion of tests, acceptance, and the prevention of inadvertent operation.

Safety-Related piping, valves, pumps, heat exchangers, and instrumentation were inspected in the following areas on a random sampling basis throughout the inspection period:

- Residual Heat Removal Pump Rooms
- Diesel Generator Building
- Auxiliary Feedwater Pumphouse
- Containment Spray Pump Rooms
- Pressurizer Rooms
- Main Coolant Pump Areas
- Steam Generator Areas
- Safety Injection Pump Rooms
- RHR and CS Containment Penetration Encapsulation Vessel Rooms
- Component Cooling Water (CCW) Heat Exchangers, Surge Tanks & Pump Rooms
- Cable Spreading Rooms
- Accumulator Tank Areas
- Chemical and Volume Control System (CVCS) Letdown Heat Exchanger Pump Room
- Battery & Charger Rooms
- Spent Fuel Pool Heat Exchanger Rooms
- Pressurizer Relief Tank Area

- CVCS Centrifugal Charging Pumps & Positive Displacement Pump Rooms
- Bottom Mounted Instrumentation (BMI) Tunnel and Seal Table Area
- NSCW Tower Pump Rooms and Pipe Tunnel:

The inspector observed the installation of the containment spray sump screens and reviewed the completed documentation for the fabrication of the RHR & CS sump screens for compliance with the applicable design and construction requirements. The following documents were utilized by the inspector during this inspection:

<u>Document No.</u>	<u>Title</u>
M01G-S311A,B,C,D,E,F	Vogtle Miscellaneous Steel Fab Form
M01G-S310A,B&C	Vogtle Miscellaneous Steel Fab Form
2X2D48G012,R-2	Containment Internals Miscellaneous Steel Plan Sections And Details SHT.11
M01G-S310,R-0	Miscellaneous Structural Steel Details
M01G-S311,R-0	Miscellaneous Structural Steel Details

No violations or deviations were identified.

9. Safety Related Pipe Support and Restraint Systems - (50090C)

Periodic random inspections were conducted during the inspection period to observe construction activities during installation of safety-related pipe supports to determine that the following work was performed in accordance with applicable codes, NRC Regulatory Guides, and licensee commitments:

- Spring hangers were provided with indicators to show the approximate "hot" or "cold" position, as appropriate.
- No deformation or forced bending was evident.
- Where pipe clamps are used to support vertical lines, shear lugs were welded to the pipe (if required by Installation Drawings) to prevent slippage.
- Sliding or rolling supports were provided with material and/or lubricants suitable for the environment and compatible with sliding contact surfaces.
- Supports are located and installed as specified.
- The surface of welds meet applicable code requirements and are free from unacceptable grooves, abrupt ridges, valleys, undercuts, cracks, discontinuities, or other indications which can be observed on the welded surface.

No violations or deviations were identified.

10. Electrical and Instrumentation Components and Systems - (51053C and 52153C)

Periodic inspections were conducted during the inspection period to observe safety-related electrical equipment in order to verify that the storage, installation, and preventive maintenance was accomplished in accordance with applicable codes, NRC Regulatory Guides, and licensee commitments.

During the inspection period inspections were performed on various pieces of electrical equipment during storage, installation, and cable terminating phase in order to verify the following as applicable:

- Location and alignment
- Type and size of anchor bolts
- Identification
- Segregation and identification of nonconforming items
- Location, separation and redundancy requirements
- Equipment space heating
- Cable identification
- Proper lugs used
- Condition of wire (not nicked, etc.), tightness of connection
- Bending radius not exceeded
- Cable entry to terminal point
- Separation

No violations or deviations were identified.

11. Electrical and Instrumentation Cables and Terminations - (51063C, 52063C, and 53053C)

a. Raceway/Cable Installation

The inspector reviewed and examined portions of the following procedures pertaining to raceway/cable installation to determine whether they comply with applicable codes, NRC Regulatory Guides and licensee commitments.

- ED-T-02, Raceway Installation
- ED-T-07, Cable Installation

Periodic inspections were conducted to observe construction activities of Safety Related Raceway/Cable Installation.

