February 8, 1977

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Docket No. 50-251

Florida Power & Light Company
ATTN: Dr. Robert E. Uhrig
Vice President
P. O. Box 013100
Miami, Florida 33101

Gentlemen:

Enclosed is a signed original of an Order for Modification of License, dated February 8, 1977, issued by the Commission for Turkey Point Unit No. 4. This Order amends Facility Operating License DPR-41, and permits continued operation of Turkey Point Unit No. 4 for 120 equivalent days from February 8, 1977 or until the end of the current fuel cycle whichever occurs first. This Order also contains other limitations for operation of Unit No. 4.

A copy of the Order is being filed with the Office of the Federal Register for publication.

Sincerely,

George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors

Enclosure:
Order for Modification
of License

cc w/enclosure:
See next page

2/8/77

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cc:

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Florida International University
Miami, Florida 33199

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
FLORIDA POWER AND LIGHT COMPANY	)	Docket No. 50-251
	)	
Turkey Point Plant Unit No. 4	)	

ORDER FOR MODIFICATION OF LICENSE

I.

The Florida Power and Light Company (the Licensee), is the holder of Facility Operating License No. DPR-41 which authorizes the operation of the nuclear power reactor known as Turkey Point Unit No. 4 (the facility) at steady state reactor power levels not in excess of 2200 thermal megawatts (rated power). The facility is a pressurized water reactor (PWR) located at the Licensee's site in Dade County Florida.

II.

On December 3, 1976 the staff issued Amendment No. 20 to License No. DPR-41 that addressed operation of Turkey Point Unit No. 4 under conditions in which some steam generator tubes have been plugged as a result of denting caused by corrosion of the tube support plate in the annular spaces where the tubes penetrate the tube support plate. Amendment 20 limited operation to 60 equivalent days unless prior approval was granted by the NRC. The licensee has since that time submitted additional information concerning structural integrity of the steam generator tube support plates and steam generator tubes. The NRC staff has evaluated this supplemental information and has assessed continued safe operation of the facility. This evaluation is set forth in the staff's Safety Evaluation Relating to Steam Generator Tube Integrity which is being finalized. The staff's conclusions are described in this Order.

With the tubes in row 1 plugged, combined growth of the upper tube support plate over a period of some months will result in stresses below those which would cause the onset of stress corrosion cracking in the U-bend region of tubes in row 2 and beyond. Although there will be increased stress in the tube support plate as a result of tube support plate growth, the staff has concluded that neither buckling of the tube support plate nor damage to the steam generator shell, through loads on the wrapper and channel spacer, would develop.

Continued growth of the tube support plate continues to impose stresses on the tubes and may result in the development of stress corrosion cracks in denting locations. The staff has considered the effect of the development of stress corrosion cracking during the course of operation of this facility, and has assessed the effect of such cracks in conjunction with steam line break and loss of coolant accident events. The staff has concluded that under the additional limitations on tube leakage set forth in this order, the effect of continued denting on the consequences of the steam line break event would be a fraction of Part 100, and the effect on continued denting on LOCA events would not be significant. These events are of extremely low probability, and would be especially so for the limited period covered by this Order.

The additional limitations set forth in this Order will provide reasonable assurance that the public health and safety will not be endangered.

After discussion with the staff the licensee has proposed to modify the limitations applicable to this facility in the manner set forth in this Order. The NRC staff believes that the licensee's actions, under the circumstances, are appropriate and should be confirmed by NRC order.

Copies of the following documents are available for public inspection in the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. 20555 and at the Environmental and Urban Affairs Library, Florida International University, Miami, Florida: (1) the licensee's submittal dated January 21, 1977, as supplemented by letters dated December 22, 1976, December 30, 1976, January 3, 1977, January 21, 1977 and February 2, 1977, (2) Amendment No. 20 to License DPR-41 dated December 3, 1976, (3) This Order for Modification of License, In the Matter of Florida Power and Light Company (Turkey Point Plant, Unit No. 4), Docket No. 50-251.

III.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's Rules and Regulations in 10 CFR Part 2 and 50, IT IS ORDERED THAT Facility Operating License No. DPR-41 is hereby amended by the following new provisions:

1. Unit No. 4 shall be brought to the cold shutdown condition in order to perform an inspection of the steam generators at the end of the current fuel cycle or within 120 equivalent days of operation from February 8, 1977, whichever occurs first. Nuclear Regulatory

Commission approval shall be obtained before resuming power operation following this inspection.

For the purpose of this requirement, equivalent operation is defined as operation with a primary coolant temperature greater than 350°F.

2. Primary system leakage shall be limited to 1.0 gpm and primary to secondary leakage through the steam generator tubes shall be limited to 0.3 gpm per steam generator as described in the Safety Evaluation. With any primary system leakage greater than this limit the reactor shall be brought to the cold shutdown condition within 24 hours.

3. Reactor operation will be terminated if primary to secondary leakage which is attributable to 2 or more tubes occurs during a 20 day period. Nuclear Regulatory Commission approval shall be obtained before resuming reactor operation.

4. The concentration of radioiodine in the primary coolant shall be limited to 1 uCi/gram during normal operation and to 30 uCi/gram during power transients as defined in the Safety Evaluation.

5. Prior to any facility operation beyond the period authorized by the Order the information requested in Appendix A to this Order will be supplied by the licensee.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/

Ben C. Rusche, Director
Office of Nuclear Reactor Regulation

Dated in Bethesda, Maryland
this 8th day of February 1977

APPENDIX A

REQUEST FOR INFORMATION

1. The licensee should correlate the effects of tube support plate expansion on the strain in the tubes in the "hard spot" regions, develop a plugging criteria before and after flow slot closure and provide the basis for the plugging criteria.

2. Provide an estimate of U-bend residual stresses for tubes in rows 2, 3, and 4.

3. Results of steam generator inspection after completion of current fuel cycle should quantify: (1) the flow slot displacement at the bottom tube support plate, (2) the number and severity of dented tubes, and other types of tube degradation, and (3) the extent of tube support plate cracking.

4. A summary of the Westinghouse experimental programs regarding denting, intergranular stress assisted corrosion, corrosion rate, etc., the results to date, and the schedules and milestones for future work or implementation of any further plugging should be provided.

5. Provide the manufacturing specifications and manufacturing processes for the Turkey Point steam generator tubes. In particular the U-bending and chemical treatment processes are required.

6. Provide main steam line break and loss of coolant accident consequences analysis and the justification for an assumed number of tube failures concurrent with the event and resultant leakage.