

50-258

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TO: Mr Lear G.

FROM: Florida Power & Light Co
Miami, Fla.
R E Uhrig

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DESCRIPTION

Ltr re Amdt #20 to the License issued 12-3-76
.....furnishing addl info re steam generator
operation....w/atctch list of references.....

4p

PLANT NAME: Turkey Pt #4

ENCLOSURE

ACKNOWLEDGED

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SAFETY

FOR ACTION/INFORMATION

ENVIRO

2-2-77

ehf

ASSIGNED AD:		ASSIGNED AD:
BRANCH CHIEF:	Leav (5)	BRANCH CHIEF:
PROJECT MANAGER:	Elliot	PROJECT MANAGER:
LIC. ASST. :	Parrish	LIC. ASST. :

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<input checked="" type="checkbox"/> ACRS 16 CYS HOLDING SENT	As CAT 2	1/31/77

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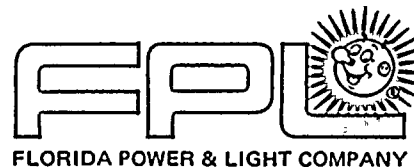
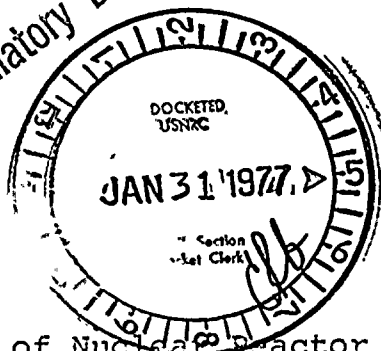
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Regulatory Docket File

P. O. BOX 013100, MIAMI, FL 33101



January 21, 1977
L-77-29

Office of Nuclear Reactor Regulation
Attn: George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Lear:

Re: Turkey Point Unit 4
" Docket No. 50-251
Steam Generator Operation



On December 3, 1976, the Nuclear Regulatory Commission issued Amendment 20 to Operating License DPR-41. Amendment 20 added a new Paragraph 3.D as follows:

- "D. Steam Generator Operation
Turkey Point Unit No. 4 shall be brought to a cold shutdown condition within 60 equivalent days of operation from December 3, 1976, unless the Nuclear Regulatory Commission grants prior approval for continued operation. For the purpose of this requirement, equivalent operation is defined as operation with a primary coolant temperature greater than 350°F."

Since December 3, Florida Power & Light Company (FPL) has submitted considerable information on the subject of steam generator tube integrity as it applies to Turkey Point Units 3 and 4 (References 1-5). The submittals were based on the results of extensive steam generator inspections and analytical work performed by FPL and Westinghouse Electric Corporation. The most significant results are summarized below:

- (1) Intergranular stress-assisted cracking of steam generator tube U-bends has been confined to Row 1 tubes. This has been verified by steam generator Eddy Current inspections and more detailed laboratory examinations which have been performed for Turkey Point Units 3 and 4 and for other affected units. There has been no evidence of intergranular cracking in the U-bends of tubes in rows other than Row 1.

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- (2) FPL has initiated a program of preventive tube plugging, i.e., all Row 1 tubes in all 3 steam generators of both Turkey Point Units 3 and 4 have been plugged to preclude the possibility of tube leaks caused by intergranular cracking in the U-bends of those tubes.
- (3) Calculations performed by the steam generator manufacturer (Westinghouse) have shown that the U-bend strain levels in Rows 2 and beyond are significantly less than the strain levels which resulted in cracking Row 1 tubes.
- (4) Assuming that flow slot hourglassing progressed until the slots were fully closed, the maximum strain imposed on any unplugged tube (Note: all Row 1 tubes are plugged) would still be less than the strain imposed on uncracked Row 1 tubes. In other words, the projected maximum strain for all tubes (excluding Row 1) will be less than a value that has been shown by laboratory examinations to be insufficient to cause cracking.
- (5) Analyses have been performed to evaluate the effects of full closure of the flow slots on the average tube denting rate, on shell integrity, and on the deformation of the tube support plates and wrapper. The analyses show that there are no significant adverse effects.
- (6) Projections of flow slot hourglassing show that continued operation of Unit 4 until the next refueling (May, 1977) will result in less flow slot closure in the top support plate than has already been observed at Virginia Electric Power Company's (VEPCO) Surry Unit 1 and as stated previously where laboratory examinations showed the absence of cracks in Rows 2 and 3.

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Based on the foregoing, we conclude that, for the remainder of Cycle 3, flow slot deformation will not cause significant additional strain in the U-bends of tubes beyond Row 1, and the likelihood for the initiation of intergranular cracking in tubes beyond Row 1 is minimal. Therefore, we request that you grant approval for continued operation of Turkey Point Unit 4 beyond the time limit specified in Amendment 20 to Operating License DPR-41.

A steam generator inspection program is being developed for use during the upcoming Unit 4 refueling. The purpose of the program will be to provide further assurance of the continued integrity of the steam generator tubes in Row 2 and beyond.

