



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

Report Nos.: 50-416/85-05 and 50-417/85-02

Licensee: Mississippi Power and Light Company
Jackson, MS 39205

Docket Nos.: 50-416 and 50-417

License No.: NPF-29 and
Construction Permit No. CPPR-119

Facility Name: Grand Gulf

Inspection Conducted: February 25-28, 1985

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|--------------|----------------------------|----------------|
| Inspectors: | <u><i>J. J. Blake</i></u> | <u>3/13/85</u> |
| | <i>for</i> B. R. Crowley | Date Signed |
| | <u><i>J. J. Blake</i></u> | <u>3/13/85</u> |
| | <i>for</i> S. J. Vias | Date Signed |
| Approved by: | <u><i>J. J. Blake</i></u> | <u>3/13/85</u> |
| | J. J. Blake, Section Chief | Date Signed |
| | Engineering Branch | |
| | Division of Reactor Safety | |

SUMMARY

Scope: This routine, unannounced inspection involved 54 inspector-hours on site in the areas of installation of pipe supports/restraints (Unit 2), inservice testing (IST) of pumps and valves (Unit 1), condenser failure (Unit 1), ASME code welding (Unit 2), 50.55(e) items (Unit 2), and inspector followup items (Units 1 and 2).

Results: No violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *R. F. Rogers, Technical Assistant to Station General Manager
- C. R. Hutchinson, Manager, Plant Maintenance
- *B. D. Stewart, Manager, Unit 2 Construction
- *S. F. Tanner, Acting Manager, Nuclear Site QA
- L. F. Daughtery, Compliance Superintendent
- *B. C. Lee, QA Supervisor - Audits
- *J. D. Bailey, Compliance Coordinator
- R. S. Lewis, Material Science Engineer - Nuclear Plant Engineering (NPE)
- G. Lamphere, Engineer - NPE
- A. J. Malone, ISI Coordinator

Other licensee and contractor employees contacted included construction craftsmen, QC personnel, security force members, and office personnel.

Other Organization

Bechtel

- J. F. Hudson, Project QA Manager
- *P. J. Collins, QA Supervisor
- C. F. O'Neal, Lead Resident Design Engineer
- D. W. Watt, Lead Field Welding QC Engineer
- M. Shows, Lead Field Welding Engineer

NRC Resident Inspectors

- R. C. Butcher, Senior Resident Inspector
- J. L. Caldwell, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on February 28, 1985, with those persons indicated in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee.

(Open) Inspector Followup Item 416/85-05-01, 417/85-02-01, Clarification of Responsibilities for Coordination of Closing of Open Items, paragraph 5.f.

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

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during the inspection.

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

a. General Inspection of Unit 2

The inspectors conducted a general inspection of the Unit 2 reactor and auxiliary buildings to observe construction progress and general activities such as welding, material control, housekeeping, storage, and installation of pipe supports. See paragraphs 5b. and 5c. below for specific activities examined.

b. Welding of Pipe Support/Restrains (Unit 2)

In-process welding of the following pipe support/restraint welds was observed:

- Dwg. No. Q2P41G002-A01: Observed in-process hanger structural welds and completed weld FW1 (Hanger to Pipe)
- Dwg. No. Q2E51G004-A01: Observed in-process welds FW1 and FW2 (Hanger to Pipe)
- Dwg. No. Q2B21G006-S107C-2: Observed FW1 inprocess and VT and MT of final weld
- Dwg. No. C-2086J, Section "A" & "B": Observed in-process welding of 1" plate to 1½" plate

The welding was examined in the areas of: Welder technique, weld appearance, use of the correct welding procedure, preheat and interpass temperatures, welder qualification, weld material control, and inspection personnel qualification. In addition, receiving inspection and material certification records for the following weld materials being used on the above welds were examined:

E7018 - 1/8" Ht 10334
 5/32" Ht 4324732
 3/32" Ht 411S6181

c. Installation and Design of Pipe Supports/Hangers (Unit 2)

- The inspectors reviewed the installation and design calculations of the following pipe supports:

Q2E12G010-H09
 Q2P41G002-A01
 Q2P41G002-A02
 Q1E12G010-R06
 Q1E12G010-R05

- In addition, the following procedures, specifications, standards and instructions were reviewed in part:

| | |
|------------------|--|
| No. 0715T | Quality Control Instruction Piping Inspection Activities, Rev. 11 |
| No. CPS-P-13 | Construction Performance Standard, Rev. 0 |
| No. 9645-M-204.0 | Criteria for Hanger Installation, Rev. 35 |
| No. 9645-M-300.0 | Purchasing Specification for Hangers and Supports, Rev. 38 |
| No. 9645-C-103.1 | Technical Specification for Design and Installation of Concrete Expansion Anchors, Rev. 13 |
| No. 9645-M-300.2 | Design of Pipe Hangers, Supports, Restraints and Anchors, Rev. 19 |

d. Inservice Testing (IST) of Pumps and Valves (Unit 1)

The inspectors discussed the IST program with licensee personnel. Based on the Operating License date of June 16, 1982, the applicable code for IST, as required by 10 CFR 50.55(a)g and Technical Specification 4.0.5, is ASME Section XI, 1977 Edition, S79 Addenda. However, the licensee has updated their program to ASME Section XI, 1980 Edition, W80 Addenda as allowed by 10 CFR 50.55(a)g.

