INSTRUCTIONS FOR FILING AMENDMENT NO. 19

Remove and insert the pages listed below. Dashes (----) in the remove or insert column indicate no action required.

Remove	Insert
Chapter 3	
3.11-iii,3.11-iv,3.11-v, 3.11-vii/3.11-viii,3.11-ix, 3.11-x,3.11-12,3.11-14,3.11-25, 3.11-26,3.11-30,3.11-43,3.11-44, 3.11-48,3.11-49 through 3.11-81, 3.11-82,3.11-83/3.11-84,3.11-91/ 3.11-92,3.11-93/3.11-94,3.11-95/ 3.11-96,3.11-97/3.11-98,3.11-103/ 3.11-104, and 3.11-153 through 3.11-162a/3.11-162b	3.11-iii,3.11-iv,3.11-v, 3.11-vii/3.11-viii,3.11-ix/ 3.11-x,3.11-12,3.11-14, 3.11-25,3.11-26,3.11-30, 3.11-43,3.11-44,3.11-48, 3.11-49 through 3.11-81, 3.11-82,3.11-83,3.11-84, 3.11-91,3.11-92,3.11-92a through 3.11-92f,3.11-93, 3.11-94,3.11-94a through 3.11-94e,3.11-95,3.11-96, 3.11-96a through 3.11-96c, 3.11-97,3.11-98,3.11-98a, 3.11-103,3.11-104,3.11-104a through 3.11-104h,3.11-153 through 3.11-160, and 3.11-165 through 3.11-174
Appendix 3I	
3I-ii,3I-iii,3I-iv,3I.2-3,3I.3-1 through 3I.3-6,3I.4-1 through 3I.4-6,3I.5-1,3I.6-5,3I.6-6, 3I.7-3,3I.7-4,3I.8-1,3I.8-2, 3I.8-7,3I.8-8,3I.8-14,3I.8-15, 3I.8-17,3I.8-19,3I.8-27, and 3I.8-28	3I-ii,3I-iii,3I-iv,3I-iva, 3I.2-3,3I.3-1 through 3I.3-6, 3I.4-1 through 3I.4-7/3I.4-8, 3I.5-1,3I.6-5/3I.6-6,3I.7-3/ 3I.7-4,3I.8-1/3I.8-2,3I.8-7, 3I.8-8,3I.8-14,3I.8-15,3I.8-17, 3I.8-19,3I.8-27, and 3I.8-28

CONTENTS (Continued)

SECTION 3.11

Tables

TABLES (Continued)

TABLES (Continued)

SECTION 3.11

ILLUSTRATIONS

3.11.2.1.2.2 Section XI - Test Control (Continued)

test procedures include provisions for assuring that prerequisites for the given test have been met for mandatory hold points (where applicable), for acceptance and rejection criteria, and for appropriate methods of documenting test results. Prerequisites include such items as appropriate and calibrated test equipment, trained test personnel, completion status of the specimen to be tested, suitable environmental conditions, and provisions for data acquisition and storage.

Test procedures for procured products are based on engineering design and ASME code requirements and, when prepared by the supplier, are approved by assigned GE engineering or QA personnel.

Product test results are documented, reviewed, and evaluated by designated QA engineering personnel prior to release for shipment to assure that test requirements have been satisfied.

3.11.2.1.3 Conformance to NUREG-0588

The following discussion provides an itemized account of the GE interpretation of the NRC staff positions on environmental qualification as published in the 1979 "For Comment" version of NUREG-0588. The format and sequence are consistent with that of NUREG-0588. Each position statement is reprinted as it appears in the staff document, followed by the GE position. Where the GE position differs from that of the staff, justification is provided.

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3.11.2.1.3.1 Establishment of Qualification Parameters for Design Basis Accidents

3.11.2.1.3.1.1 Temperature and Pressure Conditions Inside Containment Loss-of-Coolant Accident (LOCA)

a.(1) NRC Staff Position 1.1.(1):

The time-dependent temperature and pressure, established for the design of the containment structure and found acceptable by the staff, may be used for environmental qualification of equipment.

a.(2) GE Position:

The time-dependent temperature and pressure, established for the design of the containment structure and found acceptable by the staff, may be used for environmental qualification of equipment. Alternate methods may be used by the applicant subject to NRC approval.

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b.(1) NRC Staff Position 1.1.(2):

Acceptable methods for calculating and establishing the containment pressure and temperature envelopes to which equipment should be qualified are summarized below. Acceptable methods for calculating mass and energy release rates are summarized in Appendix A.

- Boiling Water Reactors (BWRs)

- Mark I, II, and III Containment
  Calculate LOCA environment using methods of GESSAR Appendix 3B or equivalent industry codes. Additional guidance is provided in SRP Section 6.2.1.1.C, NUREG-75/087.

3.11.2.1.2.1.1 Temperature and Pressure Conditions Inside Containment Loss-of-Coolant Accident (LOCA) (Continued)

b.(2) GE Position:

Guidance for establishing methods for calculating mass and energy release rates for GESSAR II are provided by the following:

- Mark III Containment Design
  NEDO-20533, The General Electric Mark III Pressure Suppression Containment System Analytical Model

- Other methods found acceptable by the NRC.

c.(1) NRC Staff Position 1.1.(3):

In lieu of using the plant-specific containment temperature and pressure design profiles for BWR and ice condenser types of plants, the generic envelope shown in Appendix C may be used for qualification testing.

c.(2) GE Position:

The generic envelope shown in Appendix C of NUREG-0588 may be used for qualification testing of the product in the drywell in lieu of using plant specific containment temperature and pressure design profiles for BWRs.

d.(1) NRC Staff Position 1.1.(4):

The test profiles included in Appendix A to IEEE Std. 323-1974 should not be considered an acceptable alternative in lieu of using plant-specific containment temperature and pressure

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3.11.2.1.2.1.1 Temperature and Pressure Conditions Inside Containment Loss-of-Coolant Accident (LOCA) (Continued)

design profiles unless plant-specific analysis is provided to verify the adequacy of those profiles.

d.(2) GE Position:

The test profiles in Appendix A of IEEE 323-1974 shall not be considered acceptable unless plant-specific analysis is provided to justify such profiles.

3.11.2.1.3.1.2 Temperature and Pressure Conditions Inside Containment - Main Steamline Break (MSLB)

a.(1) NRC Staff Position 1.2.1(1):

The environmental parameters used for equipment qualification should be calculated with a plant-specific model reviewed and approved by the staff.

a.(2) GE Position:

The environmental parameters used for equipment qualification should be calculated with a plant-specific model reviewed and approved by the staff.

b.(1) NRC Staff Position 1.2.(2):

Models that are acceptable for calculating containment parameters are listed in Subsection 1.1.(2).

b.(2) GE Position:

See GE Position 3.11.2.1.3.1.1.b(2).

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3.11.2.1.3.1.5 Environmental Conditions for Outside Primary Containment

a.(1) NRC Staff Position 1.5.(1):

Equipment located outside containment that could be subjected to high energy pipe breaks should be qualified to the conditions resulting from the accident for the duration required. The techniques for calculating the environmental parameters described in Subsections 1.1 through 1.4 above should be applied.

a.(2) GE Position:

Products important to safety located outside primary containment that could be subjected to high energy pipe breaks shall be qualified to the conditions resulting from the accident for the duration required. The techniques for calculating the resulting environmental parameters described in GE Position Statements 3.11.2.1.3.1.1 through 3.11.2.1.3.1.4 shall be applied.

b.(1) NRC Staff Position 1.5.(2):

Equipment located in general plant areas outside containment where equipment is not subjected to a design basis accident environment should be qualified to the normal and abnormal range of environmental conditions postulated to occur at the equipment location.

b.(2) GE Position:

For the purpose of this harsh environment program this staff position is not applicable.

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3.11.2.1.3.1.5 Environmental Conditions for Outside Primary Containment (Continued)

c.(1) NRC Staff Position 1.5.(3):

Equipment not served by Class 1E environmental support systems or served by Class 1E support systems that may be secured during plant operation or shutdown should be qualified to the limiting environmental conditions that are postulated for that location, assuming a loss of the environmental support system.

c.(2) GE Position:

See Table 3.11-10.

3.11.2.1.3.2 Qualification Methods

3.11.2.1.3.2.1 Selection of Methods

a.(1) NRC Staff Position 2.1.(1):

Qualification methods should conform to the requirements of IEEE 323-1974.

a.(2) GE Position:

Qualification methods shall conform to the criteria defined in Subsection 3.11.2.2.4.

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3.11.2.1.3.2.2 Qualification by Test (Continued)

a.(2) GE Position:

See Table 3.11-10.

b.(1) NRC Staff Position 2.2.(2):

Test results should demonstrate that the equipment can perform its required function for all service conditions postulated (with margin) during its installed life.

b.(2) GE Position:

Test results shall demonstrate that the product can perform its design function for all service conditions postulated (with margin) during its installed life.

c.(1) NRC Staff Position 2.2.(3)

The items described in Subsection 6.3 of IEEE Std. 323-1974, supplemented by Items (4) through (12) (NRC Staff Positions 2.2(4) through 2.2(12)) below, constitute acceptable guidelines for establishing test procedures.

c.(2) GE Position:

Subsection 3.11.2.2.4 defines the acceptable guidelines for establishing test procedures. These procedures are consistent with Subsection 6.3 of IEEE Std. 323-1974.

d.(1) NRC Staff Position 2.2.(4):

When establishing the simulated environmental profile for qualifying equipment located inside containment, it is preferred that a single profile be used that envelops the

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3.11.2.2.1 Scope (Continued)

The manufacturers and users of Class 1E products are required to provide assurance that each product will meet or exceed its performance requirements throughout its installed life. This is accomplished through a disciplined program of quality assurance that includes but is not limited to design, qualification, production quality control, installation, maintenance, and periodic testing.

It is the primary role of qualification to assure that, for each type of Class 1E product, the design and the manufacturing processes are such that there is a high degree of confidence that the product will perform as required in the specified environment. Other steps in the quality assurance program invoke strict design and manufacturing control to assure that all products of the same type match that which was qualified and are suitabley applied, installed, maintained, and periodically tested.

The methods described in this subsection apply to work accomplished by the General Electric Nuclear Energy Business Operation (NEBO) as well as all its vendors and contractors.

3.11.2.2.2 Applicable Documents

If a conflict exists between the requirements contained in this subsection and those in a listed document, those in this subsection shall govern.

3.11.2.2.2.1 General Electric Documents

The following document forms a part of these requirements:

(1) EMI Susceptibility Test Specification]

3.11.2.2.2.2 Codes, Standards, and Regulations

The following codes, standards, and regulations, as interpreted by NEBO, form a part of these requirements to the limits specified in this subsection:

(1) NRC Regulatory Guides*

	No.	Title
(a)	1.40	Qualification Tests of Continuous Duty Motors Installed Inside the Containment of Water-Cooled Nuclear Power Plants (generally accepts IEEE 334-1971)
(b)	1.63	Electric Penetration Assemblies in Containment Structures for Water-Cooled Nuclear Power Plants (generally accepts IEEE 317-1976)
(c)	1.73	Qualification Tests of Electric Valve Operators Installed Inside the Containment of Nuclear Power Plants (generally accepts IEEE 382-1972)

*See Section 1.8 for revision and date.

3.11.2.2.2.2 Codes, Standards, and Regulations (Continued)

(j) IEEE 650-1979 - IEEE Standard for Qualification of Class 1E Static Battery Chargers and Inverters for Nuclear Power Generating Stations

(k) IEEE 634-1978 - IEEE Standard Cable Penetration Fire Stop Qualification Test

(l) IEEE 501-1978 (ANSI C37.98) - IEEE Standard Seismic Testing of Relays

(m) IEEE 535-1979 - IEEE Standard for Qualification of Class 1E Lead Storage Batteries for Nuclear Power Generating Stations

(4) American Society of Mechanical Engineers (ASME)

(a) ASME Boiler and Pressure Vessel Code Sections II, III, IV, V, VIII, and XI

3.11.2.2.3 Reference Documents

(1) IEEE 101, IEEE Guide for the Statisitcal Analysis of Thermal Life Test Data, The Institute of Electrical and Electronics Engineers, Inc. - 1972.

(2) EPRI NP-1558, A Review of Equipment Aging Theory and Technology, Electric Power Research Institute, September 1980.

(3) NUREG/CR-0275 (SAND 78-0067), An Experimental Investigation of Synergisms in Class 1 Components Subjected to LOCA Type Tests, Sandia Laboratories, August 1978.

3.11.2.2.3 Reference Documents (Continued)

(4) NUREG/CR-0401 (SAND 78-1452) and NUREG/CR-0276 (SAND 78-0799), Qualification Testing Evaluation Quarterly Reports, Sandia Laboratories, 1978.

(5) NUREG-0588, Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment, December 1979.

(6) NUREG/CR-2156 (SAND 80-2149), Radiation Thermal Degradation of PE and PVC: Mechanism of Synergism and Dose Rate Effects, R. Clough and K. Gillen, Sandia Laboratories, June 1981.

(7) NUREG-0484, Rev. 1., Methodology for Combining Dynamic Responses, R. K. Mattu, April 1980]

3.11.2.2.4 Program Description

PROPRIETARY INFORMATION - provided under separate cover.

*All pages are Revision 5 except for the following:

Revision 6 - Pages 3.11-54, 3.11-55, 3.11-63, 3.11-69, 3.11-70, 3.11-71, 3.11-72, 3.11-73, 3.11-74, 3.11-75, 3.11-76, 3.11-78

Revision 19 - Pages 3.11-51, 3.11-53, 3.11-56, 3.11-57, 3.11-58, 3.11-59, 3.11-59a, 3.11-59b, 3.11-60, 3.11-61, 3.11-62, 3.11-64, 3.11-67, 3.11-68, 3.11-77, 3.11-77a

3.11.3 Qualification Results

Applicant to supply.

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 the 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.

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3.11.5 Estimated Chemical and Radiation Environment

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 is 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

*This should not be necessarily construed 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).