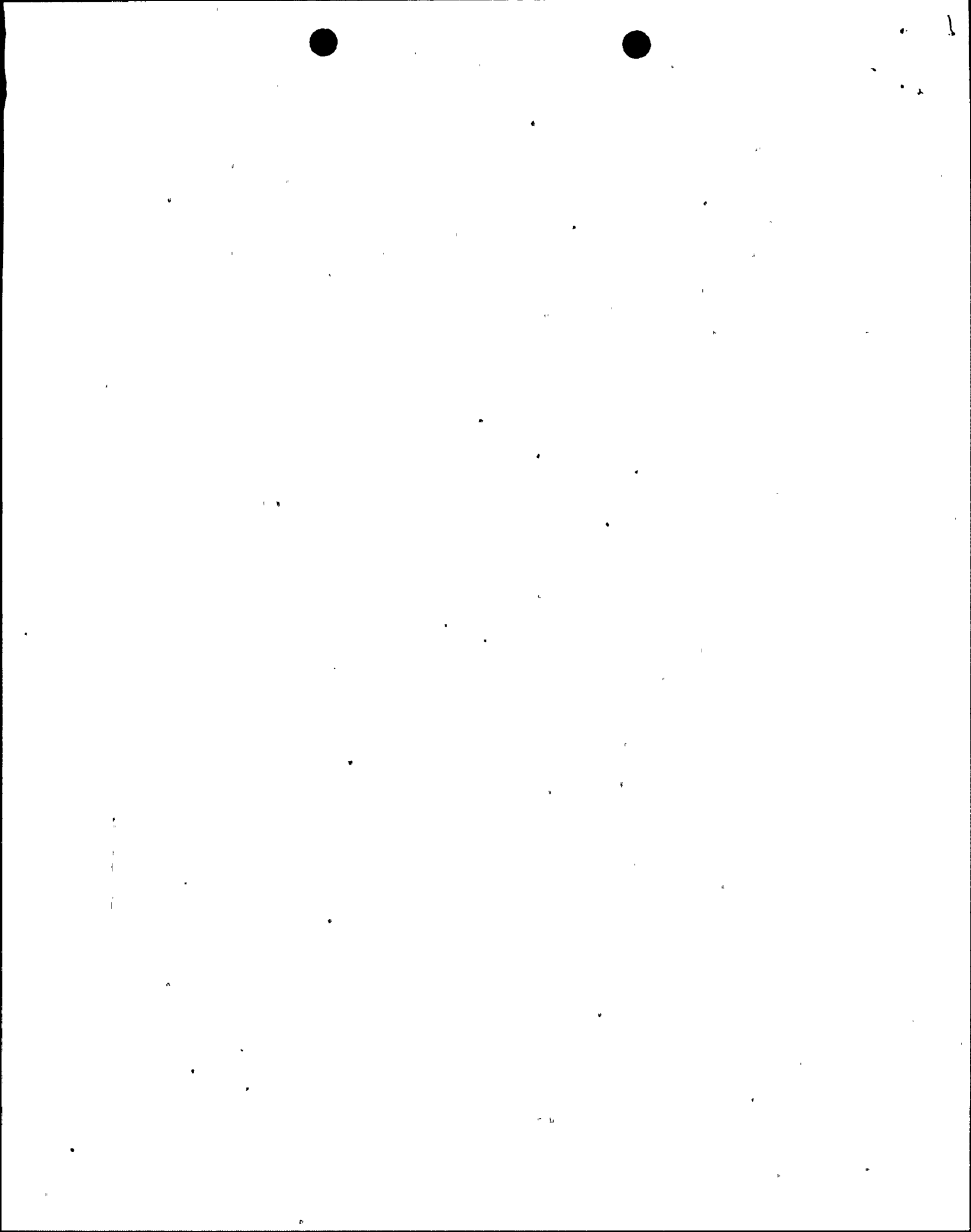
Very truly yours,



Robert E. Uhrig
Vice President

REU/MAS/hlc

cc: Norman C. Moseley, Region II
Robert Lowenstein, Esq.



ATTACHMENT

REFERENCES

1. Letter L-76-431 (Unit 3 Steam Generator Inspection Results) from Robert E. Uhrig (FPL) to George Lear (NRC) dated December 21, 1976.
2. Letter L-76-432 (Units 3 and 4 Steam Generator Tube Integrity) from Robert E. Uhrig (FPL) to George Lear (NRC) dated December 22, 1976.
3. Letter L-76-434 (Units 3 and 4 Steam Generator Tube Integrity Supplemental Information) from Robert E. Uhrig (FPL) to George Lear (NRC) dated December 30, 1976.
4. Letter L-77-3 (Units 3 and 4 Steam Generator Tube Integrity Supplemental Information) from Robert E. Uhrig (FPL) to George Lear (NRC) dated January 3, 1977.
5. Letter L-77-30 (Units 3 and 4 Steam Generator Tube Integrity Supplemental Information) from Robert E. Uhrig (FPL) to George Lear (NRC) dated January 21, 1977.

