THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

P.O. BOX 5000 - CLEVELAND, OHIO 44101 - TELEPHONE (216) 622-9800 - ILLUMINATING BLDG. — 55 PUBLIC SQUARE

Serving The Best Location in the Nation

MURRAY R. EDELMAN
VICE PRESIDENT
NUCLEAR

January 31, 1983

PY-CEI/NRR-0010 L

Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Perry Nuclear Power Plant
Docket Nos. 50-440; 50-441
SER Outstanding Issue No. 9
Pool Dynamic Loads

Dear Mr. Youngblood:

This letter and its attachments are provided to address the Perry Nuclear Power Plant SER Outstanding Issue No. 9 regarding Pool Dynamic Loads.

The attached draft FSAR change pages for Appendices 3A and 3B provide a description of the SRV and LOCA-related hydrodynamic load definition for the Perry Mark III Containment. Appendix 3B is a detailed comparison of the Perry design basis to the General Electric Standard Plant GESSAR II, Revision 2, Appendix 3 methodology as modified by the NRC Draft Acceptance Criteria. The appendices summarizing design differences will be incorporated into a future FSAR amendment.

If you have any questions, please contact me.

Very truly yours,

Murray R. Edelman

Murray R. Edelman
Vice President
Nuclear Group

MRE:kh

cc: Jay Silberg, Esq.
John Stefano
Max Gildner
J. Kudrick
M. Fields
R. Pender

B001

1.0 DESCRIPTION OF HYDRODYNAMIC LOADING FUNCTIONS

The complete description of hydrodynamic loading on the reactor building structures due to safety relief valve actuation and hypothetical loss-of-coolant accidents is outlined in GESSAR II Appendix 3B. Deviations for Perry are described in the attached Appendix 3B.

1.1 GENERAL LOADING DESCRIPTION FOR SAFETY RELIEF VALVE ACTUATION ANALYSIS

The basis of all safety relief valve loading is the idealized pressure time history and pressure distribution described in Appendix 3B for the actuation of a single safety relief valve. All input time histories for safety relief valve reactor building analysis use a time increment (Delta T) of 0.0025 second.

1.1.1 Monte Carlo Method (Random)

The complete description of the Monte Carlo method for analysis of multiple satety relief valve actuations is contained in Attachment N of Appendix 3B. The complete set of critical load cases was run for the 19 valve, ADS, and one-valve-second- actuation.

1.1.2 In-Phase Analysis

The input for in-phase analysis for the 19 valve case is generated by superimposing the single valve pressure field of the 19 valves at their respective locations and combined, as described in Appendix 3B. The resultant pressure field is multiplied by the idealized time history and factored by the maximum pressure shown in Appendix 3B.

2.2.3.1 Circumferential Variation

The results of the ASHSD2 analysis include acceleration time histories for each node at each of eight separate angles. For each node, a response spectra was generated for each of eight angles around the circumference. The FRS were then created by enveloping the eight individual spectra. The frequency range is 0.5 Hz to 100 Hz using the frequency values specified by Regulatory Guide 1.122.

2.2.3.2 Enveloping

The FRS used in design are the envelopes of all controlling safety relief valve cases.

2.2.3.3 Broadening

The FRS and envelopes were broadened in accordance with Regulatory Guide 1.122.

3.0 CONTAINMENT FIX

Based on the large accelerations of the steel containment vessel due to SRV loads, a fix has been designed in order to qualify containment-mounted equipment. The fix required that concrete be poured to a height of 23 feet 6 inches above the basement, filling the annulus between the containment vessel and the shield building. This is discussed in Section 3.8.1.

APPENDIX 3B

CONTAINMENT LOADS

PREFACE

This section has been revised to delete the GESSAR Appendix 3B which had been reproduced as Appendix 3B of the PNPP FSAR. The following section follcws the format of GESSAR II - Rev. 2 Appendix 3B and provides a step-by-step Perry specific comparison. GESSAR II, as modified by Draft Acceptance Criteria (Appendix C to the Draft Technical Evaluation Report on Mark III LOCA-Related Hydrodynamic Load Definition provided by memo dated 10/8/82 from Mr. Themis P. Speis (NRC) to Mr. Hank Pfefferlen (GE)) is the basis for the PNPP design.

APPENDIX 3B

CONTAINMENT LOADS

3B.1 INTRODUCTION

No deviations.

3B.1.1 CONFIRMATORY TESTING

No deviations.

3B.1.2 DEFINITION OF LOCA

No deviations.

3B.1.3 DESIGN MARGINS

No deviations.

3B.2 REVIEW OF PHENOMENA

No deviations.

3B.2.1 DESIGN BASIS ACCIDENT (DBA)

GESSAR Figures 3B-2 through 3B-6 are not applicable to Perry. See FSAR Figures 3B-1 through 3B-5.

3B.2.2 INTERMEDIATE BREAK ACCIDENT (IBA)

No deviations.

3B.2.3 SMALL BREAK ACCIDENT (SBA)

The Perry drywell pressure resulting from an SBA is increased from 3.0 psid, as required by GESSAR, to 3.3 psid.

3B.2.4 SAFETY RELIEF VALVE ACTUATION

The inadvertent opening of a single SRV is considered in combination with the SSE and DBA to demonstrate the additional structural capability of the containment and internal structures.

3B.2.5 OTHER CONSIDERATIONS

No deviations.

3B.3 DYNAMIC LOAD TABLE

No deviations.

3B.4 DRYWELL STRUCTURE

No deviations.

3B4.1 DRYWELL LOADS DURING A LARGE BREAK ACCIDENT

No deviations.

3B.4.1.1 Sonic Wave

No deviations.

3B.4.1.2 Drywell Pressure

GESSAR Figure 3B-10 is not applicable to Perry. FSAR Figure 6.2.11 shows the Perry drywell pressure response to a main steam line break (DBA).

3B.4.1.3 Hydrostatic Pressure

No deviations.

3B.4.1.4 Loads on the Drywell Wall During Pool Swell

No deviations.

3B.4.1.5 Condensation Oscillation Loads

GESSAR Figure 3B-17 is not applicable to Perry. See FSAR Figure 3B-6 for the distribution of condensation oscillation loads on the drywell.

3B.4.1.6 Fallback Loads

No deviations.

3B.4.1.7 Negative Load During ECCS Flooding

No deviations.

3B.4.1.8 Chugging

No deviations.

3B.4.1.9 Loads Due to Chugging

No deviations.

3B.4.1.9.1 Chugging Loads Applied to Top Vent

No deviations.

3B.4.1.9.2 Pool Boundary Chugging Loads

GESSAR Figures 3B-28 through 3B-31, and 3B-34 and 3B-35 are not applicable to Perry. See FSAR Figures 3B-7 through 3B-12.

3B.4.2 DRYWELL LOADS DURING INTERMEDIATE BREAK ACCIDENT

No deviations.

3B.4.3 DRYWELL DURING SMALL BREAK ACCIDENT

No deviations.

3B.4.3.1 Drywell Temperature

No deviations.

3B.4.3.2 Drywell Pressure

No deviations.

3B.4.3.3 Chugging

No deviations.

3B.4.4 SAFETY/RELIEF VALVE ACTUATION

No deviations.

3B.4.5 DRYWELL ENVIRONMENTAL ENVELOP

No deviations.

3B.4.6 TOP VENT TEMPERATURE (CYCLING) PROFILE DURING CHUGGING

No deviations.

3B.4.7 DRYWELL MULTICELL EFFECTS

No deviations.

3B.5 WEIR WALL

No deviations.

3B.5.1 WEIR WALL LOADS DURING DESIGN BASIS ACCIDENT

No deviations.

3B.5.1.1 Sonic Wave

No deviations.

3B.5.1.2 Outward Load During Vent Clearing

No deviations.

3B.5.1.3 Outward Load Due to Vent Flow

No deviations.

3B.5.1.4 Chugging Loads

No deviations.

3B.5.1.5 Inward Load Due to negative Drywell Pressure

No deviations.

3B.5.1.6 Suppression Pool Fallback Loads

No deviations.

3B.5.1.7 Hydrostatic Pressure

No deviations.

3B.5.1.8 Safety/Relief Valve Actuation

No deviations.

3B.5.1.9 Condensation

No deviations.

3B.5.2 WEIR WALL LOADS DURING AN INTERMEDIATE BREAK ACCIDENT

No deviations.

3B.5.3 WEIR WALL LOADS DURING A SMALL BREAK ACCIDENT

No deviations.

3B.5.4 WEIR WALL ENVIRONMENTAL ENVELOPE

No deviations.

3B.5.5 WEIR ANNULUS MULTICELL EFFECTS

No deviations.

3B.6 CONTAINMENT

No deviations.

3B.6.1 CONTAINMENT LOADS DURING A LARGE STEAMLINE BREAK (DBA)

GESSAR Figures 3B-2 through 3B-6 are not applicable to Perry. See FSAR Figures 3B-1 through 3B-5.

3B.6.1.1 Compressive Wave Loading

No deviations.

3B.6.1.2 Water Jet Loads

No deviations.

3B.6.1.3 Initial Bubble Pressure

No deviations.

3B.6.1.4 Hydrostatic Pressure

No deviations.

3b.6.1.5 Local Containment Loads Resulting from the Structures at or Near the Pool Surface

Deviation from GESSAR as required by the NRC Draft Acceptance Criteria.

3B.6.1.6 Containment Load Due to Pool Swell at the HCU Floor (Wetwell Pressurization)

The Perry HCU floor is approximately 27 feet above the suppression pool surface. The peak calculated pressure differential is equal to approximately 5.5 psid based upon a design open area ratio of 30 percent of the total HCU floor area. GESSAR Figures 3B-57 and 3B-58 are not applicable to Perry.

3B.6.1.7 Fallback Loads

No deviations.

3B.6.1.8 Post Pool-Swell Waves

No deviations.

3B.6.1.9 Condensation Oscillation Loads

GESSAR Figure 3B-17 is not applicable to Perry. See FSAR Figure 3B-6 for condensation oscillation loads on containment.

3B.6.1.10 Chugging

No deviations.

3B.6.1.11 Long-Term Transient

No deviations.

3B.6.1.12 Containment Environmental Envelope

No deviations.

3B.6.2 CONTAINMENT LOADS DURING AN INTERMEDIATE BREAK ACCIDENT

No deviations.

3B.6.3 CONTAINMENT LOADS DURING A SMALL BREAK ACCIDENT

No deviations.

3B.6.4 SAFETY/RELIEF VALVE LOADS

No deviations.

3B.6.5 SUPPRESSION POOL THERMAL STRATIFICATION

No deviations.

3B.6.6 CONTAINMENT WALL MULTICELL EFFECTS

No deviations.

3B.7 SUPPRESSION POOL BASEMAT LOADS

Perry drywell pressure is increased from 3.0 psid, as required by GESSAR, to 3.3 psid as a result of an SBA.

3B.8 LOADS ON STRUCTURES IN THE SUPPRESSION POOL

No deviations.

3B.8.1 DESIGN BASIS ACCIDENT

No deviations.

3B.8.1.1 Vent Clearing Jet Load

No deviations.

3B.8.1.2 Drywell Bubble Pressure and Drag Loads Due to Pool Swell

The PNPP design basis for drywell bubble pressure and drag loads conservatively uses the LOCA bubble pressure. A comparison of the PNPP load methodology and the GESSAR II methodology is given in Section 3BL.2.3 of the FSAR.

3B.8.1.3 Fallback Loads

No deviations.

3B.8.1.4 Condensation Loads

LOCA condensation-oscillation drag loads are bounded by the PNPP LOCA bubble pressure drag load methodology.

3B.8.1.5 Chugging

Chugging drag loads are bounded by the PNPP LOCA bubble pressure drag load methodology.

3B.8.1.6 Compressive Wave Loading

No deviations.

3B.8.1.7 Safety/Relief Valve Actuation

The PNPP design basis for safety/relief valve quencher air bubble drag loads is conservatively based on the maximum quencher bubble pressure. A comparison of the PNPP load methodology and the GESSAR II load methodology is given in Section 3BL.3.2 of the FSAR.

3B.9 LOADS ON STRUCTURES AT THE POOL SURFACE

As required by the NRC Draft Acceptance Criteria, the Perry analysis used a velocity ranging from zero fps at the pool surface to a maximum of 50 fps as a function of height; instead of the constant 40 fps velocity specified in GESSAR Table 3B-2, to calculate pool swell drag loads.

3B.10 LOADS ON STRUCTURE BETWEEN THE POOL SURFACE AND THE HCU FLOORS

The effect of the Perry unique grating at elevation 599'9" on pool swell loads is being investigated. Deviations from GESSAR defined load will be defined.

3B.10.1 IMPACT LOADS

Impact loads are calculated in accordance with the requirements of the NRC Draft Acceptance Criteria. GESSAR Figures 3B-71 through 3B-74 are not applicable to Perry.

Bulk pool swell impact loads are calculated in accordance with the NRC Draft Acceptance Criteria with the following exception. Pool swell deflectors are provided to protect piping and valves in the bulk pool swell region. Impact loads on pool swell deflectors are being calculated in accordance with the Safety Evaluation Report, Mark 1 Containment Long Term Program (Nureg 0661 - July 1980). Results of this evaluation will be provided.

3B.10.2 DRAG LOADS

Drag loads are calculated in accordance with the requirements of the NRC Draft Acceptance Criteria. GESSAR Figures 3B-72 and 3B-75 are not applicable to Perry.

3B.10.3 FALLBACK LOADS

No deviations.

3B.11 LOADS ON EXPANSIVE STRUCTURES AT THE HCU FLOOR ELEVATION

The Perry plant pressure differential at the HCU floor is 5.5 psid.

3B.12 LOADS ON SMALL STRUCTURES AT AND ABOVE THE HCU FLOOR ELEVATION

GESSAR Figure 3B-73 is not applicable to Perry, NRC Draft Acceptance Criteria is used instead.

3B.13 REFERENCES

No deviations.

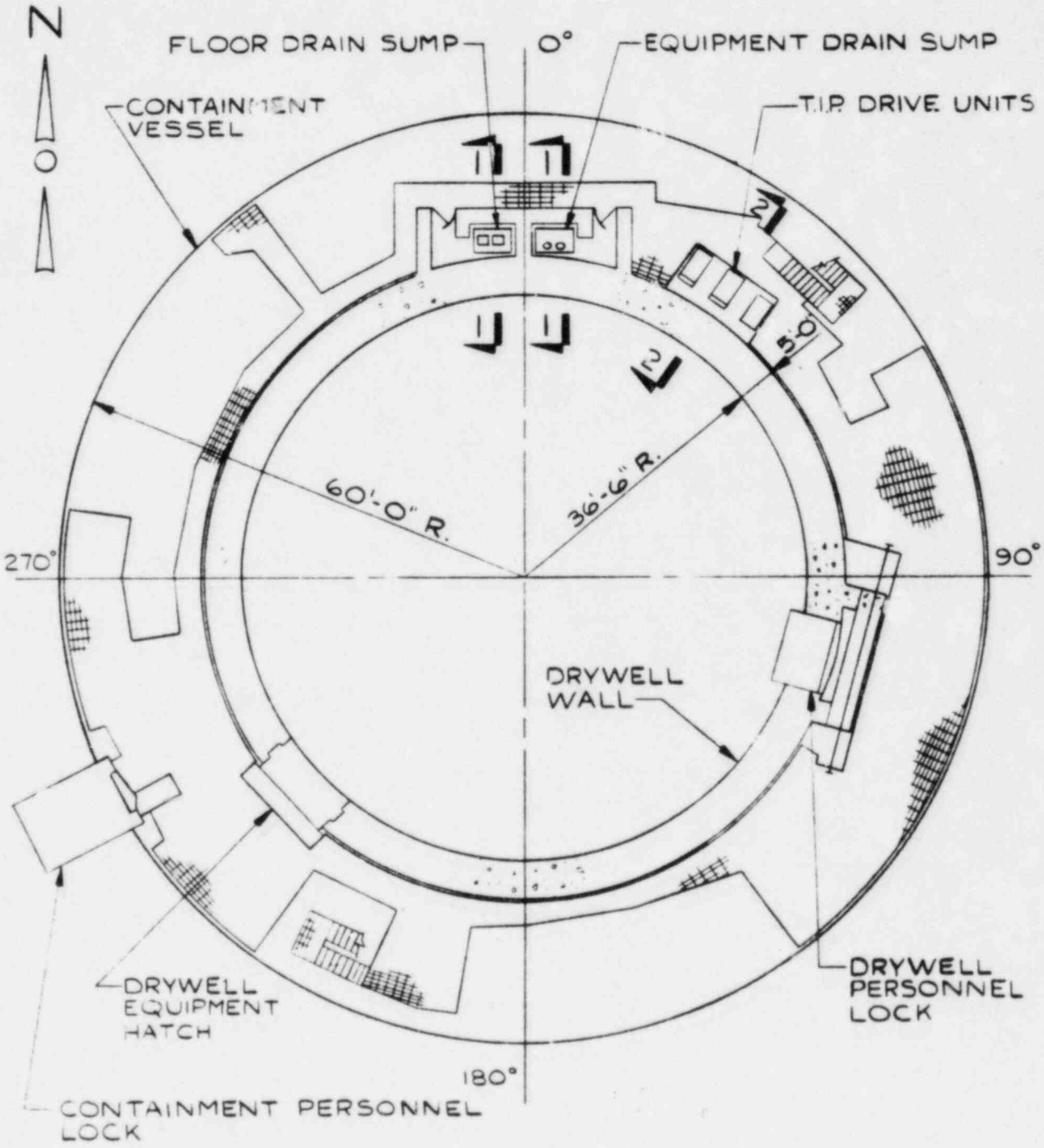


FIGURE 3B-1

PLAN AT ELEVATION 599'-9"