3.11.5.1.1 Containment Spray (Continued)

per square foot and 125°F temperature. Water quality is given in Subsection 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 Subsection 3.11.5.1.3.

3.11.5.1.3 Post-LOCA Water Quality

The following water quality is based on fission product release of Regulatory Guide 1.7:

(1) pH = 4.5 to 7.0

(2) conductivity $\leq$ 21 μ S/cm

(3) $\leq$ 8 ppm O_2, $\leq$ 1 ppm CO_2

(4) $\leq 2.0 \times 10^{-5}$ g mole/l dissolved salts available to deposit as dry salts upon evaporation from hot surfaces.

(5) $\leq$ 9.0 ppm undissolved solids

(6) $\leq$ 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 the Radwaste Building.

Table 3.11-2a

ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ T_{final} (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone CT-1 Containment - Above Refueling Floor, 84'-7" El									
Normal HVAC			Summer/Winter 90/70	20 to 90	(-)0.1 to (-)1.0 inch H_2O	--	1.8×10^3	0	
Abnormal									
• Loss of HVAC	0 to 45 min avg	3	90 to 121 avg	20 to 90	(-)0.1 to (+)1.0 inch H_2O			0	
	45 min to 20 hr	3	121	50 to 100	(-)0.1 inch to (+)1.0 inch H_2O				
	20 hr to 27.5 hr	3	121 to 90	50 to 100	(-)0.1 to (+)1.0 inch H_2O				
• 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	Note 1	90 to 120	100	0 to 1.75 psig	1.2×10^4	4.4×10^2	0	
	30 min to 10 hr		120	100	1.75 psig	(Note 2)	(Note 2)		
	10 to 24 hr		120 to 90	20 to 90	1.75 to 0 psig				
Test (18)	0 to 20 hr	12	90	20 to 90	8 psig			0	
Accident									
• Large HE pipe break in drywell	0 to 6 sec	1	90 to 120	100	0 to 6 psig	Figure 3.11-2 (Note 3)	Figure 3.11-3 (Note 3)		
	6 to 45 sec		120 to 150	100	6 to 9 psig				
	45 sec to 10 min		150 to 185	100	9 to 15 psig				
	10 min to 1 day		185	100	15 psig				
	1 to 100 days		185 to 90	100	15 to 0 psig				
Zone CT-2 Containment - Above Suppression Pool, (-)11'-2" El									
Normal HVAC			Normal/Startup 100/40	20 to 90	(-)0.1 inch to (-)1.0 inch H_2O		(Note 4)	0	
• Hot standby			100 to 120	20 to 90	(-)0.1 to (-)1.0 inch H_2O			0	
Abnormal									
• Loss of HVAC	0 to 45 min avg	3	100 to 121 avg	100	0 to 1.24 psig			0	
	45 min to 20 hr		121	100	1.24 psig				
	20 hr to 27.5 hr		121 to 100	100	1.24 to 0 psig				
• Loss of offsite power	Same as loss of HVAC (HVAC powered by Non-Div "N" Bus - Interrupt offsite power)								

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-2a

ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone CT-2 (Continued)									
• Isolation events									
(1,2,3,4,5,6,7,8, 12,16)	0 to 30 min 30 min to 10 hr 10 to 24 hr	Note 1	100 to 150 avg 150 150 to 100	100 100 100	0 to 1.75 psig 1.75 psig 1.75 to 0 psig	1.2×10^4 (Note 2)	4.4×10^2 (Note 2)	0	Note 5
Test (18)	0 to 20 hr	12	100	20 to 90	8 psig			0	
Accident									
• Small HE pipe break in drywell	0 to 45 sec 45 sec to 10 min 10 min to 1 day 1 to 100 days	1	100 to 150 150 to 185 185 185 to 100		0 to 9 psig 9 to 15 psig 15 psig 15 to 0 psig				
• 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 to 10 min 10 min to 1 day 1 to 100 days	1	100 to 125 125 125 to 120 120 to 150 150 to 185 185 185 to 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	Figure 3.11-2 (Note 3)	Figure 3.11-3 (Note 3)	0	
Zone CT-3 Containment - HCU Floor, 11'-0" El									
Normal HVAC			Normal/Startup 90/40	20 to 70	(-)0.1 to (-)1.0 inch H_2O	--	7.0×10^5	0	
Abnormal									
• Loss of HVAC	0 to 45 min avg	3	90 to 121	20 to 90	(-)0.1 to (+)1.0 inch H_2O			0	
	45 min to 20 hr	3	121	50 to 100	(-)0.1 to (+)1.0 inch H_2O				
	20 hr to 27.5 hr	3	121 to 90	50 to 100	(-)0.1 to (+)1.0 inch H_2O				
• 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 to 10 hr 10 to 24 hr	Note 1	90 to 120 120 120 to 90	100 100 20 to 90	0 to 1.75 psig 1.75 psig 1.75 to 0 psig	1.2×10^4 (Note 2)	4.4×10^2 (Note 2)	0	

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-2a

ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Nvt/ cm^2)	Supp Data
Zone CT-3 (Continued)									
Test (18)	0 to 20 hr	12	90	20 to 90	8 psig				
Accident									
• Large HE pipe break in drywell	0 to 6 sec	1	90 to 120	100	0 to 6 psig	Figure	Figure	0	
	6 to 45 sec		120 to 150	100	6 to 9 psig	3.11-2	3.11-3		
	45 sec to 10 min		150 to 185	100	9 to 15 psig	(Note 3)	(Note 3)		
	10 min to 1 day		185	100	15 psig				
	1 to 100 days		185 to 90	100	15 to 0 psig				
Zone CT-4 Containment - SLCS Areas, 37'-1" El									
Normal HVAC			Summer/Winter 90/70	20 to 90	(-)0.1 to (-)1.0 inch H_2O	--	1.8×10^3		
Abnormal									
• Loss of HVAC	0 to 45 min avg	3	90 to 121	20 to 90	(-)0.1 to (+)1.0 inch H_2O			0	
	45 min to 20 hr	3	121	50 to 100	(-)0.1 to (+)1.0 inch H_2O				
	20 hr to 27.5 hr	3	121 to 100	50 to 100	(-)0.1 to (+)1.0 inch H_2O				
• 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	Note 1	90 to 120	100	0 to 1.75 psig	1.2×10^4	4.4×10^2	0	
	30 min to 10 hr		120	100	1.75 psig	(Note 2)	(Note 2)		
	10 to 24 hr		120 to 90	20 to 90	1.75 to 0 psig				
Test (18)	0 to 20 hr	12	90	20 to 90	8 psig				
Accident									
• Large HE pipe break in drywell	0 to 6 sec	1	90 to 120	100	0 to 6 psig	Figure	Figure		
	6 to 45 sec		120 to 150	100	6 to 9 psig	3.11-2	3.11-3		
	45 sec to 10 min		150 to 185	100	9 to 15 psig	(Note 3)	(Note 3)		
	10 min to 1 day		185	100	15 psig				
	1 to 100 days		185 to 90	100	15 to 0 psig				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-2a

ENVIRONMENTAL CONDITIONS FOR CONTAINMENT (OUTSIDE DRYWELL) EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ T_{final} (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn cm^{-2})	Supp Data
Zone CT-5 Containment - RWCU Rooms (Holding Pump and Filter Demineralizer), 59'-7" El									
Normal HVAC									
- Pump Room			90	20 to 70	(-)0.1 to		(Note 6)	0	
- F/D Rooms			105		(-)1.0 inch H_2O				
Abnormal									
• Loss of HVAC (RWCU pump and F/D)	0 to 45 min	3	100 to 109 avg	20 to 90	(-)0.1 to (+)1.0 inch H_2O			0	
	45 min to 20 hr	3	109	20 to 90	(-)0.1 to (+)1.0 inch H_2O				
	20 hr to 27.5 hr	3	109 to 100	20 to 90	(-)0.1 to (+)1.0 inch H_2O				
• Loss of offsite power isolation event	0 to 1 hr		100 to 127	20 to 90	(-)0.1 to 0 inch H_2O	1.2×10^4 (Note 2)	4.4×10^2 (Note 2)	0	
(All HVAC equip excl RWCU rooms)	(RWCU HVAC powered by Div N_1 and N_2 Buses - normal power, DG backed, shed on LOCA only; containment HVAC powered by Non-Div "N" Buses - Interrupt offsite power)								
Test	0 to 20 hr	12	100	20 to 90	8 psig				
Accident									
• Large HE pipe break in drywell	0 to 6 sec	1	100 to 120	100	0 to 6 psig	Figure 3.11-2 (Note 3)	Figure 3.11-3 (Note 3)	0	
	6 to 45 sec		120 to 150	100	6 to 9 psig				
	45 sec to 10 min		150 to 185	100	9 to 15 psig				
	10 min to 1 day		185	100	15 psig				
	1 to 100 days		185 to 100	100	15 to 0 psig				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-2b

ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone DW-1 Drywell - Outside RPV Shield Wall - Not at Core Midplane									
Normal HVAC			135	20 to 90	±2 psig	--	(Note 7)	(Note 7)	
• Refueling			70	20 to 90	±2 psig				
Abnormal									
• Loss of HVAC	0 to 16 min	3	135 to 242	1 to 90	0 to 3 psig	--	--	--	
	16 to 58 min		242 to 251	1 to 90	3 to 2 psig				
	58 min to 5 hr		251 to 135	1 to 90	2 to 0 psig				
• Loss of offsite power	No impact - Same as normal (HVAC powered by Div N_1 and N_2 Buses - normal power, DG backed, shed on LOCA only)								
• Isolation events	0 to 75 sec	50	135 to 150	15 to 60	0 to 2 psig	1.2×10^4	4.4×10^2	--	Note 8
	75 sec to 30 min		150 to 135	20 to 90	2 to 0 psig				
Test (17)	0 to 20 hr	12	100	20 to 90	3 psig	--	--	--	
Accident									
• Large HE pipe break in drywell	0 to 1.5 sec	1	135 to 330	Steam	0 to 30 psig	Figure	Figure	--	
	1.5 to 40 sec		330	Steam	30 psig	3.11-4	3.11-4		
	40 to 45 sec		330 to 250	Steam	30 to 15 psig	(Note 9)	(Note 9)		
	45 sec to 1 hr		250	Steam	15 psig				
	1 hr to 1 day		250	100	15 to 5 psig				
	1 to 100 days		250 to 135	100	5 to 0 psig				
Zone DW-2 Drywell - Outside RPV Shield Wall - At Core Midplane									
Normal HVAC			135	20 to 90	±2 psig	--	(Note 7)	(Note 7)	
• Refueling			70	20 to 90	±2 psig				
Abnormal									
• Loss of HVAC	0 to 16 min	3	135 to 242	1 to 90	0 to 3 psig	--	--	--	
	16 to 58 min		242 to 251	1 to 90	3 to 2 psig				
	58 min to 5 hr		251 to 135	1 to 90	2 to 0 psig				
• Loss of offsite power	No impact - Same as normal (HVAC powered by Div N_1 and N_2 Buses - Normal power, DG backed, shed on LOCA only)								
• Isolation events	0 to 75 sec	50	135 to 150	15 to 60	0 to 2 psig	1.2×10^4	4.4×10^2	--	Note 8
	75 sec to 30 min		150 to 135	20 to 90	2 to 0 psig				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-2b

ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH & T_{final} (°F)	Pressure	Int Beta Radiation (rads)(1,2)	Int Gamma Radiation (rads)(1,2)	Fluence Ntg (n/cm^2)	Supp Data
Zone DW-2 (Continued)									
Test (17)	0 to 20 hr	12	100	20 to 90	3 psig	--	--	--	
Accident									
• Large HE pipe break in drywell	0 to 1.5 sec	1	135 to 330	Steam	0 to 30 psig	Figure 3.11-4 (Note 9)	Figure 3.11-4 (Note 9)		
	1.5 to 40 sec		330	Steam	30 psig				
	40 to 45 sec		330 to 250	Steam	30 to 15 psig				
	45 sec to 1 hr		250	Steam	15 psig				
	1 hr to 1 day		250	100	15 to 5 psig				
	1 to 100 days		250 to 135	100	5 to 0 psig				
Zone DW-3 Drywell - Under RPV Inside Pedestal									
Normal HVAC			135	20 to 90	-2 psig	--	2×10^6	1×10^{14}	
Abnormal									
• Loss of HVAC with scram	0 to 3 min	3	135 to 276	1 to 90	0 to 3 psig	--	--	--	
	3 to 58 min		276 to 251	1 to 90	3 to 2 psig				
	58 min to 5 hr		251 to 135	1 to 90	2 to 0 psig				
• Loss of offsite power	No impact - Same as normal (HVAC powered by Div N_1 and N_2 Buses - Normal power, DC backed, shed on LOCA only)								
• Scram with isolation	0 to 1 min	50	135 to 185	6 to 30		--	--	--	
	1 to 30 min		185	6 to 30					
	30 min to 1 hr		185 to 150	15 to 60					
	1 to 2 hr		150 to 135	90					
• Scram without isolation	0 to 1 min	150	135 to 185	6 to 30		1×10^4	4.4×10^2	--	
	1 to 30 min		185	6 to 30					
	30 min to 1 hr		185 to 135	90					
Test	0 to 20 hr	12	100	20 to 90	3 psig	--	--	--	
Accident									
• Large HE pipe break in drywell	0 to 1.5 sec	1	135 to 330	Steam	0 to 30 psig	Figure 3.11-4 (Note 9)	Figure 3.11-4 (Note 9)	0	
	1.5 to 40 sec		330	Steam	30 psig				
	40 to 45 sec		330 to 250	Steam	30 to 15 psig				
	45 sec to 1 hr		250	Steam	15 psig				
	1 hr to 1 day		250	100	15 to 5 psig				
	1 to 100 days		250 to 135	100	5 to 0 psig				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-2b

ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone DW-4 Drywell - Dome, Within Drywell Head									
Normal HVAC			151	10 to 90	±2 psig	--	2.7×10^7	6.0×10^{14}	Note 10
Abnormal									
• Loss of HVAC	0 to 4 min	3	151 to 155	1 to 30	0 to 3 psig	--	--	--	Note 11
	4 to 58 min		155	1 to 30	3 to 2 psig				
	58 min to 5 hr		155 to 151	1 to 30	2 to 0 psig				
• Loss of offsite power	No impact - Same as normal (HVAC powered by Div N_1 and N_2 Buses - Normal power, DG backed, shed on LOCA only)								
• Scram with and without isolation			--	--	--	1.2×10^4	4.4×10^2	--	
Test	0 to 20 hr	12	100	20 to 90	3 psig				
Accident									
• Large HE pipe break in drywell	0 to 1.5 sec	1	151 to 330		0 to 30 psig	Figure	Figure		
	1.5 to 40 sec		330		30 psig	3.11-4	3.11-4		
	40 to 45 sec		330 to 250		30 to 15 psig	(Note 9)	(Note 9)		
	45 sec to 1 hr		250		15 psig				
	1 hr to 1 day		250		15 to 5 psig				
	1 to 100 days		250 to 151		5 to 0 psig				
Zone DW-5 Drywell - Outside RPV Skirt (Inside Shield Wall)									
Normal HVAC			135	20 to 90	±2 psig	--	2×10^6	1×10^{14}	
Abnormal									
• Loss of HVAC	0 to 3 min	3	135 to 276	1 to 90	0 to 3 psig	--	--	--	
	3 to 58 min		276 to 251	1 to 90	3 to 2 psig				
	58 min to 5 hr		251 to 135	1 to 90	2 to 0 psig				
• Loss of offsite power	No impact - Same as normal (HVAC powered by Div N_1 and N_2 Buses - Normal power, DG backed, shed on LOCA only)								
• Scram with and without isolation			--	--	--	1.2×10^4	4.4×10^2	--	
Test	0 to 20 hrs	12	100	20 to 90	3 psig	--	--	--	

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-2b

ENVIRONMENTAL CONDITIONS FOR DRYWELL EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone DW-5 (Continued)									
Accident									
• Large HE pipe break in drywell	0 to 1.5 sec	1	135 to 330	Steam	0 to 30 psig	Figure 3.11-4 (Note 9)	Figure 3.11-4 (Note 9)	0	
	1.5 to 40 sec		330	Steam	30 psig				
	40 to 45 sec		330 to 250	Steam	30 to 15 psig				
	45 sec to 1 hr		250	Steam	15 psig				
	1 hr to 1 day		250	100	15 to 5 psig				
	1 to 100 days		250 to 135	100	5 to 0 psig				
Zone DW-6 Drywell - Annulus Between RPV and RPV Shield Wall									
Normal HVAC			550	1 to 30	(-)0.5 to +1.5 inch H_2O	--	1.8×10^{10}	4×10^{17}	
Abnormal									
• Loss of HVAC	0 to 25 min	3	550 to 575	1 to 5	0 to 3 psig	--	--	--	
	25 to 58 min	3	575 to 475	1 to 5	3 to 2 psig				
	58 min to 5 hr	3	475 to 135	6 to 90	2 to 0 psig				
• Loss of offsite power	No impact - Same as normal (HVAC powered by Div N_1 and N_2 Buses - Normal power, DG backed, shed on LOCA only)								
• Scram with and without isolation			--	--	--	1.4×10^{4}	4.4×10^{2}	--	
Accident									
• Large HE pipe break in drywell	0 to 1.5 sec	1	550	Steam	0 to 30 psig	Figure 3.11-4 (Note 9)	Figure 3.11-4 (Note 9)	0	
	1.5 to 40 sec		550	Steam	30 psig				
	40 to 45 sec		550	Steam	30 to 15 psig				
	45 sec to 1 hr		550 to 250	Steam	15 psig				
	1 hr to 1 day		250	100	15 psig				
	1 to 100 days		250 to 100	100	15 to 0 psig				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-3

ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ T_{final} (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone AB-1 Auxiliary Building - Electric Switchgear Area at 11'-0" El and Remote Shutdown Panel Room at (-)6'-10" El									
Normal HVAC			Summer/Winter 90/60	20 to 60	(-)0.1 to 0.25 inch H_2O	--	$<1.2 \times 10^3$	0	
Abnormal									
• Loss of HVAC	No impact - (Has standby HVAC equipment for switch gear rooms, and remote shutdown panel room cooler only required to operate during evacuation of Control Building.)								
• Loss of offsite power	No impact - (HVAC equipment powered by Div "ESF" Buses)								
Accident									
• Large HE pipe break in drywell (LOCA-DBA) (12)	0 to 100 days	1	104	8 to 60	0.25 to 0 inch H_2O	--	Figure 3.11-5 (Note 12)		
Zone AB-2 Auxiliary Building - LPCS, HPCS, and RHR "C" Rooms (ECCS Areas), (-)32'-0" El									
Normal HVAC			Summer/Winter 104/60	20 to 90	(-)0.25 to (-)1.0 inch H_2O	--	5.2×10^3	0	
Abnormal									
• Loss of HVAC	No impact - (Due to redundant nature and location of ECCS equipment, no standby HVAC equipment is required or provided)								
• Loss of offsite power	No impact - (HVAC equipment powered by Div "ESF" Buses)								
• Isolation events (HPCS) (1,2,3,5,8,9,11, 12,14,23,28,29)	0 to 2 min	133	104 to 122	8 to 35	(-)0.25 to (-)1.0 inch H_2O	--	5.2×10^3 (Note 13)	0	
	2 to 30 min		122	8 to 35	(-)0.25 to (-)1.0 inch H_2O				
	30 to 45 min		122 to 104	20 to 90	(-)0.25 to (-)1.0 inch H_2O				
Test (1,2,3,4,10,12)	0 to 2 min	1163	104 to 122	8 to 35	(-)0.25 to (-)1.0 inch H_2O	--	--	0	
	2 min to 1 hr		122	8 to 35	(-)0.25 to (-)1.0 inch H_2O				
	1 to 1.5 hr		122 to 104	20 to 90	(-)0.25 to (-)1.0 inch H_2O				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-3

ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH & Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone AB-2 (Continued)									
Accident									
• Large HE pipe break in drywell (LOCA-DBA) (12)	0 to 2 min	1	104 to 122	8 to 35	(-)0.25 to 0 inch H_2O	(Note 14)	(Note 14)	0	
	2 min-100 days		122	8 to 35	0 to (-)0.25 inch H_2O				
• HE pipe break in adjacent zone RHR "C" only (15)	0 to 24 sec	1	104 to 250	100	0 to 1.6 psig	2.0×10^4	1.3×10^3	0	
	24 sec to 6 hr		250 to 212	100	1.6 psig				
	6 to 12 hr		212 to 150	100	1.6 to 0.5 psig				
	12 hr to 100 days		150 to 104	100	0.5 to 0 psig				
Zone AB-3 Auxiliary Building - RCIC Turbine and Pump Room (ECCS Area), (-)32'-0" El									
Normal HVAC			Summer/Winter 104/60	20 to 90	(-)0.25 to (-)1.0 inch H_2O	--	1.3×10^6	0	
Abnormal									
• Loss of HVAC	No impact - (Due to redundant nature and location of ECCS equip, no standby HVAC equipment is required or provided)								
• Loss of offsite power	No impact - (HVAC equipment powered by Div "ESF" Bus)								
• Isolation events (1,2,3,4,5,6,7,8, 9,11,12,14,24,28)	0 to 6 min	136	104 to 122	8 to 35	(-)0.25 to (-)1.0 inch H_2O	--	1.3×10^6 (Note 13)	0	
	6 to 30 min		122	8 to 35	(-)0.25 to (-)1.0 inch H_2O				
	30 min to 1 hr		122 to 104	20 to 90	(-)0.25 to (-)1.0 inch H_2O				
Test (1,2,3,5,11)	0 to 12 min	663	104 to 122	8 to 35	(-)0.25 to (-)1.0 inch H_2O	--	2.8×10^3	0	
	12 to 45 min		122 to 104	20 to 90	(-)0.25 to (-)1.0 inch H_2O				
Accident									
• HE pipe break in adjacent zone (15)	0 to 0.6 sec	1	104 to 160	All steam	0 to 2 psig	2.0×10^4	1.3×10^3	0	
	0.6 sec to 6 hr		160 to 212	100	2 psig				
	6 hr to 100 days		212 to 104	100	2 to 0 psig				
• Large HE pipe break in drywell (12)	0 to 2 min		104 to 122	8 to 35	(-)0.25 to 0 inch H_2O	(Note 14)	(Note 14)	0	
	2 min to 100 days	1	122	8 to 35	0 to (-)0.25 inch H_2O				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-3

ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH % Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Nvt/ cm²)	Supp Data
Zone AB-4 Auxiliary Building - RHR Pump Rooms "A" and "B" (ECCS Area), (-)32'-0" El									
Normal HVAC (including shutdown and refueling) (9,11)		151	Summer/Winter 104/60	8 to 90	(-)0.25 to (-)1.0 inch H_2O	--	5.8×10^3	0	
Abnormal									
• Loss of HVAC	No impact - (Due to redundant nature and location of ECCS equipment no standby HVAC equipment is required or provided)								
• Loss of offsite power	HVAC equipment powered by Div "ESF" Buses								
• Isolation events (1,2,3,4,5,6,7,8, 14,27,28,29)	0 to 6.5 min	115	104 to 122	8 to 35	(-)0.25 to (-)1.0 inch H_2O	--	5.8×10^3 (Note 13)	0	
	6.5 min to 49 hr		122	8 to 35	(-)0.25 to (-)1.0 inch H_2O				
	49 to 52 hr		122 to 104	20 to 90	(-)0.25 to (-)1.0 inch H_2O				
Test (1,2,3,16)	0 to 6.5 min	2241	104 to 122	8 to 35	(-)0.25 to (-)1.0 inch H_2O	--	--	0	
	6.5 min to 1 hr		122	8 to 35	(-)0.25 to (-)1.0 inch H_2O				
	1 to 4 hr		122 to 104	20 to 90	(-)0.25 to (-)1.0 inch H_2O				
Accident									
• Large HE pipe break in drywell (12)	0 to 6.5 min	1	104 to 122	8 to 35	(-)0.25 to 0 inch H_2O	(Note 14)	(Note 14)	0	
	6.5 min to 100 days		122	8 to 35	(-)0.25 to 0 inch H_2O				
• HE pipe break in adjacent zone (15)	0 to 24 sec	1	104 to 250	All steam	0 to 1.6 psig	2.0×10^4	1.3×10^3	0	
	24 sec to 6 hr		250 to 212	All steam	1.6 psig				
	6 to 12 hr		212 to 150	100	1.6 to 0.5 psig				
	12 hr to 100 days		150 to 104	100	0.5 psig				
Zone AB-5 Auxiliary Building - RWCU Pump Rooms, (-)6'-10" El									
Normal HVAC			Summer/Winter 100/60	20 to 60	(-)0.25 to (-)1.0 inch H_2O	--	1.8×10^5		

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-3

ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH # T_{final} (°F)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[1,2]	Fluence (N/n cm²)	Supp Data
Zone AB-5 (Continued)									
Abnormal									
• Loss of HVAC	0 to 8 min	10	100 to 151	5 to 60	(-)0.25 to (-)11.0 inch H_2O	--	--	0	
	8 to 20 min		151 to 100	5 to 90	(-)0.25 to (-)1.0 inch H_2O				
• Loss of offsite power	0 to 27 sec	10	100 to 104	17 to 60	(-)0.25 to (-)1.0 inch H_2O	--	--	0	
	27 sec to 17 min		104 to 100	17 to 90	(-)0.25 to (-)1.0 inch H_2O				
	(HVAC powered by Div N_1 and N_2 Buses - Normal power, DG backed, shed on LOCA only)								
Accident									
• Large HE pipe break in drywell	0 to 100 days		100 to 150	5 to 60	(-)0.25 to (-)1.0 inch H_2O	(Note 14)	(Note 14)	0	
• HE pipe break in RWCU compartment						2.0×10^4	1.3×10^3	0	
Zone AB-6 Auxiliary Building - Corridors Outside of ECCS Rooms, (-)32'-0" El									
Normal HVAC			Summer/Winter 90/60	20 to 90	(-)0.25 to (-)1.0 inch H_2O	--	1.2×10^3	0	
Abnormal									
• Loss of HVAC	0 to 10 min	10	90 to 94	15 to 90	(-)0.25 to 0 inch H_2O	--	--	0	
	10 min to 10 hr		94	15 to 90					
• Loss of offsite power	0 to 10 min	10	90 to 94	15 to 90	(-)0.25 to 0 inch H_2O	--	--	0	
	10 min to 2.5 hr		94	15 to 90					
	(HVAC - Pressure control supply suppression and exhaust fans - Powered by Non-Div "N" Bus, interrupt offsite power)								
Accident									
Large HE pipe break in drywell (LOCA-DBA)	0 to 100 days	1	90	20 to 90	(-)0.25 to 0 inch H_2O	--	Figure 3.11-5 (Note 12)	0	