In reference to the raceway installation, the following areas were inspected to verify compliance with the applicable requirements:

- Identification
- Alignment
- Bushings (Conduit)
- Grounding
- Supports and Anchorages

In reference to the cable installation the following areas were inspected to verify compliance with the applicable requirements:

- Protection from adjacent construction activities (welding, etc.)
- Coiled cable ends properly secured
- Non-terminated cable ends taped
- Cable trays, junction boxes, etc., reasonably free of debris
- Conduit capped, if no cable installed
- Cable supported
- Bend radius not exceeded
- Separation

b. Cable Terminations

The inspector reviewed and examined portions of the following procedures pertaining to cable termination to determine whether they comply with applicable codes, NRC Regulatory Guides and licensee commitments.

-ED-T-08, Cable Termination

In reference to cable terminations the following areas were inspected to verify compliance with the applicable requirements.

- Cable identification
- Proper lugs used
- Condition of wire (not nicked, etc.)
- Tightness of connection
- Bending radius not exceeded
- Cable entry to terminal point
- Separation

No violations or deviations were identified.

12. Followup on Previous Inspection Items - (92701)

(Closed) Inspector Followup Item, 50-425/88-38-01, "Review Licensee's Finding Relative To The Seismic Qualification Of Valves 2HV-8152, 8888, and 8964." The inspector was provided the appropriate documentation which specified the required modifications to upgrade the Fisher valves to meet seismic requirements. In addition, the laboratory reports for the seismic qualification data after the incorporation of the design modifications were reviewed and determined to be acceptable. Based on the above inspection, this item is considered to resolved.

13. Offsite Review Committee (40301)

This inspection was conducted to determine if the functions of offsite reviews are being performed in accordance with regulatory requirements of technical specification 6.4.2. Technical specification 6.4.2 specifies that the Safety Review Board shall function to provide independent review and audit of activities in the areas of nuclear power plant operations, nuclear engineering, chemistry and radiochemistry, metallurgy, instrumentation and control, radiological safety, mechanical and electrical engineering, quality assurance practices. The Safety Review Board is organized as one board for all GPC Nuclear power plants. The board is composed of a minimum of five persons.

Additional information is contained in FSAR Section 13.4.3. The inspector attended meeting number 311 on August 24, 1988, discussed with board members how the board conducts business and reviewed past meeting minutes of the board and subcommittees. The inspector concluded that the board was conducting business as required by the technical specifications. The inspector noted that the open issues of the board has been reduced from 83 to 0 during the past year.

No violations or deviations were identified.

14. Management Meetings - (30702)

On September 2, 1988, the resident inspector attended a meeting with the NRC staff and GPC at the Vogtle Electric Generating Plant. In attendance from the regional and headquarters office were Mr. J. N. Grace, Regional Administrator, Mr. L. A. Reyes, Director Division of Reactor Projects, Mr. M. V. Sinkule, Section Chief, Mr. C. A. Patterson, Project Engineer, Mr. D. B. Matthews, Director of Project Directorate II-3, and Mr. J. B. Hopkins, Project Manager. The purpose of the meeting was to review Vogtle Unit 2's current status and to discuss GPC's preparedness for initial fuel loading. Areas of discussion included: construction status, startup status, licensing status, special programs, and NRC bulletin 88-05. In addition, a tour of the Unit 2 facility was conducted by GPC.

15. Followup of Reportable Items - (92700)

(Closed) CDR 50-425/86-97 "Westinghouse Reactor Protection System - P10 Function." The issue reported by letter dated April 8, 1988, was reviewed in detail. This issue concerns the function of the permissive during operation with one or more of the power range neutron flux measurement channels inoperable or removed from service. Currently, the Technical Specification allow an instrumentation channel to remain inoperable provided that the associated trip bistables are placed in the tripped condition. In the case of a power range neutron flux channel, the current practice would be to place the bistables associated with the NIS trips (Power Range High Neutron Flux Trip, Positive and Negative Flux Rate Trips) and the P-10 permissive function in the tripped condition by

