



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

JUN 10 1981

Report No. 50-364/81-16

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

Facility Name: Farley 2

Docket No. 50-364

License No. NPF-8

Inspection at Farley site near Dothan, AL

Inspector:

*H. L. Whitener*  
H. L. Whitener

*6-9-81*

Date Signed

Approved by:

*P. T. Burnett*  
P. T. Burnett, Acting Section Chief

*6-9-81*

Date Signed

Engineering Inspection Branch  
Engineering and Technical Inspection Division

SUMMARY

Inspection on May 7-9, 1981

Areas Inspected

This routine, announced inspection involved 26 inspector-hours onsite witnessing low-power testing.

Results

No violations or deviations were identified.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*G. Hairston, III, Plant Manager
- D. Morey, Operation Superintendent
- \*K. McCracker, Technical Superintendent
- R. Rogers, Technical Supervisor
- R. Mariow, Reactor Engineer

Other licensee employees contacted included reactor operators, shift supervisors and I&C personnel.

#### Other Organizations

##### Westinghouse

- F. Bowen
- L. Grobmyer

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on May 9, 1981 with those persons indicated in paragraph 1 above.

### 3. Licensee Action on Previous Inspection Findings

Not inspected.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

### 5. Initial Criticality

The inspector witnessed the initial criticality to ascertain that the test was performed in accordance with appropriate sections of the Technical Specification, Section 14 of the FSAR, test procedure and Regulatory Guide 1.68. The licensee's activities inspected or reviewed included: (1) procedure 500-7-201, Initial Criticality, to verify that the procedure was approved and conformed to NRC requirements; (2) test preparation; (3) test performance; and (4) data collection and analysis.

### General Observations

During the period May 7-9, 1981, the inspector witnessed and/or reviewed portions of the initial criticality. The following items were inspected on a sample basis:

- a. Appropriate test procedure was available and in use.
- b. Changes to the test procedure were reviewed, approved and documented.
- c. Test prerequisites were completed.
- d. Test equipment including nuclear instrumentation and reactivity computer were installed and calibrated.
- e. Functional checkouts of nuclear instrumentation and reactivity computer were performed just prior to the test.
- f. Trip setpoints on power range instrumentation were reduced.
- g. Overlap between source and intermediate range channels was verified.
- h. Test data were collected, recorded, processed, and analyzed as required.

The inspector concluded that the licensee performed the criticality experiment in a controlled manner which met the license, Technical Specification, and procedural requirements. The reactor was declared critical at 11:21 a.m. on May 9, 1981 with bank D at 160 steps, all other rods fullout, and the boron concentration of the RCS at 1301 ppm.

### 6. Hot Zero Power Testing

After achieving critical, zero power testing was initiated. The inspector witnessed and/or reviewed portions of selected zero power tests including the determination of the upper limit of neutron flux for zero power testing, calibration of the reactivity computer, control bank D partial worth measurement, All-Rods-Out boron concentrations, isothermal temperature coefficient of reactivity, and control rod bank D reactivity worth. No problems were observed during the above tests with the exception of the review acceptance criteria based on Unit 1 test results. This matter is discussed in paragraph 7 below.

### 7. Acceptance Criteria

The license, NPF-8, issued October 23, 1980 to authorize fuel loading and low power testing contains certain stipulations concerning the initial test program. Specifically, the licensee may not make a major modification to

the test program prescribed in section 14 of the FSAR without prior NRC approval. By letters dated May 28, 1980, and July 7, 1980 the applicant requested NRC approval of a modified low power and startup physics test program in which some tests described in the FSAR and performed on Unit 1 would not be performed on Unit 2. The basis of this request is that unit 2 core design is essentially identical to Unit 1. Tests performed on Unit 1 were satisfactory. The NRC approved the modified test program (see NUREG-0117, Supplement No. 4 to the Farley SER) with the condition that specific acceptance criteria based on Unit 1 test results be used in evaluation of Unit 2 tests. Consequently, the test procedures contained in the review acceptance criteria and the Westinghouse design acceptance criteria. Preliminary review of certain test results showed parameters were in good agreement with the Westinghouse design criteria but in three cases the results did not meet the review criteria based on Unit 1 test results. These results were as follows:

a. All rods out boron concentration:

Review Criterion	1344 $\pm$ 25 ppm
Design Criterion	1319 $\pm$ 50 ppm
Measured Value	1313 ppm

b. Bank D inserted boron concentration:

Review Criterion	1199 $\pm$ 25 ppm
Design Criterion	1169 $\pm$ 20 ppm
Measured Value	1169

c. Banks D+C inserted boron concentration:

Review Criterion	1091 $\pm$ 25 ppm
Design Criterion	1050 $\pm$ 17 ppm
Measured Value	1065

The inspector concluded that the deviations were not significant enough to effect continued low power testing. At the conclusion of the low power physics test program the licensee will evaluate the test results to determine if an expanded test program is necessary. A report will be submitted to the NRC on this evaluation.

8. Procedure Review

The inspector reviewed selected Unit 2 power test procedures to verify that appropriate procedures were established which contained adequate controls, precautions and limitations. The verification and/or review included the following:

- 500-7-201, Revision 0 - Initial Criticality
- 500-7-202, Revision 0 - Control Bank D Partial Worth Measurement During Boration
- 500-7-203, Revision 0 - ARO Critical  $C_b$ , Flux Map, and Isothermal Temperature Coefficient
- 500-7-204, Revision 0 - Control Bank D Worth Measurement During Dilution
- 500-7-205, Revision 0 - Control Bank C Worth Measurement During Dilution
- 500-7-206, Revision 0 - Control Bank B Worth Measurement During Dilution
- 500-7-207, Revision 0 - Control Bank A Worth Measurement During Dilution
- 500-7-208, Revision 0 - Minimum Shutdown Verification

The inspector concluded that the licensee had established procedures to accomplish the modified low power physics test program and the procedures contained adequate controls, precautions, limitations, instructions and acceptance criteria to insure that the tests were conducted in a controlled manner.