



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

Report Nos.: 50-335/89-25 and 50-389/89-25

Licensee: Florida Power and Light Company  
9250 West Flagler Street  
Miami, FL 33102

Docket Nos.: 50-335 and 50-389

License Nos.: DPR-67 and NPF-16

Facility Name: St. Lucie 1 and 2

Inspection Conducted: October 10-13, 1989

Inspector: George Hallstrom 11/8/89  
6 A. Hallstrom Date Signed

Approved by: J. J. Blake 11/8/89  
J. J. Blake, Chief Date Signed  
Materials and Processes Section  
Engineering Branch  
Division of Reactor Safety

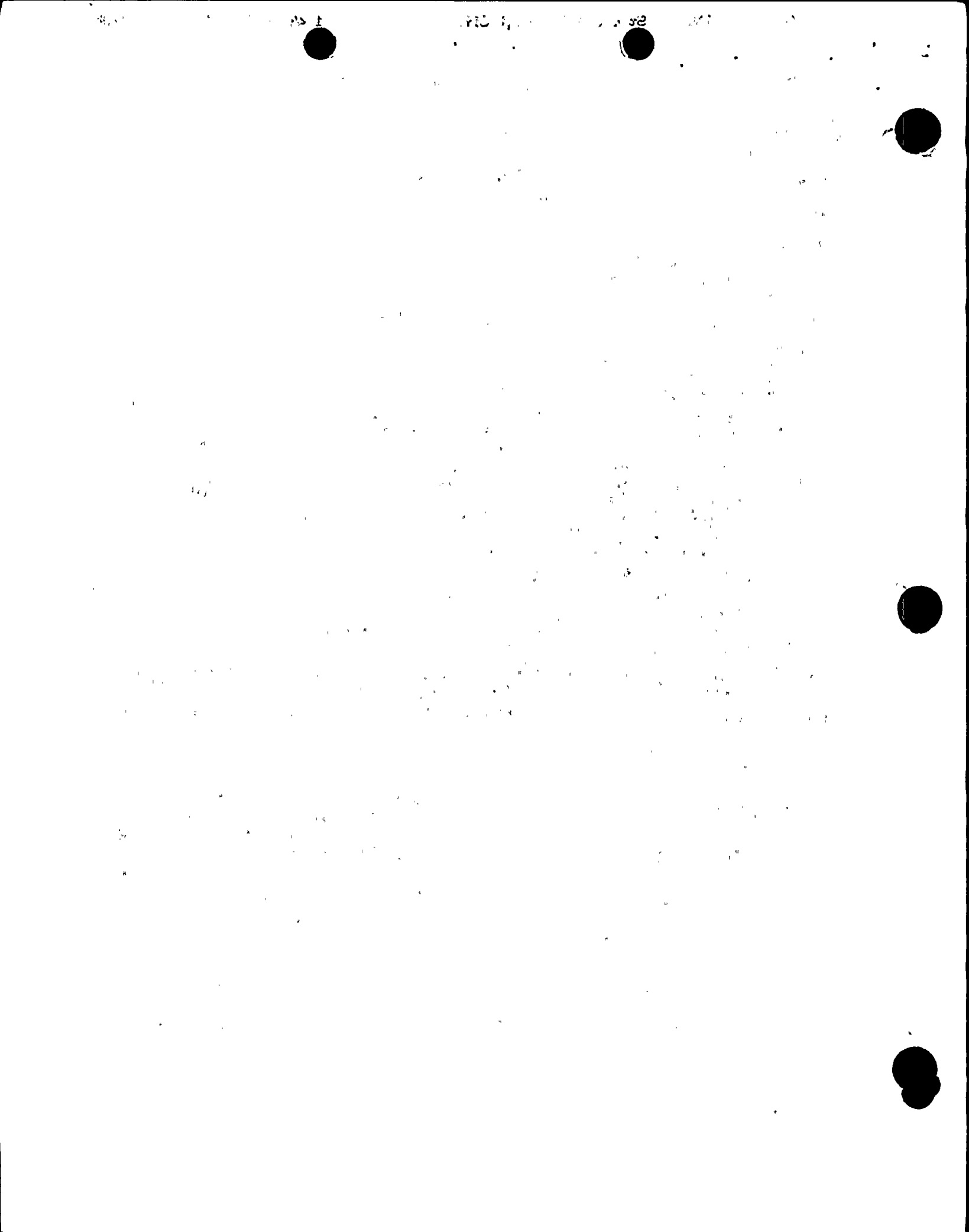
SUMMARY

Scope:

This routine, announced inspection was conducted in the area of Hydrostatic Testing including the use of the Instrumented Inspection Technique (IIT) for Units 1 and 2. The inspection included review of program, procedures and completed records.