The IST program is prescribed by MP&L Specification, MP&L-M-189.1, Revision 0, "MP&L Pump and Valve Inservice Inspection Program". Revision 1 to the program, incorporating the latest NRC comments and MP&L's submittal to NRC, is being reviewed for issuance. The program is implemented by the following MP&L procedures:

- Administrative Procedure 01-5-06-12, Revision 9, "GGNS Surveillance Program"
- Surveillance Procedure Volume 6 of the Operations Manual
- Technical Section Procedure 09-S-05-8, Revision 0, "Surveillance Procedure Scheduling"

e. Condenser Failure (Unit 1)

On February 15, 1985, the licensee identified leakage on the south wall of the Intermediate Pressure (IP) condenser. Subsequent inspection revealed that the shell integrity had been degraded and the condenser's structural adequacy compromised. The shell had large through wall cracks at the bottom of shell at the vertical stiffener welds. Directly above the shell landing bar, the shell had been deformed inward, tearing the the stiffeners from the shell for several inches on a number of stiffeners and leaving large cracks in the shell. Inspection of the Low Presser (LP) and High Pressure (HP) condensers revealed similar damage to the LP condenser, with minimal damage to the HP condenser. Further inspection revealed significant damage at the diagonal stanchion (4" dia pipe) to primary support (6" dia pipe) connections. At the time of this inspection, the licensee had repaired the condenser shells and was in the process of reworking the condenser structure. The inspectors performed the following examinations relative to this problem.

- The internal of the IP and LP condensers was observed. Deformation of the shells was evident. The cracks in the shells had been repaired. Cracks in the diagonal stanchion to support connections had not been repaired. The primary support (6" dia., sch. 40 pipe) appeared to be significantly deformed.
- The licensee had attributed the shell failures to inadequate design of the condenser internal structure. The method of repair and redesign of the internal structure was reviewed in general by the inspectors. The modification to the internal structure included adding additional knee-braces from the wall stiffeners to the primary support structure and changing the primary support from the 6" pipe to a box beam arrangement, thus redistributing the load path. In general, the modification approach appeared to be sound.

f. Review of NRC Open Item (Units 1 and 2)

The inspectors attempted to close out a number of Unit 1 NRC open items where the licensee had indicated the items were ready to close. After spending an excessive amount of time trying to review the records necessary to close the items, it was evident that there was a lack of coordination for gathering the necessary records for closeout of open items.

For construction items on Unit 2, Nuclear Site QA has a system for collecting the necessary records to close out open items. This system was also used for Unit 1 construction and seems to work well. However, when Unit 1 went operational, the Nuclear Site QA System no longer applied to Unit 1. Part of the problem appears to be that Unit 1 site personnel responsible for resolving open items report through various organization lines, i.e. Plant Management, Nuclear Plant Engineering,

Nuclear Site QA, etc., and no one organization is responsible for gathering the required records for closeout of open items. The licensee agreed to evaluate the system for gathering records for closeout of open items and make necessary changes. Pending review of the changes, this matter is identified as inspector followup item 416/85-05-01, 417/85-02-01, Clarification of Responsibilities for Coordination of Closing of Open Items.

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

6. Nuclear Welding (55050) (Unit 2)

The inspectors 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. Welder Performance Qualification

The inspectors reviewed the qualification records and status records for the below listed welders relative to the field welds listed in paragraph b. below.

| | | |
|------|-------|------|
| P007 | P1623 | P294 |
| P636 | P154 | |

b. Production Welding

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

| <u>ISO</u> | <u>Weld</u> | <u>Size</u> | <u>Status</u> |
|------------|----------------------------------|--------------|--------------------------------------|
| M-2328J | FW 26 | 12" x .688" | Final weld before and after grinding |
| M-2358V | FW 48 FW 49 FW 59 FW 60 | 3" x .216" | In-process and final welding |
| M-2358D | FW 31 | 8" x .322" | Fitup and in-process welding |
| M-2347A | FW 46 | 6" x 1.125" | Final after grinding |
| M-2348A | FW 4 | 20" x 1.031" | Fitup and in-process 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.
- Welding procedure specification (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 in accordance with applicable procedures.
- Process control system had provisions for repairs.
- Welders were qualified.
- No peening performed on root and surface layers.
- Inspection personnel were qualified.

c. Welding Material Control

Receiving inspection and material certification documentation were reviewed for the following welding materials being used for the welding observed (see paragraph 6b. above).

