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

Report Nos.: 50-348/85-04 and 50-364/85-04

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

Inspector: J. E. Mathis 2/6/85
J. E. Mathis Date Signed

Approved by: Frank Jape 2/6/85
F. Jape, Section Chief Date Signed
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection involved 30 inspector-hours on site in the areas of plant tour, preparation for refueling, refueling activities, spent fuel pool activities and followup on IE Bulletin 84-03.

Results: A violation was identified - Failure to provide a procedure for spent fuel examination within the spent fuel pool pit, paragraph 8.

REPORT DETAILS

1. Licensee Employees Contacted

*J. D. Woodard, Plant Manager
*W. B. Shipman, Assistant Plant Manager
*D. N. Morey, Assistant, Plant Manager - OPS
*R. D. Hills, OPS Superintendent
*R. L. Marlow, Technical Supervisor
*C. D. Nesbitt, Technical Supervisor
*W. J. Ware, SAER Supervisor
S. Furlmar, Operation Shift Foreman
H. D. Erbskorn, Mechanical Maintenance Supervisor

Other licensee employees contacted included two technicians, three operators, two security force members and three office personnel.

Other Organization

Sid Burns, Westinghouse

NRC Resident Inspectors

*W. Bradford, Senior Resident Inspector
*W. Ruland, Resident Inspector

*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. The licensee acknowledged the findings contained herein. A violation was identified regarding the failure to provide a procedure to govern fuel assembly inspections using a video camera and recorder. The licensee stated that the need for a procedure was not recognized by those performing the activity.

- Violation 50-364/85-04-01, Failure to provide a procedure for spent fuel examination within the spent fuel pit.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector 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 this inspection.

5. Plant Tours (Units 1 and 2)

The inspector conducted plant tours periodically during the inspection interval to verify that monitoring equipment was recording as required, equipment was properly tagged, operations personnel were aware of plant conditions, and plant housekeeping efforts were adequate. The inspector also determined that appropriate radiation controls were properly established, critical clean areas were being controlled in accordance with procedures, excess equipment or material was stored properly and combustible material and debris were disposed of expeditiously. During the tours, the inspector looked for the existence of fluid leaks, piping vibrations, pipe hanger and seismic restraint settings, various valve and breaker positions, equipment caution and danger tags, component positions and status, adequacy of fire fighting equipment, appropriate notations on radiation postings, and instrument calibration dates. Two tours were conducted on backshift.

Within the areas inspected, no violations or deviations were identified.

6. Preparation for Refueling Unit 2 (60705)

The inspector reviewed the licensee's controlling procedure for refueling, O-FHP-001.0, which provided the surveillance testing required by Technical Specification (TS), and prerequisites necessary for preparing the unit for refueling. The procedures reviewed by the inspector included the following:

2-FHP-005.18	Spent fuel bridge crane
O-FHP-007.0	Limitations and precautions for handling fuel assemblies
O-FHP-005.7	Control rod drive shaft handling fixture
2-MP-1.0	Maintenance refueling procedure
FHP-2-STP-0.36.0	Manipulator crane cutoff and load test
FHP-2-STP-227.12	Spent fuel pool vent radiation monitor R-25B
2-STP-227.11	Spent fuel pool monitor

The procedures listed above were reviewed by the inspector to ascertain procedural and performance adequacy. The completed test procedures examined were analyzed for embodiment of the necessary test prerequisites, preparations, instructions, acceptance criteria and sufficiency of technical content. The selected tests witnessed were examined to ascertain that current written approved procedures were available and in use, that test equipment in use was calibrated, that test prerequisites were met, system restoration completed, and test results adequate.

Within the areas inspected, no violations or deviations were identified.

7. Refueling Activities (60710)

On January 15, 1985, the inspector witnessed defueling at the Farley Unit 2 site. The inspector witnessed defueling activities from the control room, reactor building and spent fuel pool to verify that activities were being accomplished in accordance with TS, license conditions, and NRC requirements.

The inspector observed defueling during backshift as well as day shift to verify the following:

a. Direct communication was established between the control room and reactor building.

b. Staffing requirements were in accordance with TS.

c. Control of personnel access to the spent fuel pool areas was established.

d. Changes to procedures were made in accordance with administrative procedures.

e. The licensee maintained good housekeeping in the refueling areas.

f. Radiological controls were maintained in accordance with approved procedures.

g. Appropriate procedure steps and QA hold points were signed off.