Results:

In the areas inspected, violations or deviations were not identified. The Hydrostatic and IIT testing were judged to be programmatic strengths in that tests conducted for Units 1 and 2 have been in strict conformance with the ASME Code or the licensee's implementation of the NRC approved alternative testing using IIT. ASME VT-2 type examinations were completed by certified personnel to qualified procedures for all IIT tests conducted.



## REPORT DETAILS

## 1. Persons Contacted

## Licensee Employees

- \*B. Alfera, Plant Safety Supervisor
- \*J. Barrow, Operations Superintendent
- \*G. Boissy, Plant Manager
- \*H. Buchanan, Health Physics Supervisor
- E. Dill, Hydrotest Technician
- \*J. Dyer, Quality Control (QC) Supervisor
- \*L. Harbach, Hydrotest Coordinator
- \*J. Harper, Superintendent of Quality Assurance (QA)
- \*A. Johnson, Plant Licensing Engineer
- \*C. Leppla, I&C Supervisor
- \*L. McLaughlin, Plant Licensing Lead Engineer
- \*H. Meotley, Plant Test and Codes Group Lead Engineer
- \*D. Mumper, Plant Performance Coordinator
- \*F. Orr, Plant Test Coordinator
- \*D. Sager, Site Vice President
- \*C. Siebold, QA Supervisor
- \*D. Sipes, Services Manager
- D. Stewart, System Engineering Group Lead Engineer
- \*D. West, Technical Staff Supervisor
- \*C. Wilson, Maintenance Manager
- \*G. Wood, Radiation Safety Manager

## NRC Resident Inspectors

- S. Elrod, Senior Resident Inspector
- \*M. Scott, Resident Inspector

## \*Attended exit interview

## 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 Florida Power and Light Company ISI program for the St. Lucie facility 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.

[The body of the document contains several paragraphs of text that are extremely faint and illegible due to the quality of the scan. The text appears to be a formal document, possibly a letter or a report, but the specific content cannot be discerned.]

ISI Nondestructive Examinations and hydrostatic tests must be completed during each of four ten-year intervals calculated from the starting date commercial operation. (December 21, 1976 for Unit 1 and August 8, 1983 for Unit 2) Section XI of the ASME Code allows extension of the interval to enable correspondence with a plant's outage schedule or to accommodate units out of service continuously for six months or more. The licensee requested and received NRC approval to extend the first interval to February 11, 1988 (or the next subsequent refuel outage) for Unit 1. This was due to Unit 1 being continuously out-of-service from February 26, 1983 to April 16, 1984 for extensive core barrel repairs. The final completion of Unit 1 first interval examination and testing was August 23, 1988. The first interval for Unit 2 will end August 8, 1993.

The applicable code for hydrostatic testing for the Unit 1 first interval is the ASME B&PV Code, Section XI, 1980 Edition with addenda through Winter 1981. The licensee also conducted alternative pressure testing using the licensee's procedures for implementing the Instrument Inspection Technique (IIT). These pressure tests were conducted pursuant to the approved topical report, HAFB 135 (P), "Instrumented Inspection Technique As An Alternative To Hydrostatic testing Requirements for ASME Class 1, 2 and 3 Systems and Components," dated April 1985. This topical report was approved by the NRC by letter dated November 7, 1985.

The NRC determined that sufficient information was presented in topical report HAFB 135 (P) to support the conclusion that the Instrumented Inspection Technique is a suitable alternative for the pressure test requirements of ASME Section XI. Implementation of the Instrumented Inspection Technique was not intended to circumvent ASME Section XI requirements for pressure tests but to provide an added margin of reliability of the test results. The Code requirements, where practical to meet, were to be complied with and in situations where the requirements are impractical, the regulations were to be followed prior to implementation of the alternative testing method. However, the Code requirement for the 4-hour hold time prior to visual examination of insulated systems and components may be reduced to two hours when using IIT. The conditions described above were regarded as limitations associated with the NRC acceptance of topical report HAFB 135 (P).

The NRC staff approved the concept of the IIT methodology as defined in topical report HAFB 135 (P) and subject to the limitations and conditions delineated in the staff's safety evaluation report. A licensee referencing the topical report has the responsibility for the preparation of examination procedures and the control of the inspection process. The licensee was required to identify the plant-specific system boundary subject to inspection and assure that the selection of the instrumentation was consistent with the approved concept.



