

WEST

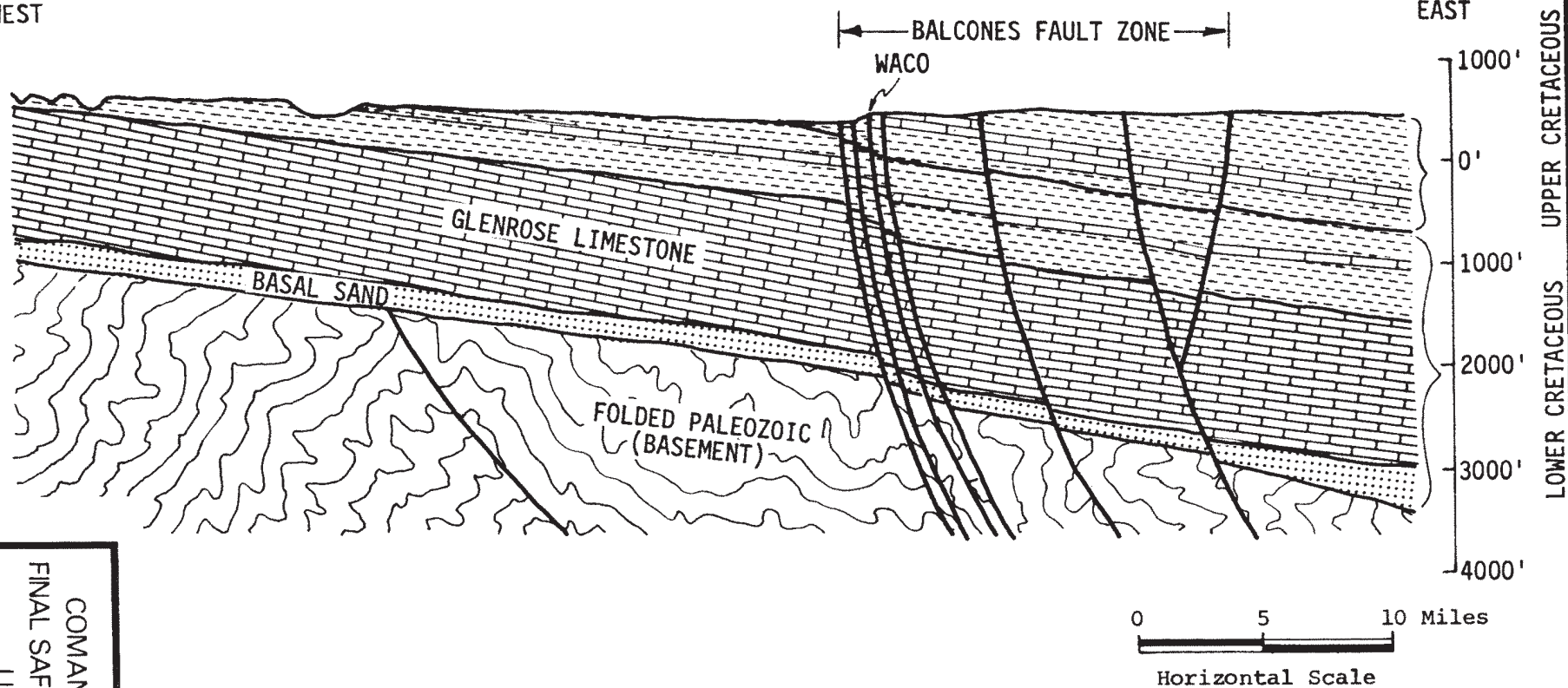
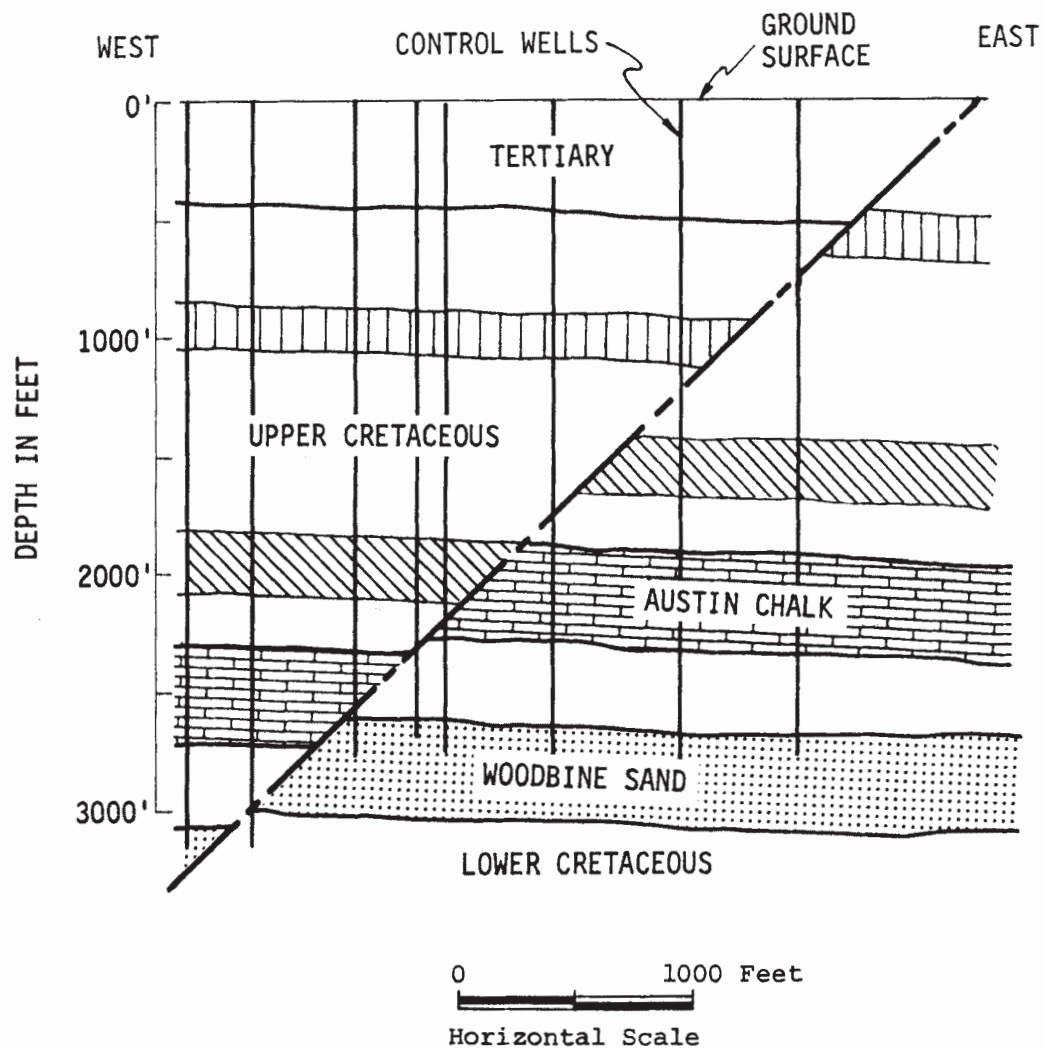


FIGURE 2.5.2-11

BALCONES FAULT ZONE  
CROSS SECTION

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UNITS 1 and 2

Modified after Baylor Geological Society  
Guidebook (1964), Fig. 3

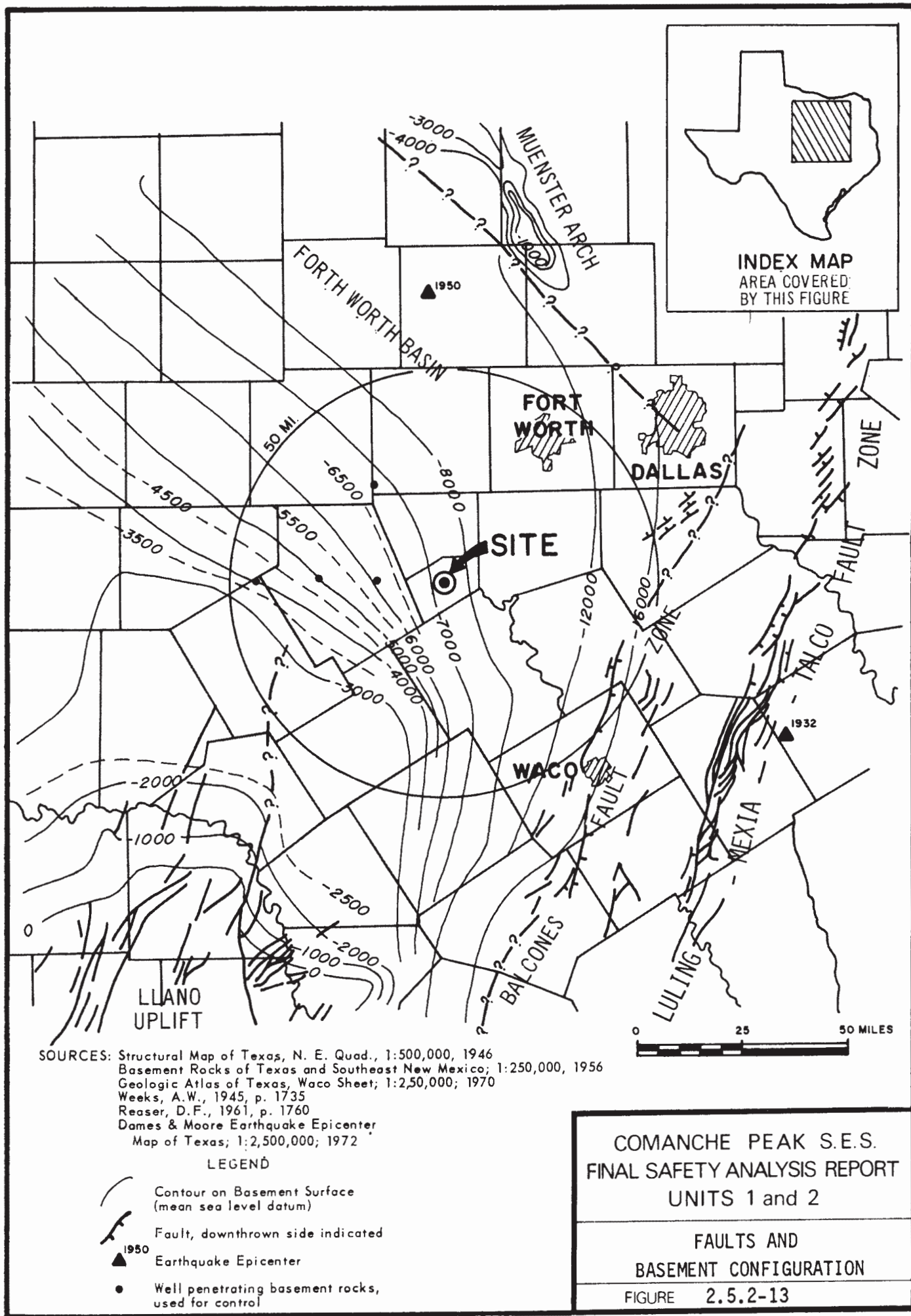


Modified after Lahee, Fig. 29  
 Structure of Typical American Oil Fields  
 Vol. 1, 1929 AAPG.

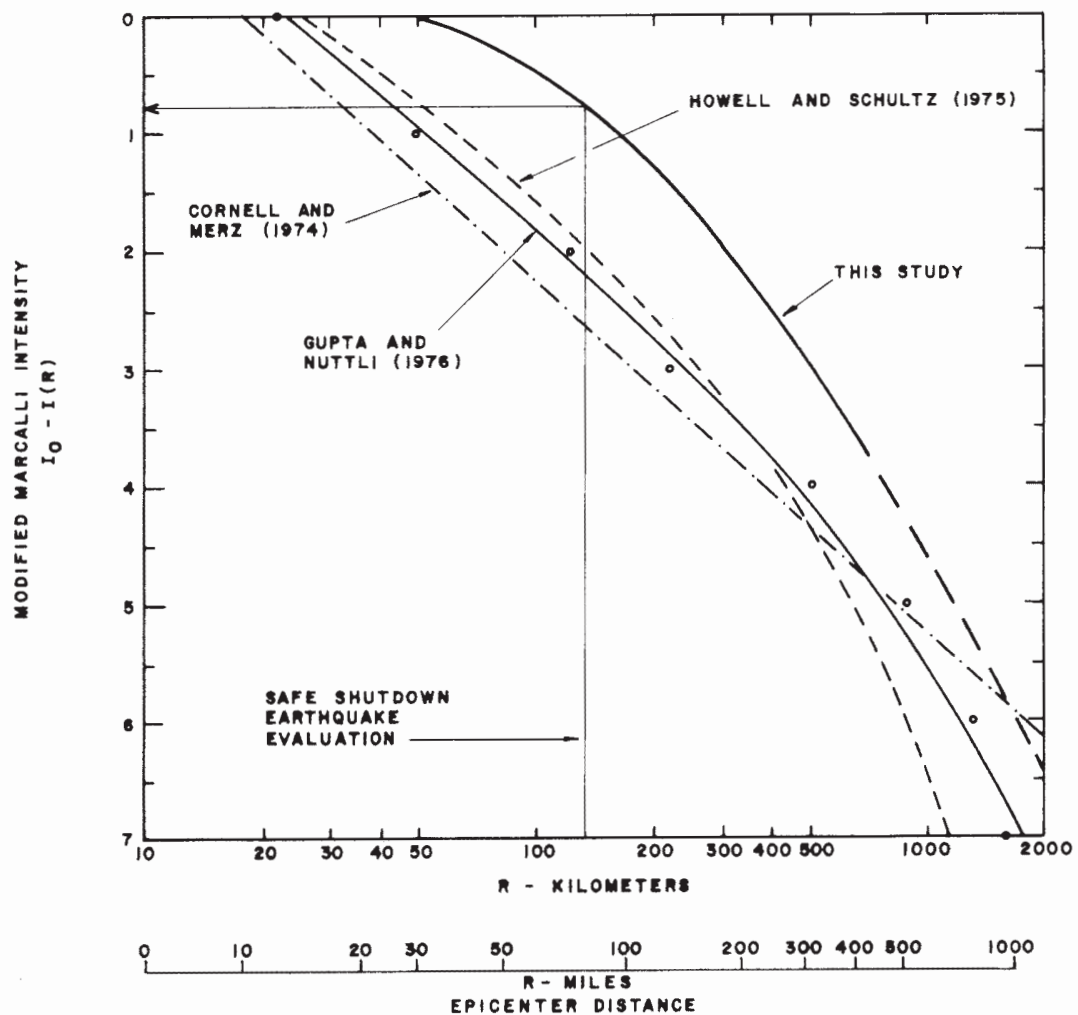
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MEXIA FAULT ZONE  
 CROSS SECTION

FIGURE 2.5.2-12







NOTES: BASIS FOR INTENSITY DATA

INTENSITY VIII - VALENTINE, TEXAS, 1931  
 INTENSITY VII - BONHAM, TEXAS, 1882  
 - EL RENO, OKLAHOMA, 1952

BASIS FOR COMPARISON (121,122,123)

$I_0$  - EPICENTER INTENSITY

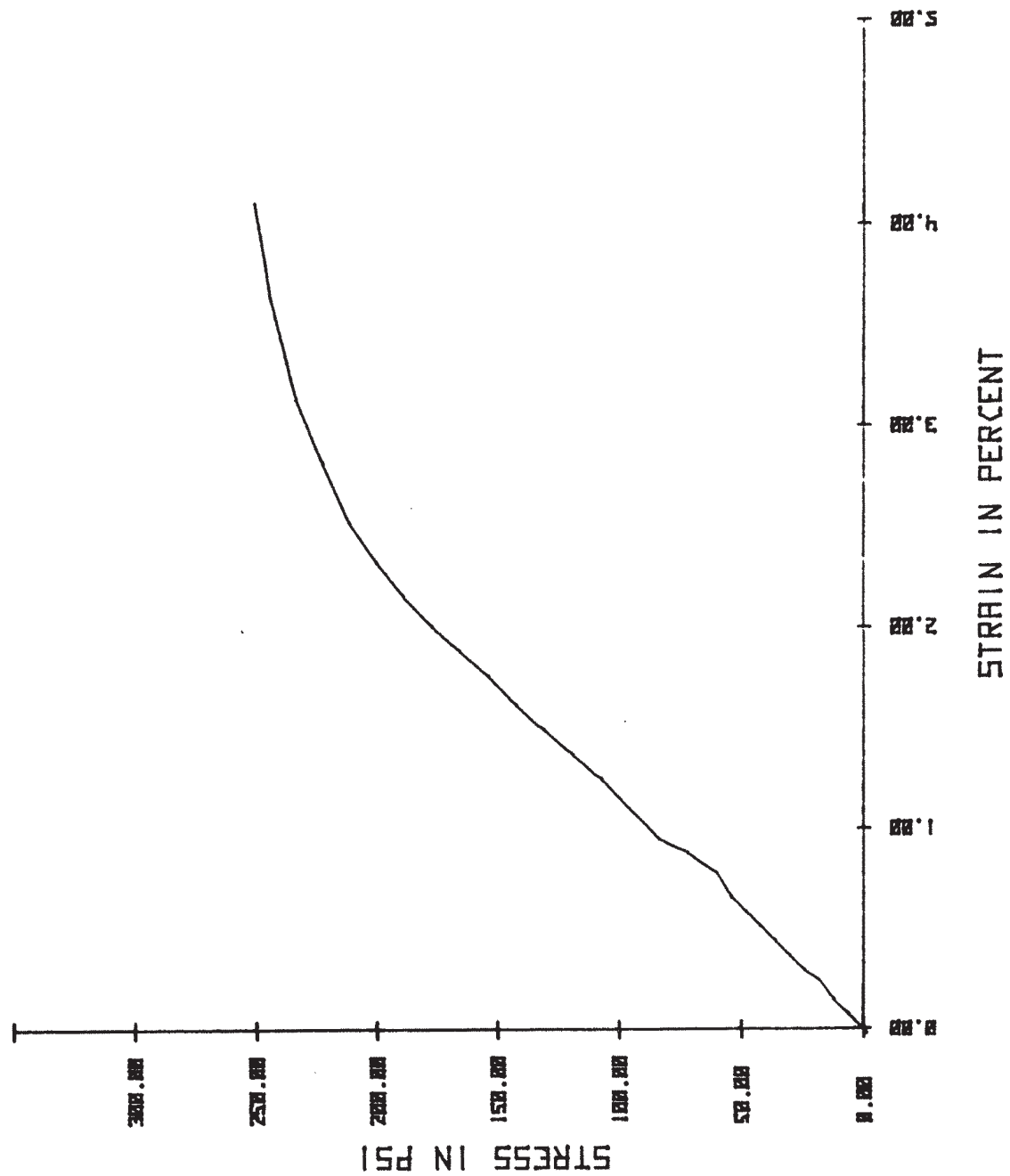
$I(R)$  - INTENSITY AT DISTANCE  $R$

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EARTHQUAKE ATTENUATION

FIGURE 2.5.2-14

BORING NO.: P-1 DEPTH: 40.0-40.5  
 YOUNG'S MODULUS OF ELASTICITY= 9200 PSI

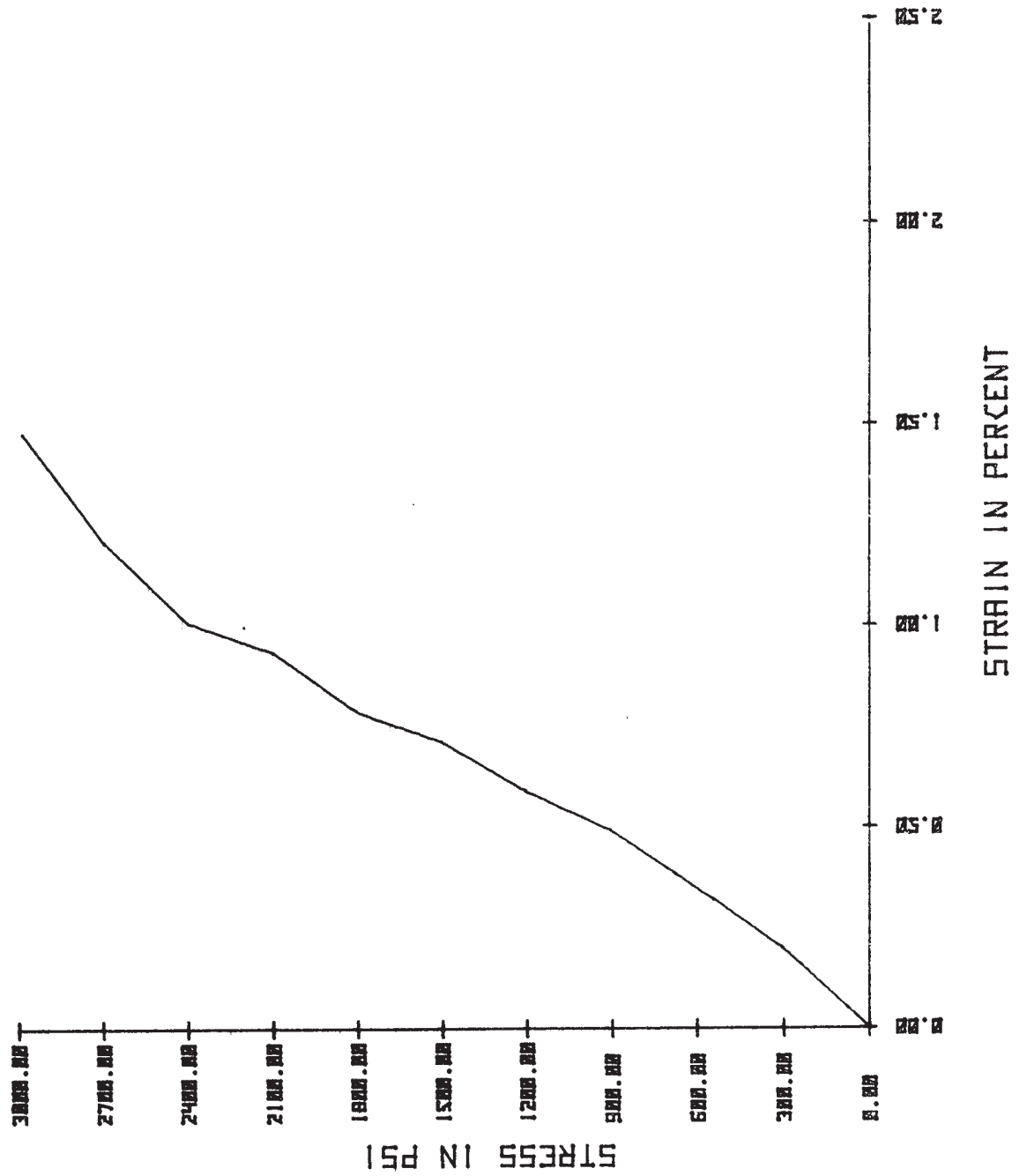


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STRESS-STRAIN PLOT  
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FIGURE 2.5.4-1

BORING NO.: P-1 DEPTH: 90.0-90.7  
 YOUNG'S MODULUS OF ELASTICITY= 400000 PSI

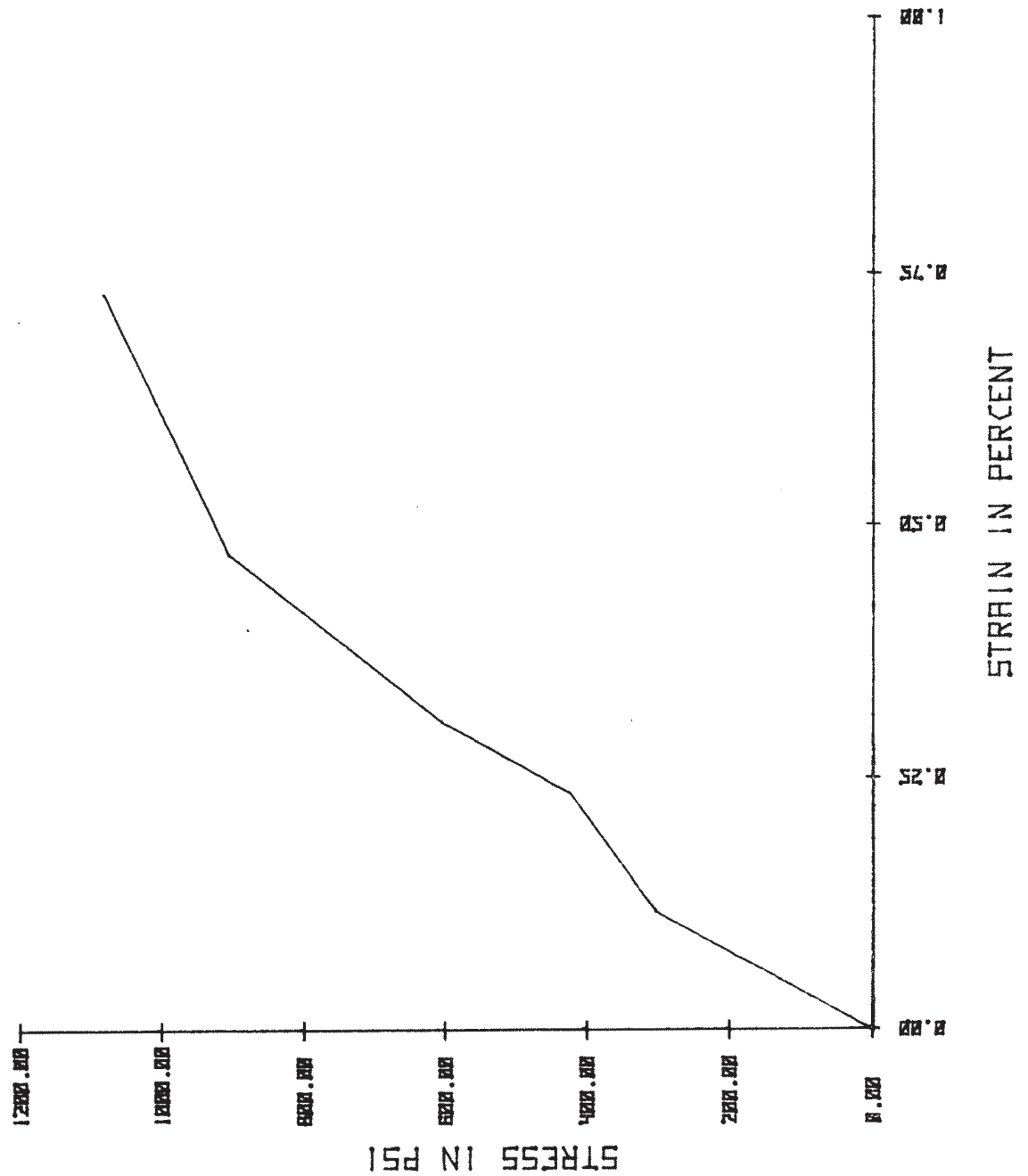


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FIGURE 2.5.4-1

BORING NO.: P-4 DEPTH: 59.6-60.3  
YOUNG'S MODULUS OF ELASTICITY= 200000 PSI



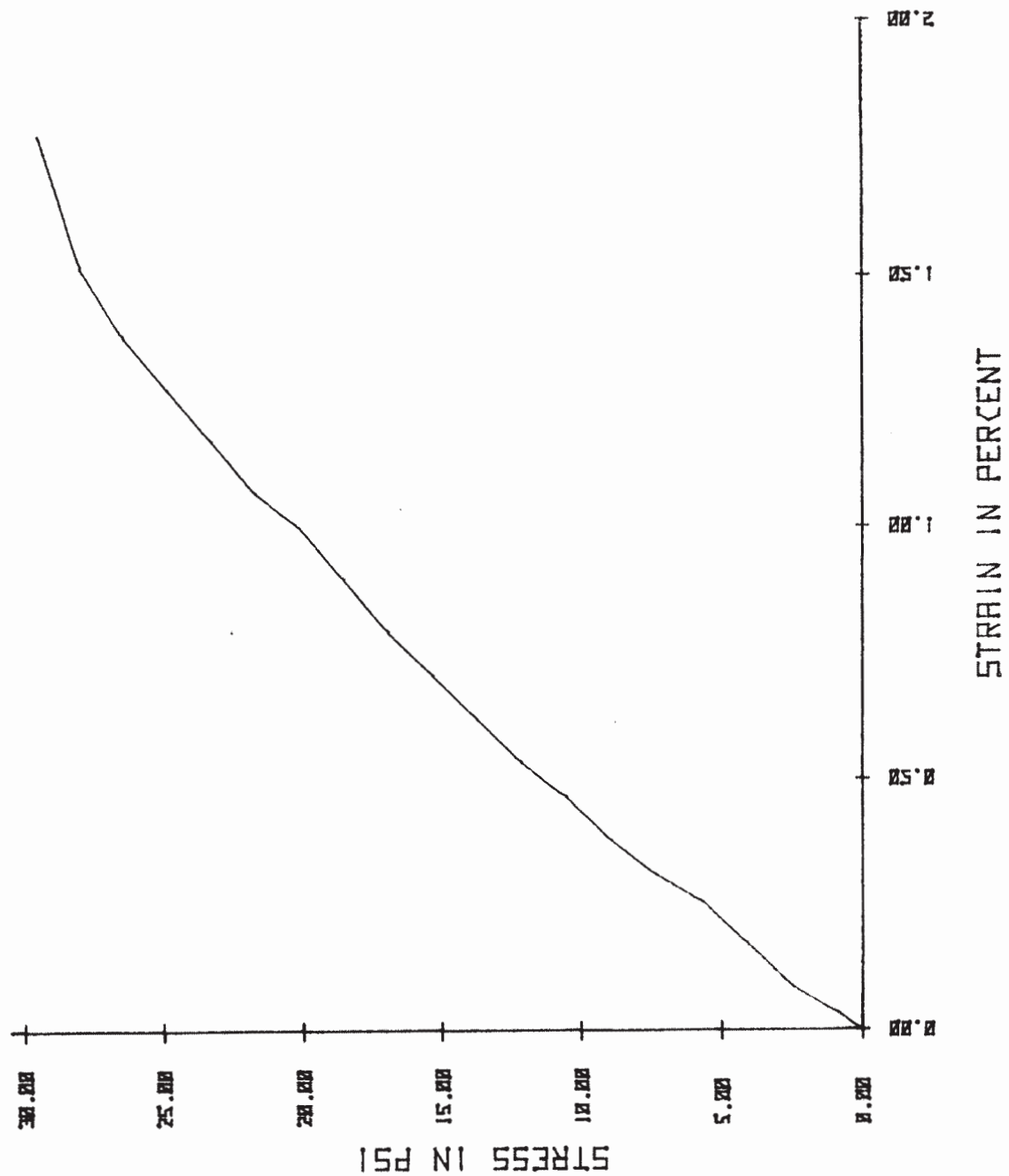
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FIGURE 2.5.4-1



BORING NO.: P-9 DEPTH: 2.0-3.5  
YOUNG'S MODULUS OF ELASTICITY= 2200 PSI

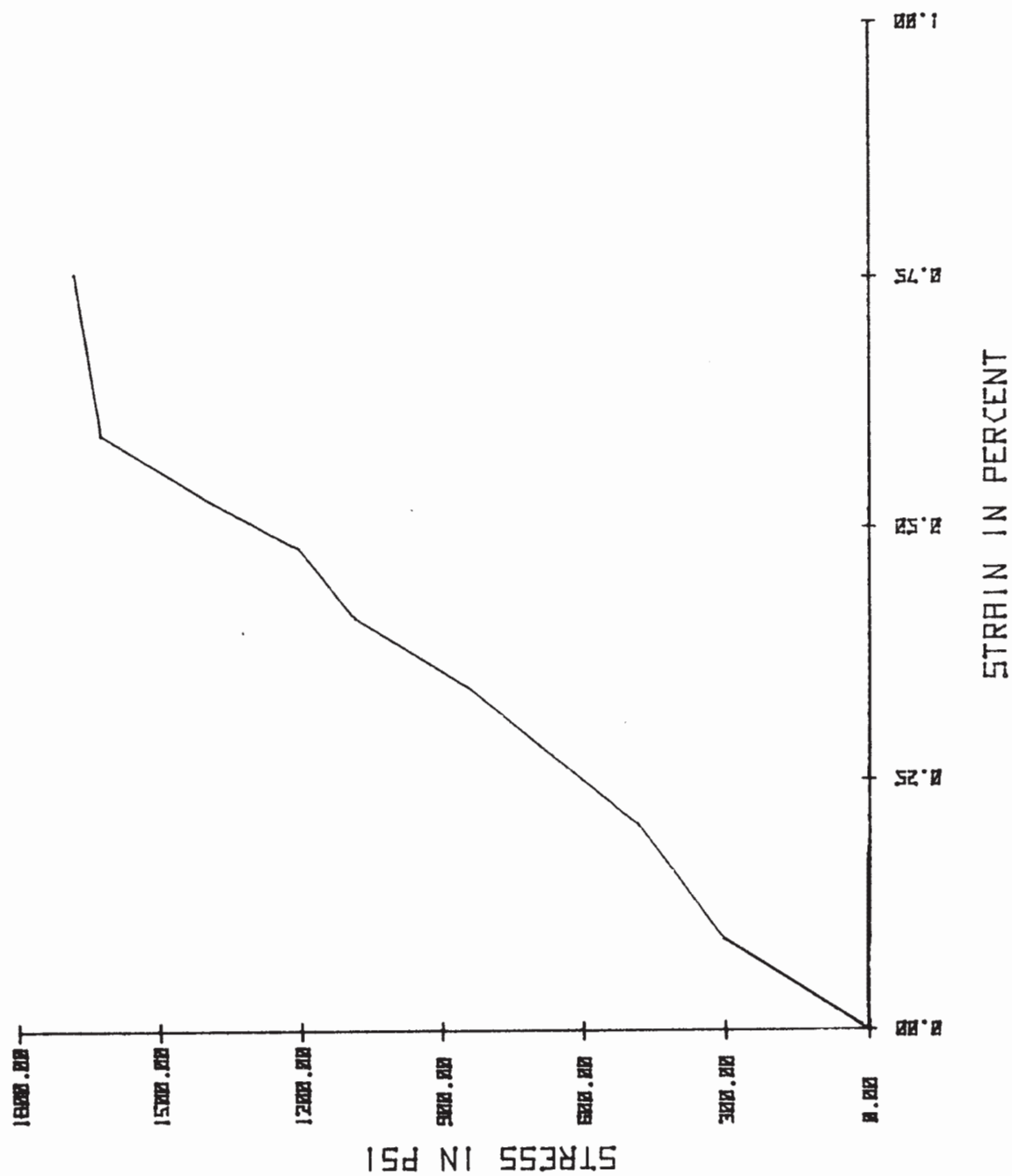


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FIGURE 2.5.4-1

BORING NO.: P-9 DEPTH: 36.1-36.8  
 YOUNG'S MODULUS OF ELASTICITY= 320000 PSI

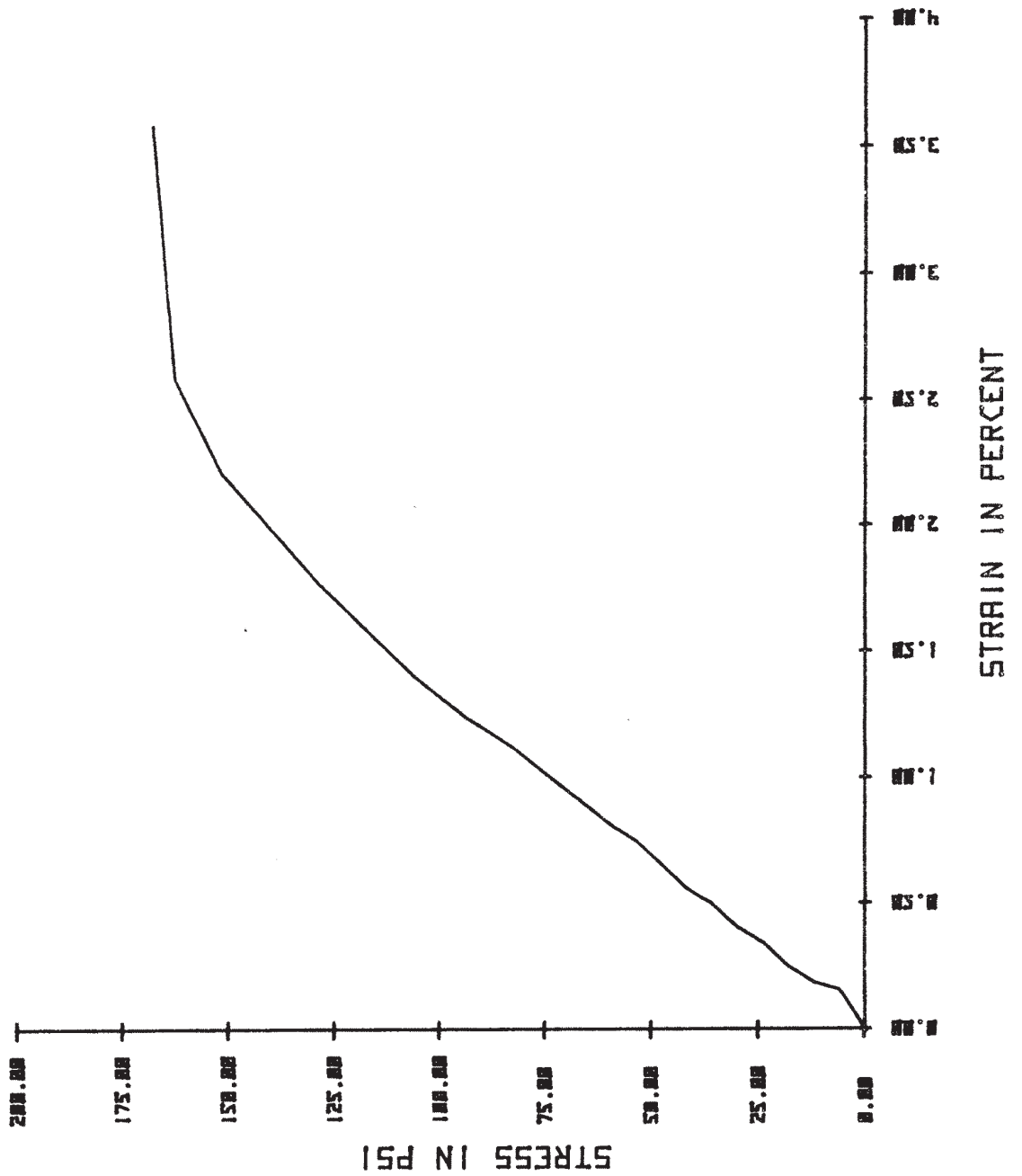


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FIGURE 2.5.4-1

BORING NO.: P-9 DEPTH: 50.7-51.8  
 YOUNG'S MODULUS OF ELASTICITY= 7500 PSI



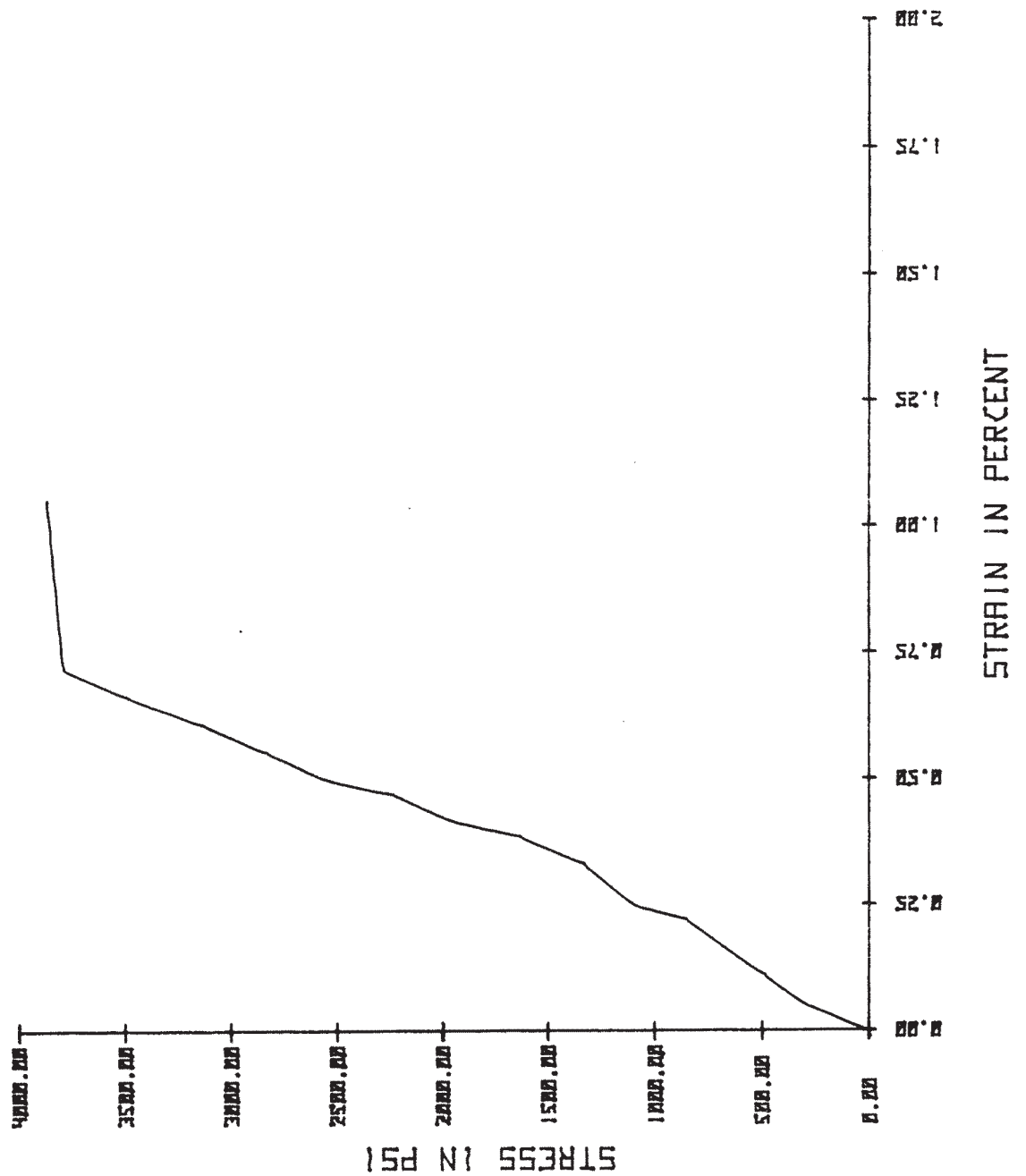
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FIGURE 2.5.4-1

BORING NO.: P-9 DEPTH: 52.4-53.4

YOUNG'S MODULUS OF ELASTICITY= 769231 PSI



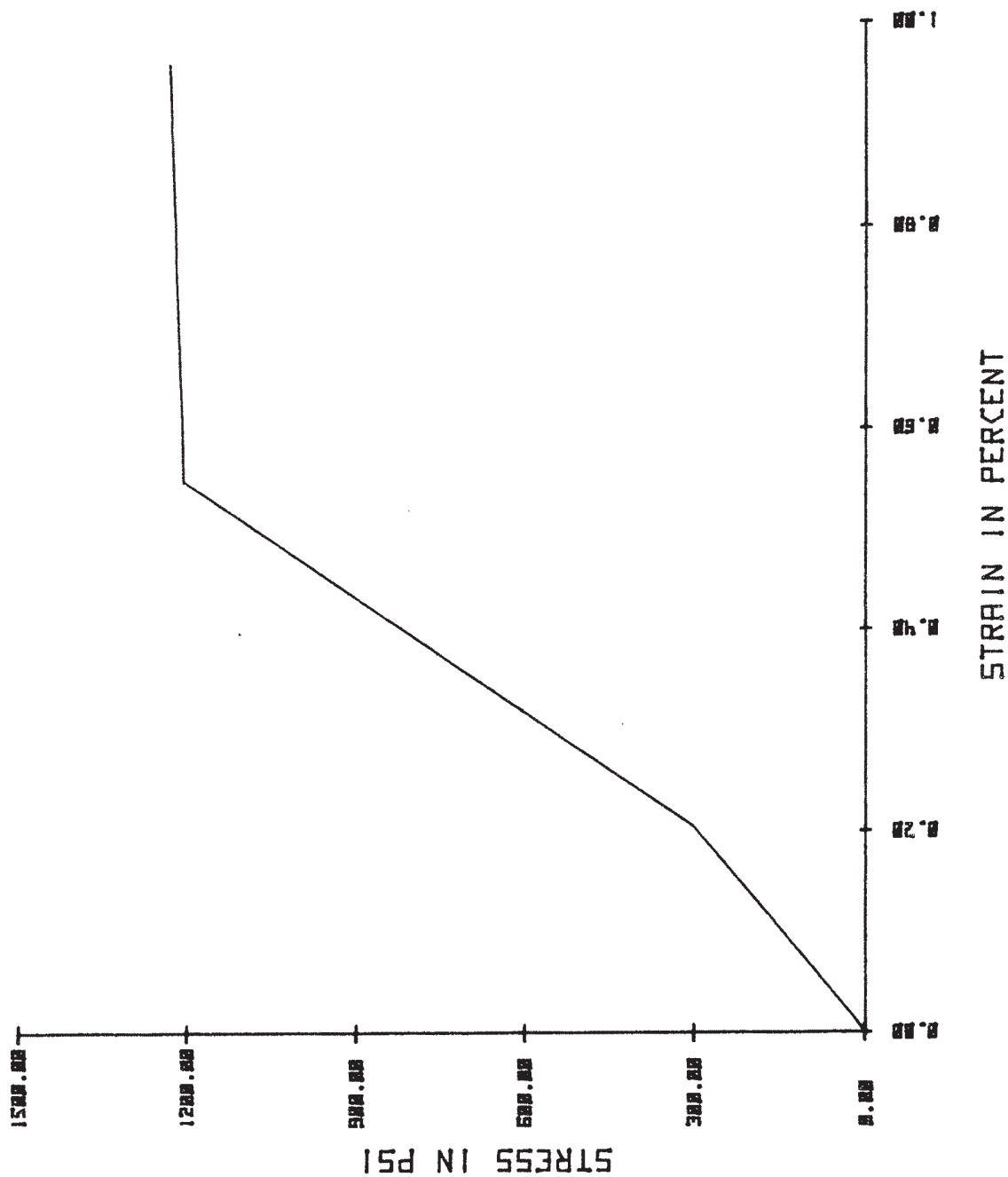
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FIGURE 2.5.4-1



BORING NO.: P-9 DEPTH: 64.4-65.5  
 YOUNG'S MODULUS OF ELASTICITY= 222222 PSI



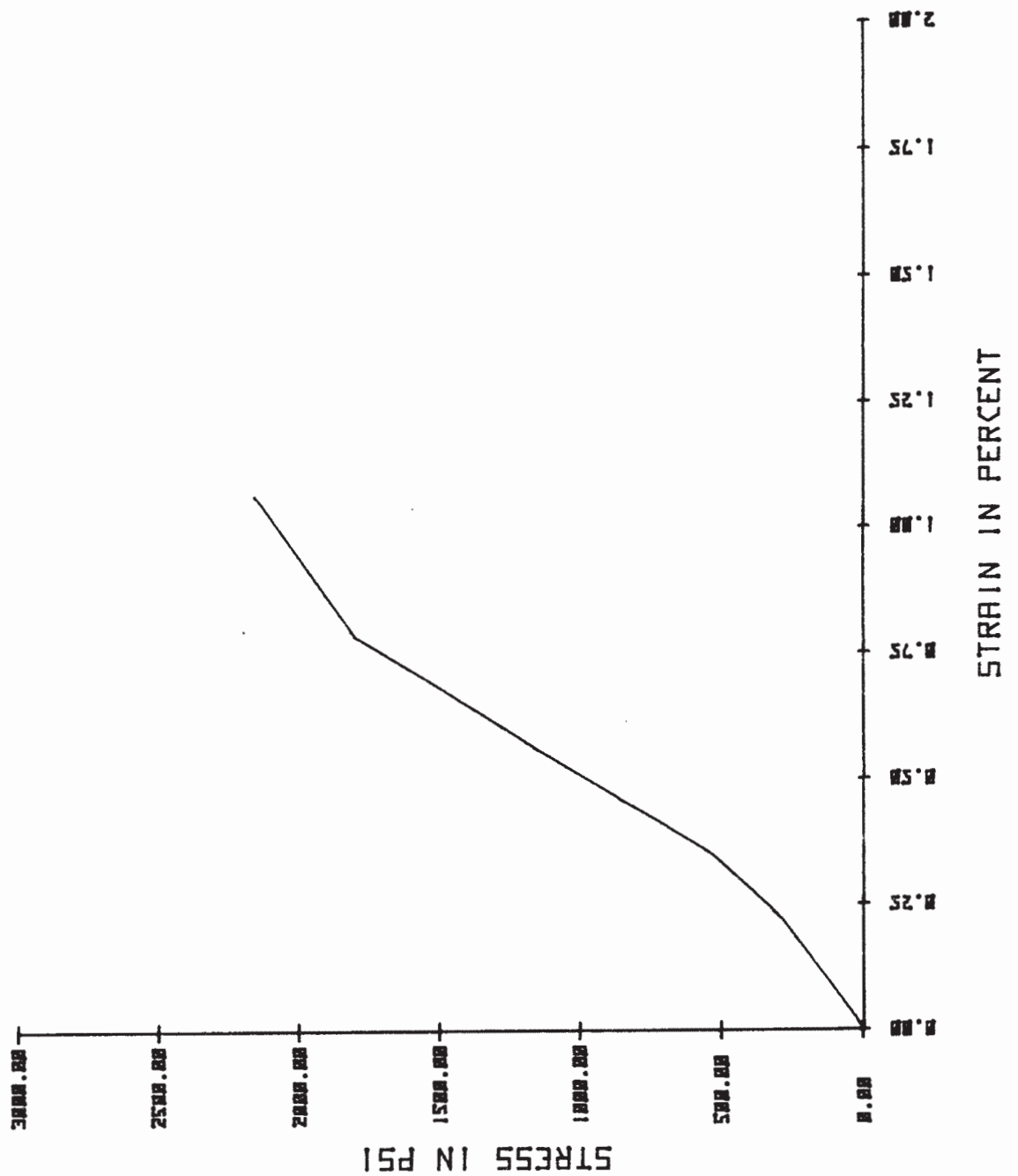
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FIGURE 2.5.4-1

