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REGION 2

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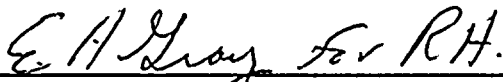
LICENSEE: FLORIDA POWER AND LIGHT
9250 West Flagler Street
Miami, Florida 33174


FACILITY NAME: TURKEY POINT POWER PLANT

INSPECTION AT: Florida City, Florida

INSPECTION CONDUCTED: January 7, 1991 to January 18, 1991

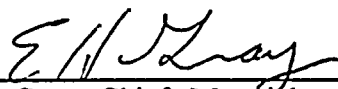
INSPECTORS: 
M. C. Modes, Project Manager NDE, Materials and Processes Section, EB, DRS date

 2/1/91
R. H. Harris, NDE Technician, Materials and Processes Section, EB, DRS date

 2-1-91
P. M. Peterson, NDE Technician, Materials and Processes Section, EB, DRS date

D. C. Wiggins; TET, Inc.; Mobile, Alabama

W. M. Mingus; TET, Inc.; Mobile, Alabama

 2/1/91
E. H. Gray, Chief, Materials, and Processes Section, EB, DRS, Region I date



Inspection Summary and Conclusions: A routine announced inspection was conducted at Turkey Point Power Plant Units 3 and 4 during the period January 7, 1991 through January 18, 1991 using the NRC's Mobile Nondestructive Examination (NDE) Laboratory . (Report No. 50-250 & 251/91-01)

Areas Inspected: Selected areas of the steam generator feedwater bypass system (SGFB), reactor coolant safety injection system (RCSI), main steam system (MS), residual heat removal (RHR), atmospheric cleanup system (AC), component cooling water system (CCW), and feedwater (FW) piping were independently examined by NDE methods. The licensee's procedures used for nondestructive evaluation and the licensee's evaluation results, including radiographs and ultrasonic test reports, were reviewed.

Results: No violations or deviations were identified in the review of the program areas examined. .

DETAILS

1.0 Persons Contacted:

Carolina Power and Light (CP&L)

* K. Remington	System Performance Supervisor
* M. Blew	ISI Coordinator
* A. Zielonka	Technical Department Supervisor
W. Blandon	Quality Manager
* L. Pearce	Plant Manager
* D. Powell	Licensing Superintendent
* J. Mack	IST Coordinator
* M. Abside	Licensing
J. O'Brien	Q.C. Superintendent
M. Huba	Engineering
T. Finn	Operations
J. Knorr	Licensing
R. Turner	ISI Staff

U.S. Nuclear Regulatory Commission

R. Butcher	Senior Resident RII
* G. Schnebli	Resident Inspector RII
* L. Trocine	Resident Inspector RII
* J. Coley	Reactor Inspector RII
* J. Blake	Chief, MPS RII
* E. Gray	Chief, MPS RI

* Denotes those attending the exit meeting on January 17, 1990

The inspector also contacted other administrative and technical personnel during the inspection.

2.0 Independent Measurements - NRC Nondestructive Examination and Quality Records Review of Safety Related Systems.

Concurrent with a refueling outage during the period January 7th through January 18th 1991, an onsite independent inspection was conducted at Florida Power and Light's (FP&L) Turkey Point Power Plant utilizing the NRC Mobile NDE Laboratory. The inspection was conducted by NRC regional based inspectors and NRC contracted NDE personnel. The objectives of this inspection were to assess the adequacy of the licensee's inservice inspection program (ISI), and welding quality control program. ASME Code pipe weldments, supports and pipe were independently

examined by various NDE methods. Included in this examination were components, welds and areas selected from the steam generator feedwater bypass system (SGFB), reactor coolant safety injection system (RCSI), main steam system (MS), residual heat removal (RHR), atmospheric cleanup system (AC), component cooling water system (CCW), and feedwater (FW) piping. This was accomplished by duplicating those examinations required of the licensee by regulations and codes, then evaluating the results.

2.1 Nondestructive Examination (NDE)

2.2 Visual Examination (57050)

Sixteen (16) safety related pipe weldments and adjacent base material (1/2 inch on either side of the weld) were visually examined in accordance with NRC procedure NDE-10, Rev. 1, Appendix A, and FP&L procedure NDE-4.3 Rev 2. Visual examination was performed of pipe systems and attached components utilizing QC documents, isometrics and as-built drawings. Examined during this inspection were ASME Class 1 and Class 3 pipe weldments selected from the SGFB, MS, RCSI, RHR, FWB and FW systems. The examination was performed specifically to identify any cracks or linear indications, gouges, leakage, arc strikes with craters, or corrosion, which may infringe upon the minimum pipe wall thickness. Mirrors, flash lights and weld gauges were used, as required, to aid in the inspection and evaluation of the weldments.

