



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

Report Nos.: 50-416/84-19 and 50-417/84-04

Licensee: Mississippi Power and Light Company
Jackson, MS 39205

Docket Nos.: 50-416 and 50-417

License Nos.: NPF-13 and CPPR-119

Facility Name: Grand Gulf

Inspection Date: May 15-18, 1984

Inspection at Grand Gulf site near Port Gibson, Mississippi

Inspector: J. J. Blake

for B. R. Crowley

6/4/84

Date Signed

Approved by: J. J. Blake

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

6/4/84

Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 28 inspector-hours on site in the areas of ASME Code pipe welding (Unit 2); piping activities other than welding (Unit 1); preservice inspection (PSI) (Unit 1); licensee identified 50.55(e) and Part 21 items (Units 1 and 2); and inspector followup items (Units 1 and 2).

Results: One violation was identified - failure to control welding in accordance with applicable specifications, criteria, and other special requirements.

REPORT DETAILS

1. Persons Contacted

- *J. E. Cross, Grand Gulf Nuclear Station General Manager
- *B. D. Stewart, Construction Manager
- *S. M. Feith, Manager, Nuclear Site QA
- *S. F. Tanner, QA Supervisor - Construction/Modification
- *J. D. Bailey, Compliance Coordinator
- T. Booker, QA Representative
- R. Frantz, QA Representative

Other Organizations

Bechtel

- *C. F. O'Neil, Lead Resident Design Engineer
- *J. F. Hudson, Project QA Manager
- L. E. Anderson, Project Field Engineer
- R. L. Leonard, Project Field QC Engineer
- D. Watt, Lead Field Welding QC Engineer
- M. Shows, Lead Field Welding Engineer

General Electric

- T. R. Drake, Service Manager
- E. P. Bailey, Project Supervisor - ISI
- J. M. Borders, QC Supervisor - ISI

NRC Resident Inspectors

- *C. A. Julian, Chief, Reactor Projects Section 1A, Division of Reactor Projects
- A. Wagner, Senior Resident Inspector
- *J. L. Caldwell, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on May 18, 1984, with those persons indicated in paragraph 1 above. The violation and inspector followup item listed below were discussed in detail. The licensee acknowledged the findings and took no exceptions.

Violation 417/84-04-01, Failure to Control Welding in Accordance with Applicable Specifications, Criteria, and Other Special Requirements - paragraph 4.c.(1)

Inspector Followup item 416/84-19-01, Standby Service Water System A Loop Flow - paragraph 7.b.

3. Licensee Action on Previous Enforcement Matters (92702)

This subject was not addressed in the inspection.

4. Nuclear Welding (55050) (Unit 2)

The inspector examined the licensee's program for ASME Code welding as indicated below to determine whether applicable code and regulatory requirements were being met. The applicable code is the ASME Boiler and Pressure Vessel Code, Section III, 1974 Edition including Addenda through the summer of 1974.

a. Welding material Control

- (1) The inspector verified the filler materials used for the welds observed (see paragraph c. below) were the correct materials specified by the Welding Procedure Specification (WPS) and were compatible with the base materials they were being used on.
- (2) Receiving inspection and material certification documentation were reviewed for the following welding materials being used for the welding observed (see paragraph c. below):

- 3/32" E7018
Ht. 411S6181
Lot 2G214201
- 1/8" E70S-2
Ht. 5772
- 1/8" E7018
Ht. 421W3141
Lot 2F328AA04
- 1/8" E70S-2
Ht. 401K0151
- 1/8" E308L
Ht. J1645
- 3/32" E308L
Ht. PO448
- 3/32" E308L-16
Ht. 8156M

b. Welder Performance Qualification

The inspector reviewed the qualification records and status records for the below listed welders relative to the field welds listed in paragraph c. below:

P007
 P154
 P636
 P2381
 P2836
 P3771

c. Production Welding

The inspector observed the below listed welds at the indicated stage of completion:

<u>ISO</u>	<u>Weld</u>	<u>Size</u>	<u>Status</u>
M-2348F	52	14" x .750"	Observed Welding Fill Passes and Final Weld
M-2348F	50	14" x .750"	Observed at Fitup and During Fill Pass Welding
M-2348F	38	18" x .437	Grinding Final Surface for NDE
M-2558K	43	1/2" Socket	Welding Intermediate Passes
M-2558K	48	1/2" Socket	Weld Ground Ready for PT Inspection
FSK-P-1304 M001.0C	31	24" x 1.153"	Observed at Fitup, During Root Pass Welding, and Fill Pass Welding
FSK-P-1303- M001.0-C	7	24" x 1.153"	Welding Passes in Weld Toes to Meet ISI Requirements
FSK-P-1303- M001.0-C	4	24" x 1.153	Fitup
M-2348F	73	14" x .750	Observed Root Pass and Fill Pass Welding

The welding was observed to determine whether:

- Work was conducted in accordance with a document which coordinates and sequences operations, references procedures, establishes hold points, and provides for production and inspection approval.
- Weld identification and location were as specified.
- Procedures, drawings, and other instructions were at the work station and readily available.

- WPS assignment was in accordance with applicable code requirements.
- Welding technique and sequence were specified and adhered to.
- Welding filler materials were the specified type and traceable to certifications.
- Weld joint geometry was in accordance with applicable procedure and was inspected.
- Alignment of parts was as specified.
- Preheat and interpass temperatures were in accordance with procedures.
- Electrodes were used in positions and with electrical characteristics specified.
- Shielding gas was in accordance with the welding procedure.
- Welding equipment was in good condition.
- Interpass cleaning was in accordance with applicable procedures.
- Temporary attachments were removed in accordance with applicable procedures.
- Gas purging, if specified, was used in accordance with applicable procedures.
- Process control system had provisions for repairs.
- Welders were qualified.
- No peening performed on root and surface layers.

During observation of the above welding, the inspector noted the following problems relative to RECIRC system weld 31, ISO FSK-P-1304-M001.0-C:

- (1) During SMAW fill pass welding, with the weld approximately 50% complete, weld bead widths of 7/8"-1" wide were observed. Paragraph 5.6.4 of amendment 4 to Bechtel GWS-1, revision 1, "General Welding Standard," requires that the heat input for GE piping be controlled by limiting the maximum weld bead width to the lesser of 4 times the electrode core diameter or 5/8". A 1/8" diameter electrode was being used, therefore, the maximum bead width allowed was 1/2". This failure to control bead width in accordance with procedures is in violation of 10 CFR 50, Appendix B,

Criterion IX, Control of Special Processes, and is identified as item 417/84-04-01, Failure to Control Welding in Accordance with Applicable Specifications, Criteria, and Other Special Requirements (see paragraph (2) below for another example of this violation).

Upon identification of this problem, NCR 6784 was issued and the welding of RECIRC System piping placed on hold. Based on this problem and the shielding and purging gas problems noted below, prior to resuming welding, the licensee and contractor took steps to retrain all welding and QC personnel in the requirements to follow procedures, standard practices, and any special requirements such as requirements for GE piping.

- (2) During root pass welding with the GTAW process, the inspector noted that the flow meter for one of the two welder's shielding gas lines was not working. Paragraph 4.2.2 of Bechtel GWS-1 requires that the shielding gas composition and flow rate be as specified in the applicable WPS. The WPS (P8-AT-Ag) required a flow rate of 15-40 cfh. Without a working flow meter, shielding gas flow could not be monitored for compliance with WPS requirements. This failure to have a working flow meter for monitoring shielding gas flow is another example of the violation cited in paragraph 1 above. The inspector noted that although the shielding gas flow was not being monitored, the appearance of the weld indicated adequate shielding.
- (3) Also, during root pass welding, the inspector noted that the purging gas flow meter was not working. The purging system was set up with two inlet lines, one metered and one not metered. The purpose of the two lines was to obtain a large volume of gas to purge the pipe out prior to start of welding. One of lines was to be shut during actual welding and the required flow obtained through the other line. When first questioned by the inspector, welding personnel indicated that the unmetered line was being used during welding. After questioning and attempting to maintain purge with only the metered line, the purge was lost and it was determined that the flow meter in the metered line was not working. Purge was reestablished with the unmetered line and welding continued until the flow meter was repaired.

