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SUBJECT: Application for amends to Licenses DPR-31 & DPR-41,modifying Tech Specs 3/4.4.4, "Relief Valves," 3/4.4.9.3, "Overpressure Mitigating Sys" & associated Bases Section 3/4.4.4, "Relief Valves."

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L-92-285
10 CFR 50.54(f)
10 CFR 50.90
10 CFR 50.92

NOV 25 1992

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments
Response to Generic Letter 90-06
Resolution of Generic Issues 70 and 94

In accordance with 10 CFR 50.90, Florida Power & Light Company (FPL) requests that Appendix A of Facility Operating Licenses DPR-31 and DPR-41 be amended to modify the Turkey Point Units 3 and 4 Technical Specifications 3/4.4.4, "Relief Valves," 3/4.4.9.3, "Overpressure Mitigating Systems," and the associated Bases section 3/4.4.4, "Relief Valves."

Generic Letter (GL) 90-06, issued by the NRC on June 25, 1990, provided recommendations concerning resolution of Generic Issue 70 (GI-70) entitled "Power-Operated Relief Valve and Block Valve Reliability," and GI-94 entitled "Additional Low-Temperature Overpressure Protection for Light-Water Reactors." The proposed amendments address the recommendations of GL 90-06 pertaining to power operated relief valve and block valve reliability (GI-70) and low-temperature overpressure protection (GI-94) for Turkey Point Units 3 and 4.

By letter L-90-396, dated December 21, 1990, FPL provided to the NRC the initial response to GL 90-06 for Turkey Point Units 3 and 4. The response specified that FPL would submit any necessary Technical Specifications changes for Turkey Point Units 3 and 4 by the end of the Turkey Point Unit 3 Cycle 13 refueling outage, in accordance with the schedule specified in GL 90-06.

FPL has determined that the proposed amendments do not involve a significant hazards consideration pursuant to 10 CFR 50.92. A description of the amendments requests and the supporting safety evaluation which forms the basis for a no significant hazards consideration are provided in Attachment 1. Attachment 2 provides the no significant hazards consideration in support of the proposed Technical Specifications changes. The proposed Technical Specifications changes are shown in Attachment 3.

A019 1/1

In accordance with 10 CFR 50.91(b) (1), a copy of the proposed amendments is being forwarded to the State Designee for the State of Florida.

The proposed amendments have been reviewed by the Turkey Point Plant Nuclear Safety Committee and the FPL Company Nuclear Review Board.

Should there be any questions on this request, please contact us.

Very truly yours,

T. F. Plunkett
Vice President
Turkey Point Nuclear

TFP/OIH

Attachments

cc: Stewart D. Ebneter, Regional Administrator, Region II, USNRC
R. C. Butcher, Senior Resident Inspector, USNRC, Turkey Point Plant
Jacob Daniel Nash, Florida Department of Health and Rehabilitative Services

STATE OF FLORIDA)
) ss.
COUNTY OF DADE)

T. F. Plunkett being first duly sworn, deposes and says:

That he is Vice President, Turkey Point Nuclear, of Florida Power and Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information and belief, and that he is authorized to execute the document on behalf of said Licensee.

T. F. Plunkett

Subscribed and sworn to before me this

25 day of NOVEMBER, 1992.

Cheryl A Kelly

Name of Notary Public (Type or Print)
NOTARY PUBLIC, in and for the County of Dade, State of Florida

My Commission expires
Commission No.

CHERYL A. KELLY
MY COMMISSION # CC 223781
EXPIRES: September 27, 1996
Bonded Thru Notary Public Underwriters

T. F. Plunkett is personally known to me.

ATTACHMENT 1
TO L-92-285

SAFETY EVALUATION

1.0 DESCRIPTION AND PURPOSE

In June of 1990, the NRC issued Generic Letter (GL) 90-06, "Resolution of Generic Issue (GI) 70, 'Power-Operated Relief Valve and Block Valve Reliability,' and GI-94, "Additional Low-Temperature Overpressure Protection for Light-Water Reactors,' Pursuant to 10 CFR 50.54(f)".

The purpose of this evaluation is to address the technical bases for Technical Specifications at Turkey Point to resolve GIs 70 and 94 as proposed by NRC GL 90-06, with allowances made for Turkey Point plant specific features.

Section 2 provides an assessment of the Turkey Point Power Operated Relief Valve (PORV) capabilities in relation to the safety functions identified in the Generic Letter. Section 3 compares the Technical Specifications proposed by FPL (to meet the intent of GL 90-06) with the NRC-developed Technical Specifications. Specific exceptions are identified. The bases for these exceptions are also provided.