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-3

ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone AB-7 Auxiliary Building - Steam Tunnel, 9'-0"&13'-0" El									
Normal HVAC			Summer/Winter 122/60	10 to 90	(-)0.25 to 0 inch H_2O	--	9.5×10^5	0	
Abnormal									
• Loss of HVAC	0 to 11 min	10	122 to 180	0.8 to 25	(-)0.25 to 0 inch H_2O	--	--	0	
	11 min to 1 hr		180	0.8 to 25	(-)0.25 to 0 inch H_2O				
	1 to 2.5 hr		180 to 122	10 to 90	(-)0.25 to 0 inch H_2O				
• Loss of offsite power	0 to 11 min 11 min to 2.5 hr 2.5 to 4 hr	10	(Similar to normal HVAC since HVAC powered by Div N_1 and N_2 Buses - Normal power, DG backed, shed on LOCA only)						
Accident									
• Large HE pipe break in drywell (LOCA-DBA)	0 to 1 hr 1 hr to 100 days	1	122 to 180 180 to 150	0.8 to 25 4 to 42	0 to 2 psig 2 to 0.5 psig	Figure 3.11-6 (Note 12)	Figure 3.11-7 (Note 12)	0	
• HE pipe break in steam tunnel	0 to 0.5 sec 0.5 sec to 1 hr 1 to 2 hr 2 to 6 hr 6 hr to 100 days	1	122 to 240 240 to 325 325 325 to 212 212 to 150	All steam All steam All steam All steam 100	0 to 5 psig 5 psig 5 psig 5 to 2 psig 2 to 0.5 psig	(Not significant) (Not significant) (Not significant) (Not significant) (Not significant)		0	
• Tornado	0 to 1.5 sec 1.5 to 45 sec 45 to 46.5 sec	1	--	--	0 to (-)3 psig (-)3 psig (-)3 to 0 psig	--	--	0	
Zone AB-8 Auxiliary Building - Battery Rooms (Div 1, 2, 4 and Non-Div), 11'-0" El									
Normal			Summer/Winter 96/66	20 to 60	(-)0.25 to 0 inch H_2O	--	1.2×10^3	0	
(Exhaust vent only from switchgear area)	(Minimum 12 air changes/hour vent rate for battery rooms)								
Abnormal									
• Loss of offsite power	No impact - (Has standby vent fan for each battery room. Also, each div battery room has one fan powered by Div "ESF" Bus)								

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-3

ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone AB-8 (Continued)									
Accident									
• HE pipe break in drywell		1	--	--	--	--	Figure 3.11-5 (Note 12)	0	
Zone AB-9 Auxiliary Building - Air Positive Seal System Room, 28'-6" El									
Normal HVAC			Summer/Winter 120/60	10 to 90	0 to 0.25 inch H_2O	--	1.2×10^3		
Normal									
• Loss of offsite power	No impact - (HVAC powered by Div "ESF" Bus, cooling coil supplied by ESW)								
Accident									
• HE pipe break in drywell		1	--	--	--	--	Figure 3.11-5 (Note 12)	0	
Zone AB-10 Auxiliary Building - CRD Maintenance Room, Corridors, Cable Tunnel, Elev Tower, Elev Equipment Room, (-)6'-10" El									
Normal HVAC									
• CRD Maint			Summer/Winter 75/60	20 to 90	0 to (-)0.25 inch H_2O	--	1.4×10^5	0	
• Corr and C Tunnel			90/60	20 to 90	0 to 0.25 inch H_2O	--	1.2×10^3	0	
• Elev Tower			90/60	20 to 90	0 to 0.25 inch H_2O	--	1.2×10^3	0	
• Elev Equipment Room (101'-6" El)			104/60	20 to 90	0 to 0.25 inch H_2O	--	1.2×10^3	0	
Abnormal									
• Loss of HVAC	(No maximum temp. control and no pressure control)								
Stairwell @ 28'-6" EL	0 to 1 hr-47 min		90 to 130	10 to 60	--	--	--	0	
• Loss of offsite power.	(HVAC equipment and CRD exhaust fan powered by Non-Div "N" Bus, interrupt offsite power)								

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-3

ENVIRONMENTAL CONDITIONS FOR AUXILIARY BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone AB-10 (Continued)									
Accident									
• HE pipe break in drywell		1	Same as Loss of HVAC				Figure 3.11-5 (Note 12)	C	
Zone AB-11 Auxiliary Building - General HVAC Equipment Rooms, 28'-6" El									
Normal HVAC (H&V only)			Summer/Winter 104/60	10 to 90	0 to 0.25 inch H_2O	--	1.2×10^3	0	
	(Supply air fans provide outside air for ventilation about 80°F only)								
Abnormal									
• Loss of HVAC (w/Div 1 oper)	0 to 1.2 hr		104 to 130	10 to 90	0.25 to 0 inch H_2O				
(w/Div 2 oper)	0 to 1.2 hr		104 to 114	10 to 90	0.25 to 0 inch H_2O				
• Loss of offsite power (w/Div 1 or Div 2)			Summer/Winter 104/60	10 to 90	0.25 to 0 inch H_2O				
	(Vent fans powered by Div N_1 and N_2 Buses - Normal power, DG backed, shed on LOCA only) Similar to normal HVAC.								
Accident									
• HE pipe break in drywell		1	Same as loss of HVAC				Figure 3.11-5 (Note 12)	0	

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-4

ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone FB-1 Fuel Building - Fuel Pool Pump Area (Recirc. and F/D Backwash Drain Pump Rooms), (-)32'-0" El									
Normal HVAC			Summer/Winter 80/60	35 to 90	(-)0.1 to (-)1.0 inch H_2O	--	1.9×10^3	0	Note 15
Abnormal									
• Loss of HVAC	0 to 6 min	10	80 to 120	12 to 30	(-)0.1 to (-)1.0 inch H_2O	--	--	0	Note 16
	6 min to 1 hr		120	12 to 30	(-)0.1 to (-)1.0 inch H_2O				
	1 to 1.5 hr		120 to 80	35 to 90	(-)0.1 to (-)1.0 inch H_2O				
• Loss of offsite power	0 to 8 min	10	80 to 120	12 to 30	(-)0.1 to 0 inch H_2O	--	--	0	Note 17
	8 min to 2.5 hr		120	12 to 30	(-)0.1 to 0 inch H_2O				
	2.5 to 3 hr		120 to 80	35 to 90	(-)0.1 to 0 inch H_2O				
Accident		1							
• Large HE pipe break in drywell	0 to 10 min		80 to 120	12 to 30	(-)0.1 to (-)1.0 inch H_2O	4.0×10^5 (Note 18)	5.3×10^4 (Note 18)	0	Note 19 and 20
	10 min to 1 day		120	12 to 30	(-)0.1 to (-)1.0 inch H_2O	(100 days)			
	1 day to 100 days		120 to 80	35 to 90	(-)0.1 to (-)1.0 inch H_2O				
• Fuel handling accident	0 to 10 min		80 to 120	12 to 30	(-)0.1 to (-)1.0 inch H_2O	3.0×10^4 (Note 21)	1.5×10^5 (Note 21)	0	Note 19 and 20
	10 min to 1 day		120	12 to 30	(-)0.1 to (-)1.0 inch H_2O	(100 days)			
	1 to 100 days		120 to 80	35 to 90	(-)0.1 to (-)1.0 inch H_2O				
Zone FB-1A Fuel Building - FPCCU Filter/Demineralizer Backwash Tank Room, (-)32'-0" El									
Normal HVAC			Summer/Winter 92/60	25 to 65	(-)0.1 to (-)1.0 inch H_2O	--	5.1×10^5	0	Note 15
Abnormal									
• Loss of HVAC	0 to 9 min	10	92 to 112	12 to 35	(-)0.1 to (-)1.0 inch H_2O	--	--	0	Note 22
	9 min to 1 hr		112	12 to 35	(-)0.1 to (-)1.0 inch H_2O				
	1 to 1.5 hr		112 to 92	25 to 65	(-)0.1 to (-)1.0 inch H_2O				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-4

ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH # Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntg/ cm^2)	Supp Data
Zone FB-1A (Continued)									
• Loss of offsite power	0 to 15 min	10	92 to 106	17 to 42	(-)0.1 to 0 inch H_2O	--	--	0	Note 23
	15 min to 2.5 hr		106	17 to 42	(-)0.1 to 0 inch H_2O				
	2.5 to 3 hr		106 to 92	25 to 65	(-)0.1 to (-)1.0 inch H_2O				
Accident									
• Large HE pipe break in drywell	0 to 10 min		92 to 106	17 to 42	(-)0.1 to (-)1.0 inch H_2O	4.0×10^5 (Note 18)	5.3×10^4 (Note 18)	0	Note 19 and 20
	10 min to 1 day	1	106	17 to 42	(-)0.1 to (-)1.0 inch H_2O	(100 days)			
	1 to 100 days		106 to 92	25 to 65	(-)0.1 to (-)1.0 inch H_2O				
• Fuel handling accident	0 to 10 min	1	92 to 112	12 to 35	(-)0.1 to (-)1.0 inch H_2O	3.0×10^4 (Note 21)	1.5×10^5 (Note 21)	0	Note 19 and 20
	10 min to 1 day		112	12 to 35	(-)0.1 to (-)1.0 inch H_2O	(100 days)			
	1 to 100 days		112 to 92	25 yo 65	(-)0.1 to (-)1.0 inch H_2O				
Zone FB-2 Fuel Building - Operator Floor (and Above), Above 11'-0" El									
Normal HVAC			Summer/Winter 80/60	35 to 90	(-)0.1 to (-)1.0 inch H_2O	--	3.5×10^2	0	Note 15 and 24
Abnormal									
• Loss of HVAC	0 to 53 min	10	80 to 119	12 to 30	(-)0.1 to (-)1.0 inch H_2O	--	--	0	
	53 min to 14.5 hr		119	12 to 30	(-)0.1 to (-)1.0 inch H_2O				
	14.5 hr to 26 hr		119 to 80	35 to 90	(-)0.1 to (-)1.0 inch H_2O				
• Loss of offsite power	0 to 53 min	10	80 to 114	13 to 35	(-)0.1 to 0 inch H_2O	--	--	0	Note 15
	53 min to 2.5 hr		114	13 to 35	(-)0.1 to 0 inch H_2O				
	2.5 to 6 hr		114 to 80	35 to 90	(-)0.1 to (-)1.0 inch H_2O				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-4

ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH & Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone FB-1A (Continued)									
Accident									
• Large HE pipe break in drywell	0 to 2 hr	1	80 to 150	5 to 14	(-)0.1 to (-)1.0 inch H_2O	4×10^5 (Note 18)	5.3×10^4 (Note 18)		Note 19 and 20
	2 hr to 100 days		150 to 80	35 to 90	(-)0.1 to (-)1.0 inch H_2O	(100 days)			
• Fuel handling accident	0 to 30 min	1	80 to 150	5 to 14	(-)0.1 to (-)1.0 inch H_2O	3×10^4 (Note 21)	6.8×10^4 (Note 21)		Note 19 and 20
	30 min to 100 days		150 to 80	35 to 90	(-)0.1 to (-)1.0 inch H_2O	(100 days)			
Zone FB-3 Fuel Building - Below Operating Floor (FPCCU Heat Exchanger Areas, F/D, Holding Pump, Pre-Coat, SPCU F/D and Pump, Decon Waste Tank and Pump Rooms), Below 11'-0" El									
Normal HVAC			Summer/Winter 90/60	25 to 75	(-)0.1 to (-)1.0 inch H_2O	--	(Note 25)	0	Note 15 and 26
Abnormal									
• Loss of HVAC	0 to 24 min	10	90 to 123	10 to 28	(-)0.1 to (-)1.0 inch H_2O	--	--	0	
	24 min to 1 hr		123	10 to 28	(-)0.1 to (-)1.0 inch H_2O				
	1 to 1.5 hr		123 to 90	25 to 75	(-)0.1 to (-)1.0 inch H_2O				
• Loss of offsite power	0 to 42 min	10	90 to 110	14 to 40	(-)0.1 to 0 inch H_2O	--	--	0	Note 15
	42 min to 2.5 hr		110	14 to 40	(-)0.1 to 0 inch H_2O				
	2.5 to 3 hr		110 to 90	25 to 75	(-)0.1 to (-)1.0 inch H_2O				
• Isolation events			--	--	--	--	(Note 27)		
Accident									
• Large HE pipe break in drywell	0 to 1 hr	1	90 to 123	10 to 28	(-)0.1 to (-)1.0 inch H_2O	4.0×10^5 (Note 18)	5.3×10^4 (Note 18)	0	Note 19 and 20
	1 to 2.5 hr		123	10 to 28	(-)0.1 to (-)1.0 inch H_2O	(100 days)			
	2.5 hr to 100 days		123 to 90	25 to 75	(-)0.1 to (-)1.0 inch H_2O				

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-4

ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)1,2	Int Gamma Radiation (rads)2,3	Fluence (Ntn/ cm2)	Supp Data
Zone FB-3 (Continued)									
• Fuel handling accident	0 to 3 hr		90 to 150	5 to 18	(-)0.1 to (-)1.0 inch H_2O	3.0×10^4 (Note 21)	1.5×10^5 (Note 21)	0	Note 19 and 20
	3 hr to 100 days		150 to 90	25 to 75	(-)0.1 to (-)1.0 inch H_2O	(100 days)			
Zone FB-4 Fuel Building - SGTS Fan and Filter Rooms, (-)5'-3" and (-)17'-0" El									
Normal HVAC			Summer/Winter 90/60	30 to 60	(-)0.1 to (-)1.0 inch H_2O	--	--	0	Note 28
Abnormal									
• Loss of HVAC			120 max	12 to 30	(-)0.1 to (-)1.0 inch H_2O	--	--	0	Note 16
• Loss of offsite power			120 max	12 to 30	(-)0.1 to 0 inch H_2O	--	--	0	Note 17
• Isolation events			120 max	12 to 30	(-)0.1 to (-)1.0 inch H_2O	--	3.9×10^3 (Note 29)	0	
Accident									
• Large HE pipe break in drywell		1							
- SGTS filter room			120 max	12 to 30	(-)0.1 to (-)1.0 inch H_2O	--	Figure 3.11- (Note 30)	0	
- SGTS fan room			120 max	12 to 30	(-)0.1 to (-)1.0 inch H_2O	4.0×10^5 (Note 30)	1.6×10^5 (Note 30)	0	

