

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

Report Nos.: 50-250/90-12 and 50-251/90-12

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

Docket Nos.: 50-250 and 50-251

License Nos.: DPR-31 and DPR-41

Facility Name: Turkey Point 3 and 4 -11, 1990 Inspection Conduct Inspector Kleinsorg Approved by: Blake J. Chief Materials and Processes Section Engineering Branch Division of Reactor Safety

ianed

Date Signed

Scope:

This routine, unannounced inspection was conducted in the areas of Inservice Inspection (ISI) which included a review of the nondestructive examination (NDE) procedures; review of personnel qualifications and NDE equipment and material certifications; and review of completed NDE data.

SUMMARY

Results:

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

The licensee's ISI program is very effective in most areas reviewed. Licensee management involvement and the licensee's technical staff assure that technical issues are resolved from a conservative standpoint. Personnel training and qualifications safeguards are effective and many of the licensee's administrative and NDE procedures are well written and contain good technical information. The licensee appears to be very sensitive to any NRC initiatives and the responses to these initiatives usually have good technical basis.

0060703 ADOCK FDR

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *E. Anderson, Senior ISI Specialist
- *W. Bladow, Quality Manager
- *M. Blew, ISI Coordinator
- *J. Cross, Plant Manager
- S. Franzone, Lead Nuclear Engineer JPN
- *K. Harris, Vice President Turkey Point

Other licensee employees contacted during this inspection included engineers, mechanics, technicians and administrative personnel.

Other Organization

*E. Boger, Factory Mutual ANII

NRC Resident Inspectors

*T. McElhinney, Resident Inspector (RI)G. Schnebli, Resident Inspector (RI)

*Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

- 2. Licensee Actions On Previous Inspection Findings
 - (1) (Closed) Unresolved Item 50-250,251/89-29-01: "Fail-Safe Status For MSIVs".

As part of their corrective action to violation 50-250,251/85-05-01, the licensee no longer considers the main steam isolation values as fail safe values (IWV-3415). This change to their Inservice Testing (IST) program was transmitted to the Commission by FP&L Letter L-87-238 dated June 5, 1987. As of this writing of report 50-250,251/89-29, the following was not clear: what was the basis for the classification of these values as "Fail Safe" originally; was this criterion taken into consideration, when this change in classification was made; and was this change consistent with the the applicable regulations and the licensee's commitments.

The basis of the "Fail Safe" classification was the FSAR description. It was not until after the testing implemented as the result of the corrective actions to the violation that the licensee

· · · ·

Υ Υ

realized that the valves would not fail safe. In view of this and the fact that these valves are unique in this plant, the inspector is satisfied that the licensee took appropriate actions in this matter. This item is considered closed.

(2) (Closed) Violation 50-251/86-06-02: "Failure To Provide Appropriate Acceptance Criteria For Inservice Testing Procedure"

FP&L letters of response dated May 29, 1986, and September 12, 1988, have been reviewed and determined to be acceptable by Region II. The inspector held discussions with cognizant licensee personnel and examined the corrective actions as stated in the letters of response. The inspector concluded that FP&L had determined the full extent of the subject violation, performed the necessary survey and follow-up actions to correct the present conditions, and developed the necessary corrective actions to preclude recurrence of similar circumstances. The corrective actions identified in the letters of response have been implemented.

2. Inservice Inspection (ISI)

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 applicable code for ISI is the American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME B&PV) Code, Section XI, 1980 edition with addenda through Winter 1981. Nondestructive examinations are being conducted for the licensee by EBASCO.

- a. Review of NDE Procedures, Units 3 and 4 (73052)
 - (1) The inspector reviewed the procedures listed below to determine whether these 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, and 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.