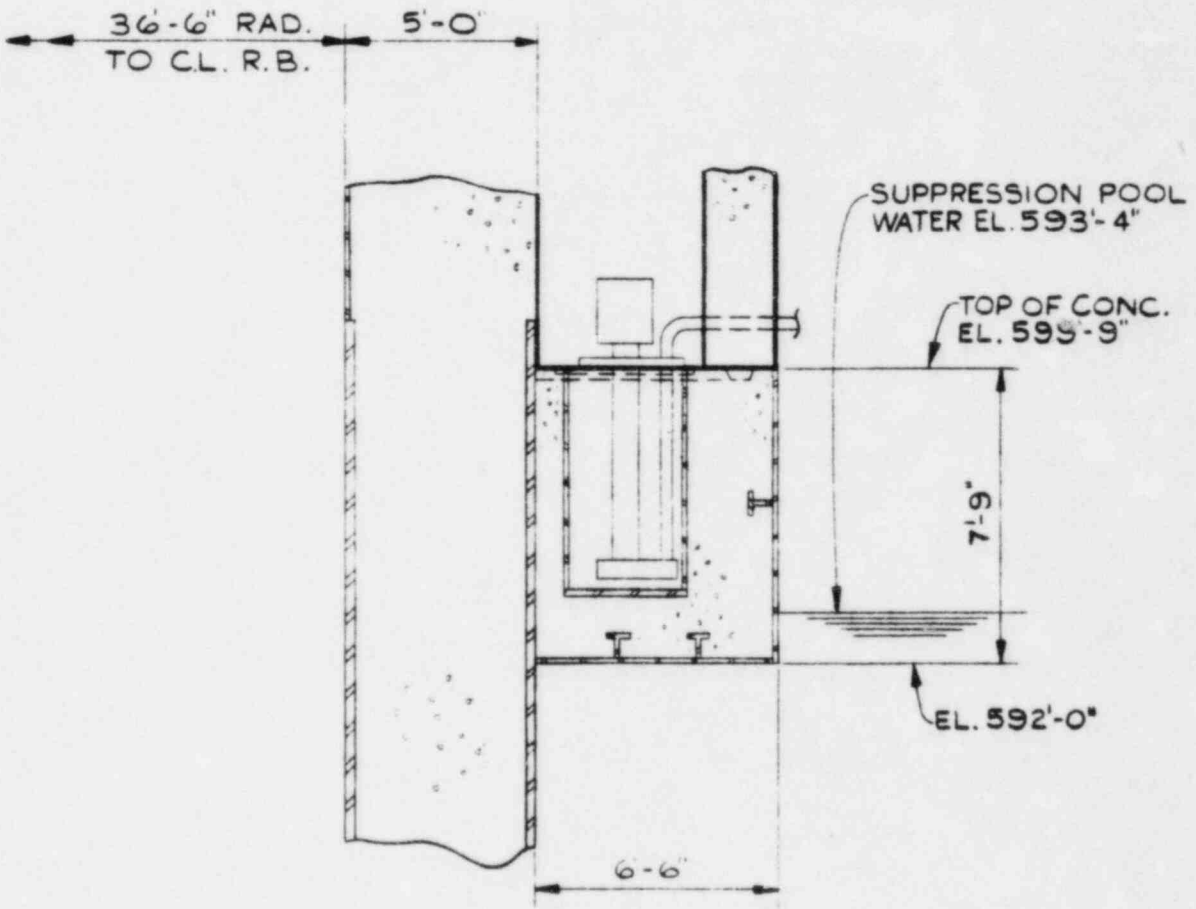


FIGURE 3B-2

SECTION 1-1
THROUGH SUMP

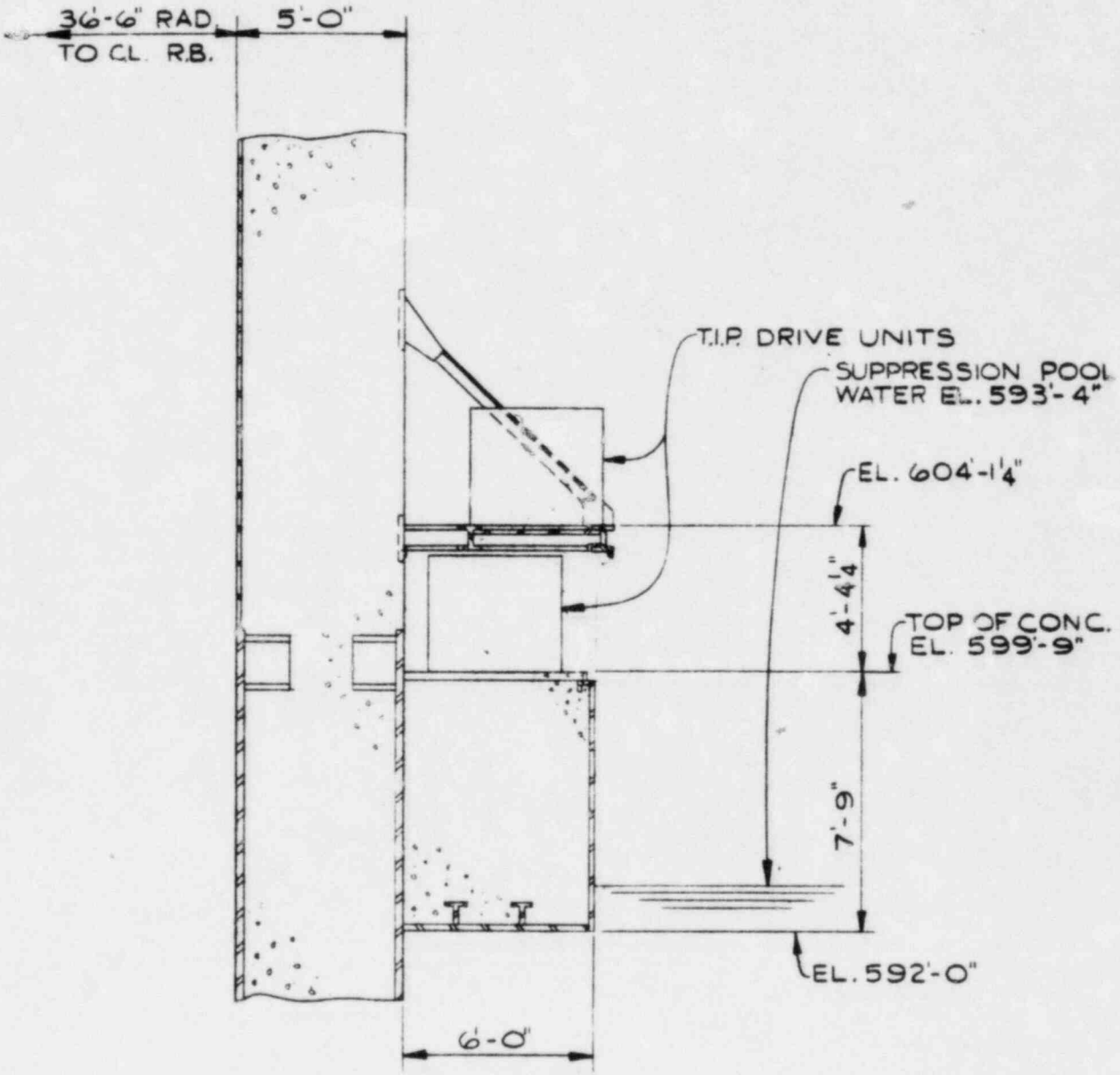


FIGURE 3B-3

SECTION 2-2
THROUGH TIP PLATFORM

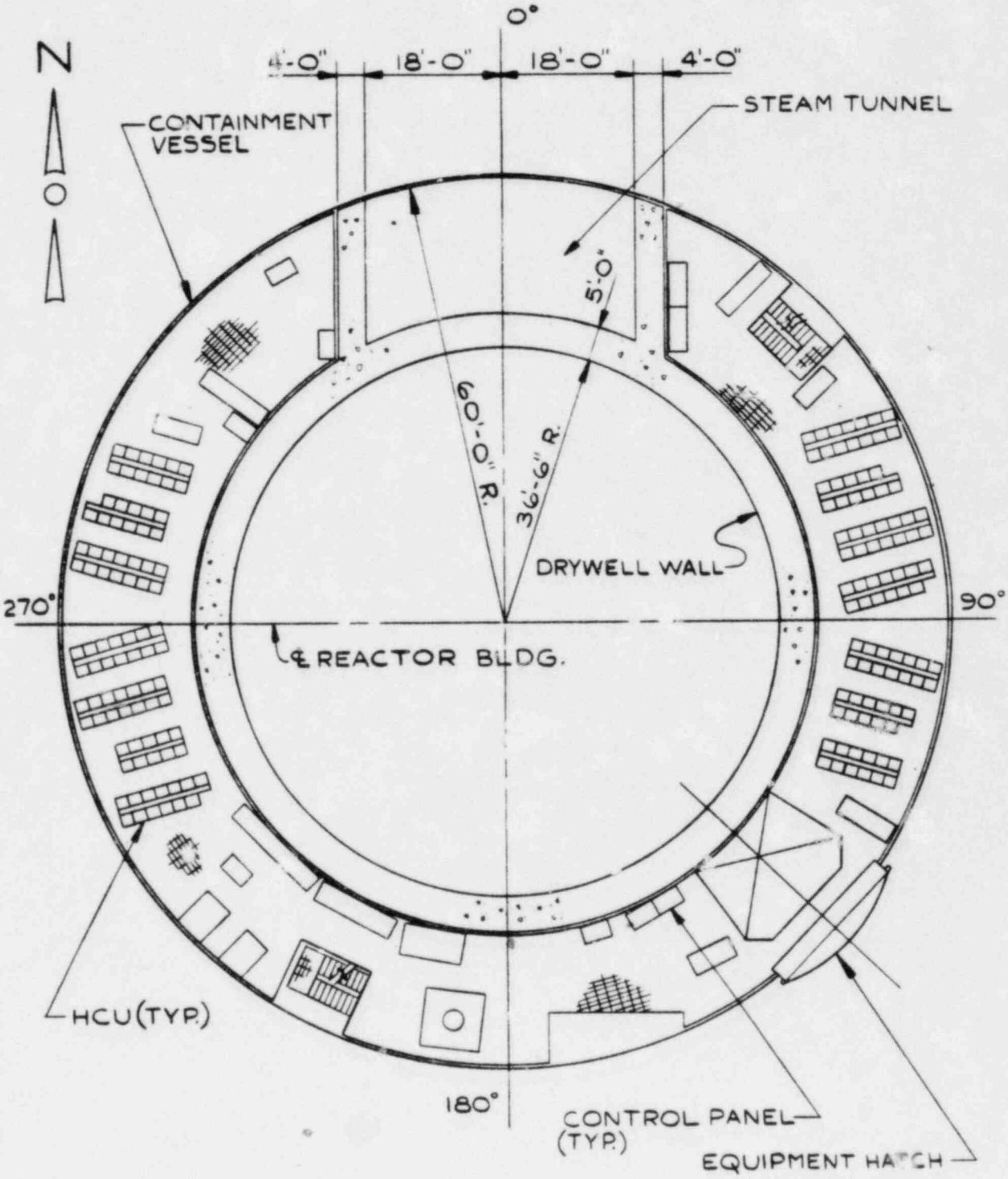


FIGURE 3B-4

PLAN AT ELEVATION 620'-6"

