



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

Report Nos.: 50-348/85-03 and 50-364/85-03

Licensee: Alabama Power Company
 600 North 18th Street
 Birmingham, AL 35291

Docket Nos.: 50-348 and 50-364

License Nos.: NPF-2 and NPF-8

Facility Name: Farley 1 and 2

Inspection Conducted: January 14 - 17, 1985

Inspectors:	<u>B. R. Crowley</u>	<u>2/5/85</u>
	B. R. Crowley	Date Signed
	<u>J. J. Blake</u>	<u>2/5/85</u>
	R. W. Newsome	Date Signed
Approved by:	<u>J. J. Blake</u>	<u>2/5/85</u>
	J. J. Blake, Section Chief	Date Signed
	Engineering Branch	
	Division of Reactor Safety	

SUMMARY

Scope: This routine, unannounced inspection entailed 61 inspector-hours on site in the areas of previous enforcement matters (Unit 2), inservice inspection (ISI) (Unit 2) and inspector followup items (Units 1 and 2).

Results: No violation or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees Contacted

- *J. D. Woodard, Plant Manager
- *W. B. Shipman, Assistant Plant Manager - Support
- *D. N. Morey, Assistant Plant Manager - Operations
- *R. G. Berryhill, Performance and Planning Superintendent
- *R. M. Coleman, Systems Performance Supervisor
- D. B. Hartline, Generating Plant Engineer - Supervising
- S. T. Burns, Jr., Project Engineer - NETS
- *G. S. Waymire, Generating Plant Engineer
- S. Casey, Eddy Current Coordinator

Other Organizations

- R. Davis, NDE Level III, Southern Company Service (SCS)
- J. Churchwell, Engineer, SCS
- J. Campbell, ISI Coordinator, Westinghouse (W)
- R. Pollice, ET Field Coordinator, W
- J. Yew, Senior QA Engineer - Quality Services, W

NRC Resident Inspectors

- *W. H. Bradford, Senior Resident Engineer
- *W. H. Ruland, Resident Engineer

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on January 17, 1985, with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Unresolved Item 364/84-24-01, Missed ET Indications in Steam Generator Tubes. Based on primary to secondary steam generator leakage, the licensee had Conam and W review the full 1983 eddy current (ET) data. During the review, indications were found in two tubes that should have caused the tubes to be plugged. This unresolved item questioned the reason for missing the indications during the original review of the data.

LER 84-008 concluded that the major reason for missing the indications was the proximity of the indications to the tubesheet roll transition at the top of the tubesheet (approximately 1/2" above the tubesheet) in combination with industry practice of reliance upon strip-chart data for detection of indications. The LER has been reviewed and there are no further questions.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Inservice Inspection - Review of Program (73051) (Unit 2)

The inspectors reviewed the licensee's ISI program in the areas indicated below. The ISI is for the first interval, second period, first outage, and is being performed by Westinghouse (W) in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, 1974 Edition with Addenda through the Summer of 1975.

- a. The inspectors reviewed the ISI program for the current outage to determine whether the program had been approved by the licensee.
- b. The inspectors reviewed the following Alabama Power Company (APCO) and W documents relative to the ISI program for the current outage. Except for the Inspection Program Plans and AP procedures 5, 16, 31, and 63, these documents were reviewed during the inspection documented by RII Reports 50-348/83-25, 50-364/83-23 and 50-348, 364/84-07. During the current inspection, for previously reviewed documents, only changes since the last inspection were reviewed.
 - (1) FNP-2-STP-157.0, Revision 1, "Inservice Inspection of Class 1 and 2 Systems and Components"
 - (2) FNP-2-M-025, Revision 1, "Ten Year Inspection Plan for ASME Class 1 and 2 Systems and Components"
 - (3) FNP-2-STP-156.0, Revision 0, "Inservice Inspection of Class 3 Systems and Components"
 - (4) APCO SAER-AP-01, Revision 9, "SAER Organization"
 - (5) APCO SAER-AP-04, Revision 9, "SAER Quality Assurance Records and SAER Administrative Records"
 - (6) APCO SAER-AP-05, Revision 8, "Audit Coverage Planning"
 - (7) APCO SAER-AP-06, Revision 9, "Audit Implementation"
 - (8) APCO SAER-AP-07, Revision 8, "Qualification and Training"

