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SUBJECT: Responds to NRC 910606 request for addl info re 901219 application for amends to Licenses DPR-31 & DPR-41,revising Tech Specs Section 2.2, "Limiting Safety Sys Settings" & Section 3/4.3.2, "ESF Actuation Sys Intrumentation."

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L-91-186

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
Response to RAI on Reactor Protection System Setpoints
(TAC Nos. 79402 and 79403)

By letter L-90-417, dated December 19, 1990, Florida Power and Light (FPL) submitted a request to amend the Turkey Point Technical Specifications. The proposed amendment revised Section 2.2, Limiting Safety System Settings and Section 3/4.3.2, Engineered Safety Features Actuation System Instrumentation.

By letter dated June 6, 1991, the NRC requested additional information concerning the reactor protection system (RPS) setpoints. In response to this request Attachment 1 is provided. Attachment 2 provides the proposed revised Technical Specification change, as generated as a result of this response.

FPL has determined that the proposed Technical Specification change does not alter the No Significant Hazards Determination provided in L-90-417.

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

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

Should there be any questions, please contact us.

Very truly yours,

W. H. Bohlke
Vice President
Nuclear Engineering and Licensing

Attachment

WHB/RJT/rjt

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

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STATE OF FLORIDA)
) ss.
COUNTY OF PALM BEACH)

W. H. Bohlke being first duly sworn, deposes and says:

That he is Vice President, Nuclear Engineering and Licensing, 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.

W. H. Bohlke

Subscribed and sworn to before me this 8th day of July, 1991.

Susan M. Fey

NOTARY PUBLIC, in and for the County of Palm Beach, State of Florida

Notary Public, State of Florida
My Comm. Exp. Feb. 18, 1995
Bonded thru PICHARD Ins. Agency

My Commission expires

ATTACHMENT 1

Response to Request for Additional Information

1) Has FPL verified that the bases document used by Westinghouse to determine the instrument allowances (uncertainties) is correct and applicable to Turkey Point as configured? In addition, please provide the following:

All assumptions and inputs used as the bases in developing the setpoint study over the last two years have been re-verified.

As a result of this review, all inputs have been re-verified and remain valid for the setpoints documented in WCAP-12745, with the exception of four functions.

- For the Containment Pressure-High and High-High functions, the pressure switches used in determining the setpoints were replaced with switches by the same vendor but different models. Subsequently, Westinghouse evaluated this hardware substitution. The evaluation concluded that the current Nominal Trip Setpoints remain valid. However, due to changes in the instrument span, the previously submitted TA and Z values, listed in the Technical Specifications in percent span, and the Allowable Values should be modified.

- The Turbine Trip Auto Stop Oil Pressure instrumentation has a larger span than that used in the original calculations. Subsequently, Westinghouse evaluated the hardware utilizing the larger span. The evaluation concluded that the current Nominal Trip Setpoint remains valid. However, due to changes in the instrument span of the device, the previously submitted TA and Z values, listed in the Technical Specifications in percent span, and the Allowable Value must be modified. Retention of the current Nominal Trip Setpoint results in no change to the operational margin of the plant. The Turbine Trip Auto Stop Oil Pressure function is not credited in the safety analysis.

- The protective relay used in determining the setpoint for the Reactor Coolant Pump Underfrequency function was replaced with a relay by the same vendor but with a different model. Subsequently, Westinghouse evaluated this hardware substitution. The evaluation concluded that the current Nominal Trip Setpoint remains valid. However, due to changes in the instrument span, the previously submitted TA and Z values, listed in the Technical Specifications in percent span, must be modified. Retention of the current Nominal Trip Setpoints results in no change to the operational or safety margins for the plant.

In conclusion, the modifications to the Technical Specifications for these four protection functions reflect changes in the instrument span. In the above cases the instrumentation preserves the assumptions of the various safety analyses. Therefore, the discussions and conclusions provided in the previous No Significant Hazards Consideration remain valid.

1.a) What are the inputs for the bases document?

The primary inputs for the uncertainties identified and documented in WCAP-12745 are listed in Table 3-23 of that document. The inputs used in the Setpoint Study are developed from specific plant information and Westinghouse documentation. For example: specific plant information consists of Turkey Point Units 3 and 4 plant procedures and hardware specifications. The Westinghouse documentation includes information such as testing and evaluations to determine such parameters as Process Measurement Accuracy (PMA) terms.

1.b) Were there any "generic" allowance (uncertainty) values used by Westinghouse when plant-specific information was not available or not based on Turkey Point specifications and procedures? If so, what confidence level does FPL have that these values reflect (or bound) the as-configured condition of the plant?

"Generic" allowances for instrumentation uncertainties were reviewed and determined to be applicable for Turkey Point Units 3 & 4. "Generic" values were included in the review and were determined either applicable or bounding for application to Turkey Point Units 3 & 4. FPL has a high confidence level that these "generic values" reflect or bound the as-configured condition of the plant.