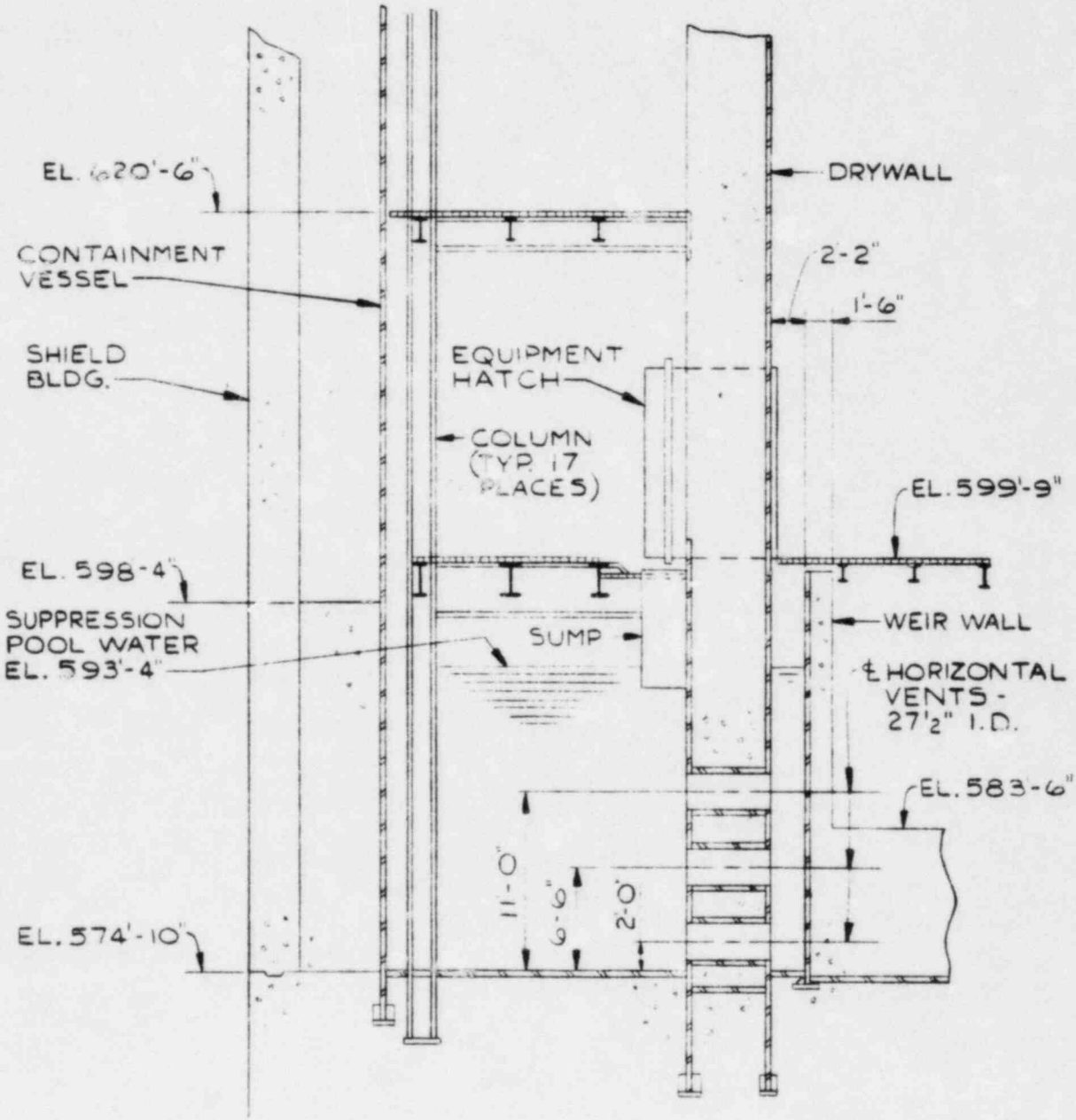


FIGURE 3B-5

SUPRESSION POOL CROSS SECTION

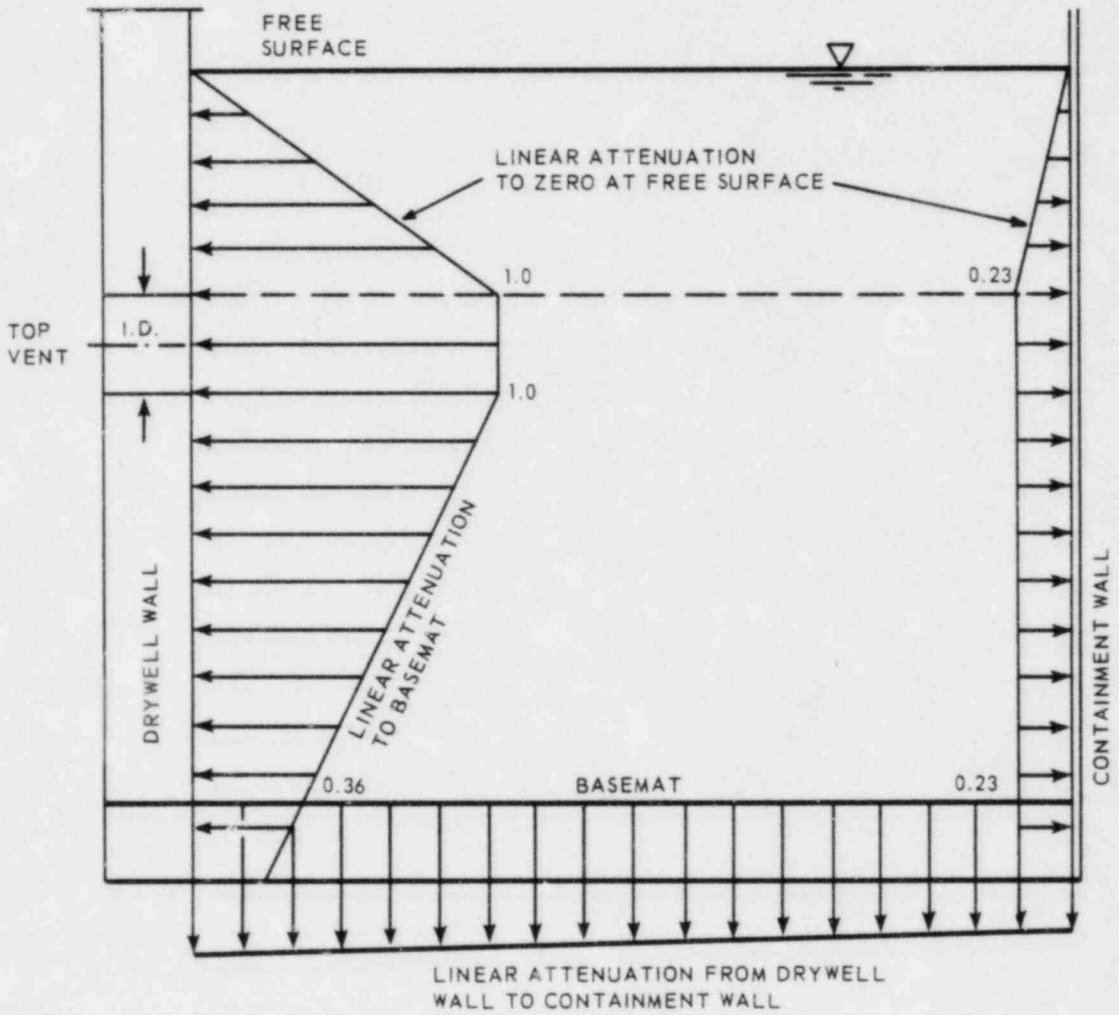


FIGURE 3B-6

CONDENSATION OSCILLATION LOAD SPATIAL DISTRIBUTION ON THE
DRYWELL WALL CONTAINMENT WALL AND BASEMAT

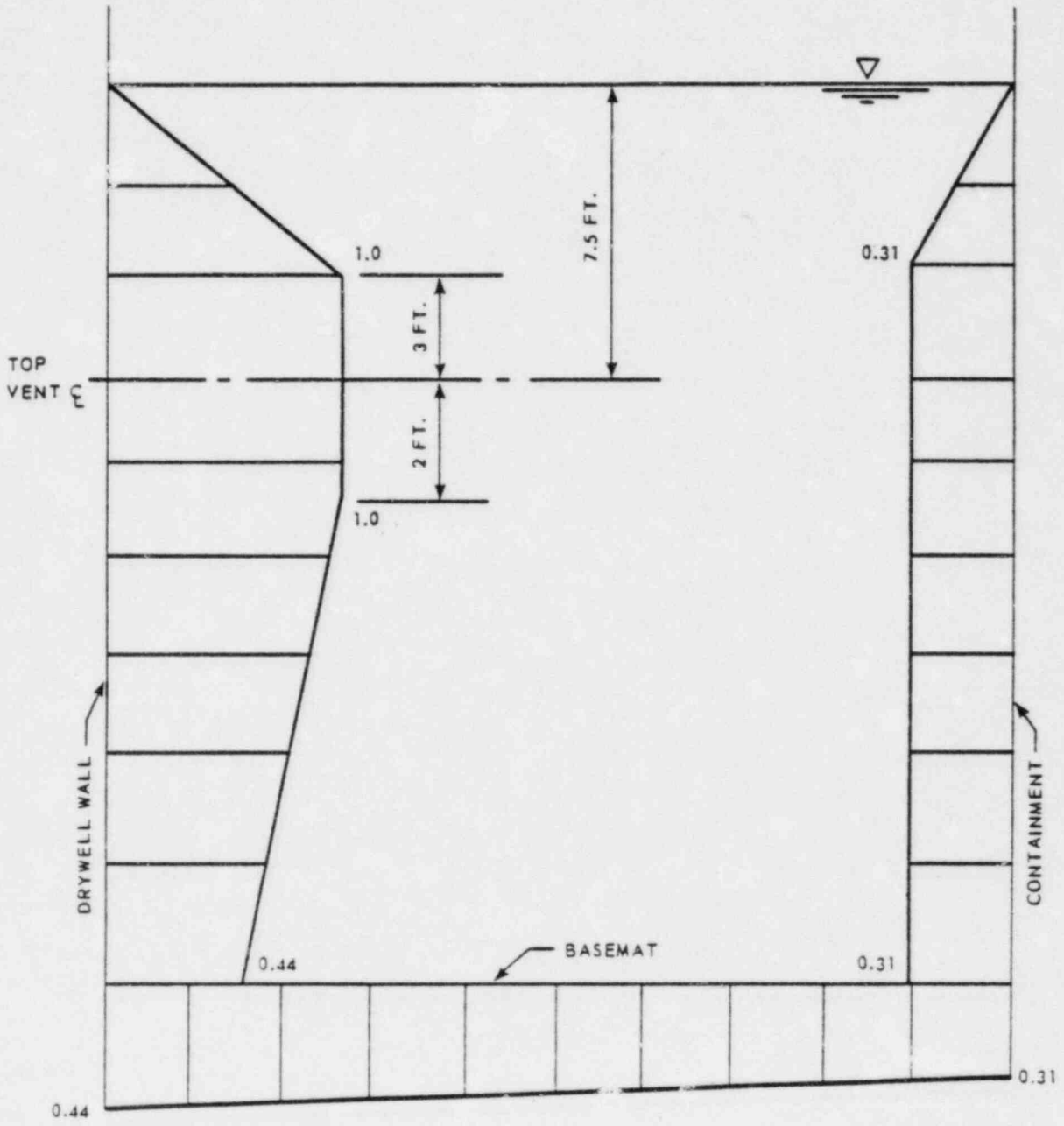


FIGURE 3B-7

SUPPRESSION POOL CHUGGING NORMALIZED
PEAK UNDERPRESSURE ATTENUATION

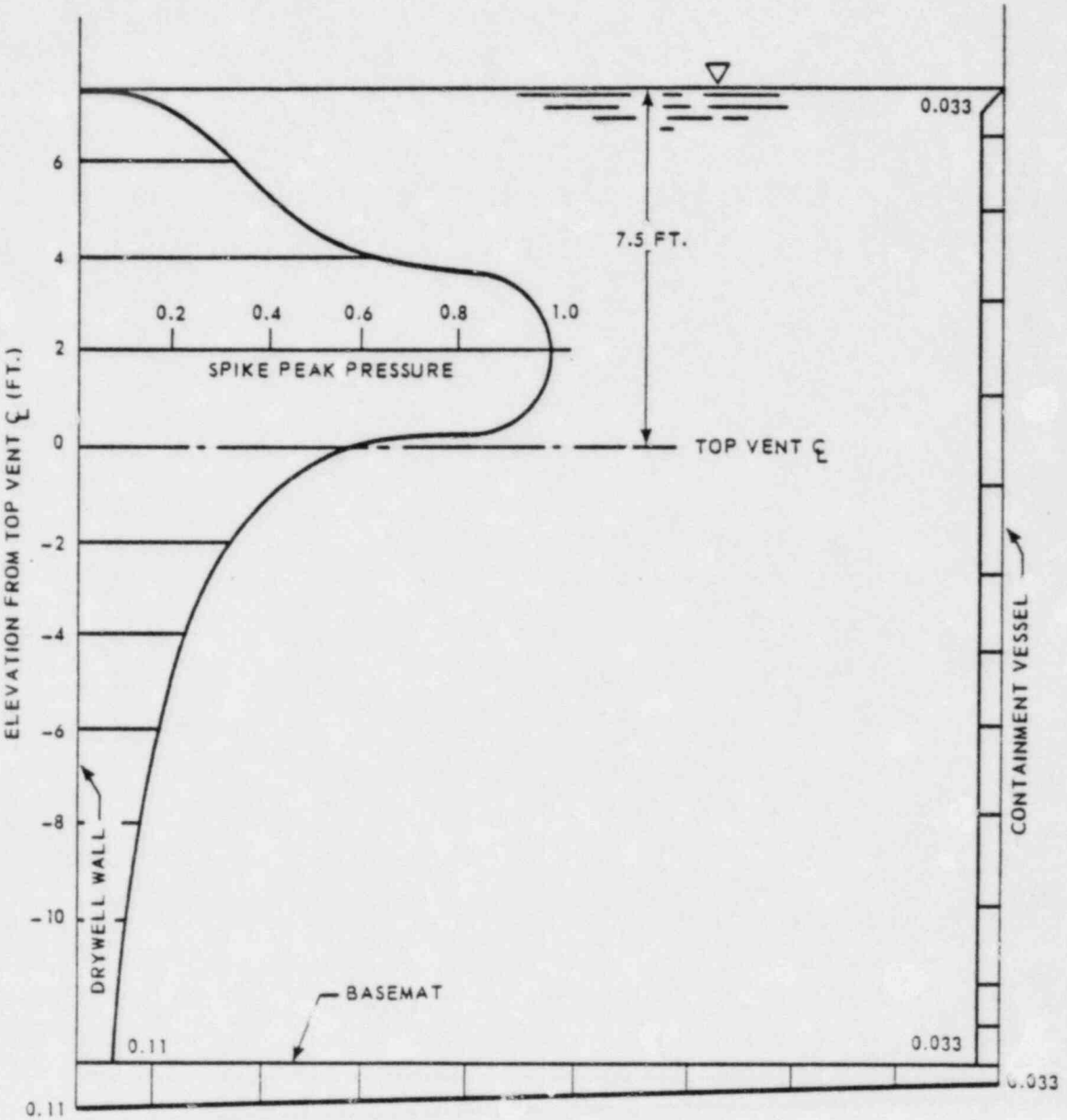


FIGURE 3B-8

SUPPRESSION POOL CHUGGING NORMALIZED
SPIKE ATTENUATION

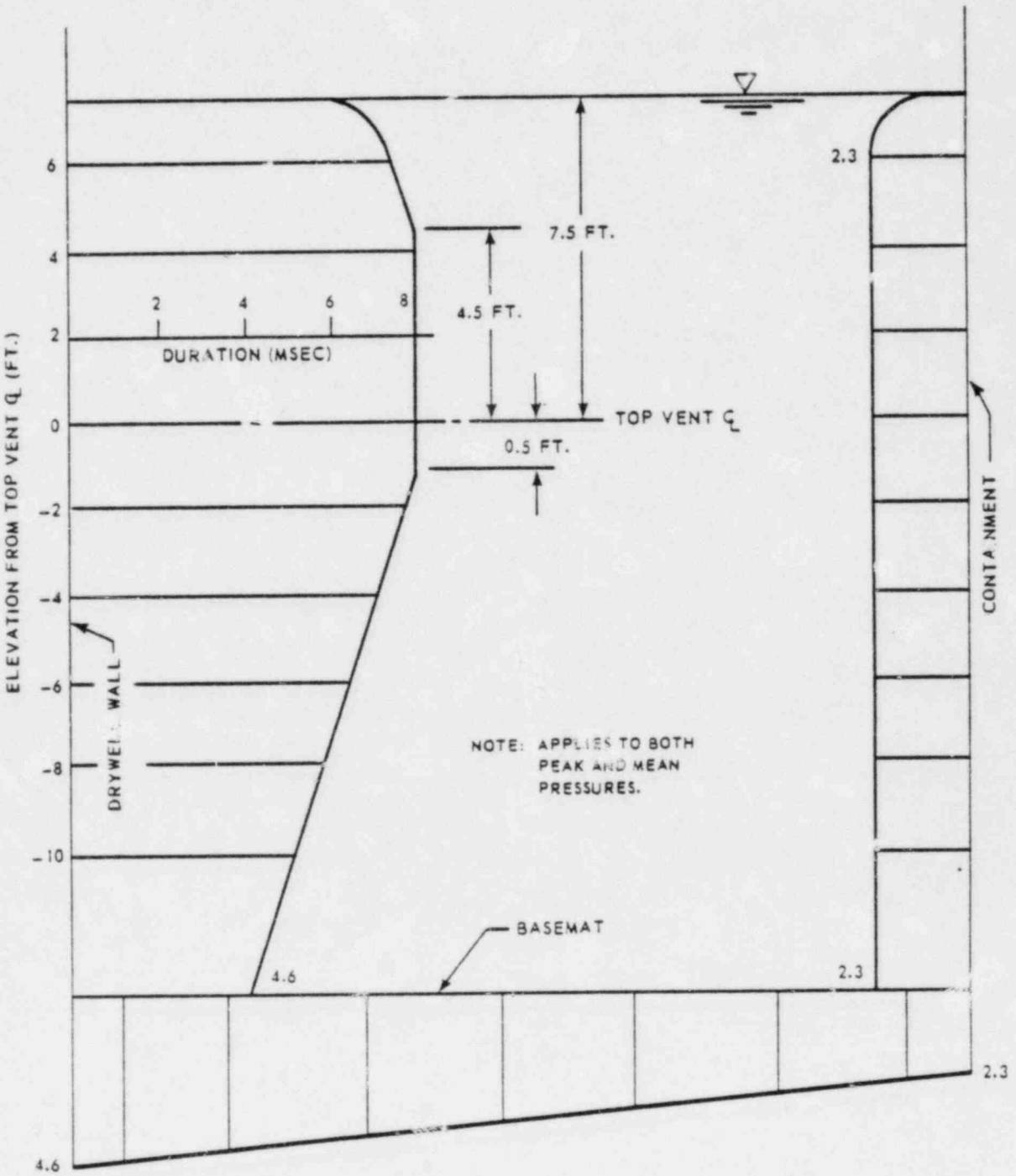


FIGURE 3B-9

SUPPRESSION POOL CHUGGING SPIKE DURATION d
AS A FUNCTION OF LOCATION IN THE POOL

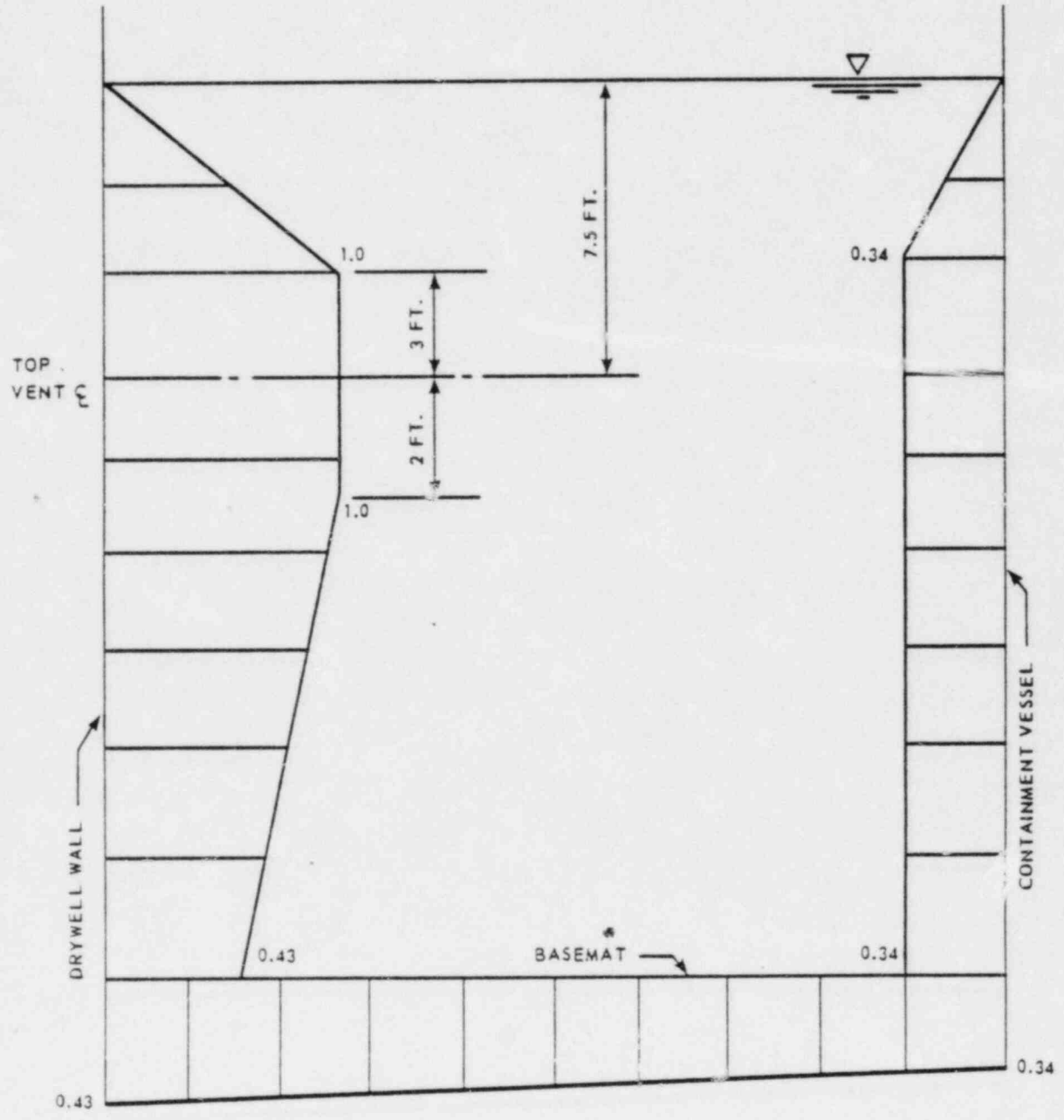


FIGURE 3B-10

SUPPRESSION POOL CHUGGING NORMALIZED
PEAK POST-CHUG OSCILLATIONS

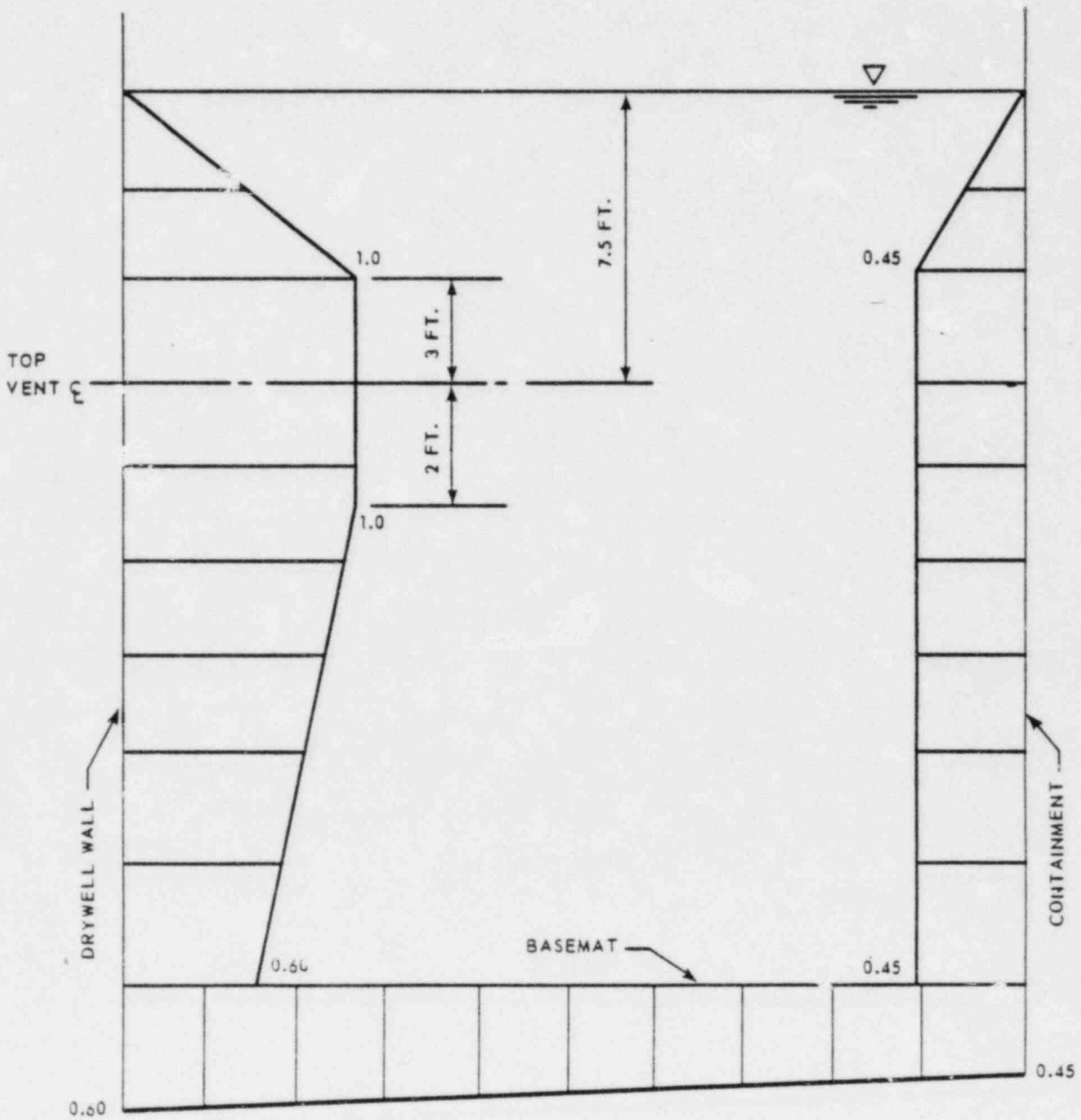


FIGURE 3B-11

SUPPRESSION POOL CHUGGING NORMALIZED
MEAN UNDERPRESSURE ATTENUATION

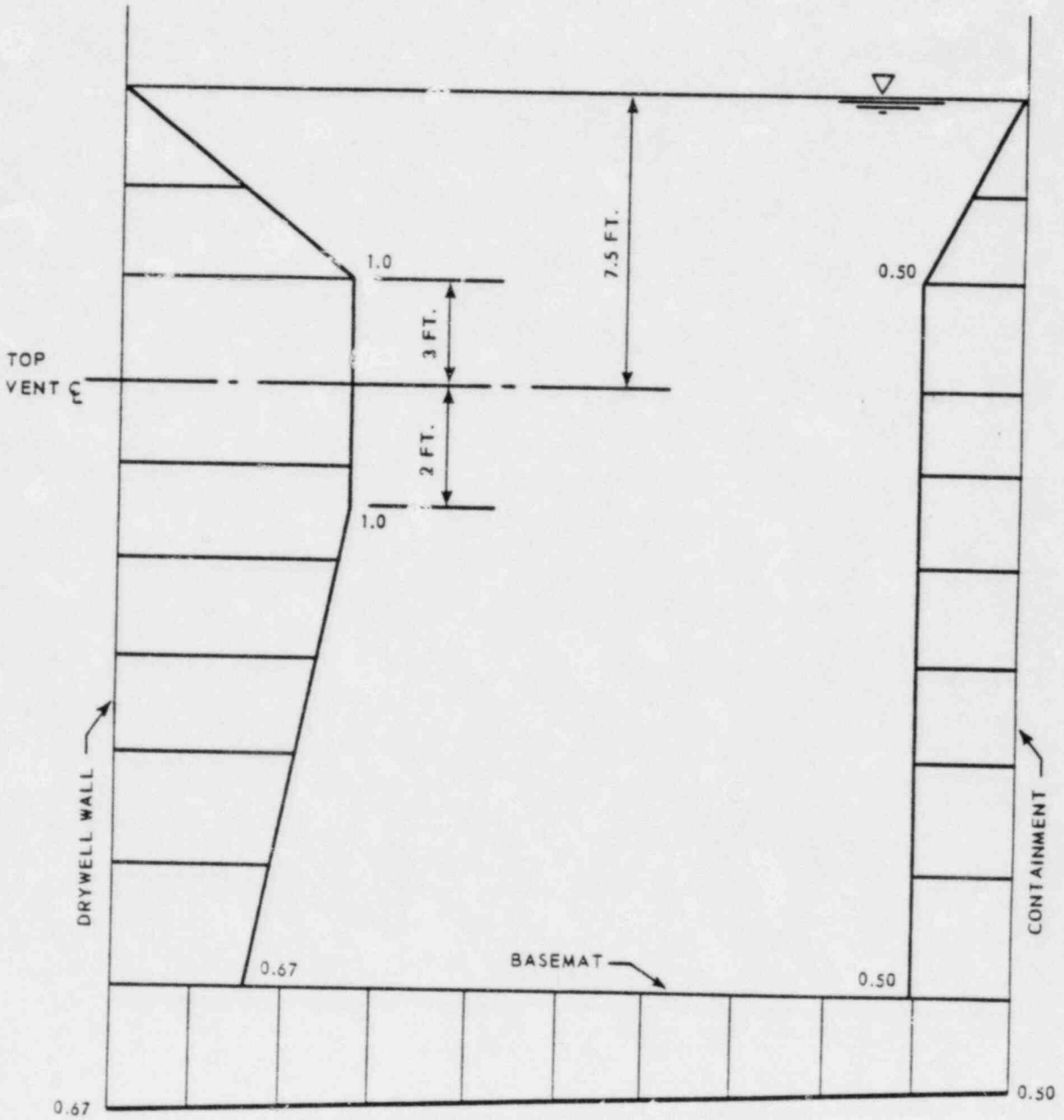


FIGURE 3B-12

SUPPRESSION POOL CHUGGING NORMALIZED
POST-CHUG OSCILLATIONS ATTENUATION

ATTACHMENT A TO APPENDIX 3B

SAFETY/RELIEF VALVE LOADS (QUENCHER)

3BA.1 INTRODUCTION

No deviations.

3BA.2 SUMMARY AND CONCLUSIONS

GESSAR Table 3BA-1 is not applicable to Perry. FSAR Table A-1 provides the SRVDL information for Perry. GESSAR Table 3BA-2 is not applicable to Perry. FSAR Table A-2 (located in this attachment) provides the results of the analysis to determine the maximum quencher bubble pressures for Perry. The SRVDL peak pressure is limited to 570 psid for Perry.

3BA.3 DESCRIPTION OF THE PHENOMENA

The SRVDL peak pressure is limited to 570 psid for Perry.

3BA.4 ARRANGEMENT

3BA.4.1 DISTRIBUTION IN POOL (QUENCHER ARRANGEMENT)

GESSAR Figures 3BA-2 through 3BA-4 are not applicable to Perry. Perry FSAR Figures A-1, A-2 and A-3 (located in this attachment) show the elevation and plan views of the Perry quencher arrangement.

3BA.4.2 SRVDL ROUTING

GESSAR Figure 3BA-7 is not applicable to Perry. FSAR Figure A-4 shows the SRVDL routing for Perry.

3BA.4.2.1 Line Lengths and Volume

GESSAR Table 3BA-1 and GESSAR Figure 3BA-7 are not applicable to Perry. FSAR Table A-1 shows Perry SRVDL line lengths and volumes based on the Perry SRVDL layout shown in FSAR Figure A-4.

The SRVDL from the 45° elbow just above the pool to the quencher is a 10 inch Schedule 40 stainless steel pipe.

3BA.4.2.2 Drywell Penetration Sleeve

The SRVDL drywell penetration sleeve for Perry is shown in FSAR Figure A-1.

3BA.4.2.3 SRVDL Vacuum Breaker

No deviations.

3BA.5 QUENCHER LOAD ON POOL BOUNDARY

3BA.5.1 PRESSURES ON DRYWELL, BASEMAT, AND CONTAINMENT

GESSAR Table 3BA-2 is not applicable to Perry. FSAR Table A-2 identifies the maximum and minimum bubble pressures for Perry.

3BA.5.1.1 Single SRV Loads

GESSAR Table 3BA-6 and Figure 3BA-8 are not applicable to Perry. FSAR Table A-3 and Figure A-5 show Perry design values.

3BA.5.1.2 Two Adjacent SRV Loads

GESSAR Table 3BA-7 and Figure 3BA-11 is not applicable to Perry. FSAR Table A-4 and Figure A-6 show Perry design values.

3BA.5.1.3 Eight SRV Loads (ADS)

GESSAR Table 3BA-8 and Figures 3BA-14, 3BA-15, and 3BA-16 are not applicable to Perry. FSAR Table A-7 and Figures A-7, A-8, and A-9 show the normalized dynamic peak pressure field and radial and circumferential peak values for the eight ADS SRVs for Perry.

3BA.5.1.4 All (19) SRV Loads

GESSAR Table 3BA-9 and Figures 3BA-17, 3BA-18, and 3BA-19 are not applicable to Perry. FSAR Table A-8 and Figures A-10, A-11, and A-12 show the normalized dynamic peak pressure field and radial and circumferential peak values for Perry.

3BA.5.2 LOAD ON WEIR WALL

No deviations.

3BA.5.3 LOADS ON SUBMERGED STRUCTURES

See FSAR Attachment L of this Appendix for definition of Perry load methodology.

3BA.5.4 NORMALIZED PRESSURE TIME HISTORY (THEORETICAL RALEIGH BUBBLE)

No deviations.

3BA.5.5 REPRESENTATIVE PRESSURE TIME HISTORY

No deviations.

3BA.5.6 ESTIMATED MARGINS

3BA.5.6.1 Peak Bubble Pressures

No deviations.

3BA.5.6.2 Bubble Pressure Amplitude

No deviations.

3BA.5.6.3 95% Confidence

No deviations.

3BA.5.6.4 Margin

No deviations.

3BA.6 OTHER LOADS ON STRUCTURES IN THE POOL

3BA.6.1 LOCA, POOL SWELL, CONDENSATION OSCILLATION, AND CHUGGING

See FSAR Attachment L of this Appendix for definition of Perry load methodology.

3BA.6.2 FORCES ON PIPES DUE TO VENT CLEARING, POOL SWELL AND FALLBACK

Upper bound values for submerged structure loads were derived using the procedures defined in FSAR Attachment L of this Appendix.

3BA.6.3 THERMAL EXPANSION LOADS

No deviations.

3BA.6.4 SEISMIC LOADS

No deviations.

3BA.6.5 SEISMIC SLOSH LOADS

No deviations.

3BA.7 QUENCHER ANCHOR LOADS