-	CAL 1	(R1)	Ultrasonic Instrument Linearity
- '	CAL 2	(R2)	Calibration of Magnetic Particle Equipment
-	CAL 3 .	(R1)	Calibration Verification of Temperature Measurement Devices
-	CAL 4	(RO)	Qualification Procedure for "BLACK LIGHT" Units and Light Meters

·

÷

,

***** .

	-	NDE	2.2	(R2) FCA 2/20/90	Magnetic Particle Examination
	-	NDE	3.3	(R2)	Liquid Penetrant Examination Solvent Removable Visible Dye Technique
	-	NDE	4.1	(R3)	Visual Examination VT-1 Welds/Bolting/ Bushing/Washers
	-	NDE	4.3	(R2)	Visual Examination VT-3/VT-4
	-	NDE	5.1	(R5)	Ultrasonic Examination of Pressure Vessel Welds, Except Reactor Vessels
	-	NDE	5 . 2	(R4)	Ultrasonic Examination of Ferritic Piping Welds
	-	NDE	5.4	(R7)	Ultrasonic Examination of Austenitic Piping Welds
	-	NDE	5.5	(R2) FCA 2/12/90	Ultrasonic Examination of Main Coolant Piping Welds
	-	NDE	5.7	(R2) FCA 2/9/90	Ultrasonic Examination of Reactor Vessel Studs and Reactor Coolant Pump Studs
t	-	NDE	5.10	(R2)	Ultrasonic Examination of Nuts Two Inch in Diameter or Greater
	-	NDE	5.11	(R3)	Ultrasonic Examination of Dissimilar Metal Piping Welds
	-	NDE	5.13	(R3)	Ultrasonic Examination of Nozzle Inner Radius Areas
	-	NDE	5.14	(R1)	Manual Ultrasonic Examination of Reactor Vessel Welds
	-	NDE	5.16	(R3)	Ultrasonic Examination Technique for Evaluation of Cracking in Steam Generator Feedwater Piping
	-	NDE	5.19	(R0) FCA 1/29/90	Ultrasonic Examination of Socket Welds in the Pressurizer-Auxiliary Spray Line
		•			

All procedures listed above have been reviewed during previous NRC inspections. Only current revisions were reviewed during this inspection.

(2) Ultrasonic Examination (UT)

The inspector reviewed the UT procedures to ascertain whether they had been reviewed and approved in accordance with the licensee's established QA procedures. The procedures were also reviewed for technical adequacy and conformance with ASME, 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 indications; recording significant indications; and, acceptance limits.

(3) Liquid Penetrant Examination (PT)

The inspector reviewed the PT procedure to ascertain whether it had been reviewed and approved in accordance with the licensee's established QA procedures. The procedure was also reviewed for technical adequacy and conformance with ASME, Section V, Article 6, and other licensee commitments/requirements in the following areas: specified method; penetrant material identification; penetrant materials analyzed for sulfur; penetrant materials analyzed for total halogens; surface temperature; acceptable pre-examination surface conditioning; method used for pre-examination surface cleaning; surface drying time prior to penetrant application; method of penetrant application; penetrant dwell time; method used for excess penetrant removal; surface drying prior to developer application, if applicable; type of developer; examination technique; evaluation techniques; and, procedure requalification.

(4) Magnetic Particle Examination (MT)

The inspector reviewed the MT procedures to ascertain whether they had been reviewed and approved in accordance with the licensee's established QA procedures. The procedures were reviewed for technical adequacy and for conformance with ASME Section V, Article 7, and other licensee commitments/requirements in the following areas: examination methods; contrast of dry powder particle color with background; surface temperature; suspension medium and surface temperature for wet particles; viewing conditions; examination overlap and directions; pole or prod spacing; current or lifting power (yoke); and, acceptance criteria.

* * *

(5) Visual Examination (VT)

The inspector reviewed the VT examination procedures to determine whether they 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 implement used for surface preparation, if any; whether direct or remote viewing is used; 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.

b. Observation of Work and Work Activities, Unit 3 (73753)

Because the window of opportunity to observe inprocess examinations had past, the inspector reviewed records of completed work activities and reviewed certification records of NDE equipment, materials and reviewed NDE personnel qualifications for personnel that had been utilized during the required ISI examinations conducted during this outage performed on or after March 2, 1990. The reviews conducted by the inspector are documented below.