1.c) Are the allowance (uncertainty) values used applicable and conservative with respect to the as-configured plant?

The uncertainty values used by Westinghouse are applicable and conservative with respect to the as-configured plant conditions. The corrections for the four functions were re-evaluated and will be included in Revision 1 of WCAP-12745, to document the acceptability of the nominal trip setpoints to preserve the Safety Analysis Limits.

2) Recently approved Amendments 135 and 140 approved specific values in the OTΔT and OPΔT equations (table notes 1, 3). The amendment under current review proposes some of those values in a different form, i.e.

from note 1: proposed $p^1 \geq 2235$
from note 3: proposed $K_4 \leq 1.09$

$$K_5 \geq 0.02/°F$$

$$\tau(\text{Tau})_7 \geq 10 \text{ secs}$$

Are these new proposed values conservative (in the conservative direction) with respect to the existing TS (Amendments 135 and 140)?

The existing values are the same as those defined in the previous submittal and remain conservative. As noted below, the only change was to include an inequality in the Technical Specifications denoting the conservative direction of the parameter.

1) Explanation of conservative direction of inequalities in OTΔT and OPΔT Reactor Trip functions.

In a simplified form (without lead/lag, rate lag or lag filters), the equation for OTΔT is:

$$\Delta T \leq \Delta T_0 \{K_1 - K_2\{T - T'\} + K_3\{P - P'\} - f_1(\Delta I)\}$$

Where:

ΔT	is the measured ΔT
ΔT_0	is the indicated ΔT at 100 % RTP
T	is the measured Tavg
T'	is the design full power Tavg (574.2 °F)
P	is the measured Pressurizer Pressure
P'	is the design Pressurizer Pressure (2235 psig)
$f_1(\Delta I)$	is the ΔI penalty
K_1, K_2, K_3	are constants

From this equation, the following can be seen:

a) A decrease in the magnitude of K_1 results in a decrease in the trip setpoint which the measured ΔT is compared against.

b) An increase in the magnitude of K_2 results in a decrease in the trip setpoint when $T \geq T'$, since $K_2\{T - T'\}$ is subtracted from K_1.

c) An increase in the magnitude of K_3 results in a decrease in the trip setpoint when $P \leq P'$, since $K_3\{P - P'\}$ would then be a negative value and is added to K_1.

d) A decrease in the magnitude of T' results in a decrease in the trip setpoint because $\{T - T'\}$ would become positive at a lower measured value of T and $K_2\{T - T'\}$ is subtracted from K_1.

e) An increase in the magnitude of P' results in a decrease in the trip setpoint because $\{P - P'\}$ would become a larger negative value (or would remain a negative value until a higher pressure is reached) and $K_3\{P - P'\}$ is added to K_1.

Thus the inequality $\leq$ is the conservative direction for K_1 and T', and the inequality $\geq$ is the conservative direction for K_2, K_3 and P'.

In a simplified form (without lead/lag, rate lag or lag filters), the equation for OPΔT is:

$$\Delta T \leq \Delta T_o \{K_4 - K_5 T - K_6\{T - T''\} - f_2(\Delta I)\}$$

Where:

ΔT	is the measured ΔT
ΔT_o	is the indicated ΔT at 100 % RTP
T	is the measured Tavg
T"	is the design full power Tavg (574.2 °F)
$f_2(\Delta I)$	is the ΔI penalty
K_4, K_5, K_6	are constants

From this equation, the following can be seen:

a) A decrease in the magnitude of K_4 results in a decrease in the trip setpoint which the measured ΔT is compared against.

b) An increase in the magnitude of K_5 results in a decrease in the trip setpoint since $K_5\{T\}$ is subtracted from K_4.

c) An increase in the magnitude of K_6 results in a decrease in the trip setpoint when $T \geq T''$, since $K_6\{T - T''\}$ is subtracted from K_4.

d) A decrease in the magnitude of T" results in a decrease in the trip setpoint because $\{T - T''\}$ would become positive at a lower measured value of T and $K_6\{T - T''\}$ is subtracted from K_4.

For a rate-lag function e.g., $(\tau_7 s)/(1 + \tau_7 s)$, an increasing value of τ_7 results in a faster buildup of the parameter and thus approaches the trip value quicker.

Thus the inequality $\leq$ is the conservative direction for K_4 and T" and the inequality $\geq$ is the conservative direction for K_5, K_6 and τ_7.

2) The Westinghouse calculations of uncertainties for equipment supplied by others were based on:

   a) A review of the calibration and functional test procedures for each protection function, as supplied by FPL, and

   b) A review of the vendor specification sheet data for each sensor transmitter, as supplied by FPL.