CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9601220369 DOC.DATE: 96/01/16 NOTARIZED: NO DOCKET #
FACIL:50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
AUTH.NAME AUTHOR AFFILIATION
HOVEY,R.J. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Informs NRC of change in plans w/respect to insp of Unit 4 SGs during Cycle 16 refueling outage currently scheduled to start in Mar 1996.

DISTRIBUTION CODE: A001D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 8
TITLE: OR Submittal: General Distribution

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD2-1 LA	1	1	PD2-1 PD	1	1
	CROTEAU,R	1	1			
INTERNAL:	FILE CENTER 01	1	1	NRR/DE/EMCB	1	1
	NRR/DRCH/HICB	1	1	NRR/DSSA/SPLB	1	1
	NRR/DSSA/SRXB	1	1	NUDOCS-ABSTRACT	1	1
	OGC/HDS3	1	0			
EXTERNAL:	NOAC	1	1	NRC PDR	1	1

NOTE TO ALL "RIDS" RECIPIENTS:
PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM OWFN 5D-5(EXT. 415-2083) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 12 ENCL 11

MAT

CATEGORY 1 DOCUMENT

FPL

JAN 16 1996

L-95-303

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Unit 4
Docket No. 50-251
Generic Letter 95-03 - Circumferential
Cracking of Steam Generator Tubes

The purpose of this letter is to inform you of a change in Florida Power and Light Company's (FPL's) plans with respect to inspection of the Turkey Point Unit 4 steam generators during the Cycle 16 refueling outage currently scheduled to start in March 1996.

Based on previous inspection results as presented in Attachment 1, and in accordance with the Turkey Point Technical Specifications, FPL has determined that the Turkey Point Unit 4 steam generators qualify for a 40 month steam generator inspection interval. Therefore, it is FPL's plan to forego the inspection of the Turkey Point Unit 4 steam generators during the Cycle 16 refueling outage. This will result in a change in our response to Generic Letter (GL) 95-03, "Circumferential Cracking of Steam Generator Tubes." Detailed discussions are provided below.

FPL letter L-95-175, dated June 22, 1995, documented FPL's response to GL 95-03 with respect to Turkey Point Units 3 and 4. FPL informed the NRC of its plans to inspect (1) all active tubes using conventional bobbin coil techniques, with motorized rotating pancake coil (MRPC) inspections to further characterize indications, as required; and, (2) a minimum 20% sample of dented hot leg tube support intersections and overexpanded tube transitions in one or more steam generators, with larger dents and overexpansions receiving priority. Since FPL will not perform steam generator inspections during the Cycle 16 refueling outage, the above inspections will be postponed until the Turkey Point Unit 4 Cycle 17 refueling outage currently scheduled for October 1997. Continued operation to the next scheduled steam generator inspection for Turkey Point Unit 4 during the Cycle 17 refueling outage is justified based on the fact that no circumferential cracks have been reported at Turkey Point Unit 3 and 4 or any other Model 44F steam generators with thermally treated (TT) Alloy 600 tubing, the low susceptibility to occurrence of circumferential cracks, and the scope and results

9601220369 960116
PDR ADOCK 05000251
P PDR

A001
1/1

S300T1

of previous inspections conducted. The basis for this determination is provided in Attachment 2.

Should there be any questions, please contact us.

Very truly yours,

Robert J. Hovey
Vice President
Turkey Point Plant

Attachments

cc: S. D. Ebneter, Regional Administrator, Region II, USNRC
T. P. Johnson, Senior Resident Inspector, USNRC, Turkey Point Plant

ATTACHMENT 1

TURKEY POINT UNIT 4 STEAM GENERATOR INSPECTION RESULTS

Since 1990, FPL has conducted extensive examinations in each steam generator (SG) at each refueling outage for Turkey Point Units 3 and 4. Based on previous Turkey Point Unit 4 steam generator inspection results, as presented in Table 1, and in accordance with the Turkey Point Technical Specifications, FPL has determined that the Turkey Point Unit 4 steam generators qualify for a 40 month inspection interval.

Each of the Turkey Point Unit 4 SG inspections have utilized digital multi frequency instrumentation and included (1) full length bobbin coil examination of 100% of active tubes in all steam generators, (2) visual inspection of all installed tube plugs for evidence of leakage, and (3) motorized rotating pancake coil (MRPC) examination to characterize selected bobbin coil indications, as required. MRPC techniques are also used to inspect and monitor a sample of manufacturing anomalies which affect a limited number of tubes in each steam generator, including dented tube support intersections and overexpanded tubesheet joints. The sampling in each of the inspections is provided in Table 2 below. These inspections exceed Turkey Point Units 3 and 4 Technical Specification requirements and the Electric Power Research Institute (EPRI) "PWR Steam Generator Examination Guidelines."