removing power to the channel. This would affect the coincidence logic of the NIS trips and P-10 permissive in such a way as to require only one additional channel in the trip condition to generate a protective system actuation or the P-10 permissive state to be enabled. However, for the case where neutron flux is above the P-10 setpoint, if the inoperable channel is placed in the tripped status while the plant is at power (the appropriate action) and the power level is later reduced below the P-10 setpoint, the protection system functions of the Power Range High Neutron Flux Trip - Low setpoint, Intermediate Range High Neutron Flux Trip and source range neutron flux detector voltage will be disabled if one assumes a single failure of a P-10 setpoint bistable from one of the three remaining operable power range neutron flux measurement channels. With the single failure of a bistable and a tripped channel bistable already existing, the P-10 permissive would not correctly change state due to the fact that the two out of four logic for blocking these functions would remain in effect. The P-10 permissive, which is comprised of a 2 out of 4 coincidence logic of the four power range neutron flux channels, has two functions. The first function of the permissive is to enable a manual block of the above mentioned functions during power escalations when at least two of the four power range neutron flux channels reach a value to greater than the value corresponding to the P-10 setpoint (typically 10% nuclear power). The second function of the permissive is to provide an automatic reinstatement of the above functions when power level is reduced below the setpoint. Therefore, the previously referred to protection function would not be enabled when the power drops below the P-10 setpoint.

To resolve this issue procedural provisions have been incorporated into operations procedure 12004-C, Power Operation. These caution, verifications, and procedure steps were reviewed and determined to be adequate by the inspector.

(Closed) CDR 50-425/86-103, "Separation Of Field Wiring In Isolation Transformers." This item was reported to the NRC Region II on April 3, 1986, and the final report submitted on June 12, 1986. This CDR addressed the minimum 6 inch separation distance of field routed wiring within the isolation transformer enclosures. The concern was originally the fact that the separation distance between the primary (input) and secondary (output) wiring for these isolation transformers could not be met. However, an additional concern was identified which pertained to the temperatures the wiring could reach under fault or short circuit conditions. The current limiting feature of these transformers allows for the use of a higher temperature rated cable which can withstand the maximum current without damage. Therefore, since the primary side wiring is protected by trip devices and the secondary side wiring will not self ignite when faulted, the separation analysis meets the requirements of the FSAR, IEEE 384 and Regulatory Guide 1.75.

(Closed) CDR 50-425/87-141, "Containment Electrical Penetration Assemblies." This item was reported to the NRC Region II on December 3, 1987, and a final report was submitted on January 27, 1988. The licensee had identified approximately 20 non-safety related electrical penetration assemblies

that did not have redundant protective devices sized adequately to always protect the EPA. These EPAs are used in the Neutron Flux Mapping System and the Fuel Transfer System, both of which are non-safety related systems. The root cause for the inadequate protection being provided for the FMS and FTS circuits passing through the EPAs was determined to be an engineering oversight. Field Equipment Change Order Numbers E-165-B, E-383-B, E-384-B, E-386-BF, and E-389-BF were issued for the installation of replacement circuit breakers and fuses. The installation of these breakers and fuses were examined and accepted by the quality engineering unit which is responsible for inspection and acceptance of all installation and modification on non-safety related components.

(Open) CDR 50-425/82-33, "TransAmerica Delaval Diesel Generator - Governor Drive Coupling." This item was reported on December 14, 1982, and involved the identification of an incorrect material used for the coupling's drive element. The drive coupling must function in the high temperature, oil environment of the engine's gear case. Coupling integrity must be maintained for the diesel generator to achieve sufficient frequency stability. The material, an isoprene, is designed for atmospheric use and is not suitable for use in the high temperature, oil atmosphere in the engine's gear case. The isoprene, a rubber deteriorates rapidly and ultimately fails. During this inspection, the inspector reviewed the completed MWO's 28500101 and 28500049 which documented the replacement of the existing coupling insert with one made of neoprene on the train "A" and "B" diesel generators. In addition, the inspector conducted a review of the licensee's action with regard to the spare parts list to prevent recurrence. During this review, the inspector was informed that the new part had the same part number as the old and that quality control verified the installation of the correct part based on the part number. Based on this information, the inspector raised the question, "How do you know that you have the correct part installed?" The licensee contacted the vendor and was informed that the inserts should have and "n" marked for neoprene rubber. Based on the above, the licensee has initiated MWO's to reverify that the correct coupling inserts are installed utilizing the vendor's information. Pending the results of the licensee's inspection, this item will remain open.