Results: No violations or deviations were identified in the review of this program area.

2.3 Liquid Penetrant Examination (57060)

Eleven (11) safety related pipe weldments and adjacent base material (1/2 inch on either side of the weld) were examined using the visible dye, solvent removable, liquid penetrant method per NRC procedure NDE-9, Rev.0, in conjunction with the licensee's procedure NDE 3.3, Rev 2. Included in this inspection were ASME Class 2 weldments selected from the RCSI and MS systems and ASME Class 2 weldments from the RHR system. Arc strikes were noted on two of the welds in the RCSI (16"-SI-341:Weld 6 and 2"-SI-1303:Weld 8). Although arc strikes are not specifically prohibited by the ASME Code they are a concern. These two welds were brought to the attention of the licensee for corrective action in keeping with their quality control program and technical specifications.

RESULTS: No violations or deviations were identified in the review of this program area.



2.4 Magnetic Particle Examination (57070)

Sixteen (16) safety related pipe weldments including the adjacent base material (1/2 inch on either side of the weld) were examined using the direct contact, magnetic particle method utilizing a solid state yoke with dry powder as the inspection medium. The examination was performed in accordance with NRC procedure NDE-6, Rev.1 in conjunction with the licensee's procedure NDE 2.2, Rev 2 (FCA) and associated QC records. Included in this examination were ASME Class 3 and ANSI B31.1 pipe weldments selected from the SGFWB, MS, and FW systems.

Results: No violations or deviations were identified in the review of this program area.

2.5 Radiographic Examination (57090)

Twelve (12) safety related pipe weldments were examined using an Iridium 192 source which resulted in thirty nine (39) radiographs being produced. The method of radiography was in conformance with the requirements of NRC procedure NDE-5, Rev.1 in conjunction with the licensee's radiographic procedure TS 9.3, Rev 1.

Results: The resulting radiographs were compared to radiographs produced by the licensee to ensure that the welds identified were the same as those identified by the NRC. The radiographs compared favorably in all cases. The licensee's radiographs revealed the same weld imperfections, flaws and anomalies as the NRC's radiographs. In three cases, original construction radiographs were obtained for the welds being analyzed. The original radiographs were fourteen years old. The original radiographs did not reveal any archival degradation and were in conformance with the requirements imposed at the time they were produced. No violations or deviations were identified in the review of this program area.

2.6 Ultrasonic Examination (57080)

Eight (8) welds in the RCSI, FW, RHR and MS systems were ultrasonically examined using a Stavely Model 136D ultrasonic flaw detector in accordance with NRC procedure NDE-1, Rev.1 and FP&L procedures for ASME weldments: NDE 5.2, Rev. 4 (Ferritic Piping) and NDE 5.4, Rev 7 (Austenitic Piping). The Stavely Model 136D was verified for linearity in

conformance with NRC procedure NDE-2, Rev 1. To obtain the greatest possible repeatability the examination was undertaken utilizing transducers and cable that matched those used by the licensee as closely as possible. The distance amplitude compensation curve was established utilizing FP&L calibration standards as listed in the table on page 9 of this report.

Results: No violations or deviations were identified in the review of this program area.

2.7 Erosion/Corrosion (57080)

Concern regarding erosion and corrosion in balance of plant piping systems has been heightened as a result of the December 9, 1986 feedwater line rupture that occurred at Surry Unit 2. This event was the subject of NRC Information Notice 86-106 issued December 16, 1986 and its supplement issued on February 13, 1987.

The licensee's actions with regard to the detection of erosion/corrosion in plant components were reviewed with respect to NUREG-1344, "Erosion/Corrosion Induced Pipe Wall Thinning in U. S. Nuclear Power Plants", dated April 1989, Generic Letter 88-08 issued May 2, 1989, and NUMARC Technical Subcommittee Working Group on Piping and Erosion /Corrosion Summary Report dated June 11, 1987.

The program, in general, follows the guidance found in the NUMARC report. The selection, trending and tracking of systems is based on the computer programs "CHEC" and "CHECMATE" developed by the EPRI NDE Center.

In addition to the program review discussed above, two areas originally inspected by the licensee were reinspected by the NRC NDE team. The results were compared and the measurements were found to be in close agreement.

