

# GENERAL ELECTRIC

NUCLEAR POWER

SYSTEMS DIVISION

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MFN 046-83  
JNF 012-83

March 3, 1983

U.S. Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Washington, D.C. 20555

Attention: Mr. D.G. Eisenhut, Director  
Division of Licensing

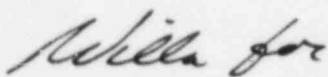
SUBJECT: IN THE MATTER OF 238 NUCLEAR ISLAND  
GENERAL ELECTRIC STANDARD SAFETY ANALYSIS REPORT  
(GESSAR II) DOCKET NO. STN 50-447

## SECTION 3.11 ENVIRONMENTAL DESIGN

The purpose of this letter is to request the review of GESSAR II Section 3.11 in parallel with the Staff's current review of the Licensing Topical Report (LTR) NEDE-24326-1-P, "General Electric Environmental Qualification Program." The proposed action plan, recently discussed with the Equipment Qualification Branch, is provided as Attachment No. 1.

Since subsection 3.11.2 (Qualification Tests and Analyses) will "track" the LTR and the LTR review is nearing completion, the most effective use of resources is to submit a revised subsection 3.11.2 for Staff review shortly after approval of the LTR (mid-April 1983) with GE identifying any differences between the LTR and subsection 3.11.2. In the interim, GE is providing Attachment No. 2 which is a draft of revised Section 3.11.1, 3.11.4 and 3.11.5 (Environmental Conditions, Loss of Ventilation and Estimated Chemical and Radiation Environment, respectively) for staff review. As shown on the action plan, a supplemental safety evaluation report and the corresponding Section 3.11 amendment are anticipated by the end of June 1983.

Very truly yours,



Glenn G. Sherwood, Manager  
Nuclear Safety & Licensing Operation

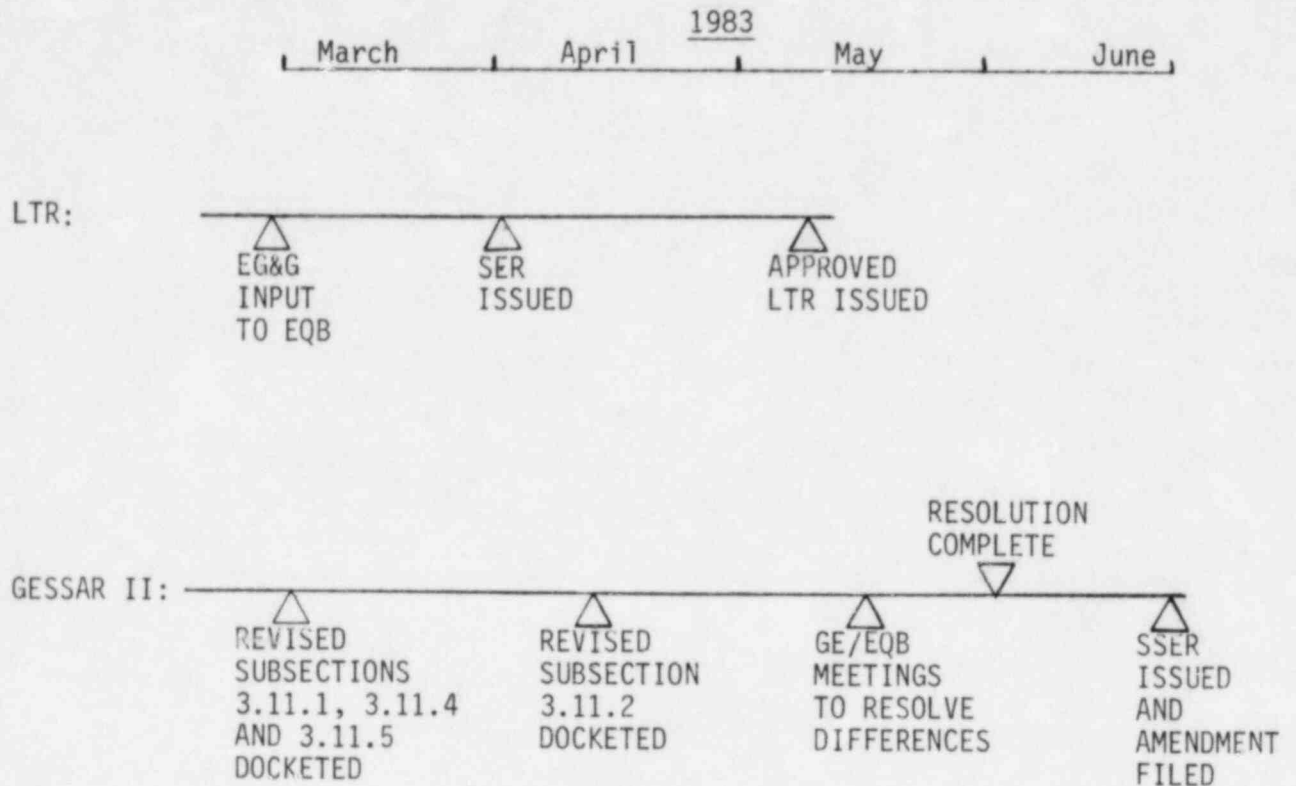
### Attachments

cc: F.J. Miraglia (Without Attachments)  
D.C. Scaletti  
P. Shemanski  
R.J. Wright  
C.O. Thomas (Without Attachments)  
L.S. Gifford (Without Attachments)  
R.M. Ketchel (Without Attachments)

*E-003*

ATTACHMENT NO. 1

PROPOSED GESSAR II  
SECTION 3.11 ACTION PLAN



NOTES

- o Subsections 3.11.1, 3.11.4, and 3.11.5 under review by EQB while LTR being reviewed.
- o GESSAR II subsection 3.11.2 to "track" LTR. GE will identify differences.
- o GESSAR II will utilize R. G. 1.3 and 1.4 source terms (are presently reviewing GESSAR II to give credit for Pool Scrubbing - - SSER scheduled for September 1983).

ATTACHMENT NO. 2

DRAFT OF REVISED GESSAR II  
SUBSECTIONS 3.11.1, 3.11.4 AND 3.11.5

### 3.11.3 Qualification Results

Applicant to supply.

### 3.11.4 Loss of Ventilation

Insert ① →

~~All environmental zones of the Reactor and Turbine Buildings and specific environmental zones of the Auxiliary Building (AB-5, AB-6, and AB-7) and Fuel Building (FB-2 and FB-3 of Table 3.11-4) include the loss of heating, ventilating, and air conditioning (HVAC) systems as an abnormal environmental condition. The HVAC system for the Control Building and the environmental zones of the other buildings are designed as Class 1B electrical equipment. Hence, no special loss of HVAC environmental conditions have been included in these environmental zones. The bases ensuring that the loss of HVAC conditions are not exceeded are provided in the following subsections. Testing and documentation of safety-related equipment exposed to loss of HVAC environmental conditions is covered under Subsection 3.11.3.~~

#### ~~3.11.4.1 Drywell Loss of HVAC~~

~~Applicant to supply.~~

#### ~~3.11.4.2 Containment Loss of HVAC~~

~~Applicant to supply.~~

#### ~~3.11.4.3 Auxiliary Building Loss of HVAC~~

~~Applicant to supply.~~

#### ~~3.11.4.4 Fuel Building Loss of HVAC~~

~~Applicant to supply.~~



insert ①

3.11.4 LOSS OF VENTILATION

Environmental conditions resulting from loss of ventilation (HVAC) are presented in Tables 3.11-2 through 3.11-6, where applicable, for Nuclear Island areas except for Radwaste Building. The Radwaste Building does not contain any safety related or safe shutdown equipment. As noted in the tables, areas containing major equipment of safety related systems are provided with safety grade cooling systems and as such are not affected by loss of ventilation.

The loss-of-ventilation environmental conditions shown in the tables are included in Nuclear Island Design and Equipment specifications and are to be considered for environmental qualification of equipment.

The loss of ventilation calculations were based on maximum heat loads and considered operation of all operable equipment regardless of safety classification.

3.11.4.5 ~~Turbine Building Loss of HVAC~~

~~Applicant to supply.~~

3.11.4.6 Diesel Generator Building Loss of HVAC

The Diesel Generator Buildings are served by safety class HVAC systems. Thus the loss of the HVAC systems for these buildings is not considered credible, and these environmental zones need not be analyzed for a loss of HVAC event. Also, since divisionally separate diesel generation systems are provided with their dedicated, divisionally separate HVAC systems, the loss of one HVAC system will not adversely affect the operability of safety-related equipment located in these buildings.

3.40

3.11.5 Estimated Chemical and Radiation Environment

~~INSRAT (2)~~  
~~Applicant to supply.~~

3.11.5.1 ~~Chemical Environment~~

~~Equipment in the containment, outside the drywell is subject to water spray from Containment Spray mode of RHR system.~~

## INSERT 2

### 3.11.5.1 Chemical Environment

Equipment located in the containment (outside of the drywell) is potentially subject to water spray from the containment spray mode of the RHR system. In addition equipment in the lower portions of the containment are potentially subject to submergence and wetting by pool swell and weir annulus backflow.

#### 3.11.5.1.1 Containment Spray

The containment spray is to be considered activated for a period of time between 10 minutes and 100 days \* post - LOCA. Spray characteristics are 400 micron particle size (nominal minimum); 1.1 gpm per square foot and 125 F temperature. Water quality is given in section 3.11.5.1.3.

#### 3.11.5.1.2 Suppression Pool Wetting and Submergence

The characteristics and extent and post - LOCA pool swell, and weir annulus backflow are given in Appendix 3B. Water quality is given in Section 3.11.5.1.3.

#### 3.11.5.1.3 Post LOCA Water Quality

The following water quality based on fission product release of R.G. 1.7:

- a. pH = 4.5 to 7.0
- b. conductivity  $\leq 21 \mu S/cm$
- c.  $\leq 8 ppm O_2$ ,  $\leq 1 ppm CO_2$
- d.  $\leq 2.0 \times 10^{-5}$  g mole/l dissolved salts available to deposit as dry salts upon evaporation from hot surfaces.
- e.  $\leq 9.0 ppm$  undissolved solids
- f.  $\leq 60 ppb$  dissolved  $H_2$  arising from  $\leq 4\%$  volume of  $H_2$  in containment atmosphere.

#### 3.11.5.2 Radiation Environments

The radiation environments are given in Tables 3.11-2 through 3.11-6 for the various Nuclear Island buildings except for Radwaste Building.

\* This should not be construed necessarily as establishing a continuous 100 day operating time for the Containment Spray System. Actual operating time guidance is established in NEDO-24934 (BWR Emergency Procedure Guidelines).

TABLE 3.1-2A

## ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF	San Jose	W V Cralley General Electric
(#'s) REFER TO "SYSTEM OPER. STATUS" MATRIX SHEET TABLE 3.1-7 FLOOR ELEVATIONS + FREQUENCIES CONTAINMENT - ABOVE REFUELLING FLOOR											
84'-7" EL CT-1			SUM/WINT 90°/70°	20-90%	(-)0.1 to (-)1.0" H <sub>2</sub> O	—	$1.8 \times 10^3$	0			
NORMAL HVAC											
ABNORMAL											
LOSS OF HVAC	0 to 45 min Avg *45 min - 20 hr	3 3	90°-121° Avg 121°	20-90% 50-100%	*(-)0.1" to (+)1.0" H <sub>2</sub> O *(-)0.1" to (+)1.0" H <sub>2</sub> O			0			
LOSS OF OFFSITE POWER	*20 hr-27.5 hr Same as loss of HVAC (HVAC Powered by Non-Div "N" Bus - Interrupt. Offsite Power)	3	121°-90°	50-100%	*(-)0.1" to (+)1.0" H <sub>2</sub> O						
TEST (18)	*0 to 20 hr	12	*90°	20-90%	8 psig			0			
ISOLATION EVENTS (1,2,3,4,5,6,7,8, 12,16)	*0 to 30 min *30 min-10 hr *10 to 24 hr		*90°-120° *120° *120°-90°	*100% *100% *20-90%	*0 to 1.75psig *1.75 psig *1.75 to 0psig	$1.2 \times 10^4$ (NOTE 6)	$4.4 \times 10^3$ (NOTE 6)	0	(6)		
ACCIDENT LARGE HE PIPE BREAK IN DRYWELL	*0 to 6 sec *6-45 sec *45 sec -10 min *10 min -1 day *1 to 100 days	(1)	*90°-120° *120°-150° *150°-185° *185° *185°-90°	*100% *100% *100% *100% *100%	*0 to 6 psig *6 to 9 psig *9 to 15 psig *15 psig *15 to 0 psig	FIGURE 2 (NOTE 7)	FIGURE 1 (NOTE 2)	0	(7)		
*SEE SUPPLEMENTED DATA											

TABLE 11-2A

ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
CONTAINMENT - ABOVE SUPPRESSION POOL									
(-)11'-2" El CT-2									
NORMAL HVAC			NORM/ST-UP 100°/40°	20-90%	(-)0.1" to (-) H <sub>2</sub> O		(NOTE 4)	0	(4)
HOT STANDBY			*100°-120°	20-90%	*(-)0.1" to (-)1.0" H <sub>2</sub> O			0	
ABNORMAL LOSS OF HVAC	0 to 45 min Avg	3	100°-121° Avg	*100%	*0-1.24 psig			0	
LOSS OF OFFSITE POWER	*45 min-20 hr *20 Hr-27.5 hr SAME AS LOSS OF HVAC (HVAC POWERED BY NON DIV "N" BUS - INTERRUPT. OFFSITE POWER)		121° 121°-100°	*100% *100%	*1.24 psig *1.24-0 psig				
ISOLATION EVENTS (1,2,3,4,5,6,7,8, 12,16)	*0 to 30 min *30 min-10 hr *10 to 24 hr		100°-150° Avg 150° 150°-100°	*100% *100% *100%	*0 to 1.75 psig *1.75 psig *1.75 to 0 psig	1.2 x 10 <sup>4</sup> (NOTE 6)	4.4 x 10 <sup>2</sup> (NOTE 6)	0	(3)(6)
TEST (18)	*0 to 20 hr	12	*100°	20-90%	*8 psig			0	
ACCIDENT SMALL HE PIPE BREAK IN DRYWELL	*0 to 45 sec *45 sec-10 min *10 min-1 day *1 to 100 days	(1)	*100°-150° *150°-185° *185° *185°-100°		*0 to 9 psig *9 to 15 psig *15 psig *15 to 0 psig				
*GE SUPPLIED DATA									

San Jose

W V Cralley  
General Electric

C F BRAUN & CO

TABLE 3.11-2A  
ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm²)	ADDED NOTE REF
CONTAINMENT - ABOVE SUPPRESSION POOL									
(-) 11'-2" EL									
CT-2 (cont'd)									
ACCIDENT (Contd)									
LARGE HE PIPE BREAK IN DRYWELL	*0 to 1.5 sec *1.5 to 4 sec *4 to 6 sec *6 to 45 sec *45 - 10 min *10 min-1 day *1 to 100 days		*100°-125° *125° *125°-120° *120°-150° *150°-185° *185° *185°-100°		*0 to 15 psig *15 psig *15 to 6 psig *6 to 9 psig *9 to 15 psig *15 psig *15 to 0 psig			0	(7)
*GE SUPPLIED DATA									



