



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

Report No.: 50-348/88-17, 50-364-88-17

Licensee: Alabama Power Company
600 North 18th Street
Birmingham, AL 35291-0400

Docket No.: 50-348, 50-364

License No.: NPF-2, NPF-8

Facility Name: Farley 1 & 2

Inspection Conducted: May 2-6, 1988

Inspector:

G. A. Hallstrom
G. A. Hallstrom

6/26/88
Date Signed

Approved by:

J. J. Blake
J. J. Blake, Chief
Material and Processes Section
Engineering Branch
Division of Reactor Safety

6/26/88
Date Signed

SUMMARY

Scope: This routine, unannounced inspection was in the areas of Inservice Inspection (ISI) Program activities associated with requested relief from ASME Code Requirements. A specific review was completed of records associated with alternate examinations of the Unit 1, first interval ISI program with emphasis on Hydrostatic testing. Additional details regarding clarification of relief from Hydrostatic Testing of Class 3 systems (IFI 348/88-14-04) were also examined.

Results: Within the areas inspected violations or deviations were not identified. However a potential weakness within the inservice hydrostatic testing program of Class 3 components is identified by new unresolved item 50-348, 364/88-17-01, Technical Justification for Requested Relief from Hydrostatic Testing of Class 3 Piping Systems during Second Interval ISI, *paragraph 2.a.

*Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *R. Berryhill, Planning and Performance Manager
- *R. Coleman, Systems Performance Supervisor
- *S. Fulmar, Supervisor Safety Audit and Engineering Review
- *D. Hartline, Systems Performance Engineering Supervising
- *R. Hill, Operations Manager
- *C. Levy, General Plant Engineer
- *D. Morey, Assistant General Manager, Operations
- *W. Shipman, Assistant General Manager, Support
- *B. VanLandingham, Unit Supervisor
- *G. Waymire, General Plant Engineer
- *J. Woodard, General Manager

Other licensee employees contacted included engineers, technicians, security force members, and office personnel.

NRC Resident Inspector

- *W. Bradford, Senior Resident Inspector
- *W. Miller, Resident Inspector

*Attended exit interview

NOTE: An alphabetical tabulation of acronyms and abbreviations used in this report is listed in Paragraph 5.

2. Inservice Inspection (ISI) - First Interval Program and Records Review (73051, 73755, 73052)

The inspector examined documents, activities and records as indicated below to determine whether ISI was being conducted in accordance with applicable procedures, regulatory requirements, and licensee commitments.

The Alabama Power Company ISI program for the Farley Nuclear Plant is conducted in accordance with requirements of Paragraph 4.0.5 of the Technical Specifications, which invokes the requirements in 10 CFR 50.55a(g) as to applicable ASME Code Addenda and specific written Relief as granted by the Commission.

ISI Nondestructive and Hydrostatic examinations and tests must be completed during each of four ten-year intervals calculated from the start date of commercial operation (December 1, 1977, for Unit 1): Section XI of

the ASME Code allows up to one year's extension of the interval to enable correspondence with a plant's outage schedule and the final allowed completion date of Unit 1 first interval examination and testing will be December 1, 1988.

The applicable code for ISI is the ASME B&PV Code, Section XI, 1974 Edition with addenda through Summer 1975 for the first interval and the ASME B&PV Code, Section XI, 1983 Edition with Summer 1983 addenda for the second interval. (W) has the responsibility as the ISI contractor with SCS conducting overview functions.

a. Inservice Inspection, Programmatic Review, Units 1 and 2 (73051)

The inspector reviewed the below listed documents relating to the licensee's Inservice Inspection program (Plan) for the first interval in the areas of: program approval; QA program requirements including organizational structure; audit requirements; general QA requirements (examination reports, control of deviations from established program; quality documentation and identification of components); work and quality inspection procedures; control of processes; corrective action; document control; control of examinations and examination equipment; quality records; inspection scope; inspection intervals; personnel qualifications; and, NDE records including provisions for storage.

