UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report Nos. 50-348/80-32 and 50-364/80-43

Licensee: Alabama Power Company
600 North 18th Street
Birmingham, AL 35202

Facility Name: Farley

Docket Nos. 50-348 and 50-364

License Nos. NPF-2 and CPPR-86

Inspection at Farley site near Dothan, Alabama

Inspector B. R. Crowley — 12/10/80
B. R. Crowley — Date Signed

Accompanying Personnel: A. R. Herdt

Approved by A. R. Herdt — 12/10/80
A. R. Herdt, Section Chief, RCES Branch — Date Signed

SUMMARY

Inspection on October 14 - November 5, 1980

Areas Inspected

This routine, announced inspection involved 62 inspector-hours on site and 4 inspector-hours at Combustion Engineering, Inc. in the areas of inservice inspection (ISI) (Unit 1); preservice inspection (PSI) (Unit 2).

Results

Of the 2 areas inspected, no items of noncompliance or deviations were identified in one area; one item of noncompliance was found in one area (Infraction - Inadequate procedures for evaluation of PSI inspection results, paragraph 7.d.(3)).

DETAILS

1. Persons Contacted

Licensee Employees

*W. G. Hairston, Plant Manager
*J. D. Woodard, Assistant Plant Manager
*J. G. Sims, Supervisor of Engineering
*R. G. Berryhill, Performance and Planning Superintendent
*G. S. Waymire, Systems Performance Engineer
*D. L. Vine, Level III Examiner
*J. W. Kale, Jr., QA Engineer
*W. C. Carr, QA Engineer
B. Miller, Health Physics Sector Supervisor
M. Mitchell, Health Physics Sector Supervisor

Other Organizations

*E. R. Burns, Engineer (Southern Company Services)
*J. J. Churchwell, Engineer (Southern Company Services)
*R. L. Rowley, Systems Performance Engineer (Bechtel Corporation)
J. A. Vano, Inspection Services Manager (Westinghouse)
B. Lefebvre, Senior Engineer-LIII (Westinghouse)
N. A. Bollingmo, Field Services Engineer (Westinghouse)
D. C. Adamonis, Senior Engineer (Westinghouse)
J. Tarby, Engineer (Westinghouse)
G. E. Conrad, Site Coordinator, ISI (Westinghouse)
J. Cooper, Level III (Westinghouse-Penescola)
C. R. White, Senior QA Engineer (Westinghouse-CE)
J. L. Hamilton, Senior QA Engineer (Westinghouse-CE)

NRC Resident Inspector

*W. H. Bradford
*J. P. Mulkey

2. Exit Interview

The inspection scope and findings were summarized on October 17, 22, and November 5, 1980, with those persons indicated in paragraph 1 above. See paragraph 7.b.(3) for a summary of the meeting of October 22. On November 5, 1980, the noncompliance of paragraph 7.d.(3) and the inspector followup item of paragraph 7.b.(3)(b) were discussed. The licensee agreed that the administrative control procedures were inadequate. The licensee further stated that relative to the followup item, the PSI report would include the evaluation of indications as discussed. Relative to the need to perform an augumented inspection on "C" outlet nozzle (see paragraph 7.b(3)(a)) the licensee stated that based on the additional inspections that had been performed and the fact that the indication

meets code requirements even if it is a defect, any augumented inspection is not considered necessary.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Inservice Inspection - Review of Procedures (Unit 1)

The inspector reviewed ISI procedure ISI-11, Revision 9, Am. 3, "Liquid Penetrant Procedure" to determine whether the procedure was consistent with regulatory requirements and licensee commitments. The applicable code for the ISI is the ASME Boiler and Pressure Vessel Code, Section XI, 1974 Edition including addenda through the S75. The procedure was reviewed in the areas of:

a. Procedure approval, requirements for qualification of NDE personnel and procedure scope.

b. Procedure technical content relative to: method consistent with ASME Code, specification of brand names of penetrant materials, specification of limits for sulfur and total halogens for penetrant materials, preexamination surface preparation, minimum drying time following surface cleaning, penetrant application and penetration time, temperature requirements, solvent removal, method of surface drying, type of developer and method of application, examination technique, technique for evaluation, and acceptance standards.