TABLE 11-2A  
ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF	San Jose	W V Cralley General Electric
CONTAINMENT - HCU FLOOR											
11'-0" El											
CT-3			NORM/ST-UP								
NORMAL HVAC			90°/40°	20-70%	(-)0.1 to (-)1.0" H <sub>2</sub> O	—	$7.0 \times 10^5$	0			
ABNORMAL											
LOSS OF HVAC	0 to 45 min Avg	3	90°-121°	20-90%	*(-)0.1 to (+)1.0" H <sub>2</sub> O			0			
	*45 min-20 hr	3	121°	50-100%	*(-)0.1 to (+)1.0" H <sub>2</sub> O						
	*20 hr-27.5 hr	3	121°-90°	50-100%	*(-)0.1 to (+)1.0" H <sub>2</sub> O						
LOSS OF OFFSITE POWER	SAME AS LOSS OF HVAC (HVAC POWERED BY NON-DIV "N" BUS - INTERRUPT OFFSITE POWER)										
ISOLATION EVENTS (1,2,3,4,5,6,7,8 12,16)	*0 to 30 min *30 min-10 hr *10 to 24 hr		*90°-120° *120° *120°-90°	*100% *100% *20-90%	*0 to 1.75 psig *1.75 psig *1.75 to 0 psig	$1.2 \times 10^4$ (NOTE 6)	$4.4 \times 10^2$ (NOTE 6)	0	(6)		
TEST (18)	*0 to 20 hr	12	*90°	20-90%	*8 psig						
ACCIDENT		(1)									
LARGE HE PIPE BREAK IN DRYWELL	*0 to 6 sec *6-45 sec *45 sec-10 min *10 min-1 day *1 to 100 days		*90° to 120° *120°-150° *150°-185° *185° *185°-90°	*100% *100% *100% *100% *100%	*0 - 6 psig *6 - 9 psig *9 - 15 psig *15 psig *15 to 0 psig	FIG. 2 (NOTE 7)	FIG. 1 (NOTE 7)	0	(7)		
*GE SUPPLIED DATA											

TABLE 11-2A

## ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF	San Jose	W V Cralley General Electric
CONTAINMENT -SLCS AREAS											
37'-1" E1											
CT-4			SUM/WINT								
NORMAL HVAC			90°-70°	20-90%	(-)0.1 to (-)1.0" H <sub>2</sub> O	—	1.8x10 <sup>3</sup>	0			
ABNORMAL											
LOSS OF HVAC	0 to 45 min Avg	3	90°-121° Avg	20-90%	*(-)0.1 to (+)1.0" H <sub>2</sub> O			0			
	*45 min-20 hr	3	121°	50-100%	*(-)0.1 to (+)1.0" H <sub>2</sub> O						
	*20 hr-27.5 hr	3	121°-100°	50-100%	*(-)0.1 to (+)1.0" H <sub>2</sub> O						
LOSS OF OFFSITE POWER	SAME AS LOSS OF HVAC (HVAC POWERED BY DIV "N" BUS --- INTERRUPT. OFFSITE POWER)										
ISOLATION EVENTS (1,2,3,4,5,6,7,8, 12,16)	*0 to 30 min *30 min-10 hr *10 to 24 hr		*90°-120° *120° *120°-90°	*100% *100% *20-90%	*0 to 1.75 psig *1.75 psig *1.75 to 0 psig	1.2x10 <sup>2</sup> (NOTE 6)	4.4x10 <sup>2</sup> (NOTE 6)	0	(6)		
TEST (18)	*0 to 20 hr	12	*90°	*20-90%	*8 psig						
ACCIDENT		(1)				FIG. 2 (NOTE 7)	FIG. 1 (NOTE 7)	0	(7)		
LARGE HE PIPE BREAK IN DRYWELL	*0 to 6 sec *6 sec-45 sec *45 sec-10 min *10 min-1 day *1 to 100 days		*90°-120° *120°-150° *150°-185° *185° *185°-90°	*100% *100% *100% *100% *100%	*0 to 6 psig *6-9 psig *9-15 psig *15 psig *15-0 psig						
*GE SUPPLIED DATA											



TABLE 3.11-2A

ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
CONTAINMENT -RWCU ROOMS (HOLDING PUMP & FILTER DEMIN)									
59'-7" El									
CT-5									
NORMAL HVAC: PUMP RM F/D RMS			90° 105°	20-70%	(-)0.1 to (-)1.0" H <sub>2</sub> O		(NOTES)	0	(5)
ABNORMAL									
LOSS OF HVAC (RWCU PUMP & F/D)	0 to 45 min Avg	3	100°-109° AVG.	20-90%	*(-)0.1 to (+)1.0" H <sub>2</sub> O			0	
	*45 min-20 hr	3	109°	20-90%	(-)0.1 to (+)1.0" H <sub>2</sub> O				
	*20 hr-27.5 hr	3	109°-100°	20-90%	(-)0.1 to (+)1.0" H <sub>2</sub> O				
LOSS OF OFFSITE POWER (ALL HVAC EQUIP EXCL RWCU RMS)	0 to 1 hr		100°-127°	20-90%	(-)0.1 to 0" H <sub>2</sub> O				
ISOLATION EVENT	(RWCU HVAC POWERED BY DIV N1 AND N2 BUS—NORMAL POWER, DG BACKED, SHED ON LOCA ONLY; CONT HVAC POWERED BY NON-DIV "N" BUSES-INTERRUPT OFFSITE POWER)					1.2 x 10 <sup>4</sup> (Note 6)	4.4 x 10 <sup>2</sup> (Note 6)	0	(6)
TEST	*0 to 20 hr	12	100°	20-90%	*8 psig				
ACCIDENT		(1)							
LARGE HE PIPE BREAK IN DRYWELL	*0 to 6 sec *6-45 sec *45 sec-10 min *10 min-1 day *1 to 100 days		*100°-120° *120°-150° *150°-185° *185° *185°-100°	*100% *100% *100% *100% *100%	*0 to 6 psig *6 to 9 psig *9 to 15 psig *15 psig *15 to 0 psig	FIG. 2 (Note 7)	FIG. 1 (Note 7)	0	(7)
*GE SUPPLIED DATA									

San Jose

W V Cralley  
General Electric

C F BRAUN & CO

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W V Cralley  
General Electric

San Jose

TABLE 3.11-2A  
CONTAINMENT  
ADDENDUM TO DATA SHEETS

- 1 Pressure Control is not a part of the air conditioning system. A negative pressure level within the overall containment area is maintained by separate constant-exhaust-air and variable-supply-air systems. A differential pressure controller (RR619) above the suppression pool area, throttles a damper in the supply air ductwork to maintain the containment at a negative pressure with respect to the ambient atmosphere.

Isolation valves to maintain the containment integrity are installed in the supply and exhaust ducts where they penetrate the containment/shield building barriers. These valves will close in the event of high radioactivity detection within the containment, and the exhaust and supply air systems will be shut-down. In addition, a shut-off damper will be closed in the outside air intake duct to the supply air system.

- 2 The systems are balanced to provide an air flow pattern from areas of low potential contamination to areas of higher potential contamination.
- 3 For the Zone CT-2 Abnormal condition of "ISOLATION EVENTS", the suppression pool temperature was assumed to be 150°F due to the 19 SRV's opening.

4 The normal operating 40 year dose to equipment located in the Traversing Incore ~~Probe~~ Probe Cubicle is  $8.2 \times 10^5$  Rads (gamma). The dose for the remaining area in this volume is  $1.8 \times 10^3$  Rads (gamma).

5 The following normal operating 40 year doses should be used for the RWCU system equipment located in the following rooms.

RWCU F/D Cubicle	$1.5 \times 10^7$ Rads (gamma)
RWCU F/D Valve Gallery	$1.6 \times 10^4$ Rads (gamma)
RWCU F/D Drain Room	$3.5 \times 10^4$ Rads (gamma)
RWCU Backwash Tanks Room	$1.1 \times 10^7$ Rads (gamma)
RWCU Heat Exchanger Room	$1.9 \times 10^5$ Rads (gamma)

6 The dose is based conservatively on the SCRAM with turbine isolation event. It is assumed that there shall be 300 such events through the life of the plant.

7 The dose is based on the Loss of Coolant Accident utilizing Regulatory Guide 1.3 and 1.7 assumptions.



FIGURE 1 POST-LOCA CONTAINMENT GAMMA DOSE RATES AND DOSES

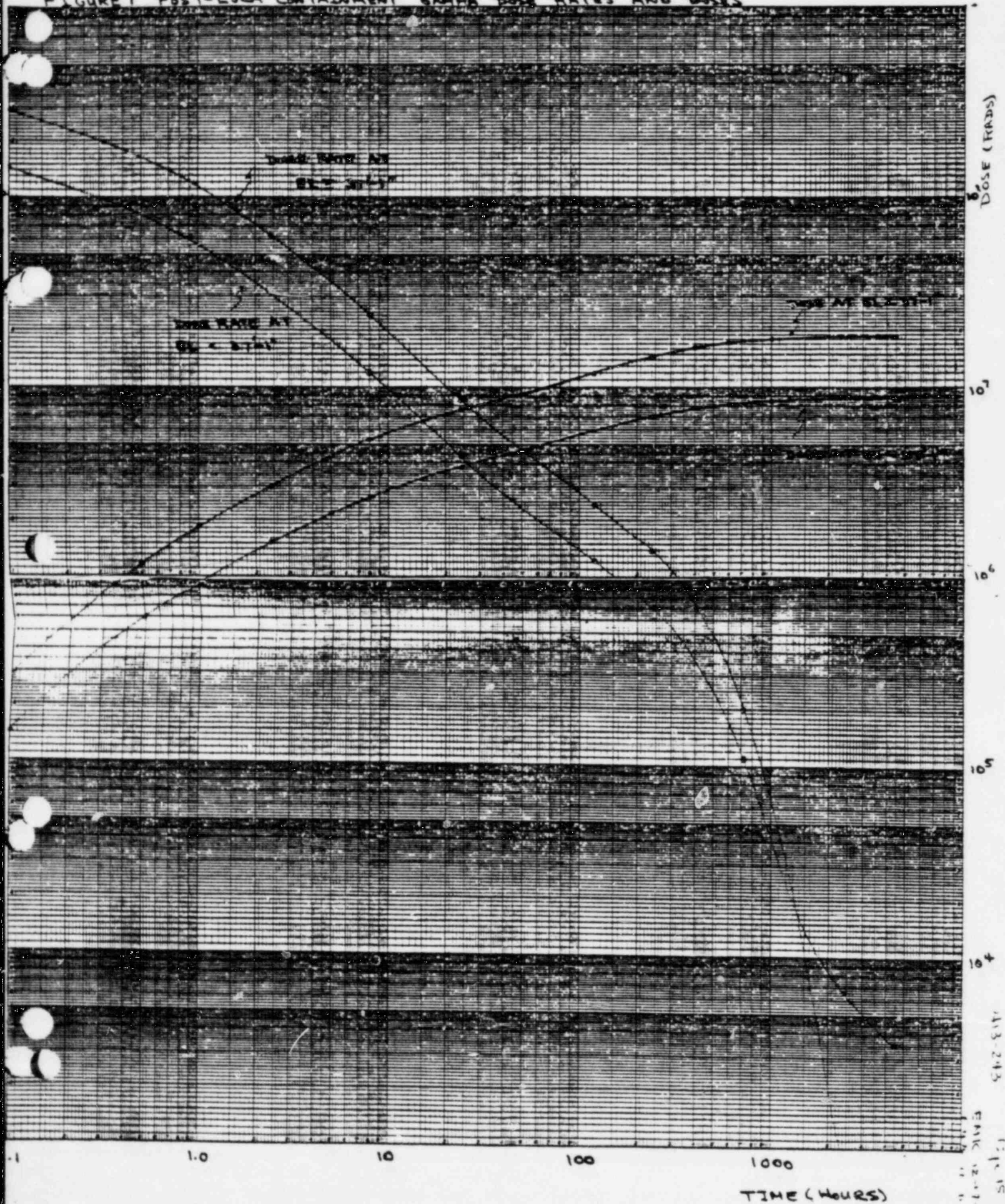


TABLE 3 11-2A  
CONTAINMENT ADDENDUM

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FIGURE 2 POST-LOCA CONTAINMENT SEMI-INFINITE A-DOSE RATE

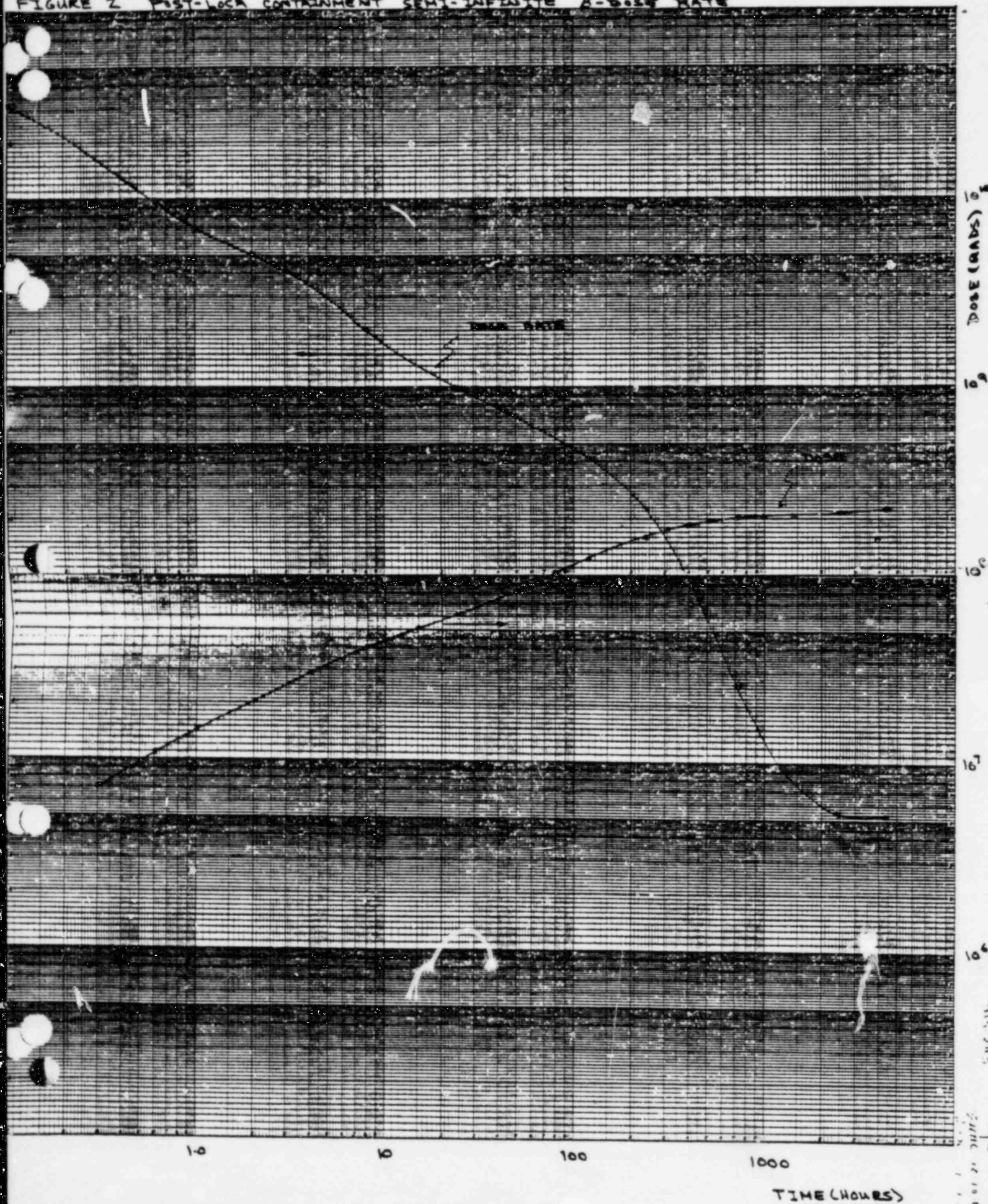




TABLE 3.1. 2B

## ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF	San Jose	W V Cralley General Electric
(#s) REFER TO "SYSTEM OPER. STATUS" MATRIX SHEET.											
DRYWELL - OUTSIDE RPV SHIELD WALL - NOT AT CORE MIDPLANE											
DW-1											
NORMAL HVAC			135°	20-90%	*±2 psig	—	(Note 7)	(Note 7)	(7)		
REFUELING			70°	20-90%	*±2 psig						
ABNORMAL											
LOSS OF HVAC	0-16 min 16 min-58 min *58 min-5 hr	* 3	135°-242° 242°-251° 251°-135°	*1-90% *1-90% *1-90%	*0 to 3 psig *3 to 2 psig *2 to 0 psig	—	—	—			
LOSS OF OFFSITE POWER	NO IMPACT-SAME AS NORMAL (HVAC POWERED BY DIV N1 & N2 BACKED, SHED ON LOCA ONLY)										
ISOLATION EVENTS	*0 to 75 sec *75 sec-30 min	* 50	*135°-150° *150°-135°	*15-60% *20-90%	*0 to 2 psig *2 to 0 psig	1.2 × 10 <sup>4</sup>	4.4 × 10 <sup>2</sup>	—	(4)		
TEST (17)	*0 to 20 hr	*12	*100°	*20-90%	*3 psig	—	—	—			
ACCIDENT		(1)									
LARGE HE PIPE BREAK IN DRYWELL	*0-1.5 sec *1.5-40 sec *40-45 sec *45 sec-1 hr *1 hr-1 day *1 day-30 days		*135°-330° *330° *330°-250° *250° *250° *250°-135°	*Steam *Steam *Steam *Steam *100% *100%	*0 to 30 psig *30 psig *30 to 15 psig *15 psig *15 to 5 psig *5 to 0 psig	FIG. 1 (Note 8)	FIG. 1 (Note 8)	—	(8)		
*GE SUPPLIED DATA											