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-4

ENVIRONMENTAL CONDITIONS FOR FUEL BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ T_{final} (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone FB-5 Fuel Building - Shield Annulus Exhaust Fan Rooms, 28'-6" El									
Normal HVAC			Summer/Winter 90/60	30 to 70	(-)0.1 to (-)1.0 inch H_2O	--	3.5×10^2	0	
Abnormal									
• Loss of HVAC			120 max	12 to 30	(-)0.1 to (-)1.0 inch H_2O	--	--	0	Note 16
• Loss of offsite power			120 max	12 to 30	(-)0.1 to 0 inch H_2O	--	--	0	Note 17
Accident									
• Large HE pipe break in drywell		1	120 max	12 to 30	(-)0.1 to (-)1.0 inch H_2O	4.0×10^5 (Note 18)	5.3×10^4 (Note 18)	0	Notes 19 and 20
• Fuel handling accident		1	120 max	12 to 30	(-)0.1 to (-)1.0 inch H_2O	3.0×10^4 (Note 21)	6.8×10^4 (Note 21)	0	Notes 19 and 20

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-5

ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING EQUIPMENT

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ T_{final} (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone CB-1 Control Building - Cable Tunnels, Office, Lunch Room, Kitchen, Women's Lounge/Toilet/Locker/Shower Rooms, Men's Toilet, Janitor, Corridors (including access), Stairs, (-)6'-10" El									
Normal HVAC			Summer/Winter 75/70	10 to 60	0.1 to 0.5 inch H_2O				
Abnormal									
• Loss of HVAC	No impact - Has standby divisional HVAC equipment								
• Loss of offsite power	No impact - HVAC powered by Div "ESF" Bus								
Accident									
• Radiation Post-LOCA (12)			Summer/Winter 90/50	10 to 60	0.1 to 0.5 inch H_2O	75 (180 days)	200	0	Notes 31 and 32
Zone CB-2 Control Building - Control Room and Computer Room, (-)6'-10" EL									
Normal HVAC			75	10 to 60	0.1 to 0.5 inch H_2O				
Abnormal									
• Loss of HVAC	No impact - Has standby divisional HVAC equipment								
• Loss of offsite power	No impact - HVAC powered by Div "ESF" Bus								
Accident									
• Radiation Post-LOCA (12)			Summer/Winter 80/50	10 to 60	0.1 to 0.5 inch H_2O	75 (180 days)	200	0	Notes 31 and 32
Zone CB-3 Control Building - Div Elec Equip Rooms, Instrument Repair Room, Men's Toilet/Locker/Shower Rooms, Janitor, Storage, Corridors, 11'-0" El									
Normal HVAC			Summer/Winter 75/70	10 to 60	0.1 to 0.5 inch H_2O				
Abnormal									
• Loss of HVAC	No impact - Has standby divisional HVAC equipment								
• Loss of offsite power	No impact - HVAC powered by Div "ESF" Bus								

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-5

ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ Tfinal (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Ntn/ cm^2)	Supp Data
Zone CB-3 (Continued)									
Accident									
• Radiation Post-LOCA (12)			Summer/Winter 90/50	10 to 60	0.1 to 0.5 inch H_2O	75 (180 days)	200	0	Notes 31 and 32
Zone CB-4 Control Building - Elec Control Room, 11'-0" El									
Normal HVAC			Summer/Winter 75/70	10 to 60	0.1 to 0.5 inch H_2O				
Abnormal									
• Loss of HVAC	No impact - Has standby divisional HVAC Equipment								
• Loss of offsite power	No impact - HVAC powered by Div "ESF" Bus								
Accident									
• Radiation Post-LOCA (12)			Summer/Winter 80/50	10 to 60	0.1 to 0.5 inch H_2O	75 (180 days)	200	0	Notes 31 and 32
Zone CB-5 Control Building - Fan Rooms, Chiller Rooms, Outdoor Air Filter Rooms, 28'-6" El									
Normal HVAC			Summer/Winter 95/60	10 to 90	0 to 0.25 inch H_2O				
Abnormal									
• Loss of HVAC	No impact - Has standby divisional HVAC Equipment								
• Loss of offsite power	No impact - HVAC powered by Div "ESF" Bus								
Accident									
• Radiation Post-LOCA			Summer/Winter 104/50	10 to 90	0 to 0.25 inch				
1 fan and chiller						75	200	0	Notes 31
2 outdoor air filter						75 (180 day dose in 100 days)	8000	0	and 32
(12)									

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-5

ENVIRONMENTAL CONDITIONS FOR CONTROL BUILDING EQUIPMENT (Continued)

Limiting Condition*	Condition Duration	Freq/ 40 Yrs	Temperature (°F)	RH @ T_{final} (%)	Pressure	Int Beta Radiation (rads)[1,2]	Int Gamma Radiation (rads)[2,3]	Fluence (Nvtn/ cm^2)	Supp Data
Zone CB-6 Control Building - Elev Equipment Room, 38'-6" El									
Normal HVAC			Summer/Winter 95/60	10 to 90	0 to 0.25 inch H_2O				
Abnormal									
• Loss of HVAC	No impact - Has standby divisional HVAC equipment								
• Loss of offsite power	No impact - HVAC powered by "ESF" Bus								
Accident									
• Radiation Post-LOCA (12)			Summer/Winter 104/50	10 to 90		75 (180 day dose in 180 days)	200	0	Notes 31 and 32

*( ) In this column refers to event number of Note 1 of Table 3.11-8

Table 3.11-8

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7

1. PLANT EVENTS AND FREQUENCY

		Frequency/40 yrs
NORMAL		
1.	Bolt Up	123
2.	Cold Startup and Heatup to Low Pressure Hot Standby	120
3.	Heatup to High Pressure Hot Standby	120
4.	Increase to Full Power	120
5.	Daily Load Reduction and Recovery	10,000
6.	Special Load Reduction and Recovery	2,000
7.	Non-Scram Reduction to High Pressure Hot Standby	111
8.	Non-Scram Reduction from High Pressure to Low Pressure Hot Standby	111
9.	Cooldown from Low Pressure Hot Standby to Vessel Flood	111
10.	Unbolt	123
11.	Refuel	40
ABNORMAL		
1.	Pressure Regulator Fails Open	26
2.	Inadvertent Closure (All MSIV)	10
3.	Loss of Auxiliary 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 (SORV)	8

Table 3.11-8

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7 (Continued)

ABNORMAL (Continued)

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 Demand	10
13.	Turbine Trip With Bypass	10
14.	Loss of All Feedwater	10
15.	Recirculation Failure - Increase Flow	10
16.	Inadvertent Closure of MSIV (One)	6
17.	Worst In-Sequence Rod Error	3
18.	Instrument Ranging Error	3
19.	Inadvertent (or Manual) Scram	20
20.	Loss of Feedwater Heater - Auto	3
21.	Loss of Feedwater Heater - Manual	3
22.	Rod Withdrawal Error at Power	3
23.	Inadvertent HPCS Injection	10
24.	Inadvertent RCIC Injection	10
25.	Grid Tie-Line Disturb. and Recovery	50
26.	Trip One FW Pump and Recovery	25
27.	Restart of Both Recirc Pumps	10
28.	Loss of HVAC in Steam Tunnel	10
29.	Loss of HVAC in Drywell	3
30.	Loss of HVAC in Containment	3
31.	Loss of HVAC in Auxiliary Building	10
32.	Loss of HVAC in Fuel Building	10
33.	Loss of HVAC in Turbine Building	10

TESTS

1.	Preoperation Test	1
2.	Start-Up Leak Test	120
3.	Refueling Outage Test	40
4.	HPCS Injection Test	76
5.	RCIC Injection Test	76

Table 3.11-8

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7 (Continued)

TESTS (Continued)

6.	Test Open/Close Individual S/R Valve (No Blowdown)	40 ea
7.	Diesel Generator Test	1000
8.	Individual MSIV Closure Test	1824
9.	Turbine Containment V/V Test (Sets of 8)	456
10.	HPCS Non-Injection Test	426
11.	RCIC Non-Injection Test	426
12.	LPCS Non-Injection Test	500
13.	LPCI Non-Injection Test	500
14.	SLCS Non-Injection Test	12
15.	Scram Test	300
16.	Rod Notch Test	2080
17.	Drywell Leak Test	12
18.	CTMT Leak Test	12
19.	MSIV Leak Test	40
20.	Secondary Containment Leak Test	12

ACCIDENT

1.	Open Recirc Valves in Cold Loop (Reverse Flow)	1
2.	Start Pump in Cold Loop (Forward Loop)	1
3.	Inadvertent LPCS Injection	1
4.	Reactor Overpressure Backup Scram	1
5.	Inadvertent ADS - Depress.	1
6.	Inadvertent SLCS Injection	1
7.	Improper Startup of Plant Hot RWCU	1
8.	Reactor Drain Shut-Off	1
9.	Alternate (RHR) Shutdown Mode (Shutdown with RHR Suction Through S/R Valve and Suppression Pool)	1
10.	Seizure of One Recirc Pump	1

Table 3.11-8

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7 (Continued)

ACCIDENT (Continued)

11.	Small HE Pipe Break in Drywell	1
12.	Large HE Pipe Break in Drywell	1
13.	Large HE Pipe Break in CTMT Outside Drywell	1
14.	Small Line Break in Containment Outside Drywell	1
15.	HE Pipe Break Outside Containment	1
16.	Fuel Handling Accident in Containment	1
17.	Control Rod Accident (Drop)	1
18.	Fuel Handling Accident in Fuel Building	1
19.	Tornado (With Loss of Preferred Power)	1
20.	Worst ATWS - MSIV Closure No Scram, Two Pump Trip	1
21.	Inadvertent LPCI Injection	1

2. The dose is based conservatively on the scram with turbine isolation event. It is assumed that there shall be 200 such events throughout the life of the plant.

3. The dose is based on the loss-of-coolant accident utilizing the assumptions of Regulatory Guides 1.3 and 1.7.

4. The normal operating 40-yr dose to equipment located in the traversing incore probe cubicle is 8.2×10^5 rads (gamma). The dose for the remaining area in this volume is 1.8×10^3 rads (gamma).

5. 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.

Table 3.11-8

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7 (Continued)

6. The following normal operating 40-yr doses should be used for the RWCU System equipment located in the following rooms.

a.	RWCU R/D Cubicle	1.5×10^7 rads (gamma)
b.	RWCU F/D Valve Gallery	1.6×10^4 rads (gamma)
c.	RWCU F/D Drain Room	3.5×10^4 rads (gamma)
d.	RWCU Backwash Tank Room	1.1×10^7 rads (gamma)
e.	RWCU Heat Exchanger Room	1.9×10^5 rads (gamma)

7. The normal operating 40-yr dose in the drywell between the reactor shield wall and a radial distance of 24'-0" from the reactor centerline, and vertically between elevations (+)8"-0" to an elevation of (+)46'-0" is 5.7×10^7 rads (gamma) and 1.1×10^{15} nvt (Neutron > 1 MeV).

   The normal operating 40-yr doses in the drywell outside the reactor shield wall and outside the region defined above is 2.7×10^7 rads (gamma) and 6.0×10^{14} nvt (Neutron > 1 MeV).

8. Abnormal isolation events for Zones DW-1 and 2, are based on "19 SRV's open with scram" and with 150°F suppression pool temperature.

9. The dose is based on NUREG-0588 assumptions.

10. Normal HVAC temperature for Zone DW-4 is based on a fuel pool temperature of 126°F.

11. Abnormal Loss of HVAC temperature is based on a fuel pool temperature rise to 128.5°F.

Table 3.11-8

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7 (Continued)

12. The dose is based on the loss-of-coolant accident using the assumptions of Regulatory Guides 1.3 and 1.7.

13. The dose is based on the scram with turbine isolation event. It is assumed that there shall be 200 such events throughout the life of the plant.

14. The following doses are based on the loss-of-coolant accident using the assumptions of Regulatory Guides 1.3 and 1.7. The following curves should be used depending on the location of the equipment being specified.

Equipment Location	Gamma Dose	Beta Dose
Equipment in contact with suppression pool fluid.	Figure 3.11-8	Figure 3.11-8
Equipment within 3'-0" of equipment containing suppression pool fluid but not in contact with fluid.	Figure 3.11-8	Figure 3.11-9
Remaining volume of room.	Figure 3.11-10	Figure 3.11-9

15. A negative static 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. 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.

Table 3.11-8

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7 (Continued)

16. 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.

17. Supplementary HVAC equipment, powered by Divisional "ESF" Buses, will maintain the area at the maximum temperature noted. The area pressure will rise to 0-in.WG due to loss of interruptible "N" Buses powering the normal HVAC and pressure control exhaust fans.

18. The loss-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.

19. The pressure control exhaust fans, the upper and lower level HVAC units, and the isolation valves in the main outside air inlet duct, will automatically close during a LOCA condition or if higher airborne radiation is detected in the exhaust air.

20. The SGTS will start automatically from a LOCA signal or high airborne radiation signal, and thus will maintain a negative static pressure within the building.

21. The fuel handling accident is calculated based on Regulatory Guide 1.25 assumptions. The fuel is assumed to have operated for 3 years. For equipment submerged in the fuel pool or in contact with fuel pool water, a 1.7×10^5 rads (gamma) and a 3.0×10^4 rads (beta) dose should be used.

22. Pressure control exhaust fans will draw 120°F ventilation air from the adjacent pump area, which results in the maximum tank room temperature as noted.

Table 3.11-8

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7 (Continued)

23. 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-in.WG without an exhaust.

24. 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 areas at a negative pressure with respect to the outside ambient atmosphere.

25. The following normal operating 40-yr doses should be used for the equipment in the areas listed below.

Area	Dose (rads)
FPCC F/D Drain Area	1.9×10^4
FPCC Precoat Pump Room	7.7×10^2
FPCC F/D Cubicle	2.5×10^5
Fuel Transfer Tube Cubicle	2.0×10^8
FPCC HX Alcove Area	8.5×10^2
FPCC Surge Tank Area	9.1×10^2
Decon Tank Room	7.0×10^3
New Fuel Vault	1.0×10^4
Cask Decon Vault	1.4×10^3
SPCU F/D Room	1.4×10^4
Remaining Areas	3.5×10^2

Table 3.11-8

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7 (Continued)

26. 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.

27. These doses are based on the scram with turbine isolation event. It is assumed that there shall be 200 such events throughout the life of the plant. The following areas are affected.

