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

Report Nos.: 50-424/85-40 and 50-425/85-31

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: August 19 - 23, 1985

Inspector: George Hallstrom 9/16/85
G. A. Hallstrom Date Signed

Approved by: J. D. Blake 9/23/85
J. D. Blake, Section Chief Date Signed
Materials and Processes Section
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection involved 22 inspector-hours on site in the areas of employee concerns, housekeeping (Units 1 and 2), material control (Units 1 and 2), reactor coolant pressure boundary piping (Unit 1), safety-related piping (Unit 1), safety-related components, and licensee identified items (50.55(e)).

Results: Two violations were identified - Failure to Follow Procedures for Control of Welding - paragraphs 7.b(1) and 7.b(3); and Failure to Protect Permanent Plant Equipment - paragraph 9.

REPORT DETAILS

1. Licensee Employees Contacted

*W. T. Nickerson, Deputy Project General Manager
*G. Bockhold, General Manager, Vogtle Nuclear Operations Division
*C. W. Hayes, Vogtle Quality Assurance (QA) Manager
*E. D. Groover, QA Site Manager, Construction
*C. E. Belflower, QA Site Manager, Operations
*D. M. Fiquett, Unit 2 Field Construction Manager
*W. Wagner, Quality Control (QC) Superintendent-Operation
*M. Bellamy, Initial Test Manager, Operations
*M. S. Hairston, Regulatory Compliance Associate Engineer
*G. A. McCarley, Project Compliance Coordinator

Other licensee employees contacted included construction craftsmen, engineers, technicians, operators, mechanics, security force members, and office personnel.

Other Organizations

*D. L. Kinnsch, Project Field Engineer, Bechtel Power Company (BPC)
*J. Mamon, Quality Engineer, BPC
*G. H. Fredy, Technical Specialist, BPC
*J. Steele, [illegible] Manager, Pullman Power Products (PPP)
*T. C. Clark, Assistant QA Manager, PPP
*A. Holtz, V-SAMU Piping Systems As-Built Engineer, Westinghouse
*C. S. McCall, Construction Supervisor, Oglethorpe Power Company

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on August 23, 1985, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee.

(Open) Inspector Followup Item 424/85-40-01, 425/85-31-01 - Assurance of Necessary Minimum Clearances for Installed Piping, paragraph 5.

(Open) Unresolved Item 424/85-40-02, 425/85-31-02 - Assurance of Adequate Backpurge for Welding Stainless Steel Piping, paragraph 7.b.(1).

(Open) Violation 424/85-40-03, 425/85-31-03 - Failure to Follow Procedures for Control of Welding, paragraphs 7.b.(1) and 7.b.(3).

(Open) Violation 424/85-40-04 - Failure to Protect Permanent Plant Equipment, paragraph 9.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

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. One new unresolved item identified during this inspection is discussed in paragraph 7.b.(1).

5. Independent Inspection Effort

Housekeeping (54834B), Material Identification and Control (42902B) and Material Control (42940B)

The inspector conducted a general inspection of Units 1 and 2 containments and the reactor auxiliary building to observe activities such as housekeeping, material identification and control; material control, and storage. During the above inspection the inspector noted apparent clearance problems between installed piping and Unit 1 containment pipe racks. There appeared to be potential for contact between the 12" x 12" x 6" Reducing Tee In Reactor Coolant Line 1-k4-1201-036-01 and the top of Column 8 in rack R0001. There also appeared to be potential for contact on other locations between the racks and pipe clamps which will be used to attach snubbers and struts. Final alignment of the clamps will reduce the present clearances in these locations.

Cognizant licensee personnel informed the inspector that BPC was in process of revising specification X4Z01, Division P3 to include minimum separation distances between piping and other obstructions. A general minimum separation of 1" in the direction of the obstruction will be imposed and any deviations will require evaluation and acceptance by the project engineer. The inspector was also informed that these requirements are incorporated in the latest revision of PPP procedure IX-3, which is nearing final approval.