TABLE 3.1-2B

ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
San Jose									
General Electric									
W V Cralley									
DRYWELL---OUTSIDE RPV SHIELD WALL--AT CORE MIDPLANE									
DW-2									
NORMAL HVAC REFUELING			135° 70°	20-90% 20-90%	*±2 psig *±2 psig	—	(Note 7)	(Note 7)	(7)
ABNORMAL LOSS OF HVAC	0 to 16 min 16 min-58 min *58 min-5 hr	* 3	135°-242° 242°-251° 251°-135°	*1-90% *1-90% *1-90%	*0 to 3 psig *3 to 2 psig *2 to 0 psig	—	—	—	
LOSS OF OFFSITE POWER	NO IMPACT-SAME AS NORMAL (HVAC POWERED BY DIV N <sub>1</sub> & N <sub>2</sub> BUS - BACKED, SHED ON A LOCA ONLY)					NORMAL POWER, DG			
ISOLATION EVENTS	*0 to 75 sec *75 sec-30 min	*50	*135°-150° *150°-135°	*15-60% *20-90%	*0 to 2 psig *2 to 0 psig	1.2 x 10 <sup>4</sup>	4.4 x 10 <sup>2</sup>	—	(4)
TEST (17)	* 0 to 20 hr	* 12	* 100°	* 20-90%	* 3 psig	—	—	—	
ACCIDENT		(1)							
LARGE HE PIPE BREAK IN DRYWELL	*0 to 1.5 sec *1.5-40 sec *40-45 sec *45 sec-1 hr *1 hr-1 day *1-100 days		*135°-330° *330° *330°-250° *250° *250° *250°-135°	*Steam *Steam *Steam *Steam *100% *100%	*0 to 30 psig *30 psig *30 to 15 psig *15 psig *15 to 5 psig *5 to 0 psig	FIG. 1 (Note 8)	FIG. 1 (Note 8)	0	(8)
*GE SUPPLIED DATA									

TABLE 11-2B

## ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDED NOTE REF
DRYWELL - UNDER RPV INSIDE PEDESTAL									
DW-3			135°	*20-90%	*12 psig	—	*2 x 10 <sup>6</sup>	*1 x 10 <sup>14</sup>	
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC w/SCRAM	0 to 3 min 3 to 58 min *58 min-5 hr	* 3	135°-276° 276°-251° 251°-135°	*1-90% *1-90% *1-90%	*0 to 3 psig *3 to 2 psig *2 to 0 psig	—	—	—	
LOSS OF OFFSITE POWER	NO IMPACT-SAME (HVAC POWERED BACKUP, SHED ON LOCA ONLY)		AS NORMAL BY DIV N1 & N2 BUS		NORMAL POWER, DG				
SCRAM w/ISOLATION	*0 to 1 min *1-30 min *30 min-1 hr *1 to 2 hr	50	*135°-185° *185° *185°-150° *150°-135°	*6-30% *6-30% *15-60% * -90%		—	—	—	
SCRAM WITHOUT ISOLATION	*0 to 1 min *1-30 min *30 min-1 hr	150	*135°-185° *185° *185°-135°	*6-30% *6-30% * -90%		1 x 10 <sup>4</sup>	4.4 x 10 <sup>2</sup>	—	
TEST	*0 to 20 hr	*12	*100°	*20-90%	*3 psig	—	—	—	
ACCIDENT									



TABLE C.11-2B

# ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT

J V Cralley  
General Electric

San Jose

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
DRYWELL - UNDER RPV INSIDE PEDESTAL									
DW--3 (contd)									
ACCIDENT (Contd)									
LARGE HE PIPE BREAK IN DRYWELL	*0 to 1.5 sec *1.5-40 sec *40-45 sec *45 sec-1 hr *1 hr-1 day *1-100 days	(1)	*135°-330° *330° *330°-250° *250° *250° *250°-135°	*Steam *Steam *Steam *Steam *100% *100%	*0 to 30 psig *30 psig *30-15 psig *15 psig *15-5 psig *5 to 0 psig	FIG. 1 (NOTE 8)	FIG. 1 (NOTE 8)	0	(8)

TABLE 11-2B  
ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Nln/ cm <sup>2</sup> )	ADDED NOTE REF
DRYWELL - DOME, WITHIN DRYWELL HEAD									
DW-4									
NORMAL HVAC			151°	10-90%	*±2 psig	---	2.7 x 10 <sup>7</sup>	6.0 x 10 <sup>14</sup>	(5)
ABNORMAL									
LOSS OF HVAC	0 to 4 min 4-58 min *58 min-5 hr	* 3	151°-155° 155° 155°-151°	1-30% 1-30% 1-30%	*0 to 3 psig *3 to 2 psig *2 to 0 psig	---	---	---	(6)
LOSS OF OFFSITE POWER									
SCRAM 74% ISOLATION									
TEST	*0 to 20 hr	*12	*100°	20-90%	*3 psig	---	1.2 x 10 <sup>4</sup>	4.4 x 10 <sup>2</sup>	
ACCIDENT		(1)							
LARGE HE PIPE BREAK IN DRYWELL	*0 to 1.5 sec *1.5-40 sec *40-45 sec *45 sec-1 hr *1 hr-1 day *1 to 100 days		*151°-330° *330 *330°-250° *250° *250° *250°-151°		*0 to 30 psig *30 psig *30 to 15 psig *15 psig *15 to 5 psig *5 to 0 psig	FIG. 1 (NOTE 8)	FIG. 1 (NOTE 8)	0	(8)

TABLE 3.11-2B

## ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT

W V Cralley General Electric									
San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDED NOTE REF
DRYWELL - OUTSIDE RPV SKIRT (INSIDE SHIELD WALL)									
DW-5			135°	20-90%	*+2 psig	—	$2 \times 10^6$	$1 \times 10^{14}$	
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC	0 to 3 min 3-58 min *58 min-5 hr	* 3	135°-276° 276°-251° 251°-135°	*1-90% *1-90% *1-90%	*0 to 3 psig *3 to 2 psig *2 to 0 psig	—	—	—	
LOSS OF OFFSITE POWER	NO IMPACT- (HVAC POWERED BY DIV N1 & N2 BACKED, SHED ON ILOCA ONLY)	SAME AS NORMAL		BUS-----NORMAL POWER, DG					
SCRAM 76% ISOLATION									
TEST	*0 to 20 hrs	*12	*100°	*20-90%	*3 psig	$1.2 \times 10^4$	$4.4 \times 10^2$	—	
ACCIDENT	(1)					—	—	—	
LARGE HE PIPE BREAK IN DRYWELL	*0 to 1.5 sec *1.5 to 40 sec *40-45 sec *45 sec-1 hr *1 hr-1 day *1-100 days		*135°-330° *330° *330°-250° *250° *250° *250°-135°	*Steam *Steam *Steam *Steam *100% *100%	*0 to 30 psig *30 psig *30-15 psig *15 psig *15-5 psig *5-0 psig	FIG. 1 (Note 8)	FIG. 1 (Note 8)	0	(8)

TABLE 11-2B  
ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
San Jose									
General Electric									
W V Crallie									
DRYWELL - ANNULUS BETWEEN RPV & RPV SHIELD WALL									
DW-6									
NORMAL HVAC			550°	1-30%	*(-)0.5 to +1.5" H <sub>2</sub> O	—	*1.8x10 <sup>10</sup>	*4x10 <sup>17</sup>	
ABNORMAL									
LOSS OF HVAC	*0 to 25 min *25-58 min *58 min-5 hr	3 3 3	550°-575° 575°-475° 475°-135°	1-5% 1-5% 6-90%	*0 to 3 psig *3 to 2 psig *2 to 0 psig	—	—	—	
LOSS OF OFFSITE POWER	NO IMPACT-SAME AS NORMAL (HVAC POWERED BY DIV N <sub>1</sub> & N <sub>2</sub> BUS—NORMAL POWER, DG BACKUP, SHED ON ONLY)								
SCRAM 74% ISOLATION			—	—	—	1.4x10 <sup>4</sup>	4.4x10 <sup>2</sup>	—	
ACCIDENT									
LARGE HE PIPE BREAK IN DRYWELL	*0 to 1.5 sec *1.5-40 sec *40-45 sec *45 sec-1 hr *1 hr-1 day *1 to 100 days		*550° *550° *550° *550°-250° *250° *250°-100°	*Steam *Steam *Steam *Steam *100% *100%	*0 to 30 psig *30 psig *30-15 psig *15 psig *15 psig *15 to 0 psig	FIG. 1 (Note 8)	FIG. 1 (Note 8)	0	(8)
*GE SUPPLIED DATA									

W V Cralley  
General Electric

San Jose

TABLE 3.11-2B  
DRYWELL  
ADDENDUM TO DATA SHEETS

Pressure control is not a part of the drywell air conditioning systems, which are 100 percent recirculating. The various requirements for drywell pressure control are handled as follows.

- 1 During the reactor start-up mode, an increase in drywell pressure will result from the increase in air temperature. A drywell bleed-off vent system is provided to prevent this pressure from exceeding the containment pressure by 2 psig, which would initiate a LOCA signal.
- 2 A steam line break in the drywell will initially cause an outflow of non-condensibles through the suppression pool to the containment, and a subsequent condensation of the steam within the drywell, after termination of the steam flow, can result in the drywell pressure becoming negative with respect to the containment. A drywell vacuum relief system is provided to prevent this negative pressure differential from causing the suppression pool to overflow and flood the base of the drywell. This drywell vacuum relief system also protects against an overpressurization of the containment from an instrument line break which could also result in an overflow of the suppression pool into the drywell.
- 3 A drywell purge mode shall be provided to remove any accumulation of radioactive gases from the drywell prior to re-entry of the drywell during a routine plant shutdown. This is accomplished by having the SGTS exhaust fan draw air from the drywell and in conjunction draw replacement air into the drywell from the containment area, through valved ducting which penetrates the drywell ceiling.
- 4 Abnormal Isolation Events for Zones DW-1 and 2, are based on "19 SRV's Open With Scram" and 150°F Suppression Pool temperature.
- 5 Normal HVAC temperature for DW-4 is based on a Fuel Pool temperature of 126. °F
- 6 Abnormal Loss of HVAC temperature is based on a Fuel Pool temperature rise to 128.5°F.



- 7) The normal operating 40 year dose in the Drywell between the Reactor Shield Wall and a radial distance 24'-0" from the reactor centerline, and vertically between elevations (+) 8'-0" ~~to~~ to an elevation of (+) 46'-0" is  $5.2 \times 10^7$  Rads (Gamma) and  $1.1 \times 10^{15}$  nvt (Neutron > 1 Mev)

The normal operating 40 year dose in the Drywell outside the reactor shield wall and outside the region defined above is  $2.7 \times 10^7$  Rads (Gamma) and  $6.0 \times 10^{14}$  nvt (Neutron > 1 Mev).

- 8) The dose is based on NUREG 0588 assumptions.

TABLE 3.11-2B  
DRYWELL ADDENDUM

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FIGURE 1 POST-LOCA DRYWELL DOSES

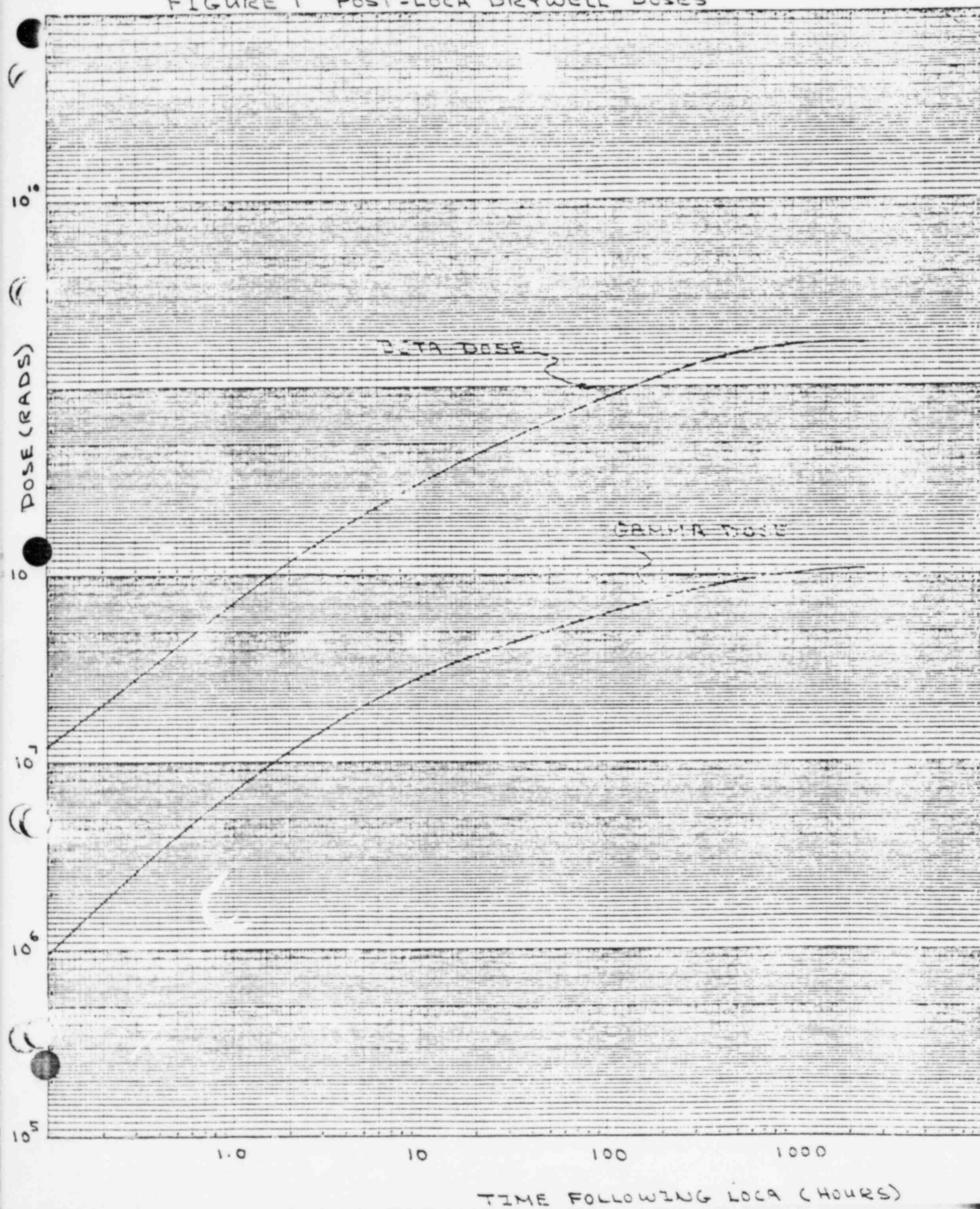


TABLE 11-3

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

W V Cralley  
General Electric

San Jose

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
<b>ELECTRIC SWITCHGEAR AREA (11'-0" EL), AND REMOTE SHUTDOWN PANEL RM.</b>									
<b>AUXILIARY BUILDING - (@ (-) 6'-10" EL)</b>									
(-) 6'-10" & 11'-0" EL			SUM/WINT 90°/60°	20-60%	(-) 0.1" to 0.25" H <sub>2</sub> O	—	< 1.2 × 10 <sup>3</sup>	0	
AB-1									
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC									
LOSS OF OFFSITE POWER									
ACCIDENT									
LARGE HE PIPE BREAK IN DRYWELL (LOCA-DBA) (12)	*0 to 100 Days	1	104°	8-60%	*0.25 to 0" H <sub>2</sub> O	—	FIG. 6 (NOTE 4)		(4)

(#3) REFER TO "SYSTEM  
OPER. STATUS" MATRIX  
SHEET

ELECTRIC SWITCHGEAR AREA (11'-0" EL), AND REMOTE SHUTDOWN PANEL RM.