FNP-O-AP-57, R-3,	Preservice and Inservice Inspections
FNP-O-AP-4, R-10,	Control of Plant Documents and Records
FNP-O-AP-5, R-8,	Surveillance Program
FNP-O-AP-63, R-2	Administrative Control
FNP-O-AP-6, R-2,	Conduct of Operations - System Performance Group
FNP-O-AP-31, R-8,	Procedure Adherence
FNP-O-AP-52, R-8,	Quality Control Measures
	Equipment Status Control and Maintenance Authorization
FNP-1-STP-156.0, R-0,	Inservice Inspection of Class 3 Systems and Components
FNP-1-M-033, R4,	Inservice Inspection Program for ASME Class 1, 2, and 3 Components of Components of Unit No. 1

During the above examination the inspector noted the relief from Hydrostatic Testing had been requested for the majority of ASME Class 3 piping (FNP-1-M-033 Section 4.1.5). Further that Section 4.1.5.2 stated that the technical basis for relief was "system pressure testing is impractical since these systems operate continuously during all modes of plant operation." The inspector informed cognizant Licensee personnel

that this was considered an inadequate technical basis in that most of the systems involved (service water, component cooling water, chemical and volume control, reactor makeup) were not required by the Technical Specification to be operable in all modes, were designed with more than one train, and had portions which could be "valved out" to accommodate the Hydrostatic testing involved. The inspector further noted that similar relief was also requested for the next interval (Relief Request No. 33) without any amplification of the initial basis. The inspector requested that cognizant licensee personnel provide any details of previous communications with NRC (NRR) on this item during the inspection. Cognizant Licensee personnel responded that they were unaware of any particular communication with NRC supporting the stated technical basis in Section 4.1.5 (or RR #33). However, that the statements could be amplified as follows:

- ° The Service Water (SW) and Component Cooling Water (CCW) Systems are maintained in continuous operation due to their function and effect on operability of other safety related systems. They are removed from service only for repair or modification required to maintain their ability to perform their safety related functions.
- ° Removal from service is complicated, requires detailed planning, involves certain risks to safety related component served by these systems and severely limits flexibility of operations.
- ° The operational configuration of the plant with portions of these systems removed from service complicates operation of the plant and has different consequences depending on the configuration and alignment of other systems. It is a condition considered prudent to avoid.
- ° Unit 1 service water supplies the control room HVAC. This system is shared with Unit 2. When Unit 1 S.W. A or B Train is shutdown, Unit 2 goes under a seven day LCO.
- ° SW and CCW are both low energy systems
 - Operating conditions for SW
 - T - Max @ 120°F; press @ 100 psig
 - Operating conditions for CCW
 - T @ 105° to 150°F; press @ 40 to 100 psig
- ° The most likely cause of leakage in SW systems would be localized thru-wall pitting. The small amount of leakage would not be of any consequence as far as operability of the system would be concerned. This type of defect would not likely propagate into circumferential cracking nor would a hydro test likely identify on-coming problems of this nature. FNP is aggressively working on potential SW piping problems; i.e.

- replacing small bore piping with S.S. pipe
 - monitoring the internal condition of SW piping
 - performance monitoring of selected SW heat exchangers
 - U.T. Thickness measurements in heat affected areas of a sample of SW piping welds
- o SW Tech Specs require both trains to be operable in Modes 1 - 4 or to shutdown after 72 hours.
- o Tech Spec 3.4.1.4 requires 2 RHR Loops to be operable in Mode 5. This requires CCW to be operable to supply diesel/generator water to the RHR heat exchangers. This in turn requires SW to be operable to supply the CCW heat exchangers.
- o Tech Spec 3.9.8.1 and 3.9.8.2 requires RHR to be operable in Mode 6 under certain conditions. As stated above, CCW and SW are also required to insure the operability of RHR.
- o Although it is not impossible to take a train of CCW or SW out of service it is very difficult to put the plant in a condition to allow hydro's on the main portions of these systems without unduly degrading various systems. The trade-off between putting the plant in these conditions compared to any assurance gained from the Inservice Hydro is questionable.
- o The CCW system is filled with chromated water. There are a considerable number of relief valves and connections that would have to be blank flanged in this system in preparation for hydrostatic testing. This would require draining portions of the system, generating hazardous waste, and accepting some spillage during the work. A small amount of chromates can do a lot of damage to the environment and is extremely hazardous to the personnel handling the fluid.