Two examination improvements have been implemented since the April 1991 examination: (1) the use of high-performance (low-loss) probe extension cables for improved signal to noise discrimination; and, (2) the change from .080" to .115" MRPC probe heads for improved detection of defects on the tube outer diameter. No corrosion-related degradation or cracking has been detected in the Turkey Point Unit 3 or 4 steam generators or in any Westinghouse Model 44F steam generator with thermally treated Alloy 600 tubing. In addition, secondary side tube deposits, which may interfere with crack detection, are not present in the Turkey Point Unit 4 steam generators.

Minor anti-vibration bar (AVB) wear as a result of in-service degradation has been observed at Turkey Point Unit 4. The results of SG inspections with respect to AVB wear are presented in Table 3 below. This information shows the maximum projected penetration due to AVB wear expected at the Cycle 17 refueling outage is < 40% of nominal tube wall. Therefore, AVB wear will not adversely impact the safe operation of Turkey Point Unit 4 through the Cycle 17 refueling outage.

TABLE 1

TURKEY POINT UNIT 4 SG TUBE INSPECTION RESULTS [1]				
	INSPECTION DATE & CATEGORY[2]			INSPECTION INTERVAL[3]
SG	4/91	4/93	10/94	
A	C-1	C-1	C-1	40 MONTHS
B	C-1	C-1	C-1	40 MONTHS
C	C-1	C-1	C-1	40 MONTHS

(1) 100% of active tubes in all SGs were inspected full length in each inspection.
(2) Per Plant Technical Specifications Section 4.4.5.2.
(3) Per Plant Technical Specifications Section 4.4.5.3.a.

TABLE 2

TURKEY POINT UNIT 4 PAST INSPECTION SCOPE AND RESULTS				
END OF CYCLE (MONTH/ YEAR)	FULL LENGTH BOBBIN EXAM	HOT LEG MRPC OVEREXP[1]	HOT LEG MRPC DENTS[1]	# TUBES PLUGGED[1]
12 (4/91)	100%	74%[2]	0%	1
13 (4/93)	100%	85%[2]	0%	0
14 (10/94)	100%	12%[2]	54%[2]	0

1 - No corrosion related damage was reported.
2 - In 1 SG.

TABLE 3

ANTI-VIBRATION BAR (AVB) WEAR PROGRESSION
TURKEY POINT UNIT 4 INSPECTIONS (4/91, 4/93 and 10/94)
ECT DATA COMPARISON - INDICATIONS 1% - 39%

SG	Row	Col	Location	EOC 12 (04/91) %	EOC 13 (04/93) %	EOC 14 (10/94) %	Projected Wear Progression Cycles 15 & 16	EOC 17 10/97 % Proj.	Comments
A				N/A	N/A	N/A	None to Low	N/A	No wear reported in past three cycles.
B	45	41	AV4 0.0	19	INF	NDD	Low	< 20	Note 1
B	45	42	AV2 0.0	NDD	22	INF	Low	< 20	Note 2
B	45	43	AV2 0.0	NDD	23	INR	Low	< 20	Note 3
B	45	48	AV4 0.0	21	24	INF	Low	< 20	Notes 1 & 2
C	22	7	AV2 0.0	NDD	11	20	Moderate	< 40	6%-8% per cycle
C	32	70	AV1 0.0	NDD	22	20	Low-Moderate	< 30	2%-6% per cycle
C	37	72	AV3 0.0	NDD	23	INR	Low	< 20	Note 3
C	27	81	AV1 0.0	NDD	20	INR	Low	< 20	Note 3
C	26	82	AV1 0.0	NDD	20	INR	Low	< 20	Note 3

NOTES:

1. Apparent overcall 04/91
2. Apparent overcall 04/93
3. Data analysis guideline change to be consistent with EPRI SG Guidelines in 10/94
4. EOC = End of Cycle
5. NDD = No Detectable Defect
6. INF = Indication Not Found
7. INR = Indication Not Reportable
8. Detection threshold for AVB wear is approximately 20% throughwall. Reporting may be inconsistent for shallow penetrating indications.

ATTACHMENT 2

NRC GENERIC LETTER 95-03
CIRCUMFERENTIAL CRACKING OF STEAM GENERATOR TUBES

BACKGROUND

Generic Letter (GL) 95-03, "Circumferential Cracking of Steam Generator Tubes," was issued by the NRC on April 18, 1995, to notify licensees of steam generator tube inspection findings at Maine Yankee Atomic Power Station and the safety significance of these findings. The NRC requested that licensees take recommended actions which will provide assurance that steam generator tube degradation will be reliably detected so that the potential for steam generator tube rupture is maintained at an acceptable level. By letter L-95-175, dated June 22, 1995, FPL provided its response to GL 95-03 for Turkey Point Units 3 and 4. The following discussion provides a summary of the important issues addressed by our response.

