



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

Report Nos.: 50-424/84-22 and 50-425/84-22

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 21 - 24, 1984

Inspector: J. J. Blake
for B. R. Crowley

9/6/84
Date Signed

Accompanying Personnel: R. W. Newsome

Approved by: J. J. Blake
J. J. Blake, Section Chief
Engineering Branch
Division of Reactor Safety

9/7/84
Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 58 inspector-hours on site in the areas of reactor coolant pressure boundary piping; safety-related piping; and licensee identified (50.55e) items.

Results: No violations or deviations were identified.

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REPORT DETAILS

1. Licensee Employees Contacted

- *H. H. Gregory, III, General Manager Vogtle Nuclear Construction
- *M. H. Googe, Project Construction Manager
- *E. D. Groover, QA Site Manager
- *R. W. McManue, Manager QC
- *G. A. McCarley, Project Compliance Coordinator
- *J. L. Willcox, Quality Assurance Field Representative

Other Organizations

- J. Runyan, QA Manager, Pullman Power Products (PPP)
- *T. Clark, Assistant QA Manager, PPP
- R. Amick, Weld Test Supervisor, PPP
- M. Wilkie, Assistant QC Supervisor - Piping, PPP
- D. Hayes, Welding Engineer, PPP
- H. Brumitt, Training Officer, PPP
- W. Bragg, Lead - QA Materials, PPP
- D. Kinnsch, Project Engineer - Field, Bechtel Power Corporation (BPC)
- K. Caruso, Welding Engineer, BPC

NRC Resident Inspector

- *W. F. Sanders, Senior Resident Engineer

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on August 24, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings listed below and took no exceptions.

Inspector Follow-up Item 424,425/84-22-01, Revision of MT Procedure to Require Equipment Calibration - paragraph 5.b.

Inspector Follow-up Item 424,425/84-22-02, Clarification of Field Storage Procedure Relative to Closure of Pipe Ends - paragraph 8.

Inspector Follow-up Item 424,425/84-22-03, Verification of Welder Qualification Prior to Welding - paragraph 9.b.(1).

Inspector Follow-up Item 424,425/84-22-04, Welder Qualification Records for Combination Process Qualifications - paragraph 9.b.(2).

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection Effort (92706B) (Units 1 and 2)

- a. The inspector conducted a general inspection of the Unit 1 and Unit 2 containment, auxiliary, and fuel handling buildings to observe construction activities such as welding, material control, house-keeping, storage, and general construction activities. See paragraph 8 below relative to pipe storage.
- b. The inspector reviewed procedure IX-MT-1-W77, "Magnetic Particle Procedure Dry Powder Continuous Production Method Winter 1977 Addenda," latest revision 01-07-82. The procedure did not include requirements for magnetic particle equipment calibration. Discussion with the licensee and his contractor indicated that the requirement had been inadvertently omitted from the procedure and the procedure would be revised to correct the oversight. Pending review of the revised procedure, this matter is identified as inspector follow-up item 424, 425/84-22-01, Revision of MT Procedure to Require Equipment Calibration.

6. Reactor Coolant Loop and Other Safety-Related Piping - Welding Procedure Specifications and Quality Assurance Procedures (55171B and 55181B) (Units 1 and 2)

Reactor coolant and other safety-related piping are being welded by Pullman Power Products (PPP). The inspector reviewed PPP and interfacing licensee quality assurance procedures related to field welding of pipe to determine whether specifications and procedures have been established, qualified and controlled in accordance with NRC requirements, SAR commitments, licensee's QA program, and ASME code requirements, as applicable. The applicable code for this welding is the ASME Boiler and Pressure Vessel Code, Section III, 1977 Edition with Addenda through the winter of 1977. The following areas were reviewed:

The QA manual and referenced documents, as identified below, were reviewed to determine whether adequate QA plans and procedures, including QC procedures had been established (written, reviewed, approved and issued) to assure accomplishment and control of the following activities:

- Organizational structure including qualifications training and stop work authority
- Audits including procedures, checklists, scope frequency and qualification of auditors
- General quality requirements relative to material specifications test reports, procurement documents, deviations and control of components, structures, and systems
- Work and inspection procedures including provisions for review, approval, and control
- Control of material including traceability, handling, shipping, storage, and identification of nonconforming material
- Procedures for control of processes including special processes
- Procedures for corrective action
- Document control including control of QA manual and periodic review for adequacy of document control
- Test control and control of test equipment
- Quality records

The following documents were reviewed:

- . Plant Design Piping and Instrumentation Specification X4AZ01
 - Division 1, revision 13, "General Requirements"
 - Division 3, revision 13, "ASME Section III Piping Field Fabrication and Installation"
- . PPP Quality Assurance Program Manual, ASME III, Division I (11/21/83)
- . PPP Procedure XV-4, "Hold Tag Usage" (1/10/84)
- . PPP Procedure II-5, "Quality Engineering Personnel Control and Administration of Training, Examination Qualification and Certification" (6/22/83)
- . PPP Procedure II-2, "Levels I and II Nondestructive Examination Personnel Control, and Administration of Training, Examination, Qualification and Certification" (6/22/83)
- . PPP Procedure II-3, "Level III Nondestructive Personnel Control and Administration of Examination Qualification and Certification" (8/19/81)

- . PPP Procedure II-8, "Welder Performance Procedure" (7-11-83)
- . PPP Procedure II-13, "Eye Examination for QA/QC Personnel" (6/4/82)
- . PPP Procedure III-3, "Stop Work Order Procedure" (4/4/83)
- . PPP Procedure VI-5, "Control of Process Sheets Weld Rod Store Requisitions"
- . PPP Procedure IX-14, "Defect Removal and Repair by Welding" (7/18/83)
- . PPP Procedure IX-43, "Procedure for Preheat Interpass & Post Weld Heat Treatment" (7/11/83)
- . PPP Procedure X-4, "Final Inspection Procedure"
- . PPP Procedure X-5, "Field Receiving Inspection Procedure" (12/16/82)
- . PPP Procedure X-18, "Final Welding Inspection" (2/2/84)
- . PPP Procedure XIII-5, "Field Storage Procedure" (1/27/84)
- . PPP Procedure XVI-2, "Corrective Action Procedure" (2/6/84)
- . PPP Procedure XVIII-4, "QA Internal Audit Procedure"
- . PPP Procedure II-4, "Inspection and Testing Personnel - Control and Administration of Training, Examination, Qualification and Certification" (6/22/83)
- . PPP Procedure XVIII-1, "Internal Auditing Procedures of Field QA Programs by the Quality Engineering Group" (2/6/84)
- . PPP Procedure VII-2, "Material Control" (2/6/84)
- . PPP Procedure VIII-1, "Identification of Materials, Parts and Components" (12/28/83)
- . PPP Procedure IX-3, "Fabrication and Installation Specifications for Nuclear Power Plant Components, Piping Systems and Appurtenances ASME-Section III" (1/10/84)
- . PPP Procedure VI-1, "Document Control" (6/2/83)
- . PPP Procedure VIII-3, "Control of Welding Materials (Field)" (12/20/83)
- . PPP Procedure XIII-9, "Field Handling of Materials and Equipment" (8/30/82)
- . PPP Procedure XV-2, "Procedure for Handling Nonconformances (Field)" (1/26/84)

- . PPP Procedure XI-I, "Field Leak Testing Hydrostatic and Pneumatic (8/5/83)
- . PPP Procedure XII-2, "Procedure for the Calibration of Tools, Measurement and Testing Equipment" (4/27/84)
- . PPP Procedure XVII-1, "Field Quality Assurance Records Procedure" (7/22/83)
- . GP Procedure GD-T-01, revision 11, "Nonconformance Control"
- . GP Procedure QA-05-01, revision 8, "Field Audit"
- . GP Procedure QA-03-02, revision 9, "Training and Personnel Qualification"
- . GP Procedure MD-A-03, revision 3, "Field Procurement Process"
- . GP Procedure GD-T-07, revision 6, "Work Stoppage"
- . GP Procedure QA-5-16, revision 1, "Stop Work Orders"

In this area of inspection, no violations or deviations were identified.

7. Reactor Coolant Pressure Boundary Piping - Observation of Work and Work Activities (49053B) (Units 1 and 2)

The inspector observed work activities relative to reactor coolant pressure boundary piping to determine whether work was being conducted in accordance with applicable procedure and code requirements. See paragraph 6 above for the applicable code.

Protection of installed Unit 1 reactor coolant loop piping and "stored-in-place" Unit 2 reactor coolant loop pipe spools was observed to determine whether requirements were being met in the following areas, as applicable:

- Inspection and/or work procedures
- Record keeping requirements
- Construction/installation of specification requirements
- Issuance of specified materials
- Utilization of qualified inspection and NDE personnel
- Performance of prescribed NDE

In this area of inspection, no violations or deviations were identified.

8. Safety-Related Piping - Observation of Work and Work Activities (49063B)
(Units 1 and 2)

The inspector observed work activities relative to safety-related piping to determine whether work was being conducted in accordance with applicable procedure and code requirements. See paragraph 6 above for the applicable code.

