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PLUNKETT,T.F. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Forwards response to NRC 941117 RAI re proposed license amends submitted by 940719 & 1020 ltrs,revising TS 3/4.7.1.1 & associated bases which addresses max allowable reactor thermal power operation w/inoperable MSSVs.

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FEB 20 1995

L-95-002
10 CFR 50.90

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
Request for Additional Information (RAI) -
Proposed License Amendments - Operation at Reduced Power with
Inoperable Main Steam Safety Valves (TAC Nos. M89935/M89934)

By letters L-94-176, dated July 19, 1994 and L-94-223, dated October 20, 1994, Florida Power and Light Company (FPL) submitted a request to amend Turkey Point Units 3 and 4 Technical Specification 3/4.7.1.1 and its associated BASES, which address maximum allowable reactor thermal power operation with inoperable main steam safety valves (MSSVs). By letter dated November 17, 1994, the NRC requested additional information to support the technical review of the proposed license amendment. The response to the NRC's November 17, 1994 questions is enclosed.

Should there be any questions, please contact us.

Very truly yours,

T. F. Plunkett
Vice President
Turkey Point Plant

Attachments

TFP/RJT/rt

cc: S. D. Ebneter, Regional Administrator, Region II, USNRC
T. P. Johnson, Senior Resident Inspector, USNRC, Turkey Point
W. A. Passetti, Florida Department of Health and Rehabilitative Services

A001

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 Plant, 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 20 day of February, 1995.

James E. Knorr
Name of Notary Public (Type or Print)

NOTARY PUBLIC, in and for the County of Dade, State of Florida

My Commission expires January 22, 1999
Commission No. CC 434300

T. F. Plunkett is personally known to me.

JAMES E. KNORR
MY COMMISSION # CC 434300
EXPIRES: January 22, 1999
Bonded Thru Notary Public Underwriters

FLORIDA POWER AND LIGHT COMPANY

TURKEY POINT UNITS 3 AND 4

RESPONSE TO NRC QUESTIONS

ON THE

PROPOSED LICENSE AMENDMENTS: OPERATION AT REDUCED POWER WITH INOPERABLE MAIN STEAM SAFETY VALVES

RESPONSE TO NRC QUESTIONS

By letter dated November 17, 1994, the NRC requested additional information to support the technical review of the proposed license amendments. The response to these NRC questions is enclosed.

NRC Question:

1.0 Mode 3 with Positive MTC

Both the current and proposed TS 3.7.1.1 state Applicability in Modes 1, 2, and 3. However, the proposed TS 3.7.1.1.a states "with a positive Moderator Temperature coefficient, operation in MODES 1 and 2 may continue provided....." Mode 3 is not addressed for a positive MTC and it is unclear what actions would be taken if MSSVs were inoperable in Mode 3 with a positive MTC. Since no action is provided for this Limiting Condition of Operation, it appears that the actions of TS 3.0.3 would be taken.

Request A: With the proposed TS as stated in the October 20, 1994 submittal, what actions would be taken with inoperable MSSVs, a positive MTC, and the Unit in Mode 3? Provide the basis and justification for these actions.

Response:

The purpose of Technical Specification 3.7.1.1 is to provide protection to prevent secondary side overpressurization during a Loss of Load (LOL)/Turbine trip, which is a heat addition event. By reducing either the Power Range Neutron Flux High Trip Setpoint or the reactor power level, the energy transfer to the most limiting steam generator is not greater than the available relief capacity in that steam generator. The proposed license amendment was developed to provide sufficient protection for all combinations of the core being designed with either a positive, zero or negative moderator temperature coefficient (MTC).

A reactor with a positive MTC would tend to respond to the primary coolant heatup resulting from the LOL/Turbine Trip transient by increasing core reactivity. An increase in reactivity would translate into an increase in the reactor power level. By reducing either the Power Range Neutron Flux High Trip Setpoint or proceeding to Mode 3 (HOT STANDBY), the energy transfer to the most limiting steam generator is not greater than the available relief capacity in that steam generator.

In comparison, with a negative MTC, the primary coolant heatup resulting from the LOL/Turbine Trip transient would reduce the core power and heat input to the coolant. This would result in a lower required MSSV capacity to prevent secondary side overpressurization. By reducing the reactor power level to less than or equal to the maximum allowable power level, the energy transfer to the most limiting steam generator is not greater than the available relief capacity in that steam generator.

In Mode 3, k-effective is < 0.99 (i.e, heavily moderated, rodded), reactor power is at 0%, and the average RCS temperature is $\geq$ 350°F. TS 3.1.1.3, Moderator Temperature Coefficient, does not apply any TS restrictions for a positive MTC in Mode 3. In fact, the Technical Specifications only address a positive MTC in Modes 1 and 2. The positive MTC issue is typically a concern only from 0 to approximately 14 effective full power days (EFPDs) of operation, since MTC is strongly dependent on a change in boron concentration as a function of power level and xenon build-up. Following this time interval, the core design typically achieves a negative MTC. Verification of the predicted core behavior of MTC at Beginning of Cycle (BOC) is initially confirmed in Mode 2 during Zero Power Physics Tests (ZPPT), in accordance with TS 4.1.1.3a. Prior to ZPPT, the operator must rely on the core design predictions from the Nuclear Design Report. For Turkey Point during a unit startup following a refueling outage, operation with inoperable MSSVs is unacceptable, since the maximum allowed power level would be restricted to 56 % or less of Rated Thermal Power, based on the number of inoperable MSSVs.

Since, a heat addition event in Mode 3 during a Loss of Load/Turbine Trip transient (since the turbine is not parallel to the grid in Mode 3) is not credible. **Therefore, the appropriate ACTION statement while in Mode 3 with either a positive, negative or zero MTC is ACTION statement b. of TS 3.7.1.1.** Since the maximum allowable power level in Mode 3 is 0 % RTP, the unit would be limited to a power level/mode hold, until the unit meets either the LIMITING CONDITION OF OPERATION (LCO) or the appropriate ACTION statement for Mode 2.

Based on this discussion, FPL requests that ACTION STATEMENT b of TS 3.7.1.1 be revised to read as follows (the proposed new wording is in **bold**):

> With (3) reactor coolant loops and associated steam generators in operation and with one or more main steam line Code safety valves inoperable, and
>
> b. with a negative or zero Moderator Temperature Coefficient, operation in MODES 1 and 2; **or with a positive, negative or zero Moderator Temperature Coefficient operation in Mode 3;** may continue provided, that within 4 hours, either the inoperable valve(s) is restored to OPERABLE status or reduce power to less than or equal to the maximum allowable percent of RATED THERMAL POWER listed in Table 3.7-1; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours.

Based on the above discussion, FPL has determined that the proposed amendment change does not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety; therefore, the proposed changes do not involve a significant hazards consideration as defined in 10 CFR §50.92. Therefore, the no-significant hazards evaluation addressed in FPL

letter L-94-223 is not impacted by this change.

NRC Question:

The current TS 3.7.1.1 requires reducing the power range neutron flux high setpoint with inoperable MSSVs. The TS amendment proposed on July 19, 1994, also required reducing the power range neutron flux high setpoint with inoperable MSSVs. Following a conversation in which the NRC staff indicated that, among other things, the standard TS do not require reducing the trip setpoints, the proposed amendment was changed and resubmitted on October 20, 1994. The October 20, 1994, proposed amendment deleted the requirement to reduce the trip setpoint when MTC is negative or zero. The justification provided in the October 20 letter stated "By reducing the reactor thermal power, the energy transfer to the most limiting steam generator is not greater than the available relief capacity in that steam generator." This does not explain why a reduction of the trip setpoint is no longer necessary.

Request B: Provide justification as to why a reduction of the power range neutron flux high setpoint is not necessary at Turkey Point Units 3 and 4 to prevent exceeding 110% of the design pressure with a negative or zero MTC and inoperable MSSVs.

Response:

The proposed change to the Technical Specification is consistent with the requirements specified in NUREG-1431, "Standard Technical Specifications - Westinghouse Plants." The current Technical Specifications require that with an inoperable MSSV, both the reactor power level and the maximum allowable Power Range Neutron Flux High Trip Setpoint are reduced in accordance with TS Table 3.7-1. However, NUREG-1431 requires only a reduction in the reactor power level with an inoperable MSSV, with no corresponding change in the maximum allowable Power Range Neutron Flux High Trip Setpoint.

In meetings between the NRC and the Westinghouse Owners Group (WOG) during 1990, it was agreed that in certain Technical Specifications, the Required Actions to reduce the Power Range Neutron Flux High Trip Setpoints, following a power reduction, may be deleted. This agreement was contingent upon a WOG submittal providing technical justification for the deletion of this action statement. On September 5, 1990, the WOG transmitted (WOG reference OG-90-54) to the NRC the results of an evaluation for deleting the requirement to reduce the setpoints for several specifications. The transmittal was addressed to Mr. Jose A. Calvo, Chief Technical Specifications Branch, Division of Operational Events Assessment. The following response was provided in this submittal concerning TS 3.7.1, Main Steam Safety Valves:

> "In this specification, the number of MSSVs OPERABLE in any loop will establish the allowable total core power level, as indicated in Table 3.7.1-1. Thus, if 3 of five MSSVs are OPERABLE in any loop, and all five MSSVs are OPERABLE in the other three loops, the power level must be reduced to $\leq$ 65%.

> This power reduction is calculated as if all four loops have only 3 MSSVs OPERABLE.
>
> It is concluded that the power level reduction is conservative but acceptable. However, the requirement to reduce the High Neutron Flux Trip Setpoint accordingly is unnecessary and may be deleted. If the plant is operating at 60% power with only 3 of 5 MSSVs OPERABLE on all loops, there is no single event that will raise the core power level to 118% (the analysis trip setpoint) and at the same time cause an overpressurization of the secondary side, such that the MSSVs will be required to relieve the steam produced. A rod withdrawal at power event will raise the core power level, but not overpressurize the secondary side, because normal operation of the steam generators will accomodate all the steam produced."

This same basis pertains to Turkey Point, with one of four MSSVs declared inoperable on a single loop the unit power is reduced to 56% of RATED THERMAL POWER. In addition as addressed in L-94-223, another conservatism in the algorithm (and the existing TS 3.7.1.1) is the term w_s, which is the minimum total steam flow rate capability of the operable MSSVs on any one steam generator. This value is conservative since it assumes that if one or more MSSVs are inoperable per loop, the inoperable MSSVs are the largest capacity MSSVs at the highest operable MSSV operating pressure, regardless of whether the largest capacity MSSVs or the smaller capacity MSSVs are inoperable. Thus the existing and the proposed Technical Specifications are conservative.

A reactor with a positive MTC would tend to respond to the primary coolant heatup resulting from the LOL/Turbine Trip transient by increasing core reactivity. An increase in reactivity would translate into an increase in the reactor power level. By reducing either the Power Range Neutron Flux High Trip Setpoint or proceeding to Mode 3 (HOT STANDBY), the energy transfer to the most limiting steam generator is not greater than the available relief capacity in that steam generator.

In comparison, with a negative MTC, the primary coolant heatup resulting from the LOL/Turbine Trip transient would reduce the core power and heat input to the coolant. This would result in a lower required MSSV capacity to prevent secondary side overpressurization. By reducing the reactor power level to less than or equal to the maximum allowable power level, the energy transfer to the most limiting steam generator is not greater than the available relief capacity in that steam generator.