- (9) APCO SAER-AP-11, Revision 8, "Summaries and Analysis of Audit Results"
- (10) APCO SAER-WP-29, Revision 5, "Preservice and Inservice Inspection"
- (11) APCO SAER-WP-23, Revision 5, "Auditing of Onsite and Offsite Vendor Services"
- (12) APCO SAER-WP-21, Revision 6, "Spot Auditing (Generalized)"
- (13) APCO FNP-0-AP-1, Revision 16, "Development, Review, and Approval of Plant Procedures"
- (14) APCO FNP-0-AP-4, Revision 7, "Control of Plant Documents and Records"
- (15) APCO FNP-0-AP-5, Revision 7, "Surveillance Program Administrative Control"
- (16) APCO FNP-0-AP-16, Revision 15, "Conduct of Operations - Operations Groups"
- (17) APCO FNP-0-AP-31, Revision 6, "Quality Control Procedures"
- (18) APCO FNP-0-AP-57, Revision 3, "Preservice and Inservice Inspections"
- (19) APCO FNP-0-AP-63, Revision 1, "Conduct of Operations - Systems Performance Group"
- (20) W WCAP 9245, Revision 8, "Nuclear Service Integration Division Quality Assurance Program Plan"
- (21) W PA-10.1, Revision 5, "Training Qualification and Certification of Personnel in Nondestructive Examination (NDE)"
- (22) W NSD-ISI-10, Revision 4, Am. 01, "Preservice and Inservice Examination Manual Ultrasonic Equipment Qualification"
- (23) W OPS-NSD-101, Revision 5, Field Changes 1 & 2, "Preservice and Inservice Inspection Documentation"
- (24) W OPR-205-3, Revision 3, "Inspection Verification"
- (25) W OPR-210-4, Revision 2, "Control of Nonconformances on NSD Items and Services"
- (26) W OPR-210-5, Revision 3, "Corrective Action Status Reporting"

- (27) W OPR-210-6, Revision 2, "The Use of Deviation Notices in the Control of Nonconforming Materials"
- (28) W OPR-215-1, Revision 3, "Measuring and Test Equipment"
- (29) W OPR-220-1, Revision 2, "NSD Internal Audit Program"
- (30) W OPR-225-1, Revision 4, "Records Management"
- (31) W OPR-230-1, Revision 4, "Special Process Development and Qualification"
- (32) W OPR-230-2, Revision 5, "Personnel Qualification for Nondestructive Examination"
- (33) W OPR-610-3, Revision 3, "Control of Field Services Activities"
- (34) W OPR-610-5, Revision 1, "Field Service Safety"

These documents were reviewed to assure that procedures and plans had been established (written, reviewed, approved and issued) to control and accomplish the following activities:

- Organizational structure including qualifications, training, responsibilities, and duties of personnel responsible for ISI
- Audits including procedures, frequency, and qualification of personnel
- General QA requirements including examination reports, deviations from previously established program, material certifications and identification of components to be covered
- Work and inspection procedures
- Control of processes including suitably controlled work conditions, special methods, and use of qualified personnel
- Corrective action
- Document control
- Control of examination equipment
- Quality records including description of areas to be examined, examination category, method of inspection, extent of examination and justification of any exceptions

- Scope of the inspection including description or areas to be examined, examination category, method of inspection, extent of examination and justification for any exceptions
- Definitions of inspection interval and extent of examinations
- Qualification of NDE personnel
- Controls of generation, approval, custody, storage and maintenance of NDE records

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

6. Inservice Inspection - Review of Procedures (73052) (Unit 2)

The inspectors reviewed the ISI procedures indicated below to determine whether the procedures were consistent with regulatory requirements and licensee commitments. See paragraph 5 above for the applicable code.

a. The following procedures were reviewed in the areas of procedure approval, requirements for qualification of NDE personnel, and compilation of required records:

- (1) ISI-11, Revision 9, Am. 03, FC 01, "Liquid Penetrant Examination Procedure"
- (2) ISI-205, Revision 2, Am. 03, FCs 01, 02, and 03, "Manual Ultrasonic Examination of Full Penetration Circumferential and Longitudinal Butt Welds"
- (3) RV-ISI-01, Revision 01, "Reactor Vessel Inspection Program Preparation and Documentation"
- (4) ISI-154-ALA, Revision 0, "Inservice Inspection of Reactor Vessels"
- (5) ISI-8, Revision 7, Am. 01, "Visual Examination Procedure"
- (6) MRS 2.4.2 APC-6, Revision 0, "Digital Multi-Frequency Eddy Current Inspection"

b. Procedure ISI-8 was reviewed for technical content in the areas of:

- Method - direct visual, remote visual or translucent visual
- Application - hydrostatic testing, fabrication procedure, visual examination of welds, leak testing, etc.
- How visual examination is to be performed
- Type of surface condition available

- Method of surface preparation, if any
 - Whether direct or remote viewing is used
 - Special illumination, instruments, or equipment to be used, if any
 - Sequence of performing examination, when applicable
 - Data to be tabulated, if any
 - Acceptance criteria are specified consistent with the applicable code and specific contract requirements
 - Reporting requirements
- c. Procedure ISI-11 was reviewed for technical content in the areas of:
- Method consistent with applicable codes
 - Specification of brand names and types of penetrant materials
 - Specification of limits of sulfur and total halogens for materials
 - Pre-examination surface preparation and cleaning
 - Minimum drying time following surface cleaning
 - Penetrant application and penetration time
 - Temperature requirements
 - Solvent removal
 - Method and time of surface drying prior to developing
 - Type of developer and method of application
 - Examination technique
 - Time interval for interpretation
 - Required lighting
 - Technique for evaluation
 - Acceptance standards
 - Reporting requirements
 - Requalification requirements
- d. Procedure ISI-70, Revision 1, FC01, "Magnetic Particle Examination" was reviewed for technical content in the areas of:
- Method - continuous
 - Surface preparation
 - Particle contrast
 - Surface temperature
 - Light intensity - viewing conditions
 - Coverage
 - Prod or pole spacing
 - Magnetizing current or lifting power (yoke)
 - Acceptance criteria are specified consistent with the applicable Code and specific contract requirements.
- e. Procedures ISI-205 and ISI-154-ALA were reviewed for technical content in the areas of :
- Type of apparatus
 - Extent of coverage including beam angles and scanning techniques

- Calibration requirements
- Search units
- DAC curves
- Reference level for monitoring discontinuities
- Method of demonstrating penetration
- Levels for evaluation and recording indications
- Acceptance criteria

While reviewing procedure ISI-205, the inspectors noted that approval of Field Change 3 had not been approved for use by Alabama Power Company in their procedure FNP-0-STP-157.12, Field Change 3 was referenced under the "List of Effective Pages" on the cover sheet of FNP-0-STP-157.12, but the change was not included in Paragraph "1.0 Purpose" while all other field changes and amendments to Procedure ISI-205 were endorsed by this paragraph. Discussion with the licensee indicated that the endorsement of Field Change 3 had been inadvertently omitted from the endorsement paragraph. Revision 2 dated January 15, 1985, was immediately issued to FNP-0-STP-157.12 with paragraph "1.0 Purpose" including endorsement of Field Change 3 to Procedure ISI-205. The inspectors have no further questions regarding this matter.

- f. Procedure MRS 2.4.2 APC-6 was reviewed for technical content in the areas of:

- Equipment
- Test sensitivity
- Material Permeability
- Test method
- Calibration
- Acceptance criteria

In addition, the following associated procedures were reviewed:

MRC 2.2.2 APC-1, R0, "Installation and Removal of Temporary Nozzle Covers"

MRS 2.4.2 APC-1, R0, "Installation and Removal of Steam Generator Tube Identification Templates"

MRS 2.4.2 APC-3, R0, "Installation and Removal of Eddy Current Positioning Device"

MRS 2.2.2, APC-2, R1, "Steam Generator Tube Sheet Marking"

- g. The examination plans and associated NDE procedures were reviewed relative to the areas of inspection listed below to determine whether the procedures specified the examination category, method of examination, and the extent of examination as required by ASME Section XI and the Plant Technical Specifications.