GESSAR Figures 3BA-2 through 3BA-6 and 3BA-28 and Tables 3BA-13 and 3BA-14 are not applicable to Perry. FSAR Figures A-1, A-2 and A-3 show the general arrangement of the quenchers in the pool. The quencher anchor loads are defined in Table A-3 and Table A-4.

3BA.7.1 QUENCHER ARM LOADS AND QUENCHER LOADING APPLICATION

See FSAR Tables A-3 and A-4.

3BA.7.2 QUENCHER DESIGN INFORMATION

FSAR Figures A-1, A-2, and A-3 show the quencher side elevation, top elevation and angular locations in the suppression pool. GESSAR Figures 3BA-2, 3BA-3 and 3BA-4 are not applicable to Perry.

3BA.7.2.1 Codes and Standards

No deviations.

3BA.7.2.2 Design Pressures, Temperatures, Loads, Configuration and Performance

3BA.7.2.2.1 Component Data for Safety/Relief Valve, Discharge Piping and Quencher

The Perry specific value for maximum flow at 1190 psig is 1 x 10^6 pounds per hour (approximately 453 metric tons per hour).

3BA.7.2.2.2 SRVDL Geometry

No deviations.

3BA.7.2.2.3 Quencher Design Criteria

a.	Forces	See FSAR Tables A-3 and A-4
b.	Fatigue	16,200 cycles
c.	Cycles of operation	1,800

3BA.7.2.2.4 Quencher Configuration and Location

That the Perry design rating is 570 psig and the minimum radial distance from the centerline of the quencher to the flange of the ECCS strainers is 11 feet 6 inches.

3BA.8 SRV VALVE LOAD COMBINATIONS

GESSAR Figure 3BA-4 is not applicable to Perry. See FSAR Figure A-3 for the SRVDL discharge locations for Perry.

3BA.8.1 SYMMETRIC AND ASYMMETRIC LOAD CASES

No deviations.

3BA.8.2 SSE AND OBE CONSIDERATIONS

No deviations.

3BA.8.3 LOCA CONSIDERATIONS

No deviations.

3BA.8.3.1 DBA With MS Line Break

No deviations.

3BA.8.3.2 DBA With Recirculation Line Break

No deviations.

3BA.8.3.3 Other SRV Conditions

No deviations.

3BA.8.3.3.1 Water Clearing Pressure Spike for SRV First Actuation, Normal Operating Conditions

No deviations.

3BA.8.3.3.2 SRV First Actuation With a Pressurized Containment

No deviations.

3BA.8.3.3.3 Water Clearing Pressure Spike for SRV, Second Actuation Normal Operating Conditions

No deviations.

3BA.8.3.3.4 Second Actuation of one SRV With a Pressurized Containment

No deviations.

3BA.8.3.3.5 First Actuation of One SRV, Leaking Valve Condition

No deviations.

3BA.8.3.3.6 SRV Steam Condensation

No deviations.

3BA.8.4 DESIGN LOAD SUMMATION

No deviations.

3BA.9 FATIGUE CYCLES

No deviations.

3BA.10 CALCULATIONAL PROCEDURES FOR MARK III CONTAINMENT

No deviations.

3BA.11 PARAMETRIC STUDIES

No deviations.

3BA.12 BASIS AND JUSTIFICATION FOR DEVELOPED QUENCHER LOADS

No deviations.

3BA.13 REFERENCES

No deviations.

TABLE A-1

PERRY POWER PLANTS SRV DISCHARGE LINE

SRV	Air Leg Length (feet) Total Length	10" S/40S	12" S/40S	1.4" S/40	Volume (ft^3)	Max. F $(\frac{L}{D})$ (a)	(b)
F041G	60.781	15.699	28.377	-	42.826	1.929	3.968
F041E	52.43	17.00	-	16.37	38.713	1.27	2.62
F051C	69.918	48.293	14.872	-	44.178	1.795	3.691
F051A	62.423	11.372	-	16.074	37.45	1.54	3.166
F051G	60.682	16.852	26.588	-	42.789	2.101	4.321
F047C	60.405	21.255	28.583	-	41.991	1.271	2.614
F041C	75.002	43.824	20.427	-	46.932	2.312	4.755
F041B	74.544	45.037	19.74	-	46.519	2.09	4.296
F041F	46.052	15.21	-	22.441	43.465	1.211	2.492
F051B	54.688	24.18	19.541	-	37.267	1.389	2.857
F047B	79.42	54.654	15.00	-	48.082	2.227	4.581
F047D	45.301	14.424	-	13.902	36.327	1.473	3.029
F041D	44.543	13.006	-	17.591	37.940	.97	1.994
F051D	63.876	35.607	16.87	-	43.278	1.86	3.826
F041K	49.101	10.219	26.1	-	39.501	1.284	2.643
F047H	60.441	24.259	21.04	-	41.447	1.442	2.966
F047F	60.135	21.414	23.979	-	41.864	1.337	2.751
F047G	57.844	18.303	24.399	-	41.708	1.417	2.915
F041A	45.219	13.23	-	17.652	38.121	1.101	2.264

NOTES:

1. (a) is normalized to 10 inch schedule 40S pipe.
2. (b) is normalized to 12 inch schedule 40S pipe.
3. Total length stated accounts for straight pipe and arc-lengths of elbows.
4. Stated lengths of pipe in columns 3, 4 and 5 account for straight pipe only.

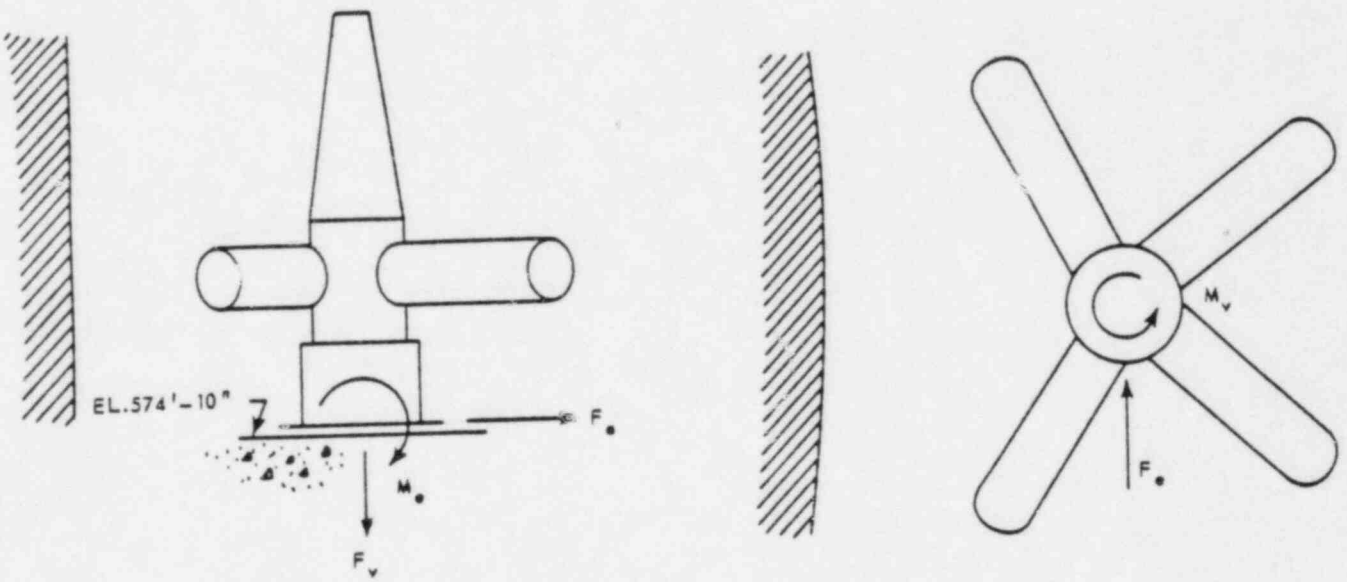
TABLE A-2

INDUCED LOADS ON POOL BOUNDARIES

Case Description	Design Value - Bottom Maximum Pressure (psid) $P_B(+)$	$P_B(-)$	Containment Normalized Factor @ Point 10[b]	Containment Peak Pressure @Point 10 (psid)[b] P^+	P^-	Affected Quenchers/ Design Cycles
Single Valve First Actuation, at T_{srv}=90°F Pool Temperature	10.8	-6.5	0.711	7.7	-4.6	V10/33
Single Valve Subsequent Actuation.	18.3	-7.8	0.711	13.0	-5.5	V10/1560
Two Adjacent Valves First Actuation[g] at T_{srv}=90°F Pool Temperature	10.8	-6.5	0.856	9.2	-5.5	V9,V10/1
19 Valves (All Valve Case) First Actuation,[g] at T_{srv}=90°F Pool Temperature	12.1	-6.4	1.0	12.1	-6.4	All Quenchers/ 159
8 ADS Valves First Actuation at T_{srv}=120°F Pool Temperature	11.3	-6.8	0.821	9.3	-5.6	V2,V4,V7,V9 V11,V13,V16 V18/1

TABLE A-3

QUENCHER LOADS



NOTE:

Load F_e may act in any direction. Moment M_e may act in any vertical plane.