Based on Bechtel procedure GWS-1, revision 1, the flow rate for purging is required to be in accordance with the WPS. However, Bechtel procedure GPS-1, revision 7, "General Purging Specification," allows the use of an oxygen analyzer in lieu of a flow meter for monitoring the purge gas. An oxygen analyzer was being used. GPS-1 further states that any flow rate is technically acceptable as long as the RT film is acceptable and the weld is not sugared. Although the use of a purge line without a meter appears to meet procedures and the appearance of the weld root indicated that an adequate purge was used, the licensee's

contractor stated that the purging practices noted were not in accordance with their normal practices and instructions to welding personnel. This was further evidence of inadequate control of welding noted in the two examples of violation above.

In this area of inspection, one violation was identified.

5. Preservice Inspection - Observation of Work and Work Activities (73053B)
(Unit 1)

In lieu of work observation, the inspector reviewed the records described below to determine whether work activities were performed in accordance with regulatory requirements and licensee procedures. Preservice inspection (PSI) was performed in accordance with ASME Boiler and Pressure Vessel Code, Section XI, 1977 Edition, S78 Addenda.

a. Visual Inspection (VT) Records

The inspector reviewed the following VT-4 inspection records:

<u>Report No.</u>	<u>ISO</u>	<u>Hanger</u>
VT-102	RH-11-7	Q1E12G016R05-A
VT-106	RH-11-19	Q1E12G015R17-A
VT-107	RH-7-20	Q1E12G020R07-A
VT-201	RR-11-22	Q1B33G108C01-A
VT-310	WS-8-1	Q1P41G002R12-A

The records were reviewed in the areas of:

- Examination method
- Lighting levels
- Cleanliness level
- Verification of settings
- Acceptance criteria

In addition, the examiner qualification records for the above inspections were reviewed.

b. Repair Records

The inspector reviewed the following GE nonconformance reports (NCRs) covering repair of indications found during PSI. In all cases, the repairs required only grinding of the weld surfaces.

NCR 39
 NCR 40
 NCR 42
 NCR 43
 NCR 45

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

6. Reactor Coolant Pressure Boundary Piping - Observation of Work and Work Activities (49054B) (Unit 1)

In lieu of work observation, the inspector reviewed the records described below to determine whether work activities were performed in accordance with regulatory requirements and licensee procedures. Piping was installed in accordance with ASME Boiler and Pressure Vessel Code, Section III, 1974 Edition, S74 Addenda.

The following NDE reports covering NDE of base materials were reviewed:

<u>Report</u>	<u>Dwg.</u>	<u>Date</u>
PBT-PT-12170	M-1347A	4/07/82
PBT-PT-12183	M-1328J	4/15/82
PBT-PT-12103	FSK-S-1082-020-A	3/05/82
PBT-PT-12161	FSK-S-1082-013-C	3/25/82
PBT-RT-5080 (Including RT Film)	FSK-S-1087A-008-C	10/24/80
PBT-RT-5085 (Including RT Film)	M-1328D	10/24/80
PBT-RT-4914 (Including RT Film)	M-1348E	-

These reports covered NDE of base material repairs. In addition to review of the reports, the inspector reviewed the qualification records of the NDE examiners involved and the certification records for the PT materials used.

In the area of inspection, no violations were identified.