Area	Gamma Dose (rads)
SPCU F/D Room	5.2×10^5
SPCU Pump Area	1.7×10^4

28. 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 by the pressure control exhaust system.

29. The dose is based on the purge of the containment following the turbine isolation event.

30. 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.

31. 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

Table 3.8-11

NOTES FOR TABLES 3.11-2 THROUGH 3.11-7 (Continued)

Cleanup Units. This highly filtered outdoor air is of a sufficient quantity to pressurize the building, since it provides the corresponding leakage rate for the building.

32. The radiation doses are based on the loss-of-coolant accident utilizing Regulatory Guide 1.3 assumptions.

Table 3.11-10

SELECTED GE POSITIONS ON NUREG-0588

GE PROPRIETARY - provided under separate cover

*Revision 5 - Page 3.11-160
Revision 6 - Pages 3.11-153, 3.11-154, 3.11-156, 3.11-158
Revision 19 - 3.11-155, 3.11-157, 3.11-159

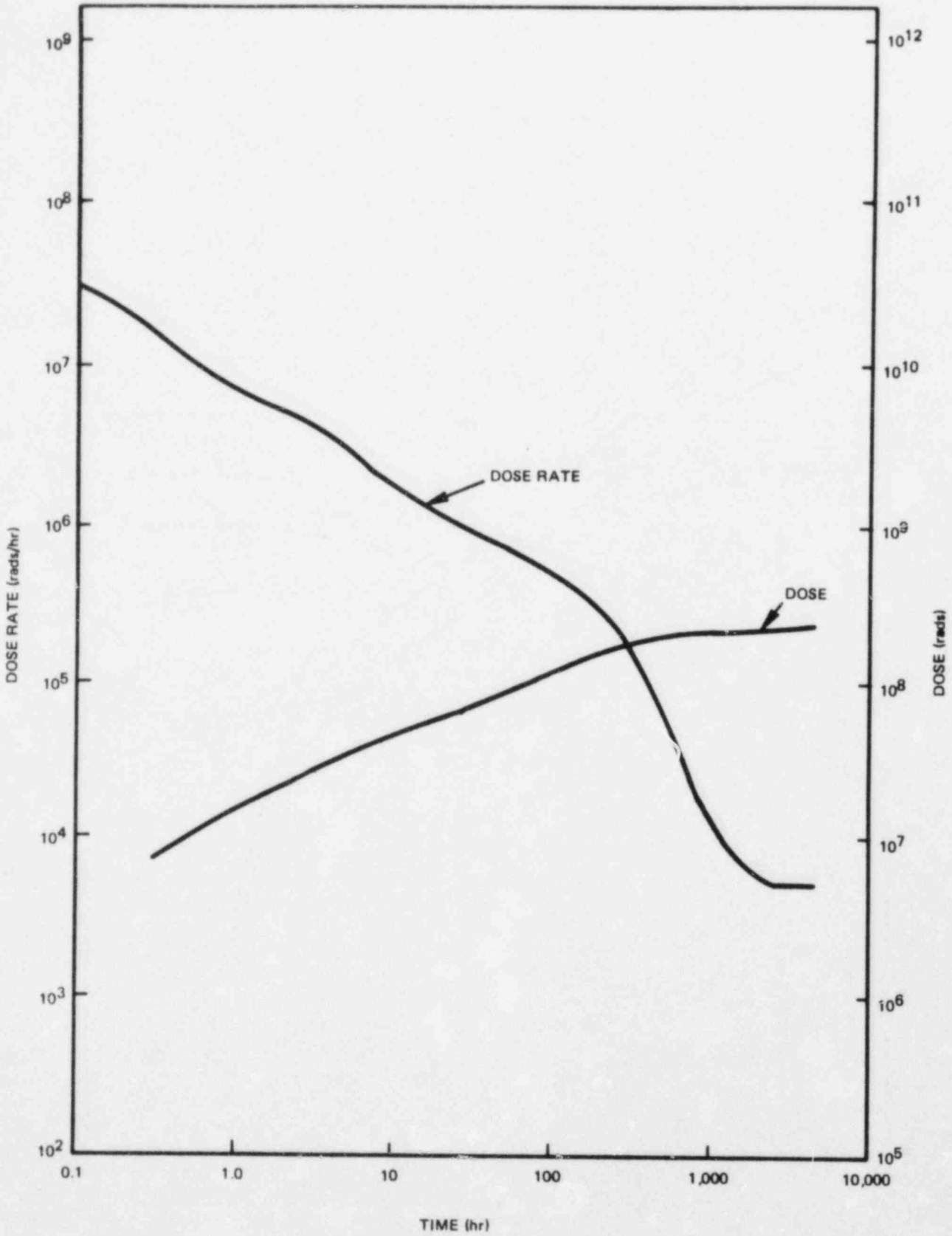

Figure 3.11-2. Post-LOCA Containment Semi-Infinite Beta-Dose

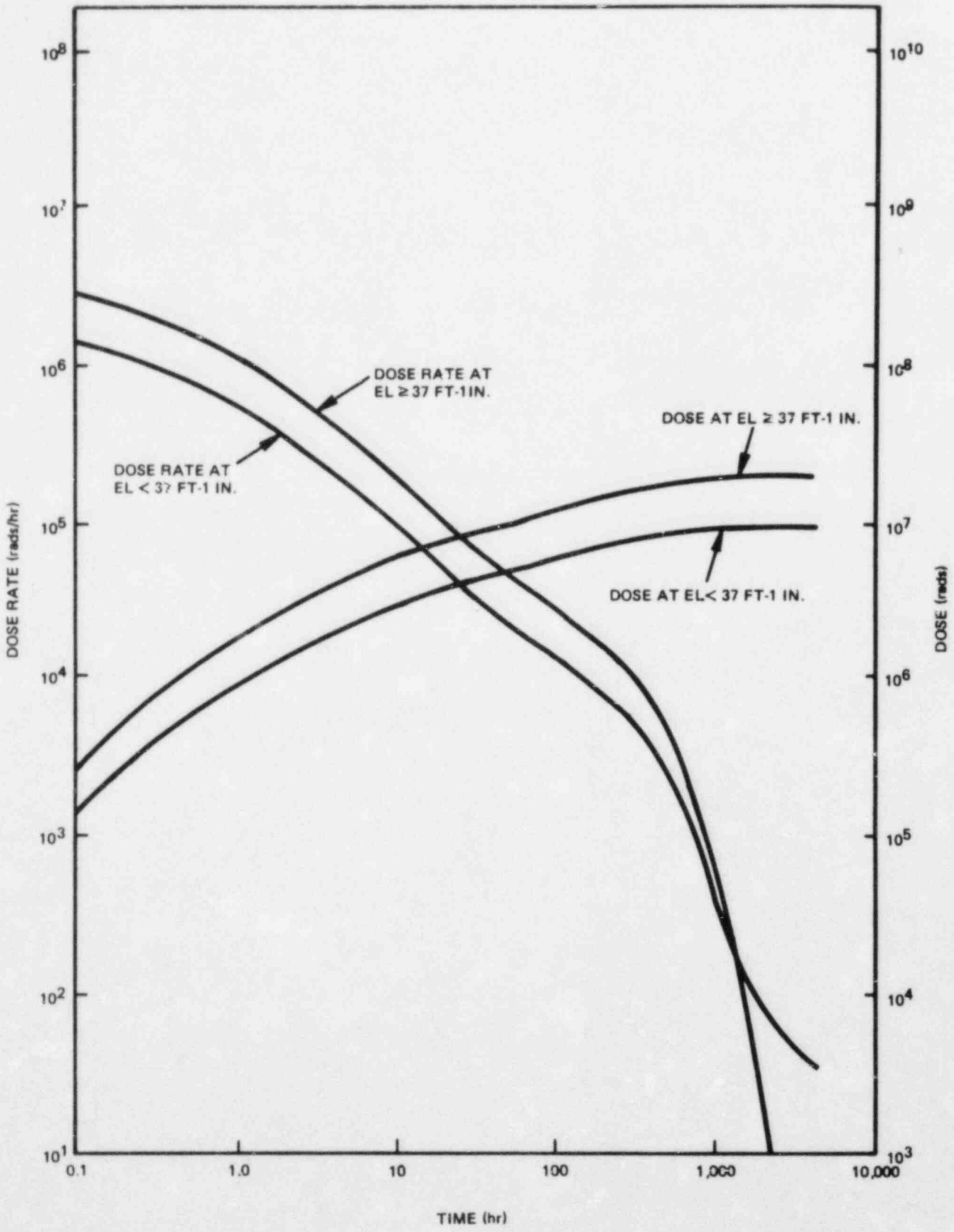

Figure 3.11-3. Post-LOCA Containment Gamma Dose Rates and Doses

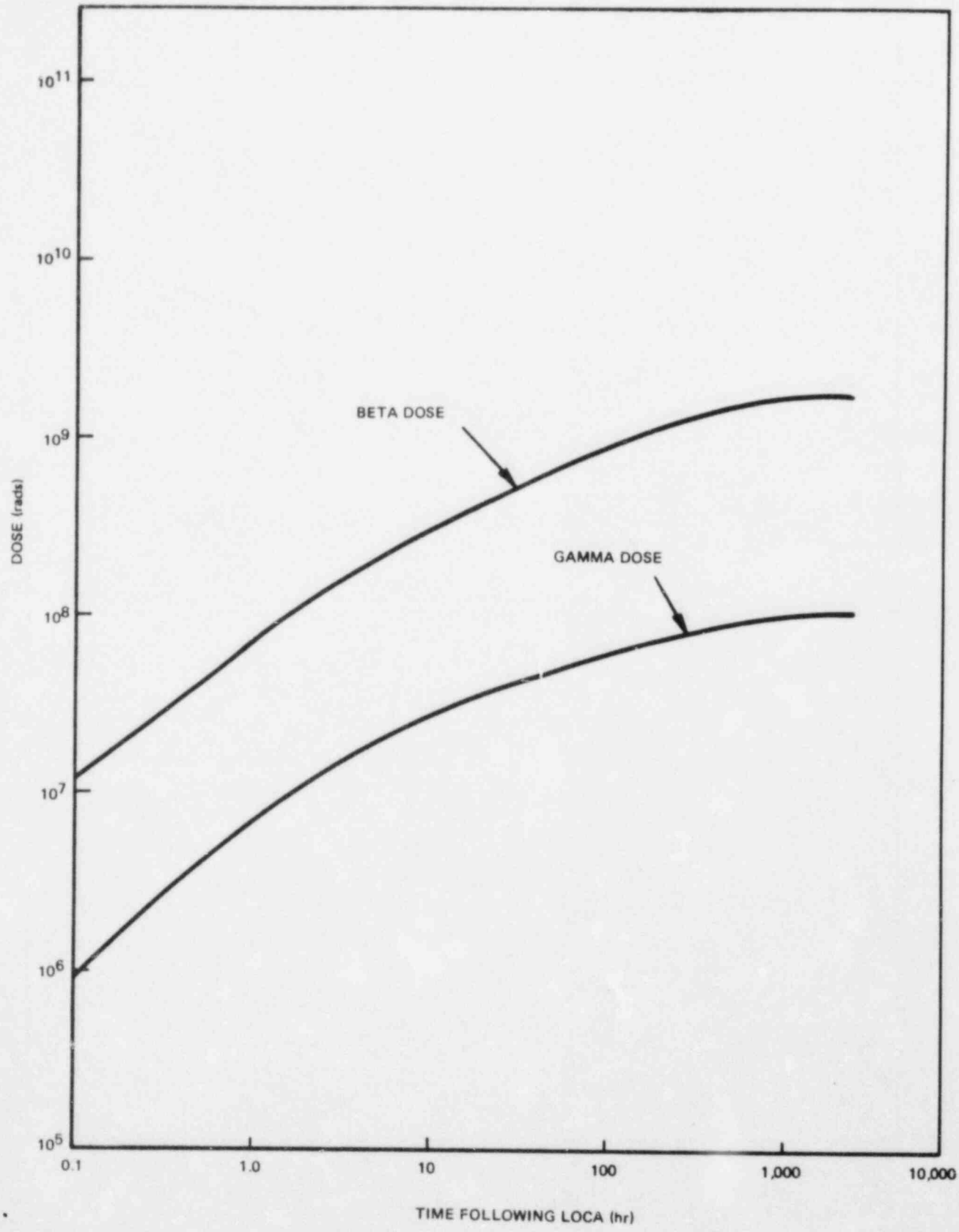

Figure 3.11-4. Post-LOCA Drywell Doses

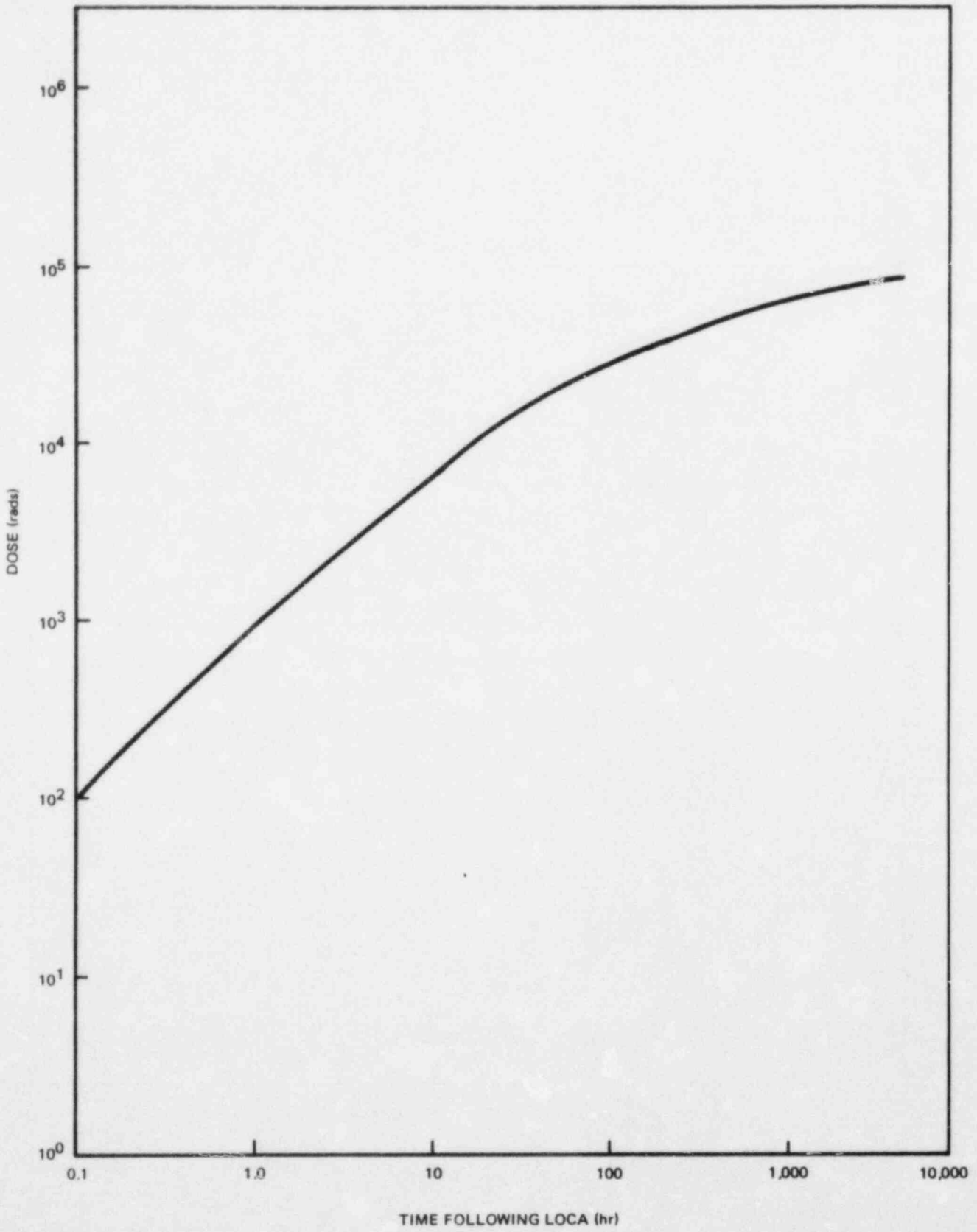

