



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

Report Nos.: 50-424/84-30 and 50-425/84-30

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: October 30 - November 2, 1984

Inspector: *George Hallstrom* 11-21-84
 G. A. Hallstrom Date Signed

Approved by: *J. J. Blake* 11/28/84
 J. J. Blake, Section Chief Date Signed
 Engineering Branch
 Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection entailed 44 inspector-hours on site in the areas of licensee actions on previous enforcement matters, steel structures and supports, and licensee identified items (50.55(e)).

Results: Of the areas inspected, three violations were found ("Failure to incorporate corrections in revisions of design drawings"; "Failure to follow nonconformance procedure"; and "Failure to adequately control welding").

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REPORT DETAILS

1. Licensee Employees Contacted

- *H. H. Gregory, General Manager, Vogtle Nuclear Construction Department
- *M. H. Googe, Project Construction Manager
- *E. D. Groover, QA Site Manager
- *C. W. Hayes, Vogtle QA Manager
- *G. A. McCarley, Project Compliance Coordinator
- *B. C. Harbin, Manager, Quality Control
- *S. D. Haltom, QA Engineering Support Supervisor
- *J. L. Blocker, Assistant Manager, Quality Control
- *T. L. Weatherspoon, Assistant Manager, Quality Control
- *J. L. Willcox, QA Field Representative
- *C. L. Scoonover, Project Section Supervisor (Mechanical)

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

Other Organizations

- *D. L. Kinnsch, Project Field Engineer, Bechtel Power Company (BPC)
- *K. W. Caruso, Welding Engineer, Bechtel Power Company Corp.
- J. P. Runyan, QA Manager, Pullman Power Products (PPP)

NRC Resident Inspector

- *W. F. Sanders, Senior Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 2, 1984, with those persons indicated in paragraph 1 above. The licensee was informed of the inspection findings listed below. The licensee acknowledged the findings with no dissenting comments.

(Open) Violation 424, 425/84-30-01, "Failure to incorporate corrections in revisions of design drawings - paragraph 6.b.(1)(a).

(Open) Violation 424, 425/84-30-02, "Failure to follow nonconformance procedure" - paragraph 6.b.(1)(b).

(Open) Violation 424, 425/84-30-03, "Failure to adequately control welding" - paragraphs 6.c. and 6.d.

3. Licensee Action on Previous Enforcement Matters

- a. (Closed) Unresolved Item 424, 425/84-23-01, "Adequacy of Corrective Action". This item concerned the adequacy of corrective actions in response to document control deficiencies that the licensee had identified as generic. The supplier data register (SDR) acts as the master control for documentation and incorporates identification of all supplier documents and their revisions, together with the attendant BPC assigned "status", which establishes requirements under which work may proceed. A GPC QA audit report (AFR #613-I) issued on May 2, 1984, identified discrepancies between the SDR and documents in use in the field. The initial milestones accepted by GPC QA on June 29, 1984, had not been accomplished by August 30, 1984. The inspector reviewed the latest status of corrective actions and completed a verification of agreement between the SDR and documents in the field for the following:

<u>SDR No.</u>	<u>Document No.</u>	<u>Latest Submittal No.</u>	<u>Status</u>
X4AZ01-6	III-4	26	1*
X4AZ01-156	IT8-III/I-1-BR-2	4	1
X4AZ01-159	IT12-III/I-1-OB-12	4	1
X4AZ01-188	X-18	14	1
X4AZ01-223	IX-50	28	1
X4AZ01-327	PQR 34A	1	1
X4AZ01-328	PQR 58	1	1
X4AZ01-333	PQR 045	1	1
X4AZ01-334	PQR 055A	1	1
X4AZ01-336	PQR 055B	1	1

*Status 1 allows work to proceed with no technical comments from the review.

No discrepancies between the SDR and documents reviewed were identified and milestones included within the corrective action plan have been accomplished. This matter is considered closed.

- b. (Open) Unresolved Item 424, 425/84-17-02, "Visual Acceptance Criteria". This item concerns deviations of visual acceptance criteria from the American Welding Society (AWS) D1.1 structural welding code (AWS D1.1-1975). Appendix VC, Rev. 4, to Bechtel Specification X4AJ01, Revision 12, includes several requirements for visual acceptance of weldments on Seismic 1 steel structures and supports which are less stringent than those imposed by AWS D1.1-1975. The licensee had agreed to provide the engineering justification for all deviations in Appendix VC within 60 days of June 29, 1984. The licensee informed the inspector that GPC QA had been unable to accept engineering justification provided to date, and that this issue would be resolved by December 7, 1984. This matter remains open.