In addition to the above NDE procedure, the inspector reviewed licensee Surveillance Test Procedure FNP-0-STP-157.0, Revision 0, which documents approval of NDE procedures used for ISI.

Within the areas inspected, no items of noncompliance or deviations were identified.

6. Inservice Inspection - Observation of Work and Work Activities (Unit 1)

The inspector 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 the applicable code.

a. Personnel qualification records for two level I and two level II examiners were reviewed.

b. In-process liquid penetrant (PT) inspection of weld WS-1 on ISO ALA-229 was observed and compared with the requirements of the applicable procedure, ISI-11, and code in the following areas:

(1) Availability of and compliance with approved NDE procedures

(2) Use of knowledgeable NDE personnel

(3) Use of NDE personnel qualified to the proper level

(4) Recording of inspection results

(5) Method consistent with procedure

(6) Penetrant materials identified and consistent with ASME Code

(7) Certification of sulfur and halogen content for penetrant materials

(8) Surface preparation

(9) Drying time following surface temperature

(10) Penetrant application and penetration time

(11) Examination surface temperature

(12) Penetrant removal

(13) Drying of surface prior to developing

(14) Developer type, application and time interval after penetrant removal

(15) Time interval between developer application and evaluation

(16) Evaluation technique

(17) Reporting examination results

c. In-process ultrasonic (UT) inspection of welds 1 and 2 on ISO ALA-210 was observed and compared with the requirements of the applicable procedure, ISI-205, and code in the following areas:

(1) Availability of and compliance with approved NDE procedures

(2) Use of knowledgeable NDE personnel

(3) Use of NDE personnel qualified in the proper level

(4) Recording of inspection results

(5) Type of apparatus used

(6) Extent of coverage of weldment

(7) Calibration requirements

(8) Search Units

(9) Beam Angles

(10) DAC Curves

(11) Reference level for monitoring discontinuities

(12) Method of demonstration penetration

(13) Limits for evaluating and recording indications

(14) Recording significant indications

(15) Acceptance limits

Within the areas inspected, no items of noncompliance or deviations were identified.

7. Preservice Inspection - Data Review and Evaluation (Unit 2)

The purpose of this area of the inspection was to verify by a record review that the PSI had been completed and all indications properly dispositioned in accordance with regulatory requirements and applicable procedures. The applicable code for the PSI is the ASME Boiler and Pressure Vessel Code, Section XI, 1974 Edition with Addenda through S75. At the time of the inspection, the PSI report had not been completed. However, the licensee had issued a letter dated September 22, 1980, stating that PSI of the ASME code Class 1 and 2 components and supports had been completed in accordance with ASME Section XI and all code rejectable indications were repaired, removed or otherwise dispositioned in accordance with ASME Section XI. The letter further stated that PSI of the ASME code Class 3 components and supports had been completed except for hydrostatic testing of portions of seven systems. At the time of the inspection, all but one of these systems had been completed. The spent fuel cooling and system cleanup could not be completed until pool flooding after fuel load. The following is a summary of the areas inspected and the results:

a. October 14-17, 1980 - The inspector reviewed the following:

(1) The "Preservice Examination Program for J. M. Farley II" was reviewed to determine whether the NDE records system contained provisions for files, records and documents on all examination categories as listed in ASME Section XI.

(2) The NDE records for the areas listed below were reviewed to determine whether records contained or made reference to: examination results and data sheets, examination equipment data, extent of examination, deviations from program or procedures, dispositon of findings, re-examination after repair, and identification of NDE materials.