16. Preoperational Test Program Implementation/Verification - (70302 and 71302)

The inspector reviewed the present implementation of the preoperational test program. Test program attributes inspected included review of administrative requirements, document control, documentation of major test events and deviations to procedures, operating practices, instrumentation calibrations, and correction of problems revealed by testing.

Periodic inspections were conducted of Control Room Operations to assess plant condition and conduct of shift personnel. The inspector observed that Control Room operations were being conducted in an orderly and professional manner. Shift personnel were knowledgeable of plant conditions, i.e., ongoing testing, systems/equipment in or out of service,

and alarm/annunciator status. In addition, the inspector observed shift turnovers on various occasions to verify the continuity of plant testing, operational problems and other pertinent plant information during the turnovers. Control Room logs were reviewed and various entries were discussed with operations personnel.

Periodic facility tours were made to assess equipment and plant conditions, maintenance and preoperational activities in progress. Schedules for program completion and progress reports were routinely monitored. Discussions were held with responsible personnel, as they were available, to determine their knowledge of the preoperational program. The Inspector reviewed numerous operation deviation reports to determine if requirements were met in the areas of documentation, action to resolve, justification, corrective action and approvals. Specific inspections conducted are listed below:

a. Preoperational Tests

(1) Test Procedure Review (70300)

The inspector reviewed the following listed preoperational test procedures. Each test was reviewed for administrative format and technical adequacy. The procedures were compared with licensee commitments from the applicable FSAR Chapters, Regulatory Guide 1.68 and the Safety Evaluation Report (NUREG-1137). This included verifying that pertinent prerequisites were identified, initial test conditions and system status were specified, acceptance criteria were specified and management approval indicated:

<u>Procedure No.</u>	<u>NRC Insp. No.</u>	<u>Test Title</u>
2-3SH-01	25020	ATWS Mitigation System Actuation Circuitry
ST-38	70336	RHR Operating Demonstration With RCS Partially Filled

(2) Test Witnessing (70312)

The inspector witnessed selected portions of the following preoperational test procedures as they were conducted. The inspection included attendance at briefings held by the test supervisor to observe the coordination and general knowledge of the procedure with the test participants. Overall crew performance was evaluated during testing. A preliminary review of the test results was compared to the inspector's own observations. Problems encountered during performance of the test were verified to be adequately documented, evaluated and dispositioned on a selected basis.

<u>Procedure No.</u>	<u>NRC Insp. No.</u>	<u>Test Title No.</u>	<u>Activity Observed</u>
2-3AL-01	70438	Motor Driven Auxiliary Feedwater System	Supply Breaker 2AA0217 Initial Checkout Per Step 6.1
2-3ED-01	70439	Auxiliary Component Cooling Water System	ACCW Pump No. 1 Performance Check-out Per Step 6.4
2-3SH-01	25020	ATWS Mitigation System Actuation Circuitry	Computer Setup
ST-38	70436	RHR Operating Demonstration With The RCS Partially Filled	RHR Train "A" Mid Loop Operation At Level 187'-6"
SOI-92 (2-300-09,RO)	70439	NSCW Train "B" Bypass Retest	NSCW Bypass System Test Guidelines 1.1 Steps A), B1)a.

(3) Test Results Evaluation (70400)

The inspector reviewed the following listed preoperational test results. This review was performed to ascertain if an adequate evaluation of the test results has been performed; test data was within the established acceptance criteria, or that deviations are properly dispositioned; appropriate retesting was performed where necessary; administrative practices were adhered to; and that appropriate review, evaluation and acceptance of the test results have been performed.