BORING NO.: P-9 DEPTH: 70.0-71.6

YOUNG'S MODULUS OF ELASTICITY= 312500 PSI

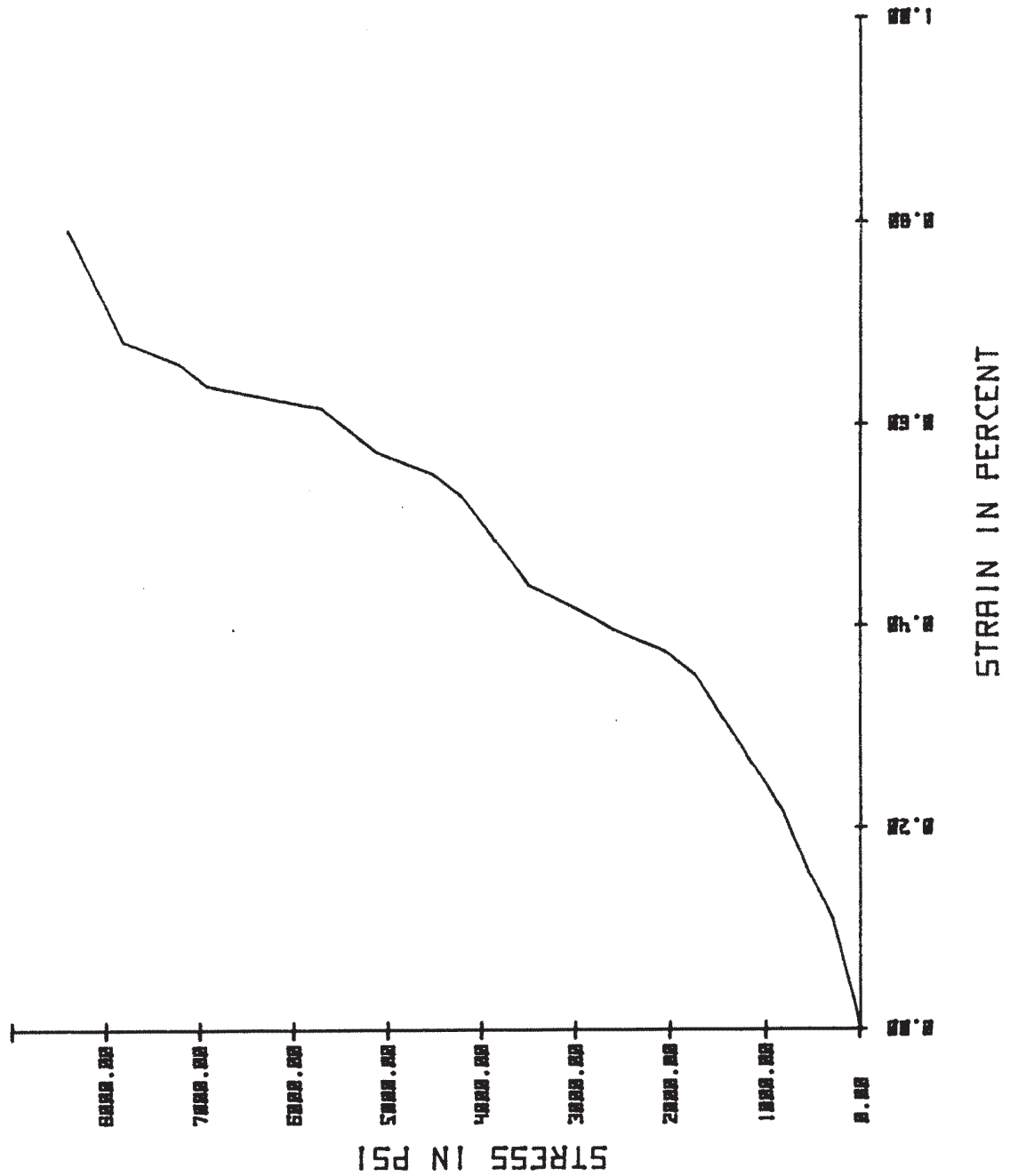


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FIGURE 2.5.4-1

BORING NO.: P-9 DEPTH: 91.1-92.4  
 YOUNG'S MODULUS OF ELASTICITY= 4E+06 PSI

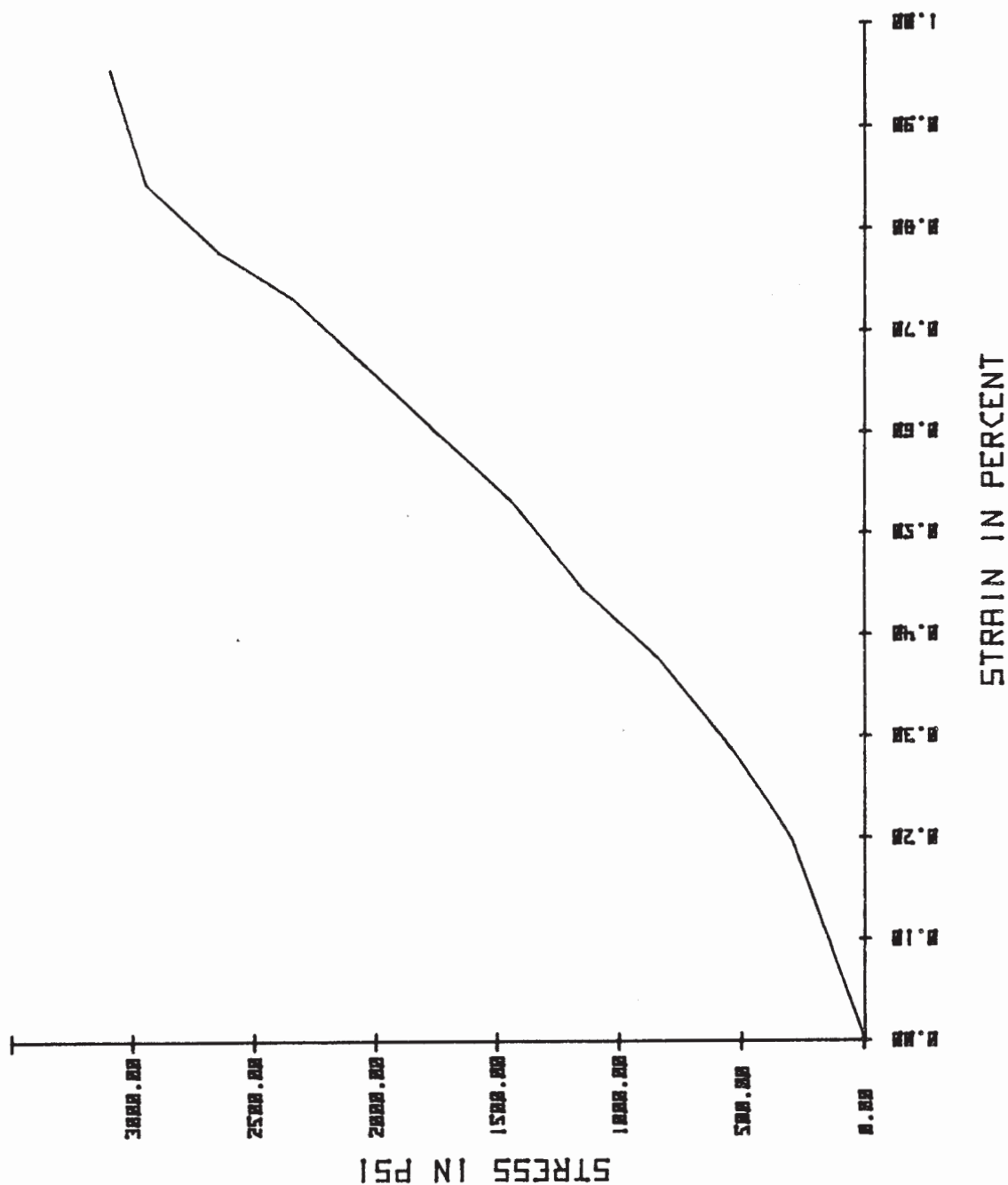


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FIGURE 2.5.4-1

BORING NO.: P-10 DEPTH: 43.3-44.6  
YOUNG'S MODULUS OF ELASTICITY= 357143 PSI



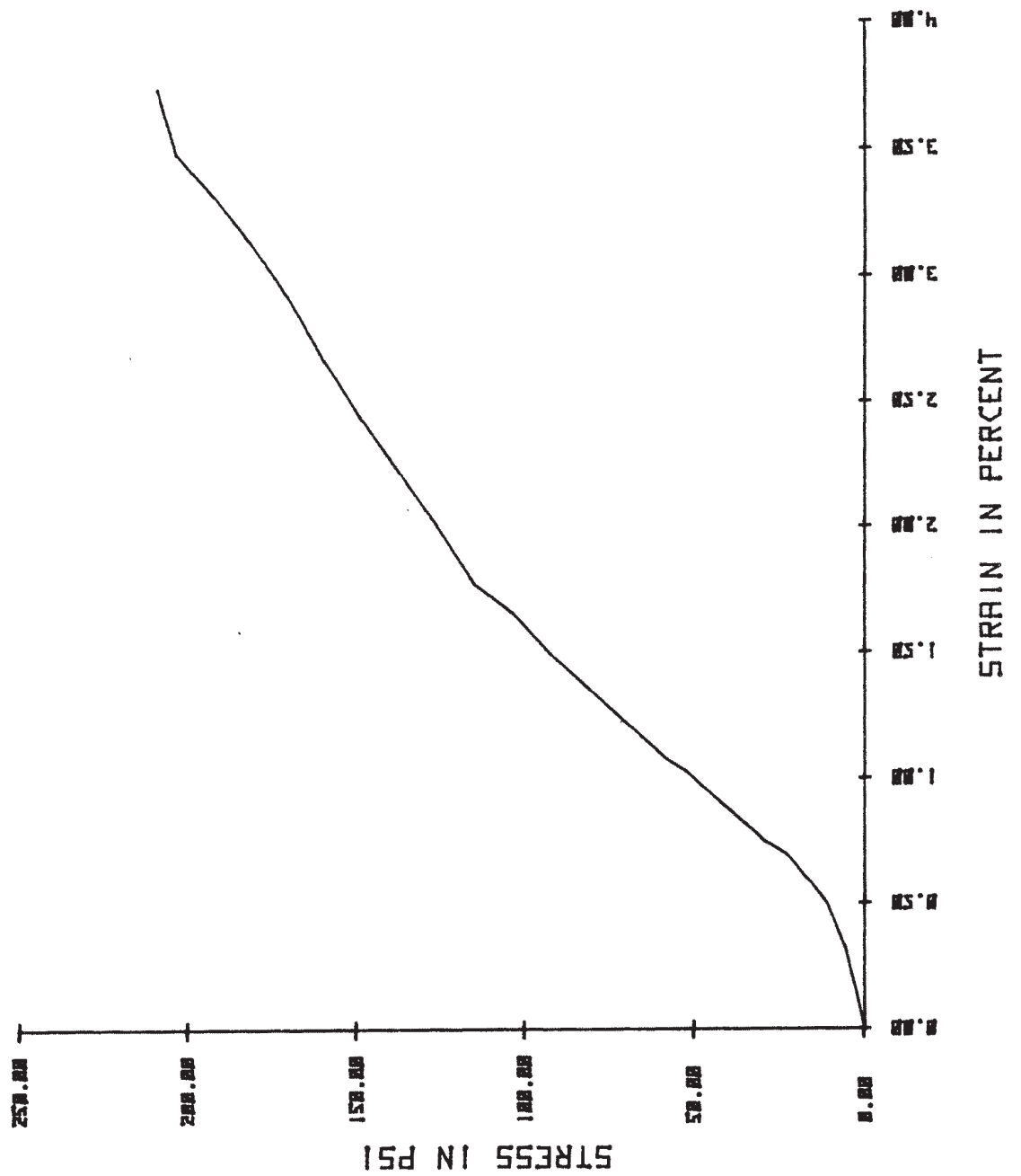
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FIGURE 2.5.4-1



BORING NO.: P-10 DEPTH: 48.7-49.8  
YOUNG'S MODULUS OF ELASTICITY= 7143 PSI

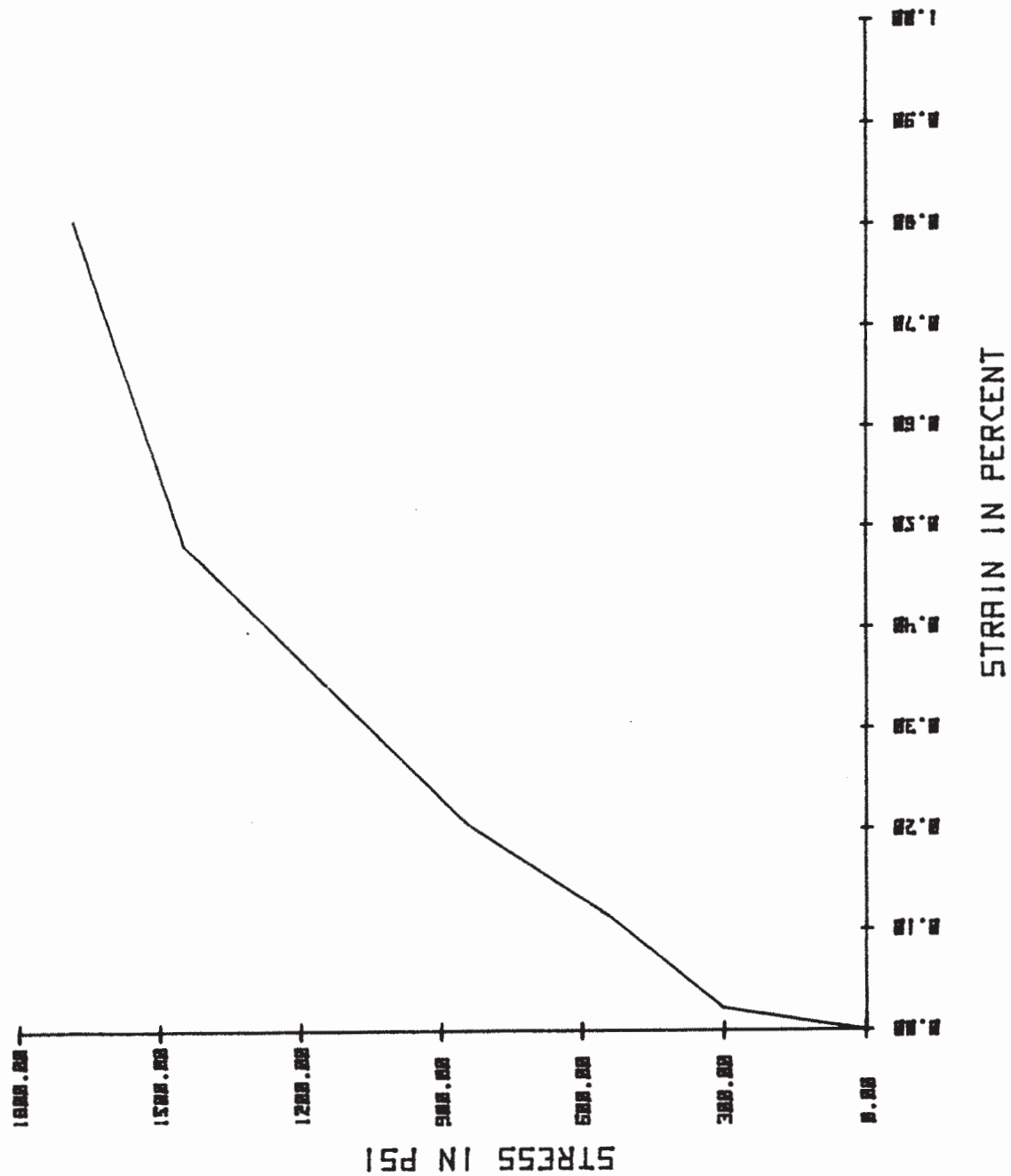


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FIGURE 2.5.4-1

BORING NO.: P-10 DEPTH: 54.6-56.1  
YOUNG'S MODULUS OF ELASTICITY= 500000 PSI

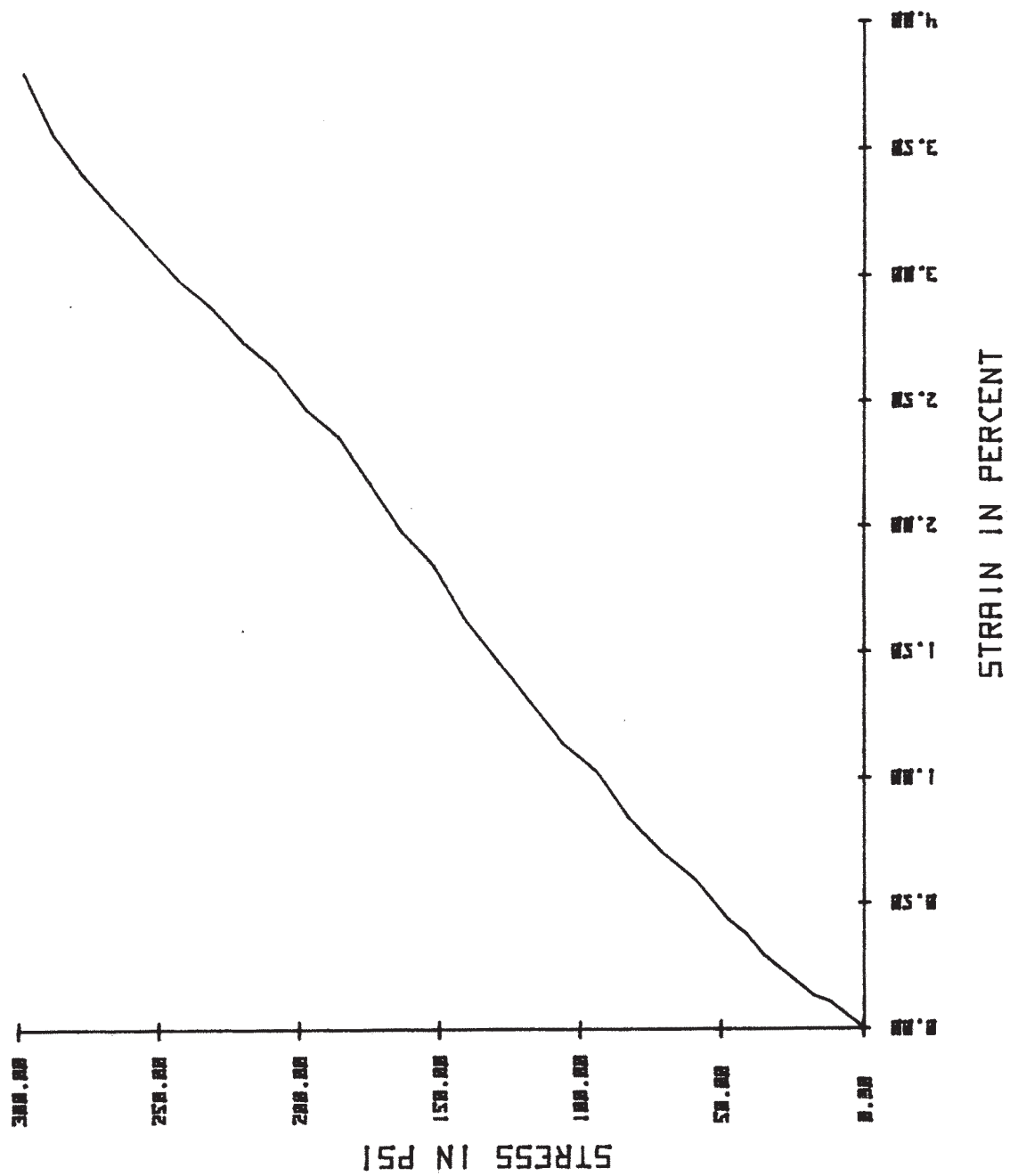


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FIGURE 2.5.4-1

BORING NO.: P-10 DEPTH: 58.5-59.4  
YOUNG'S MODULUS OF ELASTICITY= 8500 PSI

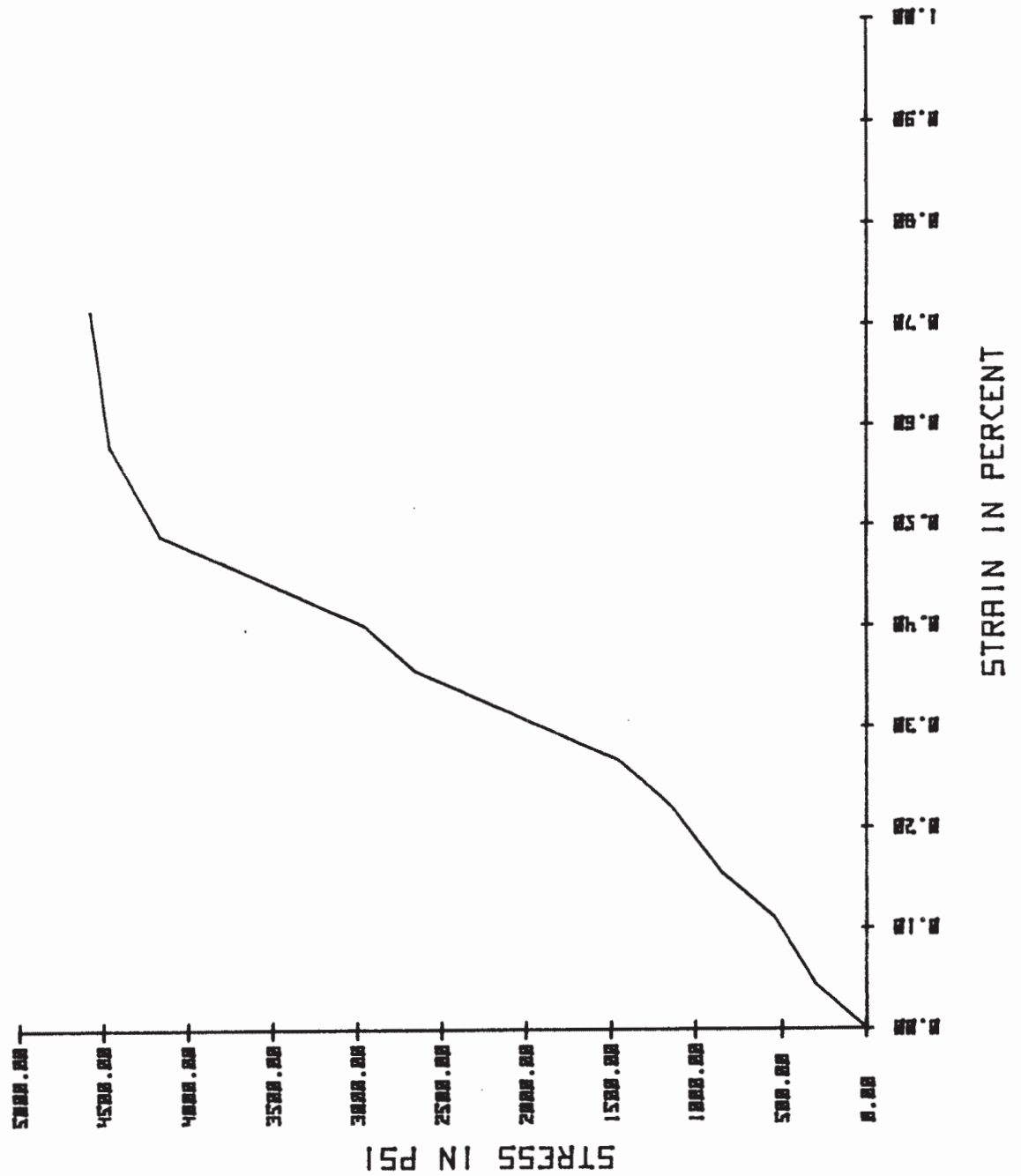


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FIGURE 2.5.4-1

BORING NO.: P-10 DEPTH: 74.6-76.0  
 YOUNG'S MODULUS OF ELASTICITY=  $1E+06$  PSI



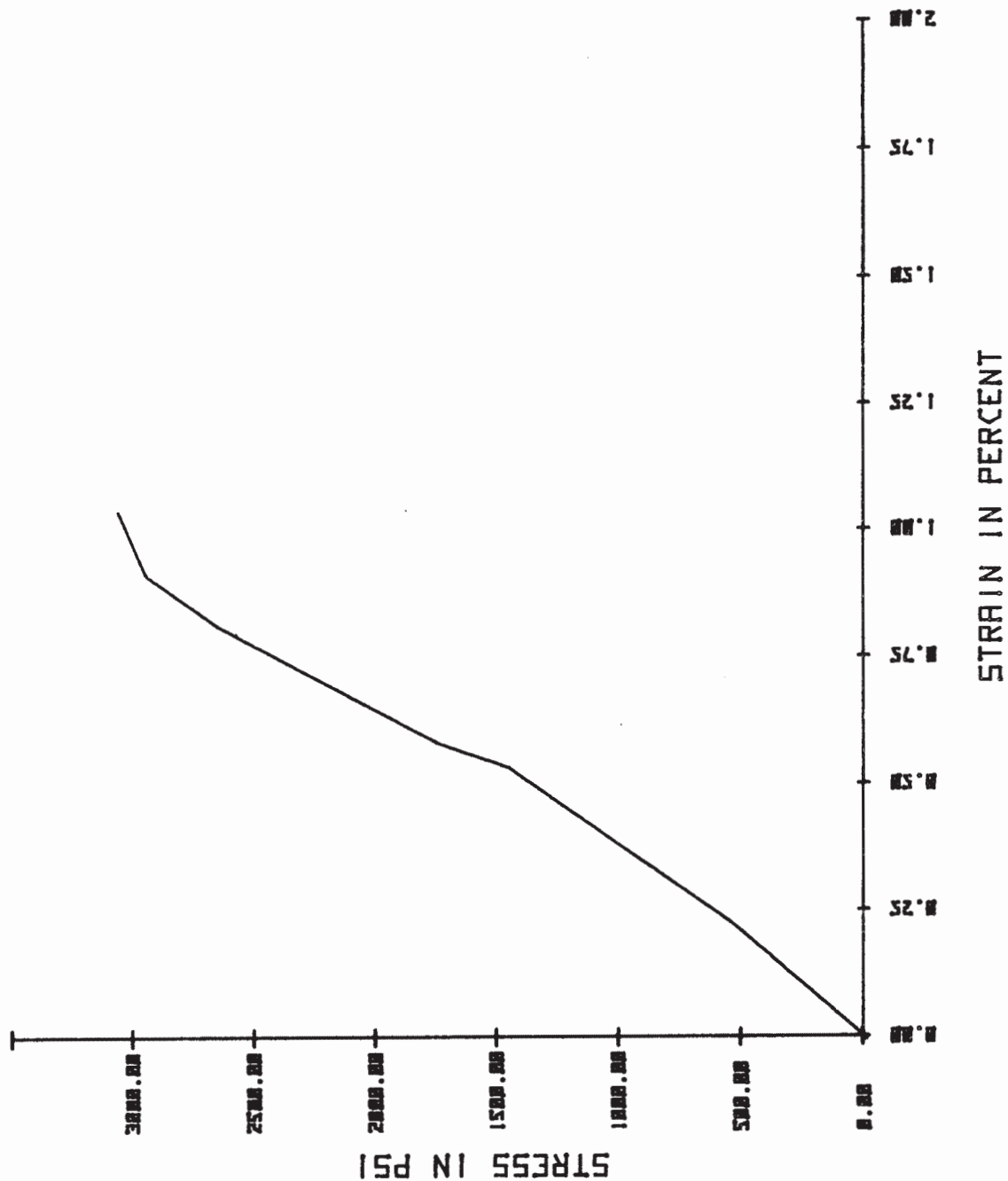
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FIGURE 2.5.4-1