Figure 3.11-5. Post-LOCA Doses for Remaining Areas of Auxiliary Building

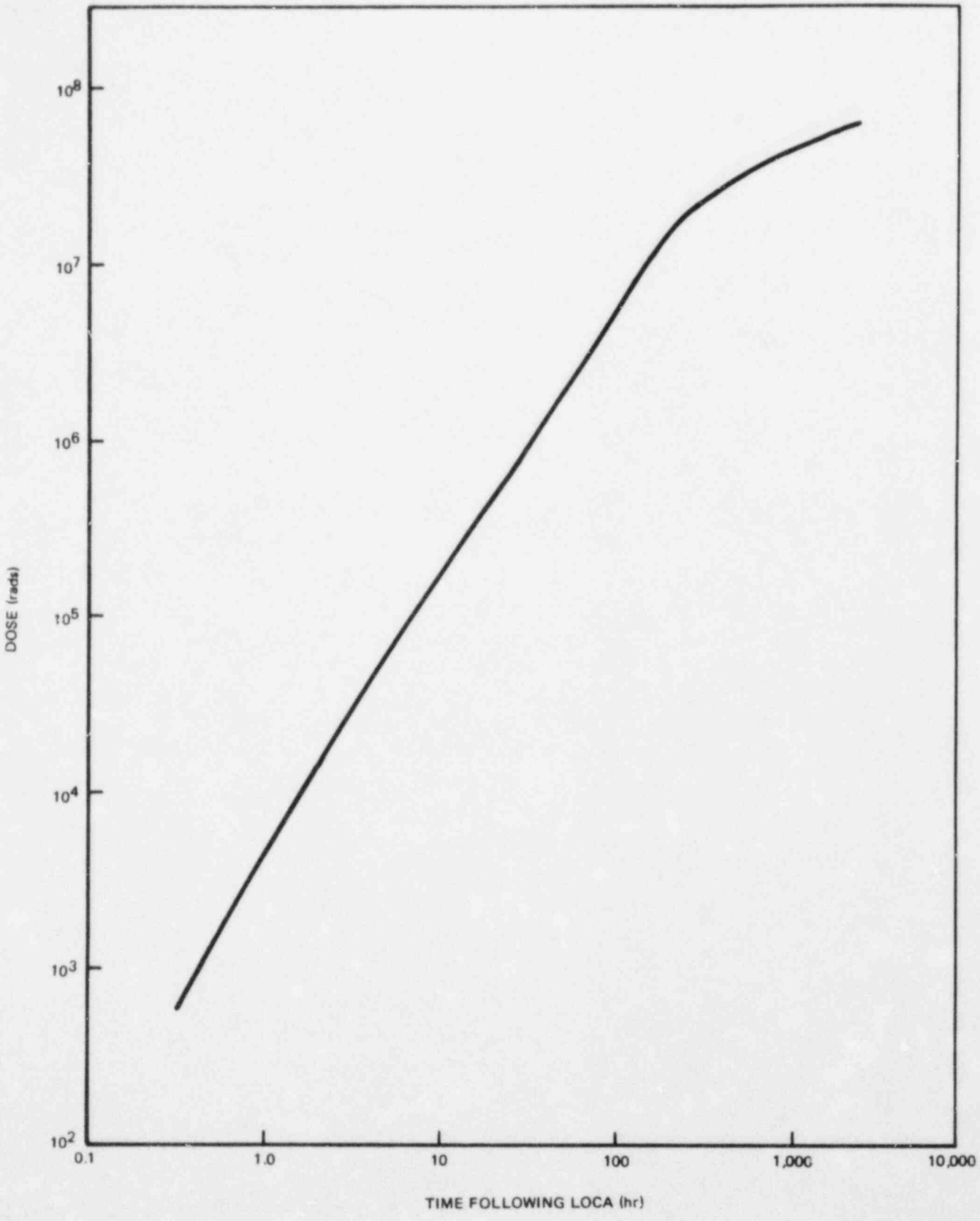

Figure 3.11-6. Post-LOCA Steam Tunnel Beta Dose

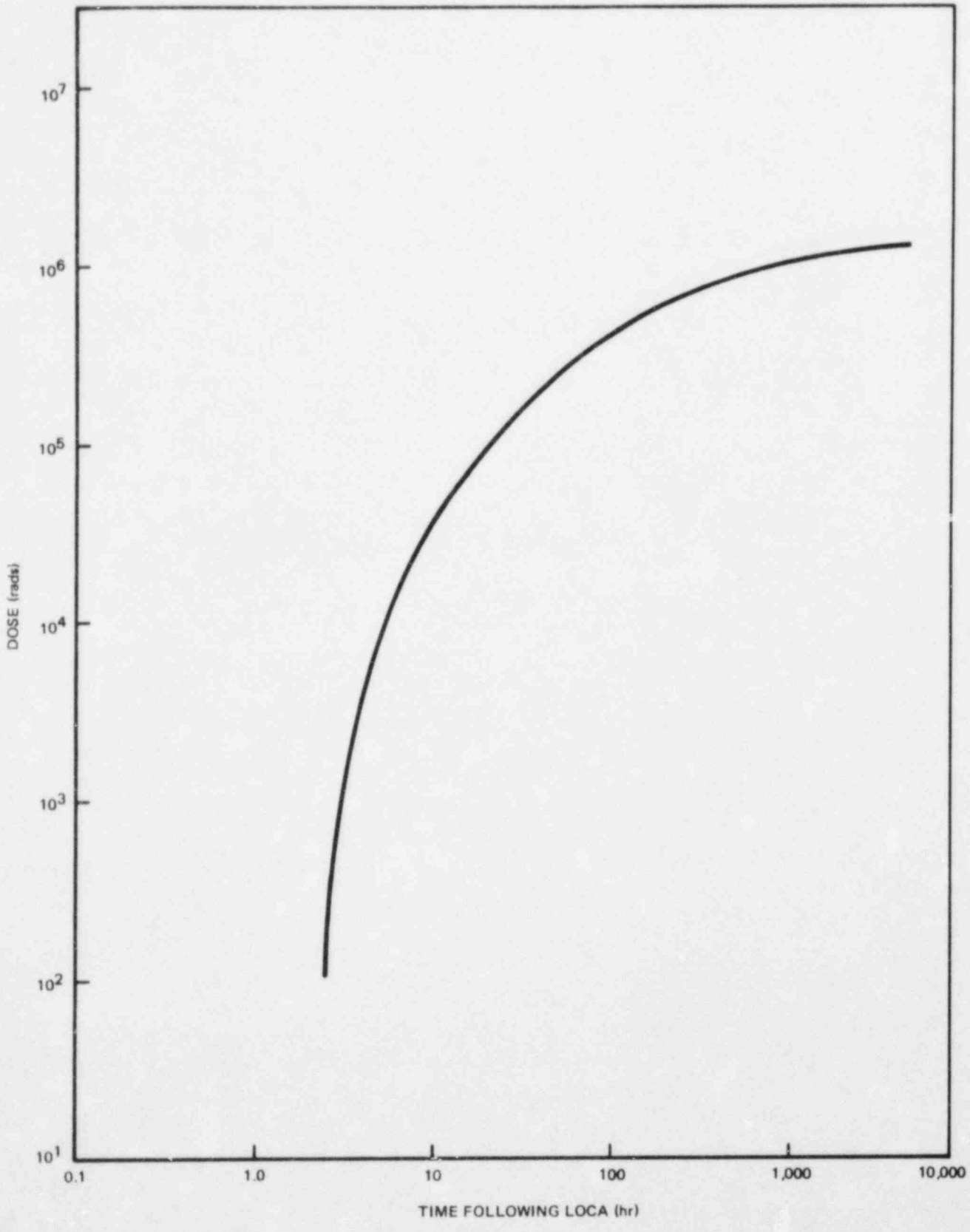

Figure 3.11-7. Post-LOCA Steam Tunnel Gamma Dose

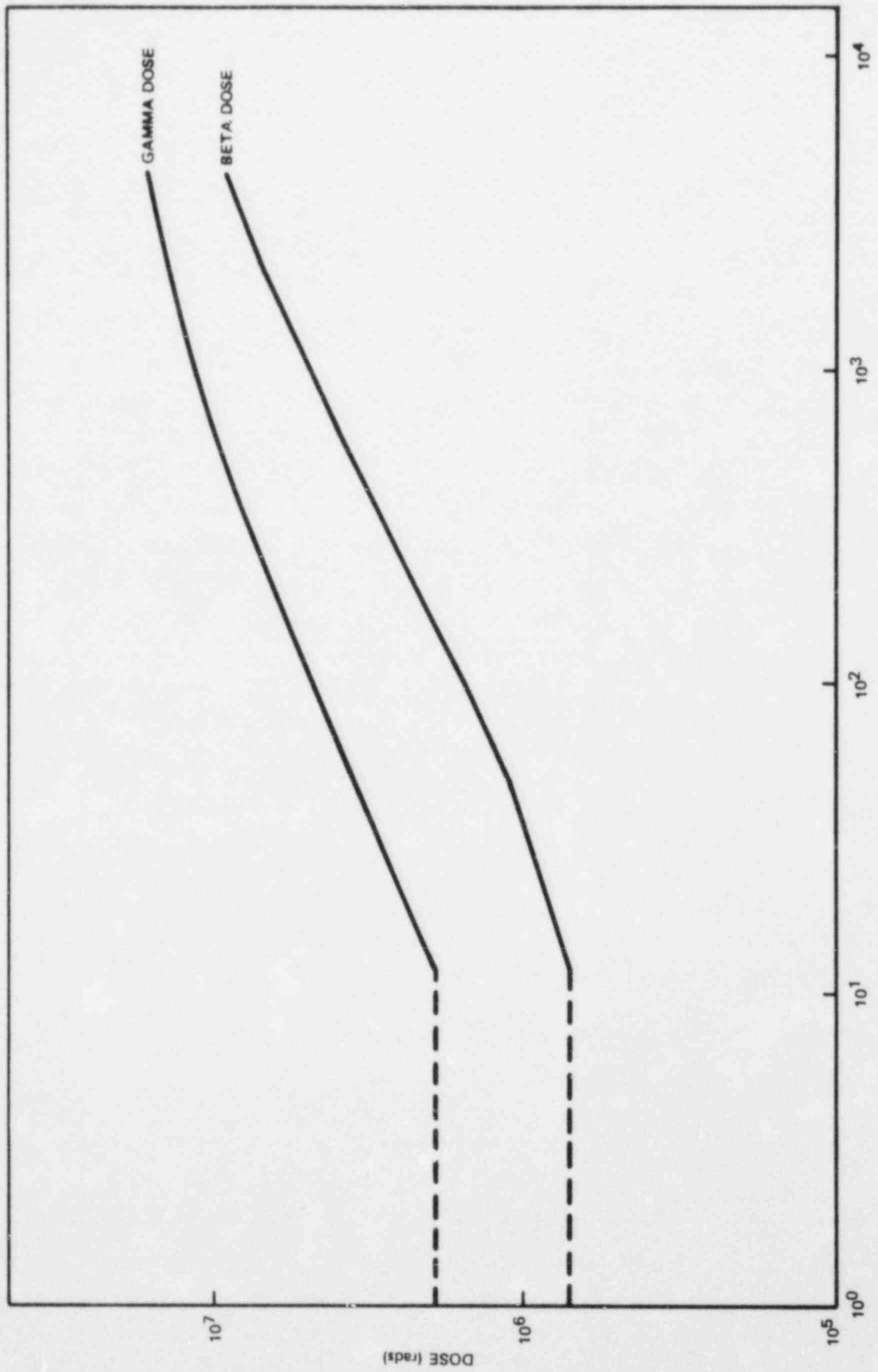

Figure 3.11-8. Post-LOCA Suppression Pool Fluid Contact Doses

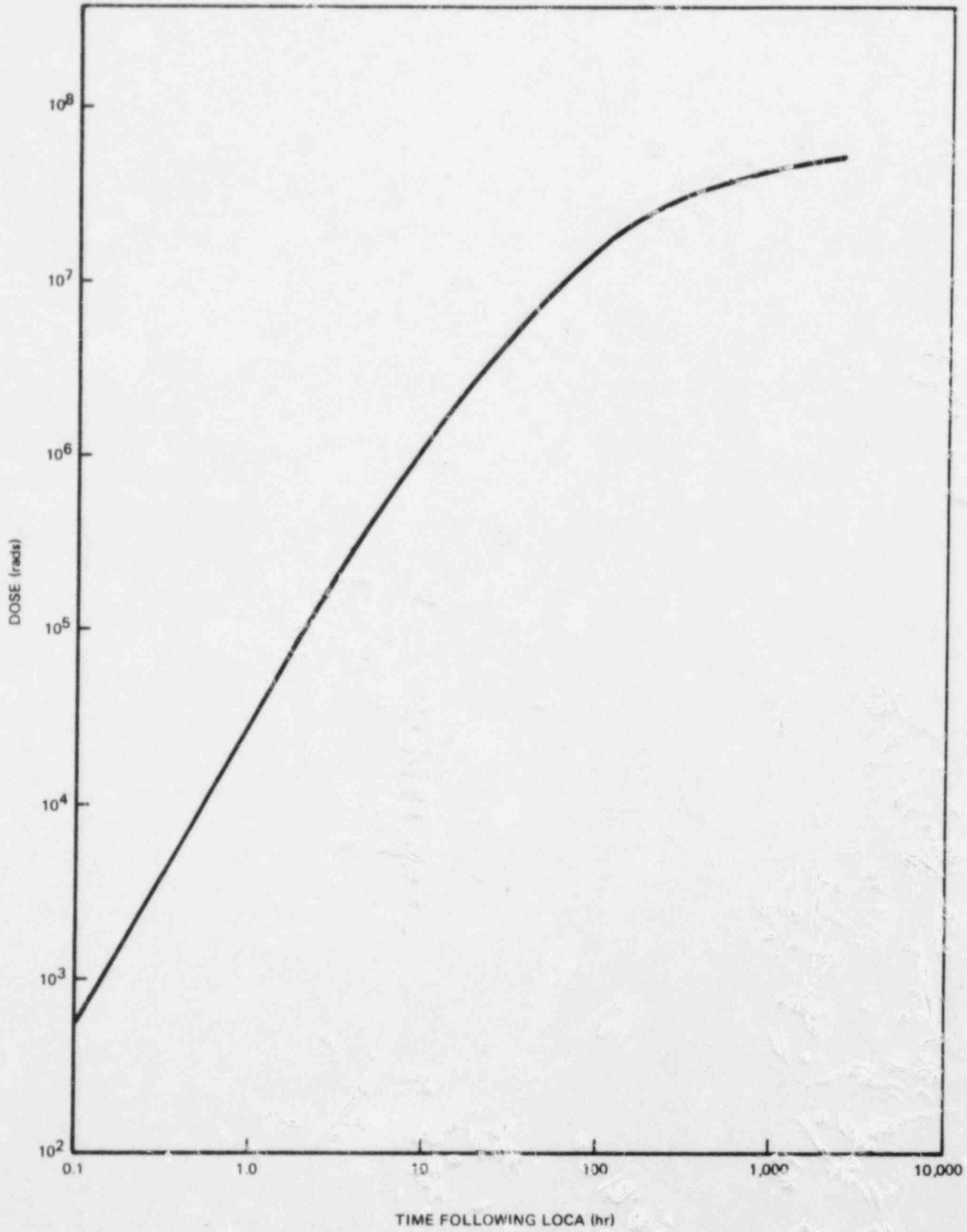

Figure 3.11-9. Post-LOCA Beta Dose

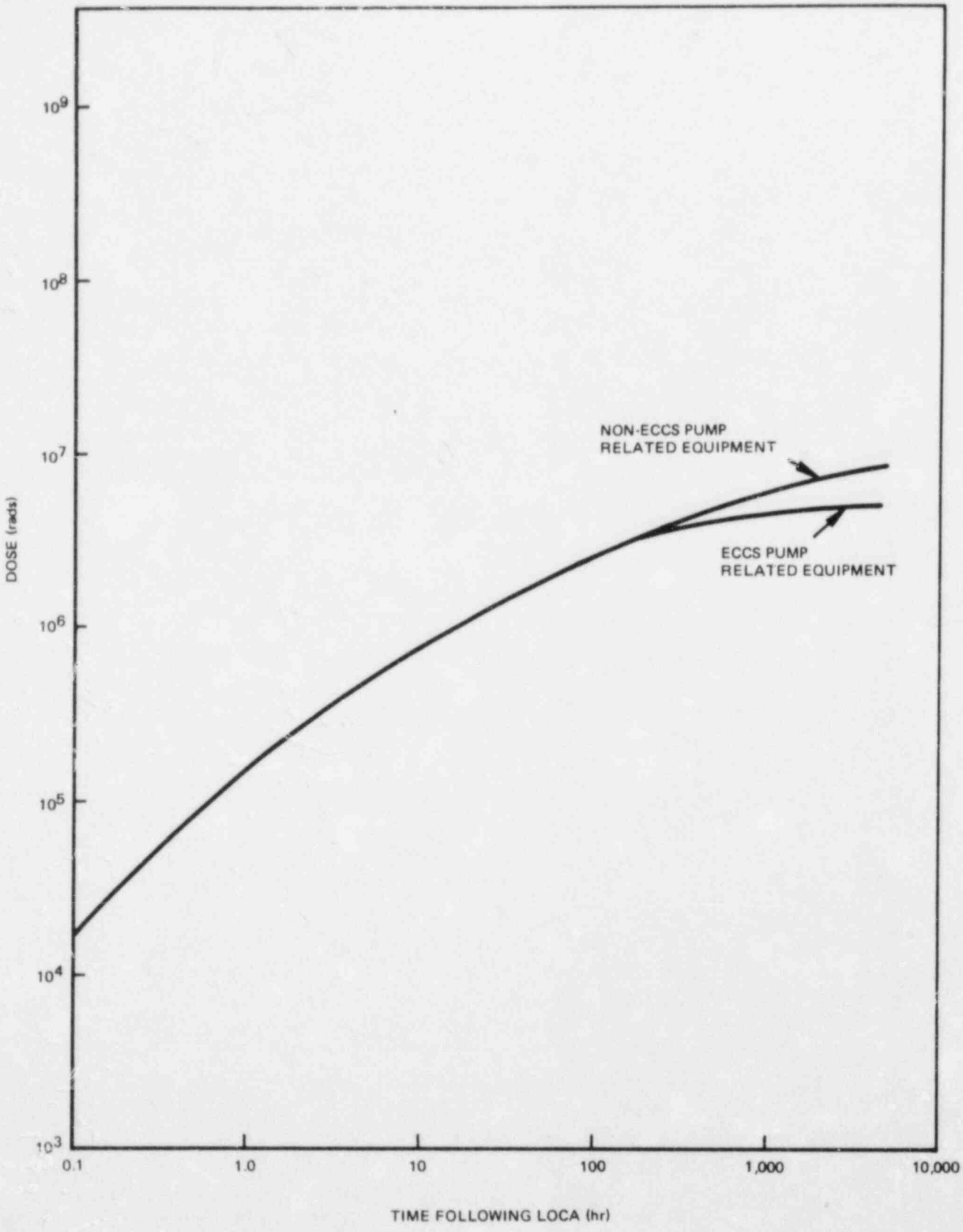

Figure 3.11-10. Post-LOCA Gamma Dose

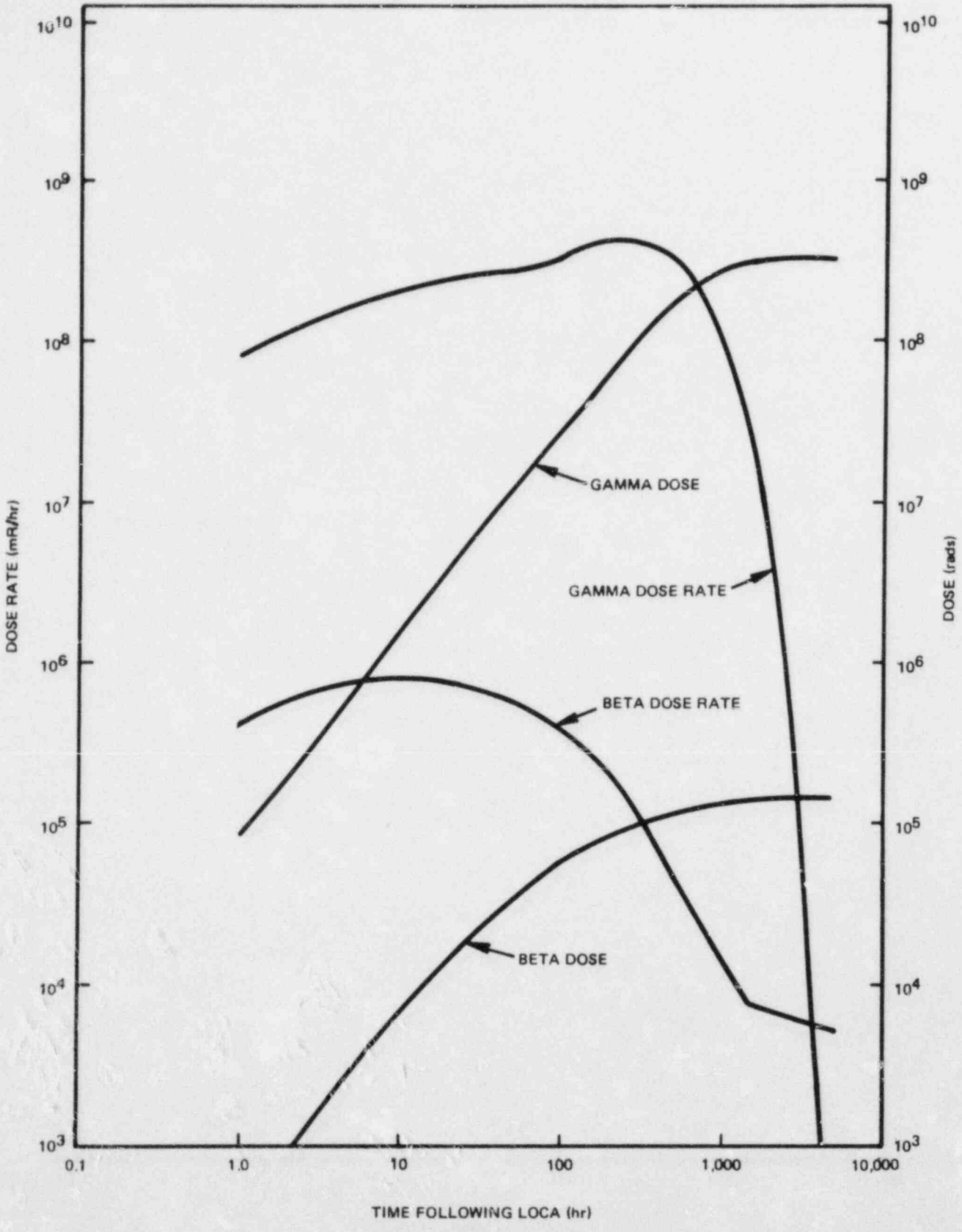

Figure 3.11-11. Post-LOCA SGTS Filter Cubicle Dose Rates and Doses

APPENDIX 3I

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3I.2 PRODUCT ANALYSIS REPORT GUIDELINES (Continued)

PROPRIETARY INFORMATION - provided under separate cover

3I.2 PRODUCT ANALYSIS REPORT GUIDELINES (Continued)

PROPRIETARY INFORMATION - provided under separate cover

3I.3 SIMILARITY/TRACEABILITY PROCEDURE

PROPRIETARY INFORMATION - provided under separate cover

3I.4 FORMAT AND CONTENT GUIDE OF PRODUCT APPLICATION FUNCTIONAL REQUIREMENTS

PROPRIETARY INFORMATION - provided under separate cover

3I.5 PRETEST EVALUATION

PROPRIETARY INFORMATION - provided under separate cover

3I.5 PRETEST EVALUATION (Continued)