2.0 ANALYSIS OF EFFECTS ON SAFETY

The original design basis of the PORVs and associated block valves was to provide a means to prevent challenges to the RCS code safety valves. Their role with respect to plant safety has changed in response to various NRC safety issues. In GL 90-06, the NRC identified that the PORVs may perform one or more of the following safety related functions:

1. Mitigation of a design-basis steam generator tube rupture accident,

2. Low-temperature overpressure protection of the reactor vessel during startup and shutdown, or

3. Plant cooldown in compliance with Branch Technical Position RSB 5-1 to SRP 5.4.7, "Residual Heat Removal (RHR) System."

In addition to the above, NUREG-1316, "Technical Findings and Regulatory Analysis Related to Generic Issue 70", indicates that an additional function of PORVs is to provide for feed-and-bleed cooling in certain beyond design basis events.

Each of these functions has been evaluated for applicability to the Turkey Point Plant and the results provided below.

2.1 Mitigation of a Design Basis Steam Generator Tube Rupture (SGTR) Accident

The Emergency Operating Procedures (EOPs) for Turkey Point in general conform to the Westinghouse Emergency Response Guidelines (ERGs) for Low Pressure Plants. A review of the applicable EOPs shows that depressurization of the reactor

coolant system (RCS) following a SGTR event is accomplished using the pressurizer spray valves, the auxiliary spray valves, or through use of a PORV. The EOPs also include various provisions for primary system depressurization assuming a loss of all pressurizer pressure control, since these systems were not designed as safety related at many Westinghouse plants, including Turkey Point. While the PORVs are identified as a depressurization option, they are not the preferred means of the three primary mechanisms for RCS depressurization.

The PORVs are provided with a nitrogen backup system for operation. The design of this backup system is such that surveillance at power cannot be performed. Therefore, the PORVs can be assured to be available at power only if the non-safety related instrument air system is operable. Because of the original control grade design of the PORVs, which was upgraded for Low Temperature Overpressure Protection (LTOP) only, the PORVs are considered to be important to safety with respect to this function, rather than safety related.

2.2 Low-Temperature Overpressure Protection of the Reactor Vessel during Startup and Shutdown

As described previously, the PORVs are relied upon to protect the RCS from a low temperature overpressurization event. Specific design enhancements were made to provide redundancy: Class 1E power, and electrical separation to the extent practical and consistent with the Turkey Point design to make the Overpressure Mitigating Systems (OMS) function capable of accommodating a single failure. A bottled backup nitrogen system was added to back up the normal instrument air supply for the PORVs. This nitrogen system, which is provided with local indication only, is verified to be operable before the unit operates in Modes 4, 5, or 6 with the head on. Based on the previous discussion, the PORVs are considered to provide a safety related function for LTOP.

2.3 Plant Cooldown in Compliance with Branch Technical Position RSB 5-1

Since Turkey Point is licensed as a hot shutdown plant, it does not meet the Standard Review Plan (NUREG-0800) Branch Technical Position (BTP) RSB 5-1. FPL has demonstrated the ability to bring the plant to cold shutdown in compliance with Appendix R using equipment in the plant, some of which is not nuclear safety related. This is permitted as described in 10 CFR 50 Appendix R Section III.L.6. Accordingly, the PORVs are considered to provide a function important to safety with respect to plant cooldown rather than a safety related function.

2.4 Feed and Bleed

The capability of the PORVs to support the ability to feed and bleed the RCS in response to a loss of all secondary heat removal is considered beyond the design basis for Turkey Point. However, the capability to mitigate such an event is addressed in the plant's Emergency Operating Procedures and has been evaluated in the Turkey Point Probabilistic Risk Assessment program. The total core melt frequency from loss of secondary heat removal events with feed and bleed available represents about 3% of the total core melt frequency, or 2.57 E-06/year. Unavailability of feed and bleed capability would result in an increase in the core melt frequency for loss of secondary heat removal events from 2.57 E-06/year to 1.3 E-05/yr. However, brief periods of unavailability of feed and bleed (about 1 month), will have little impact on the plant's total core melt frequency.

2.5 Technical Specifications Bases

FPL proposes to make changes to the Bases consistent with the proposed Technical Specifications changes. The revision to the Bases provides additional clarification to the proposed Technical Specifications changes.