BORING NO.: P-10 DEPTH: 77.3-78.0  
YOUNG'S MODULUS OF ELASTICITY= 500000 PSI

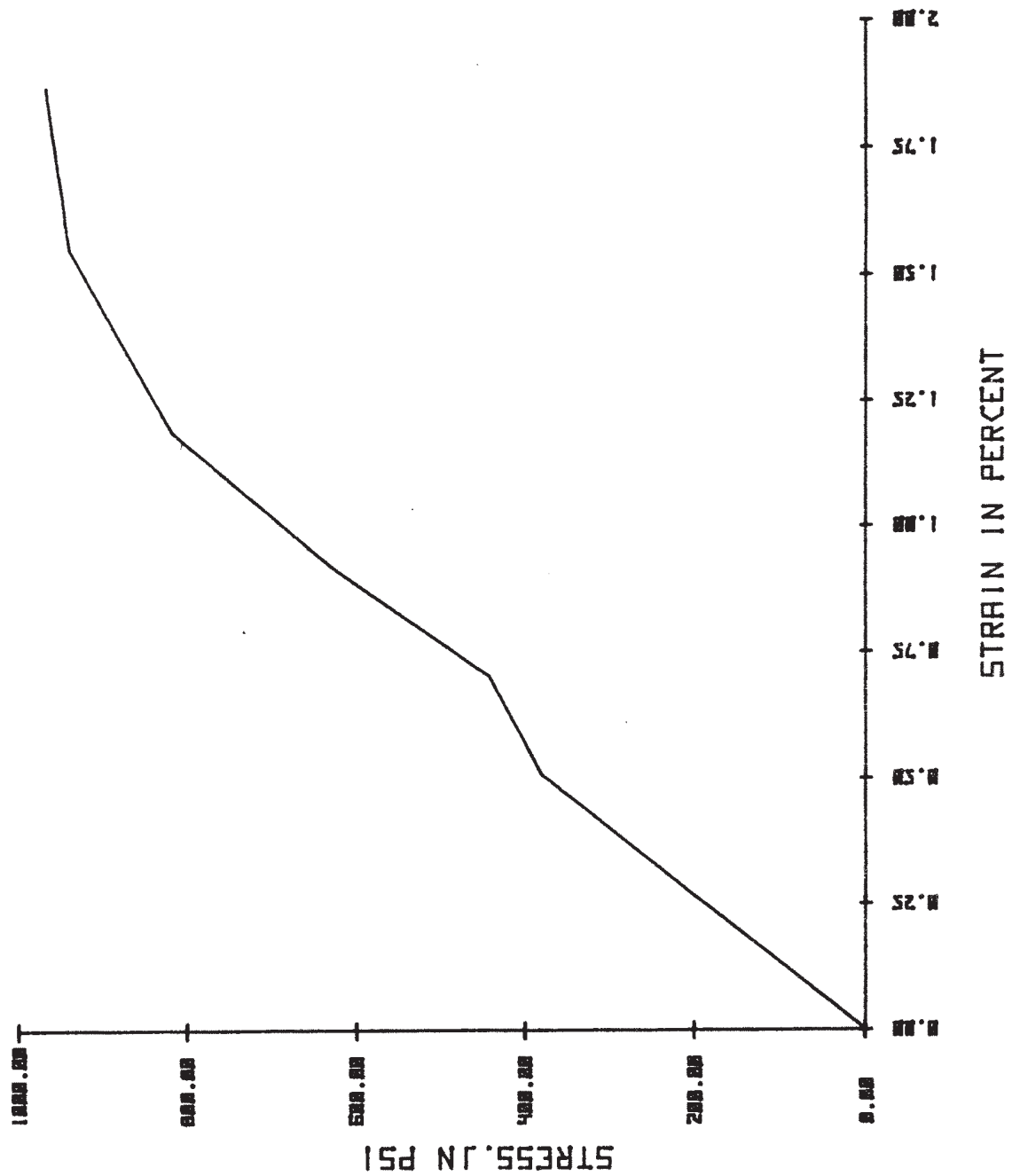


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FIGURE 2.5.4-1

BORING NO.: P-11 DEPTH: 26.2-27.7  
 YOUNG'S MODULUS OF ELASTICITY= 56000 PSI

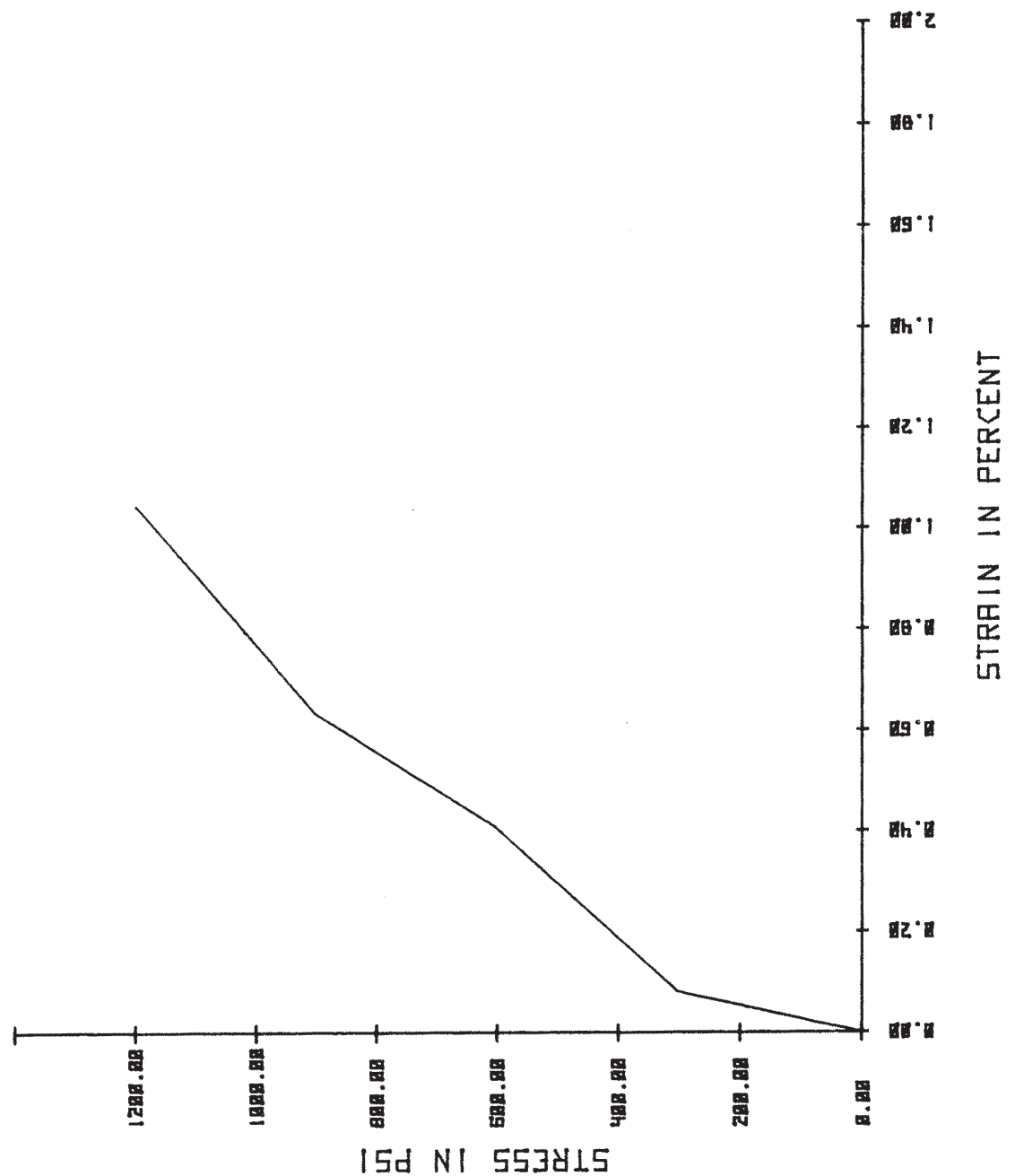


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FIGURE 2.5.4-1

BORING NO.: P-11 DEPTH: 34.8-35.8  
 YOUNG'S MODULUS OF ELASTICITY= 160000 PSI

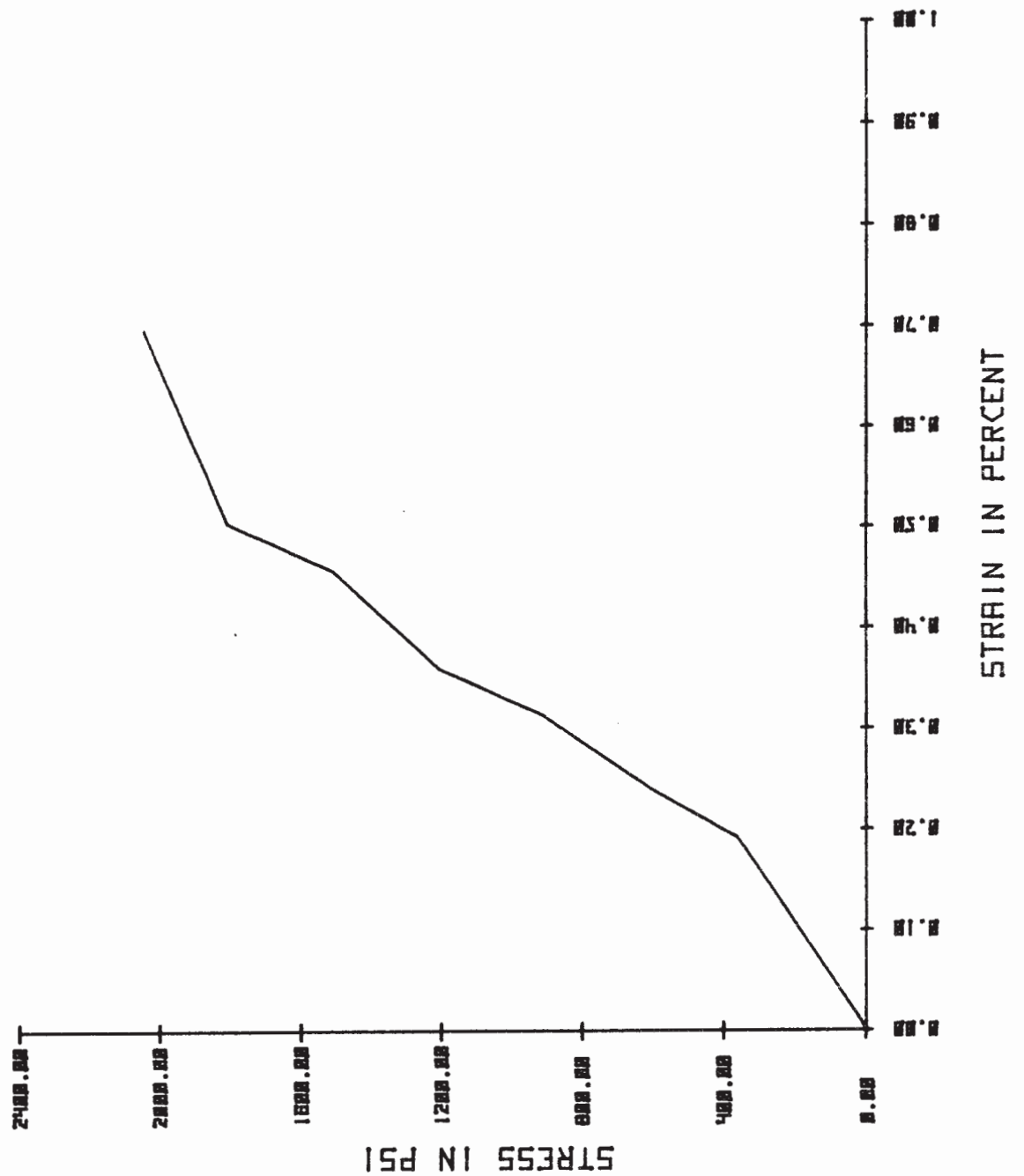


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FIGURE 2.5.4-1

BORING NO.: P-11 DEPTH: 36.3-37.1  
YOUNG'S MODULUS OF ELASTICITY= 454545 PSI

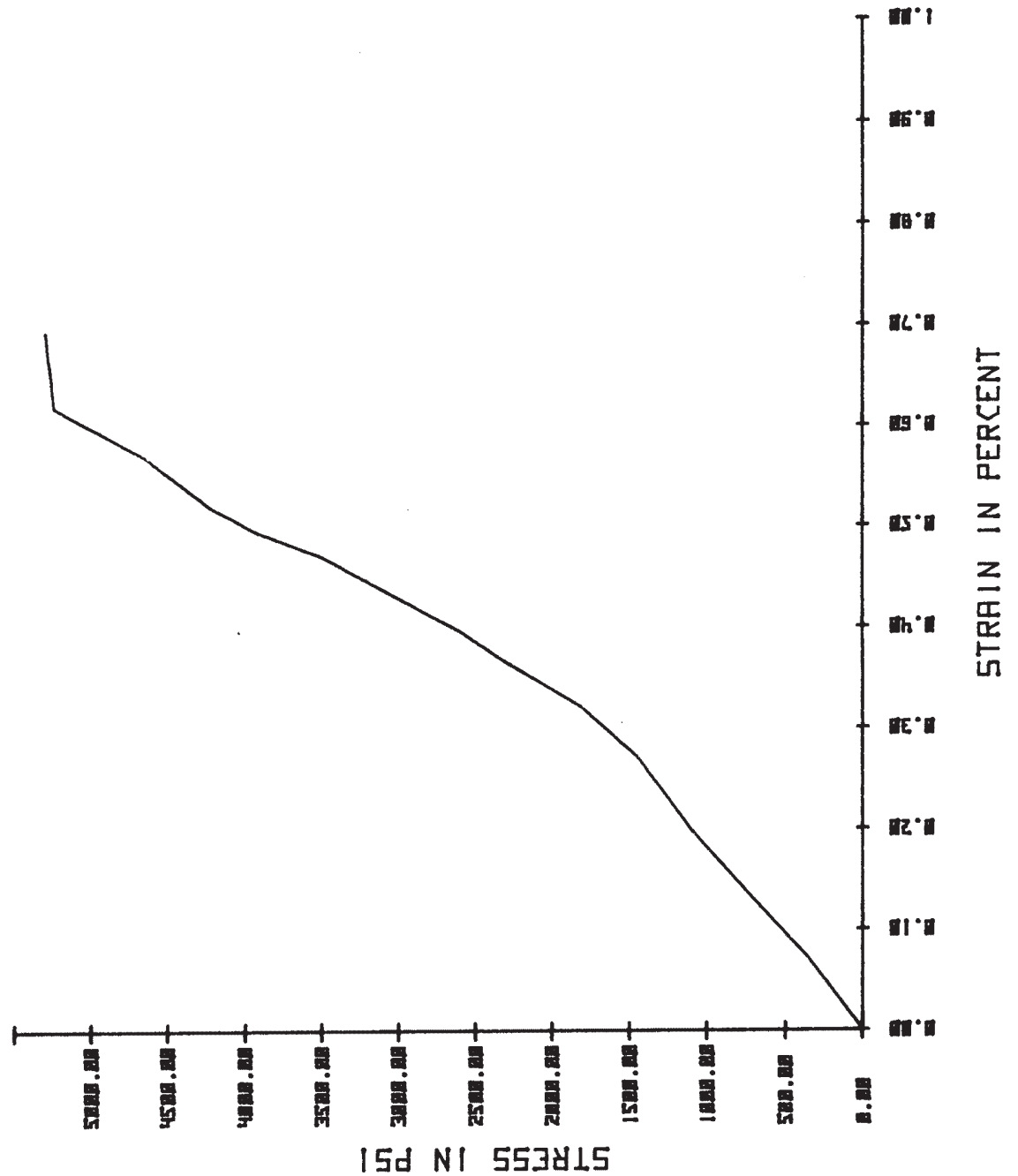


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FIGURE 2.5.4-1

BORING NO.: P-11 DEPTH: 54.3-55.3  
 YOUNG'S MODULUS OF ELASTICITY= 1E+06 PSI

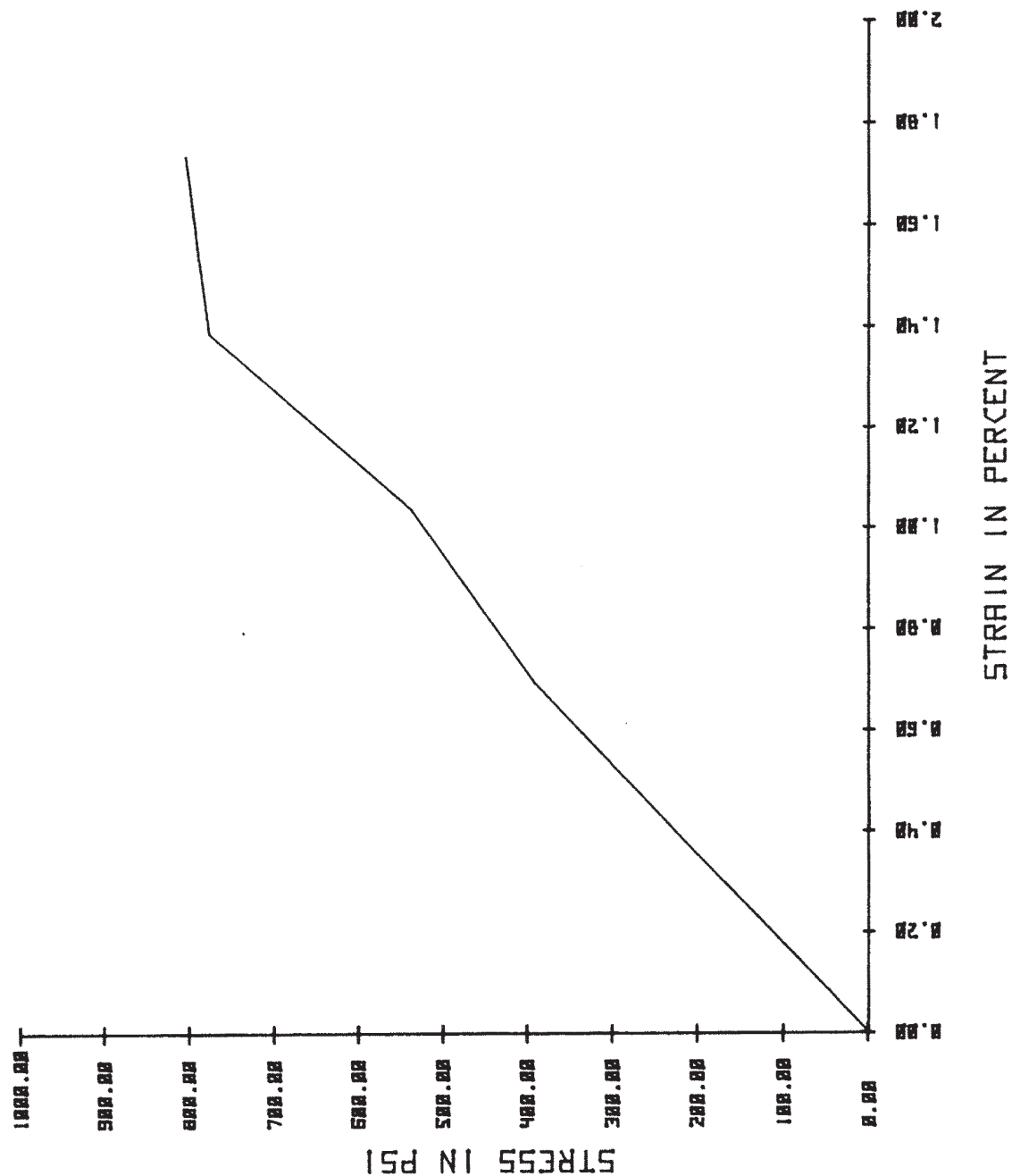


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FIGURE 2.5.4-1

BORING NO.: P-11 DEPTH: 61.2-62.0  
 YOUNG'S MODULUS OF ELASTICITY= 60000 PSI

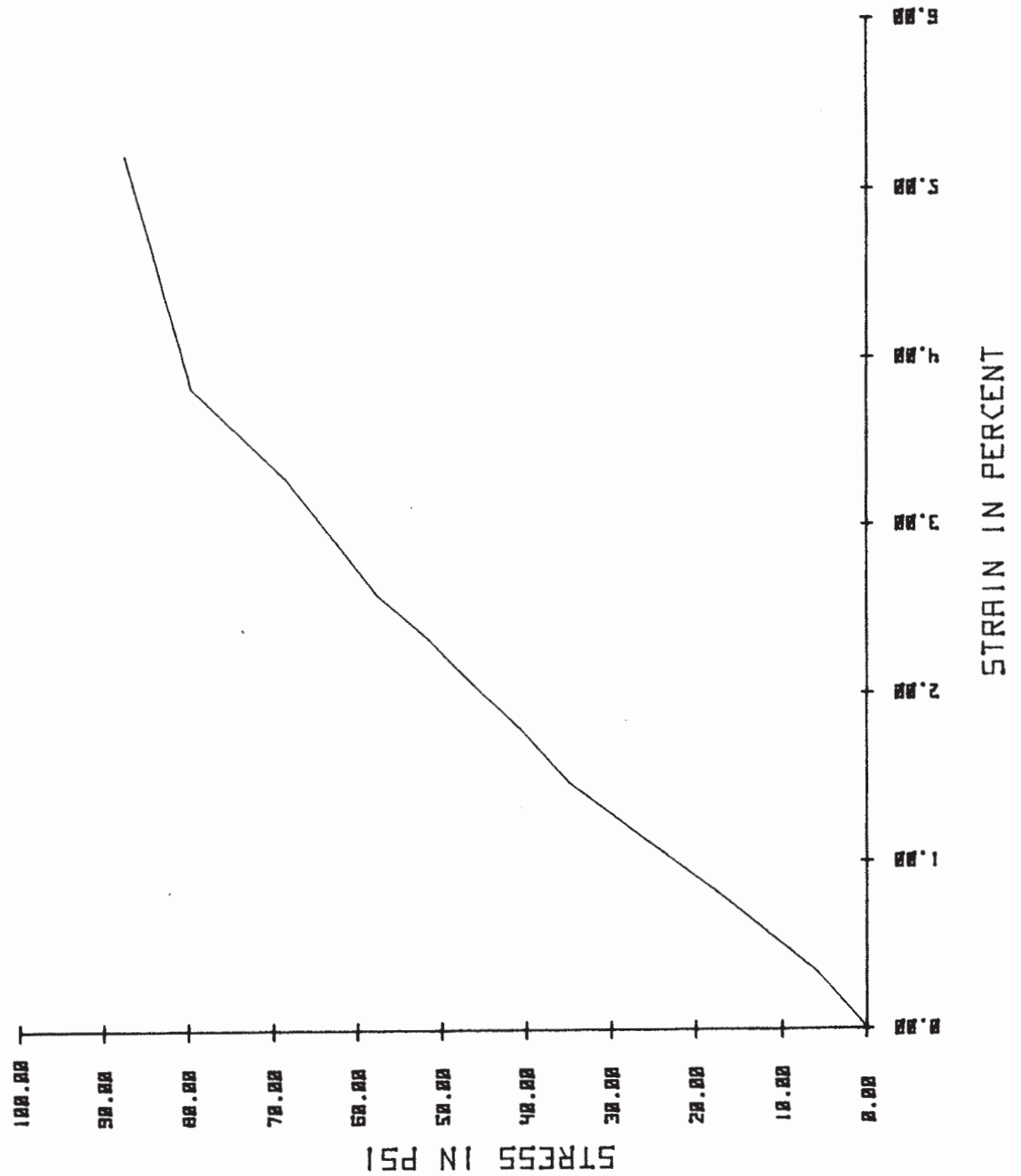


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FIGURE 2.5.4-1

BORING NO.: P-13 DEPTH: 13.5-14.1  
YOUNG'S MODULUS OF ELASTICITY= 2400 PSI

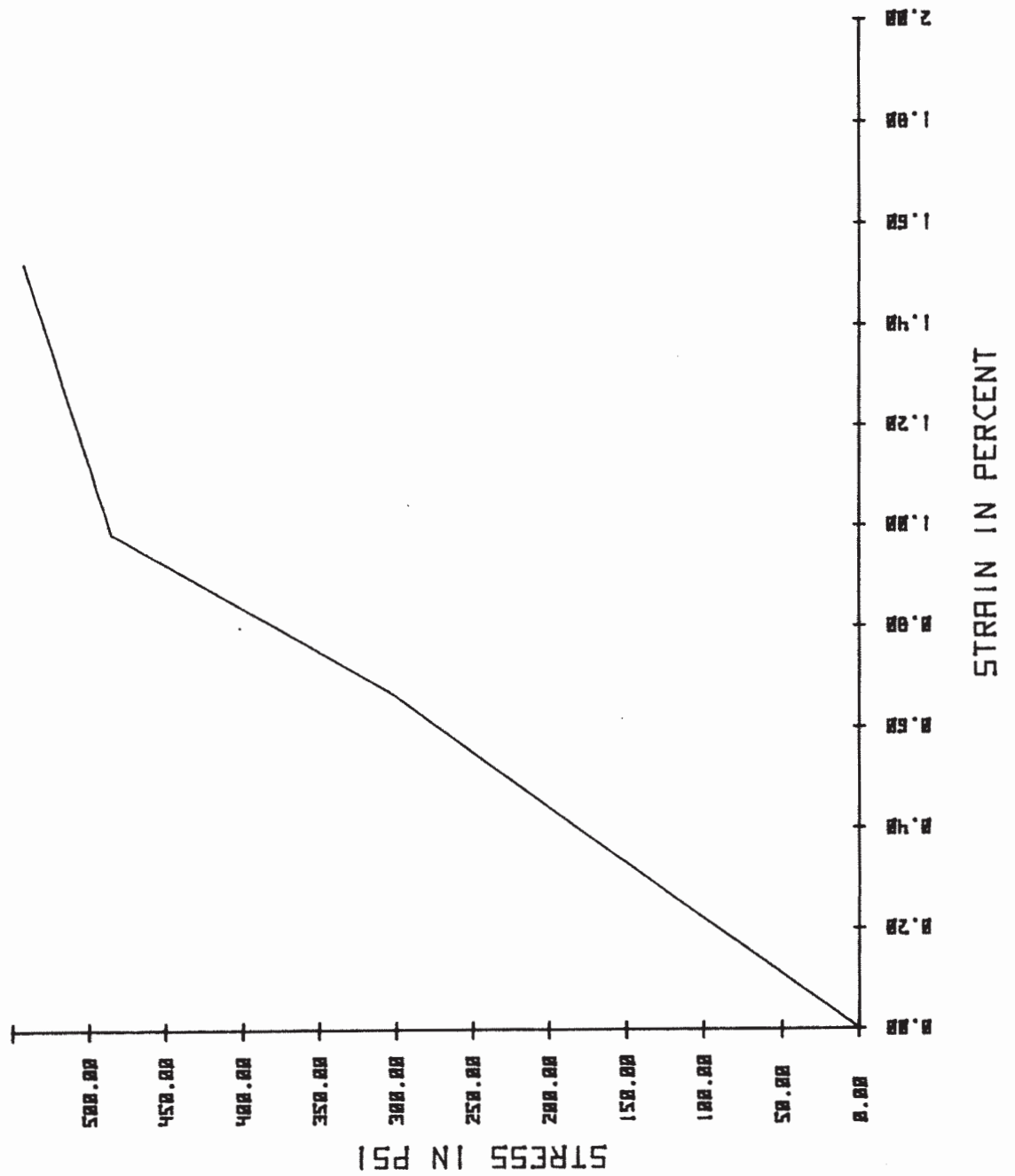


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FIGURE 2.5.4-1

BORING NO.: P-13 DEPTH: 28.5-29.1  
 YOUNG'S MODULUS OF ELASTICITY= 44000 PSI



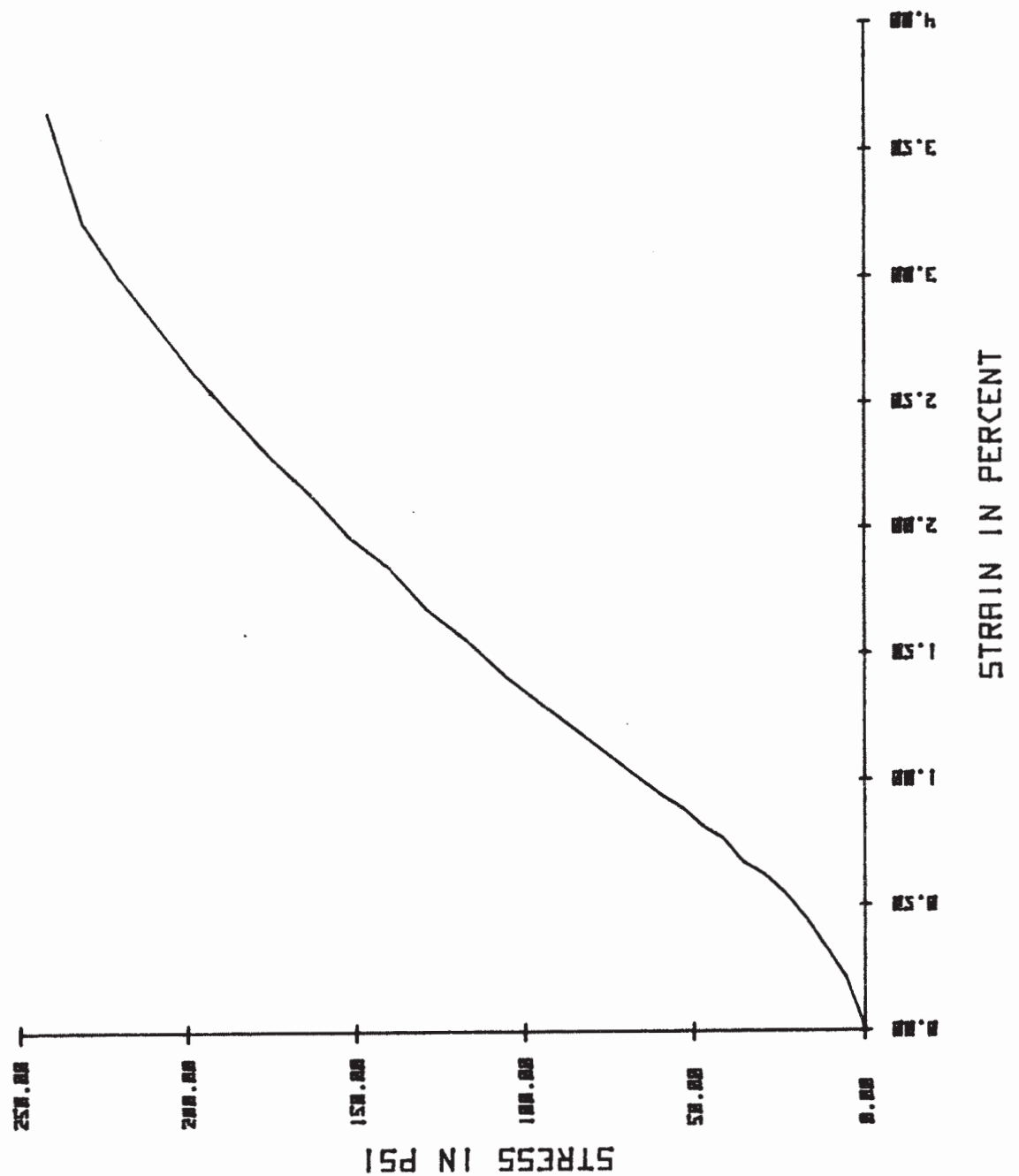
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STRAIN-STRESS PLOT  
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FIGURE 2.5.4-1



BORING NO.: P-14 DEPTH: 68.0-68.7  
YOUNG'S MODULUS OF ELASTICITY= 9000 PSI

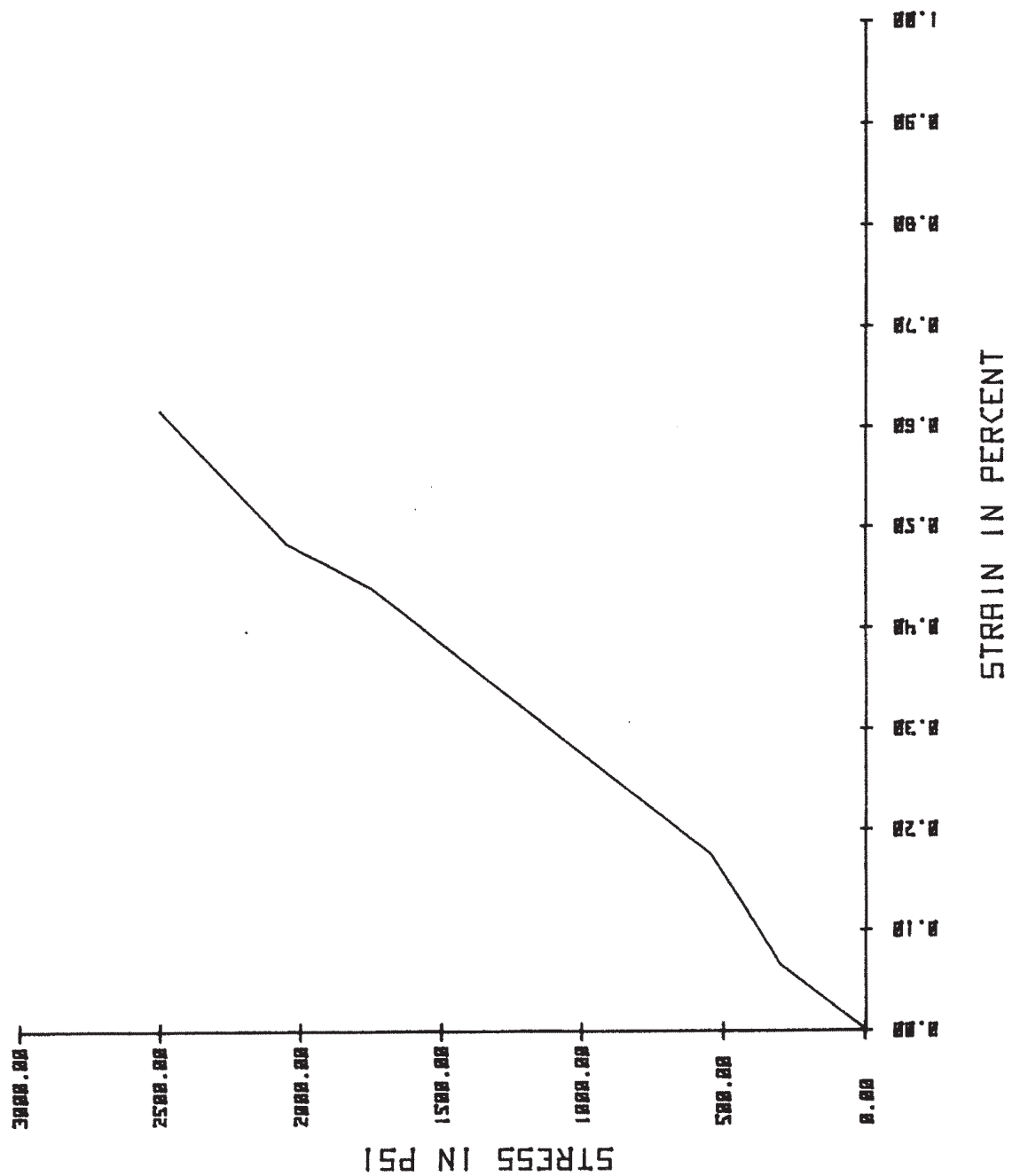


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UNITS 1 and 2

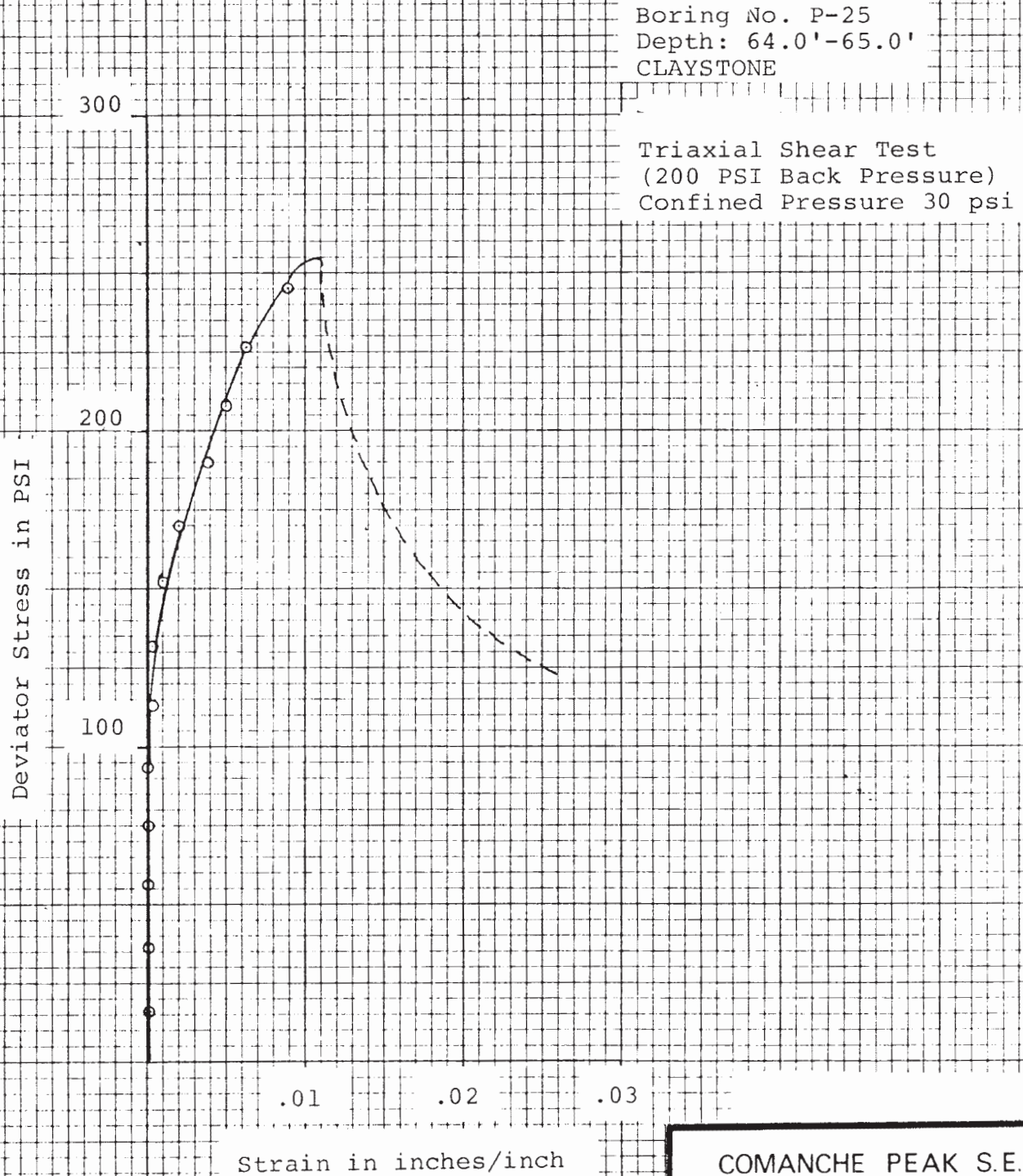
STRAIN-STRESS PLOT  
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FIGURE 2.5.4-1

BORING NO.: P-16 DEPTH: 25.2-26.0  
 YOUNG'S MODULUS OF ELASTICITY= 500000 PSI



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 STRAIN-STRESS PLOT  
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 FIGURE 2.5.4-1



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UNITS 1 and 2

TYPICAL STRESS-STRAIN CURVE  
CLAYSTONE

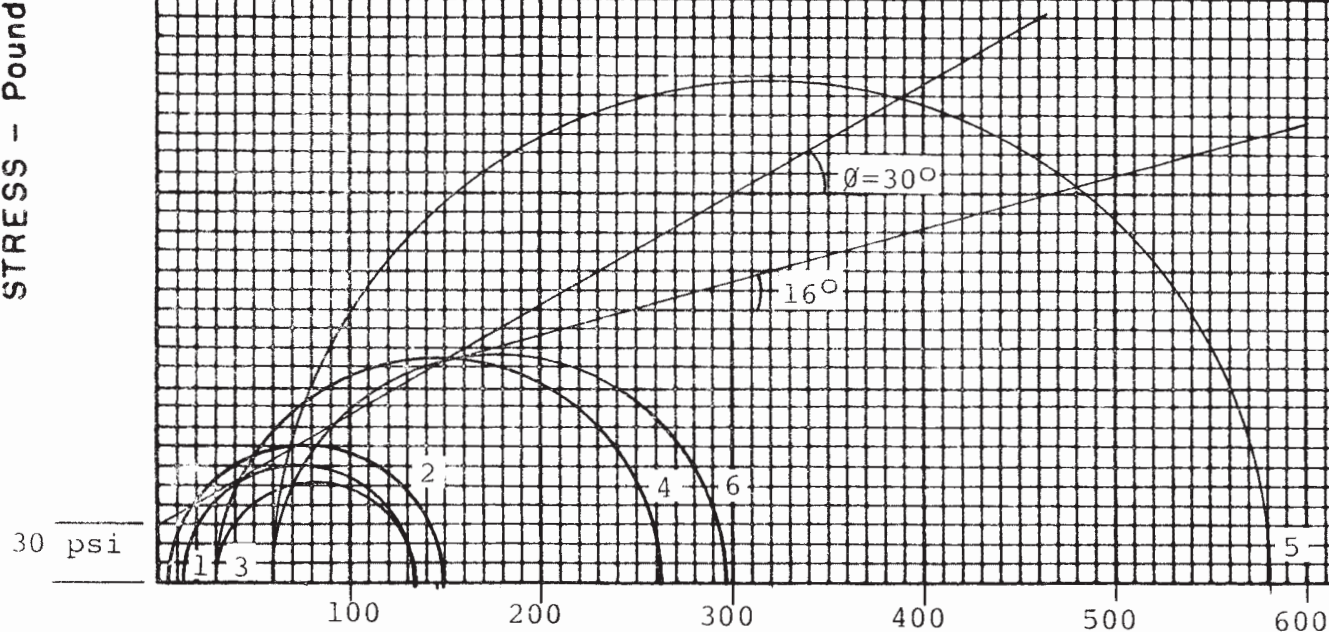
FIGURE 2.5.4-2



STRESS - Pounds/Square Inch

Samples Saturated With 200  
PSI Back Pressure  
Saturated, Undrained Test  
CLAYSTONE

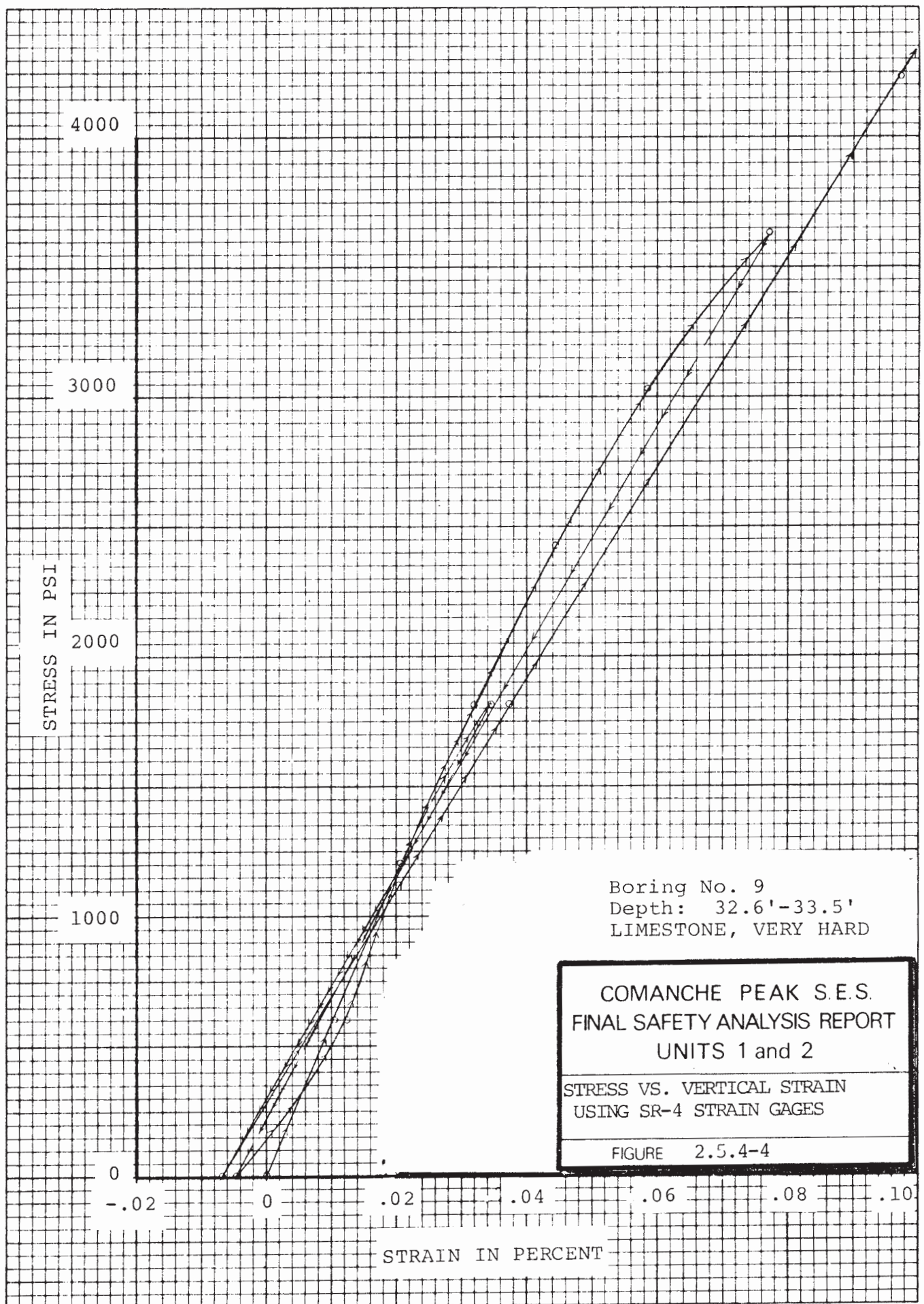
MOHR STRESS DIAGRAM



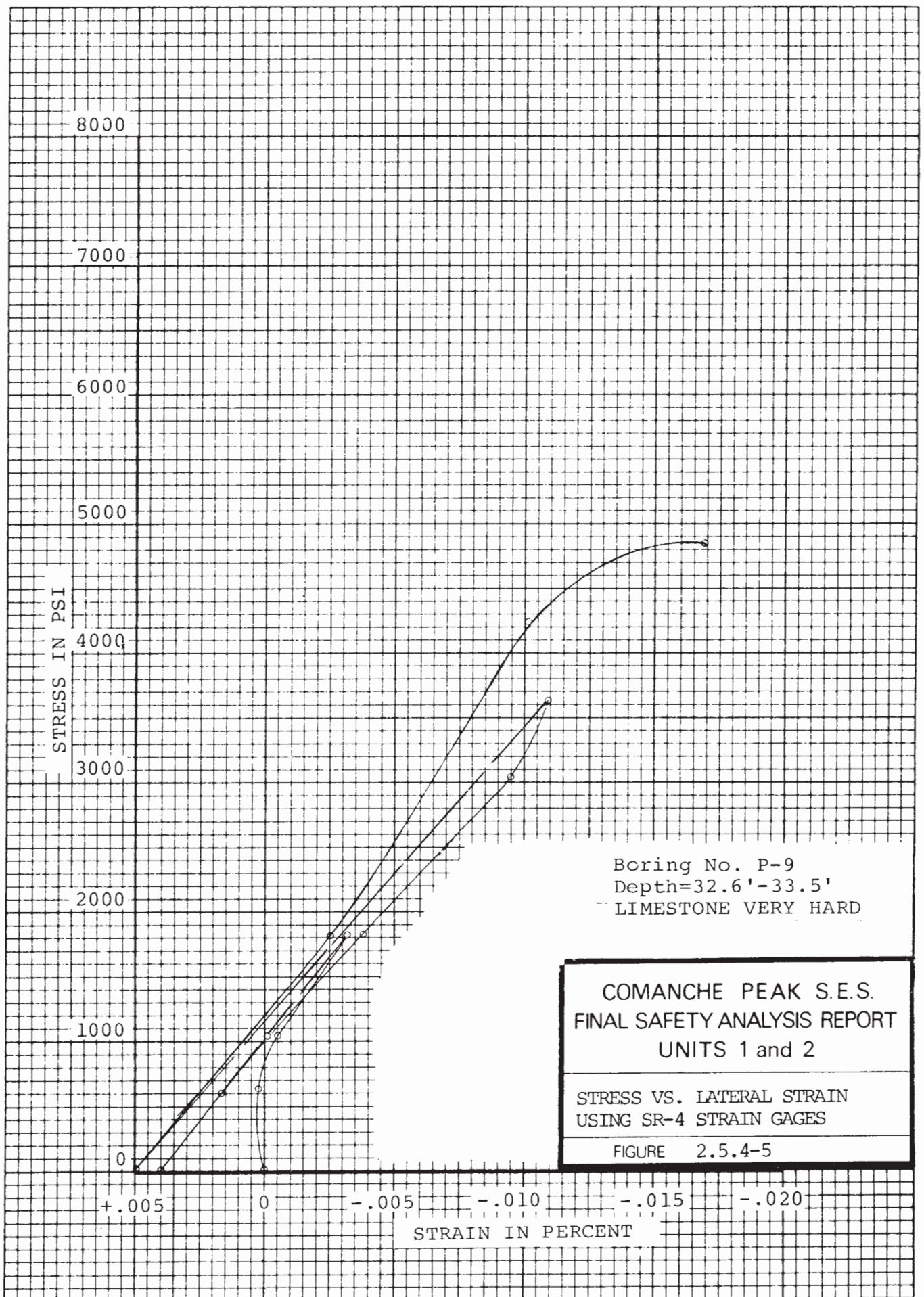
COMANCHE PEAK S.E.S.  
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UNITS 1 and 2