Results: No violations or deviations were identified in the review of this program area.

3.0 Review Of Site NDE Procedures and Manuals.

The following Florida Power and Light procedures were reviewed in the regional office during this inspection period for compliance to the licensee's FSAR commitments, technical specifications, applicable codes, and standards.



<u>Procedure</u>	<u>Title</u>	<u>Rev.</u>	<u>Date</u>
NDE 2.2	Magnetic Particle Examination	2 FCA	5/25/88 02/20/90
NDE 3.3	Liquid Penetrant Examination Solvent Removable Visible Dye Technique	2	02/02/89
NDE 4.1	Visual Examination VT-1 for Welds/Bolting/Bushings/Washers	3	01/26/90
NDE 4.3	Visual Examination VT-3/VT-4	2	01/26/90

<u>Procedure</u>	<u>Title</u>	<u>Rev.</u>	<u>Date</u>
NDE 5.1	Ultrasonic Examination of Pressure Vessel Welds Except Reactor Vessels	5	05/23/88
NDE 5.2	Ultrasonic Examination of Ferritic Piping Welds	4	05/25/88
NDE 5.3	Ultrasonic Examination of Primary Coolant Piping Welds (PSL-1 & 2)	3 FCA	02/09/89 10/26/90
NDE 5.4	Ultrasonic Examination of Austenitic Piping Welds	7	09/14/88
NDE 5.5	Ultrasonic Examination of Main Coolant Main Piping Welds	2	01/17/86
NDE 5.8	Ultrasonic Examination of Bolting Material for Cracking	1	07/12/88
NDE 5.9	Ultrasonic Examination of Bolting Material for Corrosion	1	07/12/88
NDE 5.10	Ultrasonic Examination of Nuts Two Inches in Diameter or Greater	2	05/12/88
NDE 5.11	Ultrasonic Examination of Dissimilar Metal Piping Welds	3	05/25/88

NDE 5.16	Ultrasonic Examination Tech- for the Evaluation of Cracking in Steam Generator Feedwater Piping	3	05/23/88
NDE 5.18	Ultrasonic Thickness Measure- ment	2	02/07/90
TS 9.3	Radiographic Inspection	1	02/14/84

No violations or deviations were identified in review of the above procedures.

4.0 Synopsis Of Nondestructive Inspection Results

WELD IDENTIFICATION	SYSTEM CODE	NONDESTRUCTIVE TEST					ACCEPT/ REJECT
		RT	UT	PT	MT	VT	
5610-M-341 UNIT 4 VALVE 4-489 WELD FW-1	SGFWB				X	X	ACCEPT
	1.26 D						
5610-M-341 UNIT 4 VALVE 4-489 WELD FW-2	SGFWB	X			X	X	ACCEPT
	1.26 D						
5610-M-341 UNIT 4 VALVE 4-499 WELD FW-1	SGFWB				X	X	ACCEPT
	1.26 D						
5610-M-341 UNIT 4 VALVE 4-499 WELD FW-2	SGFWB	X			X	X	ACCEPT
	1.26 D						
16"-SI-2301 UNIT 3 VALVE 3-864B WELD 5	RCSI			X			ACCEPT
	1.26 C						
16"-SI-341 UNIT 3 VALVE 3-864B WELD 6 AGREE	RCSI			X			ARC STRIKES NOTED
	1.26 C						
16"-SI-2401 UNIT 4 TANK CONNECTION WELD 1	RCSI			X			ACCEPT
	1.26 C						
16"-SI-2401 UNIT 4 VALVE MOV-4-864B WELD 5	RCSI			X			ACCEPT
	1.26 C						
2"-SI-1303 UNIT 3 WELD 7	RCSI			X			ACCEPT
	1.26 B						