TABLE A-4

QUENCHER ANCHOR LOADS

GAI Load Case	G.E. Load Case	Combination
Deadweight	Deadweight	Addition
-	Arm Loads Case A	Use Screened G.E. Values
-	Arm Loads Case B (Screen)	
-	Arm Loads Case C	
SRVI	Structural Response	SRSS
OBEI	OBE	SRSS
SSEI	SSE	SRSS
SRV Blowdown	Transient Wave	SRSS
-	Water Clearing	G.E. Values
-	Adjacent Quencher Water Jet Impingement	G.E. Values
-	LOCA Water Jet	G.E. Values
Pool Swell Drag	LOCA Air Bubble	SRSS
Pool Swell Drag	Pool Fallback	SRSS
PSI	Pool Swell	SRSS
-	Condensation Oscillation	G.E. Values
CHUGI	Chugging	SRSS
API	-	GAI Values
Thermal Normal Ambient	-	GAI Values
Thermal Normal SRV	-	GAI Values
Thermal Stuck Open Valve	-	GAI Values

TABLE A-4 (Cont'd)

GAI Load Case	G.E. Load Case	Combination
Thermal Post LOCA	-	GAI Values
SRV Drag (Active)	-	GAI Values
SRV Drag (Inactive)	-	GAI Values

TABLE A-5

QUENCHER BASEMAT LOADINGS - GE & GAI COMBINED

Load Type	Forces (KIPS) Fx	Fy	Fz	Moments (Inch-Kips) Mx	My	Mz	Load ID
DEAD WEIGHT	0.39	-7.27	0	-41.0	-3.0	0	DW
ARM LOADS							
Max. Case A	±0.97	0	±5.49	±296.5	±1244	±52.37	ALA
Max. Case B	±25.3	0	0	0	0	±817	ALB
Max. Case C	0	±15.17	0	0	0	0	ALC
STRUCT. RESPONSE MAX.	±3.16	±4.16	0	0	±39.95	±164.88	SR
SEISMIC							
OBE Max.	±5.81	±7.82	0	0	±76.50	±286.24	OBE
SSE Max.	±8.30	±11.23	0	0	±108.9	±410.12	SSE
TRANSIENT WAVE	+0.67 -0.29	+19.21 -28.32	0	0	±11.0	±72.0	TW
WATER CLEARING	0	+2 -150	0	0	0	0	WC
ADJACENT QUENCHER JET IMPINGEMENT	±36.1	0	0	0	±619.8	±1770	AQJI
LOCA EVENT							
Water Jet	±36.5	0	0	0	0	±1375	LWJ
Air Bubble	±26.87	±14.2	0	0	±74	±1498	LAB
Pool Swell	±0.25	±37.92	0	0	±4	±26	LPS
Pool Fallback	±5.9	-37.82	0	0	±74	±608	LPF
Condensation Oscillation	±19.48	±4.5	0	0	0	±999	LCO
Chugging	±6.32	±8.42	0	0	±4	±419.24	LCG
Annulus Press.	±0.62	±3	0	0	±20	±61	LAP
SRV DRAG ACTIVE	±2.96	±7.02	0	0	±37	±303	SRVD
THERMAL NORMAL AMB.	10.73	-4.31	0	0	-4	-1239	TH3
THERMAL NORMAL SRV	22.57	-16.86	0	0	-24	-2550	TH1
THERMAL STUCK OPEN V	25.67	-17.79	0	0	-24	-2909	TH2
THERMAL POST LOCA	19.33	7.64	0	0	-7	-2233	TH4
SRV DRAG INACTIVE	±2.0	±4.75	0	0	±25.08	±205.4	SVDI

TABLE A-6

QUENCHER BASEMAT LOADINGS(1)

Condition	Fe (kips)	Fv (kips)	Me (inch-kips)	Mv (inch-kips)
		+0		
Service Level A (P)	36.6	-11.43	1818.7	624.1
Service Level A (P+S)	47.3	-15.7	3057.7	628.1
		+14.0		
Service Level B (P) Comb. 1 - Transient Wave	6.6	-37.0	400.6	84.3
		+14.0		
Service Level B (P+S) Comb. 1 - Transient Wave	29.1	-53.86	2950.6	108.3
		+3.0		
Service Level B (P) Comb. 1 - Case A Arm Loads	9.3	-157.6	532.9	1250.2
		+3.0		
Service Level B (P+S) Comb. 1 - Case A Arm Loads	31.8	-174.5	3082.9	1274.2
		+3.0		
Service Level B (P) Comb. 1 - Case B Arm Loads	26.6	-157.6	449.1	92.9
		+3.0		
Service Level B (P+S) Comb. 1 - Case B Arm Loads	49.2	-174.5	3499.1	116.9
		+11.0		
Service Level B (P) Comb. 1 - Case C Arm Loads	7.3	-158.4	430.0	92.9
		+11.0		
Service Level B (P+S) Comb. 1 - Case C Arm Loads	29.9	-175.2	2980.0	116.9
		+4.0		
Service Level B (P) Comb. 1 - Bubble Loads Active	7.6	-18.6	489.2	96.9
		+4.0		
Service Level B (P+S) Comb. 1 - Bubble Loads Active	30.2	-35.5	3039.2	120.9

NOTE:

(1) Refer to Table A-3 for orientation.

TABLE A-6 (Cont'd)

Condition	Fe (kips)	Fv (kips)	Me (inch-kips)	Mv (inch-kips)
Service Level B (P) Comb. 2 - Adjacent Quencher	37.1	+1.6 -16.1	1841.6	628.8
Service Level B (P+S) Comb. 2 - Adjacent Quencher	47.8	+1.6 -20.4	3080.6	632.8
Service Level B (P) Comb. 2 - Bubble Loads Inactive	7.3	+2.8 -17.3	430.0	92.9
Service Level B (P+S) Comb. 2 - Bubble Loads Inactive	18.0	+2.8 -21.6	1669.0	96.9
Service Level C (P) Comb. 1 Service Level C (P+S) Comb. 1 Service Level C (P) Comb. 2 Service Level C (P+S) Comb. 2	Bounded by Service Level B			
Service Level D (P) Comb. 1 - Transient Wave	38.0	+37.1 -56.3	1617.9	143.3
Service Level D (P+S) Comb. 1 - Transient Wave	60.6	+37.1 -73.2	4167.9	167.3
Service Level D (P) Comb. 1 - Case A Arm Loads	38.4	+32.8 -162.5	1644.8	1254.8
Service Level D (P+S) Comb. 1 - Case A Arm Loads	61.0	+32.8 -179.4	4194.8	1278.8
Service Level D (P) Comb. 1 - Case B Arm Loads	45.7	+32.8 -162.5	1815.6	142.9
Service Level D (P+S) Comb. 1 - Case B Arm Loads	68.3	+32.8 -179.4	4365.6	166.9

TABLE A-6 (Cont'd)

Condition	Fe (kips)	Fv (kips)	Me (inch-kips)	Mv (inch-kips)
Service Level D (P) - Comb. 1 - Case C Arm Loads	38.0	+35.6 -163.3	1616.3	142.9
Service Level D (P+S) - Comb. 1 - Case C Arm Loads	60.6	+35.6 -180.1	4166.3	166.9
Service Level D (P) - Comb. 2 - Adjacent Quencher	52.5	+32.5 -47.0	2401.6	637.9
Service Level D (P+S) - Comb. 2 - Adjacent Quencher	71.8	+32.5 -54.7	4634.6	644.9
Service Level D (P) - Comb. 2 - Bubble Loads Inactive	38.0	+32.8 -47.3	1616.3	142.9
Service Level D (P+S) - Comb. 2 - Bubble Loads Inactive	57.3	+32.8 -55.0	3849.3	149.9

Table A-7

PERRY NUCLEAR POWER PLANT DYNAMIC PRESSURE FIELD FOR EIGHT SAFETY/RELIEF VALVES

TIME = 0.15 sec (positive pressure psid) ΔP (r)

0.08 sec (negative pressure psid) ΔP (r)

SRV Angle (degrees) Reference Point	4.5	13.5	V-11 22.5	31.5	40.5	49.5	V-13 58.5	67.5	76.5	85.5	94.5	103.5
1	0	0	0	0	0	0	0	0	0	0	0	0
2	.800	.950	1	.950	.800	.909	1	.893	.657	.598	.657	.893
3	.894	1	1	1	.894	1	1	1	.720	.635	.720	1
4	.912	1	1	1	.912	1	1	1	.733	.641	.733	1
5	.846	1	1	1	.846	1	1	.983	.687	.615	.687	.983
6	.914	1	1	1	.885	1	1	1	.725	.666	.725	1
7	.857	1	1	1	.846	1	1	.971	.701	.633	.701	.971
8	.755	.860	.988	.842	.745	.845	.966	.792	.628	.583	.628	.792
9	.667	.714	.764	.720	.657	.698	.740	.674	.564	.533	.564	.660
10	.692	.752	.824	758	.681	.737	.801	.712	.581	.544	.581	.699
11	.686	.741	.805	.748	.676	.726	.782	.702	.577	.541	.577	.688
12	.653	.688	.728	.695	.642	.672	.704	.650	.554	.525	.554	.635
13	0	0	0	0	0	0	0	0	0	0	0	0

Table A-7 (Cont'd)

SRV Angle (degrees) Reference Point	V-16 112.5	121.5	130.5	139.5	V-18 148.5	157.5	166.5	175.5	184.5	193.5	V-2 202.5	211.45
1	0	0	0	0	0	0	0	0	0	0	0	0
2	1	.909	.800	.909	1	.893	.657	.598	.657	.850	.984	.850
3	1	1	.894	1	1	1	.720	.635	.720	1	1	1
4	1	1	.912	1	1	1	.733	.641	.733	1	1	1
5	1	1	.846	1	1	.983	.687	.615	.687	.944	1	.944
6	1	1	.856	1	1	1	.725	.636	.688	1	1	1
7	1	1	.835	1	1	.971	.681	.604	.688	.956	1	.956
8	.953	.826	.734	.826	.953	.792	.608	.555	.625	.776	.930	.776
9	.725	.691	.646	.691	.725	.646	.543	.524	.551	.644	.700	.629
10	.786	.730	.670	.730	.786	.685	.561	.535	.568	.682	.762	.668
11	.767	.720	.665	.720	.767	.674	.556	.532	.564	.672	.743	.657
12	.688	.665	.631	.665	.688	.620	.533	.516	.541	.618	.663	.603
13	0	0	0	0	0	0	0	0	0	0	0	0

Table A-7 (Cont'd)

SRV Angle (degrees) Reference Point	220.5	229.5	238.5	247.5	V-4 256.5	265.5	274.5	283.5	292.5	301.5	V-7 310.5	319.5
1	0	0	0	0	0	0	0	0	0	0	0	0
2	.657	.598	.657	.850	.984	.850	.657	.598	.657	.893	1	.909
3	.720	.635	.720	1	1	1	.720	.635	.720	1	1	1
4	.733	.641	.733	1	1	1	.733	.641	.733	1	1	1
5	.687	.615	.687	.944	1	.944	.687	.615	.687	.983	1	1
6	.688	.604	.688	1	1	1	.688	.636	.725	1	1	1
7	.667	.574	.667	.956	1	.956	.688	.604	.681	.971	1	1
8	.594	.526	.594	.776	.930	.776	.615	.555	.608	.792	.966	.845
9	.530	.514	.530	.629	.700	.644	.551	.524	.543	.660	.740	.698
10	.548	.525	.548	.668	.762	.682	.568	.535	.561	.699	.801	737
11	.543	.523	.543	.657	.743	.672	.564	.532	.556	.688	.782	.726
12	.520	.507	.520	.603	.663	.618	.541	.516	.533	.635	.704	.672
13	0	0	0	0	0	0	0	0	0	0	0	0

Table A-7 (Cont'd)

SRV Angle (degrees) Reference Point	328.5	337.5	V-9 346.5	355.5
1	0	0	0	0
2	.800	.950	1	.950
3	.894	1	1	1
4	.912	1	1	1
5	.846	1	1	1
6	.885	1	1	1
7	.846	1	1	1
8	.745	.842	.988	.860
9	.657	.720	.764	.714
10	.681	.758	.824	.752
11	.676	.748	.805	.741
12	.642	.695	.728	.688
13	0	0	0	0

Table A-8

PERRY NUCLEAR POWER PLANT DYNAMIC PRESSURE FIELD FOR NINETEEN SAFETY/RELIEF VALVES

TIME = 0.15 sec (positive pressure psid) ΔP (r)

0.08 sec (negative pressure psid) ΔP (r)

SRV Angle (degrees) Reference Point	V-10 4.5	13.5	V-11 22.5	31.5	V-12 40.5	49.5	V-13 58.5	67.5	V-14 76.5	85.5	V-15 94.5	103.5
1	0	0	0	0	0	0	0	0	0	0	0	0
2	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1
12	.989	.992	.989	.992	.989	.992	.989	.992	.989	.992	.989	.992
13	0	0	0	0	0	0	0	0	0	0	0	0

Table A-8 (Cont'd)

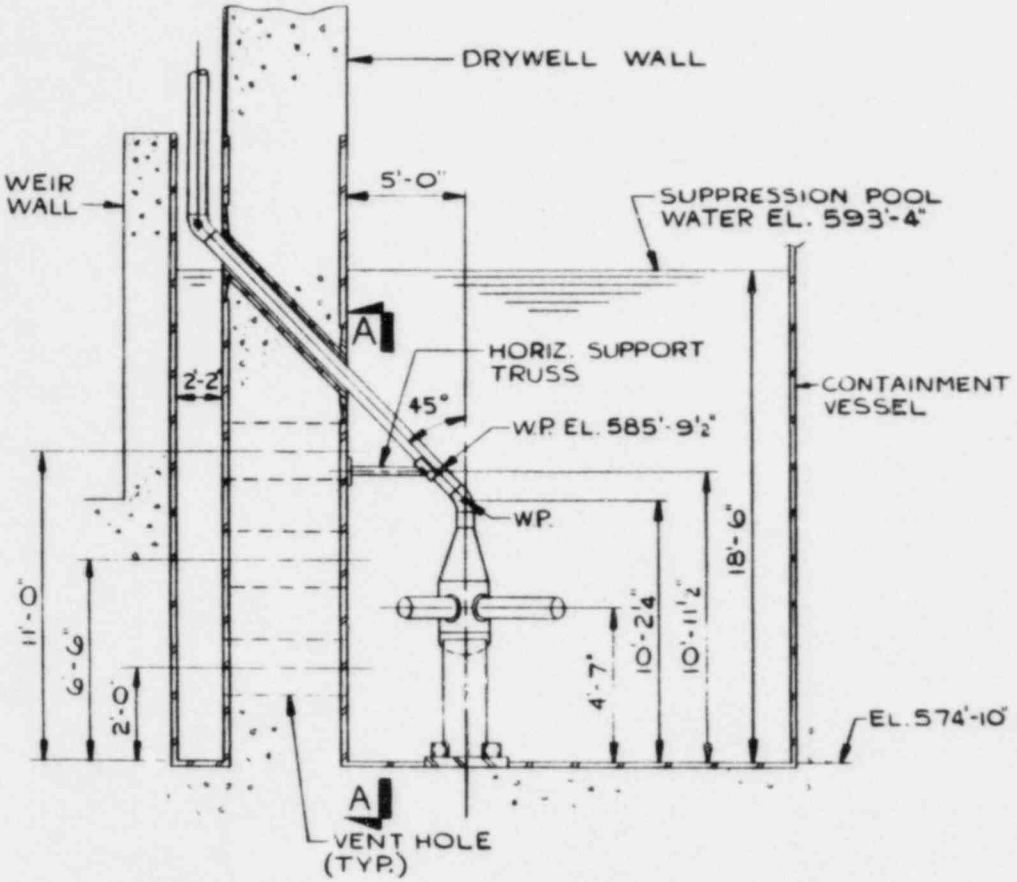
SRV Angle (degrees) Reference Point	V-16 112.5	121.5	V-17 130.5	139.5	V-18 148.5	157.5	V-19 166.5	175.5	V-1 184.5	193.5	V-2 202.5	211.45
1	0	0	0	0	0	0	0	0	0	0	0	0
2	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	.983
9	1	1	1	1	1	1	1	1	.990	.971	.931	.860
10	1	1	1	1	1	1	1	1	1	1	.989	.896
11	1	1	1	1	1	1	1	1	1	1	.972	.886
12	.989	.992	.989	.983	.978	.978	.967	.953	.935	.896	.835	.783
13	0	0	0	0	0	0	0	0	0	0	0	0

Table A-8 (Cont'd)

SRV Angle (degrees) / Reference Point	220.5	229.5	V-3 238.5	247.5	V-4 256.5	265.5	V-5 274.5	283.5	V-6 292.5	301.5	V-7 310.5	319.5
1	0	0	0	0	0	0	0	0	0	0	0	0
2	.929	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1
5	.972	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1
7	.992	1	1	1	1	1	1	1	1	1	1	1
8	.888	.983	1	1	1	1	1	1	1	1	1	1
9	.797	.860	.931	.971	.990	1	1	1	1	1	1	1
10	.821	.896	.989	1	1	1	1	1	1	1	1	1
11	.815	.886	.972	1	1	1	1	1	1	1	1	1
12	.783	.835	.896	.935	.953	.967	.971	.978	.978	.983	.989	.992
13	0	0	0	0	0	0	0	0	0	0	0	0