2.6 General

As discussed in FPL letter L-90-396, dated December 21, 1990, procurement, maintenance and testing of the PORVs and associated block valves are carried out in the manner specified for safety related equipment. Such treatment meets or exceeds the guidance of GL 90-06.

The Instrument Air System and associated valves which control operation of the PORVs are not classified as safety related. They are, however, tested and exercised 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 supply system. Procedural tests are conducted, including supply pressure, pressure regulator output, and control air check valve leakage tests. Surveillance of the nitrogen backup system cannot be performed in Modes 1 and 2, as discussed in Section 2.1 above. The nitrogen backup system is not called upon to perform any safety related function and is not credited for Technical Specifications determinations of operability or in evaluations of design basis events in Modes 1, 2 or 3. The nitrogen backup system is not required to perform a safety related function in Modes 1, 2, and 3.

2.7 Summary

Comparison of the Turkey Point PORV and block valve designs with the safety criteria specified in GL 90-06 shows that

the PORVs perform a safety related function to mitigate LTOP events. The PORVs do not perform a safety related function for mitigation of steam generator tube ruptures or for plant cooldown, although their availability in these situations is desirable. While beyond the design basis, the availability of the PORVs to provide a feed and bleed cooling function is also desirable to reduce the risk of core melt from loss of secondary heat sink events. Considering these bases, implementation of Technical Specifications, as proposed by GL 90-06 and modified to reflect plant specific considerations, will further enhance safe plant operation at Turkey Point.

3.0 COMPARISON OF PROPOSED TECHNICAL SPECIFICATIONS TO GENERIC LETTER

The Technical Specifications proposed by FPL generally meet the intent of the Generic Letter; however, some changes are proposed to conform to Turkey Point plant design and operations, as delineated in the following sections.

3.1 Technical Specification 3/4.4.4 Relief Valves (GL 90-06 Enclosure A, Attachment A-1 and A-3)

The FPL proposed changes include changing the word "each" to "both" in reference to the two PORVs, and adding "and their associated" to expand the Technical Specifications to include both the PORVs and the block valves. These proposed changes are in accordance with the GL recommendations.

ACTION STATEMENTS

Action Statements a of GL 90-06:

The action statement a. proposed by FPL is consistent with the action statement a. suggested in GL 90-06, Attachment A-1.

Action Statements b, c, and d of GL 90-06:

FPL proposes changes to the action statements suggested in GL 90-06. The differences are that the action statement time limits for 3.4.4.c and 3.4.4.d are different in that they permit operation with one inoperable PORV or block valve as long as the associated block valve is closed with power removed from the block valve. Also, with both PORVs or block valves inoperable, it allows 1 hour to restore at least one PORV or block valve to OPERABLE status or to close the associated block valve with power removed from the block valve, and allows 30 days to restore at least one PORV or block valve to operable status. The bases for these differences follow.

FPL has reviewed the proposed action statements suggested in GL 90-06. As identified in the staff's letter of August 7, 1992, the primary safety benefit associated with availability of the PORVs and block valves relates to feed and bleed scenarios. As described in Westinghouse WCAP-9744, most Westinghouse plants require both PORVs to be available to support feed and bleed. FPL has performed plant specific analyses for feed and bleed with the MAAP 3.0B PWR Computer Code, Rev. 16, for Turkey Point using a mixture of conservative and best estimate assumptions. These analyses show that feed and bleed is achievable using a single PORV, provided that it is opened within 20 to 25 minutes of commencement of the loss of feedwater transient, depending on the operator actions taken. Since feed and bleed is a beyond design basis event, single failure assumptions are not considered to apply. Accordingly, it is FPL's position that only one PORV should be required to be OPERABLE per the Technical Specifications to support feed and bleed.

As part of this Technical Specifications review, FPL has assessed the appropriate Allowable Outage Time (AOT) for the PORVs to support feed and bleed without resulting in an unacceptable increase in core melt frequency. The NRC has previously evaluated decay heat removal capability at Turkey Point in NUREG/CR 4762. This report showed that if feed and bleed was available, the core melt frequency for feed and bleed events was calculated to be only 9.4 E-06/year. This was determined not to represent a plant vulnerability. More detailed evaluations by FPL based on response to GL 88-20, "Individual Plant Examination for Severe Accident Vulnerabilities", show that with feed and bleed, the core melt frequency for loss of secondary heat removal consequences is 2.57 E-06/year. If feed and bleed is unavailable, the core melt frequency for loss of secondary heat removal events is 1.3 E-05/year. Assuming no PORVs are available for one month period in any year:

$$(2.57\ \text{E-06/year} \times 11/12) + (1.3\ \text{E-05/year} \times 1/12) = 3.44\ \text{E-06/year}$$

The core melt frequency calculated above is less than 9.4 E-06/year, which was considered acceptable and did not represent a vulnerability. Therefore, a 30 day action statement for no PORVs being operable is considered acceptable.