AUXILIARY BUILDING - (@ (-) 6'-10" EL)

(-) 6'-10" & 11'-0" EL

AB-1

NORMAL HVAC

ABNORMAL

LOSS OF HVAC

LOSS OF OFFSITE  
POWER

ACCIDENT

LARGE HE PIPE  
BREAK IN DRYWELL  
(LOCA-DBA)  
(12)

NO IMPACT -  
REM SH-DN PAN  
EVACUATION OF  
CONTROL BLDG).

\* NO IMPACT -  
(HVAC POWERED BY DIV "ESF" BUSES)

FIG. 6  
(NOTE 4)



TABLE 3.11-3

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

W V Cralley General Electric									
San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDED NOTE REF
AUXILIARY BUILDING - LPCS, HPCS, AND RHR "C" ROOMS (ECCS AREAS)									
(-) 32'-0" EI			SUM/INT 104°/60°	20-90%	(-) 0.25 to (-) 1.0" H <sub>2</sub> O	—	5.2 x 10 <sup>3</sup>	0	
AB-2									
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC									
LOSS OF OFFSITE POWER									
ISOLATION EVENTS (HPCS)									
(1, 2, 3, 5, 8, 9, 11, 12, 14, 23, 28, 29)	*0 to 2 min *2-30 min *30 to 45 min	133	*104°-122° *122° *122°-104°	*8-35% *8-35% *20-90%	*(-) 0.25" to *(-) 1.0" H <sub>2</sub> O *(-) 0.25" to *(-) 1.0" H <sub>2</sub> O *(-) 0.25" to *(-) 1.0" H <sub>2</sub> O	—	5.2 x 10 <sup>3</sup> (Note 5)	0	(5)
TEST (1, 2, 3, 4, 10, 12)	*0 to 2 min *2 min-1 hr *1 to 1.5 hr	1163	*104°-122° *122° *122-104°	*8-35% *8-35% *20-90%	*(-) 0.25 to *(-) 1.0" H <sub>2</sub> O *(-) 0.25 to *(-) 1.0" H <sub>2</sub> O *(-) 0.25 to *(-) 1.0" H <sub>2</sub> O	—	—	0	

TABLE II-3

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
AUXILIARY BUILDING - LPCS, HPCS, AND RHR "C" ROOMS (ECCS AREAS)									
(-) 32'-0" EL									
AB-2 (Contd)									
ACCIDENT									
LARGE HE PIPE BREAK IN DRYWELL (LOCA-DBA) (12)	*0 to 2 min *2 min-100 days		*104°-122° *122°	*8-35% *8-35%	*(-)0.25 to 0" H <sub>2</sub> O *0 to (-)0.25" H <sub>2</sub> O	(Note 6)	(Note 6)	0	(6)
HE PIPE BREAK IN ADJACENT ZONE RHR "C" ONLY (15)	*0 to 24 sec *24 sec-6 hr *6-12 hr *12 hr-100 Days		*104°-250° *250°-212° *212°-150° *150°-104°	*100% *100% *100% *100%	*0-1.6 psig *1.6 psig *1.6-0.5 psig *0.5-0 psig	2.0 x 10 <sup>4</sup>	1.3 x 10 <sup>3</sup>	0	
*GE SUPPLIED DATA									

San Jose

W V Cralley  
General Electric

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TABLE 11-3

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH (%T FINAL (%))	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDED NOTE REF
AUXILIARY BUILDING - RCIC TURBINE AND PUMP ROOM (ECCS AREA)									
(-) 32' - 0" EL									
AB-3			SUM/WINT 104°/60°	*20-90%	*(-)0.25 to (-)1.0" H <sub>2</sub> O	—	$1.3 \times 10^6$	0	
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC									
LOSS OF OFFSITE POWER									
ISOLATION EVENTS (1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 14, 24, 28)	*0 to 6 min *6 to 30 min *30 to 1 hr	136	*104°-122° *122° *122°-104°	*8-35% *8-35% *20-90%	*(-)0.25 to (-)1.0" H <sub>2</sub> O *(-)0.25 to (-)1.0" H <sub>2</sub> O *(-)0.25 to (-)1.0" H <sub>2</sub> O	—	$1.3 \times 10^6$ (Note 5)	0	(5)
TEST (1, 2, 3, 5, 11)	*0 to 12 min *12 to 45 min	663	*104°-122° *122°-104°	*8-35% *20-90%	*(-)0.25 to (-)1.0" H <sub>2</sub> O *(-)0.25 to (-)1.0" H <sub>2</sub> O	—	$2.8 \times 10^3$	0	
ACCIDENT HE PIPE BREAK IN ADJACENT ZONE (15)	*0 to 0.6 sec *0.6 sec-6 hr *6 hr-100 days	(1)	*104°-160° *160°-212° *212°-104°	*All Steam *100% *100%	*0 to 2 psig *2 psig *2 to 0 psig	$2.0 \times 10^4$	$1.3 \times 10^3$	0	

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
AUXILIARY BUILDING - RCIC TURBINE AND PUMP ROOM (ECCS AREA)									
(-) 32'-0" EL									
AB-3 (contd)									
ACCIDENT (Contd)									
LARGE HE PIPE BREAK IN DRYWELL (12)	*0 to 2 min *2 min to 100 Days		*104°-122° *122°	*8-35% *8-35%	*(-)0.25" to 0" H <sub>2</sub> O *0 to (-)0.25" H <sub>2</sub> O	(note 6)	(note 6)	0	(6)
*GE SUPPLIED DATA									

TABLE A.11-3

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
AUXILIARY BUILDING - RHR PUMP ROOMS "A" AND "B" (ECCS AREA)									
(-) 32'-0" EI AB-4			SUM/WINT						
NORMAL HVAC  (INCL SHUT-DN & REFUELING) (9,11)		151	104°-60°	*8-90%	*(-)0.25 to (-)1.0" H <sub>2</sub> O	—	5.8 x 10 <sup>3</sup>	0	
ABNORMAL  LOSS OF HVAC  LOSS OF OFFSITE POWER  ISOLATION EVENTS (1,2,3,4,5,6,7,8,14, 27,28,29)	NO IMPACT - (DUE TO REDUNDANT NATURE AND LOCATION OF ECCS EQUIP NO ST-BY HVAC EQUIP IS REQ'D OR PROVIDED).  HVAC EQUIP POWERED BY DIV "ESF" BUSES								
	*0 to 6.5 min	115	*104°-122°	*8-35%	*(-)0.25 to (-)1.0" H <sub>2</sub> O	—	5.8 x 10 <sup>3</sup> (Note 5)	0	(5)
	*6.5 min-49 hr		*122°	*8-35%	*(-)0.25 to (-)1.0" H <sub>2</sub> O				
	*49-52 hr		*122°-104°	*20-90%	*(-)0.25 to (-)1.0" H <sub>2</sub> O				
TEST (1,2,3,16)	*0 to 6.5 min	2241	*104°-122°	*8-35%	*(-)0.25 to (-)1.0" H <sub>2</sub> O	—	—	0	
	*6.5 min-1 hr		*122°	*8-35%	*(-)0.25 to (-)1.0" H <sub>2</sub> O				
	*1 to 4 hr		*122°-104°	*20-90%	*(-)0.25 to (-)1.0" H <sub>2</sub> O				

\*GE SUPPLIED DATA

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General Electric

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TABLE 11-3  
ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
AUXILIARY BUILDING - RHR PUMP ROOMS "A" AND "B" (EOCS AREA)									
(-) 32'-0" EL									
AB-4 (Contd)									
ACCIDENT		(1)					(Note 6)		(6)
LARGE HE PIPE BREAK IN DRYWELL (12)	*0 to 6.5 min *6.5 min-100 days		*104°-122° *122°	*8-35% *8-35%	*(-)0.25 to 0" H <sub>2</sub> O *(-)0.25 to 0" H <sub>2</sub> O				
HE PIPE BREAK IN ADJACENT ZONE (15)	*0 to 24 sec *24 sec-6 hr *6-12 hr *12 hr-100 days		*104°-250° *250°-212° *212°-150° *150°-104°	*All Steam *All Steam 100% 100%	*0 to 1.6 psig *1.6 psig *1.6-0.5 psig *0.5 psig	2.0 x 10 <sup>4</sup>	1.3 x 10 <sup>3</sup>	0	

TABLE 11-3

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
AUXILIARY BUILDING - RWCU PUMP ROOMS									
(-)6'-10" EI									
AB-5			SUM/WINT						
NORMAL HVAC			100°/60°	20-60%	(-)0.25" to (-)1.0" H <sub>2</sub> O	—	$1.8 \times 10^5$	0	
ABNORMAL									
LOSS OF HVAC	0 to 8 min	10	100°-151°	*5-60%	*(-)0.25 to (-)1.0" H <sub>2</sub> O	—	—	0	
	*8-20 min		151°-100°	*5-90%	*(-)0.25 to (-)1.0" H <sub>2</sub> O				
LOSS OF OFFSITE POWER	*0 to 27 sec	10	*100°-104°	*17-60%	*(-)0.25 to (-)1.0" H <sub>2</sub> O	—	—	0	
	*27 sec-17 min		*104°-100°	*17-90%	*(-)0.25 to (-)1.0" H <sub>2</sub> O				
	(HVAC POWERED BY DIV N <sub>1</sub> & N <sub>2</sub> BUSES - NORMAL POWER, DG BACKED, SHED ON LOCA ONLY)								
ACCIDENT									
LARGE HE PIPE BREAK IN DRYWELL	*0 to 100 days		*100°-150°	*5 -60%	*(-)0.25 to (-)1.0" H <sub>2</sub> O	(Note 6)	(Note 6)	0	(6)
HE PIPE BREAK IN RWCU COMPARTMENT						$2.0 \times 10^4$	$1.3 \times 10^3$	0	
*GE SUPPLIED DATA									

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General Electric

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TABLE II-3

# ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

[illegible]



TABLE 11-3

ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
AUXILIARY BUILDING - STEAM TUNNEL									
9'-0" & 13'-0" El AB-7			SUM/WINT 122°-60°	*10-90%	*(-)0.25 to 0" H <sub>2</sub> O	—	9.5 x 10 <sup>5</sup>	0	
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC	0 to 11 min *11 min-1 hr *1-2.5 hr	10	122°-180° 180° 180°-122°	*0.8-25% *0.8-25% *10-90%	*(-)0.25 to 0" H <sub>2</sub> O *(-)0.25 to 0" H <sub>2</sub> O *(-)0.25 to 0" H <sub>2</sub> O	—	—	0	
LOSS OF OFFSITE POWER	0 to 11 min *11 min-2.5 hr *2.5-4 hr	10	(SIMILAR TO NORMAL & N <sub>2</sub> BUSES ONLY)	HVAC SINCE HVAC POWERED BY DIV N <sub>1</sub> - NORMAL POWER, DG BACKED, SHED ON LOCA					
ACCIDENT		(1)							
LARGE HE PIPE BREAK IN DRYWELL (LOCA-DBA)	*0 to 1 hr *1 hr-100 days		*122°-180° *180°-150°	*0.8-25% *4-42%	*0 to 2 psig *2-0.5 psig	FIG. 5 (Note 4)	FIG. 4 (Note 4)	0	(4)
HE PIPE BREAK IN STEAM TUNNEL	*0 to 0.5 sec *0.5 sec-1 hr *1 to 2 hr *2 to 6 hr *6 hr-100 days		*122°-240° *240°-325° *325° *325°-212° *212°-150°	All Steam ↓ 100	*0 to 5 psig *5 psig *5 psig *5 to 2 psig *2 to 0.5 psig	(NOT SIGNIFICANT) ↓	↓	0	
TORNADO	*0 to 1.5 sec *1.5-45 sec *45-46.5 sec		—	—	*0 to (-)3 psig *(-)3 psig *(-)3 to 0 psig	—	—	0	
*GE SUPPLIED DATA									

San Jose  
General Electric  
W V Cralley

TABLE 31-3

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
AUXILIARY BUILDING - BATTERY ROOMS (DIV 1, 2, 4 and NON-DIV)									
11'-0" EL			SUM/WINT 96°/66°	20-60%	(-)0.25 to 0" H <sub>2</sub> O	—	1.2 x 10 <sup>3</sup>	0	
AB-8									
NORMAL									
(EXH VENT ONLY FROM SW-GK AREA)			(MINIMUM 12 AIR CHANGES/HOUR VENT RATE FOR BATTERY ROOMS)						
ABNORMAL									
LOSS OF OFFSITE POWER			NO IMPACT - (HAS ST-BY VENT FAN FOR EACH BATTERY ROOM. ALSO EACH DIV BATTERY ROOM HAS ONE FAN POWERED BY DIV "ESF" BUS)						
ACCIDENT		(1)						FIG. 6 (Note 4)	(4)
HE PIPE BREAK IN DRYWELL									

TABLE C-11-3

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDED NOTE REF
AUXILIARY BUILDING - AIR POSITIVE SEAL SYSTEM ROOM									
28'-6" EL									
AB-9									
NORMAL HVAC			SUM/WINT 120°/60°	10-90%	0 to 0.25" H <sub>2</sub> O	—	1.2 x 10 <sup>3</sup>		
ABNORMAL LOSS OF OFFSITE POWER			NO IMPACT- SUPPLIED BY ESW)	HVAC POWERED BY DIV "ESF" BUS, (COOLING COIL					
ACCIDENT HE PIPE BREAK IN DRYWELL			—	—	—	—	FIG. 6 (Note 4)	0	(4)
*GE SUPPLIED DATA									