- | | |
|--------------------------------|-------------------------------|
| - 3/32" E7018 Ht. 411S61181 | - 3/32" ER705-2 Ht 5772 |
| - 1/8" E7018 Ht. 10334 | - 1/8" ER705-2 Ht 401K0151 |

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

7. Magnetic Particle Examination (57070) (Unit 2)

The inspectors examined the magnetic particle (MT) examination activities described below to determine whether applicable code and regulatory requirements were being met. See paragraph 6 above for the applicable code.

- a. The inspectors observed MT examination on weld FW 26 on drawing M-2328J to verify that:
- Applicable instructions or travelers clearly specified the procedure to be used and that a copy of the procedure was available for the inspection
 - Sequencing of examinations relative to other operations were specified and in accordance with applicable codes and procedures
 - Personnel performing the examinations were qualified
 - Materials used for the examinations were certified and the certifications met applicable requirements
 - Areas, locations and extent of examinations were clearly defined
 - The following attributes were as specified in the applicable procedure and consistent with applicable code:
 - (1) Type and color of ferromagnetic particles
 - (2) Material surface preparation/cleanliness
 - (3) Material surface temperature
 - (4) Examination technique/coverage
 - (5) Prod or pole spacing

(6) Yoke lifting power

(7) Demagnetization

- b. Personnel qualification/certification records for nondestructive examination (NDE) personnel who performed the MT inspection above were reviewed.

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

8. Visual Examination (57050) (Unit 2)

The inspectors examined the visual (VT) examination activities described below to determine whether applicable code and regulatory requirements were being met. See paragraph 6 above for the applicable code.

- a. The inspectors observed fitup inspection for FW 31 on drawing M-2358D and FW 4 on drawing M-2348A and in-process VT examination of weld FW 26 on drawing M-2328J to verify that:
- Applicable instructions or travelers clearly specified the procedure to be used and that a copy of the procedure was available for the inspection
 - Personnel performing the examinations were qualified
 - Required tools and aids were available
 - Specific areas, locations and extent of examination were clearly defined
 - Test attributes were specified and consistent with applicable procedures
 - Defects were evaluated in accordance with applicable procedure and inspection results were reported as required
- b. Personnel qualification/certification records for NDE personnel who performed the VT inspections of the welds in paragraphs a. above were reviewed.

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

9. Licensee Identified Items (10 CFR 50.55e) Items (92700)

(Closed) 417/CDR 84-09, DuBose Steel, Inc., Potentially Defective Pieces. on June 1, 1984, Mississippi Power and Light Company notified RII of a potential 50.55e item concerning potentially defective pieces of structural steel received for use from DuBose Steel, Inc. An interim report, AECM - 84/0357, was submitted on July 6, 1984. The final report AECM - 84/2-0019 was submitted on October 31, 1984. The final report concluded that the item

was not reportable since a visual inspection of the heat of material in question at Grand Gulf verified that no significant defects were present.

10. Inspector Followup Items (92701) (Units 1 and 2)

- a. (Closed) Inspector Followup Item 417/84-06-01, Clarification of RPV Maintenance Procedures. This item questioned the fact that the storage procedure for the reactor vessel did not clearly specify who was to review the temperature and humidity data taken for the reactor vessel and what the data was to be compared with. The Maintenance Action Card has been revised to specify that Reactor Plant Engineering (RPE) review the data and compare it with a psychrometric chart to insure that the relative humidity is maintained below the dew point.
- b. (Closed) Inspector Followup Item (IFI) 416/84-17-01, Incomplete Pipe Support/Restraint Calibration Documentation. This matter was concerning the documentation and source of forces and moments for the calculation of baseplates and anchor bolts. The licensee has now taken a conservative approach to the selection of the forces and moments for use in the analysis of baseplates and anchor bolts by use of an envelope of the loading conditions given. For the example stated in inspection report 84-17, No. Q1E12G010-R05, the licensee did in fact take an envelope of the loading and verified the adequacy of the baseplate and anchor bolts. The results are that the original design was adequate as designed.
- c. (Closed) Inspector Followup Item (IFI) 416/84-17-02, Inspection of Loose Hanger Bolts and/or Nuts. This matter resulted from a random inspection of the RHR system, loops B & C restraints/hangers, for possible damage to supports and anchor plates. The licensee has instituted a reinspection program that requires visual examination of components and their supports to determine their general mechanical and structural conditions by implementing Temporary Directive #12-1-02-TEMP-1. The program to date has identified 3,582 supports to be reviewed. As of February 11, 1985, 1,566 supports (44%) have been determined to be inaccessible at this time, 1,510 supports (42%) have been inspected with 84 supports (6%) requiring some kind of rework. The directive is to remain in place until all supports identified have been reviewed.

A second item for this IFI was identified because a calculation modification to support Q1E12G010-R06 did not completely document the source for the load on the repaired baseplate. The licensee has redone the calculation, taken more accurate dimensioning for the analysis of the beam attached to the baseplates, and rechecked the calculation for the baseplate. The support is adequate as installed.

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