Based on the preceding discussion, it is clear that Turkey Point has a low reliance on feed and bleed. This results primarily from the diverse sources of feedwater available, including three steam driven auxiliary pumps and two electric driven feedwater pumps. These same arguments apply to the block valves.

In addition, as point of clarification on action statement 3.4.4.a, closing a block valve and maintaining power to the block valve is not considered to result in inoperability of the block valve. FPL believes that it is acceptable to close a block valve to stop leakage from the primary, whether it is through the PORV seat, or through the stem or bonnet of either the PORV or block valve. The requirement is that the leak not be through a pressure boundary part and that the leakage remains below the Technical Specification allowables.

SURVEILLANCE REQUIREMENTS

Surveillance Requirement 4.4.4.1.a of GL 90-06:

"In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE at least once per 18 months by:

a. Operating the PORV through one complete cycle of full travel during MODES 3 or 4, and"

The FPL proposed surveillance requirements do not include the above surveillance requirement. At Turkey Point Units 3 and 4, the PORVs and block valves are tested in accordance with the American Society of Mechanical Engineers (ASME) Section XI, Inservice Test Program. The PORVs are cycled in Mode 3 or 4 during cooldown, and prior to Mode 4 during heat up, unless cycled within the previous 92 days. Additionally, the PORVs are cycled during Modes 5 and 6 at least once every 3 months when required to be operable and following any maintenance.

The Generic Letter states that "Testing of the PORVs in HOT STANDBY or HOT SHUTDOWN is required in order to simulate the temperature and pressure environmental effects on PORVs. In many PORV designs, testing at COLD SHUTDOWN is not considered to be a representative test for assessing PORV performance under normal plant operating conditions."

Because the PORVs at Turkey Point are air-operated spring loaded control valves, the plug/cage interface is the only portion of these designs that is subject to steam temperature and pressure. While the plug/cage seating surface is subject to RCS temperature and pressure, to date no PORV failure mode other than seat leakage has been attributed to these effects. Based on recent Inservice Test history, the PORV opening stroke times which have been recorded during Modes 3, 4, 5, and 6, show no variation which could be attributed to pressure and temperature environmental effects on the valve. FPL's position is that, based on PORV design,

recent modifications, and plant operating experience, testing the PORVs during Modes 3, 4, 5 or 6 provides an acceptable means for assessing valve performance for Modes 1 and 2 and during periods of low temperature operation, as does testing the valves during Modes 3 or 4 only. This is consistent with the position taken in Attachment 2 of FPL letter L-90-396, dated December 1990.

Surveillance Requirement 4.4.4.1.b of GL 90-06:

"In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE at least once per 18 months by:

b. Where applicable, operating solenoid air control valves and check valves on associated air accumulators in PORV control systems through one complete cycle of full travel for plants with air-operated PORVs, and"

The surveillance requirements proposed by FPL do not include surveillance of the air/nitrogen system valving. This is considered to be addressed by performance of PORV stroke testing. This is consistent with the position taken in FPL letter L-90-396 in which Section XI testing was discussed.

Surveillance Requirement 4.4.4.1.c of GL 90-06:

"In addition to the requirements of Specification 4.0.5, each PORV shall be demonstrated OPERABLE at least once per 18 months by:

c. Performing a CHANNEL CALIBRATION of the actuation instrumentation."

A CHANNEL CALIBRATION of the actuation instrumentation for the PORVs is not specified in the FPL proposed surveillance requirements. Operation of the PORVs in response to a SGTR, plant cooldown, or a beyond design basis feed and bleed event is by manual operator action only. Accordingly, instruments associated with the PORVs are not required to perform Technical Specification related functions with the unit at power.

Surveillance Requirement 4.4.4.2 of GL 90-06:

"Each block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed in order to meet the requirements of action b, or c in Specification 3.4.4."

In addition to the NRC proposed surveillance requirement for demonstration of PORV operability in

Specification 4.4.4.1, Specification 4.4.4.2 requires that each block valve be demonstrated to be OPERABLE at least once per 92 days under the specified conditions and in the specified manner. This existing surveillance requirement is unchanged from the current Technical Specifications.