TABLE 3-3

## ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
AUXILIARY BUILDING - CRD MAINTENANCE ROOM, CORRIDORS, CABLE TUNNEL, ELEV TOWER, ELEV EQUIP RM									
(-) 6'-10" EL									
AB-10									
<u>NORMAL HVAC</u>			SUM/WINT						
(1) CRD MAINT			75°/60°	20-90%	0 to (-) 0.25"	—	$4.4 \times 10^5$	0	
(2) CORR & C TUN			90°/60°	20-90%	0 to 0.25" H <sub>2</sub> O	—	$1.2 \times 10^3$	0	
(3) ELEV TOWER			90°/60°	20-90%	0 to 0.25" H <sub>2</sub> O	—	$1.2 \times 10^3$	0	
(4) ELEV EQ RM (101'-6" EL)			104°/60°	20-90%	0 to 0.25" H <sub>2</sub> O	—	$1.2 \times 10^3$	0	
<u>ABNORMAL</u>									
LOSS OF HVAC STAIRWELL @ 28'-6" EL	0 to 1 hr - 47 min		(1) MAX. 90° - 130°	TEMP. CONTROL AND NO PRESS. CONTROL	—	—	—	0	
LOSS OF OFFSITE POWER			(HVAC EQUIP AND CRD EXH FAN POWERED BY NON-DIV "N" BUS, INTERRUPT OFFSITE POWER)						
<u>ACCIDENT</u>		(1)							
HE PIPE BREAK IN DRYWELL			(SAME AS LOSS OF HVAC NOTE)	—		FIG. 6 (Note 4)	0	(4)	
*GE SUPPLIED DATA									

W V Cralley  
General Electric

C F BRAUN &amp; CO

TABLE 3.11-3  
ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

W V Cralley General Electric									
San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
AUXILIARY BUILDING - GENERAL HVAC EQUIPMENT ROOMS									
28'-6" EI			SUM/WINT 104°/60°	10-90%	0 to 0.25" H <sub>2</sub> O	—	1.2 x 10 <sup>3</sup>	0	
AB-11			(S.A. FANS PROVIDE O.A. FOR VENTILATION ABOVE 80°F ONLY)						
NORMAL HVAC (H&V ONLY)			104°-130° 104°-114°	10-90% 10-90%	0.25-0" H <sub>2</sub> O 0.25-0" H <sub>2</sub> O				
ABNORMAL			104°/60°	10-90%	0.25-0" H <sub>2</sub> O				
LOSS OF HVAC (W/DIV 1 OPER) (W DIV 2 OPER)	0 to 1.2 hr 0 to 1.2 hr								
LOSS OF OFFSITE POWER (W/DIV 1 OR DIV 2)									
ACCIDENT									
HE PIPE BREAK IN DRYWELL		(1)	SAME AS LOSS OF HVAC			—	FIG. 6 (Note 4)	0	(4)

(VENT FANS POWERED BY DIV N<sub>1</sub> & N<sub>2</sub> BUSES, - NORMAL POWER,  
DG BACKED, SHED ON LOCA ONLY)  
SIMILAR TO NORMAL HVAC.



W V Cralley

General Electric

San Jose

**TABLE 3.11-3**  
**AUXILIARY BUILDING**  
**ADDENDUM TO DATA SHEETS**

- 1 The secondary containment zone within the Auxiliary Building, consisting of the ECCS and RWCU equipment spaces, is isolated from the remainder of the building areas by leaktight physical barriers. Pressure control is provided for these ECCS and RWCU rooms by means of redundant pressure control supply and exhaust fan systems.

The differential pressure controller (RR604) at the (-)32'-0" elevation corridor, outside the ECCS rooms, throttles the damper in the supply air system which furnishes air to the corridor only. This supply air throttling, in conjunction with the constant suction from the corridor and ECCS and RWCU rooms by the exhaust fan system, maintains a negative static pressure within the area with respect to the surrounding areas and the outside atmosphere. Since the supply and exhaust fans are on normal interruptible off-site power, a loss of this off-site power will result in the loss of the negative pressure control within the area. However, since there is an alternate valved bypass arrangement from the exhaust system to the SGTS, the SGTS can be manually actuated to provide a direct suction exhaust for the ECCS and RWCU rooms.

- 2 A slight positive static pressure is provided throughout the remainder of the auxiliary building, except for (1) the battery rooms and the CRD maintenance area which will be slightly negative due to their respective exhaust systems, and also (2) the steam tunnel area which is open to the turbine building but has only blow-out panel access to the auxiliary building RHR "A" and "B" areas.

The slight positive pressure in the HVAC equipment rooms at 28'-6" elevation is provided during summer cooling only by means of the room supply air fans which furnish once-through 100 percent outside air for ventilation. These fans do not operate during winter heating and thus there is no room pressurization provided at the time. The fans however, are powered by the divisional N<sub>1</sub> and N<sub>2</sub> diesel generator backed buses.

The slight positive pressure throughout the remaining areas is provided by the main air conditioning systems which furnish a minimum of outside air for exhaust makeup and general building pressurization. Since these air conditioning system fans are on normal interruptible off-site power, a loss of this off-site power will result in the loss of the positive pressurization for the general building area.

3. Zone AB-7, steam tunnel. For a loss of either divisional bus one of the two A/C units will be lost and the tunnel temperature will rise to 135°F with the ESW supply at its maximum of 100°F. For LOCA the resulting environmental conditions will be the same as for loss of HVAC event.



Customer	Pages	Page
Subject	TABLE 3.11-3	By
Project	AUX. BLDG. ADDEN. TO DATA SHEETS	Date

- 4 The dose is based on the Loss of Coolant Accident using Regulatory Guide 1.3 and 1.7 assumptions.
- 5 The dose is based on the SCRAM with turbine isolation event. It is assumed that there shall be 200 ~~such~~ such events through the life of the plant.
- 6 ~~For equipment~~ The following doses are based on the Loss of Coolant Accident using Regulatory Guide 1.3 and 1.7 assumptions. The following curves should be used ~~for the~~ depending on the location of the equipment being specified.

Equipment Location.

GAMMA DOSE

BETA DOSE

Equipment in contact  
with supp. pool fluid

Figure 1

Figure 1

Equipment ~~in contact~~  
within 3'-0" of equipment  
containing suppression pool  
fluid but not in contact  
with fluid.

Figure 1

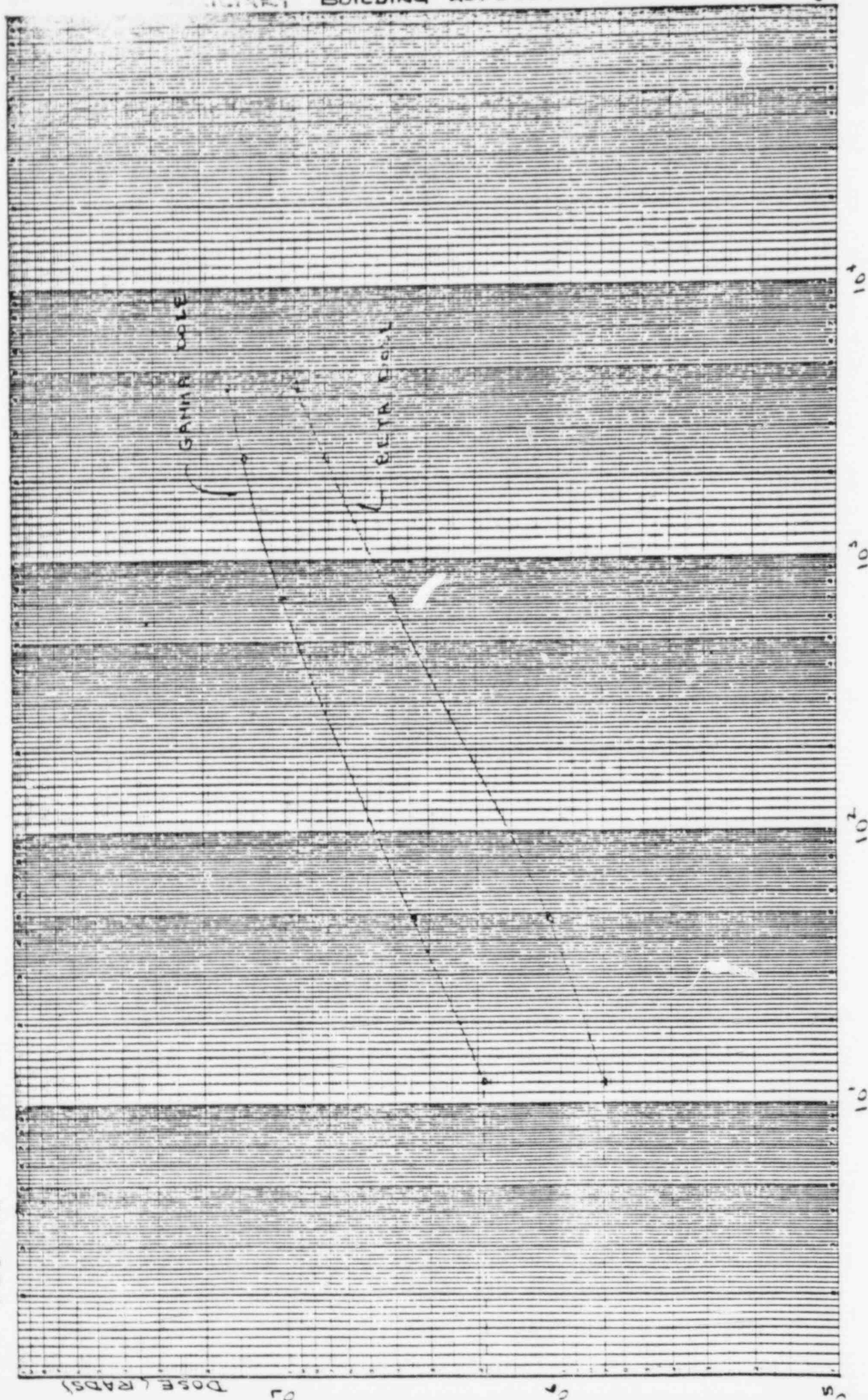
Figure 3

Remaining ~~area, etc.~~  
~~and NPS room~~ volume  
of room.

Figure 2

Figure 3

FIGURE 1 POST-LOCA SUPP. POOL FLUID CONTACT DOSES



TIME FOLLOWING LOCA (HOURS)

TABLE 3.11-3  
AUXILIARY BUILDING ADDENDUM

FIGURE 2 POST-LOCA GAMMA DOSE

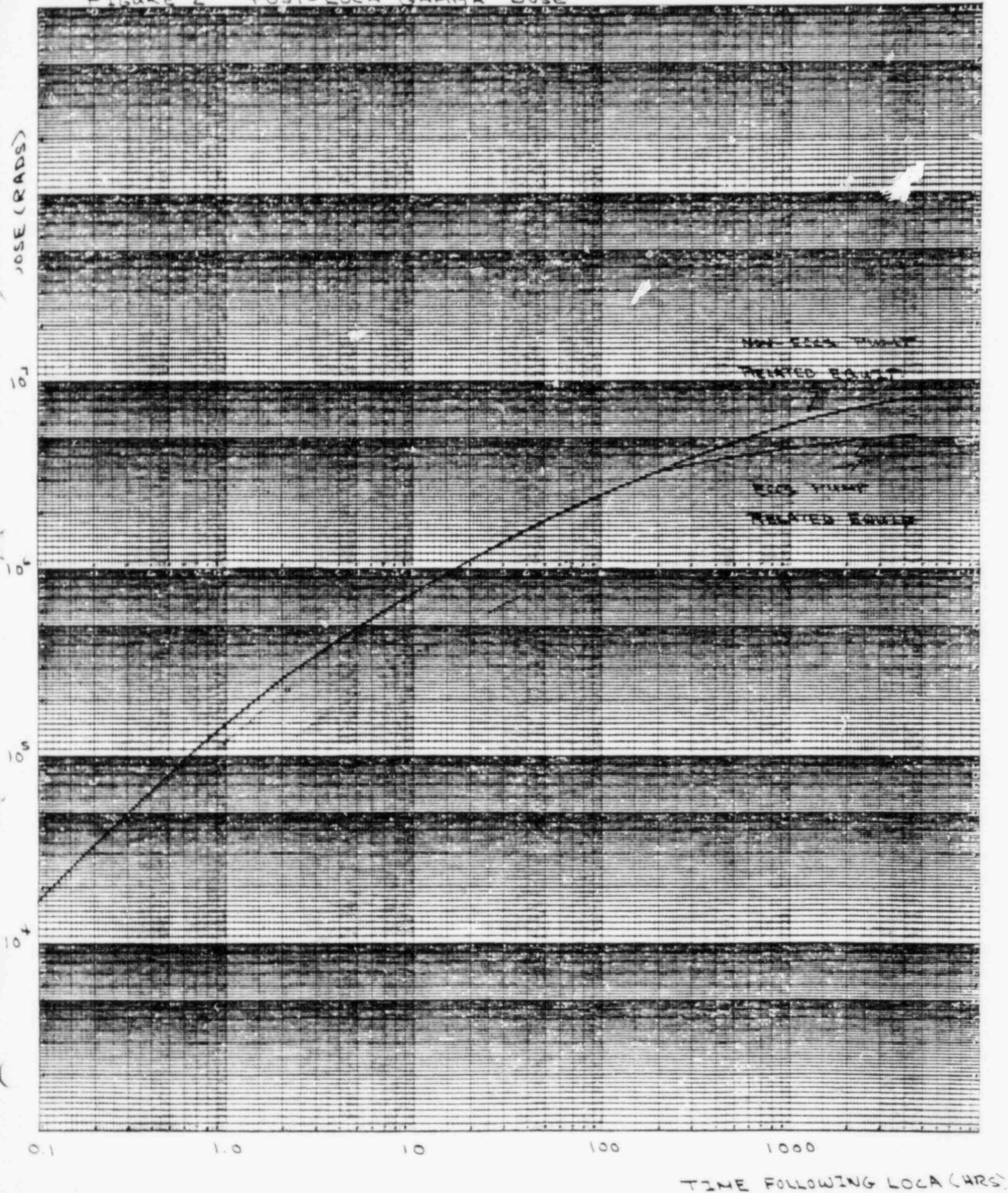
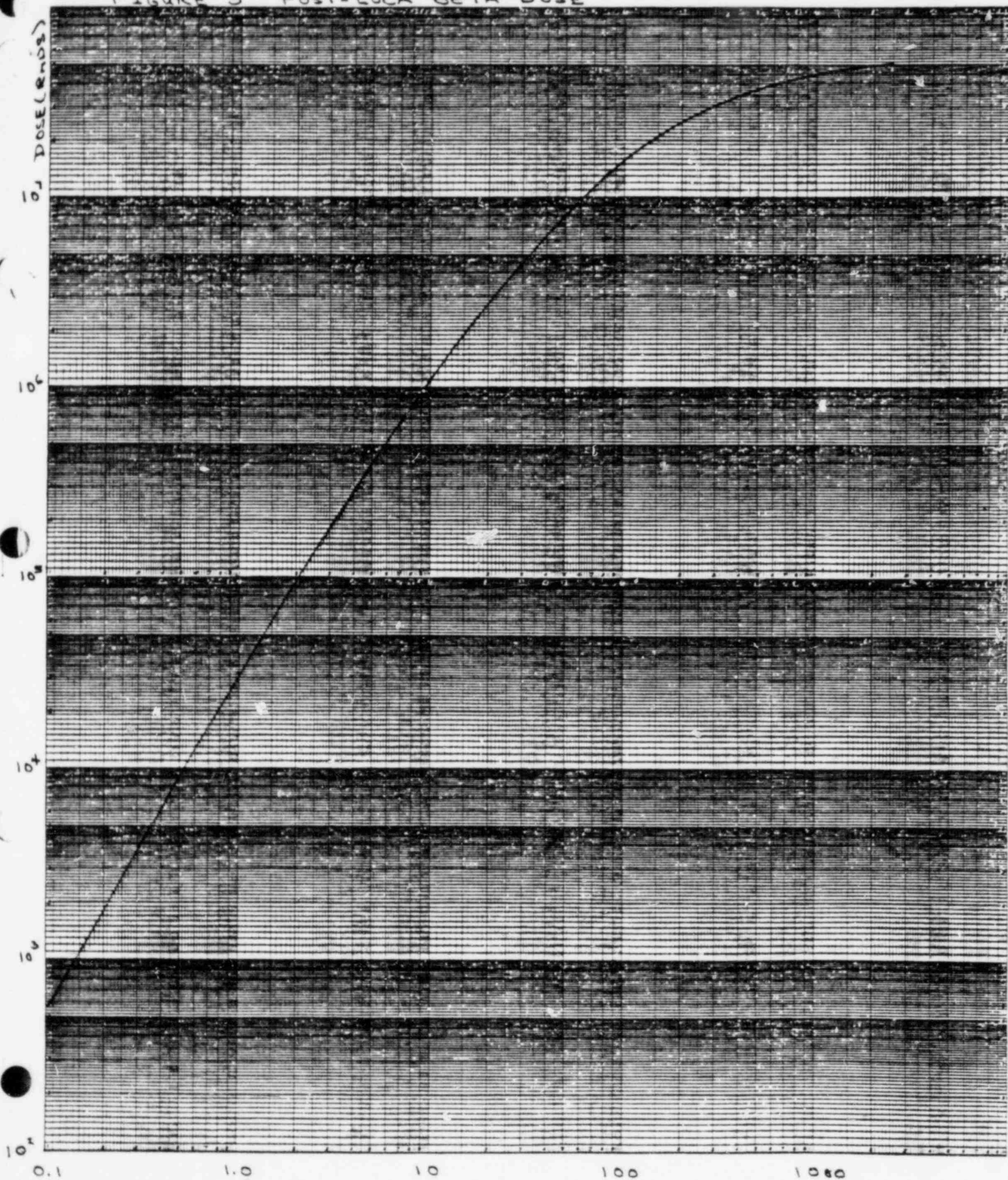