Cognizant licensee personnel also informed the inspector that a Deviation Report (DR) would be issued in response to inadequate separation at Column 8 of Rack R0001 and that additional generic corrective actions will be required to assure adequate implementation of the new general 1" minimum separation criteria. The inspector informed cognizant licensee personnel that NRC concern on this matter will be identified as Inspector Followup Item 424/85-40-01, 425/85-31-01 - Assurance of Necessary Minimum Clearances for Installed Piping.

6. Employee Concerns

NRC had previously received an employee concern regarding inadequate qualification of a PPP welder who was making heavy section weldments on Unit 1 containment pipe racks. The inspector reviewed pertinent qualification data for the welder in question. The inadequate qualification had been identified on February 16, 1984, and DR No. PP-4123 issued to accomplish removal of weld metal to the thickness allowed and rewelding by another welder qualified to unlimited thickness. The original welder completed additional testing to qualify for unlimited thickness welding on February 23, 1984. After additional record review by PPP personnel, six additional welds were identified as having been incorrectly completed by the welder involved prior to February 23, 1984. DR No. PP-11533 was issued to accomplish adequate engineering disposition of the six welds involved.

The inspector had previously conducted final visual inspection and review of necessary weld inspection and welder qualification data for several similar welds completed by the welder in question after February 23, 1984 (Inspection Report Nos. 424, 425/84-30 and 424, 425/85-03). No deficiencies related to welder performance or qualification were identified.

The inspector also examined revisions to PPP Procedures VI-5 "Control of Process Sheets and Weld Rod Requisition" and VIII-3 "Control of Welding Materials (Field)" which clarify requirements for check of required welder qualification to the thickness involved during issuance of the weld metal requisition form. Cognizant licensee personnel informed the inspector that a records review had not identified any other instances of inadequate qualifications.

The inspector concluded that licensee actions had been sufficient to address this employee concern and this matter is considered closed.

7. Reactor Coolant Pressure Boundary Piping (Unit 1)

The inspector examined welding and nonwelding activities for reactor coolant pressure boundary piping to determine whether applicable code and procedure requirements were being met. The applicable code for rector coolant pressure boundary piping is the ASME Boiler and Pressure Vessel Code, Section III, 1977 Edition with Addenda through W77.

a. Review of Nonwelding Quality Records (49055)

The inspector selected various reactor coolant piping components (e.g., pipe, fittings and welded-in components) for review of pertinent records to determine conformance with procurement, storage and installation specifications and QA/QC site procedures.

Records of the following items were selected for review to ascertain whether they (records) were in conformance with applicable requirements relative to the following areas: material test reports/certifications; vendor supplied NDE reports; Nuclear Steam Service Supply quality

releases; site receipt inspections; storage; installation; and vendor nonconformance reports.

Item	Heat/Control No.
2" Sched. 160 pipe	466976
2' x 2" x 1" sched. 160 TEE	E7328

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

b. Welding Activities

(1) Observation of Work (55173) (Unit 1)

The inspector observed in-process welding activities of reactor coolant piping field welds inside of containment as described below to determine whether applicable code and procedure requirements were being met.

The below listed repair welds were examined in-process to verify work conducted in accordance with traveler, welder identification and location, welding procedures, WPS assignment, welding technique and sequence, materials identify, weld geometry, fit-up; temporary attachments, gas purging, preheat, electrical characteristics, shielding gas, welding equipment condition, interpass temperature, interpass cleaning, process control systems, qualifications of inspection personnel, and weld history records.

ISO	Welds	Size	Status
1K4-1201-027-01 R/6	193-W-109A*	2"	Fit-up & Tack
1X4DL4D20 R/0	059-W-04-R1	6"	Fit-up & Tack

* Previous weld completely removed

During the above inspection the inspector informed cognizant licensee personnel of the continuing NRC concern regarding the assurance of adequate backpurge when completing stainless steel welds. Observations concerning weld 193-W-109A are as follows:

- Backpurge was more critical than normal since this was a repair weld.

- The first tack had been completed prior to the inspector's arrival but no oxygen analyzer was present.

- The welder was uncertain of either the backpurge time requirements or the 0.5% (or less) oxygen requirements for adequate backpurge as incorporated in Section 4.0 of the PPP General Welding Standard (GWS-III/I Rev. 3/28/84).

