SNUPPS
Standardized Nuclear Unit
Power Plant System

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April 2, 1982

SLNRC 82-018 FILE: 0543.1
SUBJ: Callaway SER-Proposed Technical Specification

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Docket Nos: STN 50-482 and STN 50-483

Reference: NUREG-0830, Callaway Safety Evaluation Report

Dear Mr. Denton:

The referenced report states in Sections 7.2.2.2 and 16. that the NRC plans to require in the Technical Specifications that RTD bypass loop flow rate be periodically verified. The SNUPPS Utilities do not believe this verification is necessary and request that the NRC reconsider the matter.

During the review of the SNUPPS FSAR, the NRC's Instrumentation and Control Systems Branch (ICSB) expressed a concern that flow degradation in the bypass loops could adversely affect the response time of the temperature signals provided for reactor protection. The NRC stated that flow degradation could be caused by corrosion product deposition or improper valve line-ups.

The functional requirement for the RTD loop transport delay time is 1.0 second. The safety analyses use a conservative assumption of 2.0 seconds for the manifold transport time and heating. An analysis was performed to calculate the delay time for the condition that return line flow is equal to 90 percent (the low flow alarm setpoint) of the flow for clean piping. This flow reduction was assumed to be caused by fouling in the hot leg only in order to give the maximum delay time. The results of the analysis are as follows:

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Loop	Delay Times (Sec.) Hot Leg	Cold Leg
1	.84	.84
2	.84	.74
3	.81	.97
4	.94	.81

Therefore, if fouling occurred such that the flow rate was reduced to the low flow alarm, the system would still meet the 1.0 second functional requirement.

Another evaluation consisted of: (1) calculation of the current RTD Bypass System delay time with no fouling (base line resistance coefficients), and (2) calculation of the effect of increased fouling (increased resistance coefficients) on the system delay times.

Figure 1 is a plot of the increase in the hot and cold leg transport delay time as a function of the percent increase in piping loss coefficient due to fouling. Loop 1 was used as a representative loop to generate this plot but Loops 2, 3, and 4 behave similarly. Summarizing this part of the evaluation, the hot leg loss coefficients would have to increase by the amounts listed below before the 1.0 second maximum delay time would be reached.

Loop	Increase in H.L. Loss Coefficient Necessary for 1.0 Sec. Delay Time
1	100%
2	103%
3	106%
4	68%

Changes in loss coefficients of this magnitude are not credible.

Concerning improper valve line-ups, the SNUPPS Utilities will verify proper valve alignment after any maintenance or testing that requires valve operation. An independent, second operator check of the valve line-up will also be made. This administrative procedure is similar to that used in other safety systems where proper valve line-up is important. In addition, if any one valve were inadvertently left closed, the flow through the return loop would be less than the low flow alarm setpoint and a low flow alarm would occur.

Based on the above evaluation, the SNUPPS Utilities do not believe that the additional surveillance suggested by the NRC Staff is justified. Your attention to this matter is appreciated.

Very truly yours,

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RLS/mtk4b8-10

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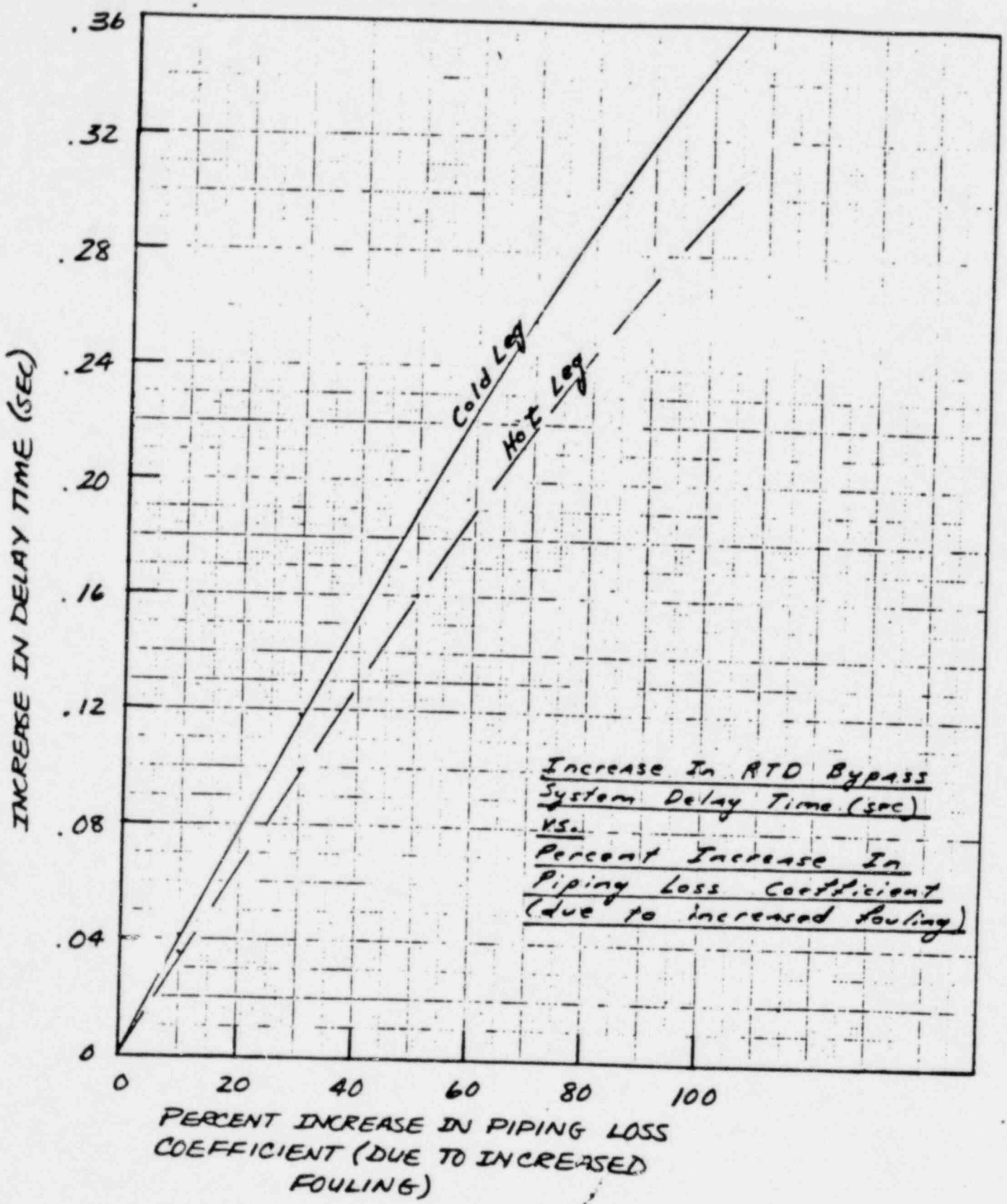
FIGURE 1


.36
.32
.28
.24
.20
.16
.12
.08
.04
0
INCREASE IN DELAY TIME (SEC)
Cold Leg
Hot Leg
Increase In RTD Bypass System Delay Time (sec) Vs. Percent Increase In Piping Loss Coefficient (due to increased fouling)
0
20
40
60
80
100
PERCENT INCREASE IN PIPING LOSS COEFFICIENT (DUE TO INCREASED FOULING)