(1) Ultrasonic Examination (UT)

The inspector evaluated calibration activities and the ultrasonic examinations as indicated below. The observations were compared with the applicable procedures and the ASME B&PV Code in the following areas: availability of and compliance with approved NDE procedures; use of knowledgeable NDE personnel; use of NDE personnel qualified to the proper level; type of apparatus used; calibration requirements; search units; beam angles; DAC curves; reference level for monitoring discontinuities; method of demonstrating penetration; extent of weld/component examination coverage; limits of evaluating and recording indications; recording significant indications; and, acceptance limits.

Data Sheets Examined

5.5-28 to 5.1-34 5.2-32 to 5.2-43 5.4-48 to 5.4-60 5.5-18 to 5.5-20 5.7-10 to 5.7-11 5.10-6 5.12-2 to 5.12-3 5.13-9 to 5.13-10 5.14-2

The certification records for eleven ultrasonic instruments were reviewed.

Spectrum analysis data for twenty ultrasonic transducers were examined

Certification for one batch of ultrasonic couplant was reviewed.

The certification records for 15 ultrasonic calibration blocks, one IIW block, and four ultrasonic Rompas Blocks were reviewed.

(2) Liquid Penetrant Examination (PT)

The inspector reviewed the PT examinations indicated below. The observations were compared with the applicable procedure and the ASME B&PV Code in the following areas: specified method, penetrant materials identified; penetrant materials analyzed for halogens and sulfur; acceptable pre-examination surface; surface temperature; surface drying time prior to penetrant application; method of penetrant application; penetrant dwell time; method used for excess penetrant removal; surface drying prior to developing, if applicable; type of developer; examination technique; evaluation technique; and, reporting of examination results.

Data Sheets Examined

3.3-273 to 3.3-348

The inspector reviewed liquid penetrant materials certification records for one batch of cleaner/remover, two batches of penetrant and one batch of developer used in the examinations above to determine whether the sulfur and halogen content was with in acceptable limits.

(3) Magnetic Particle Examination

The inspector reviewed the magnetic particle examinations indicated below. The observations were compared with the applicable procedures and the Code in the following areas: examination methods; contrast of dry powder particle color with background; surface temperature; suspension medium for wet particles, if applicable; viewing conditions; examination overlap and directions; pole or prod spacing; current or lifting power (yoke); and acceptance criteria.

Data Sheets Examined

2.2-92 to 2.2-108

The inspector reviewed documentation indicating that a 10 pound lift test had been performed on magnetic particle alternating current (AC) yokes used in the examinations above. Certification records for lift test plates used in the above test were reviewed to confirm the weight of the test plates.

A review of magnetic particle material certification records for one batch wet particle suspension indicated the sulfur and halogen content of the material was within acceptable content limits.

(4) Visual Examination (VT)

The inspector reviewed the visual (VT) examinations indicated below. These observations were made to determine whether: the applicable drawings, instructions or travelers clearly specify the procedure to be used and that a copy so that procedure is available in the area where the work is being performed; personnel performing the examination are qualified to perform the assigned task; the required tools and examination aids are available at the work location; specific areas, locations, and the extent of attributes are as specified in the applicable examination procedure; defects are evaluated in accordance with the procedure requirements, correct acceptance criteria is used, and the examination results are reported in a prescribed manner.

Data Sheets Examined

4.1-107 to 4.1-136 4.3-149 to 4.3-179

The inspector conducted an independent VT examination of selected items indicated below to evaluate the adequacy of the examination procedure used by the licensee and to assess the validity of the information reported by the examiners.

Items Independently Examined

3-M-196-4	Intake Cooling Water Pipe support
3-M-196-6	Intake Cooling Water Pipe support
3-H-340-2	Auxiliary Feedwater Pipe support
3-H-340-3	Auxiliary Feedwater Pipe support
3-H-340-4	Auxiliary Feedwater Pipe support
3-IC-244-1	Containment Spray Pipe Support

(5) Examiner Qualification

The inspector reviewed the qualification documentation for the 20 examiners in the following areas: employer's name; person certified; activity qualified to perform; effective period of certification; signature of employer's designated representative; basis used for certification; and, annual visual acuity, color vision examination, and periodic recertification.