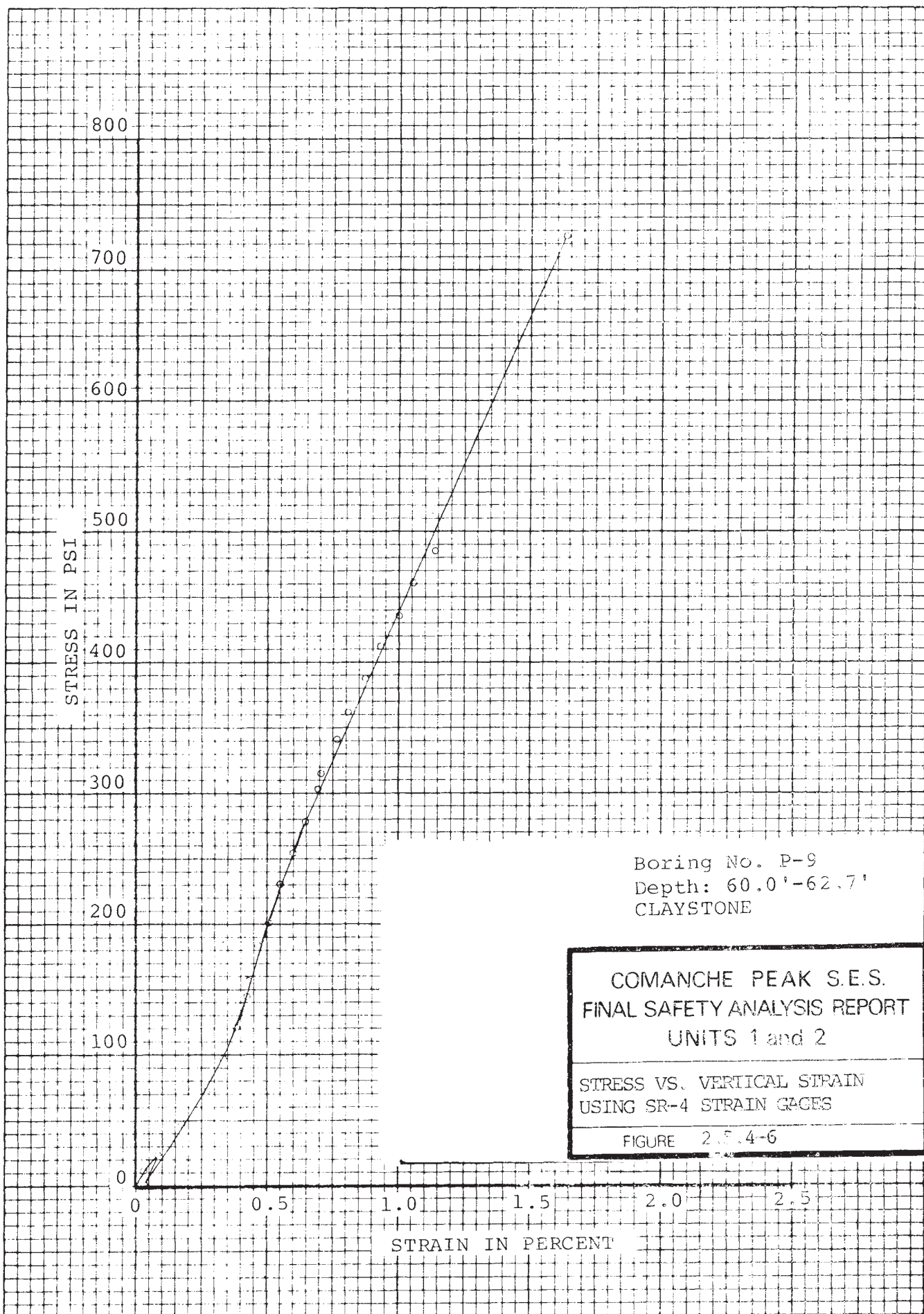
MOHR DEAGRAMS  
CLAYSTONE SAMPLES

FIGURE 2.5.4-3

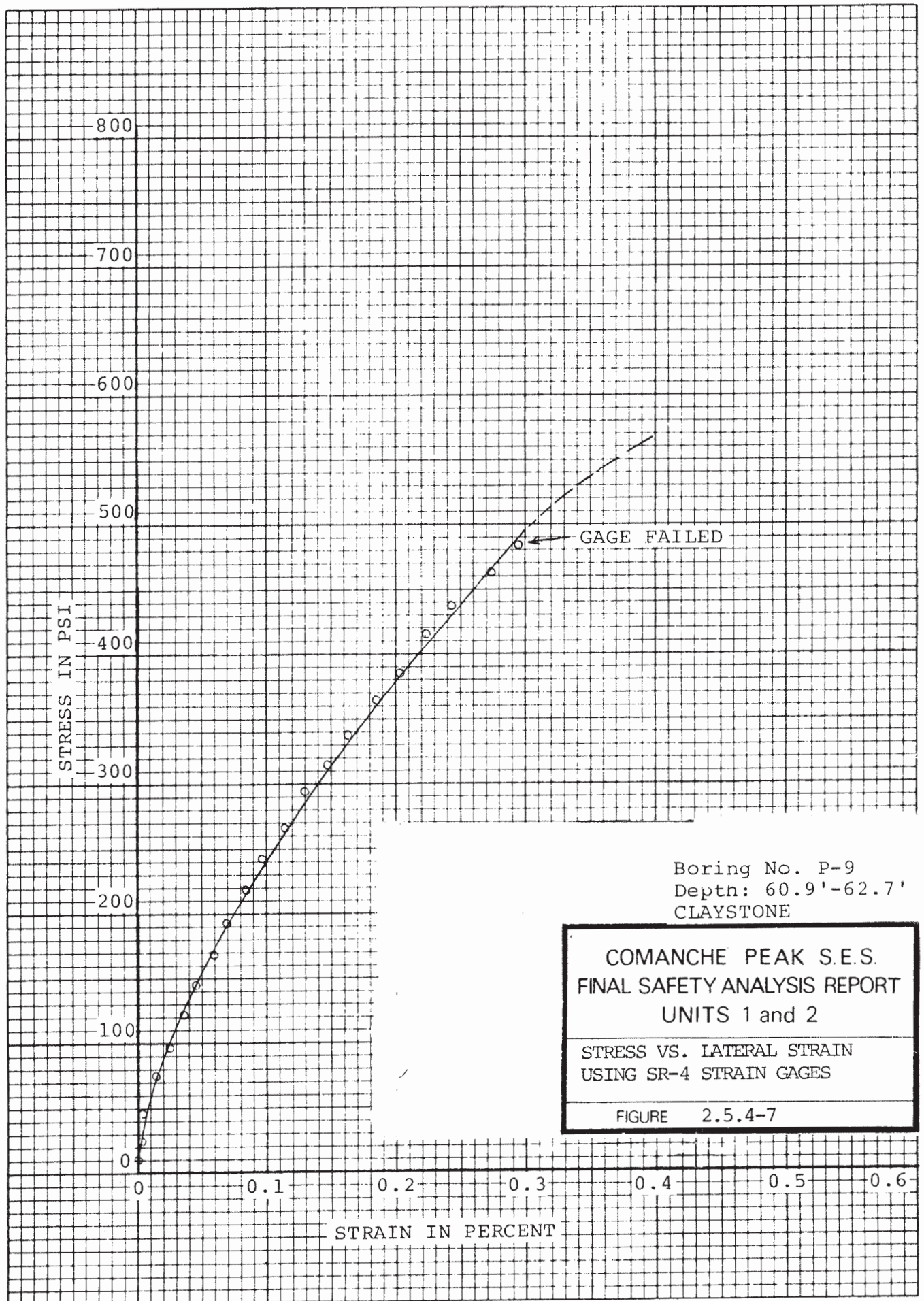




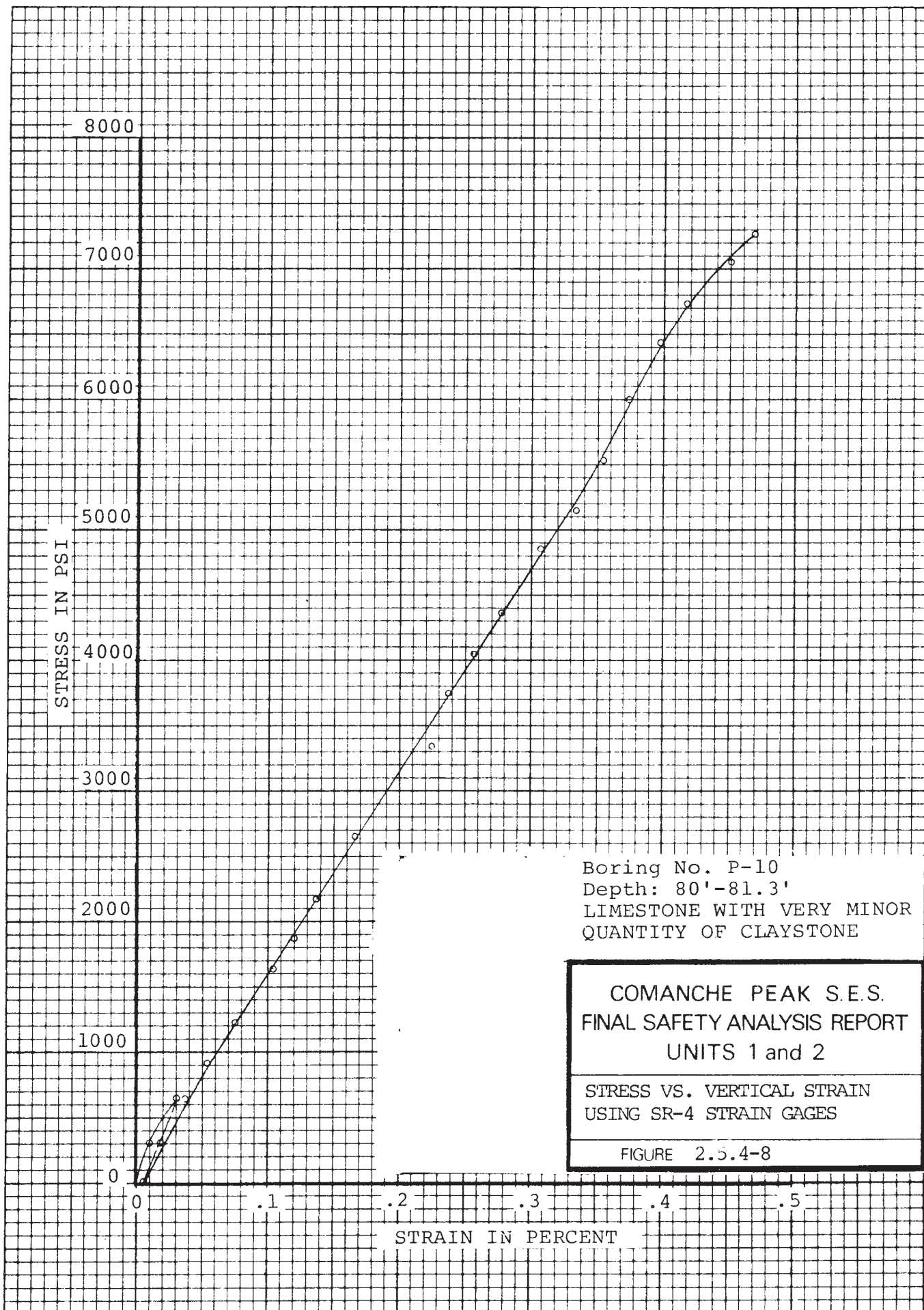


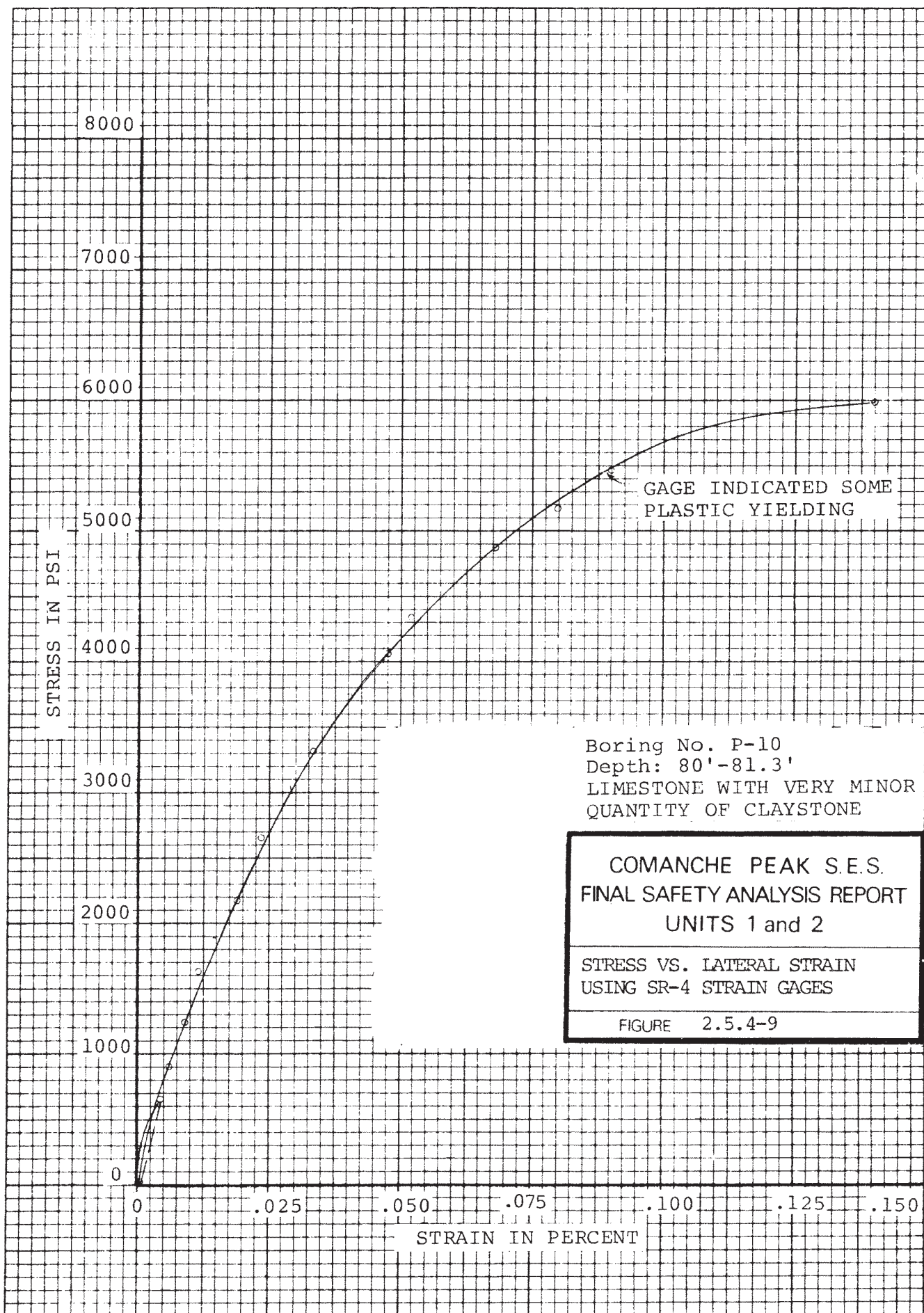


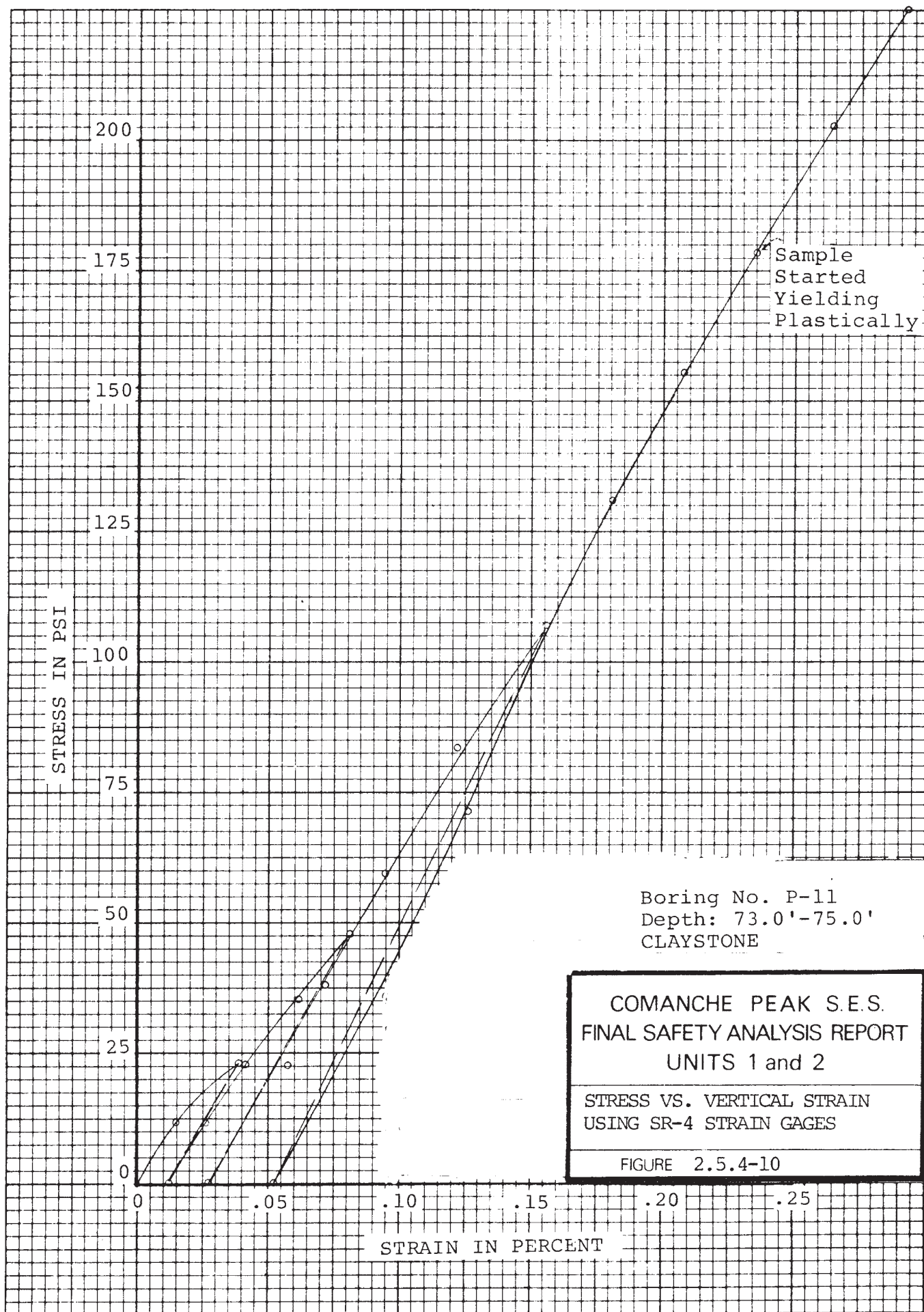




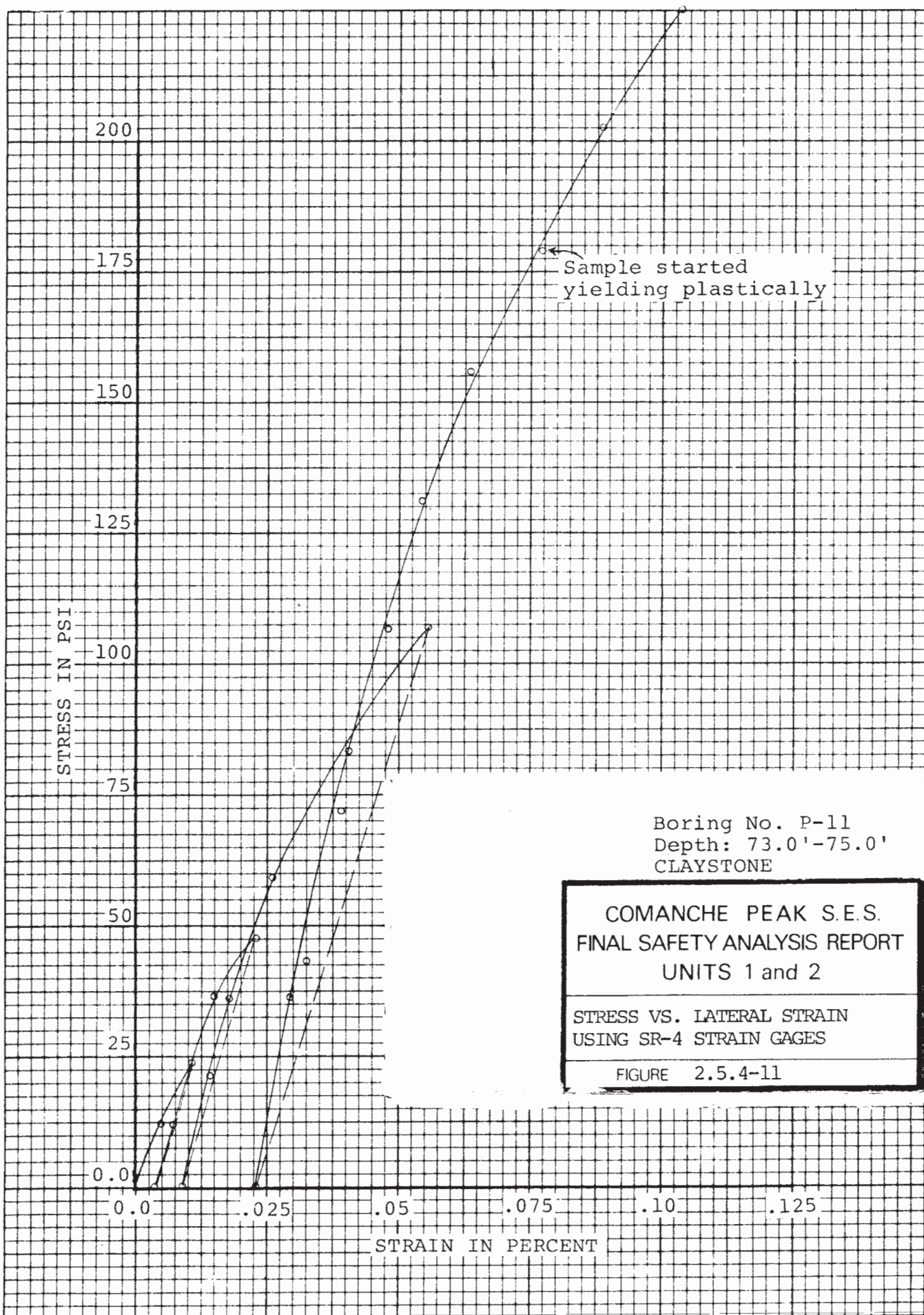


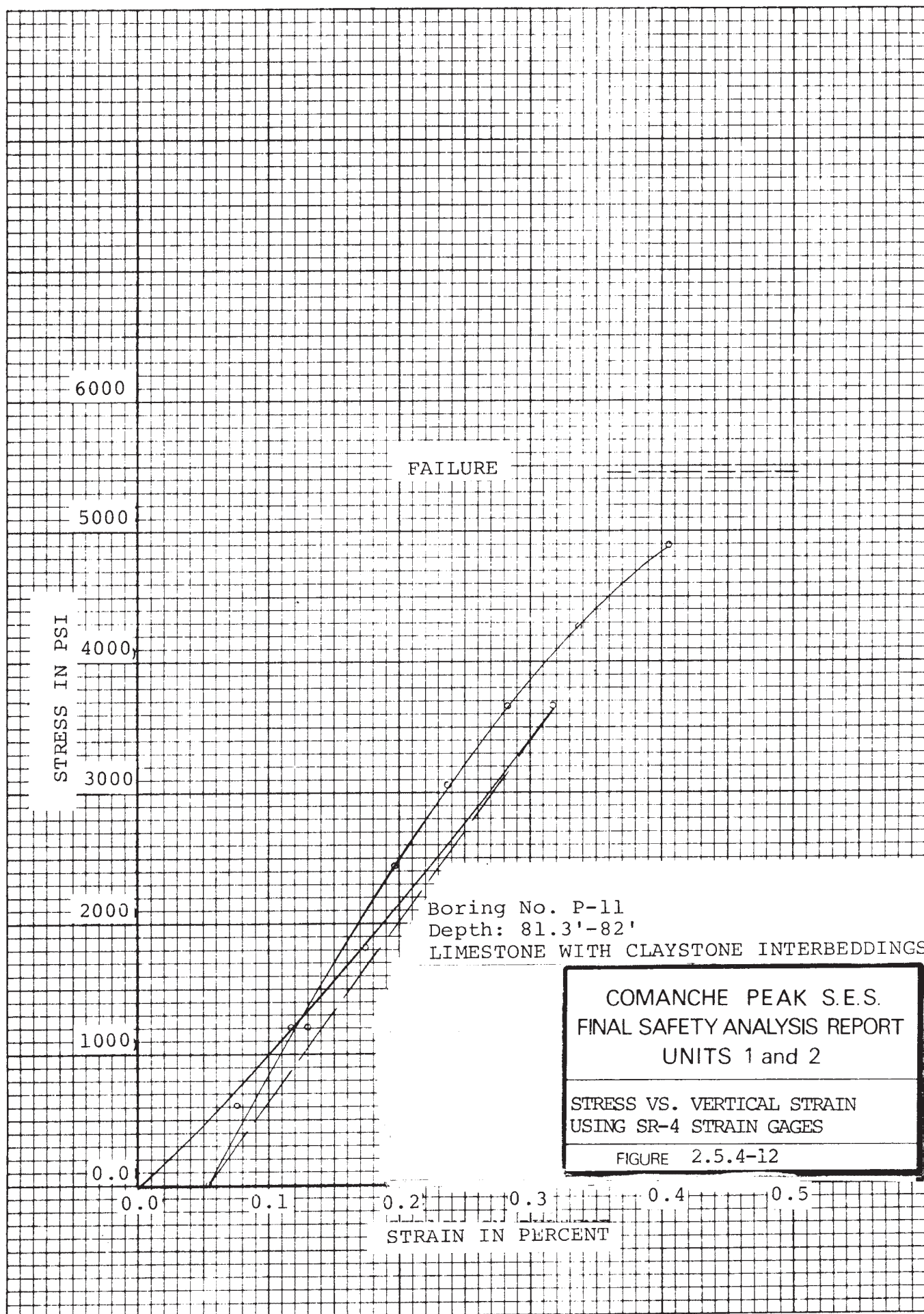




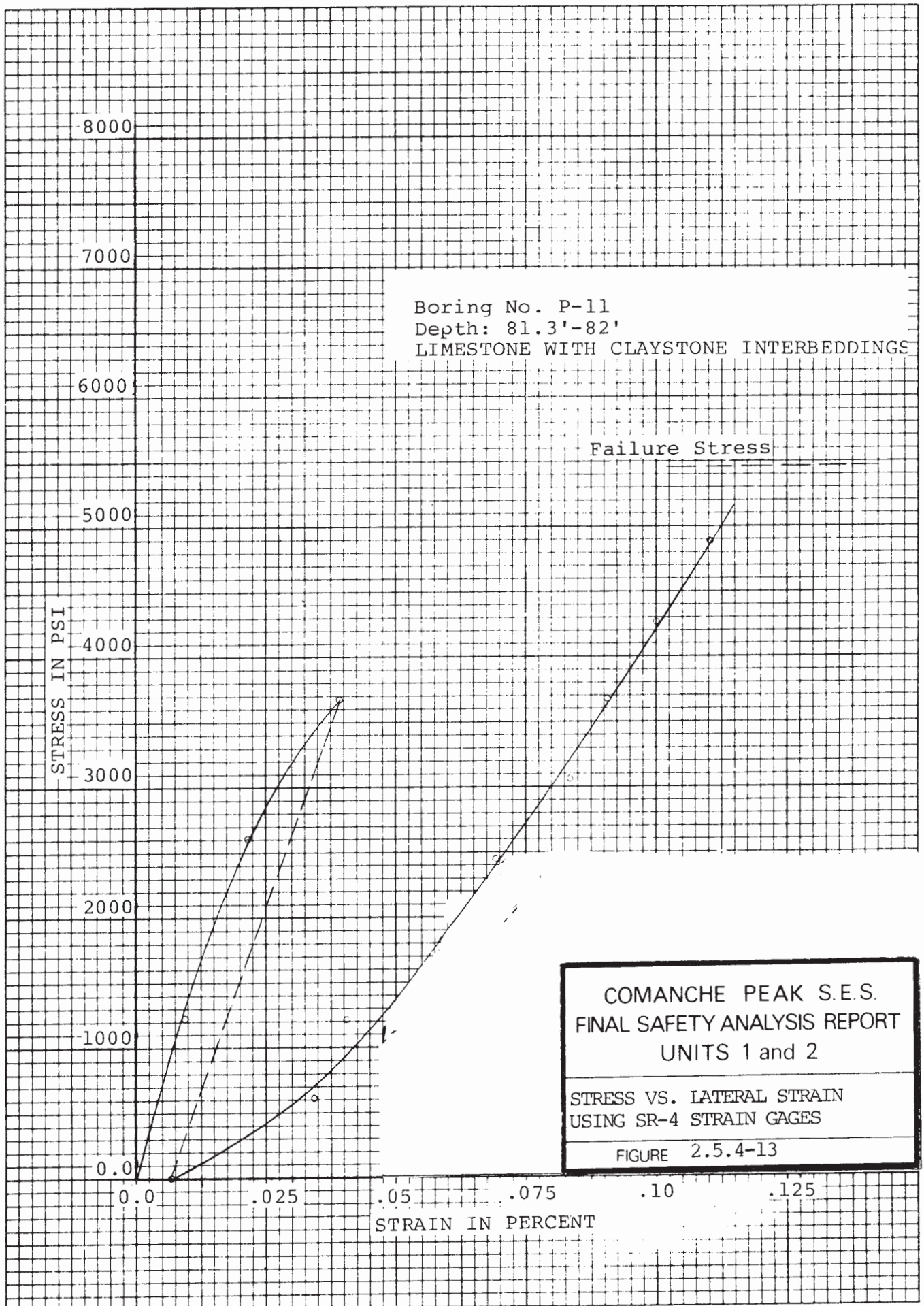




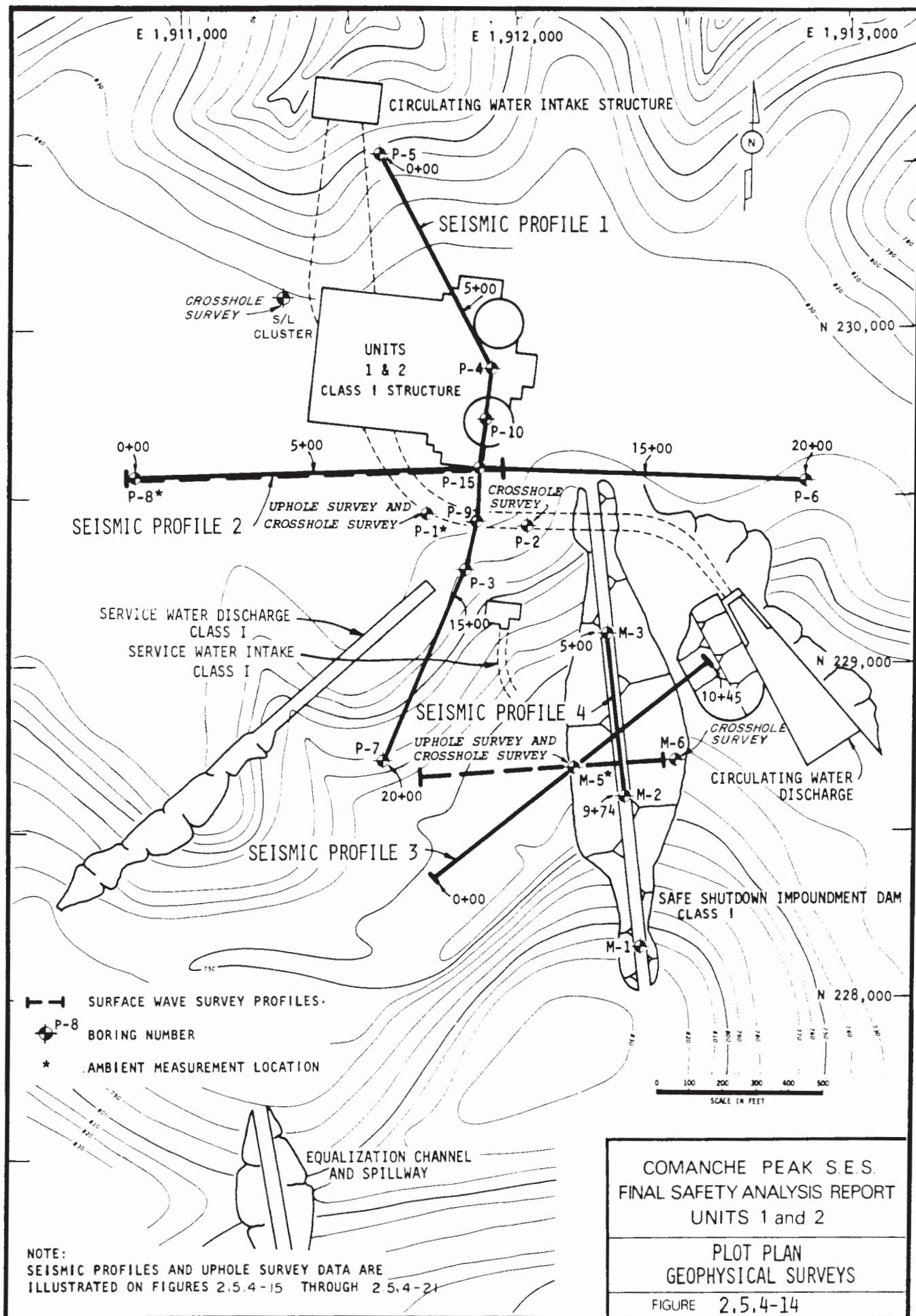


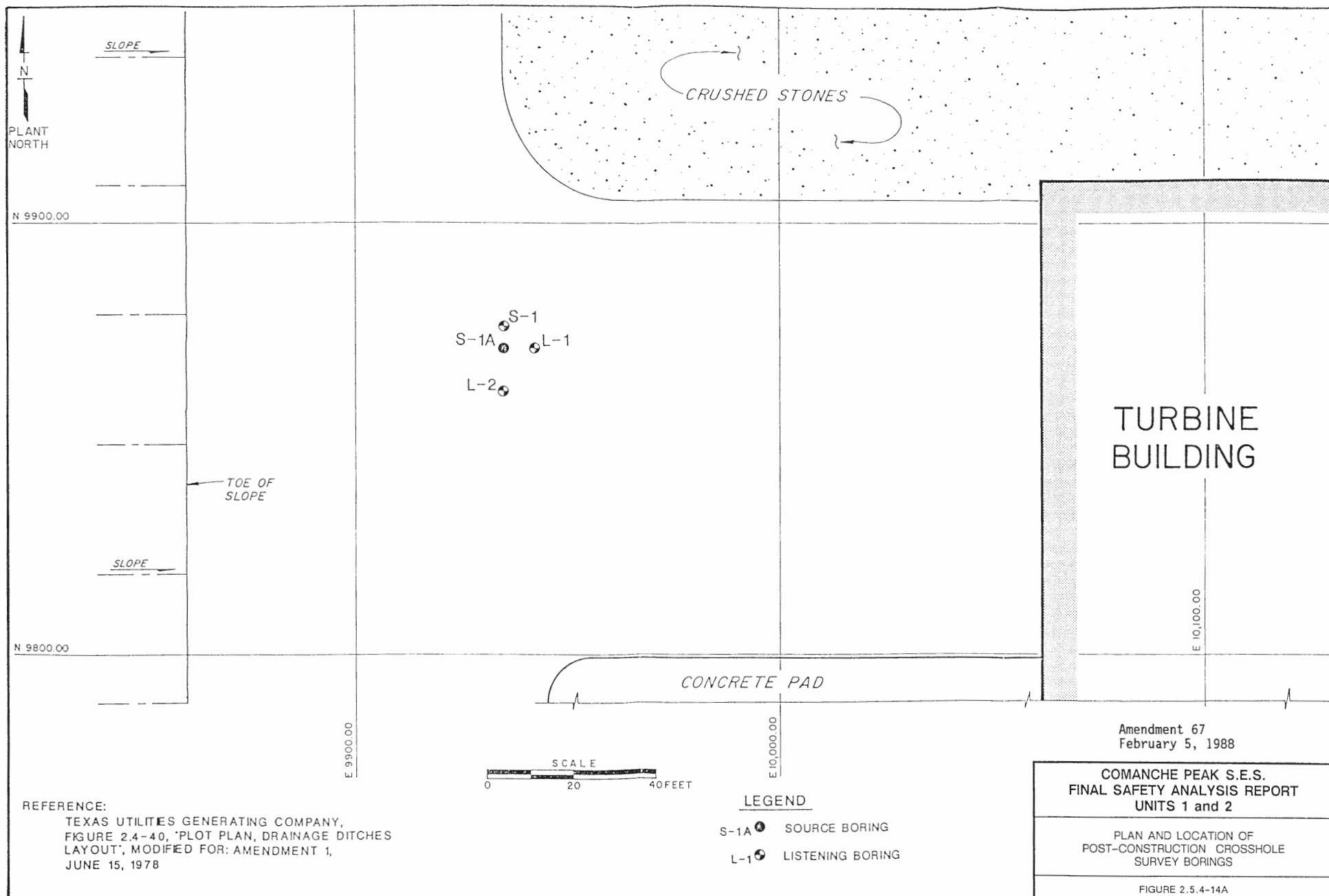






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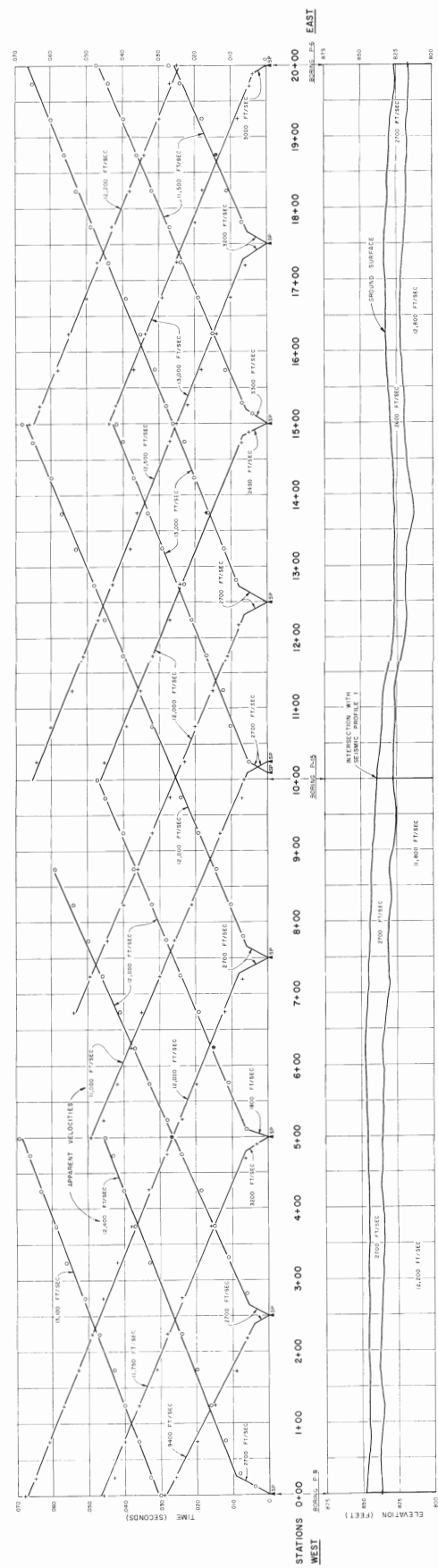




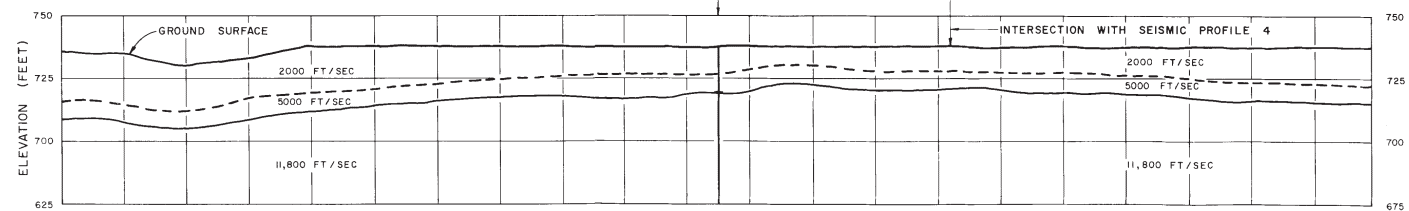
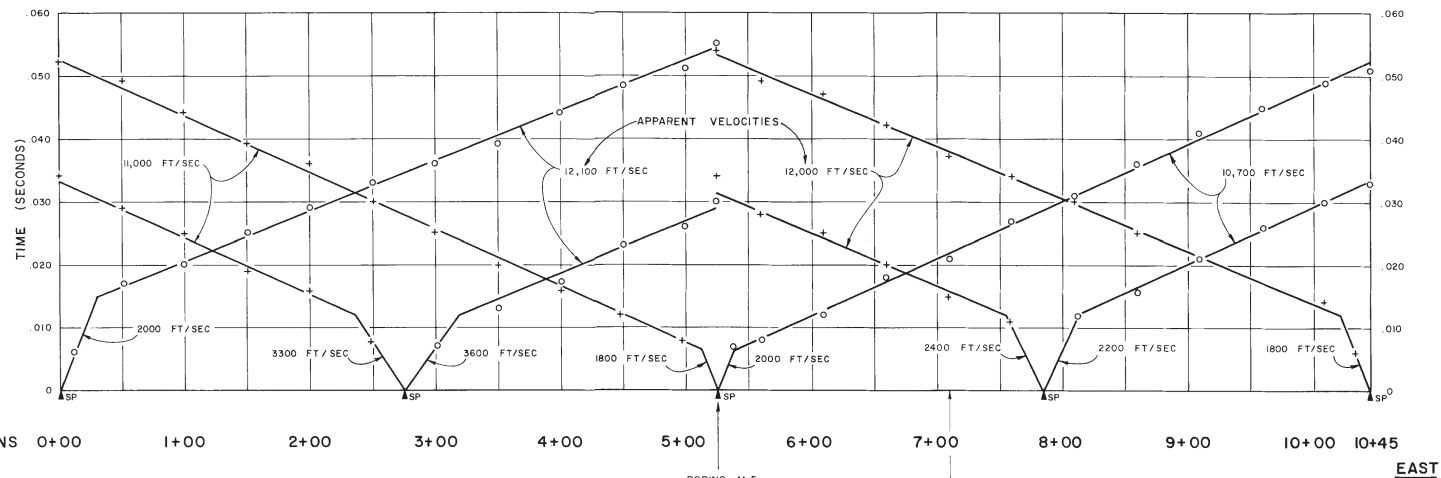


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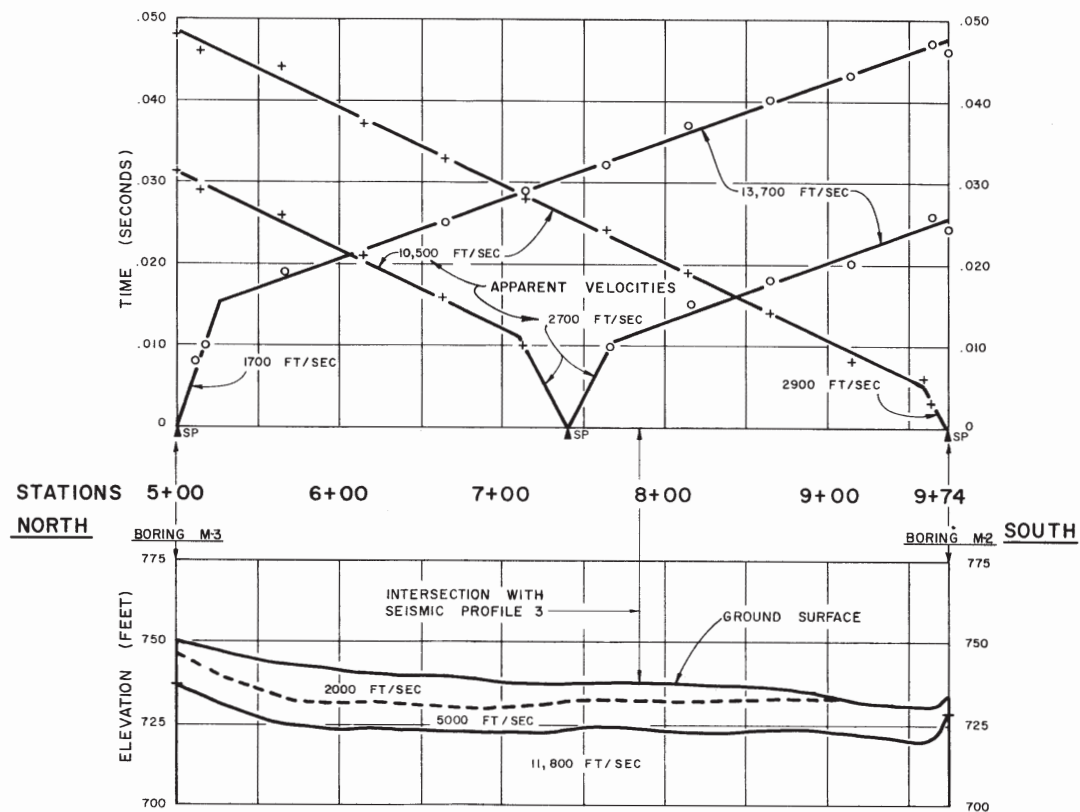
COMMANDER, PEAK, S.E.S.  
 FINAL SAFETY ANALYSIS REPORT  
 UNITS 1 and 2  
 SEISMIC PROFILE 2  
 FIGURE 2.5.4-3E



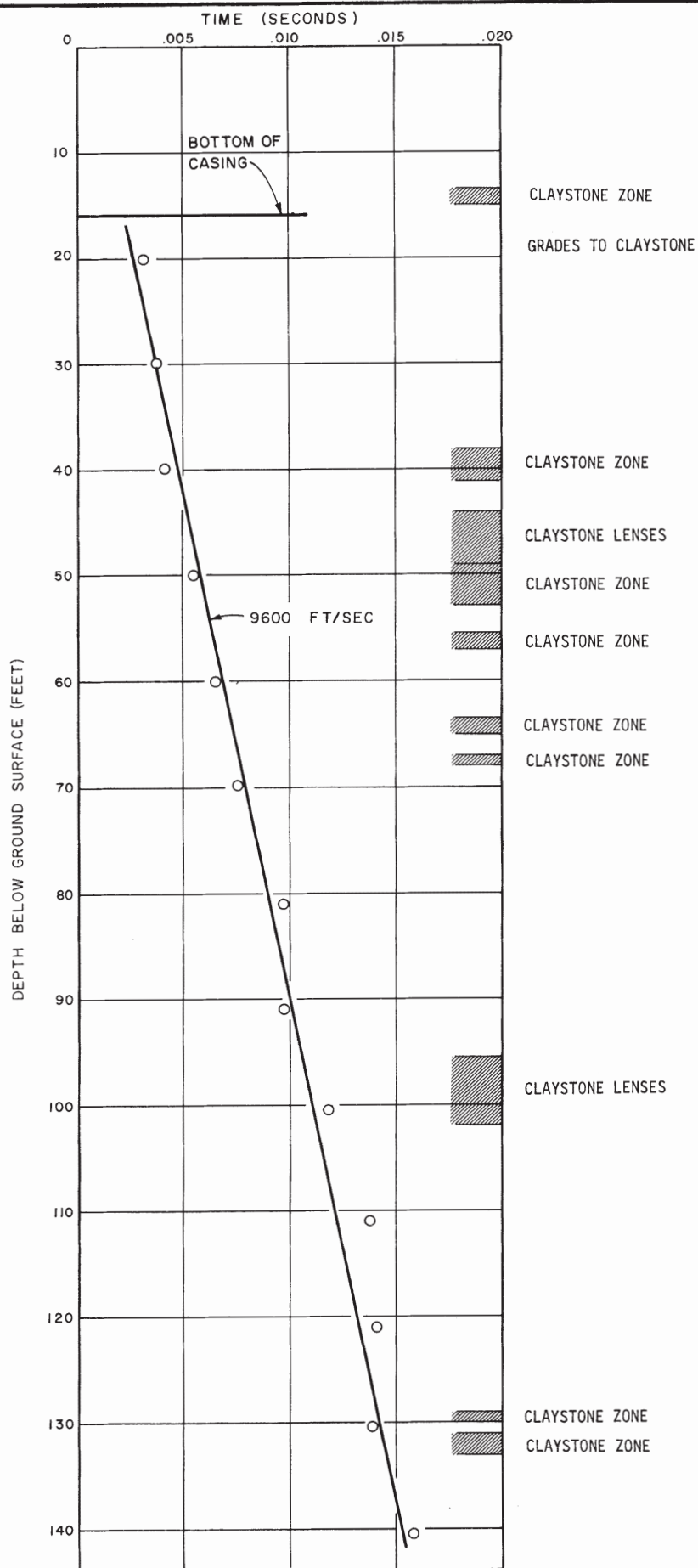
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SEISMIC PROFILE 3

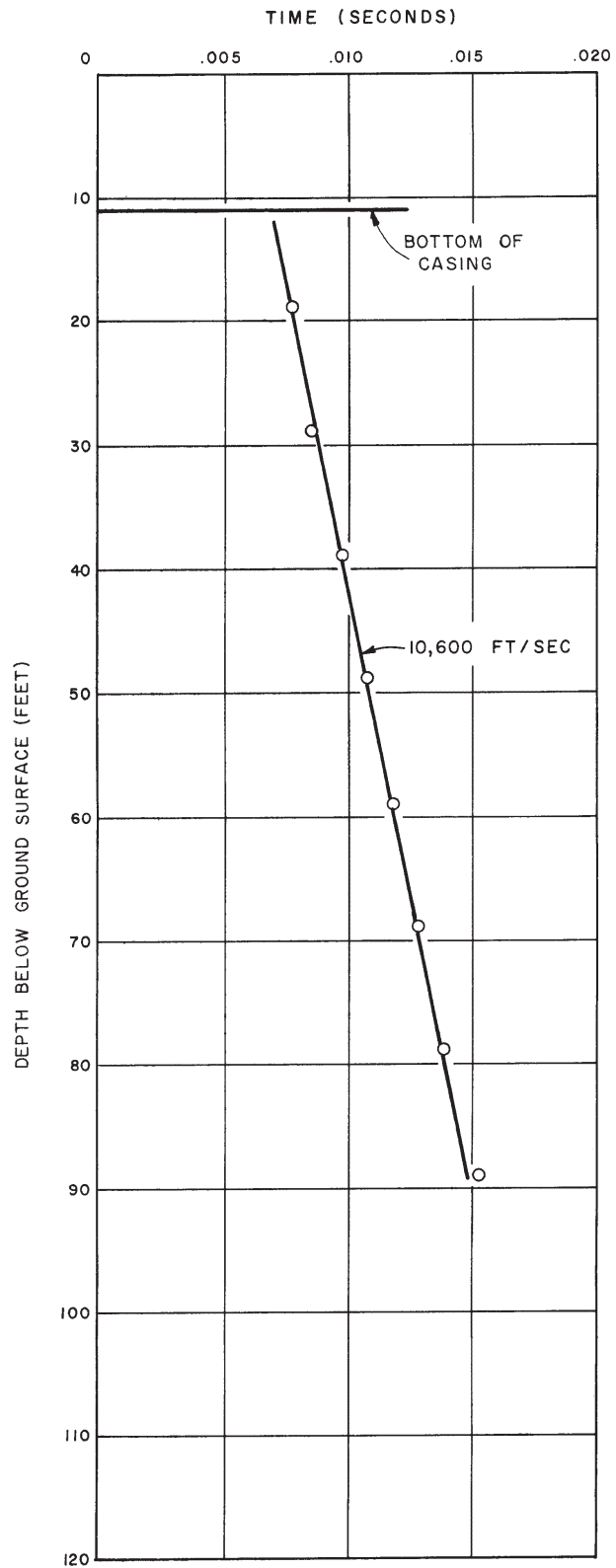
FIGURE 2.5.4-17

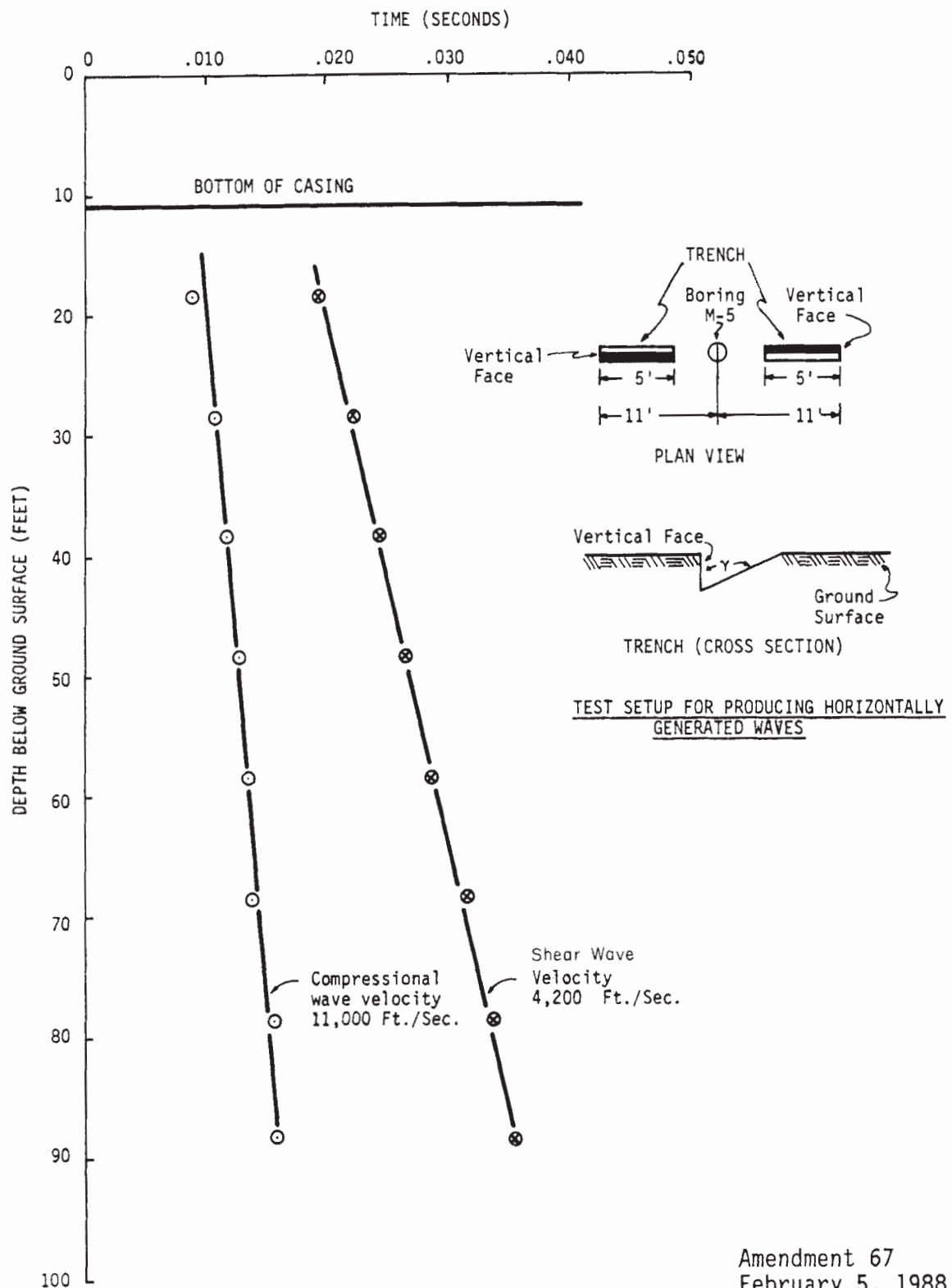


COMANCHE PEAK S.E.S. FINAL SAFETY ANALYSIS REPORT UNITS 1 and 2
SEISMIC PROFILE 4
FIGURE 2,5,4-18



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UNITS 1 and 2  
UPHOLE COMPRESSIONAL  
WAVE VELOCITY  
BORING P-1  
FIGURE 2.5.4-19