- The technique sheet for the controlling welding procedure specification (WPS No. 29-III/I-6-OB-1) was not the latest revision which includes clarification of the 0.5% (or less) oxygen requirement.

- After an oxygen analyzer had been secured, approximately 40 minutes were required to reach an acceptable 0.5% oxygen limit due to inefficient placement of tape on the joint involved.

- The repair had been required due to root defects on the original welds involved.

- QC inspectors are not required to inspect for assurance of adequate backpurge except on a random basis. (The welder involved could not remember any occasion during which he had been so monitored.)

Due to the above observations, the inspector conducted a random survey of several welders who normally weld stainless steel pipe. Approximately half of the welders were uncertain of the specifics regarding backpurge requirements. Also, technique sheets for other WPSs which had been issued from the "doublewide" welding materials distribution center (WMDC) were not the latest revisions which include clarification on backpurge requirements. The inspector noted that failure to distribute the latest technique sheets was a lack of conformance to paragraph 1.4 of the PPP General Welding Standard (GWS.III/I) 12/14/84 revision. This is another example of violation 424/85-40-03, 425/85-31-03 and is further reported in paragraph 7.b.(3). The inspector also noted that NRC concern regarding adequate backpurge had been discussed with cognizant licensee personnel during previous inspections wit special emphasis given to the need for transmitting clarified information on backpurge to the welders involved. The inspector further noted that code Class 3 welds do not receive nondestructive root examination and therefore adequate backpurge is the major assurance against unidentified root defects. The inspector informed cognizant licensee personnel that NRC's concern regarding this matter will be identified as Unresolved Item 424/85-40-02, 425/85-31-02 - Assurance of Adequate Backpurge for Welding Stainless Steel Piping.

(2) Welder Qualification (55177)

The inspector reviewed the PPP program for qualification of welders and welding operators for compliance with QA procedures and ASME Code requirements.

The following welder qualification status records and "Records of Performance Qualification Test" were reviewed relative to the weld joints-listed in paragraph 7.b(1) and 8.b(1).

Welder Symbol	WPS
CW-1	29-III/I-8-OB-1
DA-1	38-III/I-8-KI-1
DV-1	27-III/I-8-OB-12
GF-1	32-III/I-8-12

(3) Welding Filler Material Control (55172)

The inspector reviewed the PPP program for control of welding materials to determine whether materials were being purchased, accepted, stored and handled in accordance with QA procedures and applicable code requirements. The following specific areas were examined.

- Purchasing, receiving, storing, and distribution and handling procedures; material identification; and inspection of welding material issuing stations.

- Welding material purchasing and receiving records for the following material applicable to the weld joints listed in paragraphs 7.b.(1) and 8.b.(1) were reviewed for conformance with applicable procedures and code requirements.

Type	Size	Heat, Lot, Batch/No.
ER308L	1/16" x 36"	26245
ER308L	3/32" x 36"	05394
ER308L	1/8" x 36"	05394

During the above inspection the inspector observed apparent inconsistencies in the oven check daily log for the doublewide WMDC. On August 20, 1985, the inspector observed that stationary holding ovens nos. 20, 25, and 26 were turned off, were at ambient temperature, and that all electrodes had been removed. However, the daily log for August 20, listed 300°F, 300°F, and 260°F, respectively, for these ovens. Second shift WMDC personnel were unable to explain the apparent discrepancy and stated that the log was the responsibility of first shift personnel.

The inspector responded that paragraph 7.2.1.G of PPP procedure VIII-3 "Control of Welding Materials (Field)" required that stationary oven holding temperature indicators be read daily to verify that holding oven temperatures were between 250°F and 400°F. The intent is to assure that electrodes stored in ovens are not issued if oven temperatures are less than 250°F and that the actual oven temperature was to be listed for the oven involved.