- c. (Open) Inspector Followup Item 424, 425/84-17-03, "Electrode Stress Relief". This item concerns use of E7018 electrodes in stress relief applications. The licensee had been advised on June 29, 1984, of concern regarding the suitability for stress relief applications of 1/8-inch diameter type E7018 electrodes, Control No. GG068, since the SFA 5.5 requirement for 57 ksi yield strength after stress relief had not been met. The licensee stated that the electrodes in question had been purchased to SFA 5.1 with an additional P.O. requirement that the tensile strength after stress relief meet the specified 70 ksi minimum as allowed by the ASME Code in paragraph NC 2431.2. Further, that no controls were considered necessary to prevent use of that batch of electrodes on weldments requiring stress relief. The inspector noted that other lots used in welding containment pipe racks were also low in yield strength as discussed in paragraph 6d, and that stress relief was listed as an alternative on those racks in the 50.55(e) report on that issue (424/CDR 84-66). Also, that yield strength considerations could be involved in the engineering justifications discussed in paragraph 3b. This matter remains open.
- d. (Closed) Inspector Followup Item 424, 425/84-23-02, "Reactor Head Assembly Storage Adequacy". This item concerned storage of the reactor head assembly in the proper cleanliness zone. The controlling documents are Westinghouse Procedure P.S. 59776D, Revision 4, "Cleanliness Requirements During Storage, Construction, Erection and Start-up Activities of Nuclear Power Systems," and Nuclear Installation Services Company (NISCO) Procedure ES-67, Revision 0, "Cleanliness Requirements and Control", as well as NISCO maintenance and surveillance reports. The inspector noted that the reactor head assembly is now maintained in a Zone IV cleanliness zone (no use of tobacco or eating) with the addition of restricted access requirements. Also, that modifications to the clean tent have been completed which increase assurance of restricted access and maintenance of clean conditions. Further, that requirements for Zone II storage (addition of requirements for clean gloves and shoe covers as well as material and personnel accountability) are mandated by ES-67 when component installation is complete. This matter is considered closed.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Independent Inspection (92706)

Construction Progress (Units 1 and 2)

The inspector conducted a general inspection of the reactor power block to observe construction progress and construction activities such as welding, material handling and control, housekeeping and storage.

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

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

The inspector observed welding work activities and reviewed records for steel structures and supports as described below to determine whether applicable code and procedure requirements were being met.

The applicable code for pipe supports described herein, welded by PPP, is AWS D1.1-79.

a. Welding Procedure Specifications and Quality Assurance Procedures (55151)

- (1) Welding Procedure Specifications (WPS) applicable to the weld joints listed in paragraph 6.b.(1), were selected for review and comparison with the ASME Code as follows:

<u>WPS</u>	<u>Process</u>	<u>PQR</u>
IT8-III/I-1-BR-2	SMAW*	34A, 34B
IT12-III/I-1-OB-12	SMAW/GTAW**	45, 34A, 34B, 55A, 55B, 58

*SMAW - Shielded Metal Arc Welding

**GTAW - Gas Tungsten Arc Welding

The above WPSs and their supporting Procedure Qualification Records (PQRs) were reviewed to ascertain whether essential, supplementary and/or nonessential variables, including thermal treatment, were consistent with Code requirements; whether the WPSs were properly qualified and their supporting PQRs were accurate and retrievable; whether all mechanical tests had been performed and the results met the minimum requirements; whether the PQRs had been reviewed and certified by appropriate personnel; and whether any revisions and/or changes to nonessential variables were noted. WPSs are qualified in accordance with ASME Section IX, the latest edition and addenda at the time of qualification.

- (2) The below listed documents were reviewed to ascertain whether the structural welding program had been approved by the licensee and whether adequate plans and procedures had been established to assure that welding would be controlled and accomplished consistent with commitments and regulatory requirements.