PROPRIETARY INFORMATION - provided under separate cover

3I.6 TEST PLAN AND PROCEDURES GUIDELINES (Continued)

PROPRIETARY INFORMATION - provided under separate cover

3I.7 TEST REPORT GUIDELINES (Continued)

PROPRIETARY INFORMATION - provided under separate cover

3I.8 ENVIRONMENTAL QUALIFICATION REPORT GUIDELINES

PROPRIETARY INFORMATION - provided under separate cover

3I.8 ENVIRONMENTAL QUALIFICATION REPORT GUIDELINES (Continued)

PROPRIETARY INFORMATION - provided under separate cover

3I.8 ENVIRONMENTAL QUALIFICATION REPORT GUIDELINES (Continued)

PROPRIETARY INFORMATION - provided under separate cover

3I.8 ENVIRONMENTAL QUALIFICATION REPORT GUIDELINES (Continued)

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3I.8 ENVIRONMENTAL QUALIFICATION REPORT GUIDELINES (Continued)

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3I.8 ENVIRONMENTAL QUALIFICATION REPORT GUIDELINES (Continued)

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3I.8 ENVIRONMENTAL QUALIFICATION REPORT GUIDELINES (Continued)

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3I.8 ENVIRONMENTAL QUALIFICATION REPORT GUIDELINES (Continued)

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3I.8 ENVIRONMENTAL QUALIFICATION REPORT GUIDELINES (Continued)

PROPRIETARY INFORMATION - provided under separate cover