Area	ISO
Pressure Retaining Piping Welds	APR-1-4300
Pressure Retaining Welds in Pressurizer	APR-1-2100
Steam Generator Primary Side	APR-1-3100
Reactor Vessel	APR-1-1100

During this review, the inspector noted that recordable indications [illegible] the following components had not been dispositioned

Reac[illegible] vessel - 5 UT indications
"C" Reactor Coolant Pump Flywheel - PT and VT indications
Pipe Weld 4DM, ISO APR 1-4300 - PT Indications

Discussions with PSI personnel revealed that 12 other welds had indications that had not been formally dispositioned in writing. The licensee agreed that their letter of September 22, 1980 was in error and initiated actions to dispositon all remaining indications. On October 17 additional manual UT inspections were performed by the PSI contractor to aid disposition of the UT indications in the reactor vessel. The inspector exited the site on October 17 and informed the licensee that when all indications had been properly dispositioned, a followup inspection would be performed.

b. October 21-22, 1980 - The inspector continued the inspection and made the following reviews and observations:

(1) Raw inspection data including associated calibration data sheets for the following reactor vessel welds was reviewed:

Program Item	Weld
1	Flange to vessel weld
2	Outlet nozzle to safe-end weld at 95 degrees

3	Outlet nozzle to shell weld at 335 degrees
4	Outlet nozzle protrusion at 335 degrees
5	Flange Ligament
6	Outlet nozzle to shell weld at 95 degrees
7	Outlet nozzle to shell weld at 215 degrees
12	Inlet nozzle to safe-end weld at 265 degrees
22	Intermediate to upper shell course circumferential weld with plate 550800
24	Lower shell course longitudinal weld with plate 800 at 45 degrees
26	Intermediate shell course longitudinal weld with plate 550600 at 135 degrees

(2) NDE certification records were reviewed for two level II UT examiners who performed the above vessel inspections.

(3) The inspector reviewed the licensee's disposition, including applicable code required calculations, on all indications noted in paragraph a.(2) above. All indications were dispositioned as acceptable. For the 5 UT indications in the reactor vessel, the licensee stated that extensive manual re-UT (using various techniques, angles, surfaces, etc.) could not verify the indications originally recorded using the automatic UT equipment. However, code calculations were made considering that the indications recorded by the automatic equipment were valid indications of defects and that the defects were orientated in the most unfavorable orientation. All indications were acceptable by these calculations. However, since the calculations showed one indication ("C" outlet nozzle safe-end base material) to be just within the acceptance limits, the licensee decided to radiograph (RT) inspect this indication area to further verify the absence of defects. The RT film were reviewed by the licensee and presented to the inspector for review.

During the review, the inspector noted an indication in the base material in a location different from the area of the UT indication being investigated. During the evaluation to determine the location and nature (surface or subsurface) of the new RT indication, it was determined that the wrong weld had been radiographed. The intent was to RT inspect the safe-end to nozzle weld favoring the safe-end side of the weld. In fact, the safe-end to pipe weld favoring the pipe was radiographed. Therefore, the RT indication was in the pipe base material. At this point the inspection was terminated and a meeting held with the licensee. The following areas were covered in the meeting:

(a) The inspector stated that since the reason for the UT indications from the automatic equipment is not known, the licensee should evaluate performing an augmented ISI on the "C" outlet nozzle. Also the need to resolve the

new RT indication and perform RT of the correct area on the "C" outlet nozzle safe-end was discussed. The inspector expressed concern over the apparent lack of effective coordination for the RT work performed the previous night. The licensee stated that prior to proceeding with evaluation of indications, plans would be made and positive control over coordination of remaining testing and evaluations would be implemented. The licensee stated that the need for an augmented ISI for outlet nozzle "C" would be evaluated after completion of supplementary NDE presently in process.

(b) The inspector stated that the entire resolution package for the 5 reactor vessel indications, including calculations and information relative to review of vendor NDE data, should be included in the final PSI report. The licensee stated that this addition to the PSI report could be made. This item is identified as inspector followup item 364/80-43-01, "Documentation of resolution of RV PSI UT indications".