The inspector informed cognizant licensee personnel that NRR would be contacted regarding need for further clarification and acceptability of the above. Pending NRR approval this item will be identified as UNR 50-348,364/88-17-01 Technical Justification for Requested Relief from Hydrostatic Testing of Class 3 Piping Systems during Second Interval ISI.

b. Review of Procedures (73052) Units 1 and 2

- (1) The inspector reviewed the procedures indicated below to determine whether the procedures were consistent with regulatory requirements and licensee commitments. The procedures were also reviewed in the areas of procedure approval, requirements for qualification of NDE personnel, an compilation of required records; and if applicable, division of responsibility between the licensee and contractor personnel if contractor personnel are involved in the ISI effort.

FNP-O-STP-157.1 (R2)	Preservice and Inservice Inspection Documentation
FNP-O-STP-157.3 (R0)	Visual Examination Procedure
FNP-O-STP-157.7 (R2)	Manual Ultrasonic Examination of Welds In Vessels
FNP-O-STP-157.12 (R4)	Manual Ultrasonic Examination of Welds

- (2) The inspector reviewed the UT procedures to ascertain whether they had been reviewed and approved in accordance with the license's established QA procedures. The procedures were reviewed for technical adequacy and for conformance with the ASME Code Section V, Article 5 and other licensee commitments/requirements in the following areas: type of apparatus used; extent of coverage of weldment; calibration requirements; search units; beam angles; DAC curves; reference level for monitoring discontinuities; method for demonstrating penetration; limits for evaluating and recording indication; recording significant indications; and, acceptance limits.
- (3) The inspector reviewed the visual examination procedure to determine whether it contained sufficient instructions to assure that the following parameters were specified and controlled within the limits permitted by the applicable code, standard, or any additional specification requirement; 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 or tool for 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 is specified and consistent with the applicable code section or controlling specification; and report form completion.

c. Inservice Inspection, Data Review and Evaluation, Unit 1 (73755)

The inspector selected a random sample of alternative testing associated with relief granted from ASME Code Nondestruction and Hydrotest Requirements for Class 1 and Class 2 piping and components.

- (1) Records of completed nondestructive examinations were selected and reviewed to ascertain whether: the method(s), technique and extent of the examination complied with the ISI plan and applicable NDE procedures; findings were properly recorded and evaluated by qualified personnel; programmatic deviations were

recorded as required; personnel, instruments, calibration block and NDE materials (penetrants, couplants) were designated. Records selected for this review are listed below:

<u>ISO No.</u>	<u>Weld/Item ID</u>	<u>NDE Method</u>	<u>Relief Request No.*</u>
ALA-120 (12" Accumalator discharge - Loop 1)	6	UT-0°,45°,PT,VT	2.5.5
ALA-132 (6" SIS Coldleg Loop 2)	5	UT-0°,45°,VT	No Relief
"	5	UT-0°,45°,PT,VT	2.5.5
"	4	UT-0°,45°,PT,VT	2.5.5
"	3	UT-0°,45°,VT	No Relief
"	2	UT-0°,45°,VT	No Relief
ALA-133 (12" Accumulator discharge - Loop 2)	1	UT-0°,45°,VT	No Relief
"	2	UT-0°,45°,VT	No Relief
"	3	UT-0°-45°,VT	No Relief
ALA-148 (14" Pressurizer Surge Line)	2	UT-0°,45°,VT	No Relief
ALA-145 (12" RHR Take-off Loop 3)	1	UT-45°	No Relief
"	2	UT-45°	No Relief
"	3	UT-45°	No Relief
"	WS-1	UT-45°	No Relief
"	WS-2	UT-45°	No Relief
ALA-104 (RV lower head welds)	9	UT-45°,60°	2.5.1
"	10	UT-45°,60°	2.5.1
"	11	UT-45°,60°	2.5.1
"	12	UT-45°,60°	2.5.1
"	13	UT-45°,60°	2.5.1
"	14	UT-45°,60°	2.5.1
"	15	UT-45°,60°	2.5.1
"	16	UT-45°,60°	2.5.1