- Flange to vessel weld
- Nozzle to vessel weld
- Nozzle to safe end welds
- Class 2 pipe welds

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

7. Inservice Inspection - Observation of Work and Work Activities (73753)
(Unit 2)

The inspectors observed the ISI activities described below to determine whether these activities were being performed in accordance with regulatory requirements and licensee procedures. See paragraph 5 above for applicable code.

a. The following personnel qualification records were reviewed:

- (1) UT Examiners - 1 Level I
5 Level II
1 Level III
- (2) MT Examiners - 2 Level II
- (3) PT Examiners - 4 Level II
- (4) ET Examiner - 1 Level I
- (5) VT Examiners - 1 Level I
1 Level II

b. In-process visual (VT) inspection was observed for CVCS system supports B, C, D, E, F, G, WS-3 and WS-4 on ISO APR-2-2416. The inspections were compared with the applicable procedure in the areas of:

- Type of examination - direct or remote
- Lighting levels
- Cleanliness of surface to be examined
- Measurements, tightness of bolting, physical displacement, freedom of motion, and verification of settings as applicable
- Acceptance criteria

c. In-process liquid penetrant (PT) inspection of weld WS-1 on ISO APR-2-2413 was observed and compared with the requirements of the applicable procedures and Code in the following areas:

- Availability of and compliance with approved NDE procedures
- Use of knowledgeable NDE personnel
- Use of NDE personnel qualified to the proper level

- Recording of inspection results
- Method consistent with procedure
- Penetrant materials identified and consistent with ASME Code
- Certification of sulfur and halogen content for penetrant materials
- Surface preparation
- Drying time following surface cleaning
- Penetrant application and penetration time
- Examination surface temperature
- Penetrant removal
- Drying of surface prior to developing
- Developer type, application and time interval after penetrant removal
- Time interval between developer and application and evaluation
- Evaluation technique
- Reporting examination results

In addition, certification records for the following penetrant materials were reviewed:

Developer SKD/NF/ZP-9B	Batch 84D090
Penetrant SKL-HF/S	Batch 812071
Cleaner SKL-NF/ZC-7B	Batch 84F021

- d. In-process ultrasonic (UT) inspection including calibration activities of the following welds was observed:

<u>ISO</u>	<u>Weld</u>
APR-2-2120	2-6
APR-2-2413	4
APR-2-2413	5
APR-1-1100A	19 (60° Scan)

The above in-process UT inspections were compared with the requirements of the applicable procedures and Code in the following areas:

- Availability of and compliance with approved NDE procedures
- Use of knowledgeable NDE personnel
- Use of NDE personnel qualified to the proper level
- Recording of inspection results
- Type of apparatus used
- Extent of coverage of weldment
- Calibration requirements
- Search unit
- Beam angles
- DAC curves
- Reference level for monitoring discontinuities

- Method of demonstration of penetration
- Limits of evaluating and recording indications
- Recording significant indications
- Acceptance limits

In addition, the following certification/calibration records relative to the above inspections were reviewed:

UT Couplant - Sonotrack 40, Batch 8440

Calibration Blocks - ALA-11
 ALA-13
 ALA-15
 ALA-24
 ALA-26
 ALA-27

UT Instruments - Sonic 781304
 Sonic 784522

UT Transducers - Serial 62456
 Serial J13315
 Serial C11817

- e. In-process eddy current (ET) inspection including calibration checks was observed for the following steam generation "A" tubes:

Row	Column
25	32
26	32
27	32
28	32
29	32
30	32
31	32
25	34

The inspections were compared with the requirements of applicable procedures and code in the areas of:

- Equipment
- Sensitivity
- Test method
- Calibration
- Acceptance criteria

In addition, certification records for the following ET standards were reviewed:

Z - 1411 Differential
 Z - 1399 Absolute
 Z - 02660 Anti-vibration (AVB)