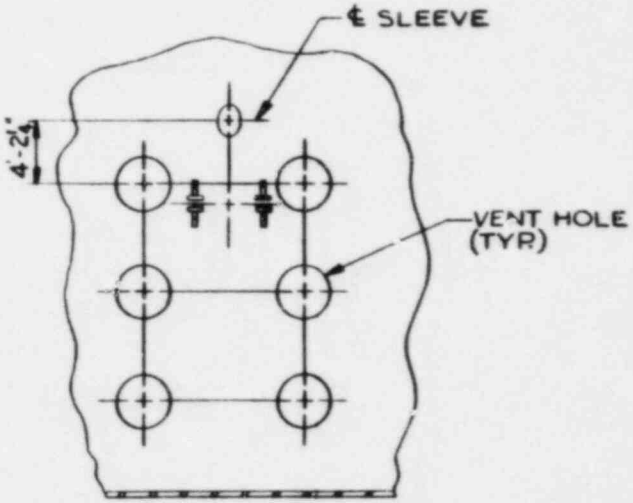
Table A-8 (Cont'd)

SRV Angle (degrees) Reference Point	V-8 328.5	337.5	V-9 346.5	355.5
1	0	0	0	0
2	1	1	1	1
3	1	1	1	1
4	1	1	1	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	1	1	1	1
10	1	1	1	1
11	1	1	1	1
12	.989	.992	.989	.992
13	0	0	0	0