7. Licensee Identified Items (10 CFR 50.55e and Part 21) (92700) (Units 1 and 2)
- a. (Closed) 416/CDR 81-44, Unqualified Bettis Air Actuators on Henry Pratt Valves. On October 29, 1981, Mississippi Power and Light Company notified RII of a potential 50.55e item relative to unqualified Bettis Air Actuators on Henry Pratt Valves. Interim Reports AECM-83/0215 (3/31/83), AECM-82/433 (10/1/82), AECM-82/279 (6/15/82), AECM-82/177 (4/20/82), AECM-82/97 (3/15/82), AECM-82/45 (1/29/82), and AECM-81/470 (11/30/81) were issued. The final report, AECM-83/0405 was submitted on July 8, 1983. It was determined that the cause of the unqualified actuators was that the actuators were not manufactured under a QA program. The scope of the CDR was expanded to include all actuators and valve appurtenances that may have been manufactured without a QA program. The investigation confirmed that for all valves either a QA program was in effect during fabrication or that necessary analysis, test or reviews assured acceptability of components. Since all valve appurtenances were found to be qualified, the licensee concluded that this item was not reportable. The inspector questioned the licensee relative to the reason the actuators were not manufactured under a QA program. The licensee's backup data for the CDR shows that proper controls were not placed on suppliers and subsuppliers. The inspector also reviewed NCR 6222 which closed out this issue for Unit 1.
 - b. (Closed) 416/CDR 82-21, Standby Service Water System "A" Loop Flow. On September 20, 1982, Mississippi Power and Light Company reported a potential Part 21 item relative to a low flow condition through the "A" standby service water pump. Interim reports AECM-82/408 (9/20/82), AECM 82/214 (5/17/82) and AECM-82/278 (6/14/82) were issued. Interim report number 3, AECM-82/408 stated that an interim design, to ensure that minimum pump flow is established when SSW pumps have been started by automatic signal, is being reviewed. A permanent plant design change will be developed by the first refueling outage. RII has reviewed the interim design (See RII report 50-416/83-30). During this inspection, the inspector reviewed completed MWOs F34634 P34579, P34582, and F34635, which accomplished the interim design change referred to in interim report number 3. The Design Change Package (DCP) is 820060. For the purposes of reviewing the final design change, inspector followup item 416/84-19-01, Standby Service Water System "A" Loop Flow, is opened.
 - c. (Closed) 416, 417/CDR 83-06, Carbon Steel Instrument Air Penetration. On March 15, 1983, Mississippi Power and Light Company reported a potential part 21 item relative to installation of noncorrosion resistant material for instrument air pipe penetrations. An interim report, AECM-83/0179 was submitted on March 15, 1983. The final report AECM-83/0324 was submitted on June 6, 1983. The report has been reviewed and determined to be acceptable. In addition, the inspector reviewed DCP-82/817 and closed out implementing MWOs F35239 and M37604, which changed out the noncorrosion resistant materials.

- d. (Closed) 416/CDR 83-10, ASCO Spare Parts Kits for Scram Pilot Valve Solenoids. On August 4, 1983, Mississippi Power and Light Company notified RII of a Part 21 item relative to receipt of improperly assembled ASCO spare parts kits for the "A" solenoid side of the scram pilot valves. Interim reports AECM-83/045 and AECM-83/0561 were submitted. The final report, AECM-83/0596 was submitted on September 16, 1983. The report has been reviewed and determined to be acceptable. In addition, the inspector reviewed closed out Material Nonconformance Reports (MNCRs) 00813-83 and 677-83 which documented corrective actions.
 - e. (Closed) 416/CDR 83-16, ADS, MSRV, MSIV Accumulators. On November 15, 1983, Mississippi Power and Light Company notified RII of a Part 21 item relative to failure of the internal coating of the ADS, MSRV, MSIV accumulators. The final report AECM-83/0759 was submitted on November 18, 1983. The report has been reviewed and determined to be acceptable. In addition, the inspector reviewed closed out MNCR 00546-83 and MWOs F37220 and F37090 which documented the corrective action of DCP 83/4053 - repair of the coating.
8. Inspector Followup Items (92701) (Units 1 and 2)
- a. (Closed) Inspector Followup Item 416/82-42-01, Conduit Support Welds. This problem pertained to problems identified by the licensee with conduit support welds. During an investigation of a concern relative to thoroughness of inspections, the licensee identified a number of minor problems with conduit support welds. Based on design calculations, the problems were determined to be well within acceptance limits. The inspector reviewed closed out NCR 6401, which documented corrective actions, and verified that design calculations had been performed to justify the unacceptable welds. The design calculations are "Cal. No. C-T159.6, revision 8, sheets 1384 through 1395."
 - b. (Closed) Inspector Followup Item 417/83-08-02, Positive Identification of Welders during Qualification. Bechtel procedure CPS-W-1, revision 0, has been issued and requires that the Field Welding Engineer establish positive identification of welders prior to testing.