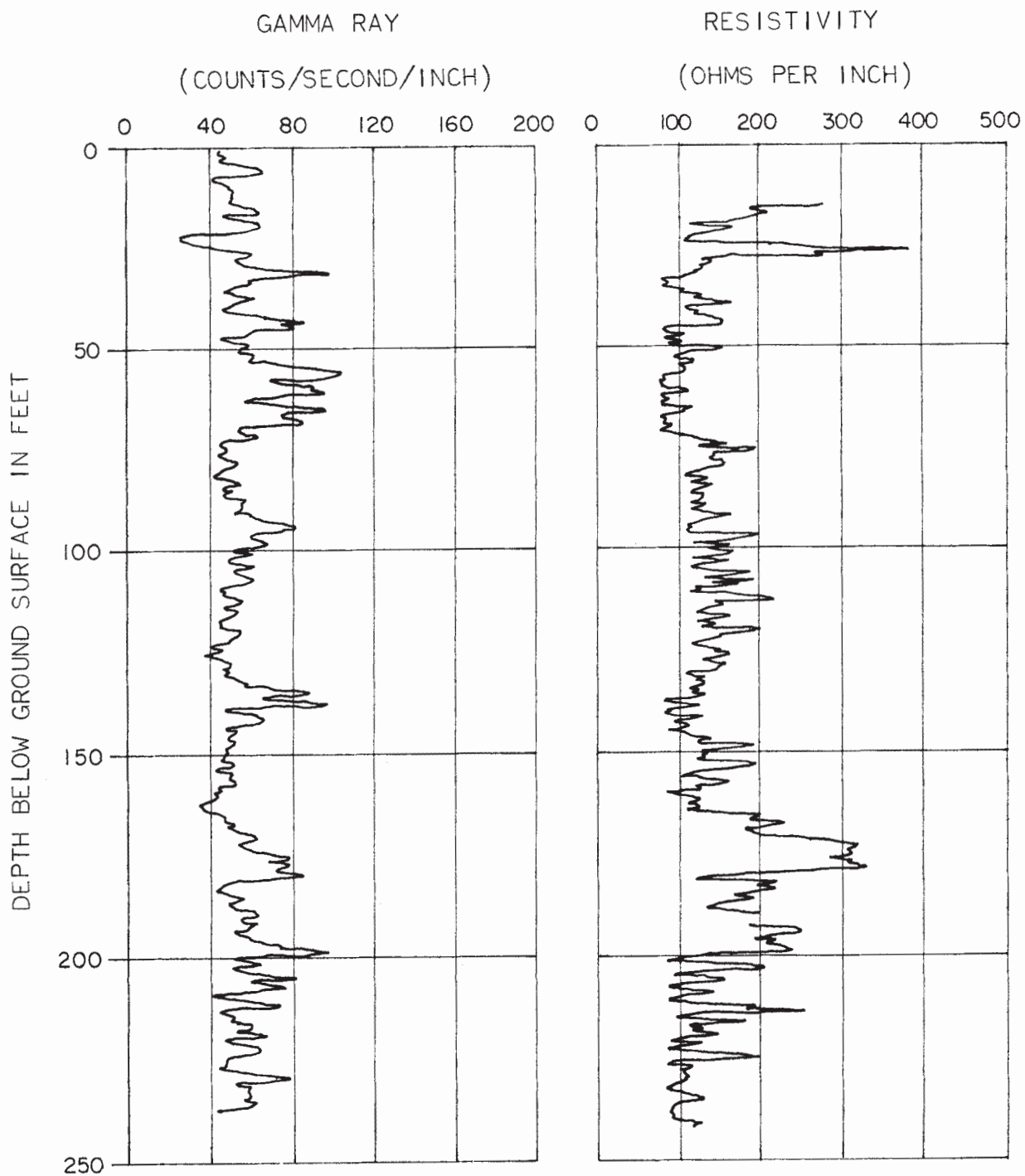


Amendment 67  
February 5, 1988

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UNITS 1 and 2

UPHOLE SHEAR WAVE SURVEY  
(PRIMACORD METHOD) BORING M-5

FIGURE 2.5.4-21

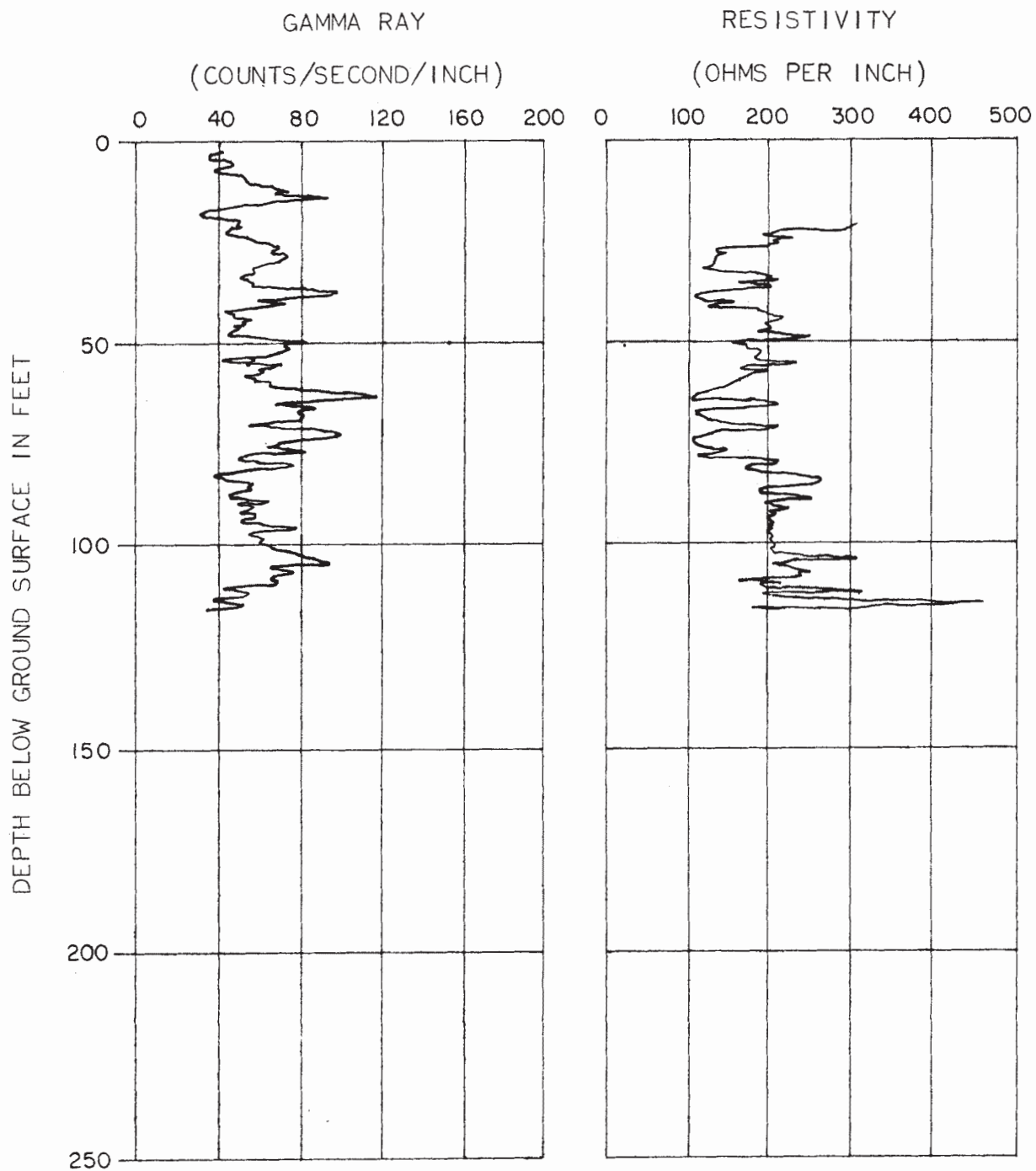


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UNITS 1 and 2

ELECTRICAL AND GAMMA RAY LOGS  
BORING P-10

FIGURE 2.5.4-22

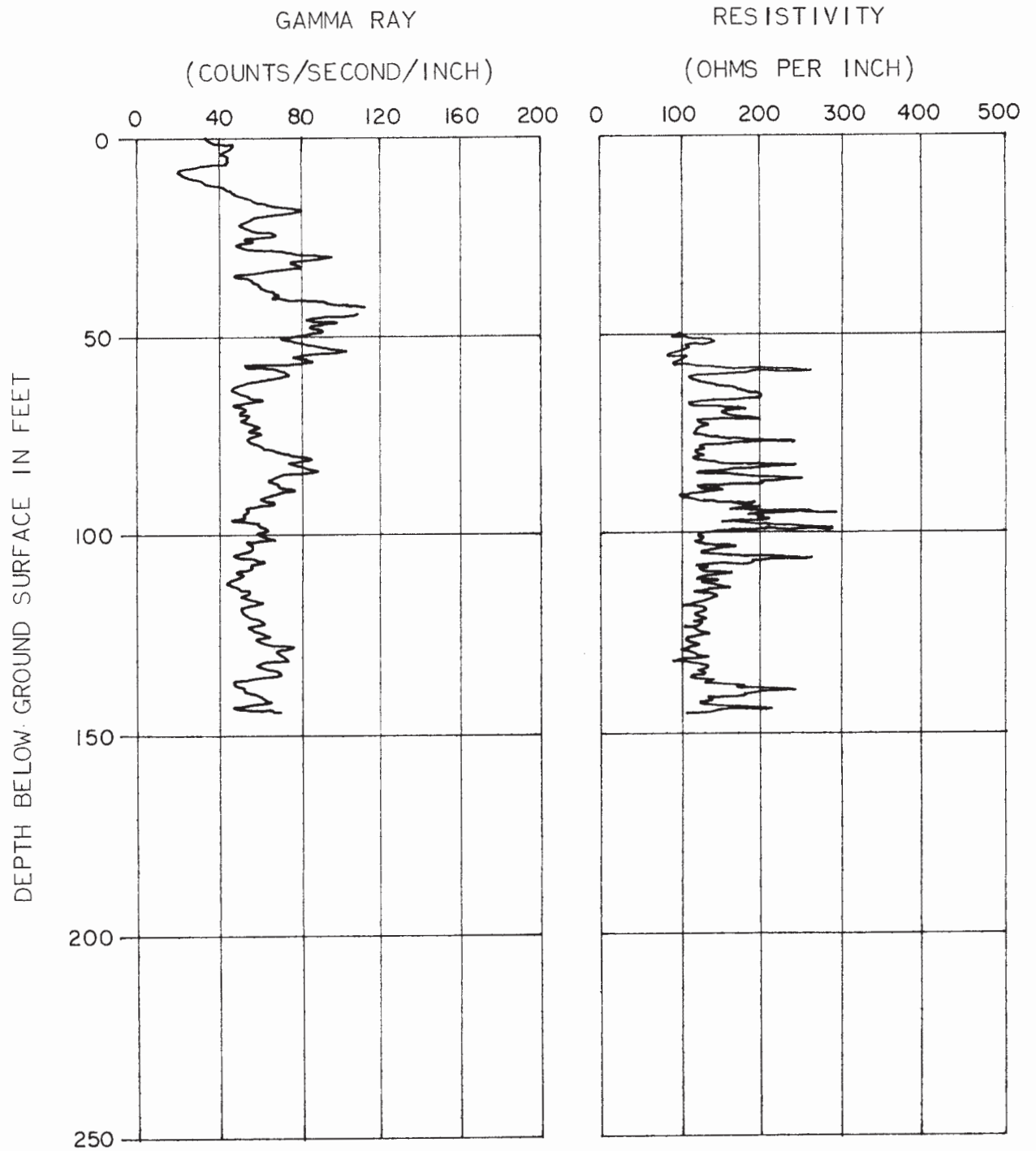




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UNITS 1 and 2

ELECTRICAL AND GAMMA RAY LOGS  
BORING DI-2

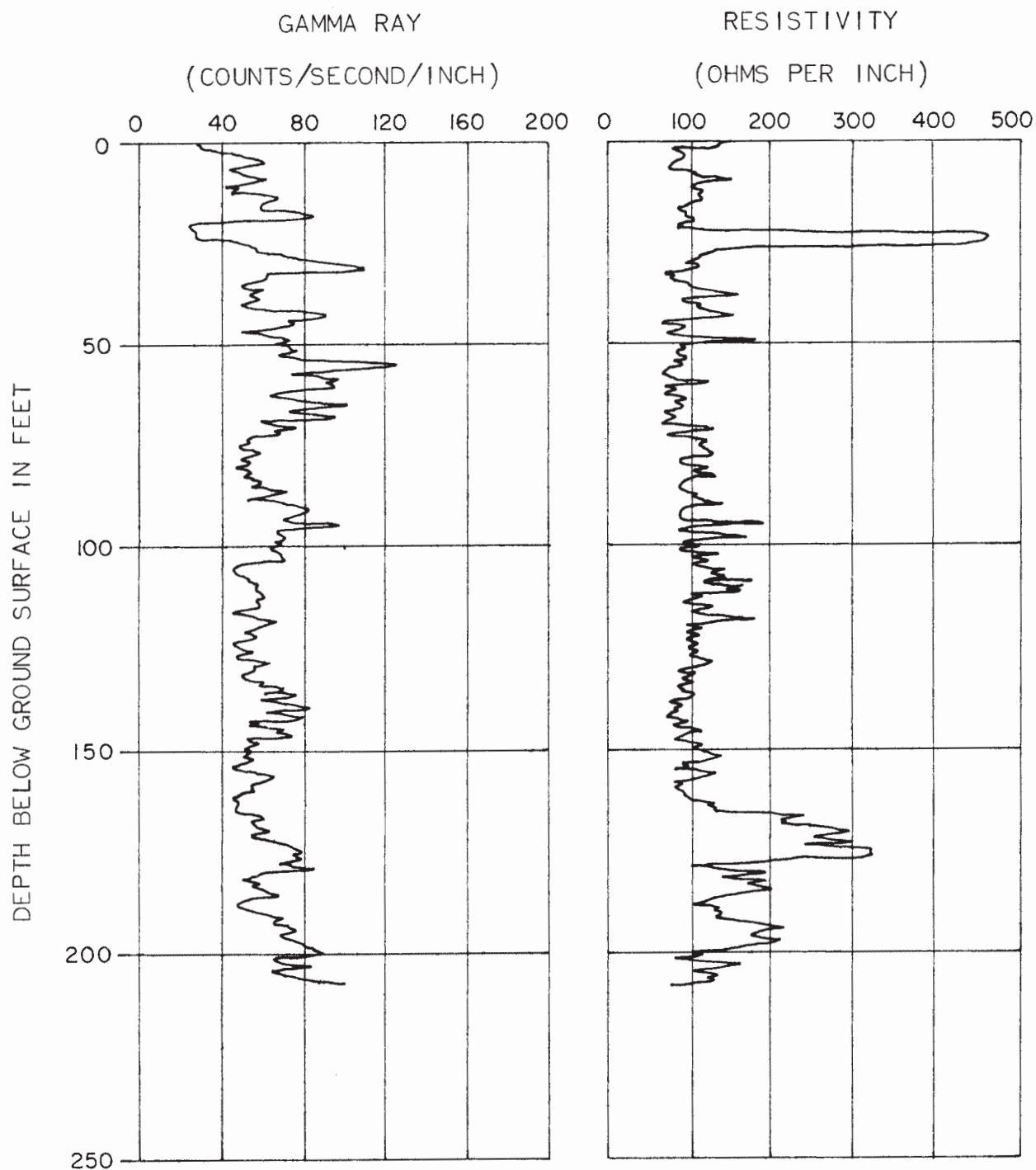
FIGURE 2.5.4-23



COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

ELECTRICAL AND GAMMA RAY LOGS  
BORING DI-8A

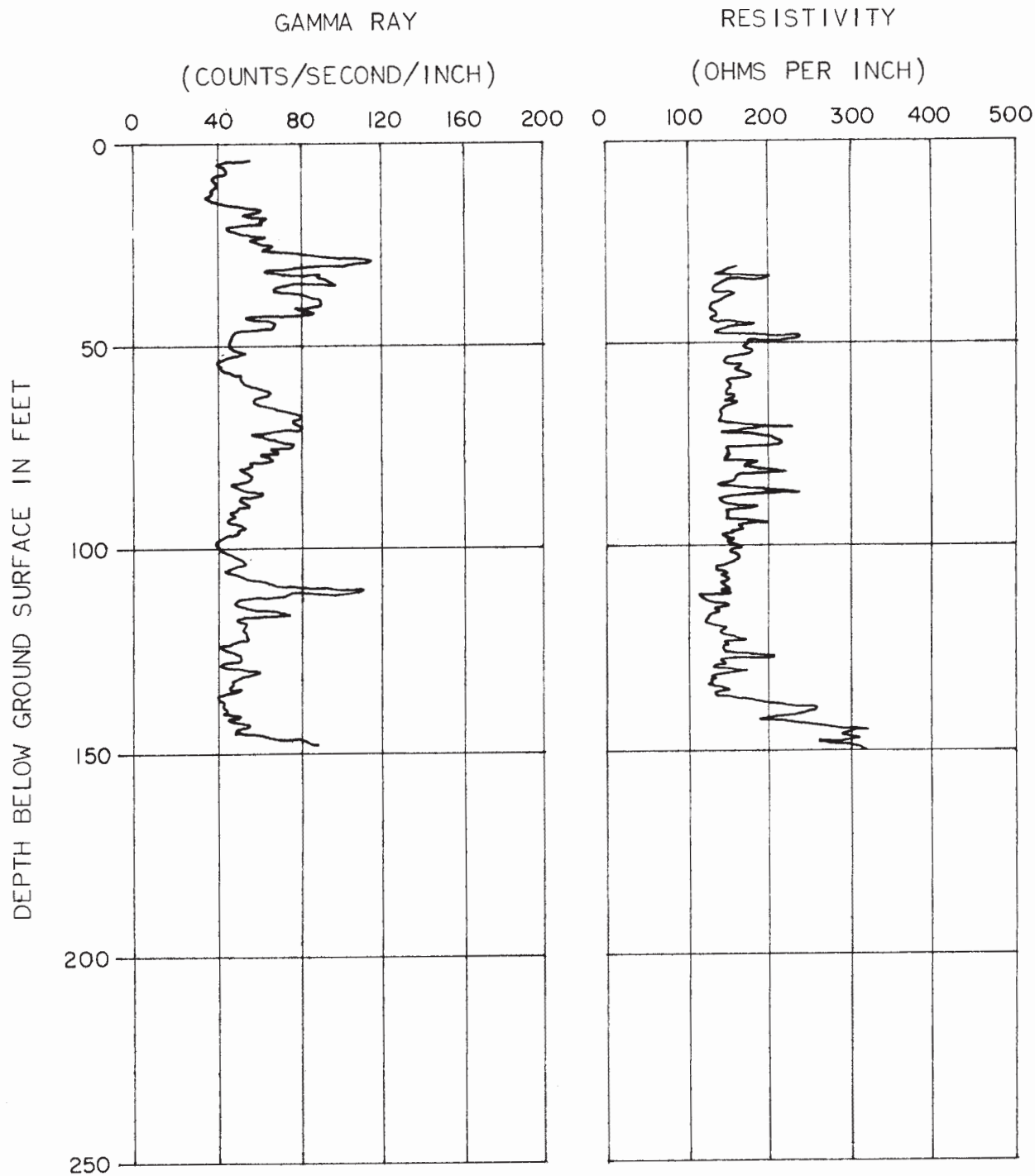
FIGURE 2.5.4-24



COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

ELECTRICAL AND GAMMA RAY LOGS  
BORING DI-9

FIGURE 2.5.4-25

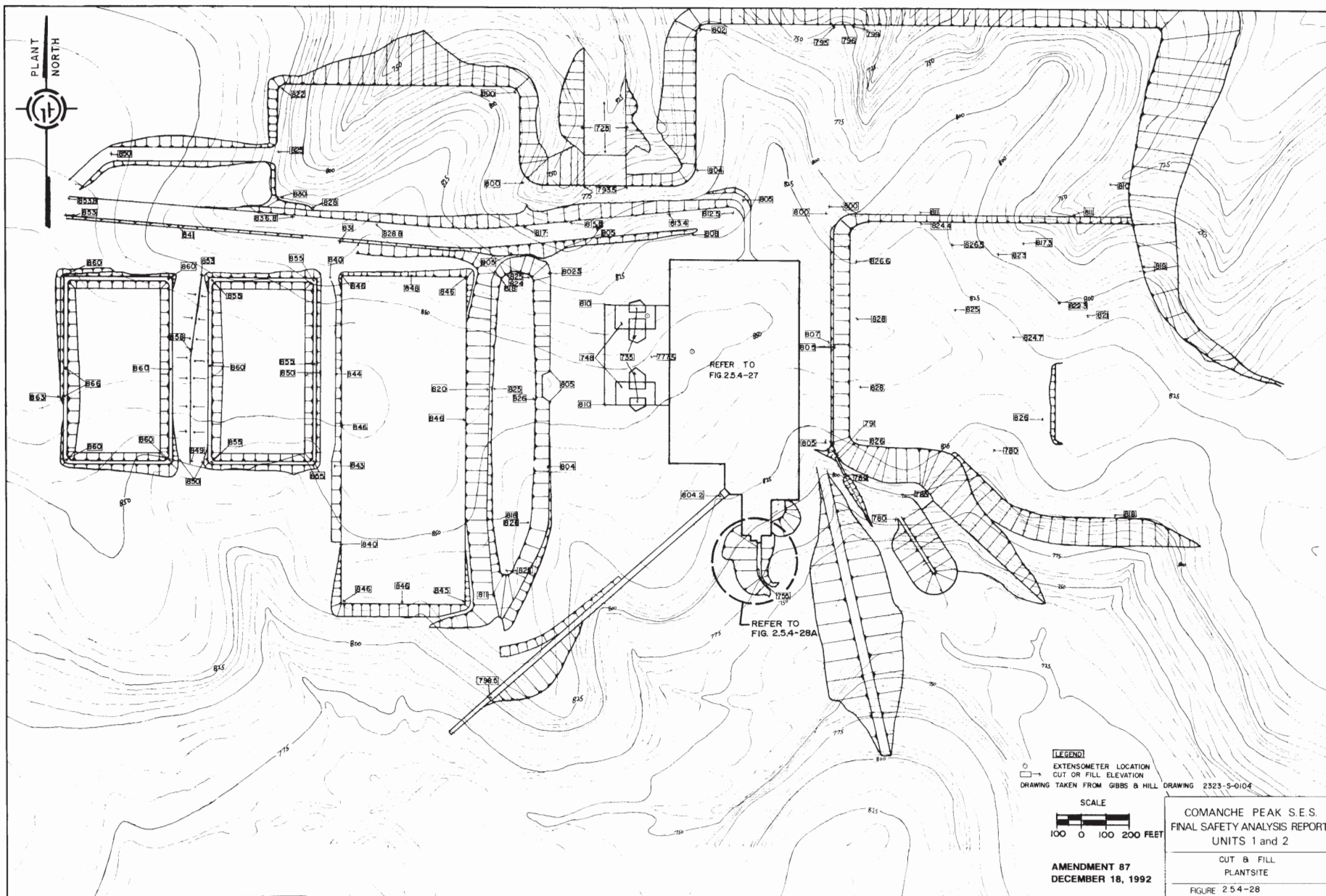


COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

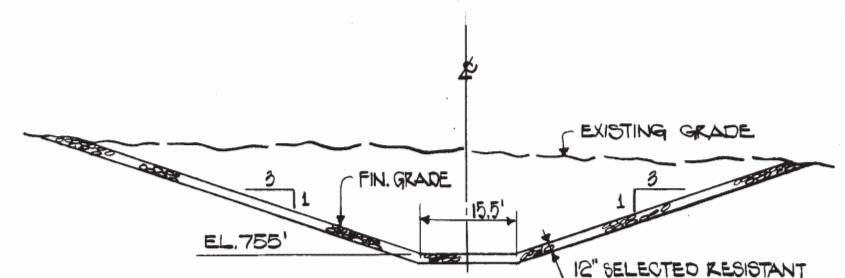
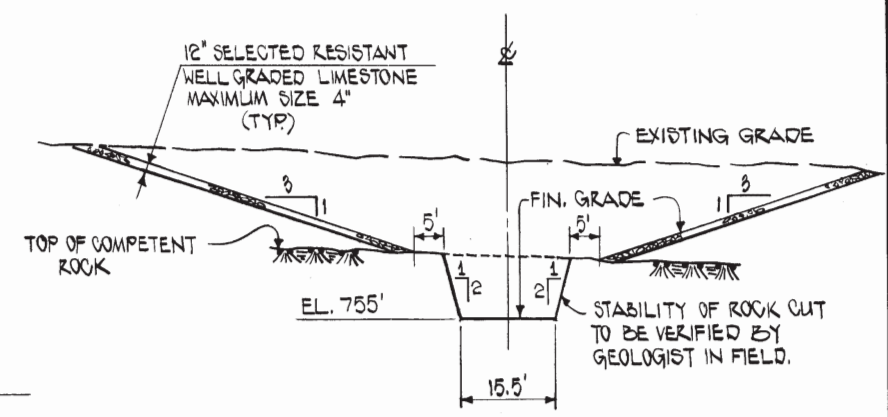
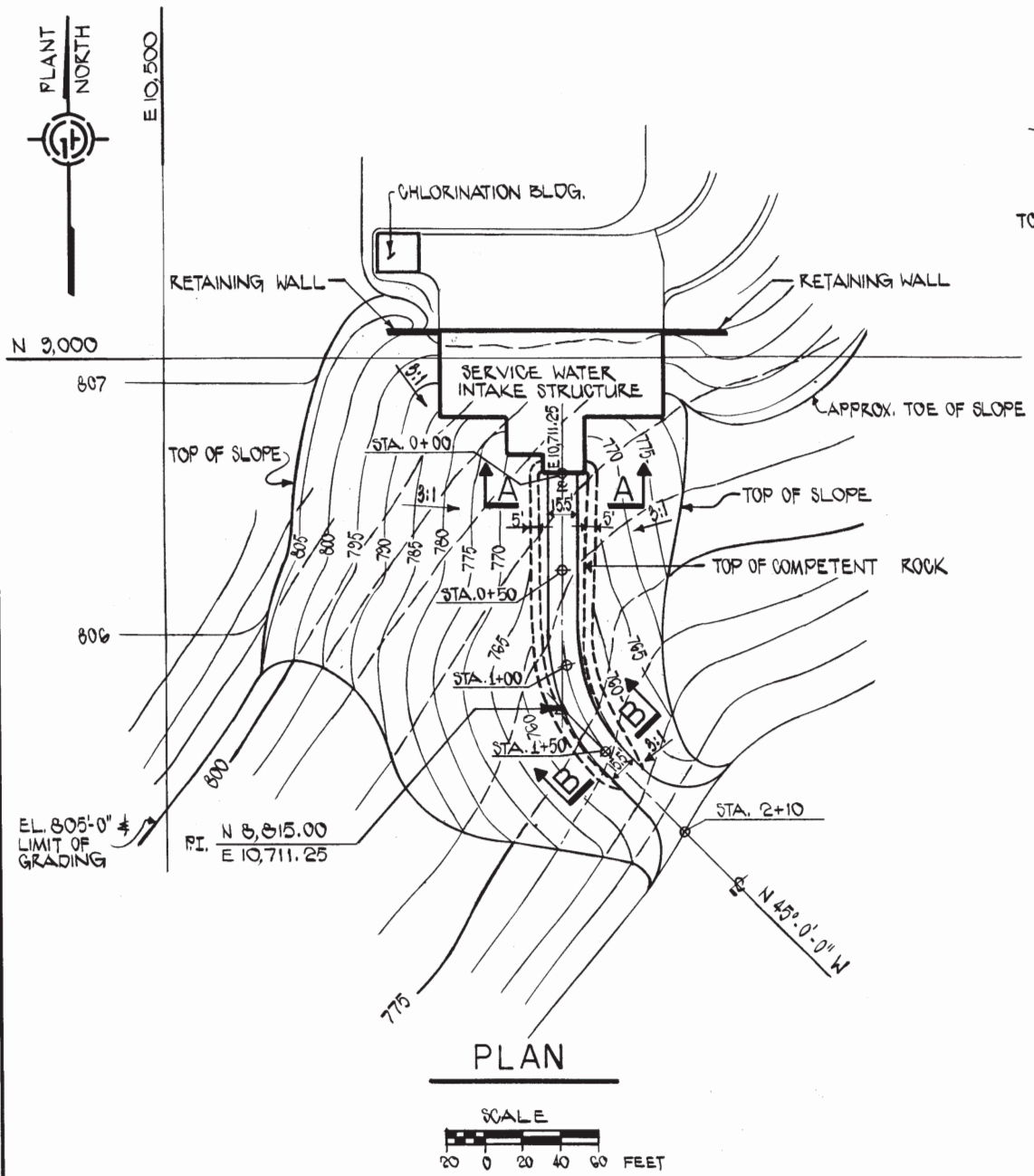
ELECTRICAL AND GAMMA RAY LOGS  
BORING M-1

FIGURE 2.5.4-26









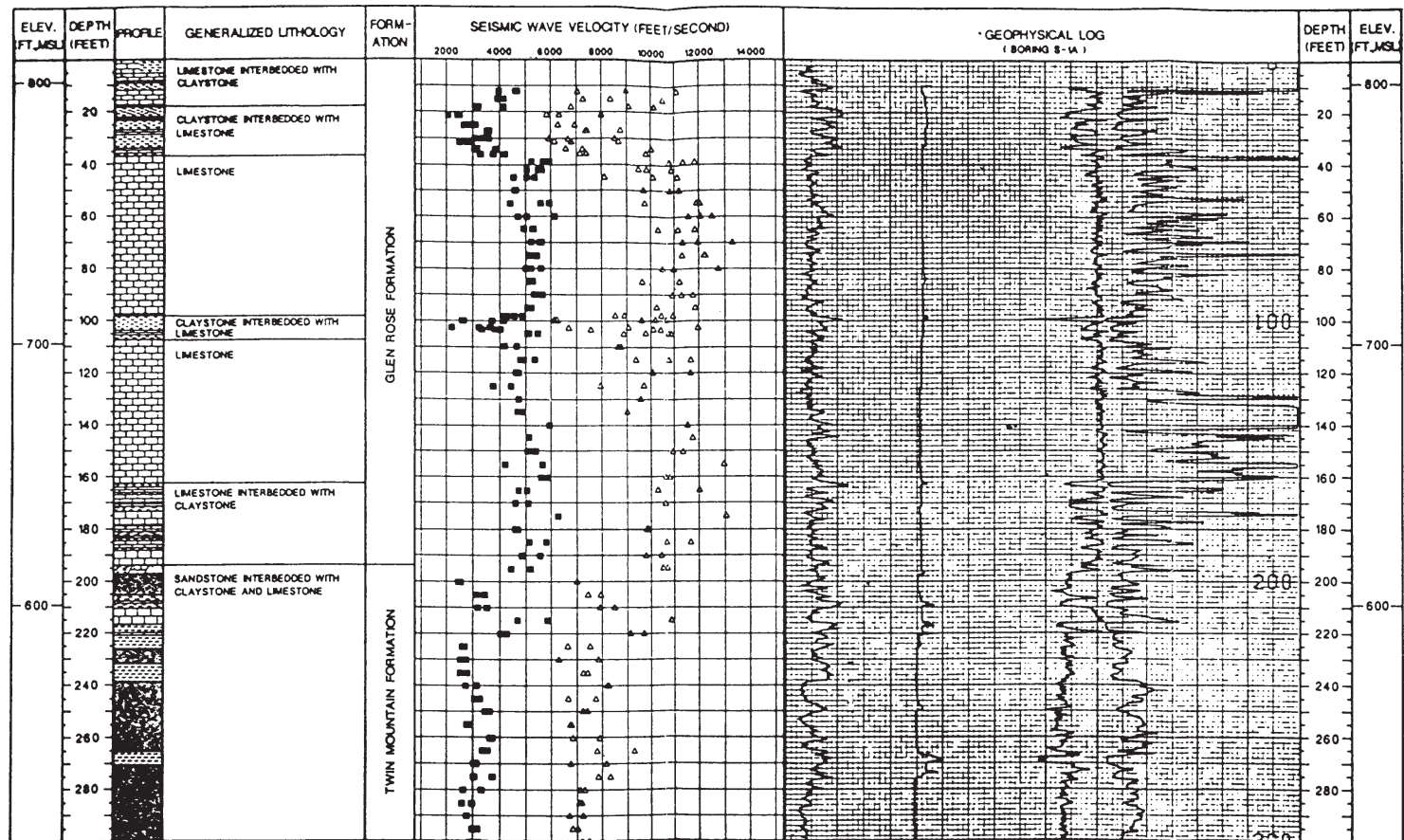
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNIT 1 and 2  
SERVICE WATER INTAKE CHANNEL  
CUT & FILL  
FIGURE 2.5.4 - 28A

MARCH 31, 1980



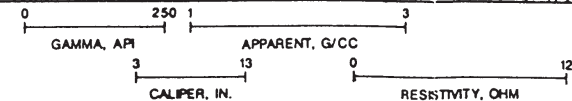


[illegible]



#### EXPLANATION

- SHEAR WAVE VELOCITY
- ▲ COMPRESSIONAL WAVE VELOCITY



October 14, 1988

#### NOTES:

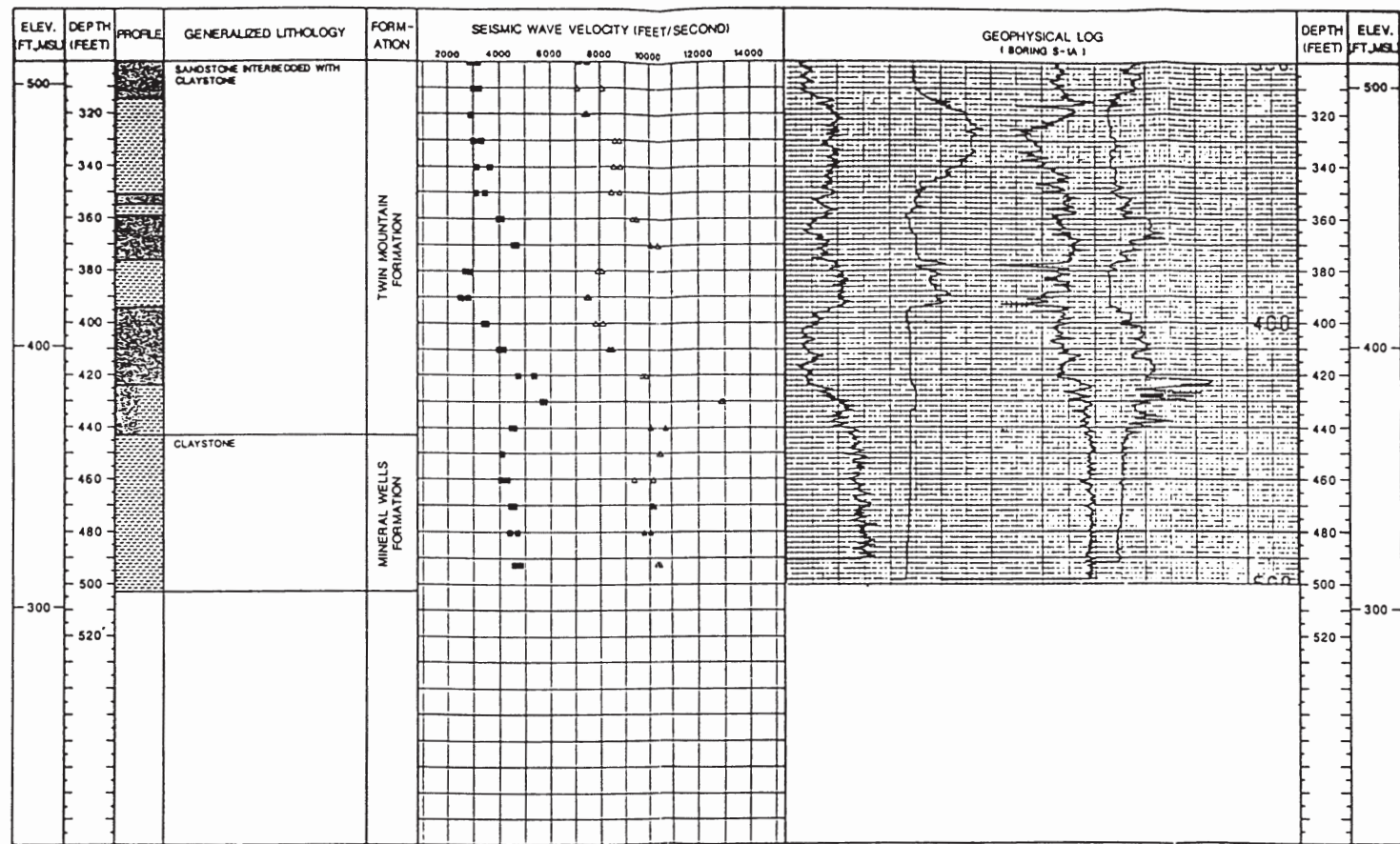
- (1.) SEISMIC WAVE VELOCITY PROFILE IS FOR ILLUSTRATION PURPOSES ONLY. THE DATA PLOTTED IS THE AVERAGE VELOCITY.
- (2.) NO CORRECTIONS ARE APPLIED FOR REFRACTION PHENOMENA.
- (3.) THE OBSERVED SCATTER IN P-WAVE VELOCITY ABOVE 195 FT. MAY BE DUE TO REFRACTION PHENOMENA AS THIS ZONE CONTAINS SEVERAL THIN LAYERS OF CLAYSTONE.

(THIS FIGURE ADAPTED FROM REF. 131)

#### COMANCHE PEAK S.E.S. FINAL SAFETY ANALYSIS REPORT UNITS 1 and 2

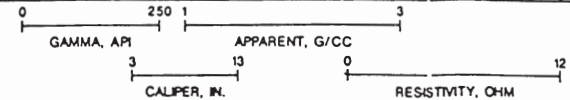
GENERALIZED SUBSURFACE PROFILE  
AND SEISMIC WAVE VELOCITIES

FIGURE 2.5.4-30A (SH 1 OF 2)



#### EXPLANATION

- SHEAR WAVE VELOCITY
- ▲ COMPRESSIONAL WAVE VELOCITY



October 14, 1988

#### NOTES:

- (1.) SEISMIC WAVE VELOCITY PROFILE IS FOR ILLUSTRATION PURPOSES ONLY. THE DATA PLOTTED IS THE AVERAGE VELOCITY.
- (2.) NO CORRECTIONS ARE APPLIED FOR REFRACTION PHENOMENA.
- (3.) THE OBSERVED SCATTER IN P-WAVE VELOCITY ABOVE 195 FT. MAY BE DUE TO REFRACTION PHENOMENA AS THIS ZONE CONTAINS SEVERAL THIN LAYERS OF CLAYSTONE.

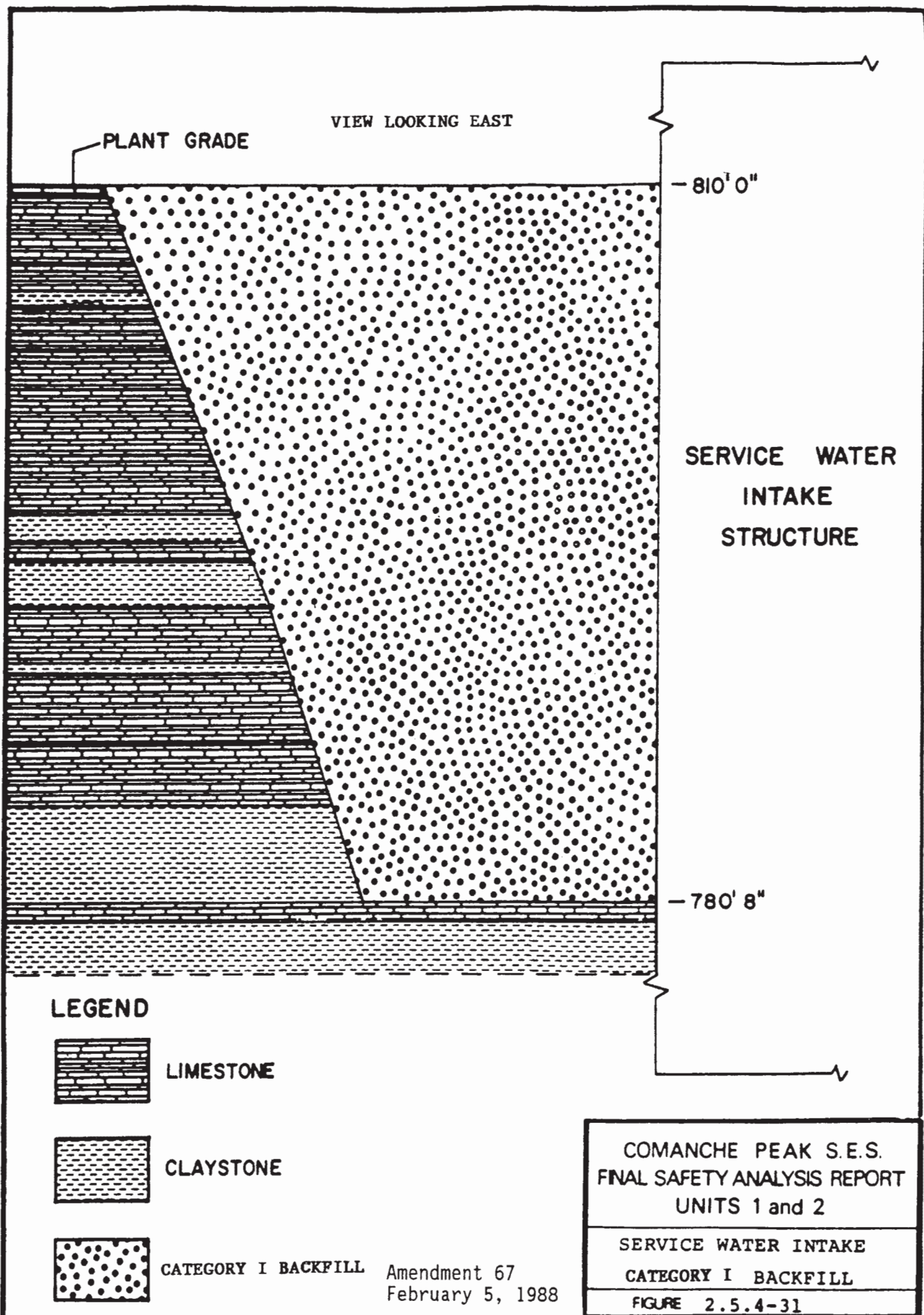
(THIS FIGURE ADAPTED FROM REF. 131)

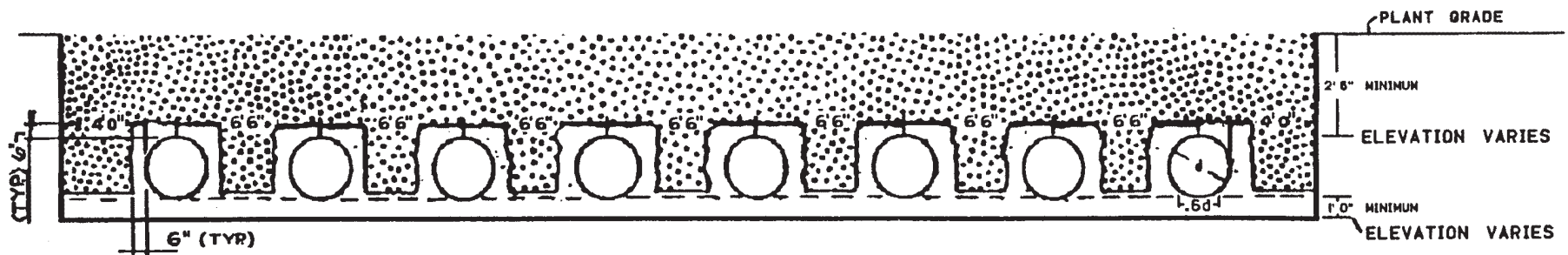
#### COMANCHE PEAK S.E.S. FINAL SAFETY ANALYSIS REPORT UNITS 1 and 2

GENERALIZED SUBSURFACE PROFILE  
AND SEISMIC WAVE VELOCITIES

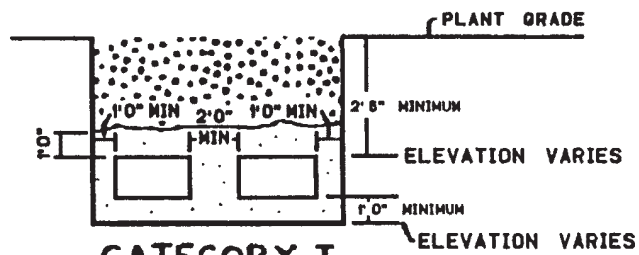
FIGURE 2.5.4-30A (SH 2 OF 2)







### SERVICE WATER PIPE TRENCH



### CATEGORY I ELECTRICAL DUCT BANK

#### LEGEND



CATEGORY I BACKFILL



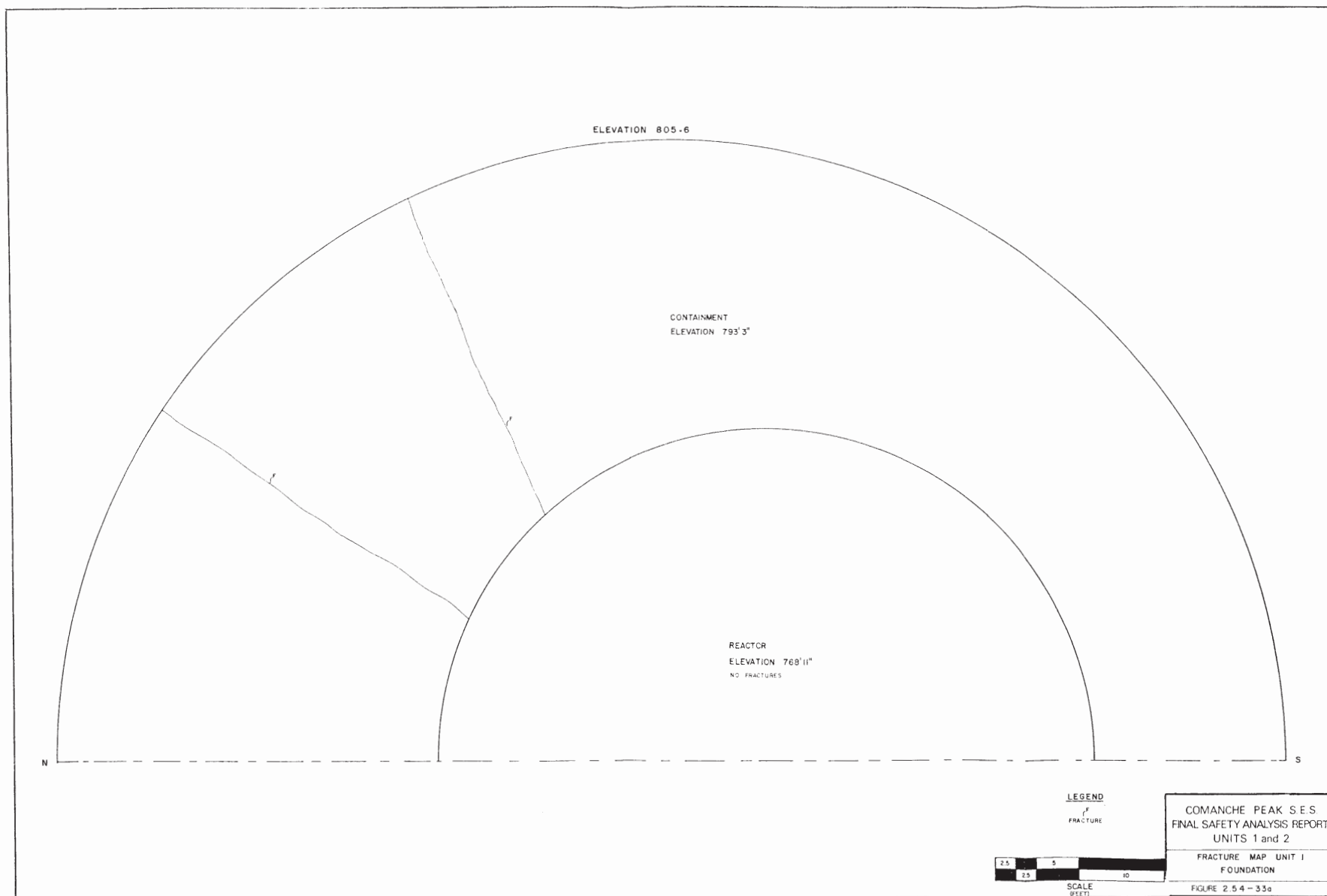
CATEGORY I BEDDING

Amendment 95  
February 2, 1998

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

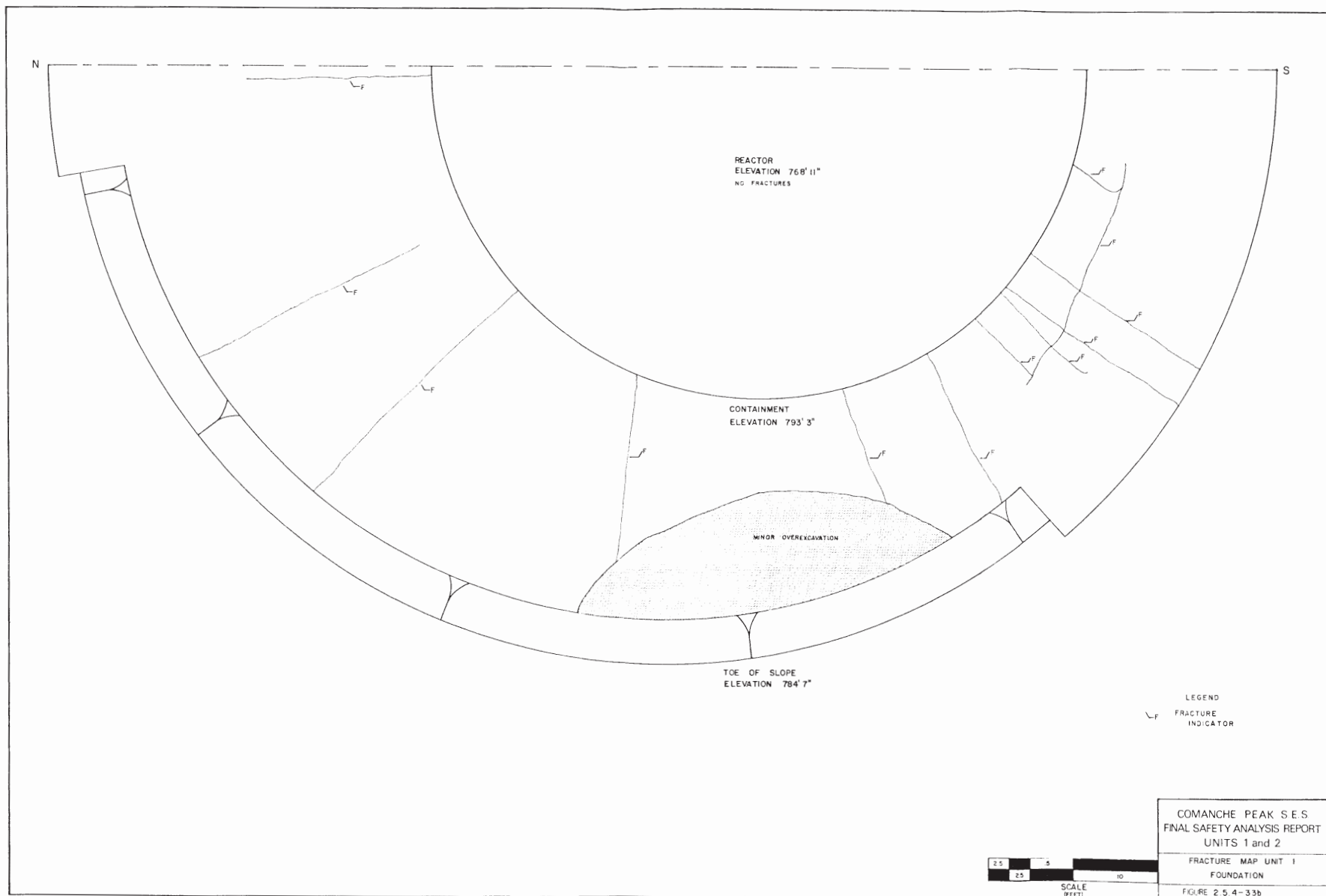
TYPICAL CROSS SECTIONS  
CATEGORY I BACKFILLED EXCAVATIONS

FIGURE 2.5.4-32

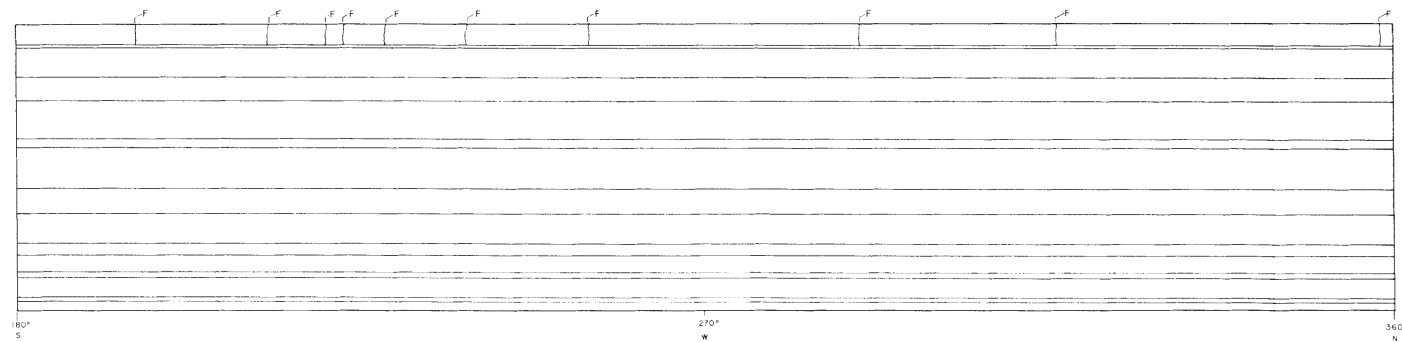
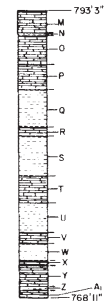
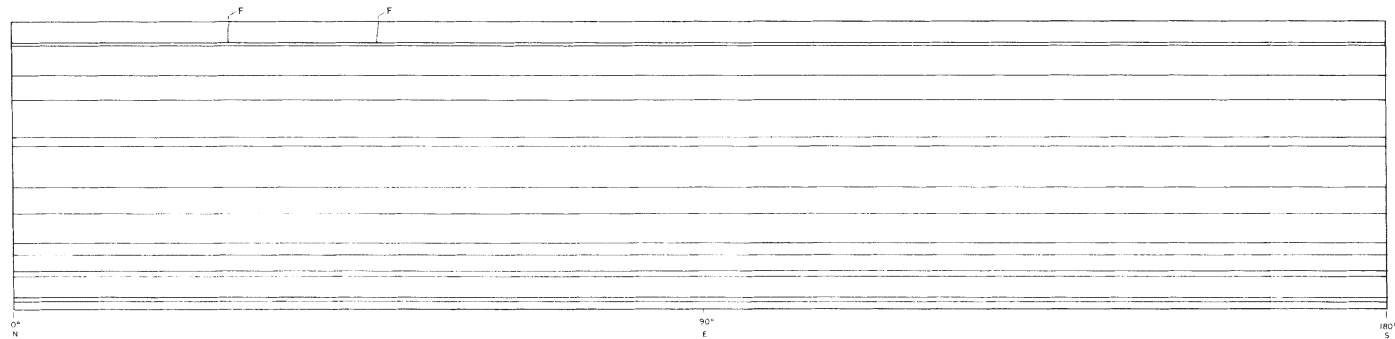





Amendment 67  
February 5, 1988





Amendment 67  
February 5, 1988



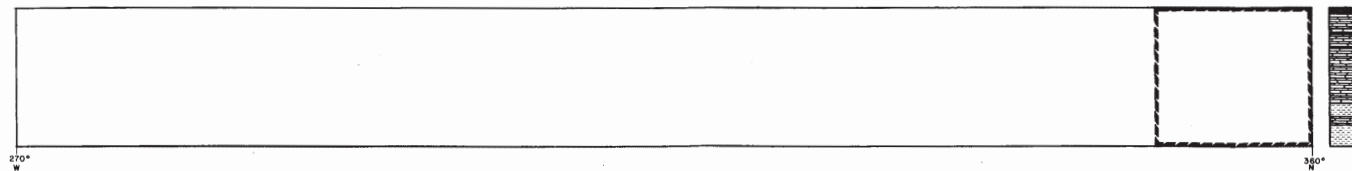
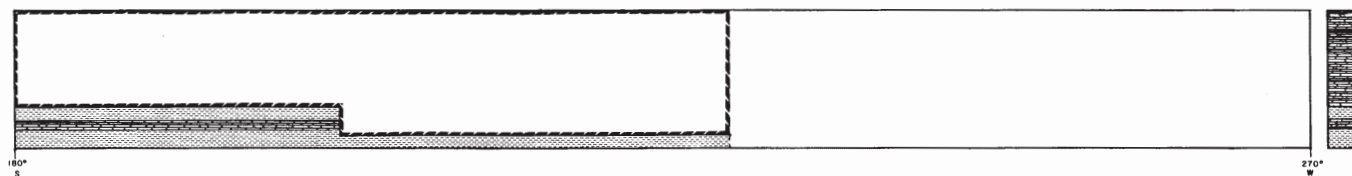
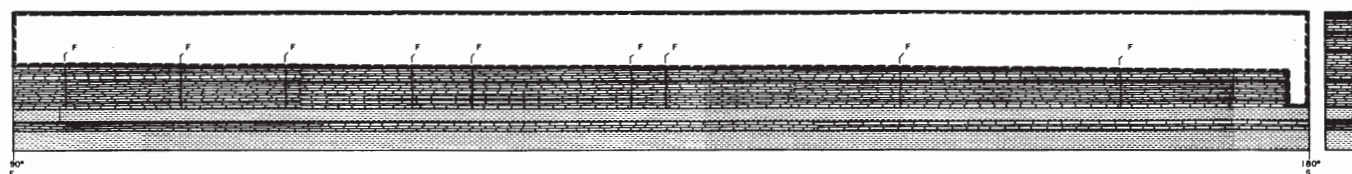
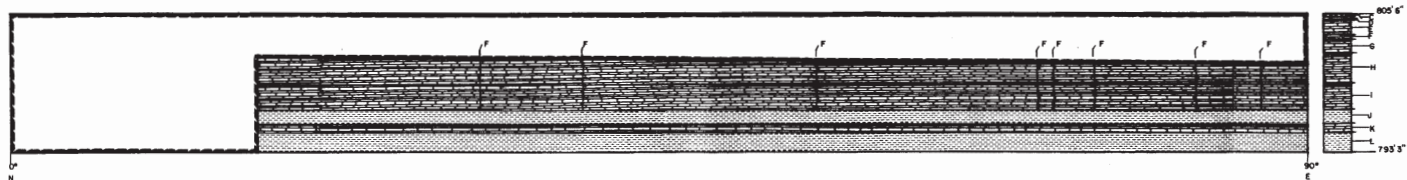
- LEGEND
-  CLAYSTONE
  -  LIMESTONE
  -  FRACTURE INDICATOR








COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

FRACTURE MAP UNIT 1  
REACTOR WALL

FIGURE 2.5.4-34



- LEGEND
-  CLAYSTONE
  -  LIMESTONE
  -  DENTAL CONCRETE BACKFILL
  -  ROCK REMOVED PER DESIGN
  -  FRACTURE INDICATOR

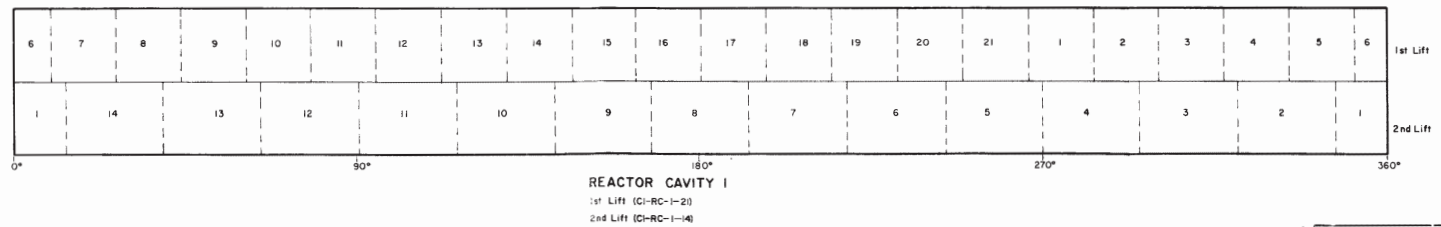
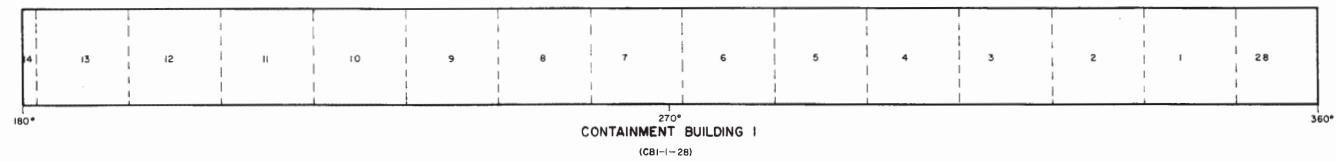
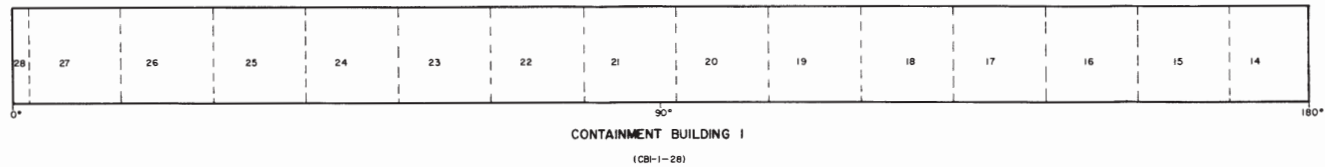
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