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

The inspector reviewed the below listed documents related to the licensee's program for the first interval in the areas of: program approval; QA program requirements including (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.

<u>Procedure/ Document No.</u>	<u>Title</u>
QI 11-PR/PSL-7, Rev. 2	Control of Code Safety and Relief Valves
QI 11-PR/PSL-8, Rev. 1	Control of Inservice Pressure Testing
Operating Procedure No. 1300056, Rev. 1	Implementation of Inservice Pressure Testing
Administrative Procedure No. 0010141,	Technical Staff Department Schedule for Technical Surveillance Requirements
1-IPT-01, Rev. 1	Hydrostatic Inservice Pressure Test and IIT on the Reactor Coolant Pressure boundary portion of the Safety Injection (SI) systems
1-IPT-02, Rev. 2	IIT Pressure Test of SI Common Headers to Reactor Coolant Loops 1A1, 1A2, 1B1 and 1B2
October 4, 1985	Letter from FP&L to NRC Office of Nuclear Reactor Regulation (NRR) Requesting NRC approval to use IIT for St. Lucie Unit 1
November 8, 1985	Letter from NRR to FP&L granting NRC approval to use IIT on St. Lucie Unit 1
February 14, 1986	Letter from FP&L to NRR requesting NRC approval to use IIT for St. Lucie Unit 2

Procedure/  
Document No.  
(cont'd)

Title

August 1, 1988

Letter from FP&L to NRR providing additional information on the requested use of IIT for Unit 2

November 17, 1988

Letter from NRR to FP&L approving the use of IIT for St. Lucie Unit 2.

HAFA Topical Report  
HAFA 135 (N)  
April 1985

Instrumented Inspection Technique as an Alternative to the Hydrostatic Testing Requirements for ASME Class 1, 2 and 3 systems and components

November 7, 1985

Letter from NRR to HAFA International providing NRC acceptance of Report HAFA 135 (P) (including Safety Evaluation Report)

During the above review the inspector noted that procedure QI 11-PR/PSL-8 included requirements that all IIT testing required a standard ASME VT-2 type visual examination while the system was under test conditions. Relief from normal ASME Code Hydrostatic Requirements appeared to be limited to use of nominal operating pressure and reduction of the hold time to two hours (rather than four hours) on insulated systems. Further additional requirements imposed included use of calibrated flow measuring devices (LMDs) on boundary valves. Potential use of acoustic monitoring (AE) is included as a diagnostic aid in detecting the source of leakage and not as an obviation of VT-2 examinations.

Cognizant licensee personnel responded that AE as propounded by HAFA had never been used at St. Lucie. Relief from normal ASME Hydrostatic requirements when using IIT and LMDs was considered limited to use of normal operating pressure and the two hour hold time on insulated systems. Use of HAFA expertise at St. Lucie had been limited to the topical report, and use of their VT-2 certified personnel during some 1985/86 examinations until plant personnel completed VT-2 certification requirements. Otherwise, the licensee has used HAFA equipment (Long term lease of six LMDs) with licensee approved procedures and certified personnel.

The licensee completed in-house QA Audits (QSL-OPS-86-434 and QSL-OPS-85-391) of HAFA's 1985/86 subcontract work. The inspector reviewed the subject audits and noted that NRC Region II had been involved during Audit QSL-OPS-86-434. No adverse findings were identified.





b. Review of Hydrostatic and IIT Test Procedures and Evaluation of Test Data

The inspector completed a review of the ASME Class 1 and 2 hydrostatic and IIT test procedures and test data listed below for technical content.

<u>Test No.</u>	<u>Test Type</u>	<u>Class</u>	<u>System/Test Boundary</u>
1-IPT-02	IIT	1,2	SI Discharge Headers
1-IPT-14	IIT	2	A Containment Spray Header
1-IPT-15	IIT	2	B Containment Spray Header
1-IPT-22	IIT	2	B & C HPSI Suction
1-IPT-25	HYD	2	SI Pumps Suction B
1-IPT-41	IIT	2	LPSI Header MOV to Check Valve

The inspector concluded, from the reviewed documentation, that the Hydrostatic and IIT were a programmatic strength. All valves in the tests were identified, properly aligned, and documented clearly. Changes to the procedures were well documented and approved. The technical content was adequate and presented in an organized manner. Test boundaries were properly identified and exceptions and discrepancies were clearly addressed. All licensee and contractor activities appeared to be executed in a technically effective manner.

Within the areas examined, violations or deviation were not identified.

3. Exit Interview

The inspection scope and results were summarized on October 13, 1989, with those persons indicated in paragraph 1. The inspector described the areas inspected. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

