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SUBJECT:
FURNISHING INFO CONCERNING WESTINGHOUSE"S PURSUIT TO ENSURE THE EXPLOSIVE TUBE PLUGGING PROCESS FOR REMOVING STEAM GENERATOR TUBES FROM SVC OF SUBJECT FACILITY.

PLANT NAME: TURKEY PT #4

REVIEWER INITIAL: XJM
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P.O. BOX 013100, MIAMI, FL 33101

FPL
FLORIDA POWER & LIGHT COMPANY

May 23, 1978
L-78-173

Director of Nuclear Reactor Regulation
Attention: Mr. Victor Stello, Director
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Stello:

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

Our letter of March 21, 1978, L-78-98, summarized the events surrounding the discovery of a steam generator tube plug in the channel head of 4A steam generator during the last unit 4 steam generator inspection. In that letter, we committed to review the steam generator tube plugging program and to report to you the conclusions of our review. This letter fulfills that commitment.

We have completed a review of the explosive tube plugging program as it is implemented at Turkey Point Units 3 and 4, and we found that the program is regularly reviewed and improved based on field experience. We have concluded that the tube plugging program provides an acceptable method of removing steam generator tubes from service, so as to protect the health and safety of the public while minimizing personnel exposure.

The below listed items are representative of the action Westinghouse is pursuing to ensure that the explosive plugging process and its field application are such that the explosive plugging system is the best system available to ensure a reliable and durable seal of steam generator tubes while minimizing personnel exposure and unit down time.

1. Westinghouse is pursuing a vigorous internal auditing program to ensure procedural compliance during explosive plugging operations. The last internal Westinghouse audit conducted at the Florida Power and Light Turkey Point Site was conducted from December 16, 1977 to January 4, 1978.

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2. Westinghouse is currently in the final phases of approving a comprehensive non-proprietary procedure to formalize into one document several advisory letters concerning field application of the process specification.

3. Westinghouse recently reached an agreement with one of its suppliers which has allowed the complete declassification of the explosive plugging process thus making it easier for customer QA to audit Westinghouse's performance.

4. Westinghouse maintains qualification records and documents proficiency of its explosive blasters to ensure that only competent and qualified explosive blasters are sent to the field. Recent changes in the record keeping methods have been made to assure full compliance with the ASME code.

5. Westinghouse has recently improved its filing systems to improve retention and access to pertinent material concerning its field service work. Serialized logbooks are also used to improve control of field service efforts.

6. Westinghouse has expended significant effort during the past year to develop statistics on leaking explosive plugs to monitor and continuously evaluate the effectiveness of the process and its application.

7. Westinghouse recently implemented an improved comprehensive system for plug accountability from time of manufacture until installation at a plant site.

8. Westinghouse has an ongoing R&D effort to improve the implementation of current processes and to develop alternate effective and reliable systems for sealing steam generator tubes while maintaining radiation exposure as low as reasonably achievable.

Additionally, Florida Power & Light Company Q/A and Q/C personnel perform inspections and audits to ensure that the Westinghouse explosive plugging process is being properly implemented. This includes photographic inspections of the tubesheets prior to and at the conclusion of tube plugging operations. This assures correct implementation of the intended plugging pattern and establishes that previously installed plugs are remaining in position. Based upon review, procedural modifications will be implemented to ensure detecting a plug in the unlikely event it might fall out during the course of an outage.

The revised procedures will require that the tube sheet photographs taken at the completion of planned tube plugging operations be reviewed to ensure that all the correct tubes are plugged. Any discrepancies will be investigated and any necessary corrective action taken before resuming power operation. Although not then required by procedure, the photographs taken at the completion of the March steam generator tube plugging operation were reviewed to ensure all the correct tubes were plugged prior to the return of the unit to power.

The revised procedure will also require that positive steps be taken to verify that the correct tubes have been plugged during an unplanned tube plugging operation. These steps will normally involve an examination of tube sheet photographs, however an examination of the tube sheet may also be performed to verify that the correct tubes have been plugged during the operation.

The potential for plugs becoming loose was evaluated with the following results:

1. The occurrence of plugs becoming loose are very remote (the total Westinghouse experience shows less than 5 plugs have become loose, out of 15,000 total plugs).

2. Unfired plugs represent the most credible cause for plugs which become loose. (FPL has confirmed that the loose plug discovered at Turkey Point Unit 4, in March, was never fired.)

3. The only credible mechanism for plugs not firing is the inadvertent, undetected pulling out of the primacord from a plug that has been placed in the S/G tube. While statistics verify that these occurrences have been extremely remote, additional procedural improvements being implemented by Westinghouse will further reduce probability for occurrence.

In summary, Florida Power & Light Company has concluded that the Westinghouse explosive plugging technique provides a technically sound plugging process which also minimizes radiation exposure and Unit down time. Additionally, we have concluded that the plugging program is receiving adequate attention both at Westinghouse and FPL to ensure that it remains an effective and safe method. We will continue to look for areas where

modifications can be made to further improve the reliability of the process and to reduce personnel exposure during the plugging process.

If you should have any questions on this matter, please call me.

Very truly yours,

Robert E. Uhrig
Vice President

REU:RJA:GDW:sl

cc: Mr. James P. O'Reilly, Region II
Robert Lowenstein, Esquire