<u>Document No.</u>	<u>Title</u>
PPP-IX-50, dated 8/30/84	"Pipe Support Field Installation and Fabrication Procedure"
PPP-XV-2 dated 7/11/84	"Procedure for Handling Nonconformances (Field)"

PPP-III-4, dated 10/11/84	"Drawing and Design Control Procedure"
PPP-X-18, dated 2/2/84	"Field Welding Inspection"
PPP-XV-4, dated 4/26/84	"Hold Tag Usage"

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

b. Visual Inspection of Welds (55155)

The inspector visually examined completed welds on Unit 1 containment pipe racks as described below to determine whether applicable code and procedure requirements were being met. Applicable design drawings are M01G-S91-R4, M01G-S92-R5, M01G-S93-R5 and M01G-S95-R5. Applicable requirements for revision of design drawings are included in the BPC Vogtle Project Reference Manual (PRM) Part C, Section 4, Rev. 3.

- (1) The below listed welds were examined relative to the following: location, length, size and shape; weld surface finish and appearance; transitions between different wall thicknesses; weld reinforcement--height and appearance; joint configurations on permanent attachments and structural supports; removal of temporary attachments, arc strikes and weld spatter; finish-grinding or machining of weld surface, surface finish and absence of wall thinning; surface defects, cracks, laps, lack of penetration, lack of fusion, porosity, slag, oxide film and undercut exceeding prescribed limits.

Rack R001

Weld Joint

P310 to B3 North
 P310 to B3 South
 P119 to B3
 P120 to B5
 P123 to B5
 P123 to P119
 P124 to C5
 *P119 to P120
 P118 to B3
 P118 to P124
 P118 to P119

Rack R002

Weld Joint

P315 to B12 Near side
 P315 to B12 Far side

P315 to B12 Top side
 P315 to B12 Bottom side
 P315 to P322 Near side
 P315 to P322 Far side
 P315 to P322 Top side
 P315 to P322 Bottom side

Rack R003

Weld Joint

P315 to B12 North
 P315 to B12 South
 P315 to B12 Top
 P315 to B12 Bottom
 P315 to P322 North
 P315 to P322 South
 P315 to P322 Top
 P315 to P322 Bottom
 *P323 to P322
 *B1 to B2

*Welds with cracks.

During the above inspection, the inspector noted the following:

- (a) All P315 to B12 fillet welds on Racks R002 and R003 were welded and inspected to the 5/16-inch size required by Design Change Notice (DCN) No. 11/Field Change Request (FCRB) No. 5415 which is listed as being incorporated in Dwg. M01G-S93-R5. However, the R5 drawing failed to include this correction and requires a 1/2-inch fillet for these welds. Other failures to correctly incorporate corrections in drawing revisions were noted in Dwg. M01G-S95-R5. This drawing lists DCN #29/FCRB 7663 (coping required on Section T) and DCN #19/FCRB 6968 (orientation of B11 angle iron on Detail 8) as being incorporated. However, Section T omits coping and Detail 8 shows a reverse orientation of B11 angle iron. Omission of coping modifies length requirements for four welds on each of racks R005, R006, R007, and R008. Orientation shown for the B11 angle iron prohibits its installation. These deficiencies are considered to be a violation of 10 CFR 50, Appendix B, Criterion V and are identified as item number 424, 425/84-30-01, "Failure to incorporate corrections in revisions of design drawings.
- (b) Cracks on welds P119 to P120 on Rack R001 and P323 to P322 on Rack R003 were identified by the licensee during this inspection and are not included in the October 17, 1984, 50.55(e) Report (424/CDR 84-66). The inspector advised that cracks in the P323 to P322 weld (DR # 07052) were

particularly significant since this weld had been hidden by near side cover plate P324. The crack was discovered on removal of plate P324 in attempting to repair cracks in the P324 to B17 weld. There are several similar "Hidden welds" on the racks which are now inaccessible for inspection. During inspection of the P119 to P120 weld (DR # 7078) on Rack RC01, the inspector noted that contrary to the PPP procedure XV-2, the toe of the weld had apparently been ground while on QC hold status, since the crack had been discovered on B shift. Further, that a hold tag had not been applied to the weld area as required by PPP procedure XV-4. Followup discussion with cognizant B shift personnel established that grinding had occurred while in QC hold status. These deficiencies are considered to be a violation of 10 CFR 50, Appendix B, Criterion VI and are identified as item number 424, 425/84-30-02, "Failure to follow nonconformance procedure".

- (2) Quality records for the welds listed in paragraph 6.b.(1) were examined relative to the following: records covering visual and dimensional inspections indicate that the specified inspections were completed; the records reflect adequate weld quality; history records are adequate.