(c) The inspector again expressed concern relative to the error in the September 22, 1980 letter (see paragraph 7.a.(2) above) and the necessity for providing accurate information to the NRC. The licensee stated that their response to this concern would be discussed at a later date.

c. October 31, 1980 - The inspector visited Combustion Engineering, Inc. in Chattanooga, Tennessee, the manufacturer of the reactor vessel, and reviewed the following:

(1) RT film for the welds listed below were reviewed for general quality and to determine if film exhibited defects which might be correlated with UT indications found during PSI. The applicable code for these film is the ASME Boiler and Pressure Vessel Code, Section III, 1968 Edition, S70 Addenda.

(a) Seam 2-943-B, "C" outlet nozzle to safe-end weld

(b) Seam 2-943-A, "B" outlet nozzle to safe-end weld

(c) Seam 1-943-A, "C" inlet nozzle to safe-end weld

(d) Seam 19-923-B, Intermediate shell course long seam at 25°.

No defects were noted to correlate with indications found by UT during PSI.

(2) McInnes Steel Company "Material Certification" and "Ultrasonic Inspection Report" for "C" inlet and outlet nozzle safe-ends

were reviewed. The safe-ends were manufactured and UT inspected to Sections II and III of the 1968 Edition, S70 addenda of the ASME code.

d. November 4-5, 1980 - The inspector continued the inspection and made the following reviews and observations:

(1) For the "C" outlet nozzle to safe-end weld, the licensee radiographed the weld and base material in the area where the UT indication was found with the automatic equipment. Two RT shots were made with the cobalt source located inside the nozzle and directed down each fusion line of the weld. Approximately 30 inches around the circumference of the weld and adjacent base material was covered. A 2T penetrameter sensitivity was achieved in all film and in most cases the the IT hole was visible. The licensee had reviewed these film and concluded that the results supported the results from the manual UT inspection (see paragraph 7.b.(3)) further verifying the absence of defects. The inspector reviewed these radiographs.

(2) The licensee re-radiographed the defect in the "C" outlet pipe base material which was picked up by previous inadvertant RT (see paragraph 7.b.(3)). The radiographs for this area were compared with the original vendor (TUBCO) RT films for the centrifugally cast pipe spool. The defect in the current film could be correlated with the same defect in the original vendor film and was dispositioned originally and currently as acceptable shrinkage. The applicable code for this casting radiography is ASME, Section III, 1971 Edition, paragraph NB-2570. The inspector reviewed the above current film and compared the defect in question with the defect in the original film and the the ASTM reference film applicable for acceptance. In addition the following RT film were reviewed:

(a) The remaining vendor film for film I.D. 15-16 for "C" outlet pipe spool (serial 147924)

(b) Vendor film I.D. 1-2 and 20-21 for "C" inlet pipe spool (serial 147921)

(c) Daniel Construction film for "C" inlet and outlet pipe to safe-end welds - field welds 1F and 8F

(3) The inspector reviewed the licensee's administrative control procedure for PSI, FNP-0-AP-57, revision 1, "Preservice, Inservice and Eddy Current Inspections". In addition the PSI contractors "Preservice Inspection Program", including associated procedures for documentation of PSI results, was reviewed. Based on review of the procedures; the fact that the licensee reported to the NRC that the PSI had been completed and all

code rejectable indications dispositioned, when in fact all indications had not been dispoistioned(see paragraph 7.a.(2)); and the problems encountered during final disposition of the indications (see paragraph 7.b.(3)); the above procedures are considered to be inadequate to properly cover evaluation and disposition of inspection results. This lack of adequate procedures is considered to be noncompliance with Criterion V of Appendix B to 10 CFR 50 as implemented by paragraph 17.1.5 of the FSAR and is identified as an infraction, item number 364/80-43-02, Inadequate procedures for evaluation of ISI/PSI inspection results.

Within the areas inspected, no items of noncompliance or deviations except as noted in paragraph 7.d.(3) were identified.