On August 21, 1985, temperatures of 300°F, 300°F and 285°F were logged for oven nos. 20, 25, and 28. After investigation, cognizant licensee personnel informed the inspector that the ovens had been turned off the morning of August 20, 1985, and sufficient time had elapsed for them to cool to ambient prior to the inspector's initial observations. The August 21, 1985, entrees had been made without an actual observation of the oven temperature gages. The inspector informed the licensee that this matter and the failure to distribute proper welding technique sheets reported in paragraph 7.b.(1) were considered a lack of conformance to 10 CFR 50, Appendix B, Criterion V as implemented by PPP Procedures VIII-3 and GWS III/I. These matters will be identified as Violation 424/85-40-03, 425/85-31-03 - Failure to Follow Procedures for Control of Welding. The inspector also noted that the failure to follow procedure VIII-3 was considered a repeat of violation 424, 425/85-14-02 for which corrective action had been reported as completed by June 30, 1985.

Within the areas inspected, one violation, as noted above, was identified. No deviations were identified.

8. Safety-Related Piping (Unit 1)

The inspector examined welding and nonwelding activities for safety-related piping to determine whether applicable code and procedure requirements were being met. The applicable code for safety-related piping is the ASME Boiler and Pressure Vessel Code, Section III, 1977 Edition with Addenda through W77.

a. Review of Nonwelding Quality Records (49065)

The inspector selected various safety-related piping components (e.g.,pipe, fittings and welded-in components) for review of pertinent records to determine conformance with procurement, storage and installation specifications and QA/QC site procedures.

Records of the following items were selected for review to ascertain whether they (records) were in conformance with applicable requirements relative to the following areas: material test reports/certifications; vendor supplied NDE reports; Nuclear Steam Service Supply quality release; site receipt inspections; storage; installation; vendor nonconformance reports.

Item	Heat/Control No.	System
3/4" 1500# Sched. 160 SW Flange	ABOC	Chemical Volume and Control System (CVCS)
3/4" Sched. 160 pipe	464057	CVCS

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

b. Welding Activities

(1) Observation of Work (55183) (Unit 1)

The inspector observed in-process welding activities of safety injection piping field welds inside of containment as described below to determine whether applicable code and procedure requirements were being met.

The below listed welds are examined in-process to verify work conducted in accordance with traveler, welder identification and location, welding procedures, WPS assignment, welding technique and sequence, materials identity, weld geometry, fit-up; temporary attachments, gas purging, preheat, electrical characteristics, shielding gas, welding equipment condition, interpass temperature, interpass cleaning, process control systems, qualifications of inspection personnel, and weld history records.

ISO	Weld	Size	Status
1K4-1208-043-02 R/9	374-W-101	3/4"	1st. Pass
1K4-1208-020-02 R/6	020-W-146A	3/4"	Fit-up

The following inspector qualification status records and QA/QC Inspector Qualification/Certification records were reviewed relative to inspection of the weld joints listed above.

Inspector	Type of Certification
PEM-PPP	VT-II

(2) Welder Qualification (55187B)(Unit 1)

The inspector reviewed PPP's program for qualification of welders. The applicable procedure is II-8, Welder Performance Procedure: (12/14/84).

The following specific areas were examined:

- Procedures for qualification of welders

- Procedures for maintaining continuity of status records

- Review of welder qualification status records and Records of performance Qualification Tests, relative to the weld joints listed in paragraph 8.b.(1) above is documented in paragraph 7.b.(2).

(3) Welding Material Control (55182B)(Units 1 and 2)

The welding material control inspection documented in paragraph 7.b(3) for reactor coolant piping also applies to safety-related piping.

Within the areas inspected, one violation, as reported in paragraph 7.b.(3), was identified. No deviations were identified.

9. Safety-Related Components Observation of Work (50073)

The inspector examined Train A nuclear service cooling water pumps (P4-001, P4-003, and P4-005) to determine whether:

° Installation requirements were met such as: proper location, placement, orientation, alignment, mounting (torquing of bolts and expansion anchors), flow direction, tolerances, and expansion clearances.

° Precautions were taken to prevent damage during placement/mounting.

° Installation and inspection records were prepared and maintained.

° Maintenance inspection activities including scope and frequency are being performed according to instructions.

° Protection is being provided in accordance with manufacturer's instructions and/or established procedures as required, including protection against adverse temperature, humidity, flooding, and foreign materials such as dirt, dust, bottles, cans, and general debris.

° Lubrication, rotation, and electrical resistance checks are being performed as required.

° Records are being maintained as to the status of installed components.