During the above examination, the inspector noted that the original B1 to B2 weld was being repaired (DR # 4941) as per the corrective actions listed on the October 17, 1984, 50.55(e) Report 424/CDR 84-66. A "For Information" magnetic particle (MT) inspection (DC prod, 500 Amp) was requested since a final MT could not be done due to failure to observe a QC hold point when making the repair. Other deficiencies are discussed in paragraphs 6c and 6b. The "For Info" MT checked clear.

c. 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.

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

Weld Symbol

PG-3 PPP
 JM-2 PPP
 JB-2 PPP
 NG-2 PPP
 GC-1 PPP
 MW-2 PPP
 FY-2 PPP
 PX-1 PPP
 HN-2 PPP
 EW-2 PPP
 HT-2 PPP
 PX-2 PPP
 RC-1 PPP
 RA-2 PPP

During the above examinations, the inspector found that welder RC1 listed in quality records for final fit-up of the original B1 to B2 weld discussed in paragraph 6.b.(2) had not been employed on the site at the February 1, 1984 fit-up date. This matter is considered an example of a violation of 10 CFR 50, Appendix B, Criterion IX and is identified as item Number 424, 425/84-30-03, "Failure to adequately control welding".

d. 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
- The following welding materials from documentation of the weld joints listed in paragraph 6.b.(1) were selected for review of purchasing and receiving records for conformance with applicable procedures and code requirements:

<u>Type</u>	<u>Size</u>	<u>Heat/Control No.</u>
E7018	1/8"	KK001
E7018	3/32"	JJ066
E7018	3/32"	GG067
E7018	3/32"	JJ099
E7018	1/8"	GG068
E70S-2	3/32"	97401
E7018	1/8"	GG069

During the above examination, the inspector noted that E7018 electrodes from Control numbers GG067 and GG069 were also deficient in yield strength after stress relief and similar concern for their use existed as is discussed in paragraph 3.c for batch GG068. Also, that the cracked P119 to P120 weld on Rack R001 had been welded with electrodes from lot GG068 and the cracked P323 to P322 (hidden weld) on Rack R003 had been fit-up with electrodes from Lot GG067.

Further that quality data for the P119 to B3 weld on Rack R001 indicated that 3/32-inch diameter E7018 electrodes from lot JJ009 had been used for the final fit-up on May 15, 1984, and the completed weld accepted on September 11, 1984. Cognizant licensee personnel informed the inspector that no quality purchasing and receiving records existed for this lot of electrodes since no electrodes with this control number had been received on the site. This is considered another example of failure to adequately control welding as discussed in paragraph 6.c.

e. Observation of Work - QC Inspector Qualification (55154)

The inspector reviewed the licensee's program qualifications of welding inspection (QC) personnel for compliance with QA procedures and ASME Code requirements.

The following inspector qualification status records and "QA/QC Inspector Qualification/Certification" records were reviewed relative to inspection of the weld joints listed in paragraph 6.b.(1).

<u>Inspector</u>	<u>Type of Certification</u>
HGS	VT-II
EAL	VT-II
JEY	VT-II
JMA	VT-II
JES	VT-II
LCS	VT-II
EHW	VT-II

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

7. Licensee Identified Items (92700)

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

a. (Open) Item 424, 425/83-42, "Defective Weld Wire"

On June 9, 1983, the licensee notified Region II of a potential 50.55(e) item concerning hot cracks on welder qualification test specimens welded with type 309L weld wire. The final report was submitted on December 19, 1983, and the licensee concluded that the item was not reportable since neither a significant deficiency nor

substantial safety hazard exists. The inspector had previously reviewed inspection report 424, 425/84-13, paragraph 6, relative to ultrasonic examinations of Unit 1 containment penetrations of butt welds using the subject 309L filler metal to join carbon steel to 304 stainless steel material. The inspector requested supporting documentation which identified other critical joints welded with the subject 309L material as well as the BPC metallurgical analysis on this issue. Due to scheduling difficulties, the requested documentation was not provided. This item remains open.

b. (Open) 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. On review of corrective action, the inspector noted that:

- (1) All cracked welds in racks R002 and R003 had not been identified.
- (2) Potential high residual stress of the cracked "hidden weld" had not been identified.
- (3) Deficient yield strength after possible stress relief of the E7018 electrodes involved had not been evaluated.
- (4) Non-destructive examination of the "hidden welds" had not been anticipated.

Cognizant licensee personnel informed the inspector that no amendments to the October 17, 1984 report were anticipated. This item remains open.