



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

Report Nos.: 50-424/84-17 and 50-425/84-17

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 Dates: June 26-29, 1984

Inspection at Vogtle site near Waynesboro, Georgia

Inspector: *J. Blake*
W. P. Kleinsorge

7/11/84
Date Signed

Accompanying Personnel: G. A. Hallstrom

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

7/11/84
Date Signed

SUMMARY

Areas Inspected

This routine unannounced inspection involved 60 inspector-hours on site in the areas of licensee action on previous enforcement matters, construction progress, reinforcing steel splices, and steel structures and supports.

Results

Violation - "Failure to adequately control welding."

8409250020 840905
PDR ADOCK 05000424
Q PDR

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *M. H. Googe, Assistant Project Construction Manager
- *E. D. Groover, QA Site Manager
- *R. W. McManus, Manager, QC
- *C. W. Hayes, Vogtle QA Manager
- *D. F. Wilkerson, Project Welding Supervisor

Other licensee employees contacted included construction craftsmen, technicians, and office personnel.

NRC Resident Inspector

- *W. F. Sanders

*Attended the exit interview.

2. Exit Interview

The inspection scope and findings were summarized on June 29, 1984, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee.

(Open) Violation 424, 425/84-17-01: "Failure to Adequately Control Welding" - paragraph 6a(3).

(Open) Unresolved Item 424, 425/84-17-02: "Visual Acceptance Criteria" - paragraph 6a(4).

(Open) Inspector Followup Item 424, 425/84-17-03: "Electrode Stress Relief" - paragraph 6c.

(Open) Inspector Followup Item 424, 425/84-17-04: "WPS Parameter Adequacy" - paragraph 6e.

3. Licensee Action on Previous Enforcement Matters

Unresolved Item 424, 425/84-12-01: "Basis for Acceptance Criteria for AWS Welds."

This matter is discussed and expanded in paragraph 6a(3) and included in unresolved item 424, 425/84-17-02: "Visual Acceptance Criteria", 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 6a(4).

5. Independent Inspection Effort

a. Construction Progress (Units 1 and 2)

The inspector conducted a general inspection of the Units 1 and 2 Containment Buildings, the weld test shop, fabrication shops, and lay down areas to observe construction progress and construction activities such as welding, material handling and control, housekeeping and storage.

b. Reinforcing Steel Splices

The inspector observed the cadwelding of No. 11 reinforcing bar splices AHA-124 and AHA-125; the inspection of the above splices; and the tensile testing of sister splice AHA-122. The inspector also reviewed the qualification records of the cadwelder and the inspectors involved to determine whether the process and crews were qualified; each splice was defined by materials used, location, crew, type of splice; sampling and testing were performed at proper frequency and acceptance criteria were defined; and inspections were performed during and after splicing by qualified inspection personnel.

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

6. Steel Structures and Supports (Units 1 and 2)

The inspector observed welding work activities for steel structures and supports as described below to determine whether applicable code and procedure requirements were being met. The applicable code for the activities examined was AWS D1.1-1975 and AWS D9.1 - 1980.

a. Welding

The below listed welds were examined in-process to determine work conducted in accordance with traveler; welder identification and location; welding procedure 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; identity of welders; qualification of inspection personnel; and weld history records.

(1) Inside Containment (55153B)

<u>Structure</u>	<u>Unit</u>	<u>Identification</u>
Reactor Shield	2	Grout fitting, 225° AZ
Reactor Shield	2	Lower saddle, 180° AZ
Refueling Cavity	1	111-6-4 to 112-7-2
Refueling Cavity	1	110-1-25 to 110-1-23
Embed Assembly	2	141-54-M11-239
Cable Tray Support	2	AXZD66N010-Det 15 Sec. J

(2) Outside Containment (55154B)

<u>Structure</u>	<u>Unit</u>	<u>Identification</u>
Volume Dumper Box	2	A-3296-A
90° Elbow	2	C-2488-C
Duct	2	C-2508-A
Cable Tray Block-out	2	CIR-99
Embedded Assembly	2	1010-28A

(3) With regard to the examination above the inspector noted the following:

- Three welders, welding safety-related HVAC duct work used shielding gas flow rates of 42 CFH (WPS 299), 43 CFH (WP 299) 35 CFH (WPS 300).

The above is contrary to Pullman/Kenith - Fortson welding procedure specification 300, revision 2, which requires shielding gas flow rate of 25-30 CFH and welding procedure specification 299 revision 0 which requires a shielding gas flow rate of 15-25 CFH.

- The technique sheets provided to the welders welding to WPS 299 and 300 do not specify all the variables (including shielding gas flow rate) that are specified in the applicable WPS.
- The welding current specified in WPS-300 Rev. 2 specifies 60-140 amps the technique sheet provided to welders specifies 55-200 amps.
- Welders using Georgia Power Co. WPS 129 are not provided with documented guidance for peening. This is contrary to AWS D1.1 paragraph 3.1 which places limitations on peening.

The above indicates that the licensee does not have adequate controls for welding. Failure to establish adequate measures to assure that special processes including welding are controlled is in violation of 10 CFR 50, Appendix B, Criterion IX. This violation will be identified as 424, 425/84-17-01: "Failure To Adequately Control Welding."