Surveillance Requirement 4.4.4.3 of GL 90-06:

"The emergency power supply for the PORVs and block valves shall be demonstrated OPERABLE at least once per 18 months by:

a. Manually transferring motive and control power from the normal to the emergency power bus, and
b. Operating the valves through a complete cycle of full travel."

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.

3.2 Technical Specification 3/4.9.3 - Overpressure Mitigating Systems

ACTION STATEMENTS

The existing format, with the requirement for isolation of the high pressure safety injection flow paths to the RCS, is retained. An RCS average coolant temperature, the existing criterion, as opposed to a temperature of any RCS cold leg, is used as an entry criterion to the action statements of the Limiting Condition for Operation (LCO).

Action Statement 3.4.9.3.a of GL 90-06:

"With one PORV inoperable in MODE 4, restore the inoperable PORV to OPERABLE status within 7 days, or depressurize and vent the RCS through at least a 2.20 square inch vent within the next 8 hours."

FPL proposes to include this action statement consistent with the GL recommendations, as action statement 3.4.9.3.b.

Action Statement 3.4.9.3.b of GL 90-06:

"With one PORV inoperable in MODES 5 or 6, either (1) restore the inoperable PORV to OPERABLE status within 24 hours, or (2) complete depressurization and venting of the RCS through at least a 2.20 square inch vent within a total of 32 hours."

FPL proposes to include this action statement

consistent with the GL recommendations, as action statement 3.4.9.3.c with the following changes:

- Addition of the words "with the reactor vessel head on," clarifies the MODE 6 condition of applicability.

- Item (3) addition consistent with the current Technical Specifications:

  "or (3) complete depressurization and venting of the RCS through at least one open PORV and associated block valve within a total of 32 hours."

Action Statement 3.4.9.3.c of GL 90-06:

"With both PORVs inoperable, complete depressurization and venting of the RCS through at least a 2.20 square inch vent within 8 hours."

FPL proposes to include this action statement consistent with the GL recommendations, as action statement 3.4.9.3.d, with the following changes. FPL proposes a change to the time allowed for depressurization. Since this LCO is not mode-specific, the time recommendation has been increased to 24 hours, to allow for an orderly depressurization. This time is consistent with the existing Turkey Point Technical Specifications. Such unnecessarily accelerated evolutions as the recommended rapid cooldown of a plant in Mode 4 does not allow for orderly plant control and may not be physically possible. FPL also proposes to add the words "either restore one PORV to operable status or" to provide additional clarification and consistency in format with the other action statements.

Action Statement 3.4.9.3.d of GL 90-06:

"With the RCS vented per actions a, b, or c, verify the vent pathway at least once per 31 days when the pathway is provided by a valve(s) that is locked, sealed, or otherwise secured in the open position; otherwise, verify the vent pathway every 12 hours."

FPL believes this action statement is more properly included as a surveillance requirement rather than an action statement. This suggested statement, therefore, is not included in the proposed LCO, but is retained as surveillance requirement 4.4.9.3.2 (Page 3/4 4-37) of the current Technical Specifications.

Action Statement 3.4.9.3.e of GL 90-06:

"In the event either the PORVs or the RCS vent(s) is used to mitigate an RCS pressure transient, a Special

Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the PORVs or RCS vent(s) on the transient, and any corrective action necessary to prevent recurrence."

The proposed Turkey Point requirement for the submittal of a Special Report differs from the recommended action statement in its recognition of instances in which water is injected intentionally into the RCS to test the function of certain components. Although such tests are done with an open vent path in the RCS, the statement that a Special Report is not required in these circumstances was added to avoid future misinterpretations which might otherwise result in unnecessary submittals.

SURVEILLANCE REQUIREMENTS

FPL proposes no changes to its surveillance requirements for the OMS as the staff's recommendations are considered encompassed by Turkey Point's current surveillance requirements. The action statement which relates to the surveillance interval for verification of the vent pathway, recommended in Attachment B-1 (page B-6) of Generic Letter 90-06, is encompassed by previously existing surveillance requirement 4.4.9.3.2 and its attendant note, as indicated above.

4.0 CONCLUSION

The proposed Technical Specifications meet the intent of the recommendations of GL 90-06 as applied to Turkey Point Units 3 and 4.

ATTACHMENT 2
TO L-92-285

NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION