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CURTIS,N.W. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
SCHWENCER,A. Licensing Branch 2

SUBJECT: Forwards response to questions re Tech Spec discrepancies between vessel level trip values & values in FSAR Table 15-2,Difference due to different units & ref points.

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Two North Ninth Street • Allentown, PA 18101 • 215 / 770-5151

Norman W. Curtis
Vice President-Engineering & Construction-Nuclear
215 / 770-5381

50-387

JUN 16 1982

Mr. A. Schwencer, Chief
Licensing Branch No. 2
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
VESSEL LEVEL TRIP DISCREPANCIES
ER 100450 FILE 841-8
PLA-1127

Dear Mr. Schwencer:

This letter represents a complete response to questions raised in the staff's review of the Susquehanna SES Unit 1 Technical Specifications on discrepancies between the vessel level trip values and those used in Table 15.0-2 of the FSAR.

Attachment A is General Electric's response to the questions; Attachment B illustrates how the FSAR will be amended to explain the apparent discrepancies. The differences in the numbers are due to different units and different reference points, as indicated on the attachments. The bottom of the dryer skirt is 13.5 inches above the bottom of the separator skirt.

If you have any questions, please call Rocky Sgarro at (215) 770-5146.

Very truly yours,

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

RRS/mks

B001

cc: R. L. Perch - NRC
T. E. Collins - NRC

Attachment A, page 1

GENERAL ELECTRIC

NUCLEAR POWER

SYSTEMS DIVISION

GENERAL ELECTRIC COMPANY, 175 CURTNER AVE., SAN JOSE, CALIFORNIA 95125
MC 394, (408) 925-3005

June 4, 1982
Responds to:
GP-82-141

Mr. R. J. Shovlin
Assistant Project Director -
Susquehanna
Pennsylvania Power & Light Co.
P.O. Box 1870
Allentown, PA 18105

Dear Bob:

SUBJECT: SUSQUEHANNA 1 & 2
DISCREPANCIES IN VESSEL LEVEL TRIP

As per telecon agreement between the NRC, PP&L and GE on June 2, 1982, attached is our recommended revision to FSAR Table 15.0-1.

This revision clarifies an apparent discrepancy in the vessel level trip values reported in the FSAR and the Technical Specifications. As discussed in that telecon, the values reported in the FSAR are the actual values used in the Susquehanna Transient Analysis. While those values were updated after completion of the transient analysis, GE has performed sensitivity studies which have shown that there would be no change in the operating limit critical power ratio (CPR).

If you have any questions, please do not hesitate to call Laura Santos or me.

Very truly yours,

J. W. Millard
Project Manager
Susquehanna Project

JWM:hjr/C060416

Attachment

RESPONSE REQUIRED:

cc: A. Lileck J. R. Pallette E. B. Poser
M. A. Ross L. Santos D. J. Turner File

Table 15.0-1 (Continued)

19.	Scram Reactivity,-$Δk	
	Analysis Data	Figure 15.0-1
20.	Control Rod Drive Speed,	
	position versus time	Figure 15.0-1
21.	Jet Pump Ratio, M	1.84
22.	Relief Valve Capacity, % NBR	
	@ 1091 psig	99.0
	Manufacturer	Crosby
	Quantity Installed	16
23.	Relief Function Delay, seconds	0.4
24.	Relief Function Response, seconds	0.15
25.	Set Points for Relief Valves	
	Relief Function, psig	1110, 1120, 1130, 1140, 1150
26.	Number of Valve Groupings Simulated	
	Relief Function, No.	5
27.	High Flux Trip, % NBR	
	Analysis set point (120 x 1.044),	
	% NBR	125.3
28.	High Pressure Scram Set Point, psig	1071
29.	Vessel Level Trips, Feet Above	
	Separator Skirt Bottom	
	Level 8 - (L8), feet	5.625 (6.014)***
	Level 3 - (L3), feet	2.167 (1.792)***
	Level 2 - (L2), feet	(-)2.042 (-3.708)***
30.	APRM Thermal Trip	
	Set Point, % NBR	125.0
31.	RPT Delay, seconds	0.175
32.	Pump Inertia Time Constant, sec	4.5*

*The inertia time constant is defined by the expression:

$$t = \frac{2\,\Pi\,J_o n}{g\,T_o}$$

, where t = inertia time constant (Sec).

J_o = pump motor inertia ($lb\text{-}ft^2$)
n = rated pump speed (rps)
g = gravitational constant (ft/sec^2)
T_o = pump shaft torque (lb-ft)

** Parameters used in REDY only. ODYN values are calculated within the code for equilibrium cycle conditions.

*** Parenthetical values represent the present analytical limits which were not used in these analyses but can be supported by sensitivity studies which show no change in operating limit CPRs. (Note that only the feedwater controller failure is affected by level 8 and only the loss of feedwater flow is affected by level 3. Level 2 does not affect any CPR results.

Table 15.0-2 (Continued)

18.	Core Average Rated Void** Fraction, %	40.74
19.	Scram Reactivity, $\$\Delta k$ Analysis Data	Figure 15.0-2
20.	Control Rod Drive Speed, Position versus time	Figure 15.0-2
21.	Jet Pump Ratio, M	1.84
22.	Safety/Relief Valve Capacity, % NBR @ 1091 psig	99.0
	Manufacturer	CROSBY
	Quantity Installed	16
23.	Relief Function Delay, seconds	0.4
24.	Relief Function Response, seconds	0.15
25.	Set Points for Safety/Relief Valves, psig	1110, 1120, 1130, 1140, 1150
26.	Number of Valve Groupings Simulated	5
27.	High Flux Trip, % NBR Analysis set point (120 x 1.044), % NBR	125.3
28.	High Pressure Scram Set Point, psig	1071
29.	Vessel Level Trips, Inches Above (+), Below (-) Dryer Skirt Bottom	
	Level 8 - (L8), inches	+54 (+58.5)#
	Level 4 - (L4), inches	+30
	Level 3 - (L3), inches	+12.5 (+8)#
	Level 2 - (L2), inches	-38 (-58)#
30.	APRM Thermal Trip Set Point, % NBR	125.0
31.	Recirculation Pump Trip Delay, Seconds	0.175
32.	Recirculation Pump Trip Inertia for Analysis, seconds*	4.5

Table 15.0-2 (Continued)

*The inertia time constant is defined by the expression:

$$t = \frac{J n q}{T}$$

where t = inertia time constant (Sec).
J = pump motor inertia (lb-ft^2)
n = rated pump speed (rps)
q = gravitational constant (ft/sec^2)
T = pump shaft torque (lb-ft)

** Parameters used in REDY only. ODYN valves are calcualted within the code for equilibrium cycle conditions.

Parenthetical values represent the present analytical limits, which were not used in these analyses, but can be supported by sensitivity studies which show no change in operating limit CPR's.