



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 166 TO FACILITY OPERATING LICENSE NO. DPR-31  
AND AMENDMENT NO. 160 TO FACILITY OPERATING LICENSE NO. DPR-41  
FLORIDA POWER AND LIGHT COMPANY  
TURKEY POINT UNIT NOS. 3 AND 4  
DOCKET NOS. 50-250 AND 50-251

1.0 INTRODUCTION

By letter dated November 25, 1992, Florida Power & Light Company (FPL or the licensee) proposed license amendments to change the Technical Specifications (TS) for the Turkey Point Nuclear Generating Units 3 and 4 (Turkey Point or the facility). The proposed changes are in response to Generic Letter (GL) 90-06, "Resolution of Generic Issue 70, 'Power-Operated Relief Valve and Block Valve Reliability,' and Generic Issue 94, 'Additional Low-Temperature Overpressure Protection for Light-Water Reactors,' Pursuant to 10 CFR 50.54(f)," which was issued by the Nuclear Regulatory Commission (the staff) on June 25, 1990. A discussion of the proposed changes and the staff findings relative to each of the above generic issues are addressed in section 3.0 of this safety evaluation.

The licensee's earlier response to GL 90-06 dated December 21, 1990, also provided specific commitments regarding the GL 90-06 recommendations for quality assurance, maintenance and testing of the power operated relief valves (PORVs) and block valves.

By letter dated March 4, 1994, the licensee provided additional information which was within the scope of the action described in the Federal Register (58 FR 19478) and did not change the staff's no significant hazard consideration determination.

2.0 BACKGROUND

GL 90-06 represents the technical resolution of two generic issues and includes changes which are safety enhancements.

Generic Issue 70, "Power-Operated Relief Valve and Block Valve Reliability" involves the evaluation of the reliability of PORVs and block valves, and their safety significance in pressurized water reactor (PWR) plants. The GL discussed how PORVs are increasingly being relied on to perform safety-related functions and the corresponding need to improve the reliability of both PORVs and their associated block valves. Based on its studies, the staff proposed and required that all affected facilities implement TS improvements to

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increase the reliability of these components and provide assurance that they will function as required.

Generic Issue 94, "Additional Low-Temperature Overpressure Protection for Light-Water Reactors" involves the evaluation of the safety significance of low-temperature overpressure (LTOP) transients. The generic letter noted that LTOP protection systems unavailability is the dominant contributor to risk from low-temperature overpressure transients and discussed the need to further restrict the allowed outage time (AOT) for a LTOP channel in operating modes 4, 5, and 6. Based on its studies, the staff determined that all affected facilities should implement TS improvements to increase the availability of LTOP systems.

### 3.0 EVALUATION

By letters dated December 21, 1990, November 25, 1992, and March 4, 1994, the licensee provided responses to the recommendations of GL 90-06 and proposed TS changes.

#### 3.1 GENERIC ISSUE 70

##### 3.1.1 Quality Assurance and Inservice Testing

The generic letter recommended that the PORVs and block valves be included within the scope of the 10 CFR Part 50, Appendix B quality assurance program, and the PORVs, valves in the PORV control air systems, and block valves be included within the scope of a program covered by Subsection IWV, "Inservice Testing of Valves in Nuclear Power Plants," of Section XI of the ASME Boiler and Pressure Vessel Code (ASME Code).

The licensee's response indicates that its quality assurance program and the program for maintenance and replacement parts and spares relating to the PORVs and block valves are consistent with the GL recommendations and, therefore, are acceptable.

In its December 21, 1990 letter the licensee indicated that the PORVs and block valves are included within the scope of inservice testing (IST) program. However, the control air system valves are not included within the scope of the licensee's IST program. These valves are tested in accordance with established plant procedures. In Modes 4, 5, and 6 (with the reactor vessel head on) surveillance is conducted on the nitrogen backup system. Procedural tests are conducted, including supply pressure, pressure regulator output, and control air check valve leak tests. As recommended by the generic letter, the PORV block valves are part of the expanded motor operated valve (MOV) test program in accordance with GL 89-10 "Safety-related Motor Operated Valve Testing and Surveillance."

The staff's review of the licensee's submittal indicates that the licensee's proposed actions meet the intent of the GL 90-06 recommendations and, therefore, are acceptable.