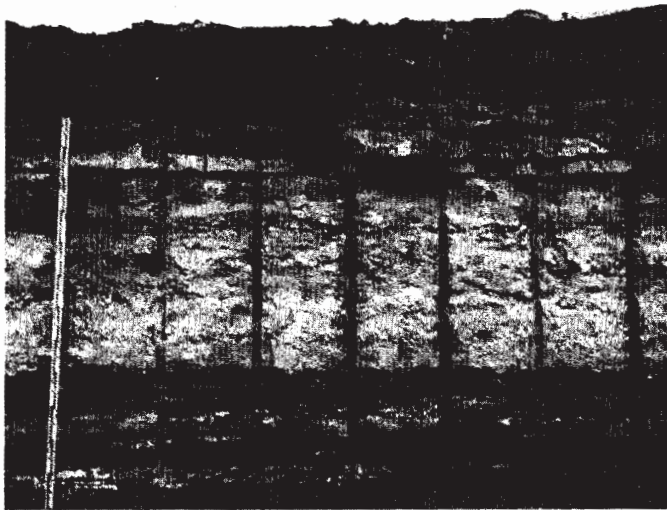
FRACTURE MAP UNIT 1  
CONTAINMENT WALL



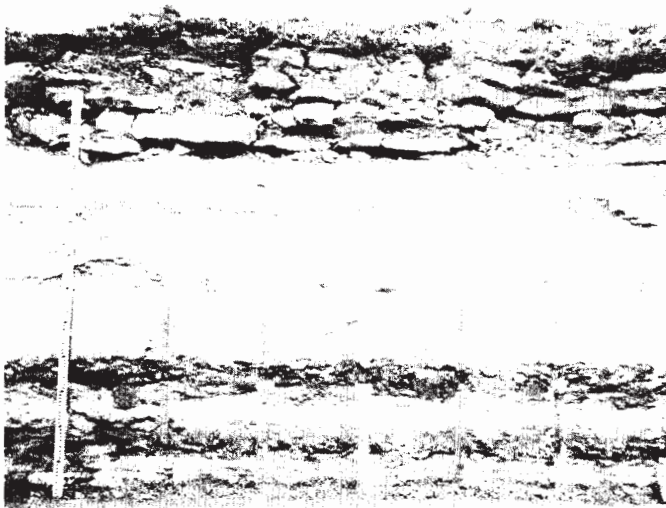
FIGURE 2.5.4-35

# UNIT I PHOTO GRIDS

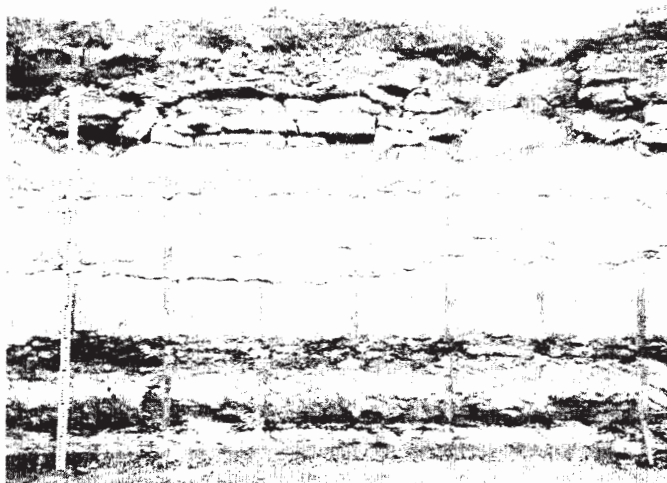




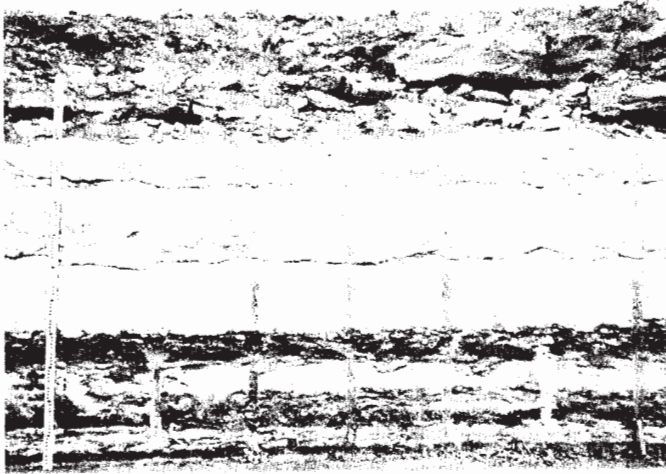
CONTAINMENT WALL  
PHOTO # CB-1-1



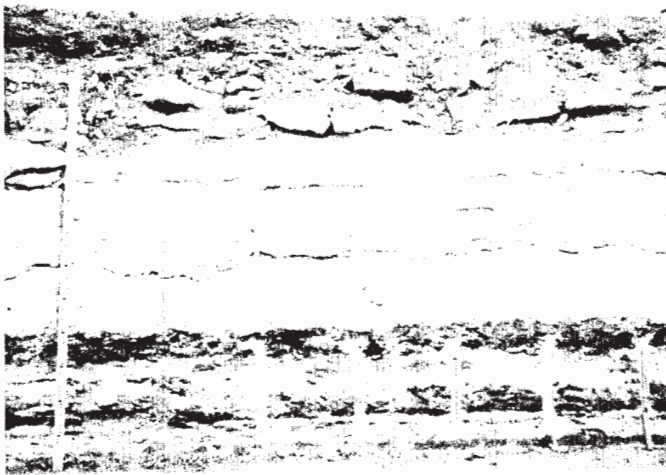
CONTAINMENT WALL  
PHOTO #CB-1-2



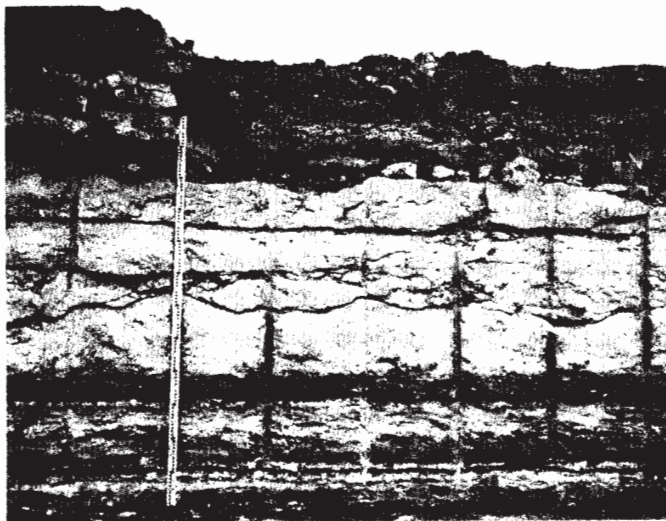
CONTAINMENT WALL  
PHOTO #CB-1-3



CONTAINMENT WALL  
PHOTO # CB-1-4



CONTAINMENT WALL  
PHOTO # CB-1-5



CONTAINMENT WALL  
PHOTO # CB-1-6

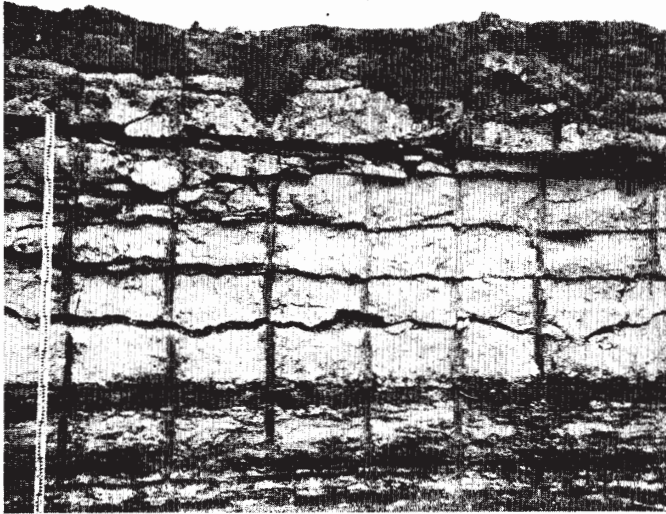
REFERENCE FIGURE 2.5.4-36

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

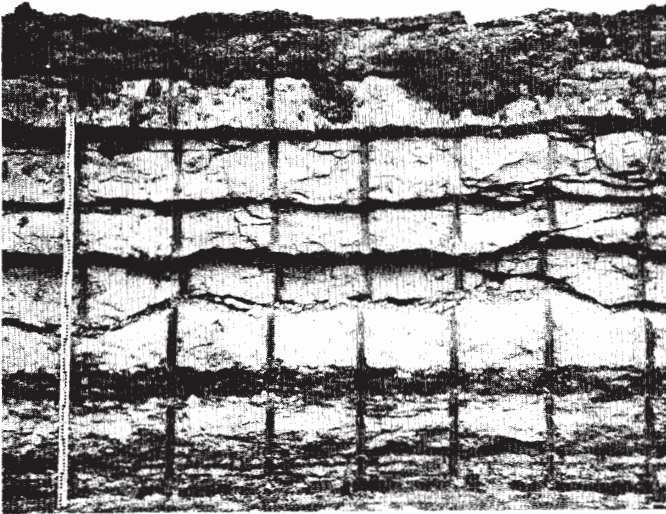
EXCAVATION PHOTOGRAPHS  
Sheet 2 of 21

FIGURE 2.5.4-37

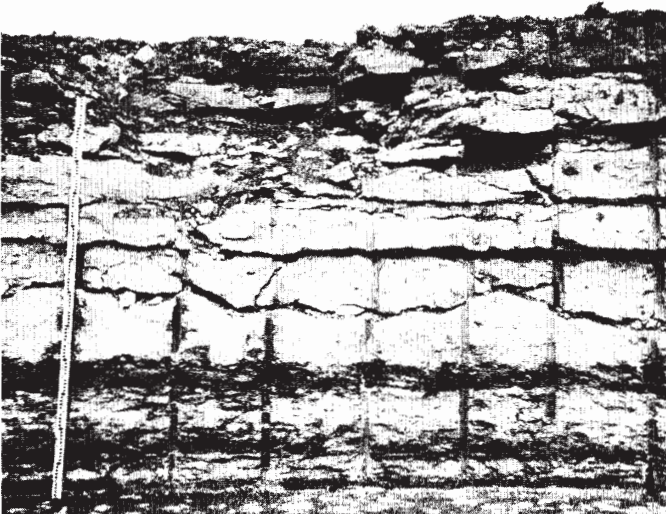




CONTAINMENT WALL  
PHOTO # CB-1-7



CONTAINMENT WALL  
PHOTO # CB-1-8



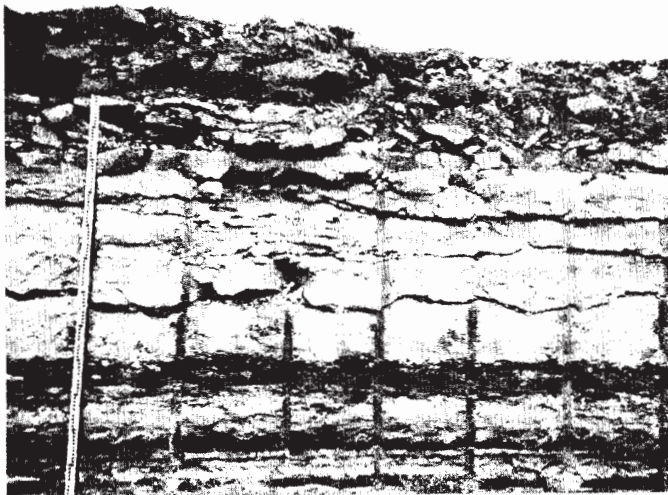
CONTAINMENT WALL  
PHOTO # CB-1-9

REFERENCE FIGURE 2.5.4-36

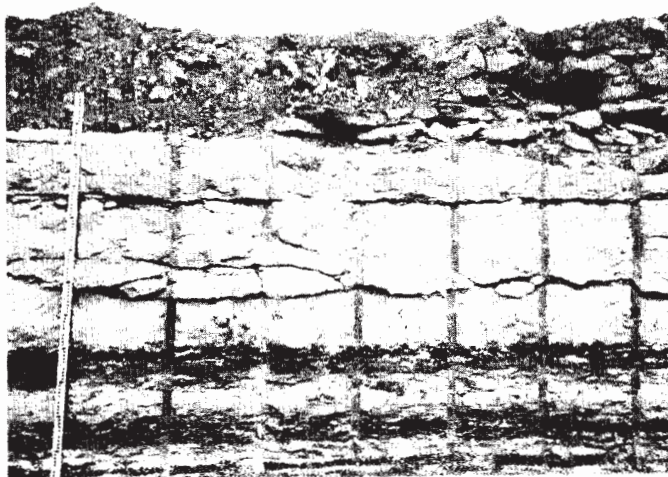
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
Sheet 3 of 21

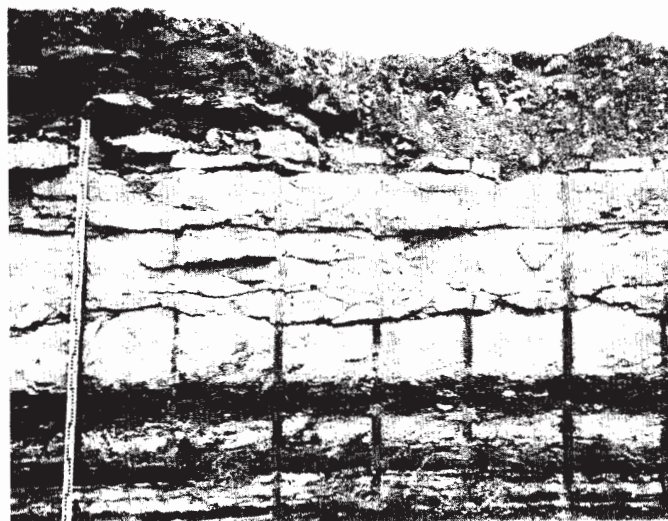
FIGURE 2.5.4-37



CONTAINMENT WALL  
PHOTO # CB-1-10



CONTAINMENT WALL  
PHOTO # CB-1-11



CONTAINMENT WALL  
PHOTO # CB-1-12

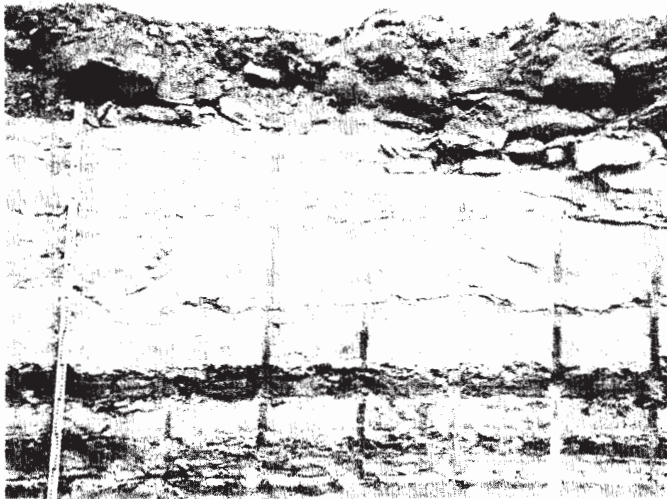
REFERENCE FIGURE 2.5.4-36

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

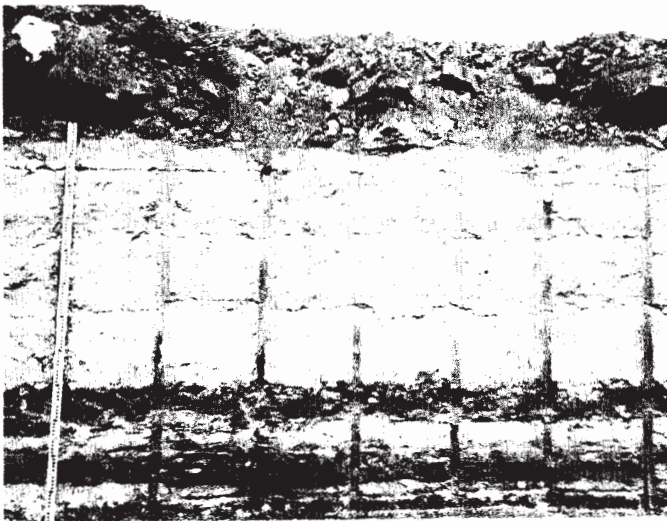
EXCAVATION PHOTOGRAPHS  
Sheet 4 of 21

FIGURE 2.5.4-37

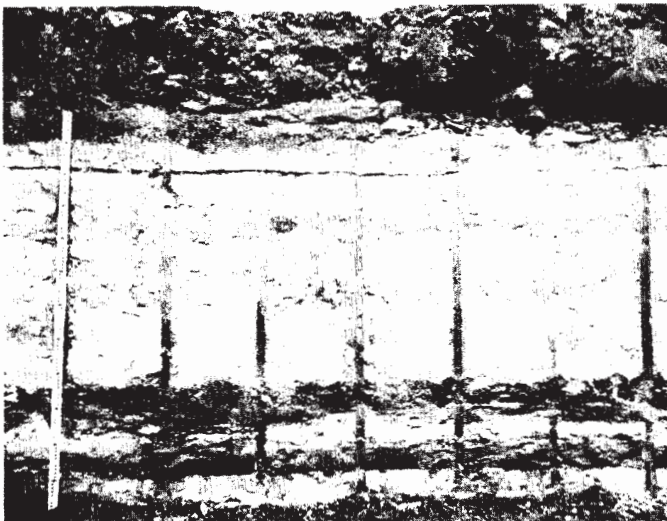




CONTAINMENT WALL  
PHOTO # CB-1-13



CONTAINMENT WALL  
PHOTO # CB-1-14



CONTAINMENT WALL  
PHOTO # CB-1-15

REFERENCE FIGURE 2.5.4-36

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
Sheet 5 of 21

FIGURE 2.5.4-37



CONTAINMENT WALL  
PHOTO # CB-1-16



CONTAINMENT WALL  
PHOTO # CB-1-17



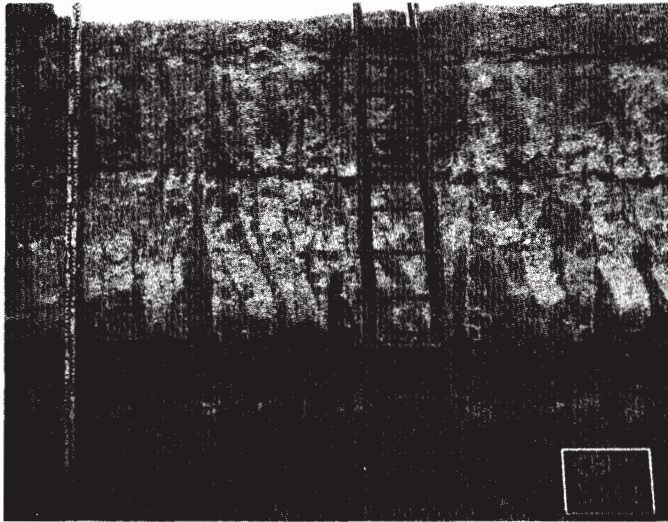
CONTAINMENT WALL  
PHOTO # CB-1-18

REFERENCE FIGURE 2.5.4-36

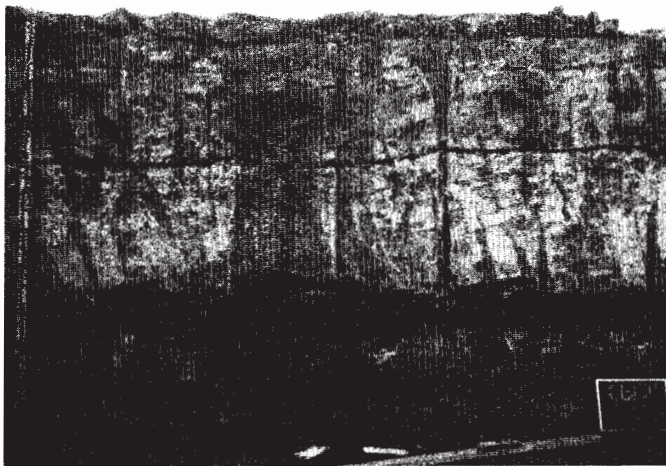
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
Sheet 6 of 21

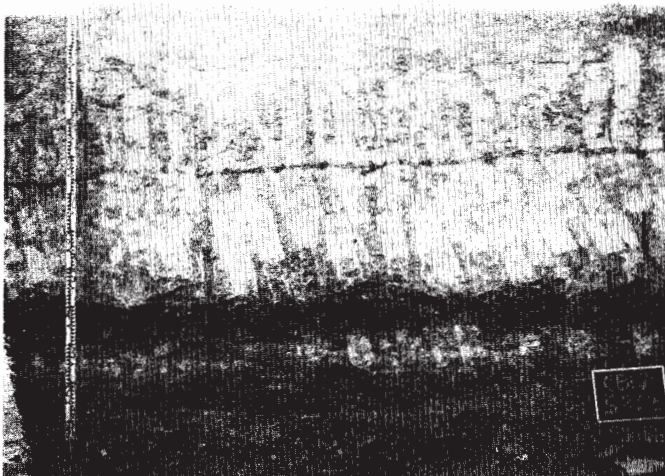
FIGURE 2.5.4-37



CONTAINMENT WALL  
PHOTO # CB-1-19



CONTAINMENT WALL  
PHOTO # CB-1-20



CONTAINMENT WALL  
WALL # CB-1-21

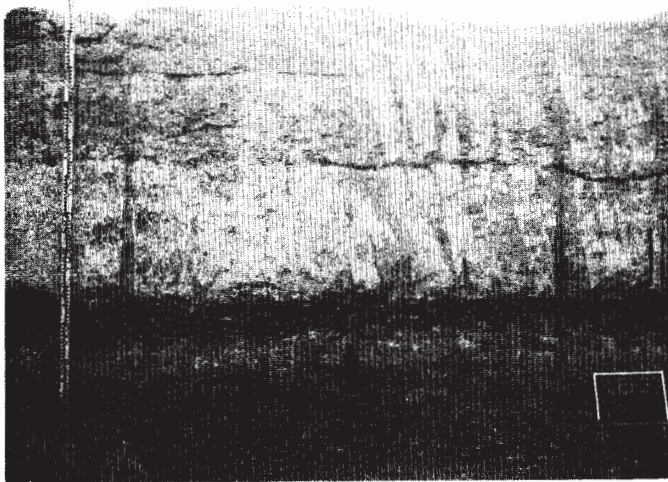
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
Sheet 7 of 21

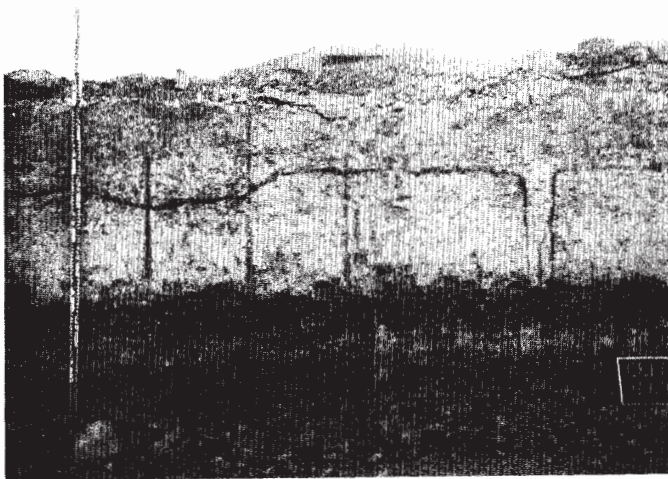
FIGURE 2.5.4-37

REFERENCE FIGURE 2.5.4-36

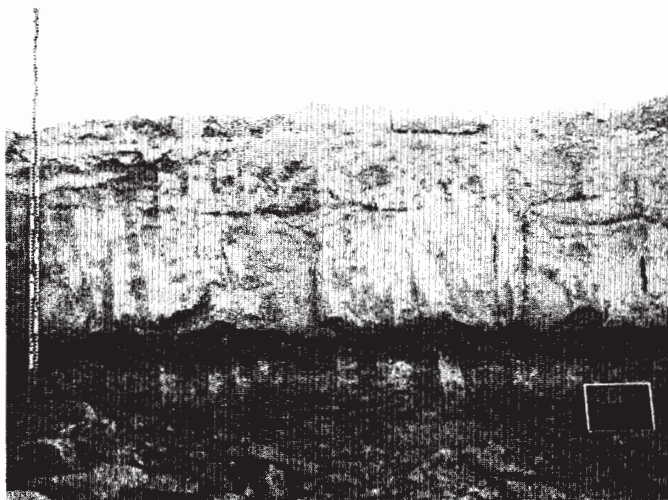




CONTAINMENT WALL  
PHOTO # CB-1-22



CONTAINMENT WALL  
PHOTO # CB-1-23



CONTAINMENT WALL  
PHOTO # CB-1-24

REFERENCE FIGURE 2.5.4-36

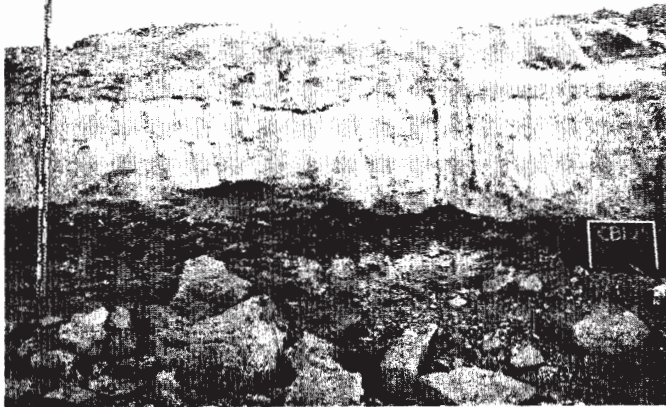
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
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FIGURE 2.5.4-37



CONTAINMENT WALL  
PHOTO # CB-1-25



CONTAINMENT WALL  
PHOTO # CB-1-26



CONTAINMENT WALL  
PHOTO # CB-1-27



REFERENCE FIGURE 2.5.4-36

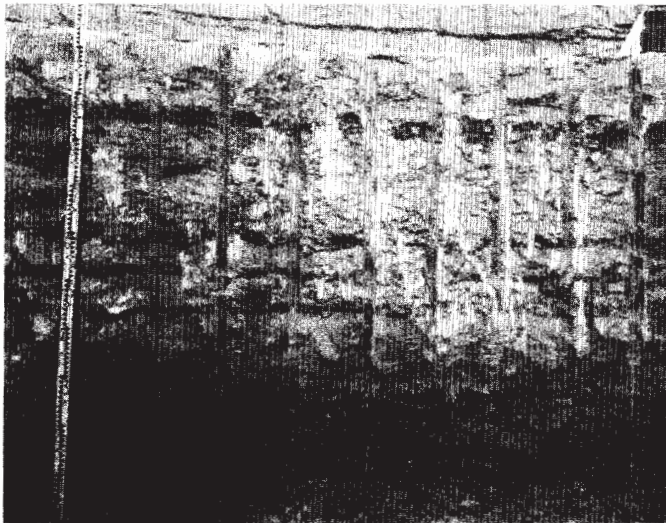
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
Sheet 9 of 21

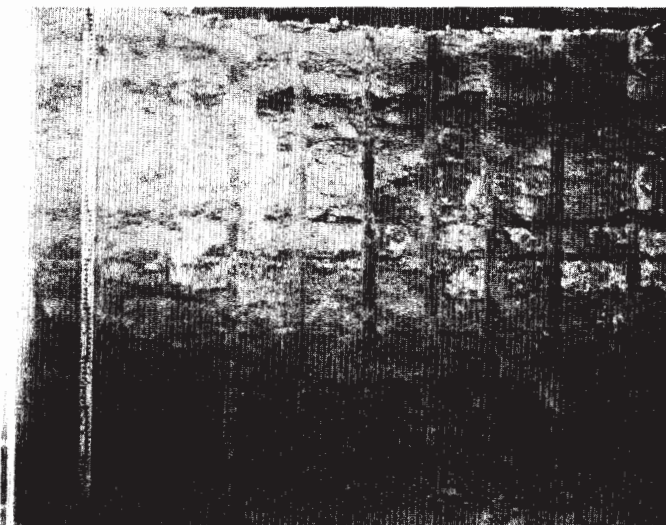
FIGURE 2.5.4-37



CONTAINMENT WALL  
PHOTO # CB-1-28



REACTOR WALL  
PHOTO # C1-RC-1  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-2  
1st LIFT

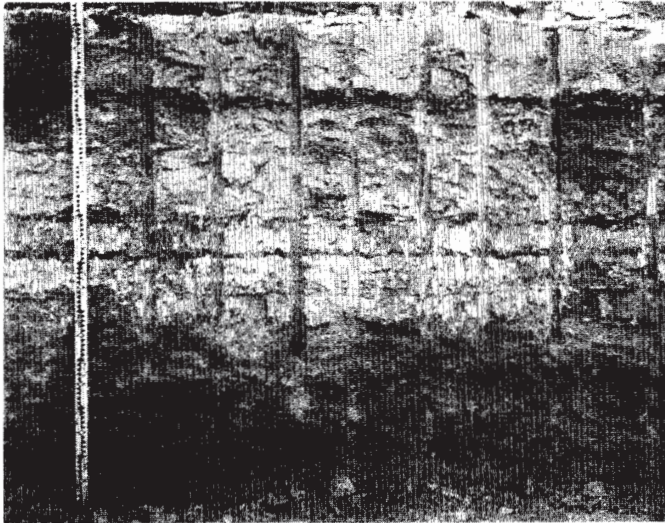
REFERENCE FIGURE 2.5.4-36

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

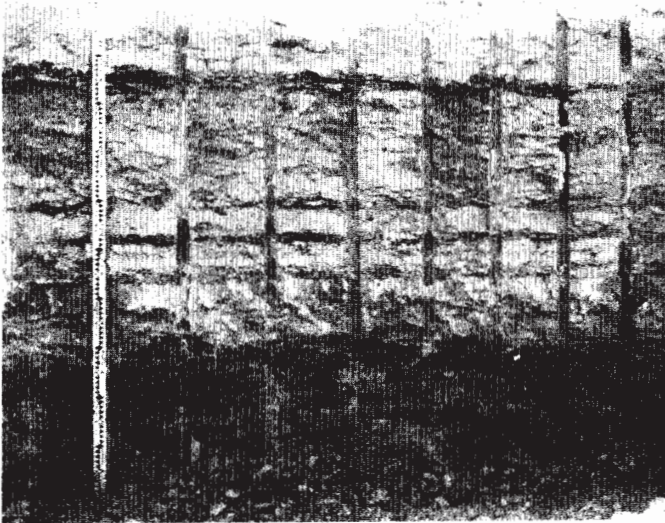
EXCAVATION PHOTOGRAPHS  
Sheet 10 of 21

FIGURE 2.5.4-37

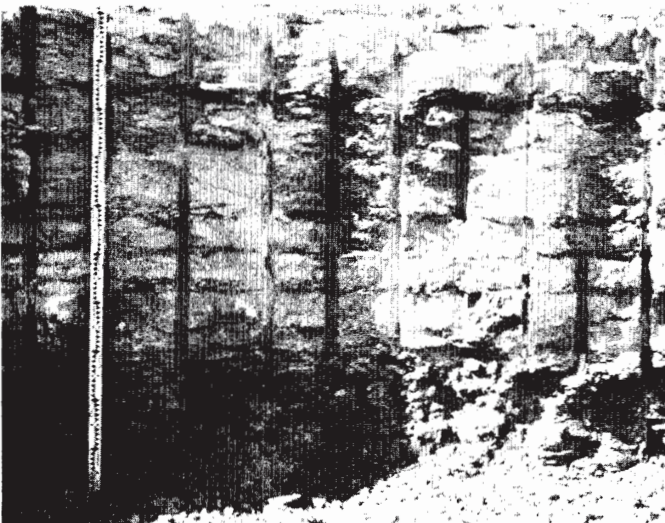




REACTOR WALL  
PHOTO # C1-RC-3  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-4  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-5  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-6  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-7  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-8  
1st LIFT

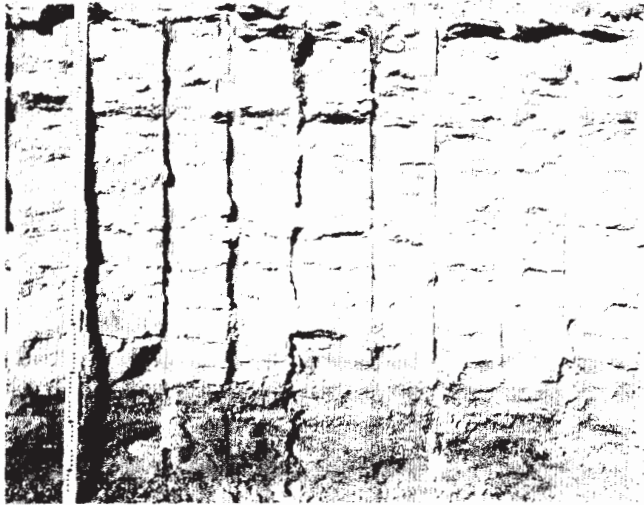
REFERENCE FIGURE 2.5.4-36

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
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FIGURE 2.5.4-37

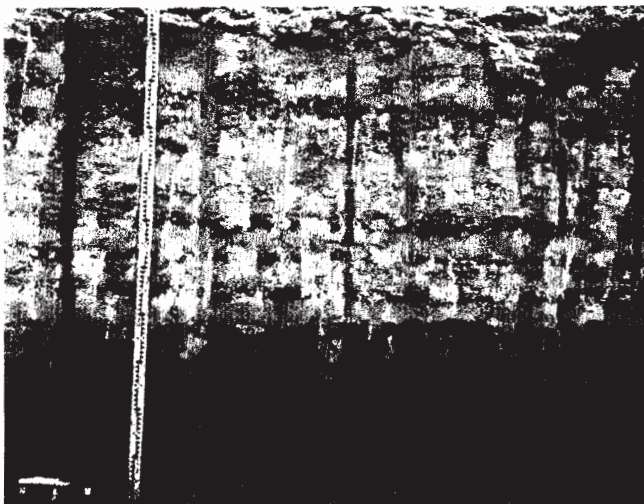




REACTOR WALL  
PHOTO # C1-RC-9  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-10  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-11  
1st LIFT

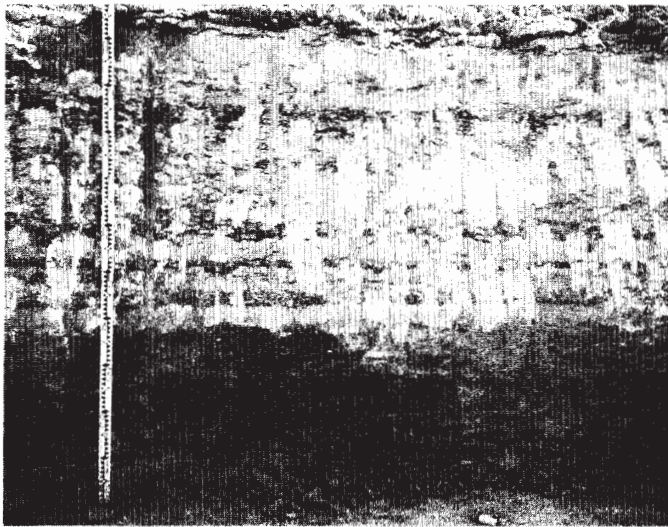
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
Sheet 13 of 21

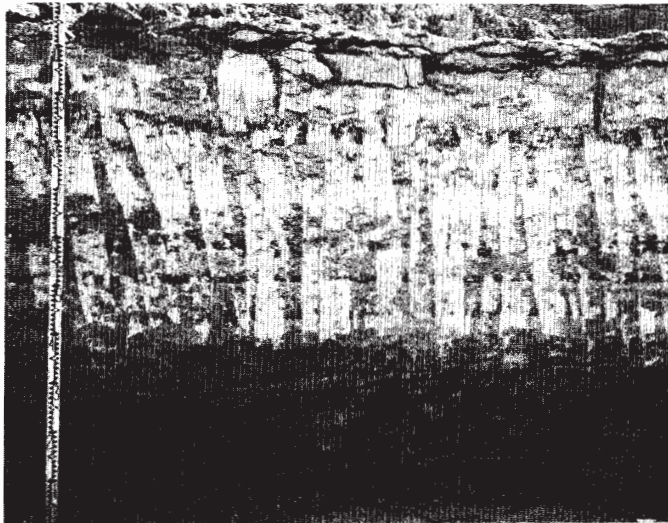
FIGURE 2.5.4-37

REFERENCE FIGURE 2.5.4-36

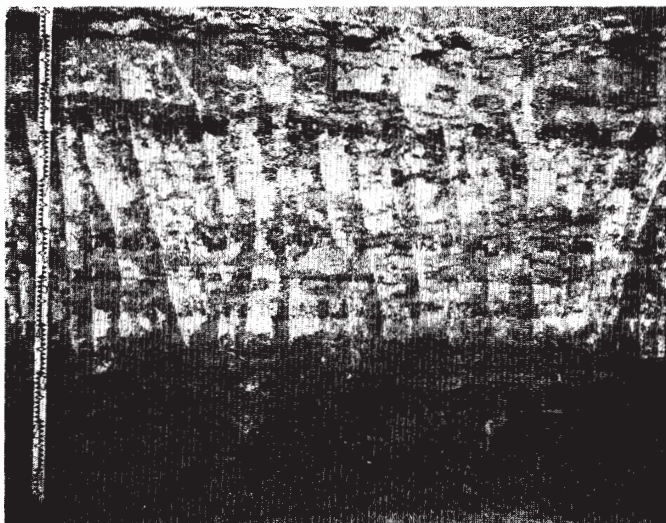




REACTOR WALL  
PHOTO # C1-RC-12  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-13  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-14  
1st LIFT

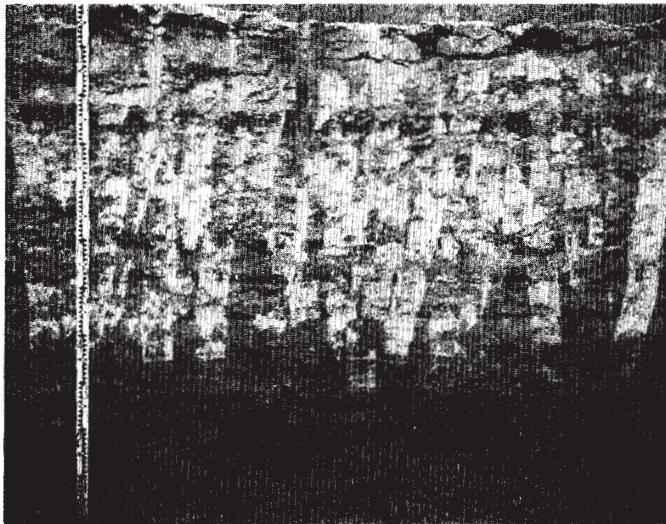
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
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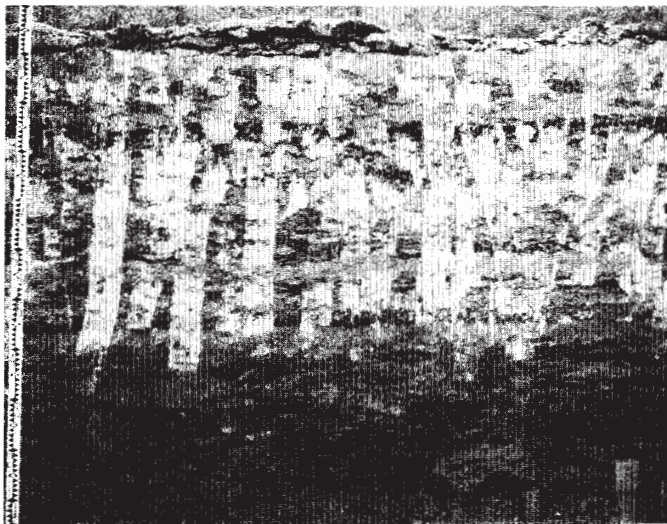
FIGURE 2.5.4-37

REFERENCE FIGURE 2.5.4-36

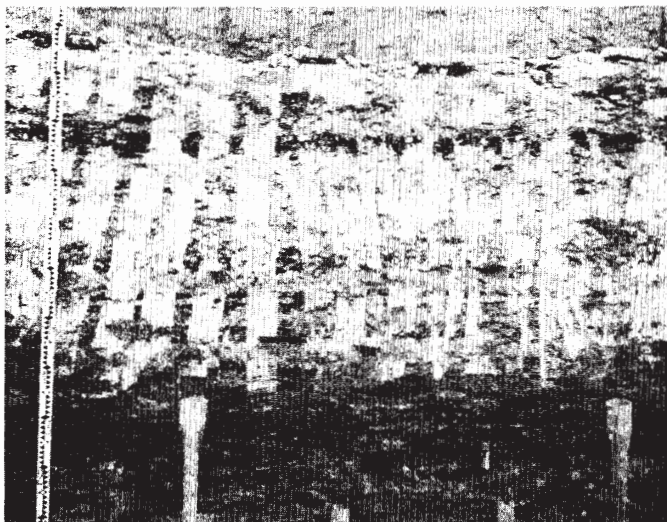




REACTOR WALL  
PHOTO # C1-RC-15  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-16  
1st LIFT



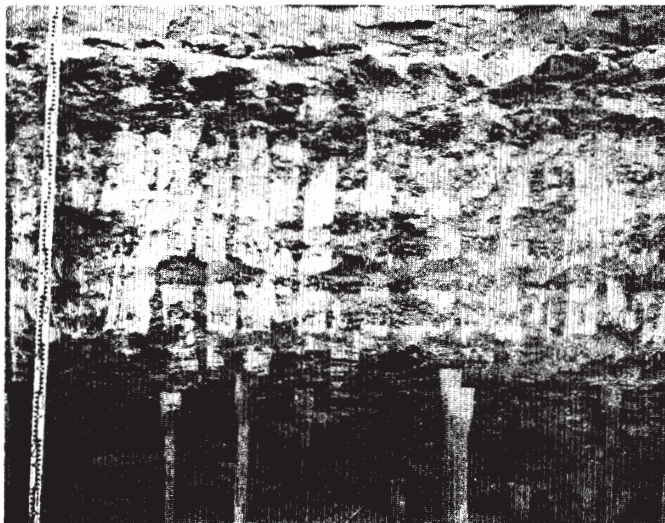
REACTOR WALL  
PHOTO # C1-RC-17  
1st LIFT

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

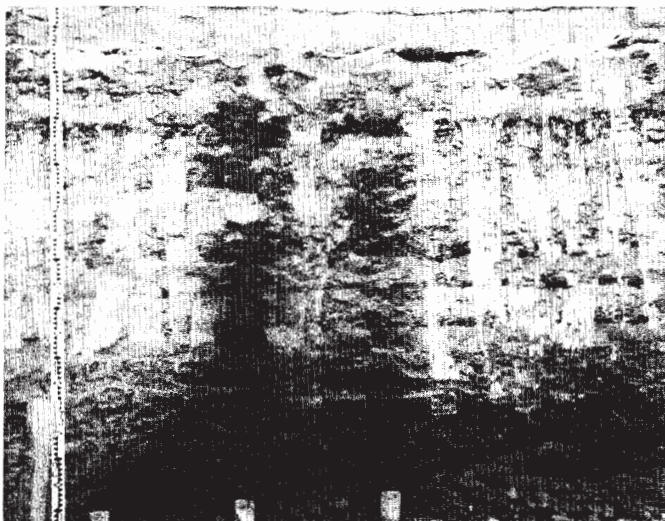
EXCAVATION PHOTOGRAPHS  
Sheet 15 of 21

FIGURE 2.5.4-37

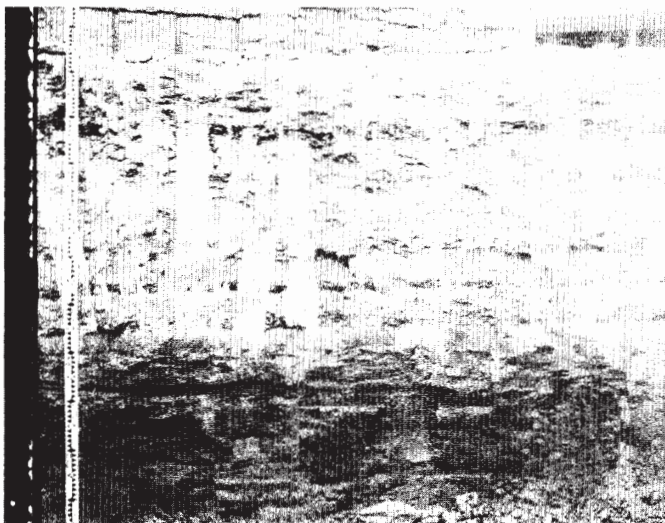
REFERENCE FIGURE 2.5.4-36



REACTOR WALL  
PHOTO # C1-RC-18  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-19  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-20  
1st LIFT

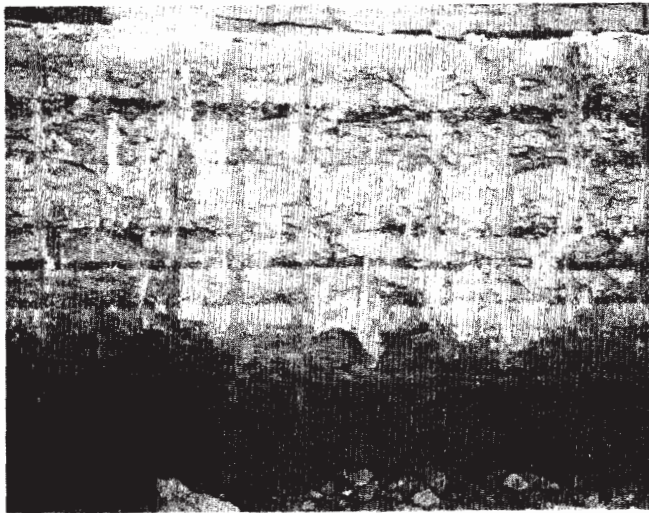
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
Sheet 16 of 21

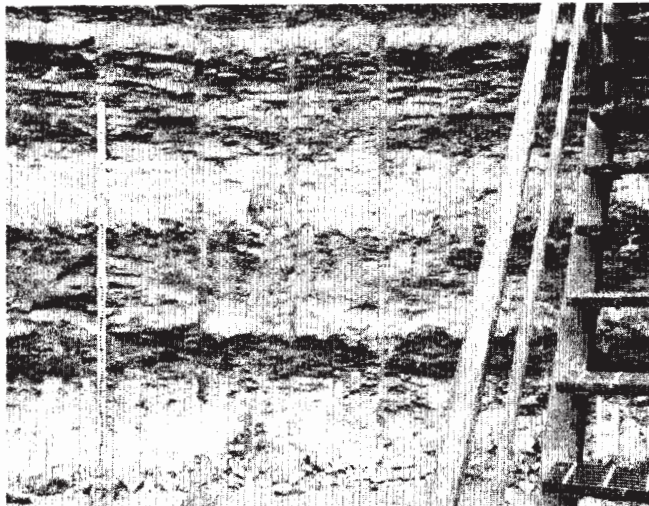
FIGURE 2.5.4-37

REFERENCE FIGURE 2.5.4-36

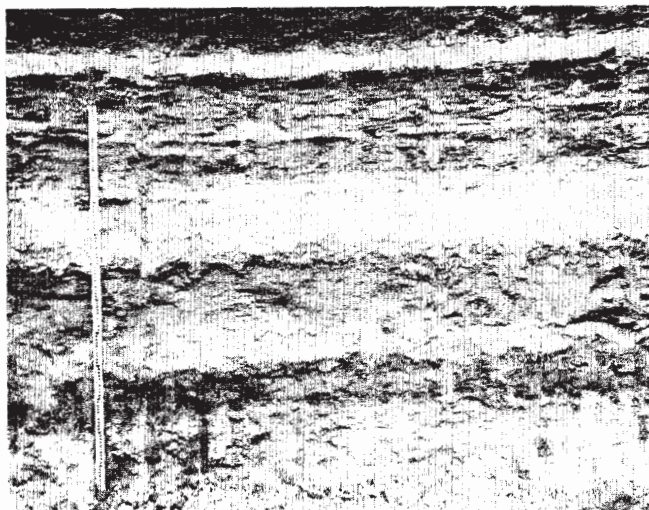




REACTOR WALL  
PHOTO # C1-RC-21  
1st LIFT



REACTOR WALL  
PHOTO # C1-RC-1  
2nd LIFT



REACTOR WALL  
PHOTO # C1-RC-2  
2nd LIFT

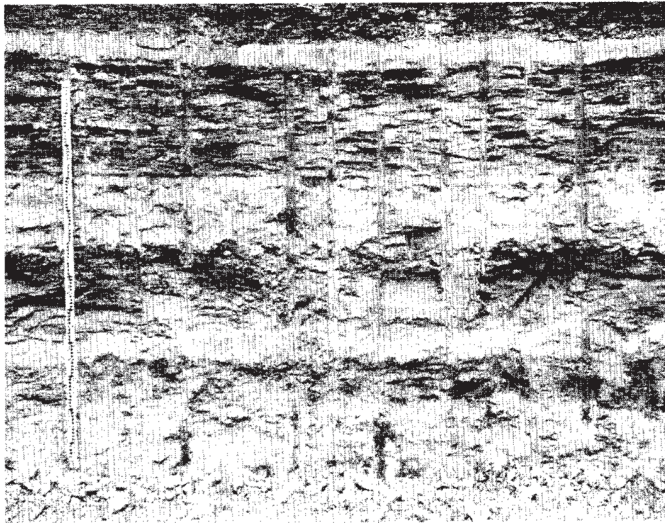
REFERENCE FIGURE 2.5.4-36

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

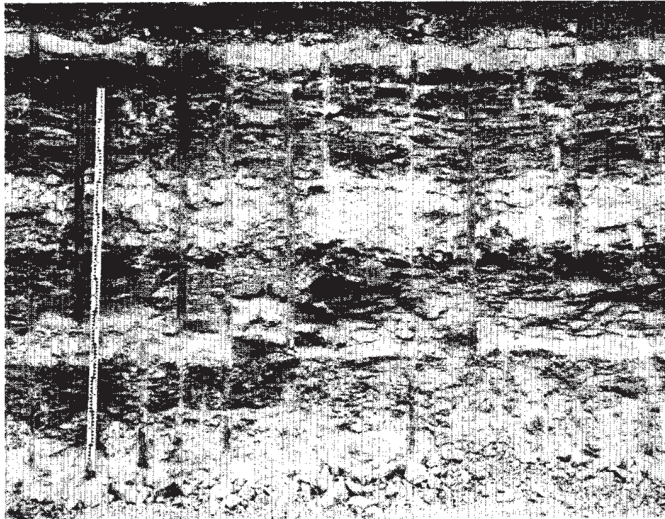
EXCAVATION PHOTOGRAPHS  
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FIGURE 2.5.4-37