*Some of the welds listed "No Relief" were examined in lieu of those requiring relief under Request 2.5.5

- (2) The ASME Class 1 and 2 Hydrostatic Test Procedures Listed below were reviewed for technical content and the hydrostatic boundaries were re-established on drawings using the procedures' valve line-up sheet to verify test completeness, especially as regards to accomplishment of the alternative testing associated with the relief granted.

<u>Procedure No.</u>	<u>Description of Test</u>	<u>Relief Request No.</u>
FNP-1-STP-160.1 (Official test copies Nos 861011-3 and 861118-3)	Class 1 Piping in the Reactor Coolant System, Safety Injection System and chemical volume control system Inservice Hydrotest	2.5.9 2.5.10 2.5.11.A-H (less D) 3.5.9A-N 3.5.12 3.5.18
FNP-1-STP-160.22 (official test copy 861013-1)	RHR Train A to RCS Loop Suction Line Inservice Hydro Test	2.5.11.D
FNP-1-STP-160.23 (official test copy 860925-1)	RHR Train B to RCS Loop Suction Line Inservice Hydro Test	2.5.11.D
FNP-1-ETP-4225 (official test copy 861017-1)	Reactor Head Vent Inservice Hydro Test	3.5.9.0

Within the areas inspected, violations or deviations were not identified.

3. Previous Inspector Followup Items

(Closed) IFI 50-348/88-14-04, Clarification of Relief Request Approval for Service Water Piping, Component Cooling Piping, and Chemical and Volume Control System Piping.

This item concerned clarification of the extent of relief granted by NRC (NRR) from Hydrotesting of Class 3 piping and components. (See inspection Report Nos. 30-346/88-14). The inspector was aware of follow on telephonic communications between the licensee and NRR during which NRR supported the extent of the relief discussed in Report 348/88-14. Cognizant Licensee personnel informed the inspector of their position that the APCo. commitment to clarify the amount of relief granted was considered satisfied by the telephonic communication involved. The licensee requested that any additional clarification required by Region II be obtained directly from NRR. The inspector informed cognizant licensee personnel that this item would be considered closed pending NRR concurrence that the relief granted was essentially the entire Class 3 program with the exception of portions of the auxiliary feedwater system and portions of the chemical and volume control system.

4. Exit Interview

The inspection scope and findings were summarized on May 6, 1988, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee.

(OPEN) Unresolved Item 50-348,364/88-17-01 Technical Justification for Request Relief from Hydrostatic Testing of Class 3 Piping Systems during Second Interval ISI

The licensee did identify some material as proprietary during this inspection but this material is not included in this report.

5. Acronyms and Abbreviations

AC	-	Alternating Current
APCo	-	Alabama Power Company
ASME	-	American Society of Mechanical Engineers
B&PV	-	Boiler and Pressure Vessel
CVCS	-	Chemical Volume Control System
DAC	-	Distance Amplitude Curve
Exam.	-	Examination
ID	-	Identification
I.D.	-	Inside diameter
IFI	-	Inspector Followup Item
ISI	-	Inservice inspection
FNP	-	Farley Nuclear Plant
MHz	-	Megahertz
NDE	-	Nondestructive Examination
No.	-	Number
NRC	-	Nuclear Regulatory Commission
NRR	-	Nuclear Reactor Regulation
PT	-	Liquid penetrant
QA	-	Quality Assurance
R	-	Revision
RCS	-	Reactor Coolant System
RHR	-	Residual Heat Removal System
RV	-	Reactor Vessel
SCS	-	Southern Company Services
SIS	-	Safety Injection System
UT	-	Ultrasonic
VT	-	Visual
<u>W</u>	-	Westinghouse Electric Corporation