FPL

FLORIDA POWER & LIGHT COMPANY

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L-85-255

Dr. J. Nelson Grace
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission
101 Marietta Street N.W., Suite 2900
Atlanta, Georgia 30303

Dear Dr. Grace:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Inspection Report 250-85-09 and 251-85-09

Florida Power and Light Company has reviewed the subject inspection report and a response is attached.

There is no proprietary information in the report.

Very truly yours,

J. W. Williams, Jr.
Group Vice President
Nuclear Energy Department

JWW/JA/ms/
Attachment

cc: Harold F. Reis, Esquire

IE01 1/1

ATTACHMENT

Re: Turkey Point Units 3 and 4
Docket No. 50-250, 50-251
IE Inspection Report 250-85-09 and 251-85-09

FINDING 1:

Title 10, Code of Federal Regulations, Appendix B, Criterion V, as implemented by paragraph 5.1 of the accepted quality assurance program, requires activities affecting quality to be accomplished in accordance with procedures, and those procedures to contain appropriate acceptance criteria. American National Standards Institute's (ANSI) Standard ANSI B31.1 (1977), Paragraph 108.5.1.A, states "Bolts and bolt studs shall extend complete through the nuts". American Society of Mechanical Engineers (ASME) Standard Section III, Division 1, Subsection NF (component supports), Paragraph NF-4711, states "All bolts or studs shall be engaged for the full length of thread in the nut". ASME Section III, Division 1, Subsections NB, NC, and ND (classes 1, 2, and 3), Paragraph 4711, states "The threads of all bolts or studs shall be engaged in accordance with the design". ANSI B16.5 (1977), Flange Standard, specifies lengths of stud bolts for standard flanges.

Contrary to the above, procedures did not contain appropriate acceptance criteria in that the licensee had no documented procedures prescribing thread engagement requirements. This lack of documented procedural requirements in the area of thread engagement resulted in numerous examples of bolted connections on safety-related components and piping systems with at least one full thread less than full engagement.

RESPONSE:

1) FPL concurs with the finding.

2) The reason for the finding was that no procedural acceptance criteria existed to assess the acceptability of bolted connections.

3) a) A new Plant Maintenance Instruction, M.I. 102009, Revision 0, was written and approved for use by the Mechanical Maintenance Section. This Maintenance Instruction requires that a minimum acceptable thread engagement has been achieved when the stud or bolt is at least one full thread past the nut, not including bevels, chamfers, or points on the bolt.

b) For new construction or plant modifications performed by the Backfit Construction organization, the following construction practices have been implemented. The minimum requirement for thread engagement which has been implemented for installation and inspection activities is one thread beyond the nut, not including bevels, chamfers, or points on the bolt.

4) a) Maintenance Instruction 102009 will be applied to future maintenance activities performed by the Mechanical Maintenance section after April 27, 1985, where mechanical (piping) flanged joints and closures are involved.

b) The acceptance criteria for thread engagement identified in Item 3.b above will be incorporated into a Turkey Point (PTP) Construction QC Technique Sheet (TS) for the Quality Control inspections performed by Backfit Construction on flanged joints and closures.

5) a) Full compliance to Item 3.a above was achieved on April 27, 1985.

b) Full compliance for Item 4.b will be achieved by September 30, 1985.

FINDING 2:

Title 10, Code of Federal Regulations, Part 50.55a(g) requires that inservice testing to verify operational readiness of pumps and valves, whose function is required for safety, be accomplished in accordance with Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel (ASME B and PV) Code. ASME B and PV Code, Section XI, 1980 edition through Winter 1981 addenda has been identified as the applicable code for inservice testing. ASME B and PV Code, Section XI, paragraph IWV-1100, requires inservice testing to verify operational readiness of certain Class 1, 2, and 3 valves (and their actuating and position indicating systems) in lightwater cooled nuclear power plants, which are required to perform a specific function in shutting down a reactor to the cold shutdown condition or in mitigating the consequences of an accident. Safety injection accumulator pressure relief valves have been identified as being required to mitigate the consequences of an accident.

Contrary to the above, the accumulator pressure relief valves are not included in the licensee's Pump and Valve Test Program.

RESPONSE:

1) FPL does not concur that the safety injection accumulator relief valves are required to mitigate the consequences of an accident or to shutdown a reactor. Consequently, FPL does not believe that these relief valves need to be included in FPL's Pump and Valve Test Program for the reasons identified below. We believe that it is sufficient to test these accumulator relief valves for operability under the Turkey Point Generation Equipment Management System (GEMS) 5-year relief valve testing program.

2) The function of the Safety Injection System (SIS) accumulator relief valve was discussed during Inservice Test (IST) Working Meetings of May 2-5, 1978 between representatives of Nuclear Regulatory Commission (NRC) Staff and FPL. It was agreed and understood that the accumulator relief valves, RV-858A, RV-858B, and RV-858C for both units are not required to perform a specific safety function in shutting down a reactor or in mitigating the consequences of an accident, and accordingly, that the accumulator relief valves could be deleted from the Turkey Point Pump and Valve IST Program. This was confirmed by FPL's Turkey Point Pump and Valve IST Program submittal of August 23, 1978 (L-78-275) which indicated that it had been revised to reflect agreements made between FPL representatives and NRC Staff personnel during a series of meetings. This Pump and Valve IST Program was the basis of a "DRAFT SAFETY EVALUATION REPORT" (SER) which concluded "...the pump and valves test program was acceptable except for "OPEN ITEMS". The accumulator relief valves were not included in those "OPEN ITEMS".