QUENCHER ARRANGEMENT ELEVATION

PERRY NUCLEAR POWER PLANT



SECTION A-A

FIGURE A-1

QUENCHER ARRANGEMENT ELEVATION
PERRY NUCLEAR POWER PLANT

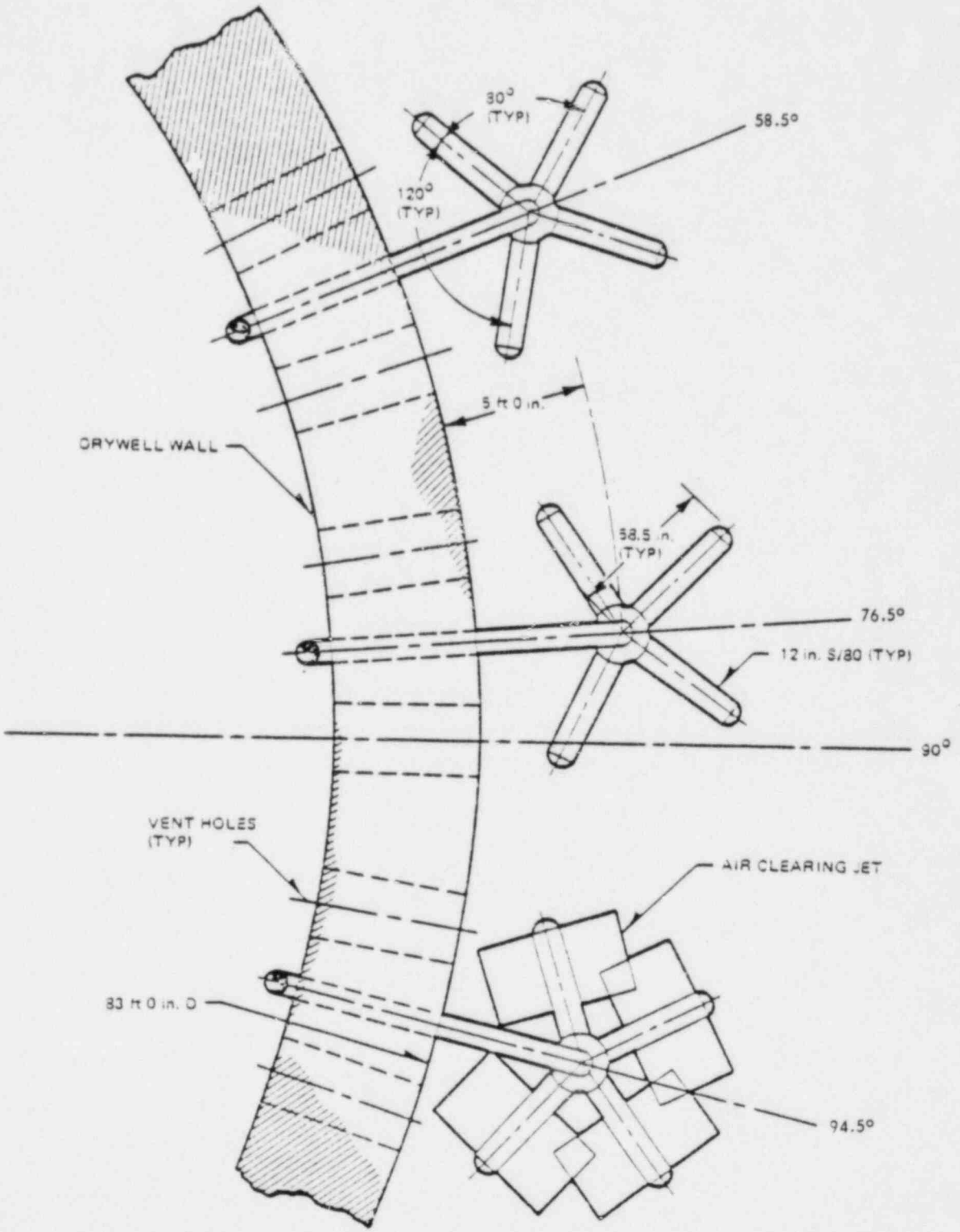


FIGURE A-2

TYPICAL QUENCHER PLAN VIEW F

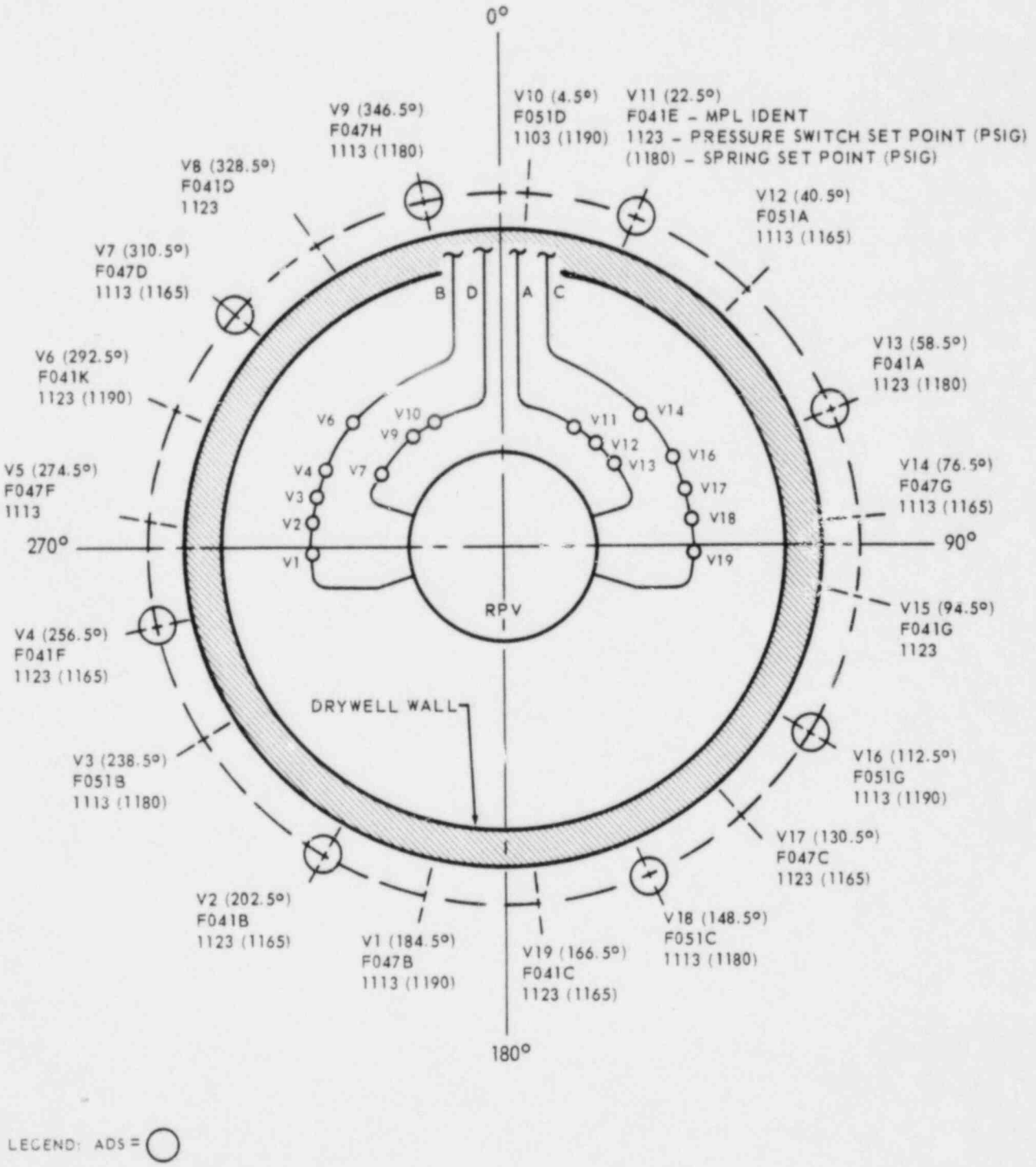


FIGURE A-3

SAFETY/RELIEF VALVE DISCHARGE LOCATIONS

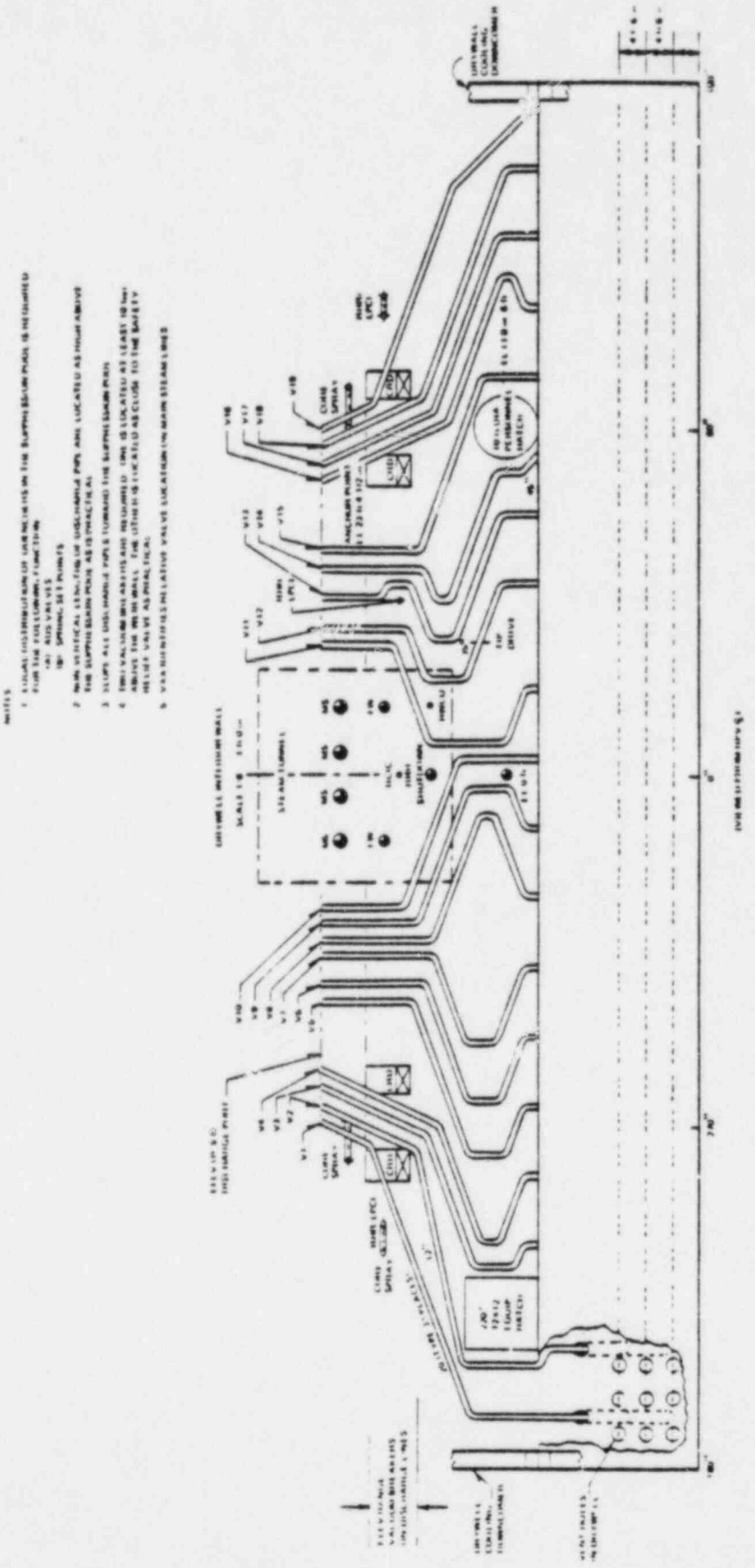


FIGURE A-4

SAFETY/RELIEF VALVE DISCHARGE PIPING ARRANGEMENT

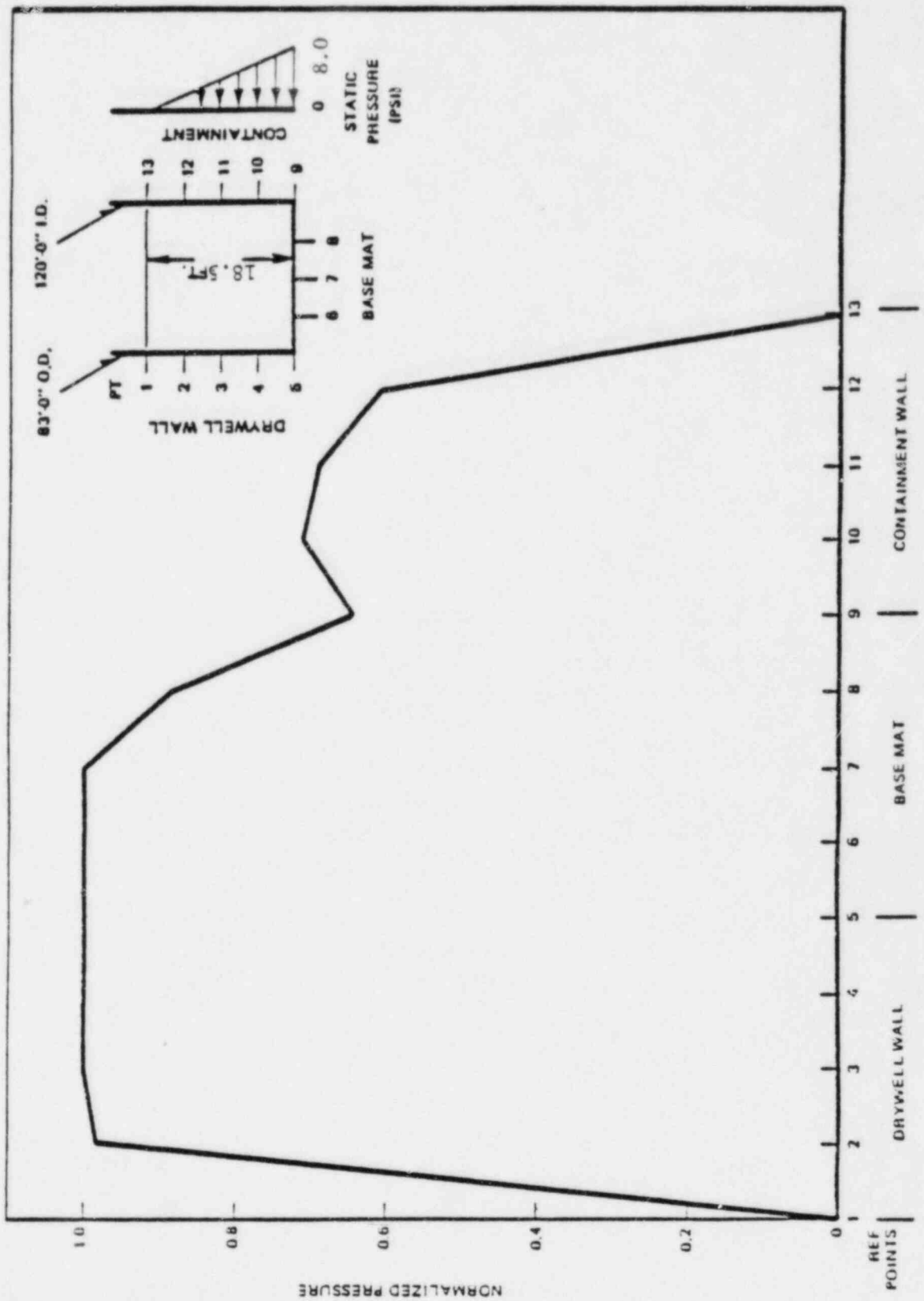


FIGURE A-5

ONE S/R VALVE NORMALIZED WALL PRESSURE AT 4.5°

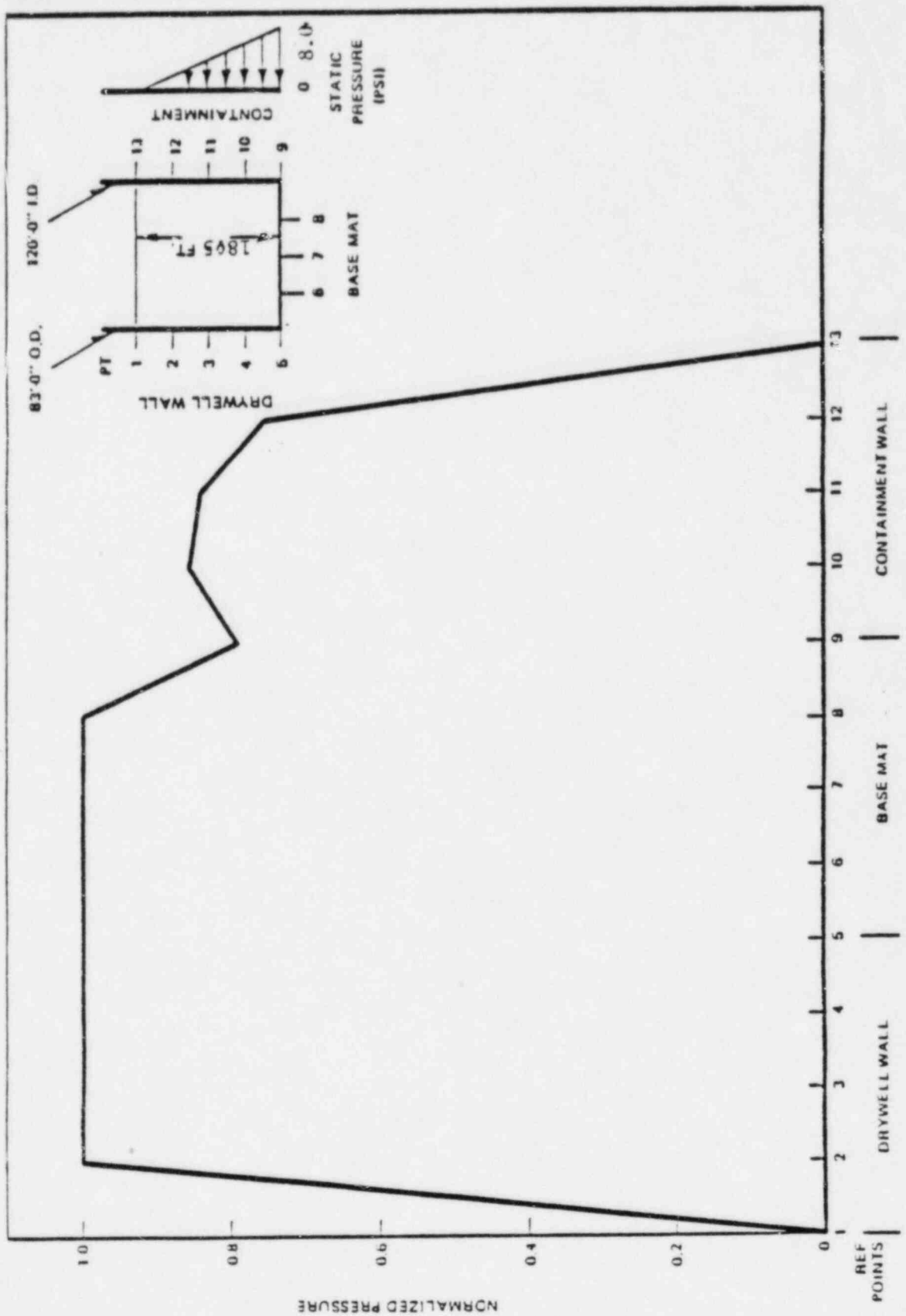


FIGURE A-6

TWO S/R VALVES NORMALIZED WALL PRESSURE AT 355.5°

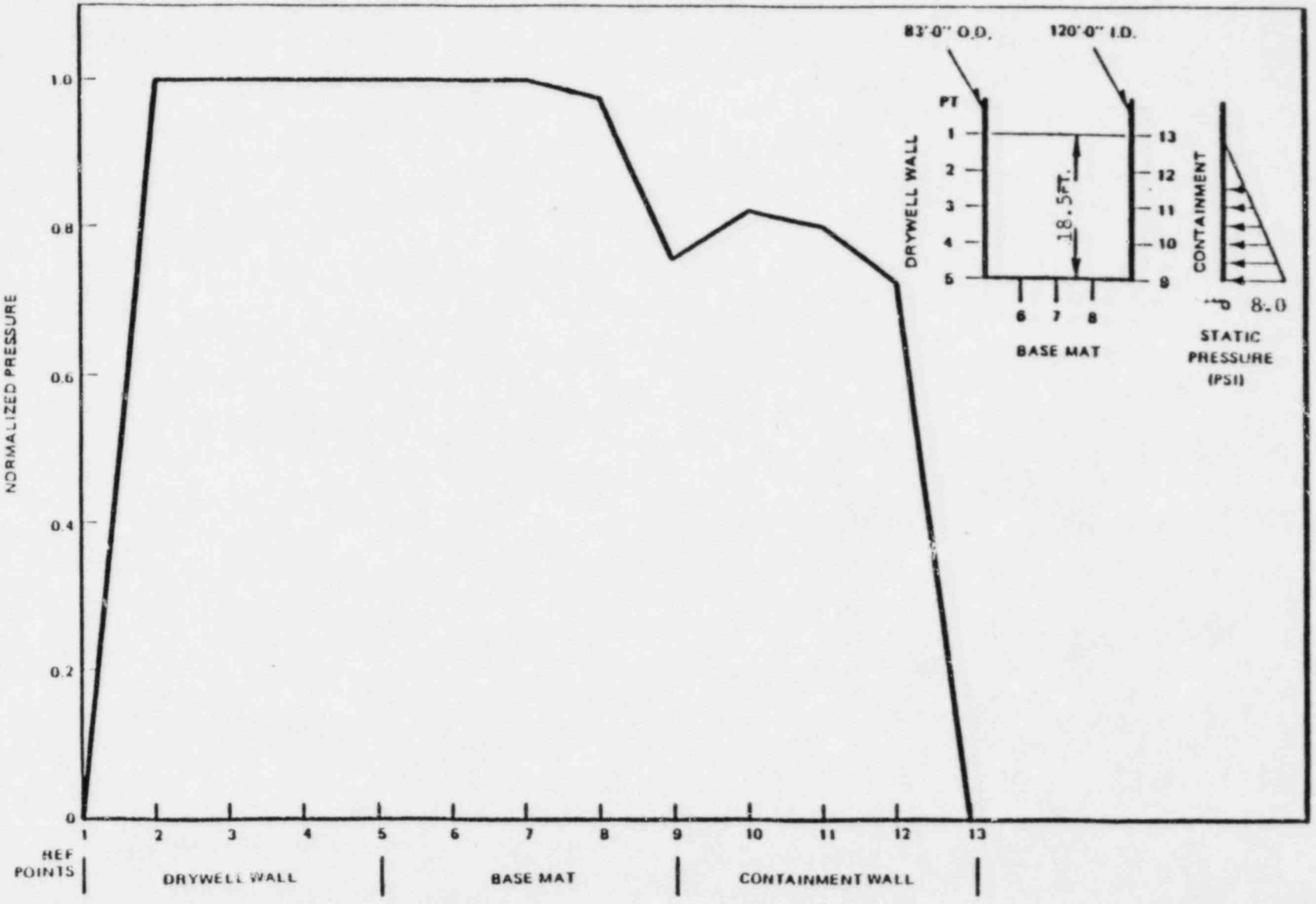


FIGURE A-7

EIGHT S/R VALVES WALL PRESSURE AT 346.5°

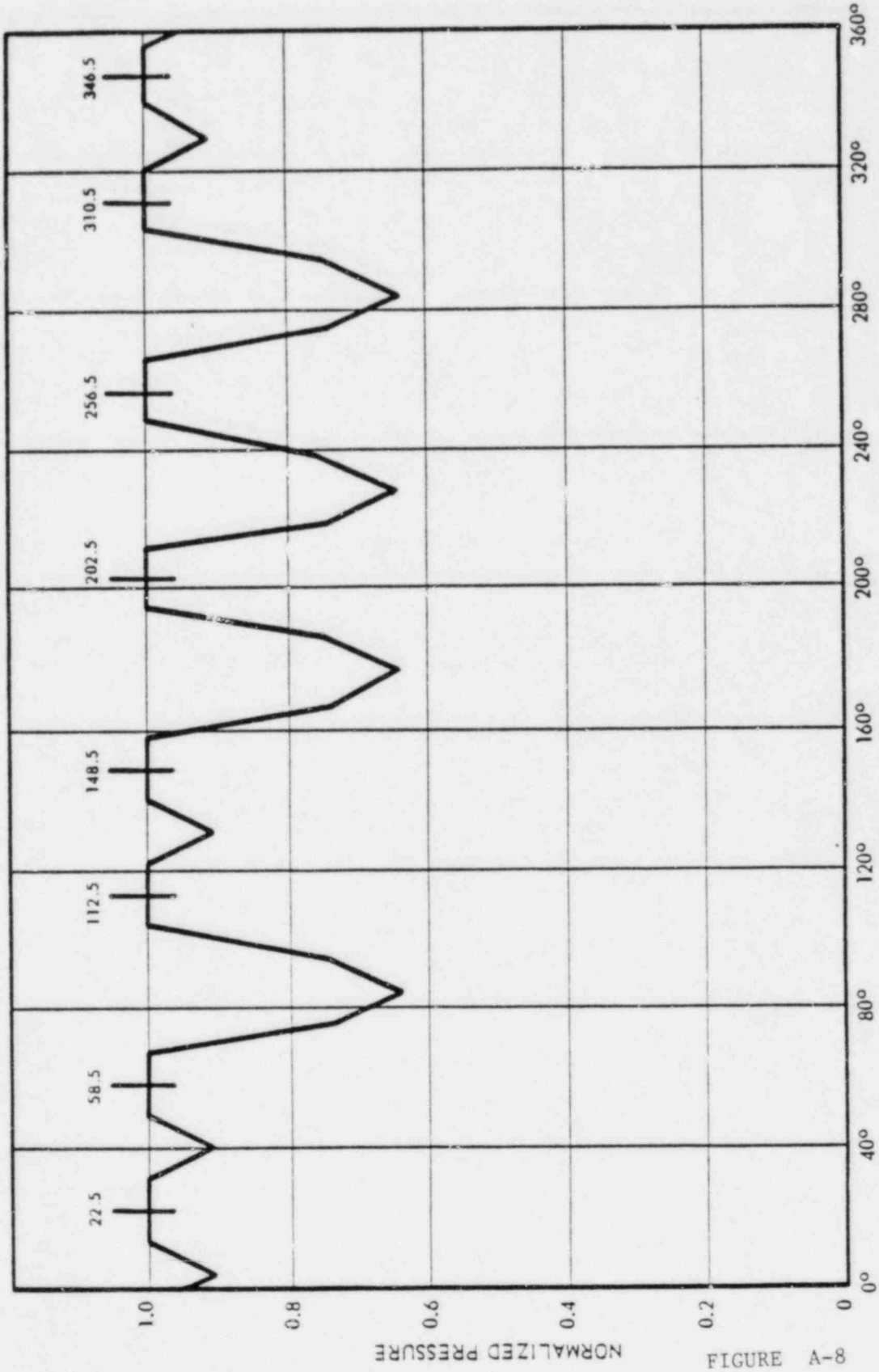


FIGURE A-8

EIGHT SAFETY/RELIEF VALVES REFERENCE POINT 4 (CIRCUMFERENTIAL DISTRIBUTION)

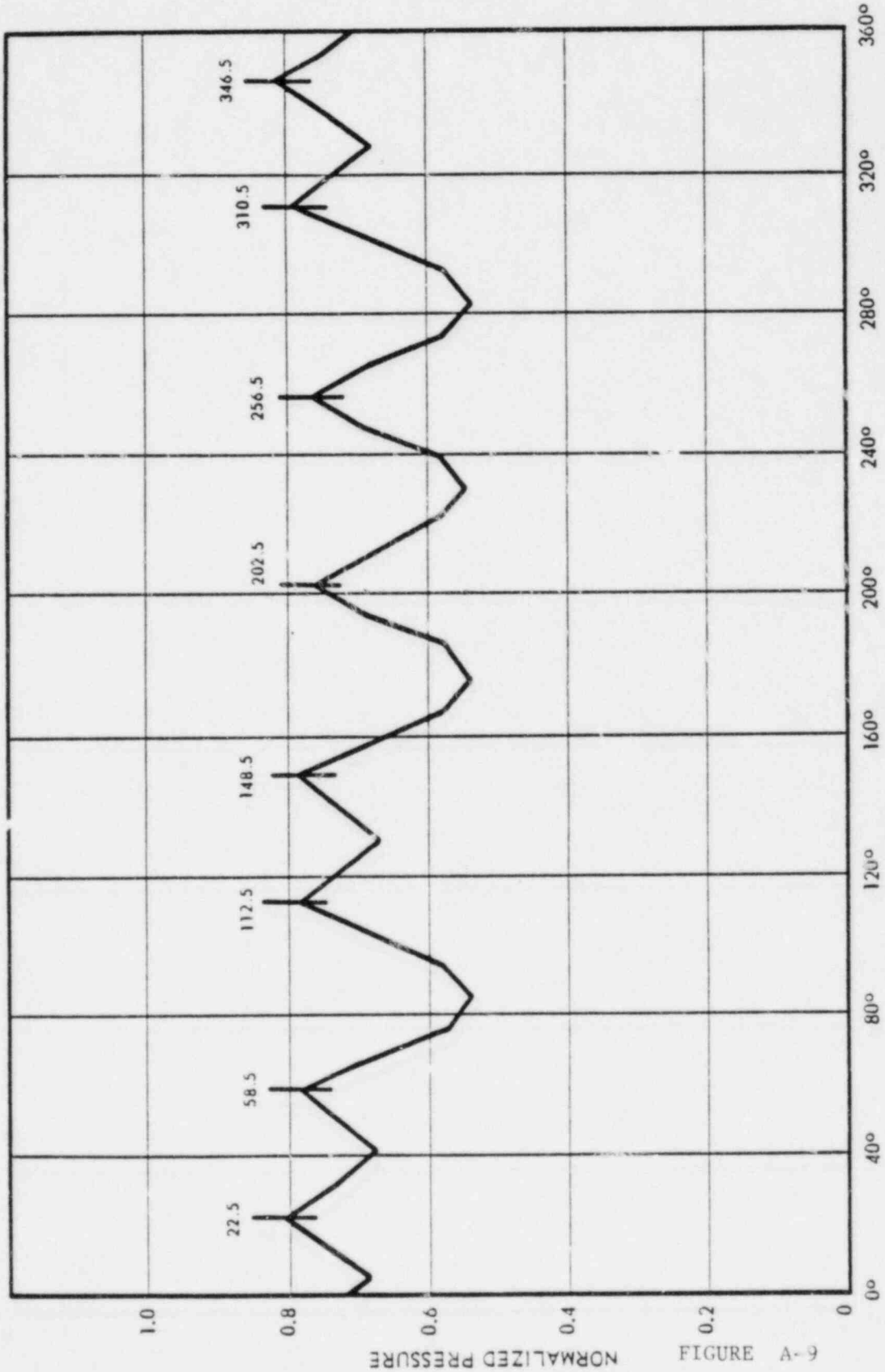


FIGURE A-9

EIGHT SAFETY/RELIEF VALVES REFERENCE POINT 10 (CIRCUMFERENTIAL DISTRIBUTION)