Work activities listed below were observed to determine whether requirements were being met in the following area, as applicable:

- Inspection and/or work procedures
- Record keeping requirements
- Construction/installation specification requirements
- Issuance of specified materials
- Utilization of qualified inspection and NDE personnel
- Performance of prescribed NDE

Specific activities observed were:

- Storage of pipe subassemblies in the power block buildings and outside the buildings (Units 1 and 2)
- Protection of installed pipe in the power block buildings (Units 1 and 2)
- Protection and rigging of large diameter safety injection piping stored in place (Unit 2)
- Preparing weld preps on spool 209-S-02 at welds 209-W-03C and 209-W-03D on drawing 1K4-1202-209-01 (Unit 1)
- Fitup, handling, and protection of spools 1-1506-002-S03 and 1-1506-002-S04 (Unit 1)

During this inspection, the inspector noted that in a few instances pipe had fallen from its supporting dunnage and was resting on the building floors. Upon notification, the licensee took immediate action to have the pipe placed back on dunnage as required. These instances were rare and overall storage conditions in the power block buildings appeared to be good. In addition, the inspector noted a number of pipe caps or tape missing from the ends of small diameter pipe assemblies in storage or installed. These conditions were immediately corrected by the licensee. Although the licensee intends that all pipe be either capped or taped unless the pipe is being worked on, the applicable procedure, PPP XIII-5, is not clear in this regard

for piping in the power block buildings. The licensee and their contractor, PPP, agreed to revise PPP procedure XIII-5 to clarify the requirements for capping pipe after it has been moved to the power block buildings. Pending review of the revised procedure, this matter is identified as inspector follow-up item 424, 425/84-22-02, Clarification of Field Storage Procedure Relative to Closure of Pipe Ends.

In this area of inspection, no violations or deviations were identified.

9. Safety-Related Piping

The inspector examined safety related pipe welding activities described below to determine whether applicable code and procedure requirements were being met. See paragraph 6 above for the applicable code.

a. Observation of Welding Activities (55183B) (Unit 1)

The inspector observed the below listed welds at various stages of completion:

<u>ISO</u>	<u>Weld</u>	<u>Size</u>	<u>Status</u>
1K3-1208-162-01	162-W-101	2"	Fitup in process
1K3-1208-162-01	162-W-101B	2"	Fitup in process
1K3-1208-165-01	165-W-109A	--	Welding fill passes
1K3-2303-020-02	020-W-04C	4"	Welding fill passes
1K4-1202-209-02	209-W-11B	½"	Weld complete
1K4-1202-209-02	209-W-10B	½"	Weld complete
1K4-1506-002-02	022-W-05	14"	Observed tacking insert, fitup, root pass and fill pass welding
1K4-1901-022-01	022-W-08B	3"	Welding final passes
1K4-1202-188-01	188-W-08A	1"	Inspecting final weld
1K3-1208-132-01	132-W-124	2"	Final weld
1K3-1204-063-03	063-W-13A	3"	Welding fill passes
1K3-1208-137-01	137-W-03B	8"	Welding fill passes
1K3-1208-137-01	137-W-03	8"	Fitup in process

The welding was observed to determine whether:

- (1) Work was being conducted in accordance with a document which coordinates and sequences operations, references procedure, establishes hold points, and provides for production and inspection approval.
- (2) Weld identification and location were as specified.
- (3) Procedures, drawings, and other instructions were at the work station and readily available.
- (4) WPS assignment was in accordance with applicable code requirements.
- (5) Welding technique and sequence were specified and adhered to.
- (6) Welding filler materials were of the specified type and traceable to certifications.
- (7) Weld joint geometry was in accordance with applicable procedure and was inspected.
- (8) Alignment of parts was as specified.
- (9) Preheat and interpass temperatures were in accordance with procedures.
- (10) Electrodes were used in positions and with electrical characteristics specified.
- (11) Shielding gas was in accordance with the welding procedure.
- (12) Welding equipment was in good condition.
- (13) Interpass cleaning was in accordance with applicable procedures.
- (14) Temporary attachments were removed in accordance with applicable procedures.
- (15) Welding and inspection personnel were qualified.
- (16) Weld history records were adequate.
- (17) Gas purging, if specified, was used in accordance with applicable procedures.
- (18) Process control system was provisions for repairs.
- (19) Welders were qualified.
- (20) Inspection personnel were qualified.

b. Welder Qualification (55187B) (Unit 1)

The inspector reviewed PPP's program for qualification of welders. The applicable procedure is II-8, "Welder Performance Procedure" (7/11/83)

The following specific areas were examined:

- Procedures for qualification of welders
- Procedures for maintaining continuity or status records
- Qualification status records and initial qualification records for the following welders who welded on the welds listed in paragraphs a. above and d. below.