TABLE 3.11-3  
AUXILIARY BUILDING ADDENDUM

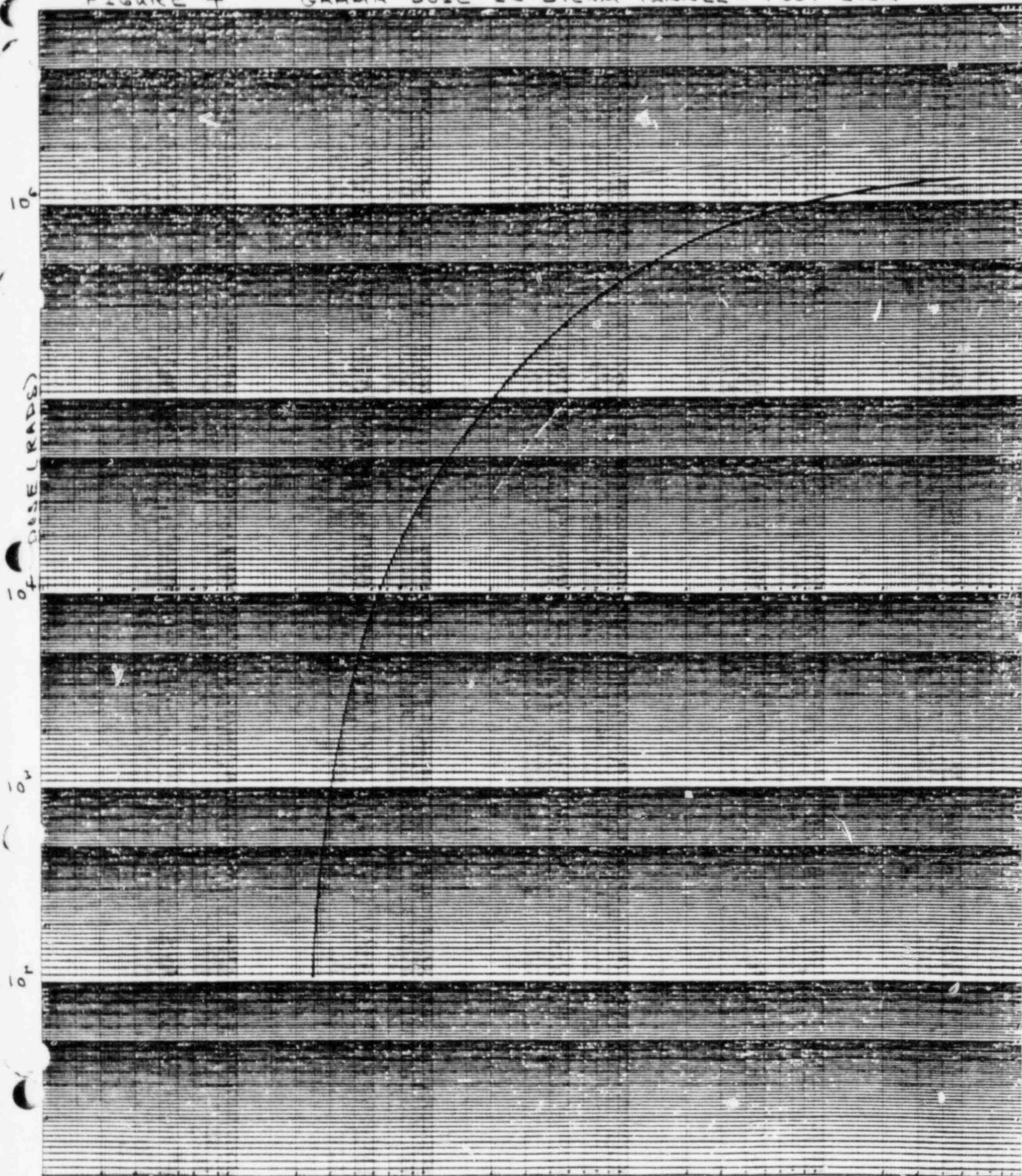
FIGURE 3 POST-LOCA BETA DOSE



TIME FOLLOWING LOCA (HRS)

# TABLE 3.11-3 AUXILIARY BUILDING ADDENDUM

FIGURE 4 GAMMA DOSE IN STEAM TUNNEL - POST-LOCA



1.0

10

100

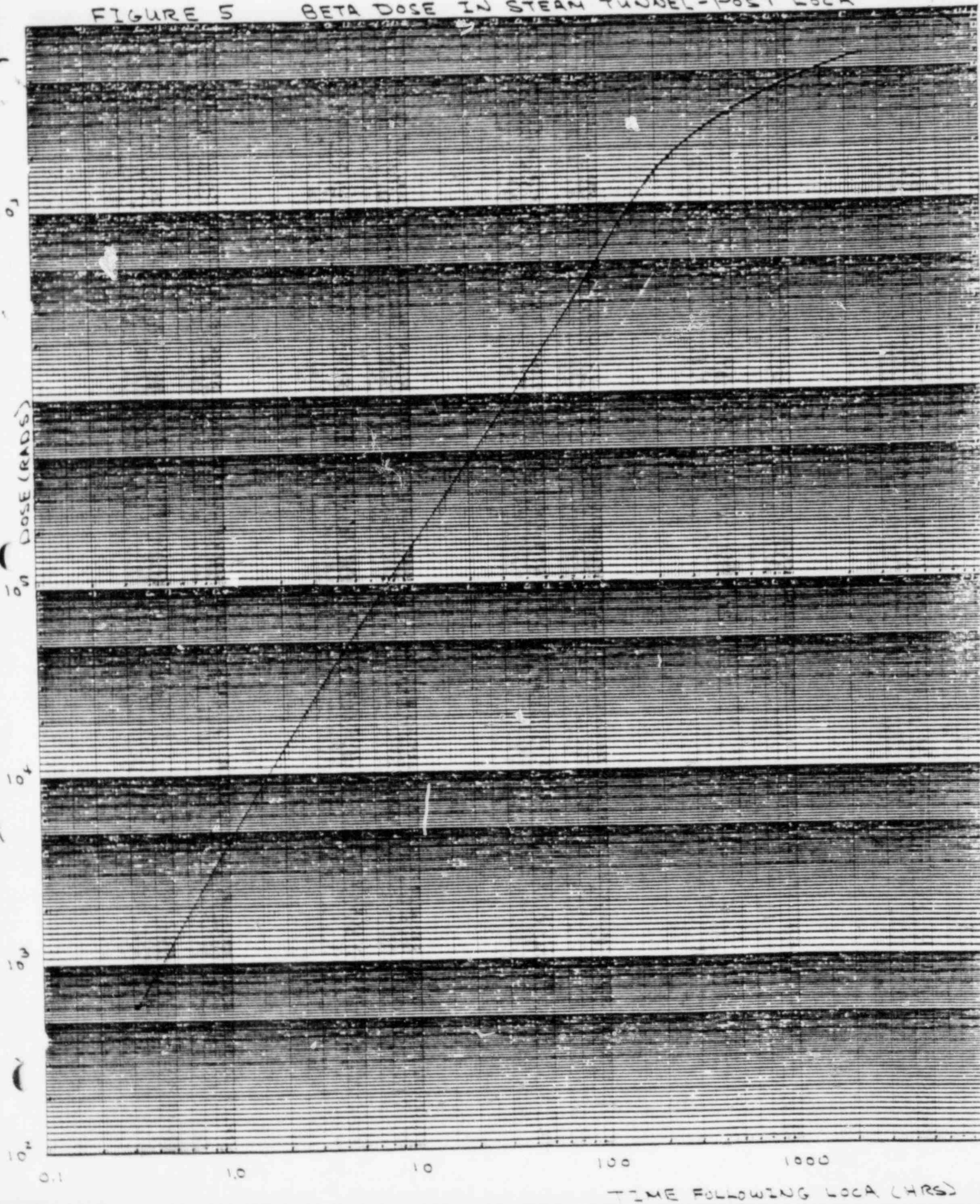
1000

TIME FOLLOWING LOCA (HRS)



TABLE 3.11-3  
AUXILIARY BUILDING ADDENDUM

FIGURE 5 BETA DOSE IN STEAM TUNNEL - POST LOCA



# TABLE 3.11-3 AUXILIARY BUILDING ADDENDUM

FIGURE 6 REMAINING AREAS OF AUX BUILDING - POSTLOCA

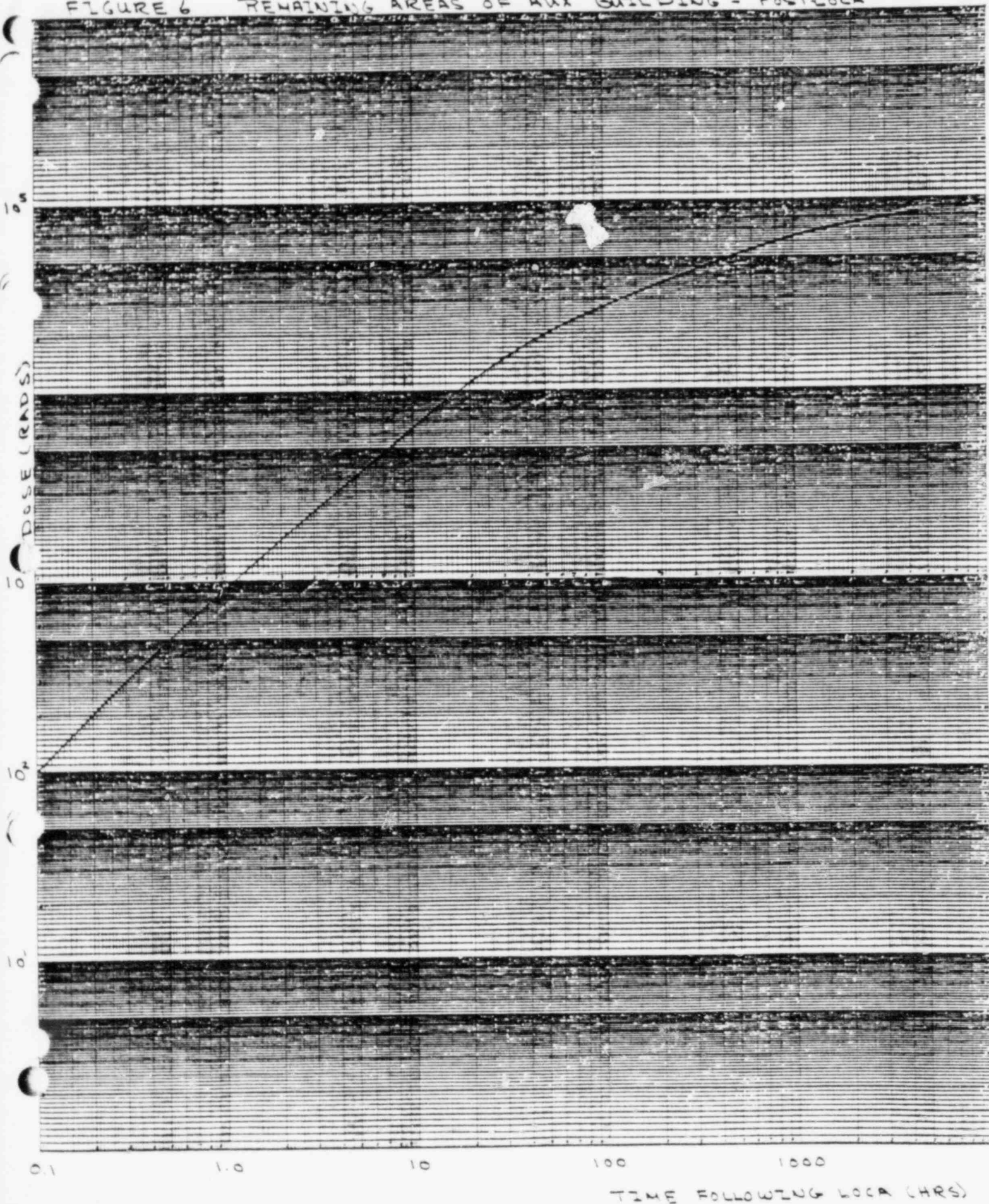




TABLE 3.1-4

# ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDED NOTE REF
FUEL BUILDING — FUEL POOL PUMP AREA (RECIRC. AND F/D BK-WASH DRAIN PUMP ROOMS)									
(C) 32'-0" EL			SUM/WINT 80°/60°	35-90%	(-)0.1 to (-)1.0" H <sub>2</sub> O	—	1.9 x 10 <sup>3</sup>	0	(1)
FB-1									
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC	0 to 6 min 6 min to 1 hr 1 to 1.5 hr	* 10	80°-120° 120° 120°-80°	12-30% 12-30% 35-90%	(-)0.1 to (-)1.0" H <sub>2</sub> O ↓ (-)0.1 to 0" H <sub>2</sub> O	—	—	0	(5)
LOSS OF OFFSITE POWER	0 to 8 min 8 min to 2.5 hr 2.5 to 3 hr	* 10	80°-120° 120° 120°-80°	12-30% 12-30% 35-90%	(-)0.1 to 0" H <sub>2</sub> O (-)0.1 to 0" H <sub>2</sub> O (-)0.1 to (-)1.0" H <sub>2</sub> O	—	—	0	(6)
ACCIDENT		(1)							
LARGE HE PIPE BREAK IN DRYWELL	* 0 to 10 min 10 min to 1 day * 1 day - 100 days		80°-120° 120° 120°-80°	12-30% 12-30% 35-90%	(-)0.1 to (-)1.0" H <sub>2</sub> O ↓	4.0 x 10 <sup>5</sup> (Note 11) (100 DAYS)	5.3 x 10 <sup>4</sup> (Note 11)	0	(4)(9)(11)
FUEL HANDLING ACCIDENT	* 0 to 10 min * 10 min - 1 day * 1 to 100 days		* 80°-120° 120° 120°-80°	* 12-30% 12-30% 35-90%	* (-)0.1 to (-)1.0" H <sub>2</sub> O ↓	3.0 x 10 <sup>4</sup> (Note 12) (100 DAYS)	1.5 x 10 <sup>5</sup> (Note 12)	0	(4)(9) (12)
AGE SUPPLIED DATA									