<u>Procedure No.</u>	<u>NRC Insp. No.</u>	<u>Preoperational Test Procedure Title</u>
2-3BC-01	70536	Residual Heat Removal System
2-3KJ-01	70541	Diesel Generator Train "A" Starting Air System
2-3BN-01	70534	Refueling Water Storage Tank
2-3JE-01	70541	Diesel Generator Train "A" Fuel Oil Storage And Transfer System

<u>Procedure No. (cont'd)</u>	<u>NRC Insp. No.</u>	<u>Preoperational Test Procedure Title</u>
2-3RK-02	70329	Isolation Cabinets
2-3RN-01	70541	120 Volt Vital AC (Class 1E) System
2-3PE-01	70541	Class 1E - Standby Power System

b. Construction Acceptance Testing

The inspector conducted a review of the following completed construction acceptance tests to verify that they were conducted in accordance with applicable procedures and vendor/design documents:

<u>CAT. No.</u>	<u>NRC Insp. No.</u>	<u>Description</u>
CAT-87-1622	70536	2HV-0606 RHR HT Exch E600 1 Outlet Valve
CAT-87-1651	70536	2HV-8804B RHR HEX Trn B To SI Pump Valve
CAT-87-1659	70536	2HV-8811B Containment Sump Isolation Valve
CAT-87-1660	70536	2HV-8812B RHR Pump P6001 Inlet Valve
CAT-87-1871	70536	2HV-8809A RHR Trn A SIS Cold Leg Isolation Valve

The inspector witnessed portions of the following CAT's to verify implementation per Startup Manual Procedure No. SUM-12A:

<u>CAT. No.</u>	<u>NRC Insp. No.</u>	<u>Description</u>
2-3785	70438	Turbine Driven Auxiliary Feedwater Pump M-01

c. Preoperational Testing QA Surveillance Report Review

The inspector conducted a review of the following licensee conducted surveillance reports performed by the QA department of various phases of the preoperational test program.

<u>Report No.</u>	<u>Description</u>
2-KJ-88-007	Diesel Generator 2A Fuel Day Tank Preop Testing
2-BG-88-015	CAT Retest Of Train "A" Boric Acid Transfer Pump
2-BB-88-006	SG#1 Tube Plug Installation
2-GL-88-001	Aux Bldg ESF Room Coolers Preop Testing
2-MA-88-001	Main And Unit Auxiliary Transformers Acceptance Testing
2-KC-88-002	CAT Implementation
2-SF-88-001	CRDM Motor Generator Set Preop Testing

No violations or deviations were identified.

17. Exit Interviews - (30703C)

The inspection scope and findings were summarized on September 13, 1988, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection results. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection. Region based NRC exit interviews were attended during the inspection period by a resident inspector. This inspection closed one Inspector followup Item and three Construction Deficiency Reports.

20. Acronyms And Initialism

AC	- Alternating Current
ACCW	- Auxiliary Component Cooling Water System
AFW	- Auxiliary Feedwater System
ATWS	- Anticipated Transient Without Scram
CAT	- Construction Acceptance Test
CDR	- Construction Deficiency Report
CRDM	- Control Rod Drive Mechanism
CVCS	- Chemical & Volume Control System
ESF	- Engineered Safety Features
EPA	- Electric Penetration Assemblies
FMS	- Flux Mapping System
FTS	- Fuel Transfer System
FSAR	- Final Safety Analysis Report
GPC	- Georgia Power Company
HFT	- Hot Functional Test
MWO	- Maintenance Work Order

NFPA - National Fire Protection Association
NIS - Nuclear Instrumentation System
NSCW - Nuclear Service Cooling Water System
NRC - Nuclear Regulatory Commission
PSARV - Pressurizer Safety Atmospheric Relief Valve
QA - Quality Assurance
QC - Quality Control
RCS - Reactor Coolant System
RHR - Residual Heat Removal System
RWST - Refueling Water Storage Tank
SG - Steam Generator
SIS - Safety Injection System
SOI - System Operating Instruction
SUM - Startup Manual