

MAY 3 1977

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 May 3, 1977, issued by the Commission for Turkey Point Unit No. 4. This Order supplements our Order for Modification of License dated February 8, 1977, and grants approval for the resumption of reactor operation. This Order retains in force: (1) the requirement that Unit No. 4 be brought to cold shutdown 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 and (2) the additional operating limitations, contained in our Order dated February 8, 1977 (as supplemented by our Safety Evaluation dated February 11, 1977).

A copy of the Order is being filed with the Office of the FEDERAL REGISTER for publication.

Sincerely,

Original signed by

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

Enclosure:  
Order for Modification  
of License

cc: See page 2

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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 May 2, 1977, issued by the Commission for Turkey Point Unit No. 4. This Order supplements our Order for Modification of License dated February 8, 1977, and grants approval for the resumption of reactor operation. This Order retains in force: (1) the requirement that Unit No. 4 be brought to cold shutdown 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 and (2) the additional operating limitations, contained in our Order dated February 8, 1977 (as supplemented by our Safety Evaluation dated February 11, 1977).

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

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On March 20, 1977, the unit was shut down to plug a leaking tube in steam generator C of Unit No. 4. During this outage, a second leaking tube was discovered and was also plugged. The tube leaking incident was first observed in mid-February and progressed very slowly over a period in excess of one month. The leakage behaved in a predicted fashion and had no safety consequences not previously evaluated.

After discussions with the NRC staff, with respect to the licensee's assessment that continued facility operation with the identified leaks plugged would not endanger public health and safety and did not require specific approval under the provisions of the Order, the Unit was returned to operation on March 25, 1977.

On April 25, 1977, the licensee informed the NRC that they had detected another leak with an equivalent leakage rate of about 0.04 GPM. By April 27, 1977, the leakage rate had progressed to 0.14 GPM and the Unit was shutdown for investigation. On April 28, 1977, the NRC staff was informed that the leaking tubes were identified on the C steam generator (row 2 - column 47, row 2 - column 61 and row 3 - column 62). These three tubes are located near the inner tube lane in a "hard spot" between flow slots. The elevations of these leaks have been determined to be at the fourth and the fifth support plates.

By letter dated April 29, 1977, the licensee submitted: (1) results of their inspection of the three leaking tubes and (2) their safety evaluation of the latest tube leak incident. In addition, the licensee requested NRC approval to resume power operation for the remaining fuel cycle, which was estimated to be about fifteen (15) equivalent days. The NRC staff has reviewed the submitted information and concurs that the resumption of power operation by Turkey Point Unit No. 4 will not present a significant risk to the public health and safety.

The information developed by the licensee's inspection indicates that the leaks are attributed to tube denting. The leaking tubes are located in "hardspot" regions where tube denting is predicted to be more severe than in other areas of the tube bundle. The leaks were located at about the level of the tube support plates.

All leaks associated with dented tubes experienced to date have been small, well below the leakage limits established by license condition or Technical Specification. The leakage rate progresses slowly and is detectable. Tube cracks which result from severe denting are constrained within the tube support plates; and, thus, any leaks caused by this type of crack will be limited even under accident conditions.

Although there may be an additional leak that may develop during operation during the remaining short period until the scheduled refueling outage, the limits on primary to secondary leakage rate will assure that such leaks do not become large enough to be unstable under accident loadings.

Moreover, the probability of having either a loss-of-coolant-accident or a main-steam-line-break accident is estimated to be extremely low in the fifteen (15) days remaining in the fuel cycle. For these reasons there is reasonable assurance that until the forthcoming refueling outage (scheduled to commence in about 15 days), continued operation will not endanger the health and safety of the public.

Of more significance in the long term is the need to carefully assess the condition of the steam generators and to determine to the extent possible causes for the continuing occurrences of leakage in the facility. FP&L has proposed to conduct a thorough inspection and evaluation of the steam generators during the forthcoming refueling outage. The proposed program has been and continues to be discussed with the NRC staff to assure staff concurrence with the program. In this connection, FP&L originally attributed the March leak to corrosive conditions in the area between the first tube support plate and the tubesheet, whereas the most recent leaks were attributed to denting. Since these two different conditions require different assessments and treatment, it is important to identify the causes of leaks which have occurred. After discussions with the staff, the licensee has committed to pull and metallurgically evaluate at least one tube from a steam generator from Unit No. 4 during the forthcoming refueling outage. The entire tube should be pulled and should be metallurgically examined at each area of suspected degradation but at least at each tube/tube sheet or tube/support plate intersection. Preferably the selected tube should be R-45C53 in Steam Generator C, the tube which leaked in March. If this tube cannot reasonably be removed, a tube which has experienced a leaking dent is to be pulled and metallurgically examined, as described above instead.

This examination will provide an important contribution to the identification of the causes of leakage in Turkey Point Unit No. 4 and will substantially enhance the ability to assess the safety significance of such leakage.

Based on our review as discussed above, the staff has determined that the time and operating limitations contained in our Order of February 8, 1977 (as supplemented by the Safety Evaluation dated February 11, 1977) will provide reasonable assurance that the public health and safety will not be endangered by continued operation of Unit No. 4. The NRC staff believes that we should confirm by an Order, which supplements our Order of February 8, 1977, our approval for Unit No. 4 to resume operation.

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 April 29, 1977, (2) the Order for Modification of License, In the Matter of Florida Power and Light Company (Turkey Point Plant Unit No. 4), Docket No. 50-251 dated February 8, 1977, (3) our Safety Evaluation Report applicable to our Order dated February 8, 1977, dated February 11, 1977 and (4) 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.

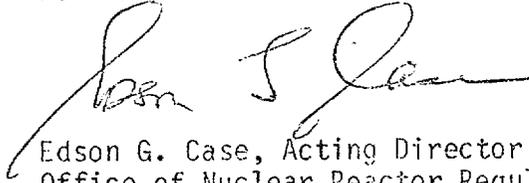
Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's Rules and Regulations in 10 CFR Part 2 and 50, IT IS ORDERED THAT Facility Operating License No. DPR-41 is hereby amended by granting approval for the resumption of reactor operation in accordance with the provisions of our Order for Modification of License dated February 8, 1977 provided that the reactor is operated within the following 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. Unit No. 4 shall be operated within the additional operating limitations and provisions listed in our Order for Modification of License dated February 8, 1977 (as supplemented by our Safety-Evaluation Report dated February 11, 1977).

FOR THE NUCLEAR REGULATION COMMISSION



Edson G. Case, Acting Director  
Office of Nuclear Reactor Regulation

Dated in Bethesda, Maryland  
this 3rd day of May 1977.