DISCUSSION

The Turkey Point Units 3 and 4 steam generators (SGs) were replaced in 1982 and 1983, with Westinghouse Model 44F SGs. The replacement SGs have thermally treated (TT) Alloy 600 tubing, full depth hydraulic tubesheet expansion joints and stainless steel broached tube support plates. While circumferential cracking has been reported in several models of Westinghouse SGs, no circumferential cracks have been reported in Model 44F SGs with TT Alloy 600 tubing, which includes Turkey Point. Circumferential cracks have occurred mainly in units with alloy 600 mill annealed tubing and partial depth hardroll, full depth hardroll, or Wextex tubesheet joint designs. The circumferential cracks have been located almost entirely at tube expansion transitions at the top of the tubesheet and at small radius U-bends. All active small radius U-bends have been inspected in each of the past three inservice inspections using bobbin coil techniques. There are no manufacturing or operational conditions related to small radius U-bends at Turkey Point Units 3 and 4 or in other Model 44F SGs which would require additional inspections for this area. In addition, the Turkey Point Units 3 and 4 SGs do not contain sleeves of any design.

Previous Inspections

As previously stated in Attachment 1, no corrosion-related degradation or cracking has been detected in the Turkey Point Unit 3 or 4 steam generators or in any Westinghouse Model 44F steam generator with thermally treated Alloy 600 tubing.

Surveillance Interval Justification

Turkey Point Unit 4 has a low susceptibility to occurrence of circumferential cracks. Previous inspections meet or exceed Turkey Point Units 3 and 4 Technical Specification requirements and the EPRI "PWR Steam Generator Examination Guidelines." Conventional MRPC techniques have been qualified for detection of circumferential cracking under Appendix H of the EPRI "PWR Steam Generator Examination Guidelines," since 1992. Available pulled tube and burst test data provided by utility owners groups and Nuclear Steam Supply System (NSSS) vendors indicate that structural limits have not been violated.

No circumferential cracking has been reported in any of the identified susceptible areas for Model 44F SGs with TT Alloy 600 tubing, which includes Turkey Point Units 3 and 4. Therefore, MRPC inspections for circumferential cracking at Turkey Point Units 3 and 4 focus on manufacturing anomalies. These include minor denting at tube support intersections and slight overexpansion of the tube transition at the top of the tubesheet in a limited number of tubes. These anomalous conditions produce residual stress in the affected locations which would make them more susceptible to cracking than non-dented or non-overexpanded areas. MRPC techniques have been used to sample these anomalous conditions for circumferential cracking. The extent of sampling is shown in Table 2 of Attachment 1. No circumferential cracks have been detected in any of these inspections.

All active tubes (including small radius U-bends) have been inspected in each of the past three inservice inspections using bobbin coil techniques. There are no anomalous manufacturing or operational conditions related to small radius U-bends at Turkey Point Units 3 and 4, or in other Model 44F SGs, which would require additional inspections for this area.

In addition, Turkey Point maintains a stringent water chemistry program in accordance with industry standards, including on line monitoring and response procedures, to mitigate tube degradation. The SGs are monitored closely for leakage during operation and shutdown periods. There has been no leakage from the SGs due to corrosion since the SGs were replaced in 1982 and 1983. Operators are trained to identify conditions which may indicate a SG tube leak. In the event that a tube leak occurs, Turkey Point has operator training programs, simulator exercises, and procedures in place to mitigate the consequences of failed tubes.

FPL plans to perform SG inspections during the Turkey Point Unit 4 Cycle 17 refueling outage currently scheduled to start in October 1997. The SG inspections are planned to include (1) full

length bobbin coil inspection of all active tubes (i.e., 100%) and (2) MRPC inspections to further characterize indications as required. Conventional MRPC techniques will be used to examine a minimum 20% sample of dented hot leg tube support intersections and overexpanded tube transitions in one or more SGs, with larger dents and overexpansions receiving priority.

Summary

Based on previous inspection results, and in accordance with the Turkey Point Technical Specifications, FPL has determined that the Turkey Point Unit 4 steam generators qualify for a 40 month steam generator inspection interval. Steam generator inspections originally scheduled for the Cycle 16 refueling outage will be conducted during the Turkey Point Unit 4 Cycle 17 refueling outage currently scheduled for October 1997. Postponement of the steam generator inspections for Turkey Point Unit 4 to the Cycle 17 refueling outage does not pose a threat to the health and safety of the public and is justified based on the fact that (1) existing degradation (AVB wear) will not adversely impact the safe operation of the plant through Cycle 17, (2) no circumferential cracks have been reported at Turkey Point Units 3 and 4 or any other Model 44F with TT Alloy 600 tubing, (3) the low susceptibility to occurrence of circumferential cracks, and (4) the scope and results of previous inspections conducted.