Prior to placing the fuel assemblies in the designated storage cell, the licensee, using binoculars, performed a visual inspection during core unloading. All fuel assemblies designated in Table 1 of Engineering Technical Procedure 2-3636 (ETP) were visually examined for indications of damage that may have occurred during Cycle 3 operation. The inspection findings were recorded on data sheet 2 of 2-ETP-3636. The precise location of the observed or suspected damage was noted. The inspector witnessed 22 fuel assemblies being unloaded from the reactor and transferred into the spent fuel pool.

No violations or deviations were identified in the area inspected.

8. Spent Fuel Pool Activities (86700)

On January 15, 1985, the inspector observed fuel handling operations during fuel movement within the spent fuel pool and reviewed procedures related to fuel handling to verify the following were included in the procedures:

a. A limitation on the number of fuel assemblies that can be out of safe geometry location at the same time.

b. Provision for verifying operability, prior to fuel handling, that the spent fuel pool area crane interlocks or physical stops prevent the crane from passing over stored spent fuel.

c. Provision for verifying prior to fuel handling that the spent fuel pool ventilation system is operable.

d. Provision for verifying prior to fuel handling that the efficiency of the absolute and charcoal filter system had been determined at the required frequency.

e. Provision for verifying that minimum water level for the spent fuel pool is monitored during fuel handling operations.

f. Provision for verifying that the spent fuel pool storage area radiation and airborne radioactivity monitors are operable.

g. Provision for verifying that the spent fuel pool cleaning and cooling systems are operable.

On January 16, 1985, the inspector witnessing under-water video inspection of the fuel assemblies listed on data sheet 2 of 2-ETP-3636. (See paragraph 7 above). This activity consisted of lifting the fuel assembly from its storage location and performing a detailed video examination. The results were recorded on video tape for later study to determine if the fuel assembly could be placed in the reactor for the next cycle. This activity was performed without a written procedure. Personnel involved appeared to be knowledgeable with the objectives and stated that data sheet 2 of 2-ETP-3636 was sufficient for controlling the activity. The inspector indicated that TS. 6.8.1(b) requires a detailed, written procedure to govern spent fuel activities and the failure to provide a procedure is a violation. This is in violation of TS 6.8.1(b) and is identified as Violation 364/85-04-01, Failure to provide a procedure for spent fuel examinations within the spent fuel pool pit.

9. Followup on IE Bulletin (92703)

The licensee's November 26, 1984, response to IE Bulletin 84-03 described the difference in design of the Farley Nuclear Plant refueling cavity water seal and the Haddam Neck Nuclear Plant seal. The inspector verified that the licensee's seal arrangement was as described in their response.

The licensee's seal consists of a 3/4 inch thick stainless steel ring, 11 inches wide and approximately 17 feet in diameter, spanning a two-inch gap between the vessel flange and the seal support ring. The seals are in grooves to prevent their moving out-of-place and are compressed by 18 hold-down clamps acting on the seal ring.

In addition, the double gaskets on both the reactor flange and the cavity floor provide a means of leak testing the seal configuration prior to flooding of the refueling cavity. The inspector reviewed FNP-2-MP-1.0,

Maintenance Refueling Procedure, which provided maintenance personnel a detailed, instruction for installing the reactor cavity seal.

The licensee requested Westinghouse to evaluate the consequences of a refueling water seal failure. This analysis was to determine the time before fuel assembly cladding failure would occur if the assembly is in the refueling machine and a reactor cavity seal failure occurs. Westinghouse determined the time to cladding failure was 24 minutes after the reactor cavity seal failure. An analysis was also performed to evaluate the effects of a fuel assembly impacting the holddown cavity seal clamp. Two cases were considered: 1) a horizontal impact on a fuel assembly on the clamp at the maximum translational speed of 40 ft/min., and 2) a drop of the fuel assembly onto the clamp from a height of 8 inches, which is the approximate maximum vertical distance between the fuel assembly and the top of the clamp during refueling. The vertical drop from 8 inches was then analyzed and found to be the more severe case because the impact velocity is ten times as high. A refined elastic-plastic analysis was performed which yielded strains well below the fracture point. The analysis indicated that the bolts will yield but will not fracture under the loads produced by either horizontal or vertical impact.

The inspector verified that the Farley Nuclear Plant Refueling Accident Procedure included guidance for operators in case of a refueling cavity water seal failure. Based on the above considerations and followup of the licensee's response to IEB-84-03, assurance that gross seal failure such as experienced at Haddam Neck would not occur at Farley Nuclear Plant has been provided.

IEB-84-03 at the Farley Nuclear Plant Units 1 and 2 is closed.