- (4) With regard to the examination above the inspector noted that there were numerous examples of visual acceptance criteria that deviated from AWS D1.1, in Appendix VC, Rev. 4 to Bechtel Specification X4AJ01 Revision 12. The inspector discussed the above with the licensee and requested the engineering justification for all the deviations in Appendix VC for all revisions and all associated documents. The licensee indicated that the above justification would be available for NRC Review within 60 days of this inspection. Pending NRC review of the above justification this matter will be identified as unresolved item 424, 425/84-17-02: "Visual Acceptance Criteria".

b. Welder Qualification (55157B)

The inspector reviewed the licensee's program for qualification of welders and welding operators for compliance with QA procedures and ASME Code requirements. The applicable code for welding qualification is ASME B&PV Code Section IX as invoked by GPC Specification X2AG06 Rev. 4 and X4AZ01, Section P.1, Revision 8.

- (1) The following welder qualification status records and "Records of Performance Qualification Test" were reviewed relative to the weld joints listed in paragraph 6a.

Weld Symbol

666 - PK/F
 777 - PK/F
 781 - PK/F
 UI - C
 FR - I
 CE - I
 IH - I
 LXX - W
 HQ - W
 LVV - W
 SWM - CB&I
 JEF - CB&I

- (2) The inspector observed the following inprocess performance qualification tests to determine whether the testing was consistent with the code and regulatory requirements. The inspector confirmed by positive identification that the person welding the test weldment were indeed the person being qualified.

<u>Welder ID</u>	<u>Test</u>
7465	Hanger Test
7759	Hanger Test
8214	Hanger Test
8210	C-19
BX3	C-9
PV	C-19
2612	C-19

- (3) The inspector observed the preparation and testing of the below listed test.

<u>Welder</u>	<u>Test</u>	<u>Specimen Type</u>
BX3	C-9	Side Bend

- (4) The inspector reviewed the below listed welder qualification test assembly radiographs.

<u>Welder ID</u>	<u>Date</u>
YD3	6/28/84
FN3	6/27/84

c. Welding Filler Material Control (55152B)

The inspector reviewed the licensee's 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, distribution and handling procedures, material identification
- Welding material, purchasing and receiving records for the following materials were reviewed for conformance with applicable procedures and code requirements:

<u>Type</u>	<u>Size</u>	<u>Heat/Control No.</u>
E-7018	5/32"	KK 065
E-7018	1/8"	GG 068
E-7018	3/16"	GG 083
ER-70S-2	0.035"	421N3602

(cont'd)	Type	Size	Heat/Control No.
	ER-70S-3	0.035"	421W4481
	E-7018	3/32"	JJ 066
	E-7018	1/8"	KK 050
	E-7018	5/32"	EE 079
	E-309-15	1/8"	JJ 020
	E-309-16	1/8"	GG 054

With regard to the examination above the inspector noted that 1/8-inch diameter type E-7018 electrode control no. GG 068 is not suitable for stress relief application. At the time of this inspection it could not be determined whether any controls were placed on that batch of electrodes to assure that they would not be used in an application requiring post weld stress relief. The inspector stated that this matter would be examined in a future inspection, and would be identified as inspector followup item 424, 425/84-17-03: "Electrode Stress Relief."

d. Weld Heat Treatment (55156B)

(1) Weld Joint Preheating

- (a) The inspector reviewed the licensee's program to determine whether procedures properly specify acceptable preheating methods, provide requirements for monitoring and recording preheat temperature before, during, and if specified, after welding, and whether specified temperature control is utilized on in-process welds which are required to be maintained at pre-heat for extended time periods.
- (b) By direct observation and review of records, the inspector observed/reviewed the preheating activities for the weld joints listed in paragraphs 6a to determine whether preheat control procedures were being followed during field welding activities.

e. Welding Procedures Specifications and QA Procedures (55152B)

The following Welding Procedure Specifications (WPS) were selected for review and comparison with AWS D1.1:

WPS	Process	PQR
GP-129	SMAW	Prequalified
PK/F-299	GMAW	299-1, 2, 3 & 4
PK/F-300	GMAW	300.-1, 2, 3, & 4

SMAW - Shielded Metal Arc Welding
GMAW - Gas Metal Arc Welding

The above WPSs and their Supporting Procedure Qualification Records (PQRs) if applicable were reviewed to ascertain whether AWS Prequalified Procedures meet all applicable requirements of AWS D1.1 procedures other than these prequalified were qualified in accordance with AWS D1.1 or D9.1, changes or revisions to WPS essential variables are supported by requalification of the original WPS or a new WPS, and that changes to nonessential variables are properly identified or documented.

With regard to the examination above, the inspectors noted that the minimum material thickness specified in PK/F WPS-299 and 300 is 0.0134. The minimum welding current specified for WPS-299 and 300 is 50 and 60 amps respectively. The inspectors questioned the adequacy of the above current and material thickness combinations. The licensee indicated that they would verify the adequacy of the above combinations by mock-up testing. This matter will be identified as inspector followup item 424, 425/84-17-04: "WPS Parameter Adequacy."

Within the areas examined, no violations or deviations were identified except as noted in paragraph 6a(3).