The inspectors discussed the ET program and status with the licensee. Based on TECH SPEC sampling requirements and various sample expansions due to inspection results, the sampling plan included the following:

SG "A"	-	740	full length tubes
		987	hot leg thru U-bend
SG "B"	-	100%	hot leg to first tube support
	-	311	hot leg thru U-bend
SG "C"	-	740	full length tubes
		339	hot leg to first tube support
		307	hot leg thru U-bend

At the conclusion of the inspection, all examinations were not complete. The following indications had been detected:

SG "A"	-	2	indications requiring plugging (AVB)
	-	7	indications reportable (AVB)
SG "B"	-	2	reportable (AVB)
SG "C"	-	2	reportable (1 AVB and 1 tube degradation at 46.9" above tube sheet)

The inspection results will be reported to NRC in accordance with TECH SPEC requirements.

- f. In-process hydrostatic testing of the RHR "B" train was observed and compared with the following:

AMSE Code Section XI

APCO Procedure FNP-2-STP-160.7, Revision 1,
"Residual Heat Removal System - B Train Inservice Hydro Test"

"Joseph M. Farley Nuclear Plant Unit 2 Ten Year Inspection Plan
For Class 1 and 2 Hydrostatic Pressure Testing"

The testing was compared with the above documents in the areas of:

- Test conditions of pressure and temperature
- Test condition holding time
- Rate of temperature and pressure increase
- Pressure and/or temperature measuring instrumentation
- Evaluation of test
- Calibration of gauges
- Qualification/certification of personnel

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

8. Inservice Inspection - Data Review and Evaluation (73755) (Unit 2)

The inspectors reviewed the ISI data indicated below to determine whether the data were consistent with regulatory requirements and applicable code. See paragraph 5 for the applicable code.

UT data sheets for the following welds on ISO APR-2-2120 were reviewed:

2-11	2-1	2-6	2-15
2-28	2-2	2-5	2-16
2-29	2-3LS	2-10	2-17
2-30	2-4	2-13	WS-2
2-31		2-14	

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

9. IE Bulletins (92703) (Units 1 and 2)

(Open) 348, 364/82-BU-02, Degradation of Threaded Fasteners in Reactor Coolant Pressure Boundary of PWR Plants (see RII Reports 50-348, 364/84-11 and 50-348, 364/84-21 for previous inspections of implementation of this Bulletin). The licensee's formal training program for bolting practices has not been completed. Plans are to have the procedures and training modules in place by May 1985. In the interim, bolting practices are being covered in training sessions although the training modules are not in place. This Bulletin remains open pending review of the formal training requirements.

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

(Closed) Inspector Followup Item 348, 364/84-21-01, Calibration Block Requirements for Nozzle to Safe End Welds. This item pertained to the use of an unclad calibration block for inspection of the nozzle to safe end welds and whether or not the nozzle to safe end weld is considered to be a pipe weld or a vessel weld. A clad block has been obtained for future inspections. For previous inspections performed with the unclad block, the licensee's contractor, W, has performed a comparison study documenting the UT differences between the clad and unclad blocks to justify previous inspections. The inspectors reviewed W Report IS-DK-038, ALA-84-833 dated October 18, 1984, comparing the two blocks. Relative to whether the nozzle to safe end weld is a pipe weld or vessel weld, APCO Letter NT-84-3422 to J. D. Woodard dated October 5, 1984, documents the fact that by paragraph NA-3254.2 of Section III (S71), applicable for the reactor vessel, the nozzle to safe end weld is a pipe weld. There are no further questions on this matter.

(Closed) Inspector Followup Item 348, 364/82-26-03, Calibration Block ALA-22 Material Certification Record. This item questioned the fact that the certification records for ALA-22 (RV studs) only provided chemical analysis

and did not provide records to show microstructural equivalency. The applicable code, ASME Section V, paragraph T-525.2 only requires chemical equivalency. In reviewing this item, the inspectors questioned the fact that a 6" long block was being used and paragraph T-525.2 requires a 1/2 stud-length block. During the current inspection, the inspectors reviewed W Report IS-RMJ-220, ALA-84-776 dated August 23, 1984, which justifies the use of the shorter block. There are no further questions on this matter.