1

.

.

,

,

.

. .

Ţ

.

d. Inservice Inspection, Data Review and Evaluation, Unit 3 (73755)

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 blocks, and NDE materials (penetrants, couplants) were designated. Records selected for this review are listed below.

Data Sheets Examined

5.5-28 to 5.1-34 5.2-32 to 5.2-43 5.4-48 to 5.4-60 5.5-18 to 5.5-20 5.7-10 to 5.7-11 5.10-6 5.12-2 to 5.12-3 5.13-9 to 5.13-10 5.14-2 3.3-273 to 3.3-348 2.2-92 to 2.2-108 4.1-107 to 4.1-136 4.3-149 to 4.3-179

A sample of current examinations results were compared with historical examination results.

- e. Observations
- (1) Comparison of the 1990 Unit 3 UT data in the area of examination limitations with past examinations revealed the following limitations in 1990 data that were not reported in past examination data:

5.4-54	10"-SI-1302-1	Welded Lug
5.5-19	29"-RCS-1305-2	Seven Branch Connections
5.5-18	27.5"-RCS-1306-11	Branch Connection

The past records would leave the impression that the previous examinations were more complete than the present examinations. The licensee indicated that they would look further into the matter and take the actions necessary to assure the accuracy of past examination data and the completeness of the total ISI examination coverage.

(2) Unit three has been in operation since 1972, but to date the licensee does not have accurate approved as-built drawings of the safety-related pipe supports. Of the six pipe supports examined by the inspector only two, the inspector noted, did not deviate from

the approved drawings. The licensee indicated that the drawings provided to the inspector (Revision 0) had recently been walked down and most of the discrepant conditions noted by the inspector, (support configuration different than the drawing, missing or incorrect welds and clearances different than the drawing) had been identified by the licensee and documented in Nuclear Calculation documentation and will be included in revised drawings due to be completed in the near future.

No accurate as-built drawings were available to the examiners to perform the ISI program required VT-3/VT-4 examinations, and as such the effectiveness of those examinations is limited.

Not withstanding the licensee's walkdown of the supports, the following discrepancies were noted by the inspector and not the licensee:

- Item 8, pipe clamp is shown in the drawing to be secured to the pipe by two bolts with double nuts on each, in the field the clamp is secured to the pipe with two bolts and single nuts with less than full thread engagement.
- Item 7, welded eye rod is shown on the drawing to be secured at both ends by a rod restrained by cotter pins, in the field the rod is secured at both ends by a bolt and nut.
- (3) Procedures NDE 2.2 and CAL 4 require the "Black Light" to be calibrated by ultraviolet intensity meter calibrated by the manufacturer, a repair facility, or other facilities with traceable meters. Not withstanding the above there is no traceability from the fluorescent MT examination records to certification documentation for the meter used to calibrate the ultraviolet light.
- (4) A number of minor errors were identified with the records of examinations, some examples were as follows:
 - Number of items examined not indicated
 - MT weight Serial No. not specified
 - Transposition errors in recording serial numbers
 - MT method not identified (AC or DC)

The above minor record errors were corrected prior to the inspector's departure from the site

> έı 3

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



, **x**

3. Exit Interview

The inspection scope and results were summarized on May 11,1990, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results. Although reviewed during this inspection, proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

4. Acronyms and Initialisms

AC	- Alternating Current
ASME	- American Society of Mechanical Engineers
B&PV	- Boiler and Pressure Vessel
DAC	- Distance Amplitude Curve
FP&L	- Florida Power and Light
ID	- Identification
ISI	- Inservice Inspection
MT	- Magnetic particle
NDE	- Nondestructive Examination
No.	- Number
NRC	 Nuclear Regulatory Commission
РТ	- Liquid penetrant
QA	- Quality Assurance
QC	- Quality Control
Ŕ	- Revision
UT	- Ultrasonic
VT	- Visual