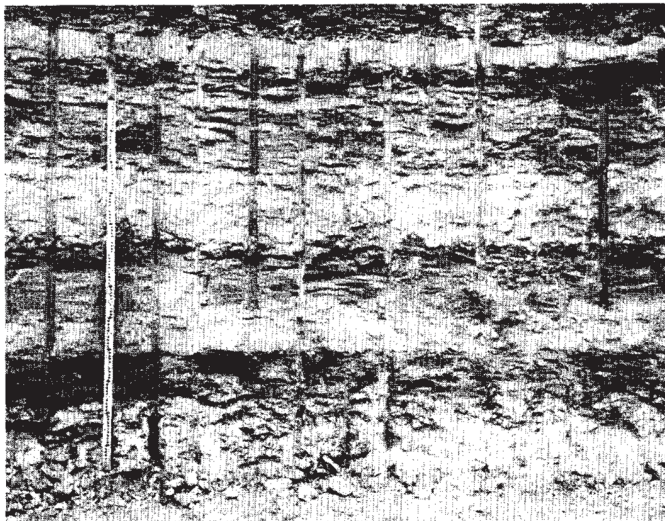




REACTOR WALL  
PHOTO # C1-RC-3  
2nd LIFT

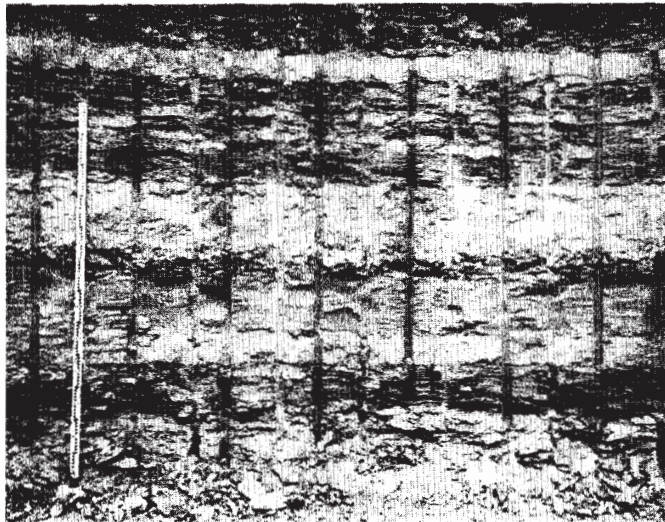


REACTOR WALL  
PHOTO # C1-RC-4  
2nd LIFT

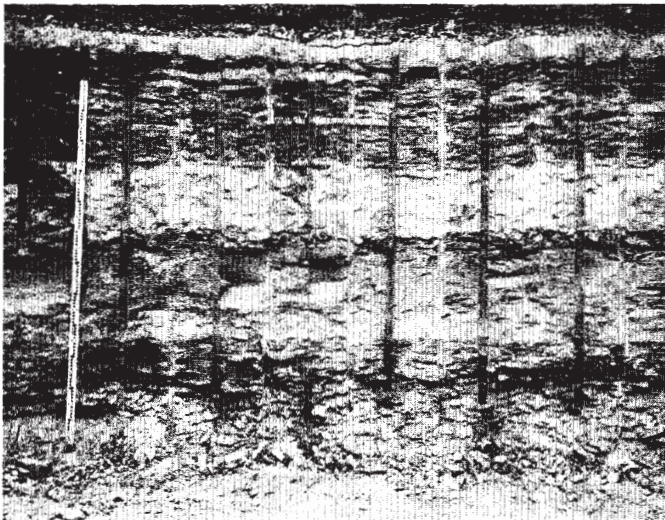


REACTOR WALL  
PHOTO # C1-RC-5  
2nd LIFT

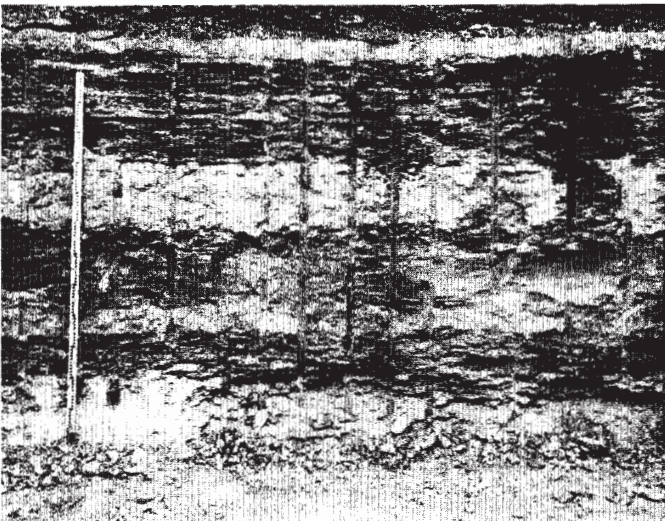




REACTOR WALL  
PHOTO # C1-RC-6  
2nd LIFT

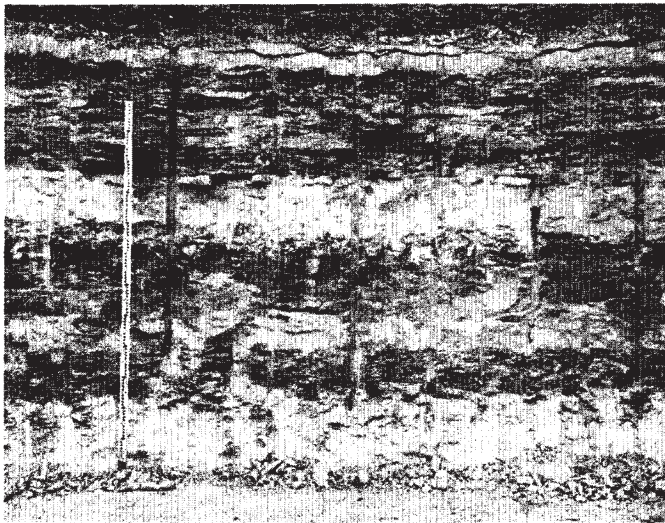


REACTOR WALL  
PHOTO # C1-RC-7  
2nd LIFT

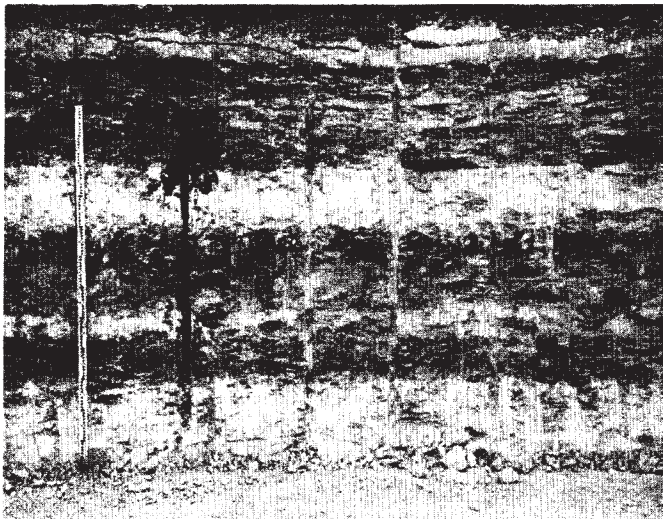


REACTOR WALL  
PHOTO # C1-RC-8  
2nd LIFT

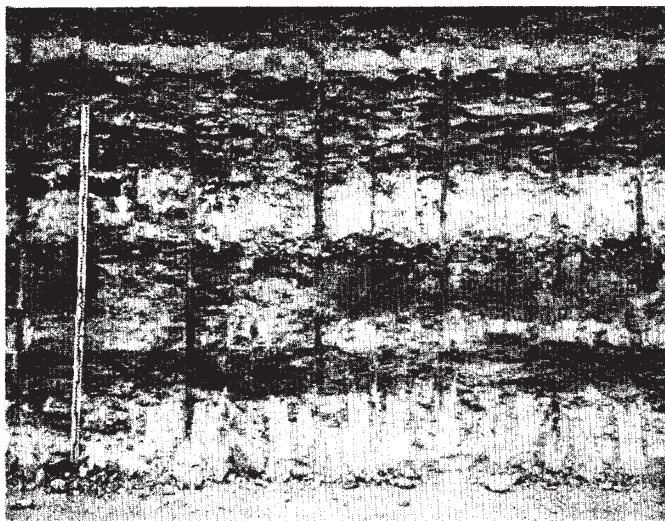




REACTOR WALL  
PHOTO # C1-RC-9  
2nd LIFT



REACTOR WALL  
PHOTO # C1-RC-10  
2nd LIFT



REACTOR WALL  
PHOTO # C1-RC-11  
2nd LIFT

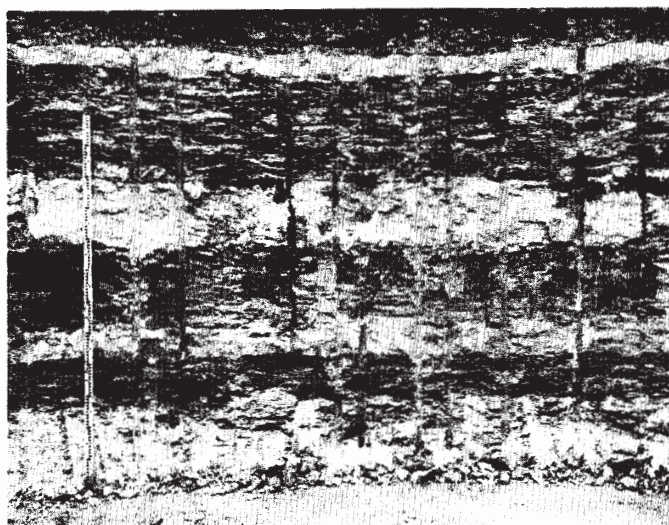
REFERENCE FIGURE 2.5.4-36

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

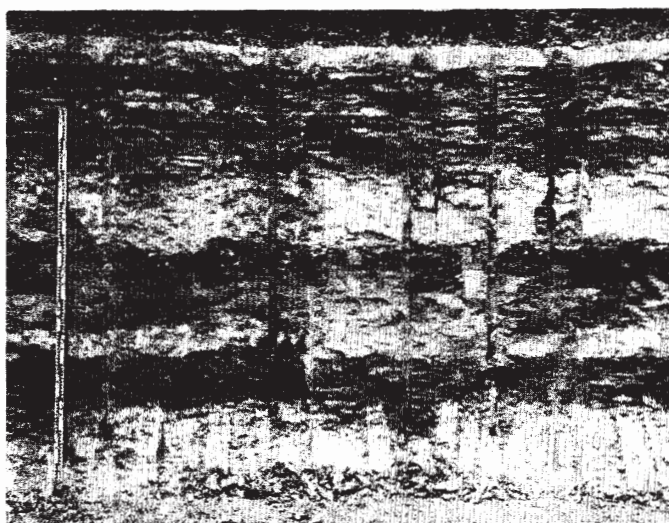
EXCAVATION PHOTOGRAPHS  
Sheet 20 of 21

FIGURE 2.5.4-37

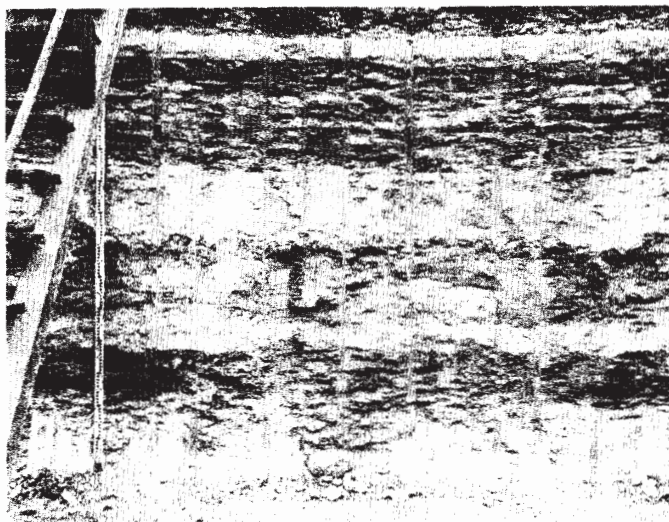




REACTOR WALL  
PHOTO # C1-RC-12  
2nd LIFT



REACTOR WALL  
PHOTO # C1-RC-13  
2nd LIFT



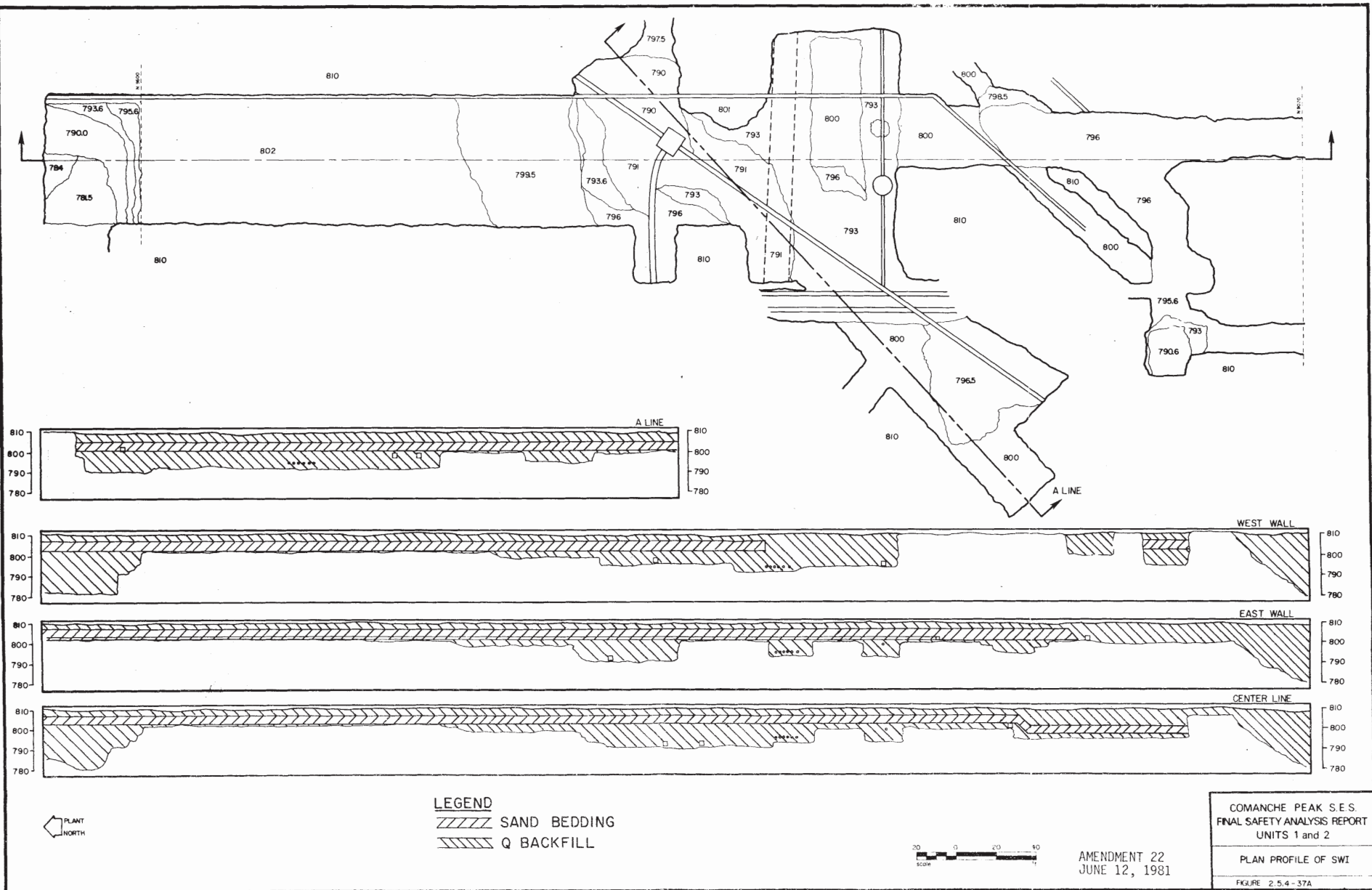
REACTOR WALL  
PHOTO # C1-RC-14  
2nd LIFT

REFERENCE FIGURE 2.5.4-36

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EXCAVATION PHOTOGRAPHS  
Sheet 21 of 21

FIGURE 2.5.4-37



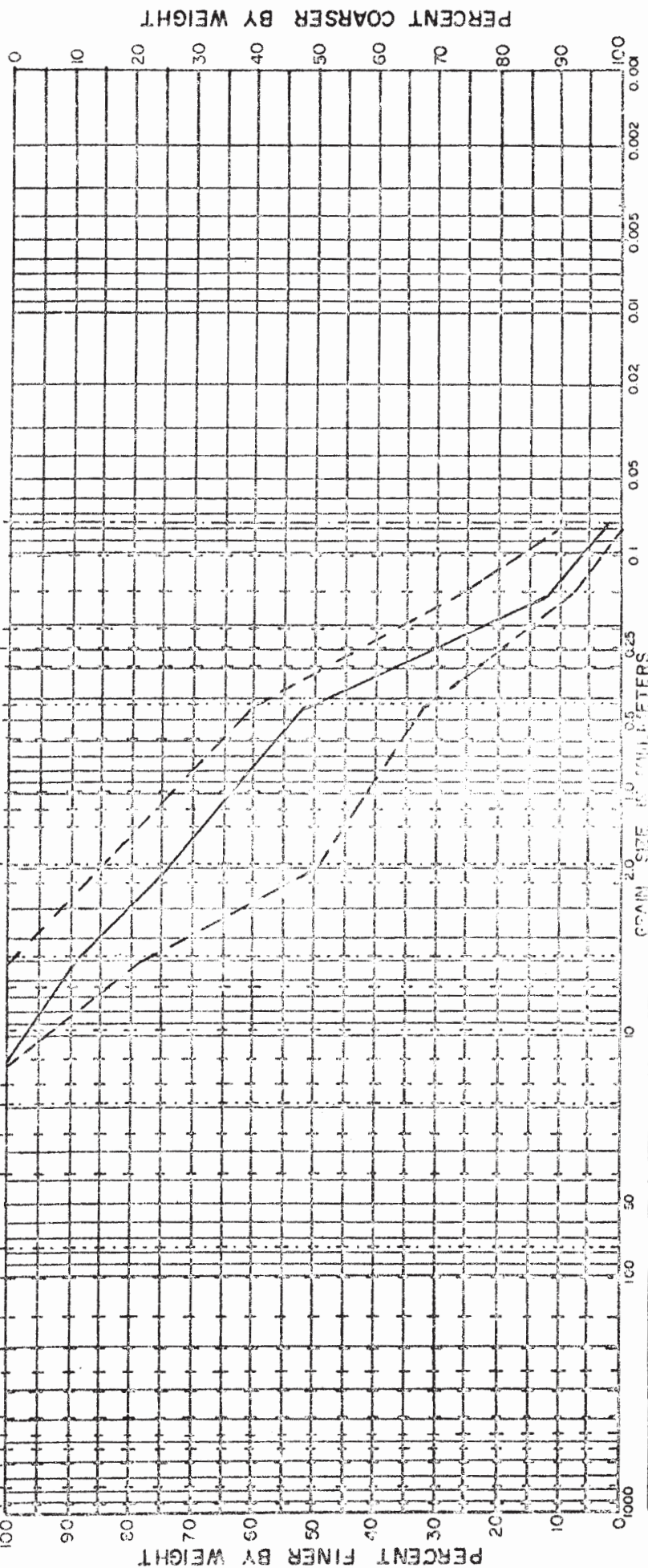






# U.S. STANDARD SIEVE SIZES

36"	24"	18"	12"	8"	6"	4"	3"	2"	1 1/2"	1"	5/8"	3/8"	1/4"	4	6.350	4.760	2.362	1.981	1.587	1.168	0.991	0.5389	0.425	0.417	0.295	0.248	0.208	0.147	0.104	0.074
914	762	610	533	457	381	305	254	203	152	101	76	50	38	25	19	15	12	9	7	5	4	3	2	1	0.5	0.25	0.125	0.0625	0.03125	0.015625



COBBLES			GRAVEL			SAND			SILT or CLAY		
			Coarse	Fine		Coarse	Medium	Fine			

JULY 27, 1978 AMENDMENT 2

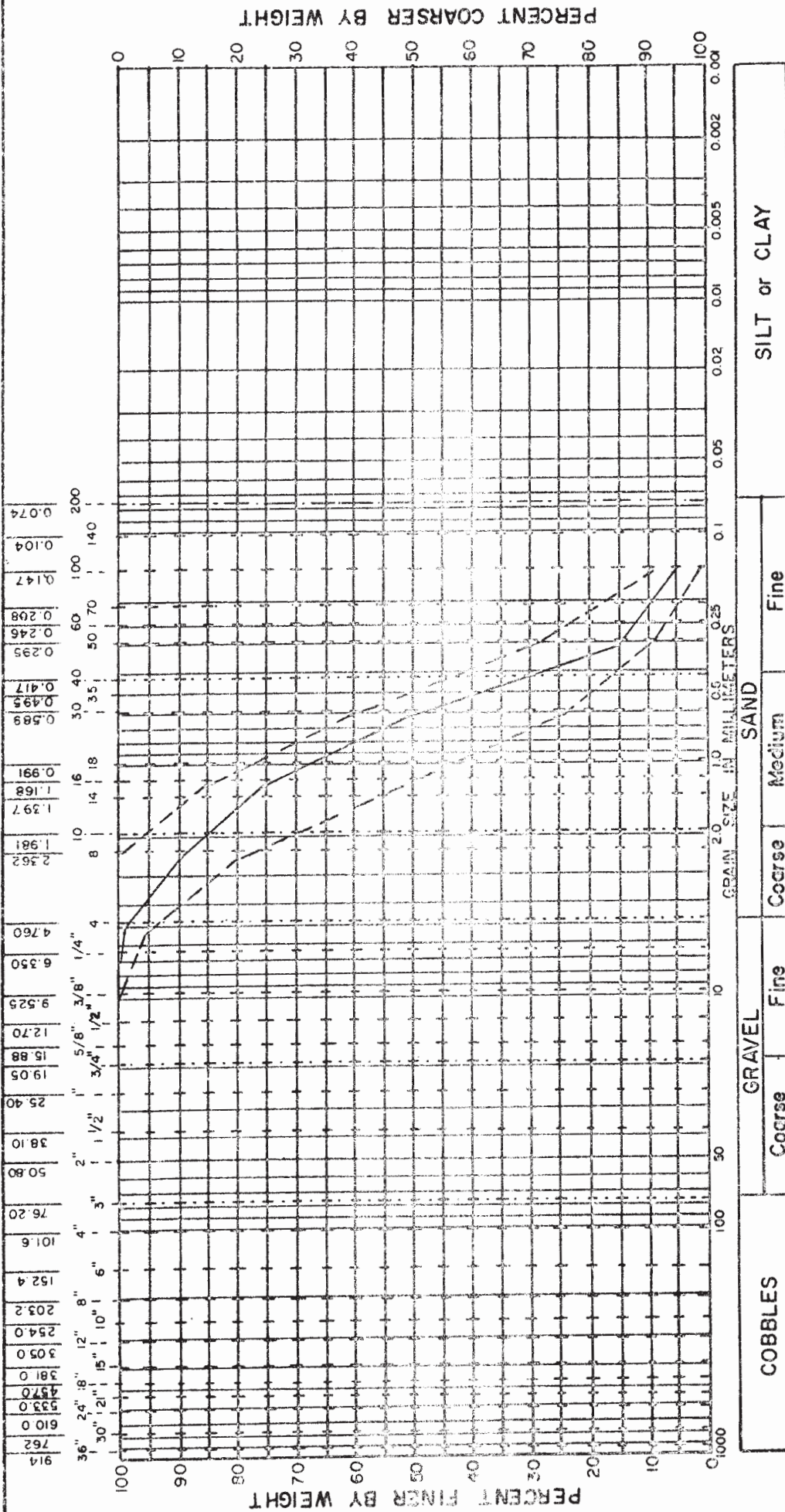
Hole No.	Depth	Logend	LL	PL	PI	LS	Classification	SUBJECT
Spig No.								

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

CYCLIC TRIAXIAL TEST PROGRAM  
SAMPLE 1 GRADATION  
FILTER "A"

FIGURE 2.5.4-38A

## U. S. STANDARD SIEVE SIZES



JULY 27, 1978      AMENDMENT 2

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

CYCLIC TRIAXIAL TEST PROGRAM  
SAMPLE #2 GRADATION  
C-33 FINE AGGREGATE

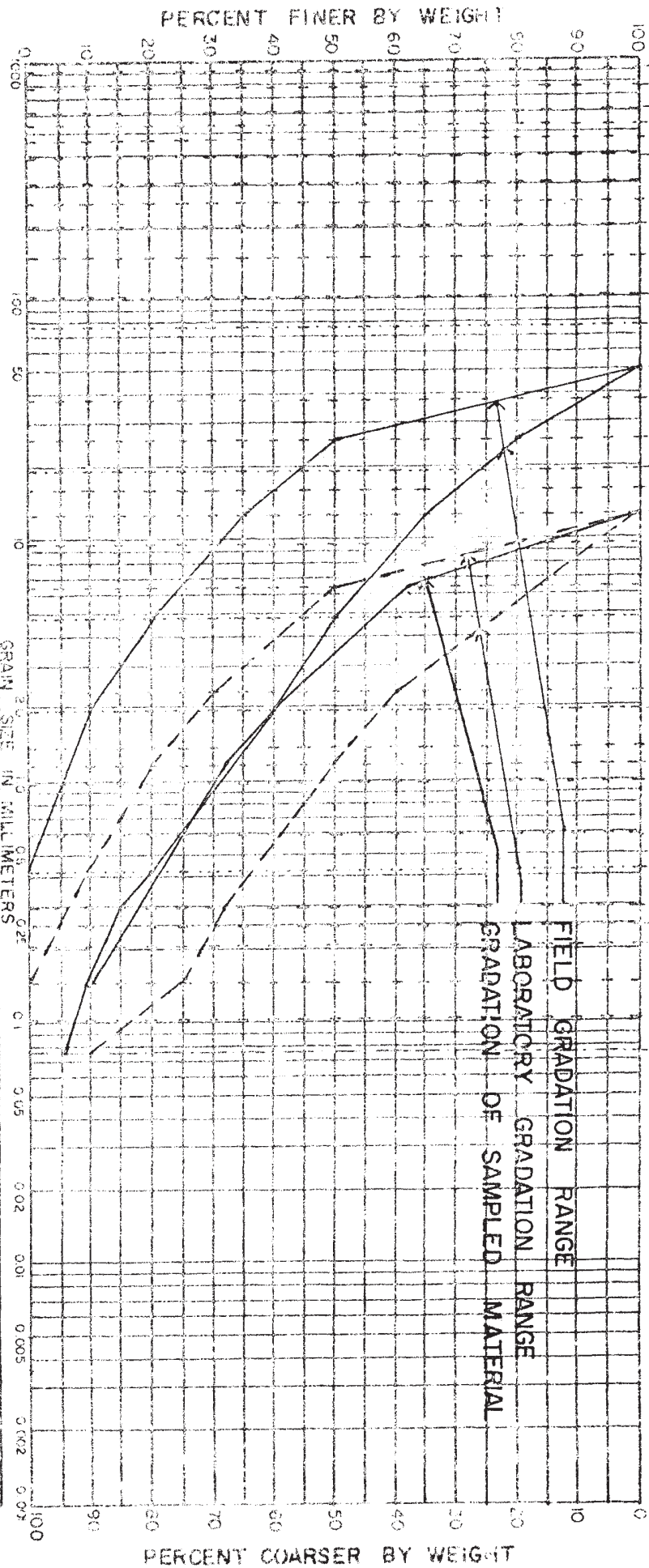
FIGURE 2.5.4-38B

[illegible]



# U.S. STANDARD SIEVE SIZES

36"	914
30"	762
24"	610.0
20"	533.0
18"	457.0
15"	381.0
12"	305.0
10"	254.0
8"	203.2
6"	152.4
4"	101.6
3"	76.20
2"	50.80
1 1/2"	38.10
1"	25.40
5/8"	19.05
3/4"	15.88
1/2"	12.70
3/8"	9.525
1/4"	6.350
4	4.760
8	2.362
10	1.981
16	1.197
20	1.168
30	0.991
40	0.589
60	0.495
100	0.417
200	0.295
400	0.246
600	0.208
1000	0.147
2000	0.104
4000	0.074



COBBLES		GRAVEL		SAND		SILT or CLAY	
Coarse	Fine	Coarse	Medium	Fine			

JULY 27, 1978 AMENDMENT 2

File No	Depth	Legend	LL	PL	PI	LS	Classification	SUBJECT
SP# No.								

COMANCHE PEAK S.E.S.

FINAL SAFETY ANALYSIS REPORT

UNITS 1 and 2

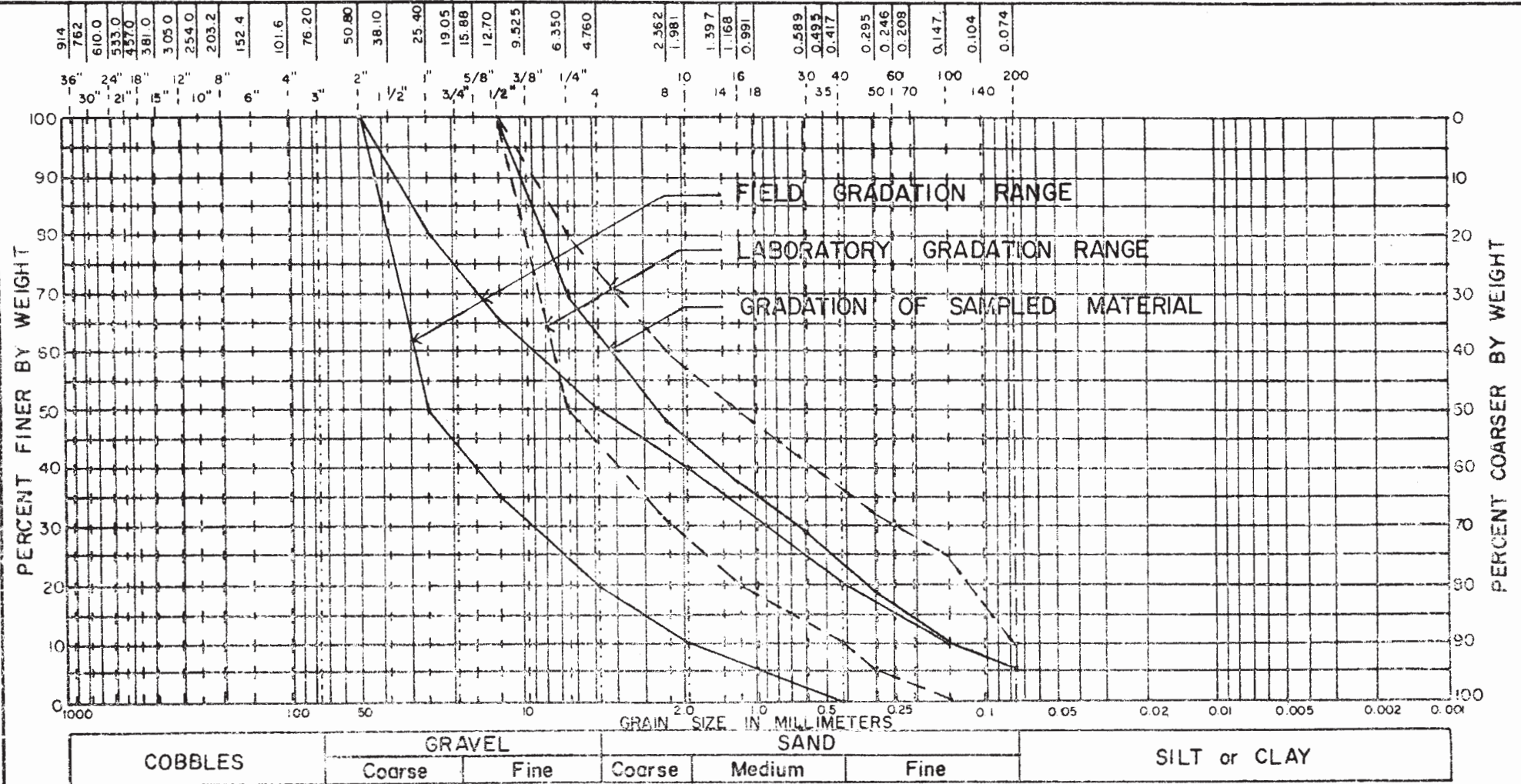
CYCLIC TRIAXIAL TEST PROGRAM

SAMPLE #3 GRADATION

GLEN ROSE CRUSHED STONE

FIGURE 2.5.4-38C

# U. S. STANDARD SIEVE SIZES



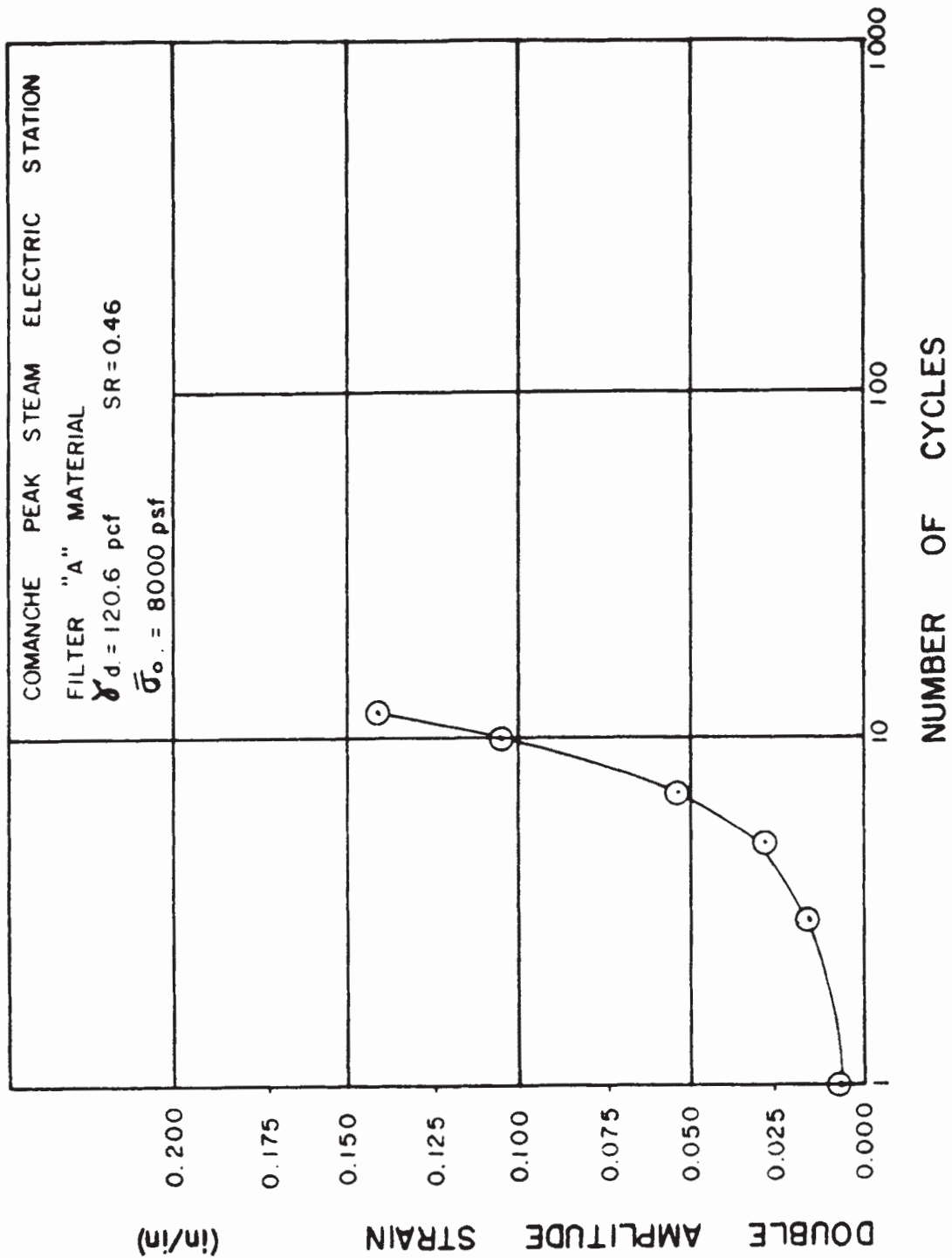
JULY 27, 1978 AMENDMENT 2

Hole No. Sple No.	Depth	Legend	LL	PL	PI	LS	Classification	SUBJECT

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

CYCLIC TRIAXIAL TEST PROGRAM  
SAMPLE #4 GRADATION  
CROWDER QUARRY CRUSHED STONE

FIGURE 2.5.4- 38 D



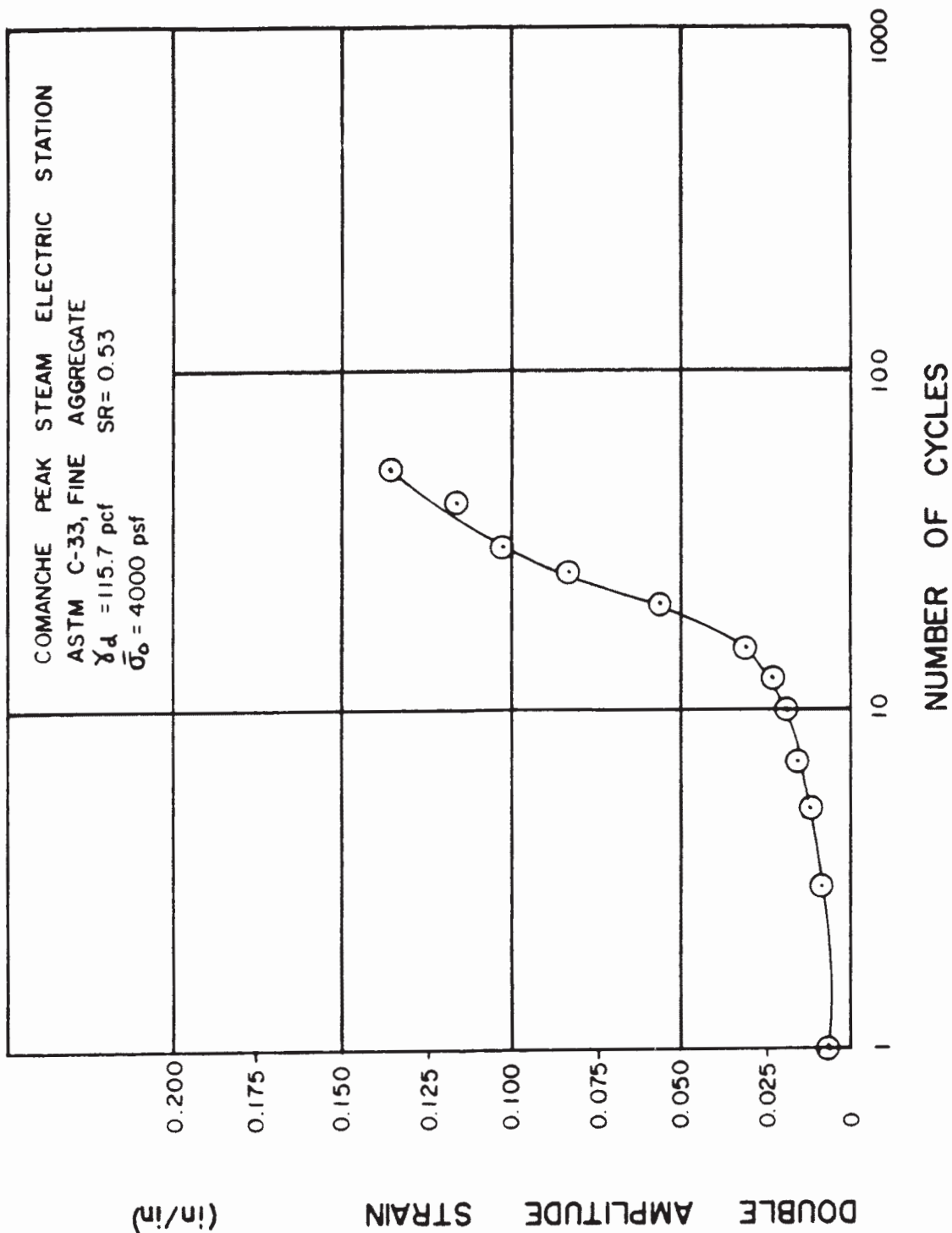
Amendment 67  
 February 5, 1988

COMANCHE PEAK S.E.S.  
 FINAL SAFETY ANALYSIS REPORT  
 UNITS 1 and 2

TYPICAL CYCLIC TRIAXIAL  
 TEST RESULTS

FIGURE 2.5.4-39 SHEET 1 OF 4



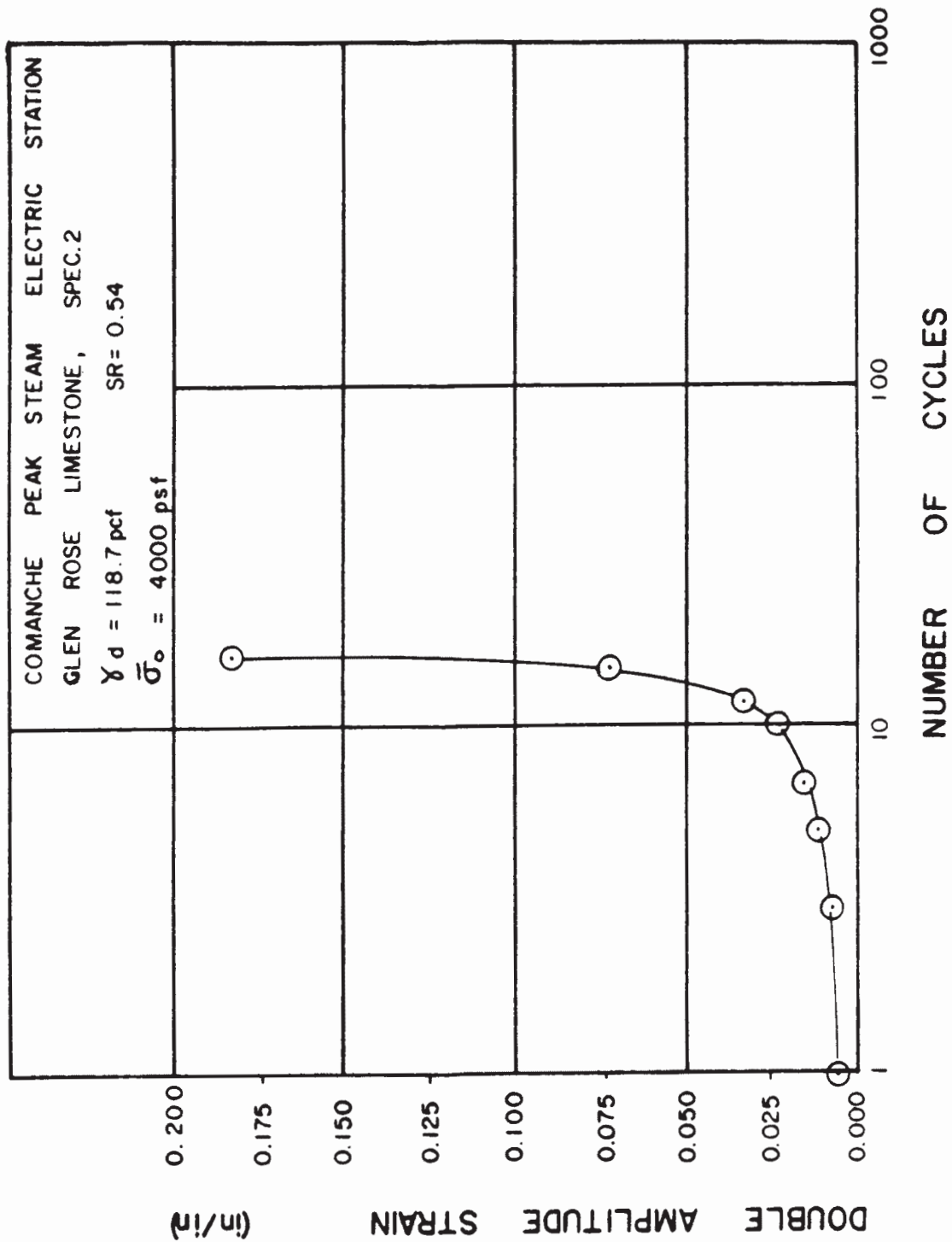


Amendment 67  
February 5, 1988

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

TYPICAL CYCLIC TRIAXIAL  
TEST RESULTS

FIGURE 2.5.4-39 SHEET 2 OF 4

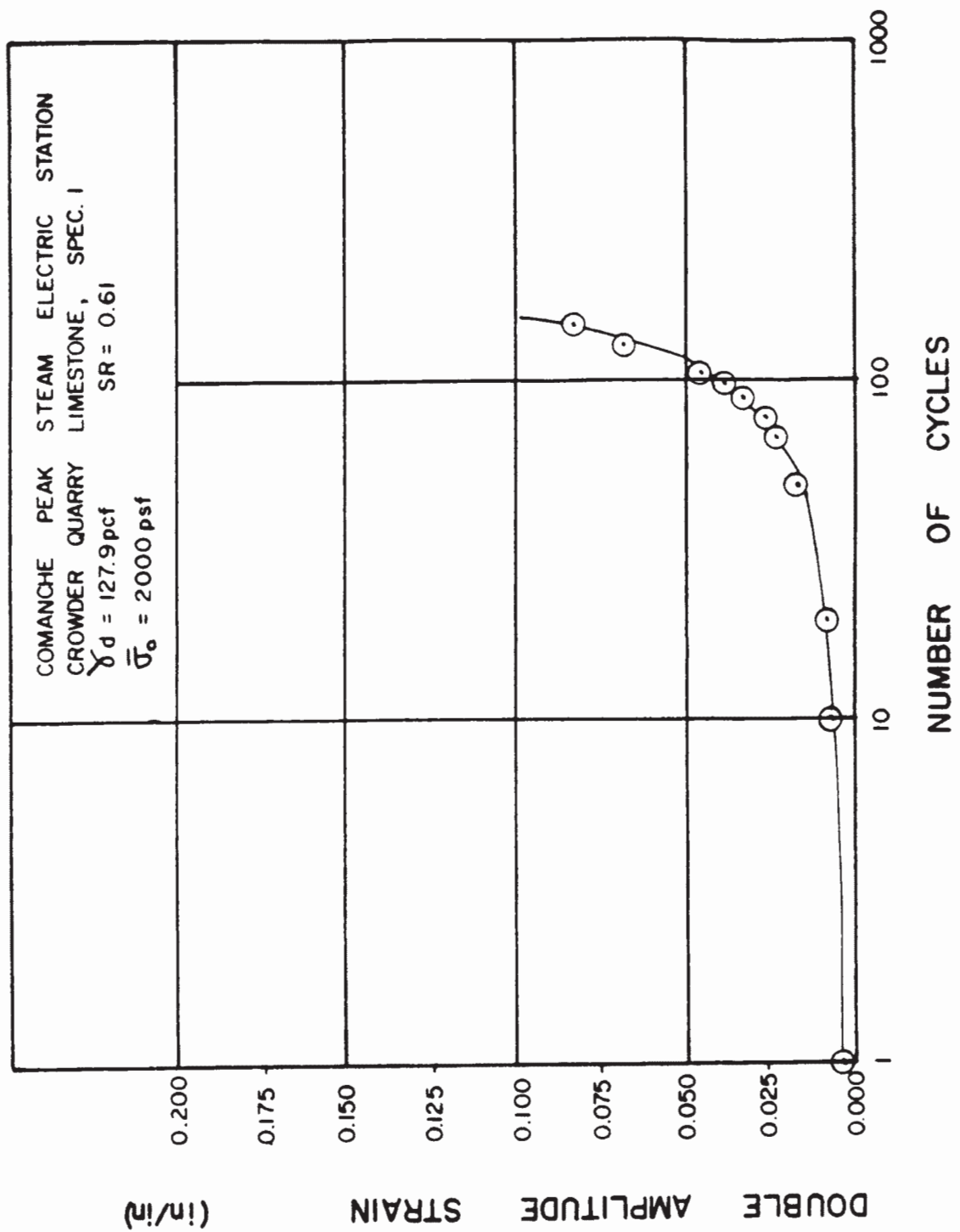


Amendment 67  
February 5, 1988

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

TYPICAL CYCLIC TRIAXIAL  
TEST RESULTS

FIGURE 2.5.4-39 SHEET 3 OF 4

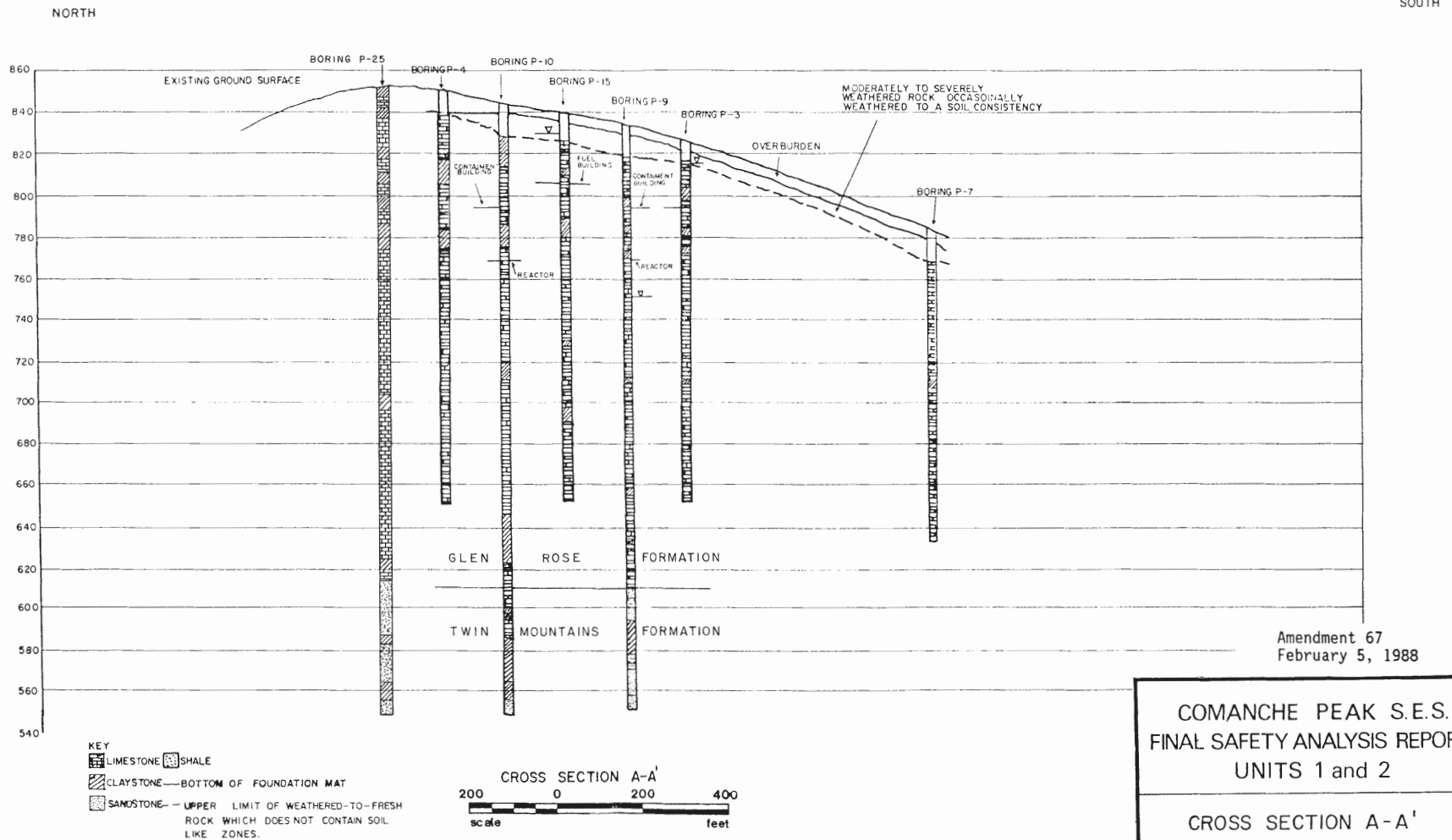


Amendment 67  
February 5, 1988

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

TYPICAL CYCLIC TRIAXIAL  
TEST RESULTS

FIGURE 2.5.4-39 SHEET 4 OF 4



Amendment 67  
February 5, 1988

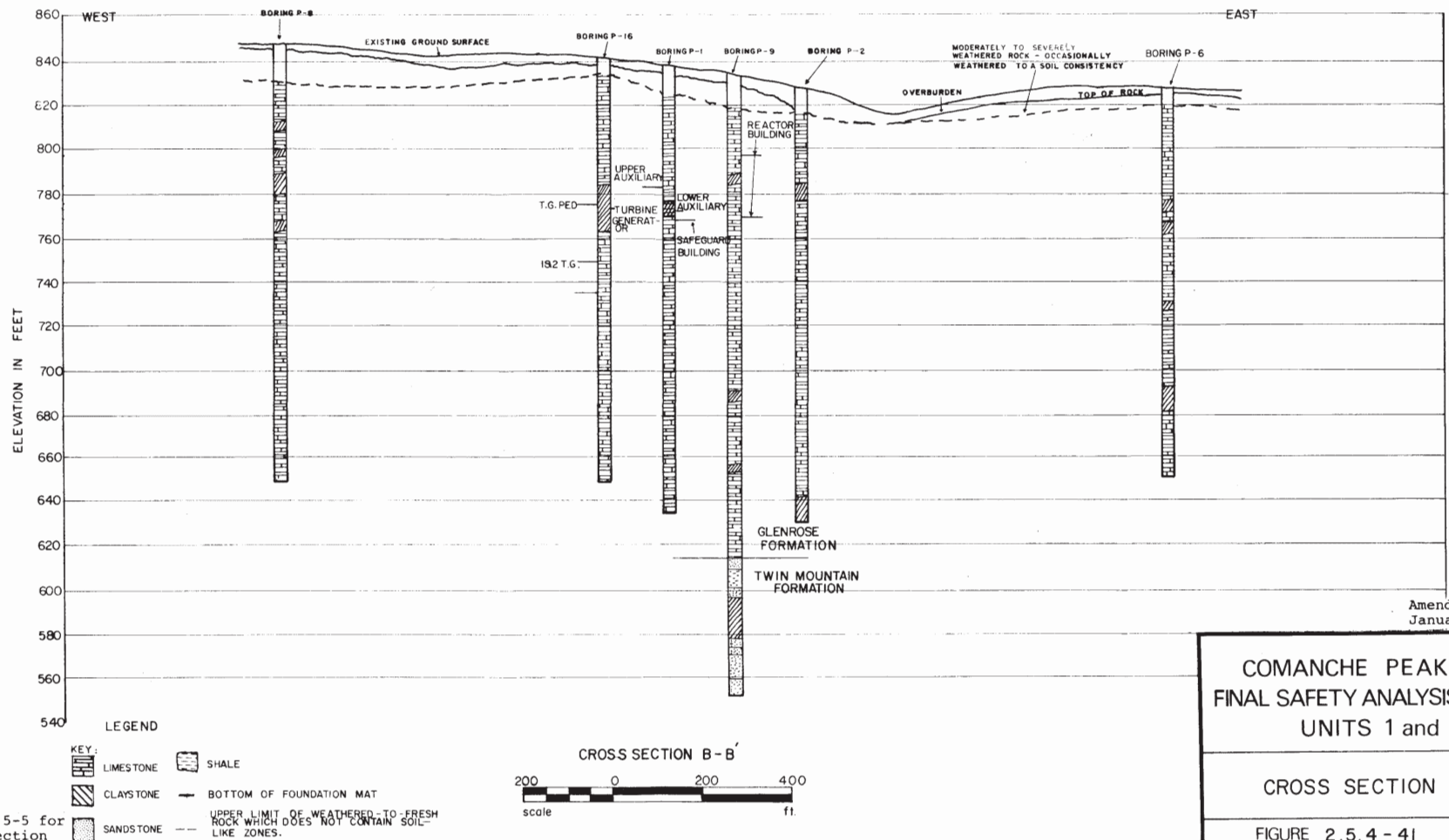
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