   Further, the Pump and Valve IST Programs submitted October 27, 1982 (L-82-456) for Turkey Point Unit No. 3 and March 7, 1983 (L-83-123) for Turkey Point Unit No. 4, which were based on the August 23, 1978 (L-78-275) IST Program, are currently under review by the NRC Staff. These programs were reviewed and discussed at an IST Working Meeting of November 14-18, 1983 with representatives of FPL, NRC Staff, and NRC Consultant personnel. The IST Programs and revised IST Programs submitted as a result of these IST Working Meetings were the basis of the NRC's "...interim approval...until the NRC completes its final review..." as discussed in the NRC correspondence of February 4, 1985.

The safety-related function of the accumulators is to provide emergency core cooling water to the reactor coolant system (RCS) and to introduce negative reactivity into the RCS for any event that requires actuation of the engineered safety features at an RCS pressure less than 600 psig. This safety-related function can be accomplished when the accumulators are pressurized to at least 600 psig (normally about 650 psig), contain between 875 and 891 cubic feet of water with a boric acid concentration of at least 1950 ppm, and are not isolated from the RCS. The accumulator relief valves are not active components relied upon to maintain a minimum required pressure in the accumulators. Their sole function is to provide overpressure protection (per code requirements) of the accumulator vessel itself should multiple equipment and/or operator malfunctions occur.

Two redundant trains of level and pressure sensors are installed on each accumulator. These sensors provide accumulator pressure and level high and low alarms which annunciate in the control room. Surveillance procedures provide assurance that these conditions are met by checking the accumulator level and pressure at least once each shift, except at cold or refueling shutdowns when the accumulator safety function is not required. Off-Normal Operating Procedures provide instructions for corrective actions to be taken to restore accumulator level and pressure to normal operating values, if required.

The accumulators are isolated from sources of pressure greater than design pressure by two or more valves. The RCS isolation check valves are periodically leak tested as required by Technical Specification 3.16 to meet the leak tightness criteria specified in Technical Specification 4.16. If inleakage from the RCS should occur during operation, this will be detected by changes in indications of accumulator level and pressure displayed in the control room. An evaluation will then be performed to determine the source of the leakage and corrective actions will be taken accordingly. Corrective actions include draining the accumulator fluid space to the reactor coolant drain tank (RCDT).

Borated water can be added to the accumulator, if required, by remote manual operation of control valves and the high head (1400 psig maximum pressure) safety injection pumps. Nitrogen gas can be added to the accumulator, if required, by remote manual operation of control valves. Nitrogen supply pressure is limited by a pressure regulator with a set-point of 675 psig. The nitrogen gas header design limits the number of nitrogen bottles connected to the header.

The Safety Injection System (SIS) Accumulators as described above are, therefore, safety-related and perform a safety-related function to shutdown the reactor and to mitigate the consequences of an accident described in the Turkey Point Final Safety Analysis Report (FSAR).

The only event that could debilitate the function of an accumulator would be the premature opening of the relief valve (at a pressure too low for the annunciators to have alarmed) immediately before the onset of a large-break LOCA. The frequency of occurrence of this type of event can be determined by the following:

$P_F = P_{PO} \times F_{LOCA} \times 3$ (accumulators)

where P_F = Frequency of Medium to Large Break LOCAs and of failure of the accumulators to perform their function.

P_{PO} = Probability of premature opening of an accumulator relief valve

F_{LOCA} = Frequency of initiating event for a medium to large break LOCA.

$P_{PO} = 3 \times 10^{-6}$/hr*, where 1 hr. is a conservatively long period of time in which this would debilitate the accumulator. In actuality, the need for an accumulator is in a matter of minutes, so an hour is conservative.

$F_{LOCA} = 1 \times 10^{-3}$/year**

$P_F = (3 \times 10^{-6}) \times (1 \times 10^{-3}) \times 3 = 9 \times 10^{-9}$/year

Clearly, the failure of an accumulator relief valve coincident with a LOCA is a highly unlikely event.

We conclude, therefore, that the accumulator relief valves are not required to mitigate the consequences of an accident or shutdown the reactor. Credit is not taken for their function in any of the FSAR accident analyses, and they are not used to shutdown the reactor. For these reasons, it is FPL's position that the accumulator relief valves do not fall under the requirements of IWV-1100 for Inservice Testing.

The accumulator relief valves for both Units 3 and 4 have been included in the Generation Equipment Management System (GEMS) 5-year relief valve testing program. Under this program these relief valves are tested to verify and adjust their relief pressure settings and to perform a leak test at 90% of the set pressure. The accumulator relief valves for Unit 3 were just tested during the recent Unit 3 refueling outage and the equivalent Unit 4 relief valves are scheduled to be tested during the next Unit 4 Refueling Outage in early 1986. Subsequent testing will be performed during a refueling outage within 5 years of the previous test.

* Component Failure Rates for Nuclear Plant Safety System Reliability Analysis, Nuclear Regulatory Commission (Draft Report issued 9/23/80 for Interim Reliability Evaluation Program use).

** Reactor Safety Study, WASH-1400 (NUREG - 75/014) U.S. NRC, October 1975.