TABLE 3.11-4

## ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF	San Jose	W V Cralley General Electric
FUEL BUILDING - FPCCU FILTER/DEMIN BACKWASH TANK RM											
(-) 32'-0" EL											
FB-1A			SUM/WINT								
NORMAL HVAC			92°/60°	25-65%	(-) 0.1 to (-) 1.0" H <sub>2</sub> O	—	5.1 x 10 <sup>5</sup>	0	(1)		
ABNORMAL											
LOSS OF HVAC	0 to 9 min. * 9 min. to 1 hr. * 1 to 1.5 hr.	* 10	92°-112° 112° 112°-92°	12-35% 12-35% 25-65%	(-) 0.1 to (-) 1.0" H <sub>2</sub> O ↓	—	—	0	(7)		
LOSS OF OFFSITE POWER	0 to 15 min. * 15 min - 2.5 hr * 2.5 - 3 hr.	* 10	92°-106° 106° 106°-92°	17-42% 17-42% 25-65%	(-) 0.1 to 0" H <sub>2</sub> O (-) 0.1 to 0" H <sub>2</sub> O (-) 0.1 to (-) 1.0" H <sub>2</sub> O	—	—	0	(8)		
ACCIDENT		(1)									
LARGE HE PIPE BREAK IN DRYWELL	* 0 to 10 min. * 10 min - 1 day * 1 to 100 days		92°-106° 106° 106°-92°	17-42% 17-42% 25-65%	(-) 0.1 to (-) 1.0" H <sub>2</sub> O ↓	4.0 x 10 <sup>5</sup> (Note 11) (100 DAYS)	5.3 x 10 <sup>4</sup> (Note 11) (100 DAYS)	0	(4)(9) (11)		
FUEL HANDLING ACCIDENT	* 0 to 10 min * 10 min - 1 day * 1 to 100 days		92-112° 112° 112°-92°	12-35% 12-35% 25-65%	(-) 0.1 to (-) 1.0" H <sub>2</sub> O ↓	3.0 x 10 <sup>4</sup> (Note 12) (100 DAYS)	1.5 x 10 <sup>5</sup> (Note 12) (100 DAYS)	0	(4)(9) (12)		

\* ON CUMULATED DATA

TABLE 3.11-4

## ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH at FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Nt <sub>tr</sub> / cm <sup>2</sup> )	ADDEN NOTE REF
FUEL BUILDING - OPERATING FLOOR (AND ABOVE)									
ABOVE 11'-0" EL			SUM/WINT						
FB-2			80°/60°	35-90%	* (-) 0.1 to (-) 1.0" H <sub>2</sub> O	—	3.6 x 10 <sup>2</sup>	0	(1) (2)
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC	0 to 53 min. * 53 min - 14.5 hr * 14.5 hr - 26 hr	* 10	80° - 119° 119° 119° - 80°	12-30% 12-30% 35-90%	* (-) 0.1 to (-) 1.0" H <sub>2</sub> O ↓	—	—	0	(1)
LOSS OF OFFSITE POWER	0 to 53 min 53 min to 2.5 hr 2.5 to 6 hr.	* 10	80° - 114° 114° 114° - 80°	13-35% 13-36% 35-90%	* (-) 0.1 to 0" H <sub>2</sub> O * (-) 0.1 to 0" H <sub>2</sub> O * (-) 0.1 to (-) 1.0" H <sub>2</sub> O	—	—	0	
ACCIDENT		(1)							
LARGE HE PIPE BREAK IN DRYWELL	* 0 to 2 hr 2 hr - 100 days		* 80° - 150° * 150° - 80°	* 5-14% * 35-90%	* (-) 0.1 to (-) 1.0" H <sub>2</sub> O * (-) 0.1 to (-) 1.0" H <sub>2</sub> O	4 x 10 <sup>5</sup> (NOTE 11) (100 DAYS)	5.3 x 10 <sup>4</sup> (NOTE 11) (100 DAYS)	(4) (9) (11)	
FUEL HANDLING ACCIDENT	* 0 to 30 min * 30 min - 100 days		* 80° - 150° * 150° - 80°	* 5-14% * 35-90%	* (-) 0.1 to (-) 1.0" H <sub>2</sub> O * (-) 0.1 to (-) 1.0" H <sub>2</sub> O	3 x 10 <sup>4</sup> (NOTE 12) (100 DAYS)	6.8 x 10 <sup>4</sup> (NOTE 12) (100 DAYS)	(4) (9) (12)	

\*CF SUPPLIED DATA



TABLE 3.11-4

## ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT

W. V. Cralley  
General Electric

San Jose

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Nt <sub>en</sub> /cm <sup>2</sup> )	ADDED NOTE REF
FUEL BUILDING - BELOW OPERATING FLOOR									
{ FPCCU HX AREAS, F/D, HOLDING PUMP, PRE-COAT, SPCU F/D & PUMP, DECON WASTE TK & PUMP RMG									
BELOW 11'-0" EL			SUM/WINT						
FB-3			90°/60°	25-75%	* (-) 0.1 to (-) 1.0 H <sub>2</sub> O	—	(Note 13)	0	(1)(13) (3)
NORMAL HVAC			90°-123°	10-28%	* (-) 0.1 to (-) 1.0 H <sub>2</sub> O	—	—	0	
	0 to 24 min	* 10	123°	10-28%	↓	—	—	0	(1)
	* 24 min - 1 hr		123°-90°	25-75%		—	(Note 14)	0	(14)
ABNORMAL			90°-110°	14-40%	* (-) 0.1 to 0" H <sub>2</sub> O	—	—	0	
LOSS OF HVAC		* 10	110°	14-40%	* (-) 0.1 to 0" H <sub>2</sub> O	—	—	0	
	0 to 42 min		110°-90°	25-75%	* (-) 0.1 to (-) 1.0 H <sub>2</sub> O	—	—	0	
LOSS OF OFFSITE POWER	* 42 min - 2.5 hr		—	—	—	—	—	0	
ISOLATION EVENTS	* 2.5 - 3 hr		—	—	—	—	—	0	
ACCIDENT		(1)							
LARGE HE PIPE BREAK IN DRYWELL	* 0 to 1 hr		* 90°-123°	* 10-28%	* (-) 0.1 to (-) 1.0 H <sub>2</sub> O	4.0 x 10 <sup>5</sup> (Note 11) (100 DAYS)	5.3 x 10 <sup>4</sup> (Note 11) (100 DAYS)	0	(4)(9) (11)
	* 1 - 2.5 hr		* 123°	* 10-28%	↓	—	—	0	
	* 2.5 hr - 100 days		* 123°-90°	* 25-75%		—	—	0	
FUEL HANDLING ACCIDENT	* 0 to 3 hr		* 90°-150°	* 5-18%	* (-) 0.1 to (-) 1.0 H <sub>2</sub> O	3.0 x 10 <sup>4</sup> (Note 12) (100 DAYS)	1.5 x 10 <sup>5</sup> (Note 12) (100 DAYS)	0	(4)(9) (12)
	* 3 hr - 100 days		* 150°-90°	* 25-75%	↓	—	—	0	

TABLE 3.11-4  
ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDN NOTE REF
FUEL BUILDING — SGTs FAN AND FILTER ROOMS									
(-) 5'-3" & (-) 17'-0" EL									
FB-4			SUM/WINT						
NORMAL HVAC			90°/60°	30-60%	*(-) 0.1 to (-) 1.0" H <sub>2</sub> O	—	—	0	(10)
ABNORMAL									
LOSS OF HVAC			120° MAX	12-30%	*(-) 0.1 to (-) 1.0" H <sub>2</sub> O	—	—	0	(5)
LOSS OF OFFSITE POWER			120° MAX	12-30%	*(-) 0.1 to 0° H <sub>2</sub> O	—	—	0	(6)
ISOLATION EVENTS			120° MAX	12-30%	*(-) 0.1 to (-) 1.0" H <sub>2</sub> O	—	3.9 x 10 <sup>3</sup> (Note 15)	0	(15)
ACCIDENT									
LARGE HE PIPE BREAK IN DRYWELL		(1)	120° MAX	12-30%	*(-) 0.1 to (-) 1.0" H <sub>2</sub> O				
SGTs FILTER RM			✓	✓	✓	—	FIG. 1 (Note 16)	0	(16)
SGTs FAN RM			✓	✓	✓	4.0 x 10 <sup>5</sup> (Note 16)	1.6 x 10 <sup>5</sup> (Note 16)	0	(16)

\*GE SUPPLIED DATA

W V Cralley  
General Electric

C F BRAUN &amp; CO

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TABLE 3.11-4

## ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH & FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (NEN/ cm <sup>2</sup> )	ADDED NOTE REF
FUEL BUILDING - SHIELD ANNULUS EXHAUST FAN ROOMS									
28'-6" EL									
FB-5			SUM/WINT 90°/60°	30-70% * (-) 0.1 to (-) 1.0 H <sub>2</sub> O		-	3.5 x 10 <sup>2</sup>	0	
NORMAL HVAC			120° MAX	12-30% * (-) 0.1 to (-) 1.0 H <sub>2</sub> O		-	-	0	(5)
ABNORMAL			120° MAX	12-30% * (-) 0.1 to 0.0 H <sub>2</sub> O		-	-	0	(6)
LOSS OF HVAC									
LOSS OF OFFSITE POWER									
ACCIDENT		(1)	120° MAX	12-30% * (-) 0.1 to (-) 1.0 H <sub>2</sub> O		4.0 x 10 <sup>5</sup> (Note 11)	5.3 x 10 <sup>4</sup> (Note 11)	0	(4)(9) (11)
LARGE HE PIPE BREAK IN DRYWELL			120° MAX	12-30% * (-) 0.1 to (-) 1.0 H <sub>2</sub> O		3.0 x 10 <sup>4</sup> (Note 12)	6.8 x 10 <sup>4</sup> (Note 12)	0	(4)(9) (12)
FUEL HANDLING ACCIDENT									

\*GE SUPPLIED DATA

TABLE 3.11-4

FUEL BUILDING  
ADDENDUM TO DATA SHEETS

1. A negative <sup>static</sup> pressure level is maintained within the Fuel Building during normal HVAC operation by the Pressure Control Exhaust System in conjunction with the main upper and lower level Air Conditioning Systems.
2. For the areas above the operating floor at 11'-0" elevation a differential pressure controller (RR602) throttles a damper in the branch outdoor air make-up duct to the upper level air conditioning system. This enables the exhaust system ~~fan~~ to maintain the upper area at a negative pressure with respect to the outside ambient atmosphere.
3. For the areas below the operating floor elevation a differential pressure controller (RR603) throttles a damper in the branch outdoor air make-up duct to the lower level air conditioning system. This enables the exhaust system ~~fan~~ to maintain the lower areas at a negative pressure with respect to the outside ambient atmosphere.
4. The pressure control exhaust fans, the upper & lower level HVAC units, and the isolation valves in the main outside air inlet duct, will automatically close during a LOCA condition or if high airborne radiation is detected in the exhaust air.

These systems are powered by the non-divisional "N" buses & interruptible offsite power, and thus there is no pressure control during the abnormal Loss of Offsite Power condition.



5. Area has supplementary standby divisional HVAC equipment, with cooling coils supplied by ESW, to maintain the maximum temperature noted when the normal HVAC is lost.
6. Supplementary HVAC equipment, powered by divisional "ESF" buses, will maintain the area at the maximum temperature noted. The area pressure will rise to 0" W.G. due to loss of interruptible "N" buses powering the normal HVAC and pressure control exhaust fans.
7. Pressure control exhaust fans will draw 120° ventilation air from the adjacent pump area which results in <sup>the</sup> maximum tank room temperature as noted.
8. Since the pressure control exhaust fans are on the interruptible "N" buses, no ventilation air from the adjacent area will be drawn through this room and this results in the maximum room temperature as noted. The area pressure will rise to 0" W.G. without an exhaust.
9. The SGTS will start automatically from a LOCA signal or high airborne radiation signal, and this will maintain a negative static pressure within the building.
10. The heat load for this area is absorbed by the transferred air from the adjacent area at 90°F which is exhausted ~~to the atmosphere~~ to the atmosphere by the pressure control exhaust system.



11 The ~~loss~~ dose of Coolant Accident dose is based on Regulatory Guide 1.3 assumptions. Bypass Leakage from the containment is assumed to enter the Fuel Building exclusively.

12 The Fuel Handling Accident is calculated based on Regulatory Guide 1.25 assumptions. The fuel is assumed to have operated for 3 years.

13 The following normal operating 40 year doses ~~should~~ should be used for the equipment ~~areas~~ in the areas <sup>listed</sup> ~~operated~~ below.

<u>AREA</u>	<u>DOSE (RADS)</u>
FPCC F/D & DRAIN AREA	$1.9 \times 10^4$
FPCC Precoat Pump Room	$7.7 \times 10^2$
FPCC F/D Cubicle	$2.5 \times 10^5$
Fuel Transfer Tube Cubicle	$2.0 \times 10^3$
FPCC HX A leave Area	$8.5 \times 10^2$
FPCC Surge Tank Area	$9.1 \times 10^2$
Decon Tank Room	$7.0 \times 10^3$
New Fuel Vault	$1.0 \times 10^4$
Cock Decon Vault	$1.4 \times 10^3$
SPEC F/D Room	$1.4 \times 10^4$
Remaining Areas	$3.5 \times 10^2$

For equipment submerged in the Fuel Pool or in contact with fuel pool water, a  $1.7 \times 10^5$  rads (gamma) and a  $3.0 \times 10^4$

TABLE 3.11-4  
FUEL BUILDING ADDENDUM

52

- 14 These doses <sup>are</sup> based on the SCRAM with turbine isolation event. It is assumed there shall be 200 such events through the life of the plant. The following areas are affected.

<u>AREA</u>	<u>GAMMA DOSE (RADS)</u>
SPCU F/D Room	$3.2 \times 10^5$
SPCU Pump Area	$1.7 \times 10^4$

- 15 The dose is based on the ~~containment~~ containment purge of the containment following the turbine isolation event.