WELD IDENTIFICATION	SYSTEM	NONDESTRUCTIVE TEST					ACCEPT/ REJECT
	CODE	RT	UT	PT	MT	VT	
10"-SI-1302 UNIT 3 WELD 14 LOOP B AGREE	RCSI		X	CAL:UT-27			I.N.
	1.26 B	X		X		X	ACCEPT
8"-RHR-1303 UNIT 3 WELD 2 LOOP B AGREE	RHR		X	CAL:UT-41			ACCEPT
	1.26 B	X		X		X	ACCEPT
14"-RHR-1301 UNIT 3 WELD 9 LOOP C AGREE	RHR		X	CAL:UT-30			I.N.
	1.26 B			X		X	ACCEPT
8"-RHR-1301 UNIT 3 WELD 1 LOOP A AGREE	RHR		X	CAL:UT-41			ACCEPT
	1:26 B	X		X		X	ACCEPT
10" SUPPORT . UNIT 3 3-ACH-29 DWG 5613-H-602 AGREE	AC					X	ACCEPT
	CL B						
26" SUPPORT UNIT 3 A DWG 5613-H-654 AGREE	MS					X	ACCEPT
	CL B						
14" SUPPORT UNIT 3 3-RCH-10 DWG 5613-H-669	RHR					X	ACCEPT
	CL A						
14"-MSC-2306 UNIT 3 WELD 1 LOOP C	MS				X	X	ACCEPT
	1.26 D	X					
16" SUPPORT UNIT 3 SR-158 DWG 5613-H-596 AGREE	CCW					X	ACCEPT
	CL C						

NOTE: I.N. = Indication Noted in the Weld

WELD IDENTIFICATION PAGE 3/3	SYSTEM	NONDESTRUCTIVE TEST					ACCEPT REJECT	
	CODE	RT	UT	PT	MT	VT		
14"-MSC-2306 UNIT 3 WELD 4 LOOP C AGREE	MS	X				X	X	ACCEPT
	1.26 D							
26"-MSB-2405 UNIT 4 WELD 5 LOOP B	MS		X CAL: UT-21					I.N.
	1.26 C				X	X		ACCEPT
14" SUPPORT UNIT 4 4-SR-623 DWG 5614-H-503 AGREE	RHR						X	ACCEPT
	CL B							
14" SUPPORT UNIT 4 SR-450C DWG 5614-H-509 AGREE	RHR						X	ACCEPT
	CL B							
14" SUPPORT UNIT 4 4-SR-626 DWG 5614-H-503 AGREE	RHR						X	ACCEPT
	CL B							
16" SUPPORT UNIT 4 4-ACH-267 AGREE DWG 5614-P-501-S	CCW						X	ACCEPT
	CL C							
14" SUPPORT UNIT 4 4-FWH-26 DWG 5614-H-770 AGREE	FW						X	ACCEPT
	CL B							
14" SUPPORT UNIT 4 4-FWH-38 DWG 5614-H-770 AGREE	FW						X	ACCEPT
	CL B							
14"-FW-2401 UNIT 4 WELD 3 LOOP A	FW		X CAL: UT-20					ACCEPT
	1.26 C				X	X		ACCEPT

NOTE: I.N. = Indication Noted in the Weld

WELD IDENTIFICATION	SYSTEM	NONDESTRUCTIVE TEST					ACCEPT REJECT
	CODE	RT	UT	PT	MT	VT	
14"-MSA-2401 UNIT 4 WELD 2 LOOP A	MS	X			X	X	ACCEPT
	1.26 D						
14"-MSA-2302 UNIT 3 WELD 5 LOOP A	MS	X			X	X	ACCEPT
	1.26 D						
6"-FW-2403 UNIT 4 WELD 3 LOOP C	FWB				X	X	ACCEPT
	1.26						
14"-MSC-2405 UNIT 4 WELD 5 LOOP C	MS	X			X	X	ACCEPT
	1.26 D						
2"-SI-1303 UNIT 3 WELD 8	RCSI			X			ARC STRIKES NOTED
	1.26 B						
2"-SI-1303 UNIT 3 WELD 10	RCSI			X			ACCEPT
	1.26 B						
14"-MSA-2302 UNIT 3 WELD 2 LOOP A	MS	X			X	X	ROOT CON- CAVITY
	1.26 D						
14"-MSA-2401 UNIT 4 WELD 5 LOOP A	MS	X			X	X	ACCEPT
	1.26 D						
14"-FW-2402 UNIT 4 WELD 3 LOOP B	FW			X CAL: UT-20			ACCEPT
	1.26 C						X
14"-FW-2403 UNIT 4 WELD 3 LOOP C	FW			X CAL: UT-20			ACCEPT
	1.26 C						X

5.0 Management Meetings

Licensee management was informed of the scope and purpose of the inspection at the entrance interview on January 7, 1991. The findings of the inspection were discussed with the licensee representatives during the course of the inspection and presented to licensee management at the exit interview (see paragraph 1.0 for those who attended). At no time during the inspection was written material provided to the licensee by the inspector. The licensee did not indicate that proprietary information was involved within the scope of this inspection.