### 3.1.2 TS Changes

Consistent with the GL recommendations, the licensee proposed TS changes. The GL recommends TS changes to modify the limiting conditions of operation (LCO) of PORVs and block valves in Modes 1, 2, and 3 incorporating the staff positions adopted in recent licensing actions. These recent licensing actions require plants that operate with the block valve closed due to leaking PORVs, to maintain electrical power to the block valves so they can be readily opened from the control room upon demand. Additionally, plant operation in Modes 1, 2, and 3 with PORVs and block valves inoperable for reasons other than seat leakage is not permitted for periods of more than 72 hours.

Staff review indicates that the licensee's proposed TS changes reflect all the GL recommendations with the exception of allowable outage times (AOT). The proposed TS changes specify an AOT of 30 days to restore one PORV (when both the PORVs are inoperable) and allow indefinite operation with one PORV inoperable.

The staff has recognized that the primary safety enhancement associated with the availability of PORVs and block valves is derived from the increase in feed-and-bleed capability. Most plants require both PORVs to support feed-and-bleed. The licensee's analyses show that only one PORV is required to support feed-and-bleed capability provided it is opened within 20 to 25 minutes of loss of feedwater, depending on operator action. Also, since feed-and-bleed capability is beyond the design basis, the licensee considers that single failure assumptions are not applicable.

The licensee's proposed AOTs were determined by evaluating the need for PORVs to support feed-and-bleed without resulting in an unacceptable increase in core melt frequency. The licensee indicated that the Turkey Point design includes systems which reduce the need to resort to feed-and-bleed. These systems include diverse sources of feedwater, including three safety-related steam-driven auxiliary feedwater (AFW) pumps and two non-safety-related electric driven standby steam generator feedwater pumps, for a total of 500% capacity. During a loss-of-offsite power condition the main feedwater pumps would not be available but the AFW and standby steam generator feedwater pumps would be available. Accordingly, the licensee considers that low reliance on feed-and-bleed due to diverse feedwater sources and the ability of one operable PORV to support feed-and-bleed justify the proposed AOT for inoperable PORVs.

The staff has reviewed the information provided by the licensee to support its proposed TS changes and agrees that the Turkey Point design includes equipment other than that assumed in the GL. Based on the above discussions, the staff finds the proposed changes meet the intent of the GL and, therefore, are acceptable.

GL 90-06 recommended surveillances at least once per 18 months to demonstrate PORV operability by operating the PORV through one complete cycle of full travel in Modes 3 or 4. At Turkey Point Units 3 and 4, the PORVs and block valves are tested in accordance with the ASME Section XI, IST Program. The PORVs are cycled in Modes 3 or 4 during cooldown, and prior to Mode 4 during

heatup, unless cycled within the previous 92 days. Additionally, the PORVs are cycled in Modes 5 and 6 at least once every 3 months when required to be operable and following any maintenance. This meets the intent of the GL and, therefore, is acceptable.

The licensee did not propose to perform a channel calibration of the actuation instrumentation. At Turkey Point, operation of the PORVs in response to a steam generator tube rupture (SGTR), plant cooldown, or a feed-and-bleed event is by manual operator action only. Accordingly, instruments associated with the PORVs are not required to perform TS-related functions with the unit at power. In addition, the PORVs and block valves are presently powered only from Class 1E power sources. Accordingly, a surveillance to check transfer of the valves to their safety-related power source is not required.

The licensee also proposed other editorial changes to the TS and TS bases to reflect implementation of the GL. These changes are editorial and do not affect plant safety.

The staff, based on its review of the licensee's submittal, finds that the proposed changes meet the intent of the GL and, therefore, are acceptable.

### 3.2 GENERIC ISSUE 94

Consistent with the GL 90-06 recommendations, the licensee proposed changes to TS 3.9.3 to enable use of PORVs for the feed-and-bleed cooling function in the event of a loss of secondary heat sink capabilities and to specify reduced AOT when operating in Modes 5 and 6 and when LTOP equipment is inoperable.

The licensee proposed to change the time allowed for depressurization in action statement 3.4.9.3.c of GL 90-06 (to be included as action statement 3.4.9.3.d) from 8 hours to 24 hours to allow for an orderly depressurization. The licensee also proposed several other TS changes which are editorial in nature and did not affect plant safety.

The staff finds the proposed TS changes meet the intent of the recommendations of GL 90-06 as applied to Turkey Point Units 3 and 4 and, therefore, are acceptable.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Florida State official was notified of the proposed issuance of the amendments. Based upon the written notice of the proposed amendments, the Florida State official had no comments.

## 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (58 FR 19478). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

## 6.0 CONCLUSION

Based on the staff evaluation in Section 3.0 above, the staff concludes that the proposed Technical Specifications changes are acceptable.

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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