- 16 The Loss of Coolant Accident is based on Regulatory Guide 1.3. The source term on the SGTS Filter is based on no mixing of the containment atmosphere in the Shield Building prior to entering the filter. The ~~following doses should be~~ ~~used~~

# TABLE 3.11-4 FUEL BUILDING ADDENDUM

FIGURE 1

SETS FILTER CHOICE DWT - LOCA DOSE RATES AND DOSES

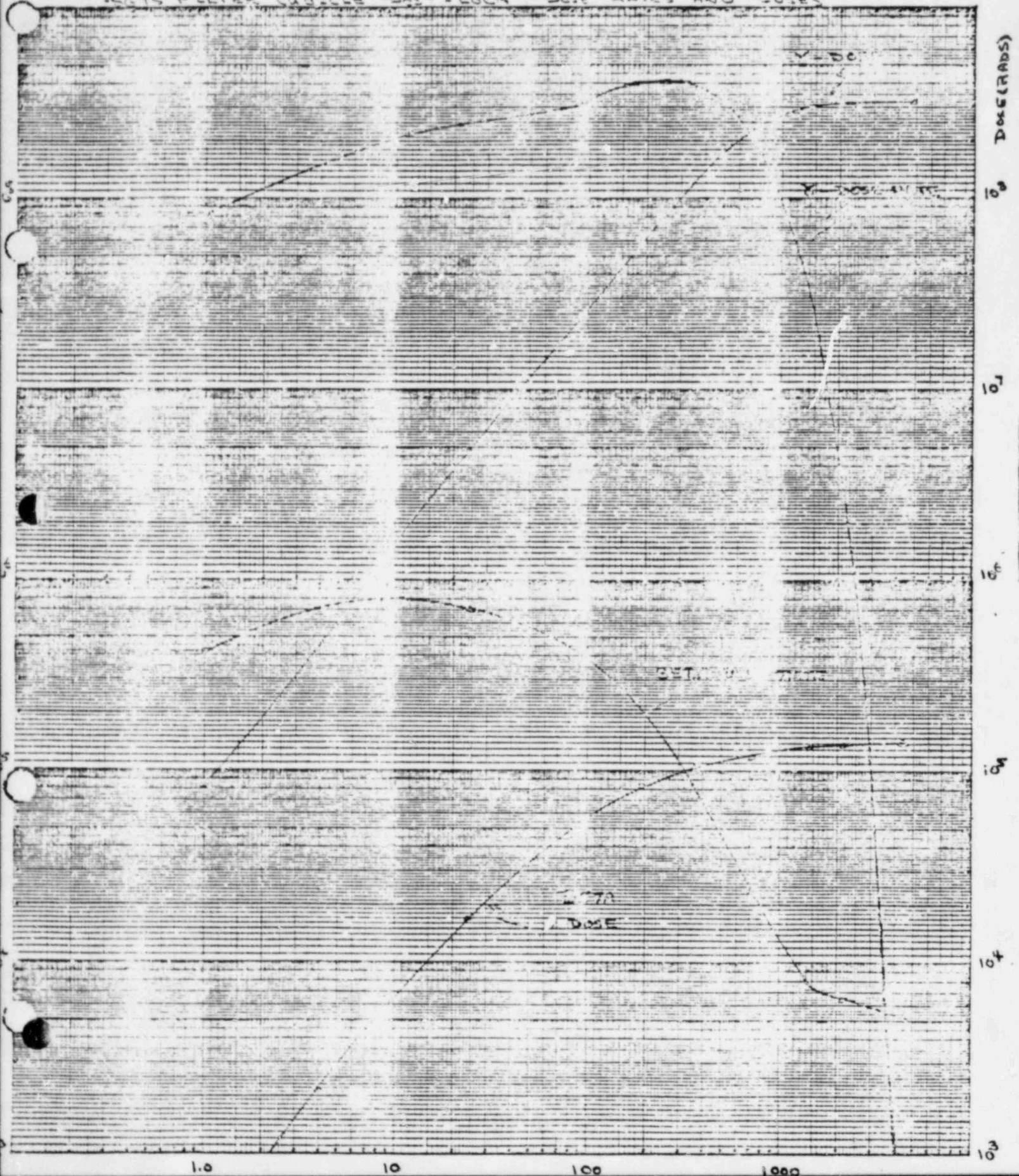


TABLE 3.1.1-5		ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING EQUIPMENT	
		TEMP °C	HUMIDITY %
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/cm <sup>2</sup> )	ADDSN NOTE REF
(#5) REFER TO "SYSTEM OPER. STATUS" MATRIX SHEET CABLE TUNNELS, OFFICE, LUNCH RM/KITCHEN, WOMEN'S LOUNGE / TOILET/LOCKER/SHOWER RMS, CONTROL BUILDING -- MEN'S TOILET, JANITOR, CORRIDORS (INCL. ACCESS), STAIRS									
(-) 6' - 10" EL									
CB - 1			SUM/WINT 75°/70°	10-60%	0.1 to 0.5 H <sub>2</sub> O				
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC									
LOSS OF OFFSITE POWER									
ACCIDENT									
RADIATION POST LOCA (12)			90°/50°	10-60%	0.1 to 0.5 H <sub>2</sub> O	75 (180 DAY DOSE IN 100 DAYS)	200	0	(6)



San Jose

ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDED NOTE PEP
<b>CONTROL BUILDING - CONTROL RM AND COMPUTER RM</b>									
<u>(-)6'-10" EL</u>									
<u>NORMAL, HVAC</u>			75°	10-60%	0.1" to 0.5" H <sub>2</sub> O				
<u>ABNORMAL</u>									
LOSS OF HVAC					HAS ST-BY DIVISIONAL HVAC EQUIP.				
LOSS OF OFFSITE POWER					HVAC POWERED BY DIV "ESF" BUS				
<u>ACCIDENT</u>									
RADIATION <i>Post Loca (12)</i>			80°/50°	10-60%	0.1" to 0.5" H <sub>2</sub> O	75 (180 DAY DOSE IN 100 DAYS)	200	0	(6)



TABLE 3.11-5

ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING EQUIPMENT

W V Cralley  
General Electric

San Jose

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
CONTROL BUILDING - SHOWER RMS, JANITOR, STORAGE, CORRIDORS									
11'-0" EL									
CB-3			SUM/WINT 75°/70°	10-60%	0.1 to 0.5 H <sub>2</sub> O				
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC									
LOSS OF OFFSITE POWER									
ACCIDENT									
RADIATION POST LOCA (12)			90°/50°	10-60%	0.1 to 0.5 H <sub>2</sub> O	75 (180 DAY DOSE IN 100 DAYS)	200	0	(6)

DIV ELEC EQUIP RMS, INSTRUMENT REPAIR RM, MEN'S TOILET/LOCKER/  
CONTROL BUILDING - SHOWER RMS, JANITOR, STORAGE, CORRIDORS

NO IMPACT - HAS ST-BY DIVISIONAL HVAC EQUIP.  
NO IMPACT - HVAC POWERED BY DIV "ESF" BUS.

San Jose

ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING EQUIPMENT

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
CONTROL BUILDING - ELEC CONTROL RM									
11'-0" EL									
CB-4									
NORMAL HVAC			SUM/WINT 75°/70°	10-60%	0.1 to 0.5" H <sub>2</sub> O				
ABNORMAL									
LOSS OF HVAC									
LOSS OF OFFSITE POWER									
ACCIDENT									
RADIATION POST LOCA (12)			80°/50°	10-60%	0.1 to 0.5" H <sub>2</sub> O	75	200 (180 DAY DOSE IN 100 DAYS)	0	(6)

TABLE 3.11-5

ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING EQUIPMENT

W V Cralley General Electric San Jose									
LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDEN NOTE REF
CONTROL BUILDING - FAN RMS, CHILLER RMS, OUTDOOR AIR FILTER RMS									
28' - 6" EL									
CB-5									
NORMAL HVAC			SUM/WINT 95°/60°	10-90%	0 to 0.25" H <sub>2</sub> O				
ABNORMAL									
LOSS OF HVAC		NO IMPACT -			HAS ST-BY DIVISIONAL				
LOSS OF OFFSITE POWER		NO IMPACT -			HVAC POWERED BY DIV "ESF" BUS				
ACCIDENT									
RADIATION POST LOCA 1 FAN & CHILLER 2 ODA FILTER (12)			104°/50°	10-90%	0 to 0.25"H <sub>2</sub> O	75 75 (180 DAY DOSE IN 100 DAYS)	200 8000	0 0	(6) (6)

TABLE 3.11-5

## ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING EQUIPMENT

W V Cralley  
General Electric

San Jose

LIMITING CONDITION	DURATION OF CONDITION	FREQ/ 40 YRS	TEMP (°F)	RH @ T FINAL (%)	PRESSURE	INTEG BETA RADIATION (rads)	INTEG GAMMA RADIATION (rads)	FLUENCE (Ntn/ cm <sup>2</sup> )	ADDED NOTE REF
CONTROL BUILDING -ELEV EQUIP RM									
38'-6" EL CB-6			SUM/WINT 95°/60°	10-90%	0 to 0.25" H <sub>2</sub> O				
NORMAL HVAC									
ABNORMAL									
LOSS OF HVAC									
LOSS OF OFFSITE POWER									
ACCIDENT									
RADIATION POST LOCA (12)			104°/50°	10-90%		75 (180 DAY IN 100 DOSE DAYS)	200	0	(6)

W V Cralley  
General Electric

San Jose

TABLE 3.11-5  
CONTROL BUILDING  
ADDENDUM TO DATA SHEETS

- 1 The differential pressure controllers (RR602A/B) at the (-)6'-10" elevation corridors throttle dampers in the return air ducts to the division 1 and 2 Control Room Return/Exhaust fans. This throttling of the return air system provides the means of controlling a positive pressure within the control and computer rooms area with respect to the ambient.
- 2 The differential pressure controllers (RR601A/B) at the 11'-0" elevation corridors throttle dampers in the return air ducts to the division 1 and 2 Control Equipment Room Return/Exhaust fans. This throttling of the return air system provides the means of controlling a positive pressure within the Control Equipment room area with respect to the ambient.
- 3 No pressure control is provided within the fan room areas at the 28'-6" elevation.
- 4 If there is a high radiation level in the building outdoor air supply, such as may be possible during a LOCA, the normal outdoor air supply to the building A/C units is shut-off and the outdoor air supply is provided through the Outdoor Air Cleanup Units. This highly filtered outdoor air is of a sufficient quantity to pressurize the building as it provides the corresponding leakage rate for the building.
- 5 During the smoke removal mode the following fans will operate at reduced air flow rate: (1) the building A/C supply fan at 50 percent capacity, (2) the control equipment area (11'-0" elevation) exhaust/return fan at 50 percent capacity, and (3) the control room area ((-)6'-10" elevation) exhaust/return fan at 66 percent capacity.
- 6 The radiation doses are based on the Loss of Coolant Accident utilizing Regulatory Guide 1.3 assumptions.



TABLE 3.11-1

PLANT EVENTS + FREQUENCY

TUESDAY 4/4/65

## PLANT EVENTS

## Normal

1	BOIL UP	123
2	COLD STARTUP AND HEATUP TO L.P. HOT STANDING	120
3	HEATUP TO HIGH PRESSURE HOT STANDING	120
4	INCREASE TO FULL POWER	120
5	DAILY LOAD REDUCTION AND RECOVERY	10K
6	SPECIAL LOAD REDUCTION AND RECOVERY	2K
7	LOW-STEAM REDUCTION TO H.P. HOT STANDING	111
8	LOW-STEAM REDUCTION FROM H.P. TO L.P. HOT STANDING	111
9	COOLDOWN FROM L.P. HOT STANDING TO VESSEL FLOOD	41
10	UNBOIL	123
11	REFUEL	41

Frequency / 40 yrs

Pump Events

ABNORMAL

- |   |    |
|---|----|
| 1 Pressure Regulator Fails Open                     | 26 |
| 2 Insulator Closure (all MSIV)                      | 10 |
| 3 Loss of Aux Transformer (Loss of Power)           | 5  |
| 4 Loss of Grid Connection (Loss of Power)           | 5  |
| 5 Loss of Condenser Vacuum                          | 26 |
| 6 Turbine Trip without Bypass                       | 1  |
| 7 Generator Load Rejection without Bypass           | 1  |
| 8 Single Safety Relief Valve Opens - Depress. (SRV) | 8  |
| 9 Trip of Both Recirc Pumps                         | 10 |
| 10 Generator Load Rejection with Bypass             | 29 |
| 11 Recirculation Failure - Decrease Flow            | 5  |
| 12 Feedwater Controller Fails - Max Limit           | 10 |
| 13 Turbine Trip with Bypass                         | 10 |
| 14 Loss of all Feedwater                            | 10 |
| 15 Recirculation Failure - Increase Flow            | 10 |
| 16 Insulator Closure of MSIV (one)                  | 6  |

FREQUENCY / 40 yrs

PLANT EVENTS

ABNORMAL (CONT)

- 17 Worst IV-Sequence Rod Error
- 18 Instrument Ranging Error
- 19 Inadvertent (or Manual) Scram
- 20 Loss of Feedwater Heater - Auto
- 21 Loss of Feedwater Heater - Manual
- 22 Rod Withdrawal Error at Power
- 23 Inadvertent RPIC Injection
- 24 Inadvertent RER Injection
- 25 Grid Tie-Line Disturb + Recovery
- 26 Tripp on a Flow Pump + Recovery
- 27 Reset of both Reactor Pumps
- 28 Loss of NVAE in Steam Generator
- 29 Loss of NVAE in Drywell
- 30 Loss of NVAE in Containment
- 31 Loss of NVAE in Aux Bldg
- 32 Loss of NVAE in Turbine Bldg
- 33 Loss of NVAE in Turbine Bldg

3 3 20 3 3 3 10 10 50 25 10 10 3 3 10 10 10

## PLANT REJENT

## TESTS

FREQUENCY / HZ

1	Pre-operation Test	1
2	Start-up Leak Test	120
3	Refueling Outage Test	40
4	APCS Injection Test	26
5	RCIC Injection Test	76
6	Test Open/Close Individual S/R Valve (No Shutdown)	4000
7	Diesel Generator Test	1000
8	Individual MSIV Closure Test	1824
9	Turbine Cont. V/V Test (Sets 0 & 8)	456
10	APCS Mod - Injection Test	424
11	RCIC Mod - Injection Test	424
12	LPCS Mod - Injection Test	500
13	LPCI Mod - Injection Test	500
14	SECS Mod - Injection Test	12
15	Steam Test	300
16	Red Watch Test	2000
17	Drywell Leak Test	12



FREQUENCY / 46 yrs

PLANT EVENT

TESTS (CONT.)

18 CMT Leak Test

19 MSIV Leak Test

20 Sec Cont Leak Test

ACCIDENT

1 Open Recirc Valves in Cavo Loop (Reverse Flow)

2 Start Pump in Cavo Loop (Forward Loop)

3 Inadvertent LPCS Injection

4 Reactor Overpressure Backup Scram

5 Inadvertent ADS - Dripless

6 Inadvertent SCS Injection

7 Improper Startup of Reactor Hot RUCU

8 Reactor Drain Shut-off

9 Alternate (RUCU) Shutdown Mode (Shutdown Water Section through S/R Valve & Suppression Pool)

10 Start-up of One Recirc Pump

12

40

12

1

1

1

1

1

1

1

1

1

1

FREQUENCY 140 yrs

PLANT EVENT

ACCIDENTS (cont)

- 11 Small NE Pipe Break in Drywell 1
- 12 Large NE Pipe Break in Drywell 1
- 13 Large NE Pipe Break in CRMT Outside Drywell 1
- 14 Small Line Break in Containment Outside Drywell 1
- 15 NE Pipe Break Outside Containment 1
- 16 Fuel Handling Accident in Containment 1
- 17 Control Rod Accident (Scrap) 1
- 18 Fuel Handling Accident in Fuel Bundles 1
- 19 Torpedo (with loss of Refueling Pump) 1
- 20 Worst ATWS - MSIV Closure no Screen, Trip 1
- 31 Insufficient LACI Injection 1