° Appropriate stamps, tags, markings, etc. are in use to prevent oversight of required inspections, completion of tests, acceptance, and the prevention of inadvertent operation.

During the above inspection the inspector observed that pump motor heaters were not energized and that pump motor internals were at ambient temperature. Cognizant licensee personnel informed the inspector that adequate protection of pump motor coil windings required that heaters be continuously energized when the pump motor was not running. Also, that the permanent

electrical connections to the motors had been completed with exception of the heaters which had been fed from a temporary circuit. The inspector observed that the temporary circuit involved appeared to have caused interference with installation of hanger VI-1202-033-H004. Associated quality data for the hanger indicated Quality Control (QC) inspection of the NF code welds on July 16, 1985, and final inspection of the hanger installation on August 14, 1985. Therefore, indications were that the heaters had been de-energized for approximately one month.

Cognizant licensee personnel provided the inspector with copies of plant maintenance work orders (PMOs) nos. 18503926 (pump P4-001), 18503952 (pump P4-005) and 18503914 (pump P4-003), and stated that these PMOs were the record for the last maintenance checks completed. PMO no. 18503926 was initiated on July 9, 1985, and actual maintenance work completed on July 21, 1985. Final QC close-out approval occurred on August 9, 1985. PMO nos. 1803952 and 18503914 were initiated on June 24, 1985, and actual maintenance work completed on July 21, 1985. Final QC close-out approval occurred on August 13, 1985. The preoperational maintenance cards for all PMOs indicated that the check for heater energization was not applicable. The inspector noted that this check had been required on the equipment maintenance storage list (EMSL) cards used during construction and that the requirement originated from guidance in General Electric (GE) manual GEH-3292C (page 3) that "the temperature of the windings should always be maintained a few degrees above the temperature of the surrounding air." Also, that Georgia Power Company (GPC) Nuclear Operations Procedure No. 20015-C, Rev. 2, required in paragraph 4.5.2 that "preoperational maintenance will be consistent with preventive and storage maintenance identified and performed by construction personnel."

Further, that Section 4.5.3 allows the nuclear operations test supervisor to delete or add requirements provided a preoperational change request card was prepared and approved by the respective maintenance supervisor in accordance with Section 3.6.b. Neither the required preoperational change request cards nor explanation of the deviation from EMSL criteria were provided to the inspector during this inspection.

Subsequent to the inspection, the inspector received copies of preoperational maintenance cards for PMO's Nos. 18504636 (pump P4-001), 18506356 (pump P4-005), and 18506730 (pump P4-003) for maintenance work completed on August 12-13, 1985. Requirements were that pump motor heaters be energized or that heat trace tape be installed and energized. Notes indicate that the test supervisor was informed that pump motor heaters were not energized on August 12 and August 13, 1985. However, no heat trace tape was installed and heater energization had not occurred by August 22, 1985.

The above clearly establishes that preventative maintenance inspection procedures were inadequate to prevent damage or deterioration of equipment. Failure to establish adequate measures to control storage and preservation of equipment in accordance with work and inspection instructions to prevent damage or deterioration is in violation of 10 CFR 50, Appendix B, Criterion 13. This matter is identified as violation 424/85-40-04. Failure to protect permanent plant equipment.

10. Licensee Identified Items (92700)

Prior to the inspection, the licensee identified the following items under 10 CFR 50.55(e):

(Closed) Item 424/CDR 84-66, Containment Pipe-Rack Welds

On July 20, 1984, the licensee notified Region II of a 50.55(e) item involving cracks in Unit 1 containment pipe-rack welds. The final report was submitted on October 17, 1984.

The proposed corrective action plan (DER-061) was reviewed during previous inspections and concerns documented in Inspection Reports 424/84-30, 424/84-36, and 424/85-03.

Resolution of those concerns were documented in Inspection Report 424/85-08. However this item has remained open pending additional assessment of DER-061.

The inspector conducted additional discussions with licensee representatives, reviewed supporting documentation, and observed representative samples of work completed to DER-061. The majority of work necessary to accomplish corrective action has been completed. Remaining inspection and welding activities scheduled for completion under DER-061 provide assurance that all NRC concerns have been adequately addressed. This item is considered closed.