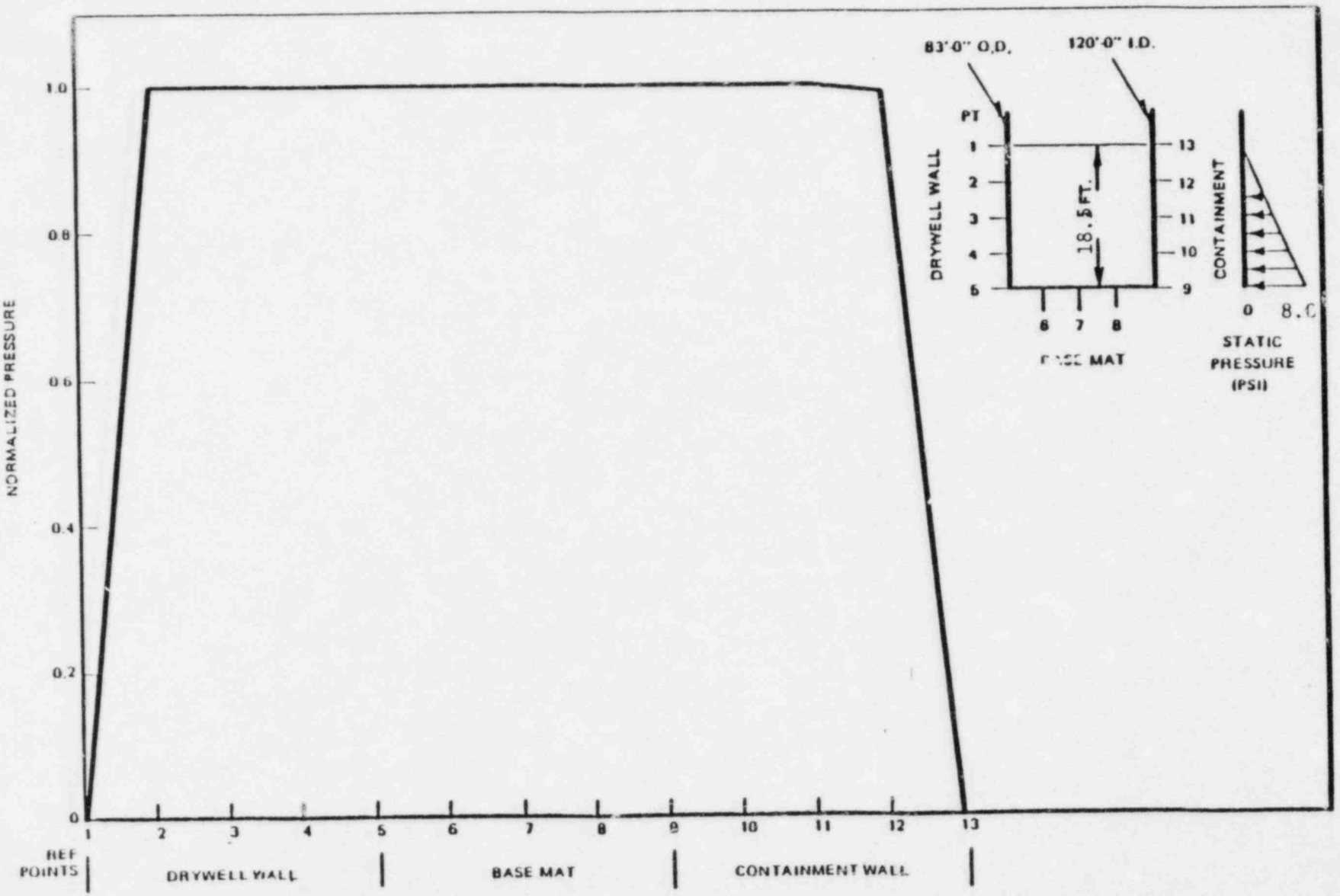


FIGURE A-10

NINETEEN S/R VALVES WALL PRESSURE AT 130.5° AZIMUTH

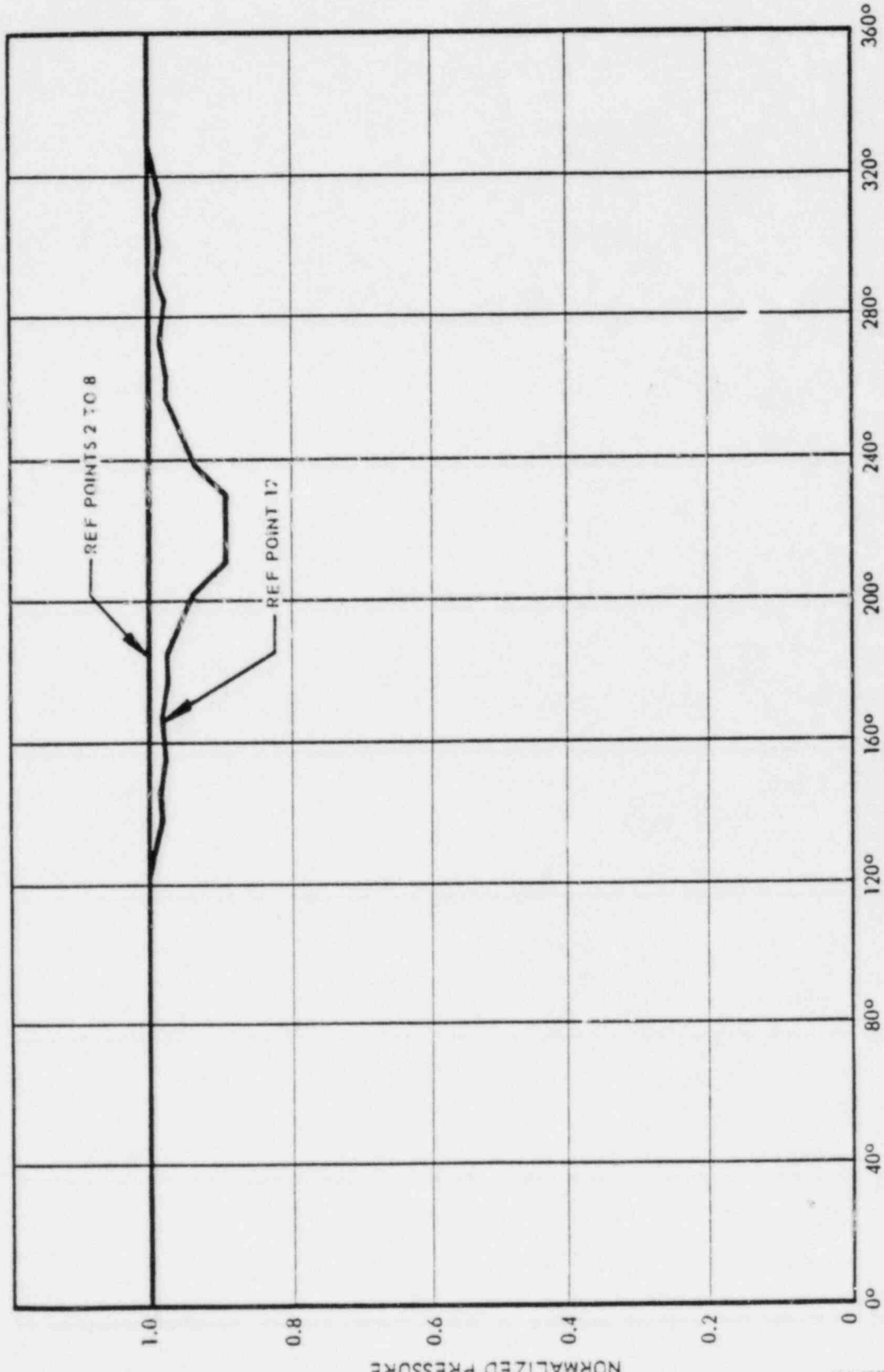


FIGURE A-11

SUPPRESSION POOL CHUGGING NORMALIZED
MEAN UNDERPRESSURE ATTENUATION

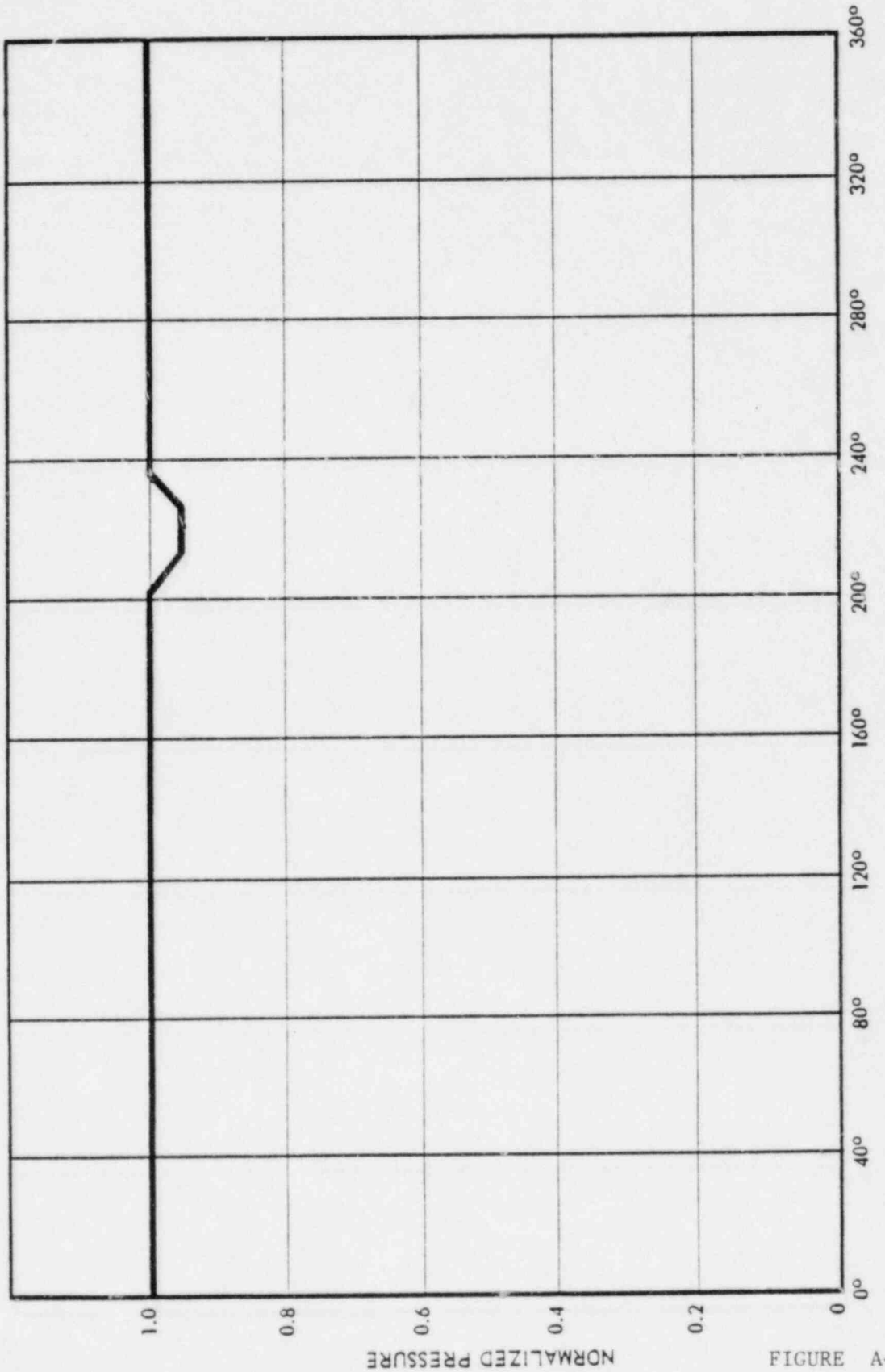


FIGURE A-12

NINETEEN S/R VALVES REFERENCE POINT 10 (CIRCUMFERENTIAL DISTRIBUTION)

ATTACHMENT B TO APPENDIX 3B

SCALING ANALYSES AND SMALL STRUCTURE
POOL SWELL DYNAMIC LOADS

No deviations for the entire Attachment.

ATTACHMENT C TO APPENDIX 3B

WEIR ANNULUS BLOCKAGE

No deviations for the entire Attachment.

ATTACHMENT D TO APPENDIX 3B

DRWELL PRESSURE DISTRIBUTION

No deviations for the entire Attachment.

ATTACHMENT E TO APPENDIX 3B

SUPPRESSION POOL SEISMIC-INDUCED LOADS

No deviations for the entire Attachment.

ATTACHMENT F TO APPENDIX 3B

DIGITIZATION OF FORCING FUNCTION FOR
CONDENSATION OSCILLATION

No deviations for the entire Attachment.

ATTACHMENT G TO APPENDIX 3B

DRYWELL NEGATIVE PRESSURE CALCULATION

No deviations for the entire Attachment.

ATTACHMENT H TO APPENDIX 3B

CONTAINMENT ASYMMETRIC LOADS

No deviations for the entire Attachment.

ATTACHMENT I TO APPENDIX 3B

SUPPRESSION POOL THERMAL STRATIFICATION

FSAR Figure I-1 shows the suppression pool temperature profile for large breaks at Perry.

INITIAL POOL TEMP.	90°F
TOTAL POOL MASS	7.12×10^6 LB
POOL DEPTH	18.5 FT.
TOTAL ENERGY RELEASE	4.0×10^8 BTU
FINAL BULK POOL TEMP.	146°F

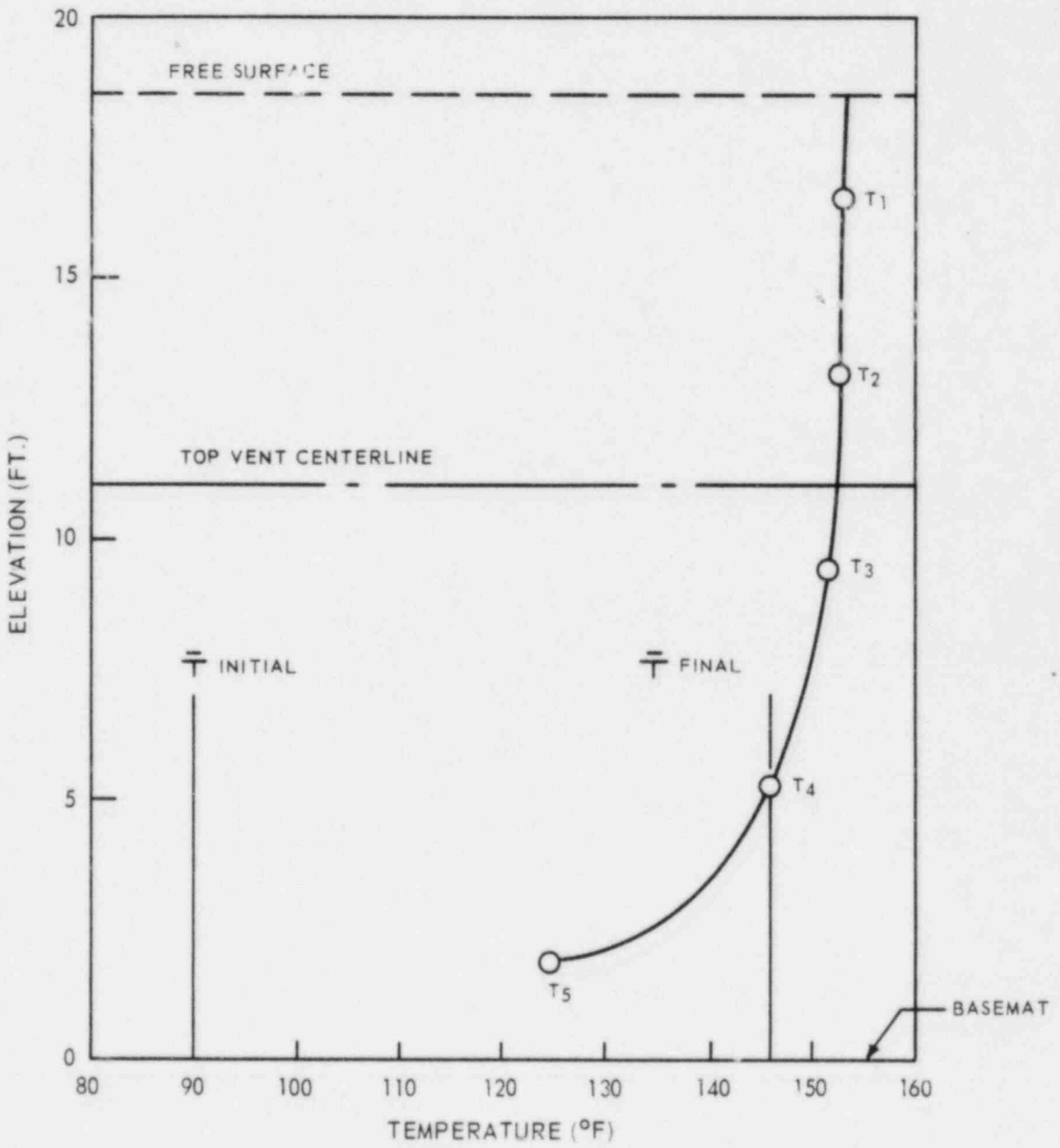


FIGURE I-1

SUPPRESSION POOL TEMPERATURE PROFILE
FOR LARGE BREAKS (DBA)

ATTACHMENT J TO APPENDIX 3B

WEIR WALL LOADS DURING DRYWELL DEPRESSURIZATION

No deviations for the entire Attachment.

ATTACHMENT K TO APPENDIX 3B

WETWELL ASYMMETRIC PRESSURES

No deviations to the entire Attachment.

ATTACHMENT L TO APPENDIX 3B

SUBMERGED STRUCTURE LOADS DUE TO LOCA AND
SRV ACTUATIONS

3BL.1 INTRODUCTION

The subject loads are discussed in Attachment L to Appendix 3B. The following is a comparison between the PNPP design basis and the GE design methodology described in Attachment L.

3BL.2 SUBMERGED STRUCTURE LOADS DUE TO LOCA

3BL.2.1 COMPRESIVE WAVE LOADING

No deviations from Attachment L criteria.

3BL.2.2 LOCA WATER JET LOAD

No deviations from Attachment L criteria.

3BL.2.3 LOCA BUBBLE LOADS

The submerged design drag loads for all piping and structures in the suppression is conservatively based on the LOCA bubble pressure given in GESSAR Figure 3B-67. The following is a comparison between the PNPP design basis and the GE design criteria described in Attachment L.

The sample structure used for comparison is a two feet long one-foot diameter pipe located four feet from the drywell wall as depicted in GESSAR Figure 3BL-8.

The PNPP design methodology yields 4810 lb_f. The GE methodology yields 1235.8 lb_f as shown in Table 3BL-5 of GESSAR II . The GE criteria recommends multiplying this result by a factor of 2 which results in a load of 2471.6 lb_f or approximately 50 percent of the PNPP design basis. In addition, appropriate dynamic load factors has been applied to each load used in the design.

3BL.2.4 FALLBACK LOADS

No deviations from Attachment L criteria.

3BL.2.5 LOCA CONDENSATION OSCILLATIONS LOADS

LOCA condensation oscillation drag loads are bounded by the PNPP LOCA bubble pressure drag load methodology.

3BL.2.6 LOCA CHUGGING LOADS

LOCA chugging drag loads are bounded by the LOCA bubble pressure drag loads.

3BL.3 SUBMERGED STRUCTURE LOADS DUE TO SRV ACTUATIONS

3BL.3.1 QUENCHER WATER JET LOAD

No deviation from Attachment L criteria.

3BL.3.2 QUENCHER BUBBLE LOAD

The design submerged drag loads for all piping and structures in the suppression pool is conservatively based on applying the peak SRV bubble pressure (reduced by the ratio of r_o (peak bubble pressure) to r (distance of structure from bubble center) to the component.

For these loads, the PNPP unique maximum quencher bubble pressure as calculated per Section 3BA.12.6 was used to generate design loads for submerged piping and structures. The bubble pressure was attenuated by distance as described in Section 3BA.10.3.1.

The sample structure used for comparison is shown on GESSAR Figure 3BL-10.

The PNPP design basis yields 9.24 si. The GE methodology, as shown on page 3BL-33/3BL-34 of GESSAR II, yields a peak load of 0.36 psi or less than 4 percent of the PNPP design basis. In addition, appropriate dynamic load factors have been applied to each load used in the design.

ATTACHMENT M TO APPENDIX 3B

POOL SWELL VELOCITY

This is not applicable to Perry. Determination of maximum pool swell velocity ranging from zero fps at the pool surface to a maximum of 50 fps as a function of height is based on the provisions of the NRC Draft Acceptance Criteria.

ATTACHMENT N TO APPENDIX 3B

MULTIPLE SAFETY/RELIEF VALVE ACTUATION FORCING FUNCTION METHODS

3BN.1 INTRODUCTION

No deviations.

3BN.2 RANDOM PARAMETERS

3BN.2.1 Reactor Vessel Pressure Rise Rate (PRP)

No deviations.

3BN.2.2 Valve Setpoint Tolerance (VST)

GESSAR Figures 3BA-4 through 3BA-6 and GESSAR Figures 3BA-84 through 3BA-87 are not applicable to Perry. Safety relief valve discharge locations are shown in FSAR Figure A-3 of Attachment A to Appendix 3B.

3BN.2.3 Valve Opening Time (VOT)

No deviations.

3BN.2.4 Quencher Bubble Frequency Distribution (QBF)

No deviations.

3BN.3 MONTE CARLO TRIAL SIMULATIONS

No deviations.

3BN.4 FACTORS AFFECTING PRESSURE DISTRIBUTION ON THE SUPPRESSION POOL BOUNDARY

No deviations.

3BN.5 FORCING FUNCTIONS FOR NSSS EQUIPMENT

No deviations.

3BN.6 STRUCTURAL RESPONSE ANALYSIS

Resulting dynamic responses for the critical cases selected in subsection 3BN.5.4 are enveloped and used for both BOP and NSSS equipment and structural evaluations.

3BN.7 EXAMPLE OF TYPICAL TIME SEQUENCING APPLICATION

The use of Perry unique parameters and the procedures in this subsection result in Perry unique SRV forcing functions which have been used to determine the dynamic response necessary for NSSS and balance-of-plant equipment evaluation.

3BN.8 COMPARISON OF SELECTED TRIALS WITH THE FOURIER SPECTRA OF THE 59 MONTE CARLO SIMULATIONS

No deviations.

3BN.9 CONSERVATISM OF SRVA METHODOLOGY

No comments.

ATTACHMENT O TO APPENDIX 3B

DATA AND ANALYSES PERTAINING TO SRV ACTUATION
RAMDOM PARAMETERS

No deviations for the entire Attachment.