YK3	HP1
KX1	SR
ZZ1	MH1
FH2	DE3
BK	AT2
GF1	J8

- The following in-process welder qualification tests were observed:
 - Welder ZK3: test S15
 - Welder BZ2: test C12
 - Welder 8395: test C12
- The following completed bend test were examined:
 - Welder SN3: test S16
 - Welder DD3: test C6
 - Welder BH2: test C11
- In process layout of bend test samples, cutting of samples, and bending samples was observed for welder ZK3, test S15.

During examination of the above welder qualification activities, the following problems were identified:

- (1) The welder qualification procedure, II-8, and the process control procedure, VI-5, did not clearly indicate that before a welder is assigned to weld, the "Welder Qualification Log" is to be used to determine his qualification status. The licensee and their contractor (PPP) agreed to revise the above procedures as necessary to clearly specify the method for verifying welder qualification prior to welding. Pending review of the revised procedures, this matter is identified as inspector follow-up item 424,425/84-22-03, Verification of Welder Qualification Prior to Welding.

- (2) Where welders qualify for a combination (GTAW/SMAW) of processes on one test assembly, the welder qualification records did not indicate the thickness deposited with each process. Although the thickness deposited with each process was not being recorded, the thickness variable (Section IX, QW-351) was being controlled by specifying on the "Welder Qualification Log" the thickness of each process the welder was qualified for. The thickness of GTAW process qualified was based on 1/8" deposited thickness considering that the referenced combination WPS required a root and hot pass (approximately 1/8") to be welded with the GTAW process. The remaining thickness (assembly thickness minus 1/8") was considered to be the SMAW thickness deposited. However, the inspector noted that the combination WPS referenced on the welder qualification records did not clearly specify that the hot pass be welded with GTAW. The qualification test instruction sheet did specify welding the hot pass using the GTAW process.

Related to this question, PPP had identified as an audit finding (QEG Audit 7037-2-84, Finding AAR-1) the fact that the welder qualification records did not specifically indicate that the GTAW process was used for the hot pass. At the time of this inspection, the audit finding had not been fully resolved. Based on the inspector's concern and PPP's audit finding, the licensee and their contractor agreed to revise welder qualification records for combination process qualifications to show the thickness deposited with each process. Pending review of the revised records, this matter is identified as follow-up item 424, 425/84-22-04, Welder Qualification Records for Combination Process Qualifications.

c. Welding Material Control (55182B)

The inspector reviewed PPP's program for control of welding materials including procurement, receiving inspection, storage, and issue. The applicable procedures are:

X-5
VII-2
VIII-1
VIII-3
VI-5

The following specific areas were examined:

- (1) Establishment of procedures for procurement receiving, storing, distributing and handling welding materials
- (2) Material identification
- (3) Control of weld material at work locations and at Weld Material Distribution Centers (WMDC) "Aux #4" and "Double Wide"

- (4) Welding material receiving records including vendor material test reports were reviewed for the following materials being used on the welds identified in paragraphs a. above and d. below:

E7018: 3/32" - Control KK040

ER308L: 1/16" - Control 26245*
 3/32" - Control 05394*
 Insert - Control 4282R308L*

E308L: 3/32" - Control HH010
 1/8" - Control 2598252*

E70S-2: 1/16" - Control 97401*
 3/32" - Control 97401*

*Documentation for these materials was reviewed during a previous inspection and was not re-reviewed during this inspection.

d. Special Welding Applications (55188B)

The inspector examined repair activities relative to weld 216-W-08 on ISO 1K4-1202-216-02 and Weld 092-W-01 on ISO 1K4-2301-092-01. The repair operations were compared with applicable code and procedure requirements in the areas of:

- Procedure qualification
- Repair technique
- Base and filler materials
- NDE
- Records
- Welder qualification

In this area of inspection, no violations or deviations were identified.

10. Licensee Identified Items (10 CFR 50.55(e)) (92700) (Unit 1)

(Open) 424/CDR 84-66, Containment Pipe Rack Welds. On July 20, 1984, Georgia Power Company notified RII of a potential 50.55(e) item concerning cracks in the Unit 1 containment pipe rack welds. The inspector discussed this problem with the licensee's contractors (PPP and Bechtel) and observed racks 0002 and 0003 on drawing M01GS-91. One grind-out area on rack 0003 where a crack had been removed was observed. At the time of this inspection, the licensee's contractors were still in the process of working on the solution and final report for the problem. The racks are massive steel beam structures and the licensee's contractors indicated the cracking was caused by restraint problems and possibly lack of adequate preheat. These problems were being corrected by sequencing welds and better control of preheat. This problem will be examined further during future inspections.