CROSS SECTION A-A'

FIGURE 2.5.4 - 40

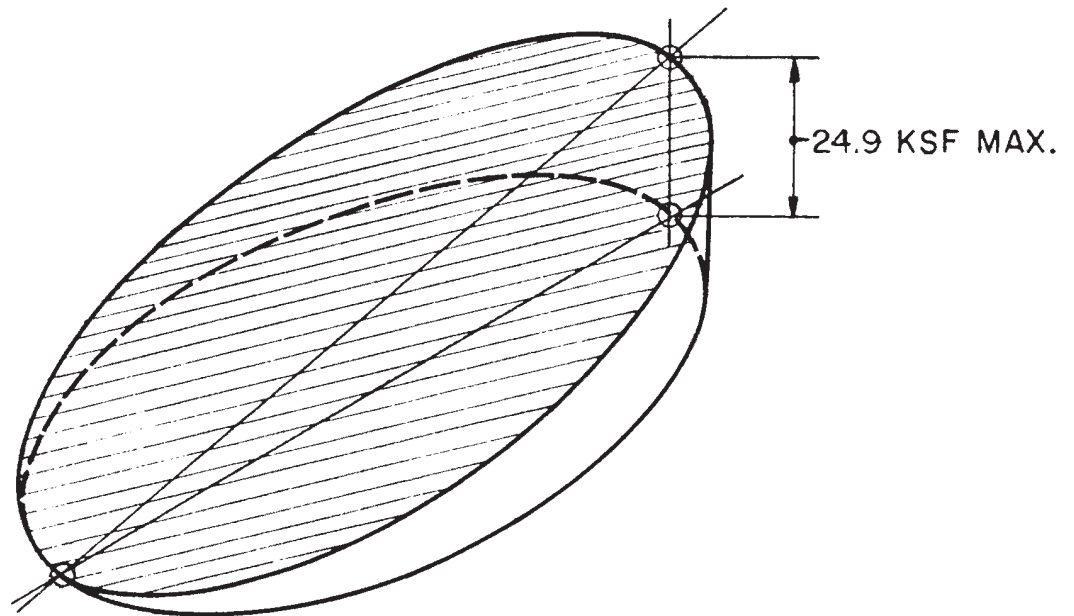
Refer to Figure 2.5.5-5 for  
Location of Cross-Section





Amendment 4  
January 31, 1978

Refer to Figure 2.5.5-5 for  
Location of Cross-Section

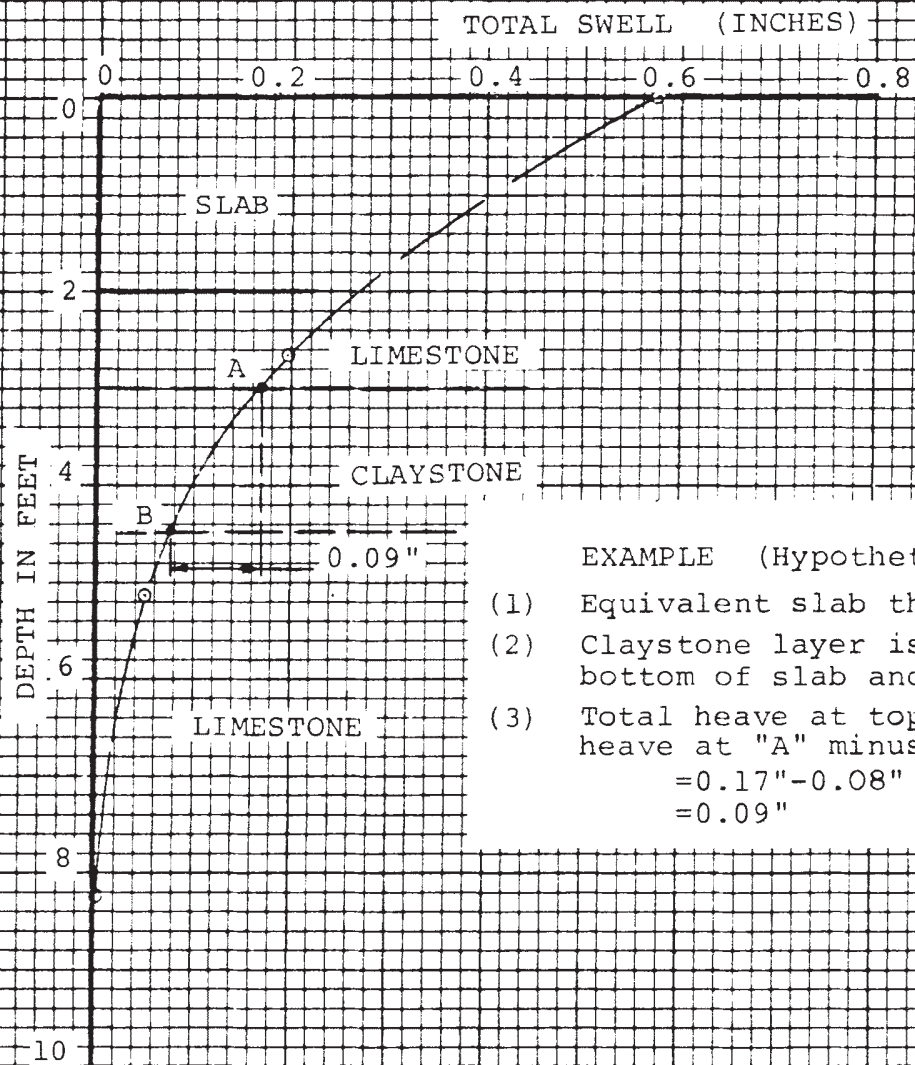


Amendment 67  
February 5, 1988

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

FOUNDATION PRESSURE  
DISTRIBUTION UNDER  
CONTAINMENT DURING SSE

FIGURE 2.5.4-42



EXAMPLE (Hypothetical):

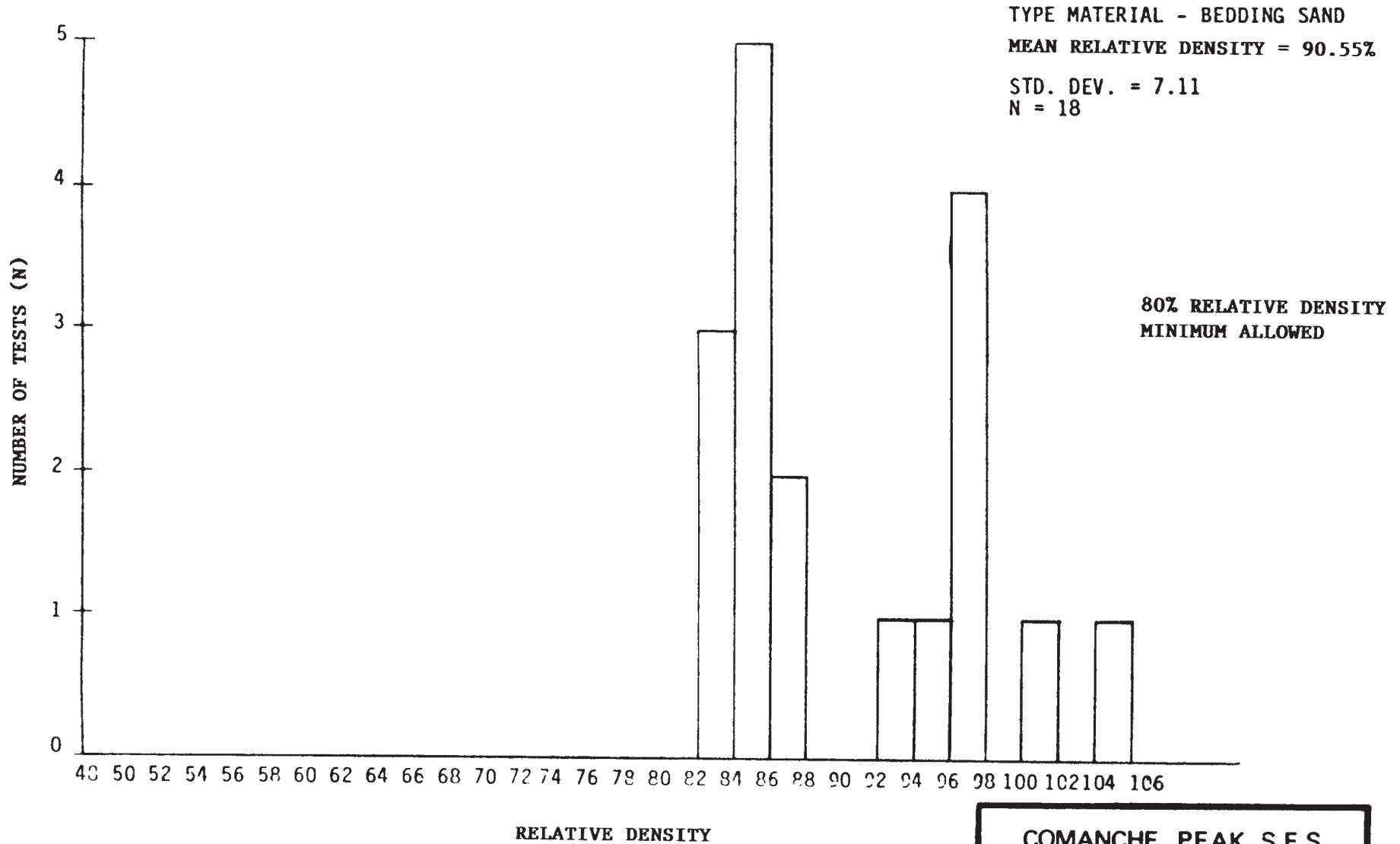
- (1) Equivalent slab thickness = 2'
- (2) Claystone layer is 1.0' below bottom of slab and is 1.5' thick
- (3) Total heave at top of slab =  
 heave at "A" minus heave at "B"  
 $= 0.17" - 0.08"$   
 $= 0.09"$

Amendment 67  
February 5, 1988

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

EFFECT OF CLAYSTONE  
ON FOUNDATION

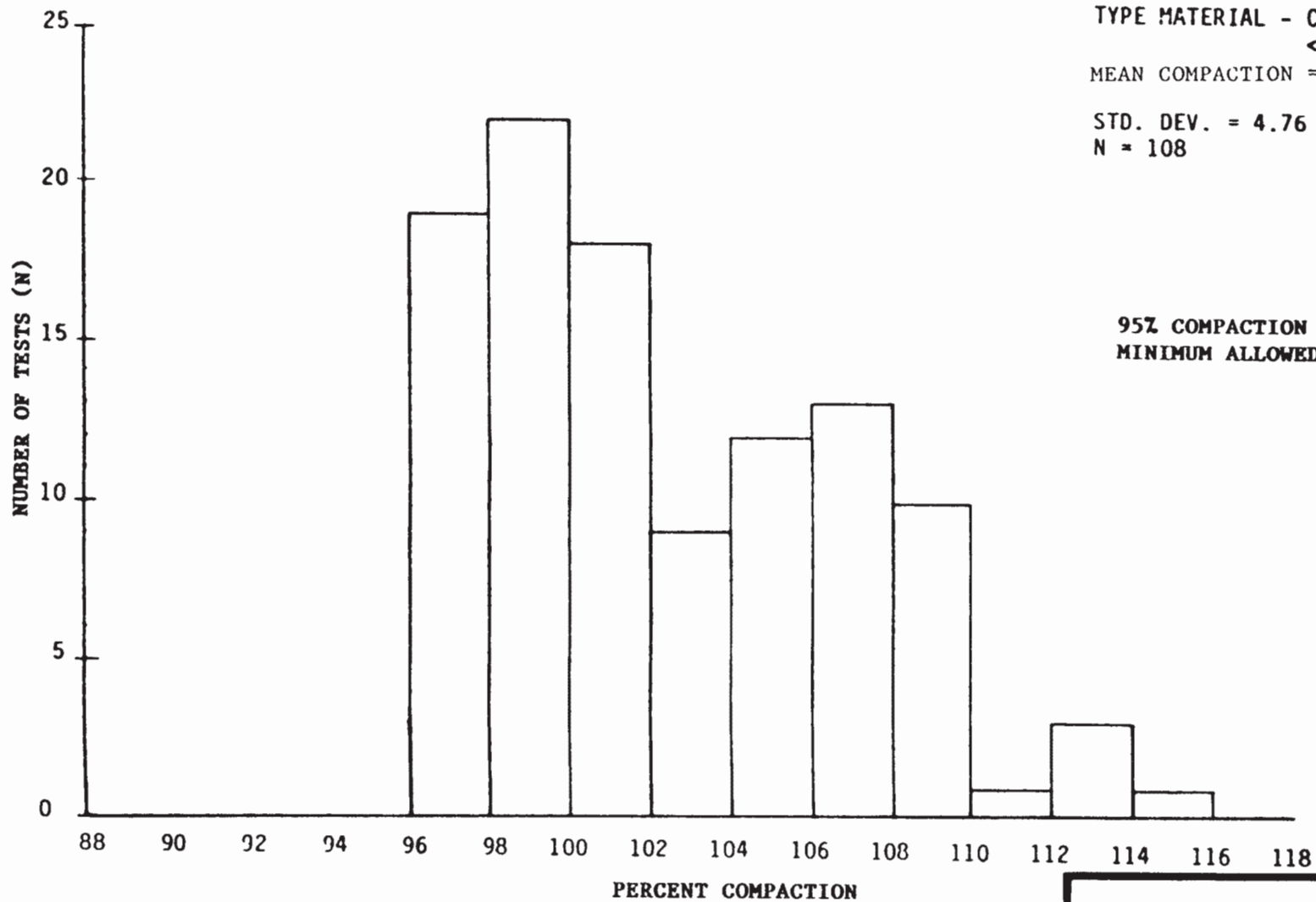
FIGURE 2.5.4-43



Amendment 67  
 February 5, 1988

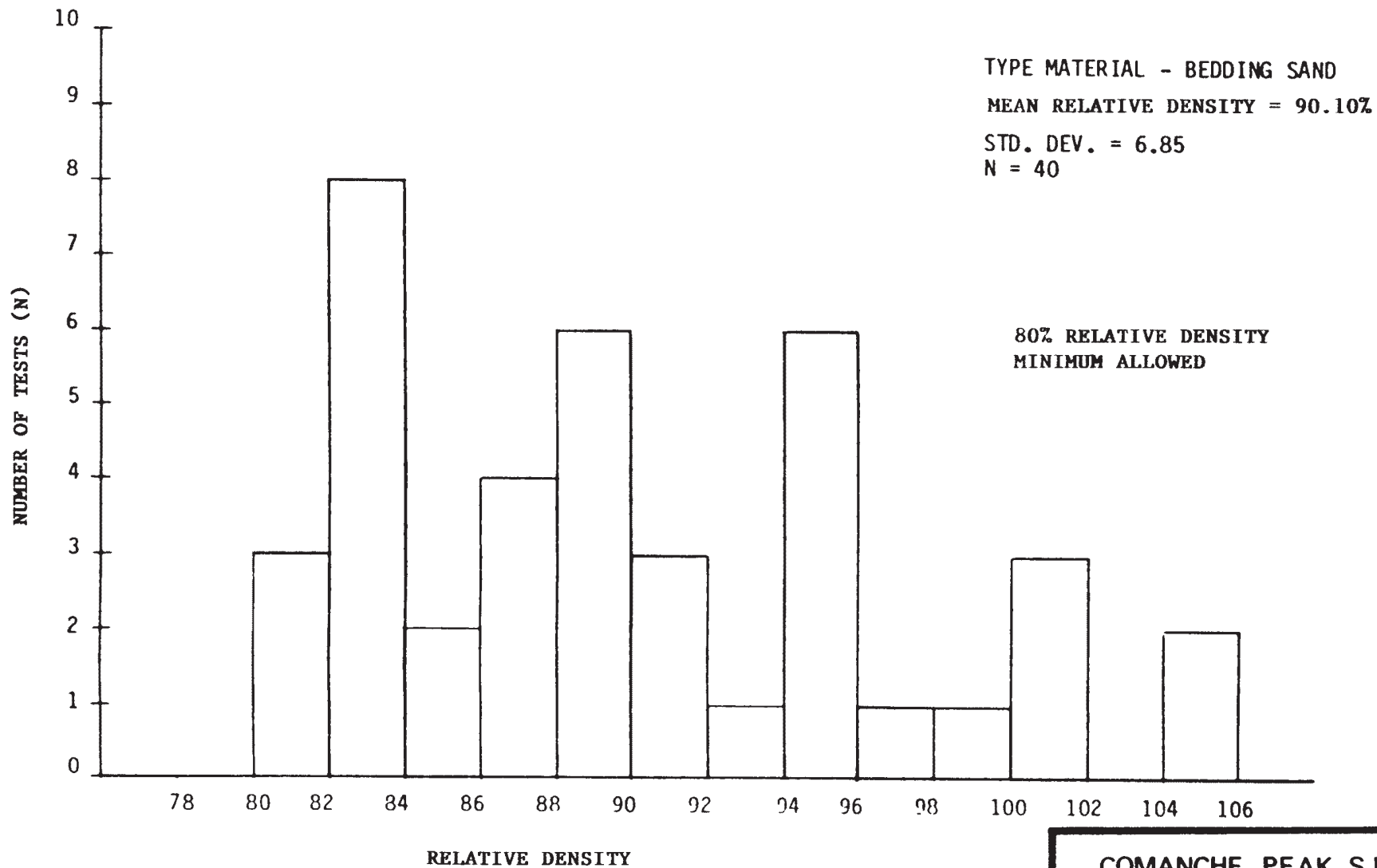
COMANCHE PEAK S.E.S. FINAL SAFETY ANALYSIS REPORT UNITS 1 and 2
RELATIVE DENSITY TEST SUMMARY FOR BACKFILL AROUND CATEGORY I ELEC. MANHOLES AND DUCT BANK
FIGURE 2.5.4-44





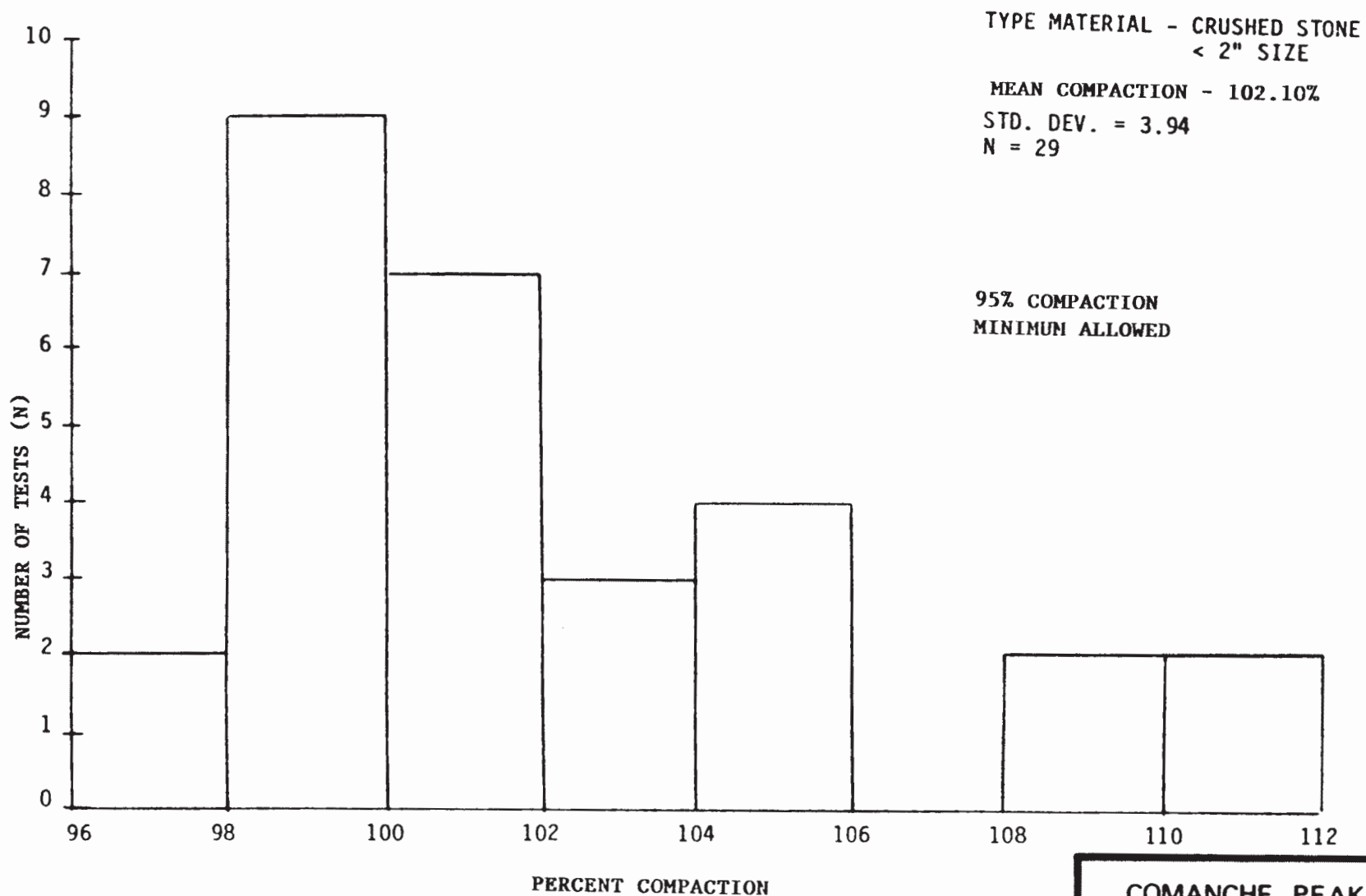
Amendment 67  
February 5, 1988

COMANCHE PEAK S.E.S. FINAL SAFETY ANALYSIS REPORT UNITS 1 and 2
PERCENT COMPACTION TEST SUMMARY FOR BACKFILL AROUND CATEGORY I CONDUIT
FIGURE 2.5.4-45



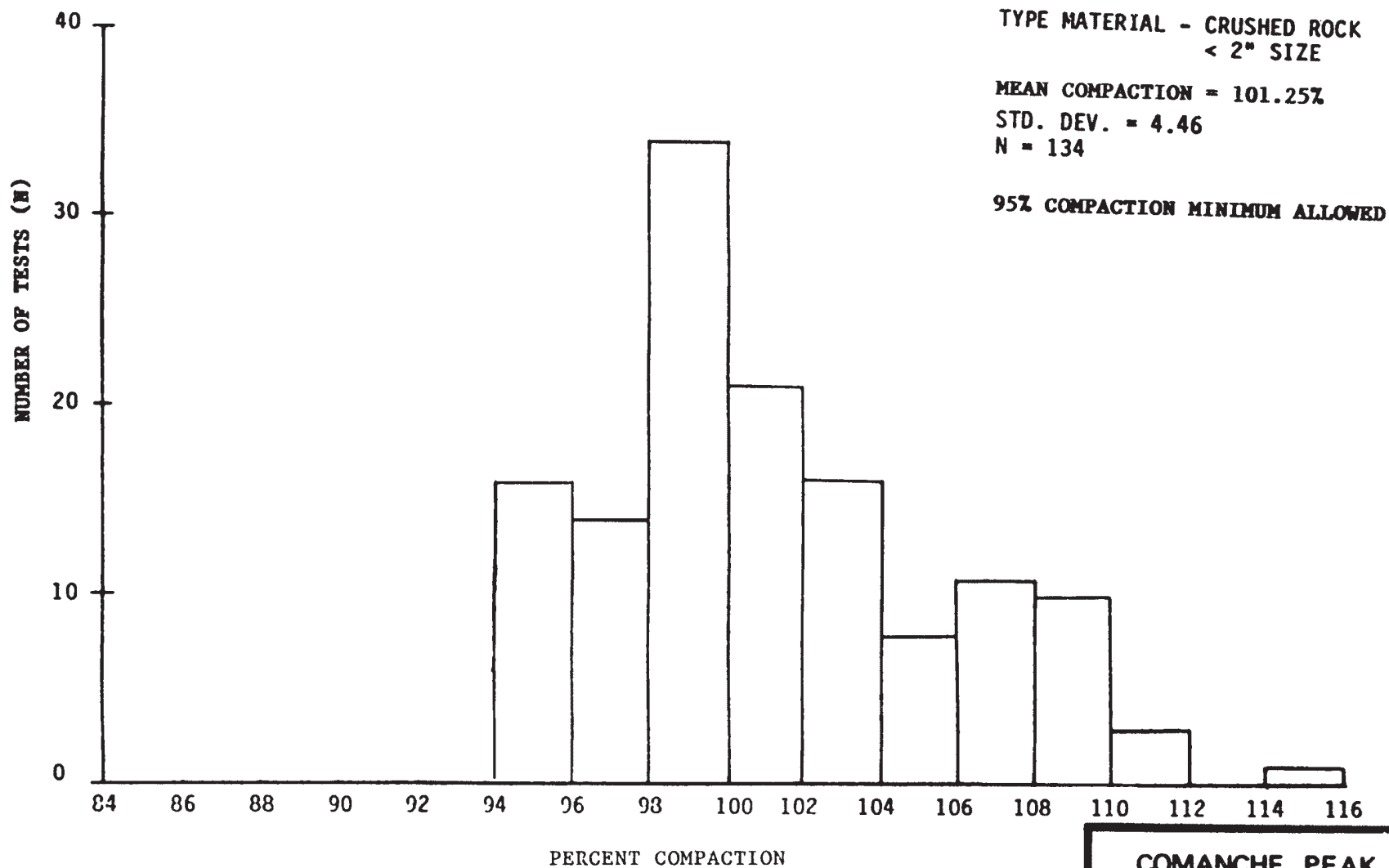
Amendment 67  
February 5, 1988

COMANCHE PEAK S.E.S. FINAL SAFETY ANALYSIS REPORT UNITS 1 and 2
RELATIVE DENSITY SUMMARY FOR BEDDING AROUND CATEGORY I PIPELINES
FIGURE 2.5.4-46



Amendment 67  
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COMANCHE PEAK S.E.S. FINAL SAFETY ANALYSIS REPORT UNITS 1 and 2
PERCENT COMPACTION TEST SUMMARY FOR BACKFILL AROUND CATEGORY I PIPELINES
FIGURE 2.5.4-47

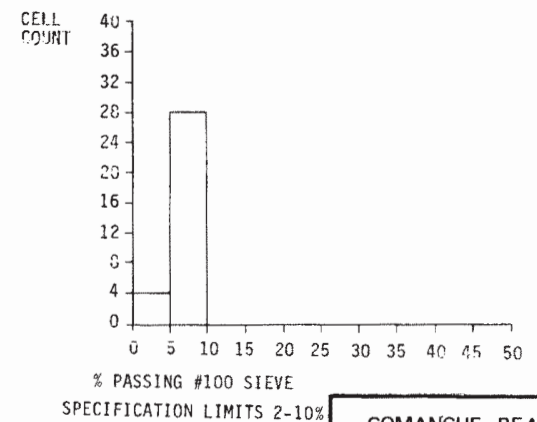
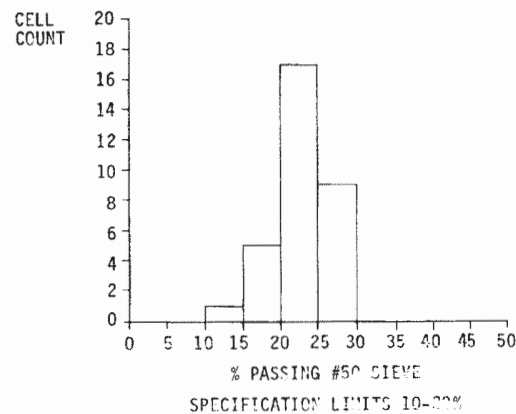
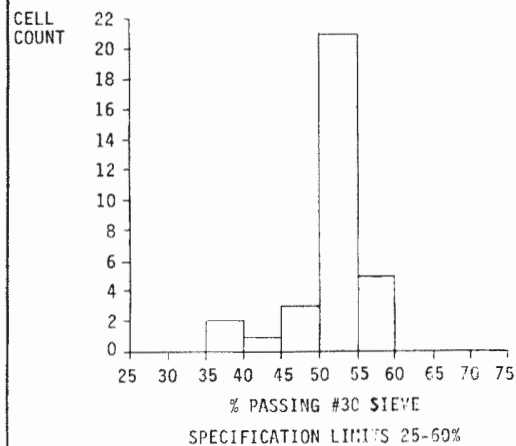
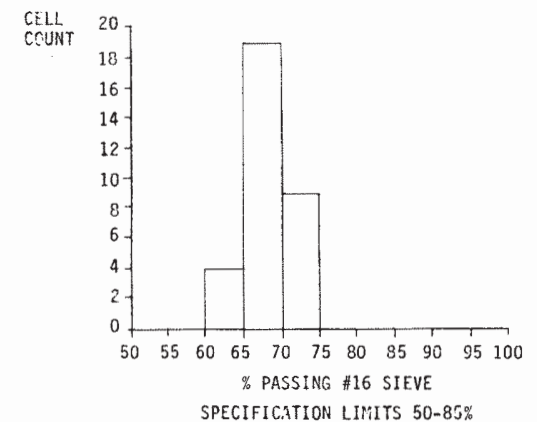
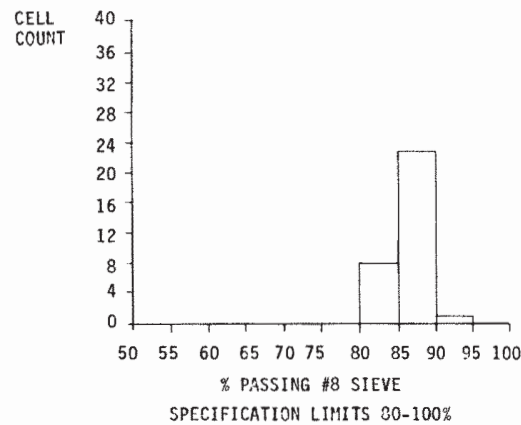
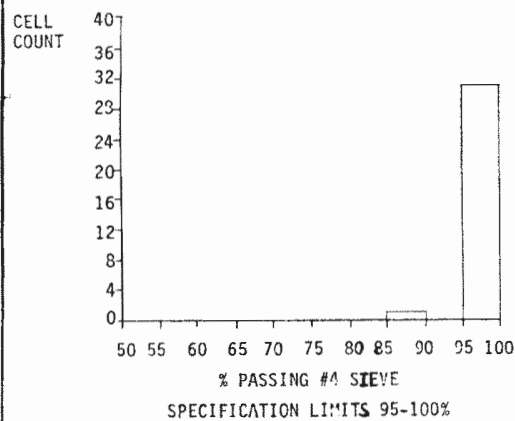


NOTE: Accepted Values Are  $\geq$  95%

Amendment 67  
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COMANCHE PEAK S.E.S. FINAL SAFETY ANALYSIS REPORT UNITS 1 and 2
PERCENT COMPACTION TEST SUMMARY FOR BACKFILL AROUND THE SERVICE WATER INTAKE STRUCTURE
FIGURE 2.5.4-48

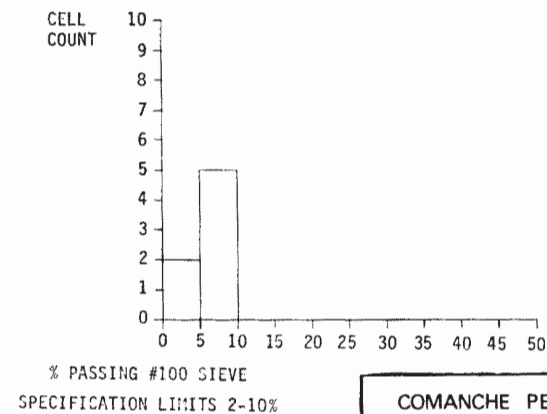
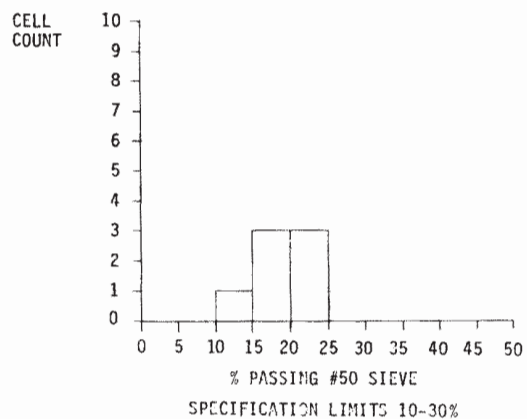
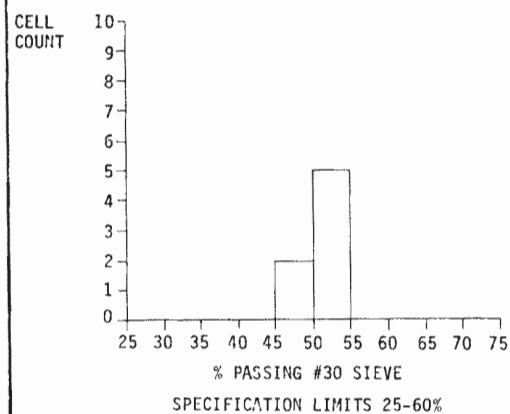
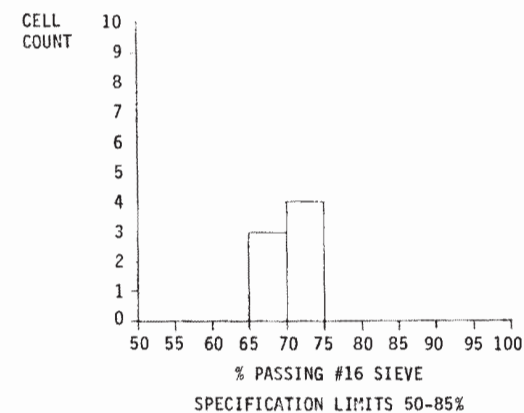
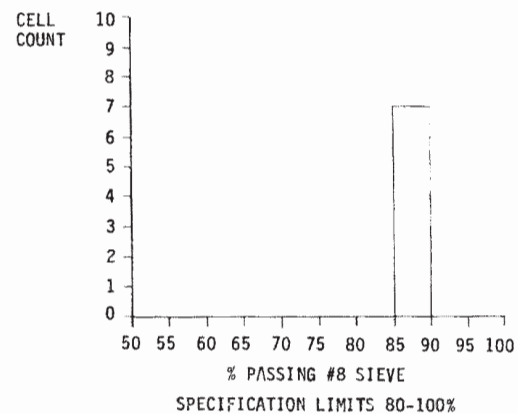
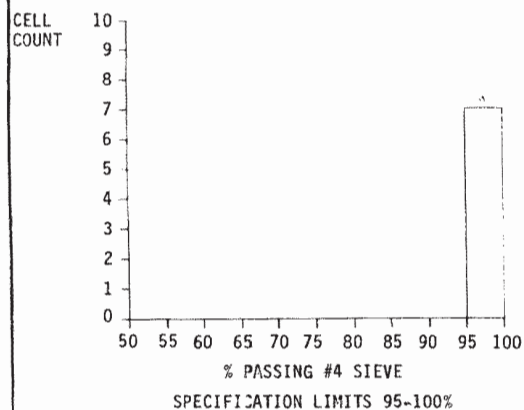




NOTE: ALL (100%) PASSING 3/8" SIEVE

JULY 31, 1980

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2  
SERVICE WATER PIPE TRENCH  
BACKFILL - HISTOGRAM OF GRADATION  
LIMITS FOR BEDDING SAND  
FIGURE 2.5.4-49



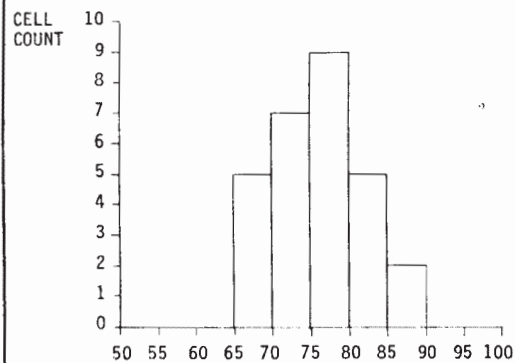
NOTE: ALL (100%) PASSING 3/8" SIEVE

JULY 31, 1980

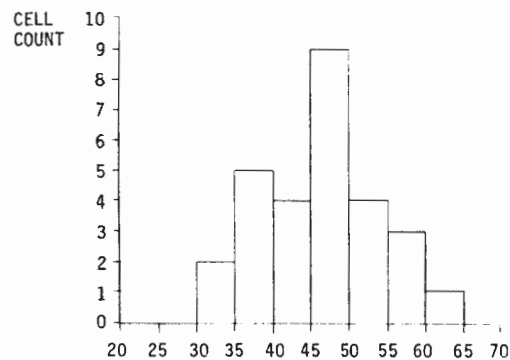
COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

DUCT BANK BACKFILL  
HISTOGRAM OF GRADATION LIMITS  
FOR BEDDING SAND

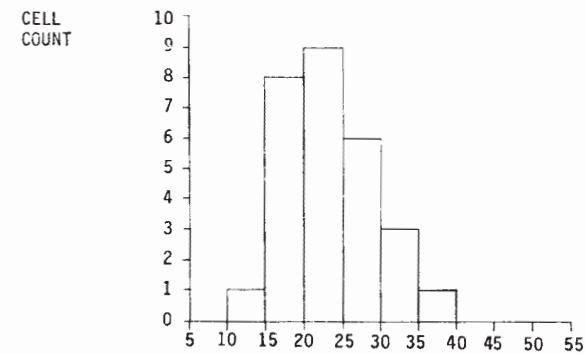
FIGURE 2.5.4-50



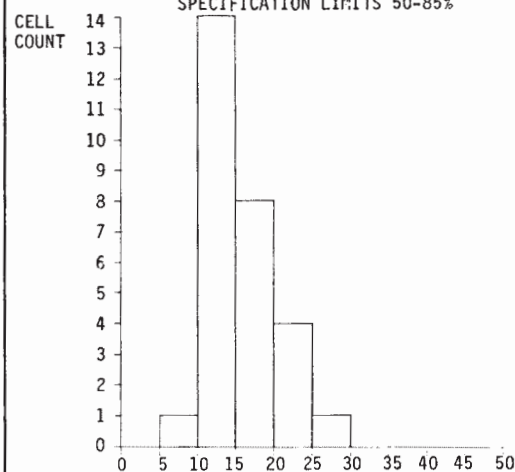
% PASSING 1" SIEVE  
SPECIFICATION LIMITS 50-85%



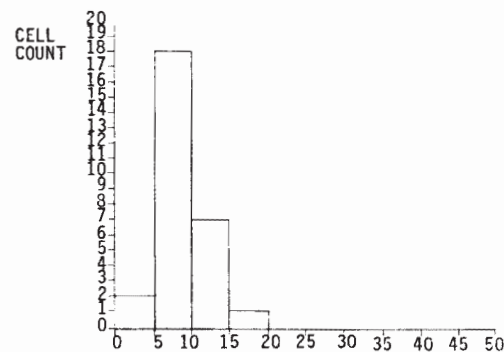
% PASSING 1/2" SIEVE  
SPECIFICATION LIMITS 25-65%



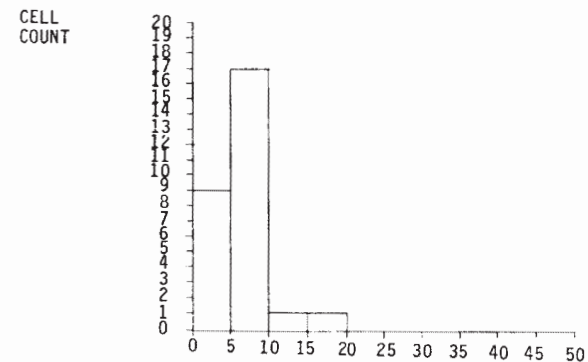
% PASSING #4 SIEVE  
SPECIFICATION LIMITS 15-50%



% PASSING #10 SIEVE  
SPECIFICATION LIMITS 5-40%



% PASSING #40 SIEVE  
SPECIFICATION LIMITS 0-20%



% PASSING #100 SIEVE  
SPECIFICATION LIMITS 0-10%

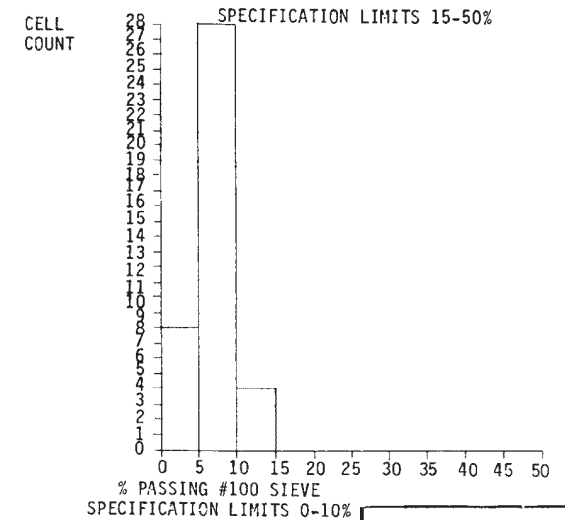
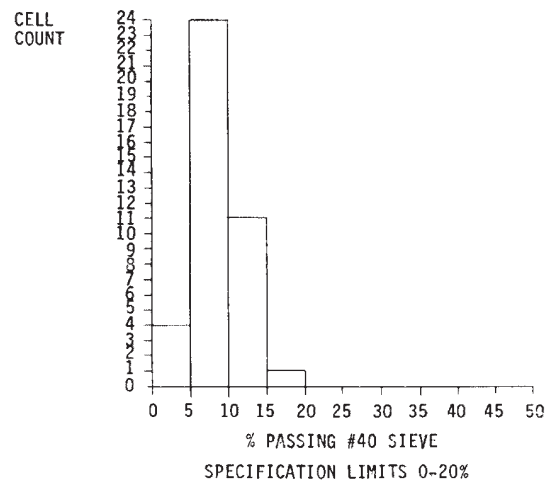
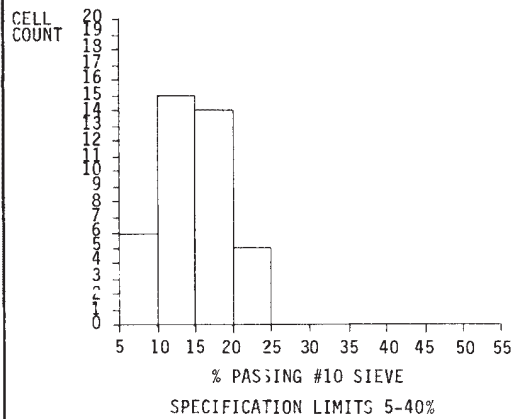
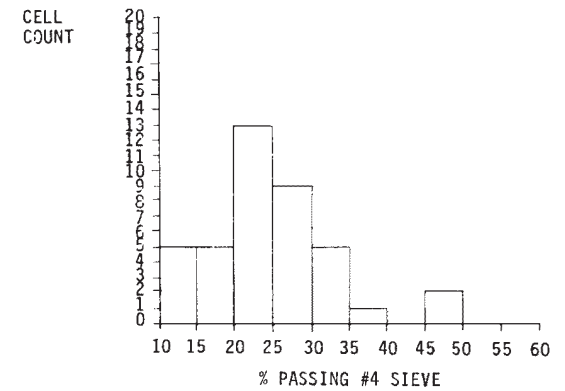
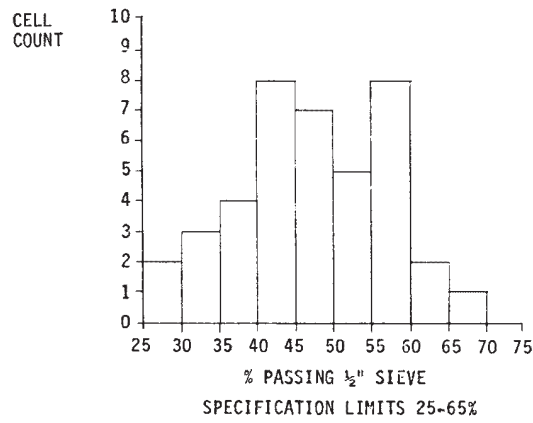
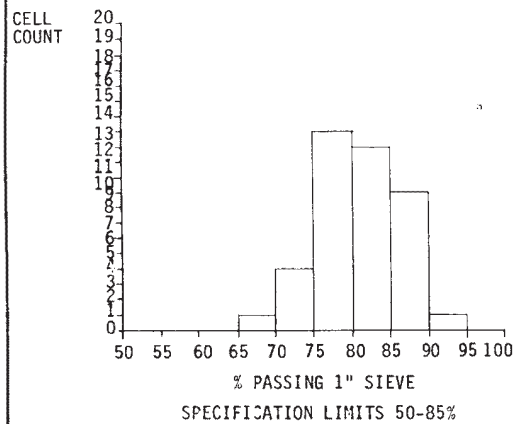
NOTE: ALL (100%) PASSING 2" SIEVE

JULY 31, 1980

COMANCHE PEAK S.E.S.  
FINAL SAFETY ANALYSIS REPORT  
UNITS 1 and 2

SERVICE WATER INTAKE STRUCTURE  
BACKFILL - HISTOGRAM OF GRADATION  
LIMITS FOR CRUSHED ROCK

FIGURE 2.5.4-51



NOTE: ALL (100%) PASSING 2" SIEVE

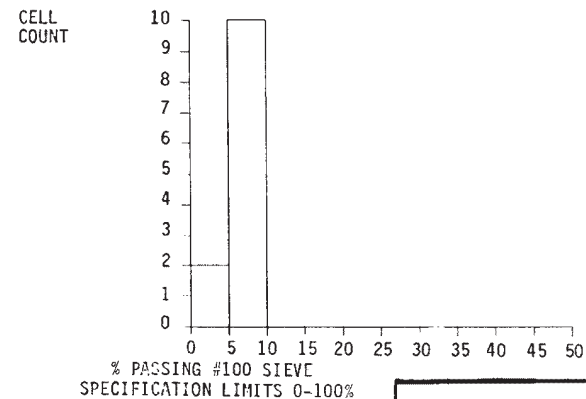
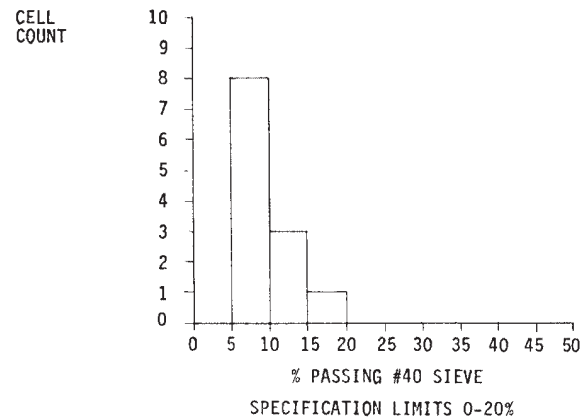
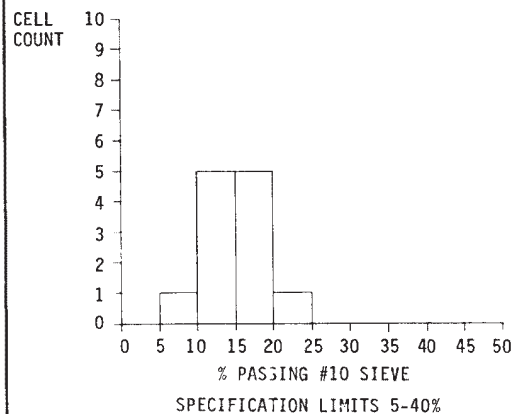
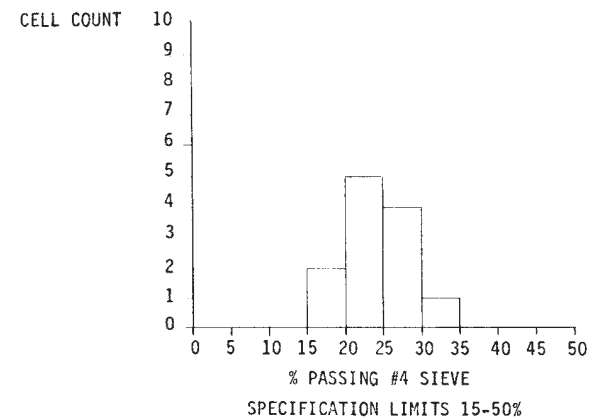
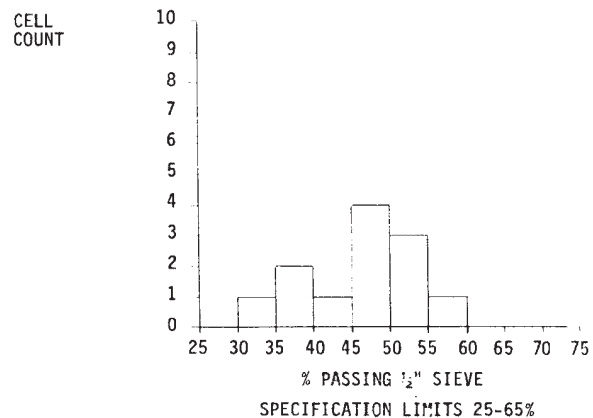
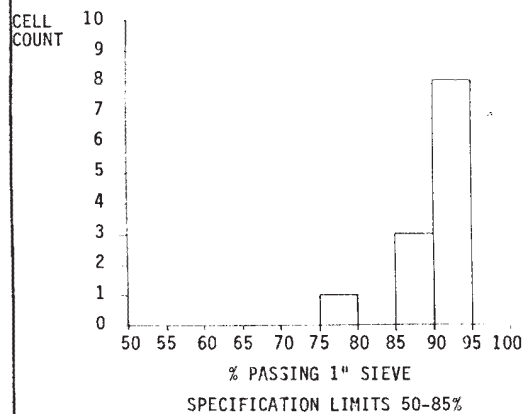
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DUCT BANK TRENCH & MANHOLE  
BACKFILL - HISTOGRAM OF GRADATION  
LIMITS FOR CRUSHED ROCK

FIGURE 2.5.4-52





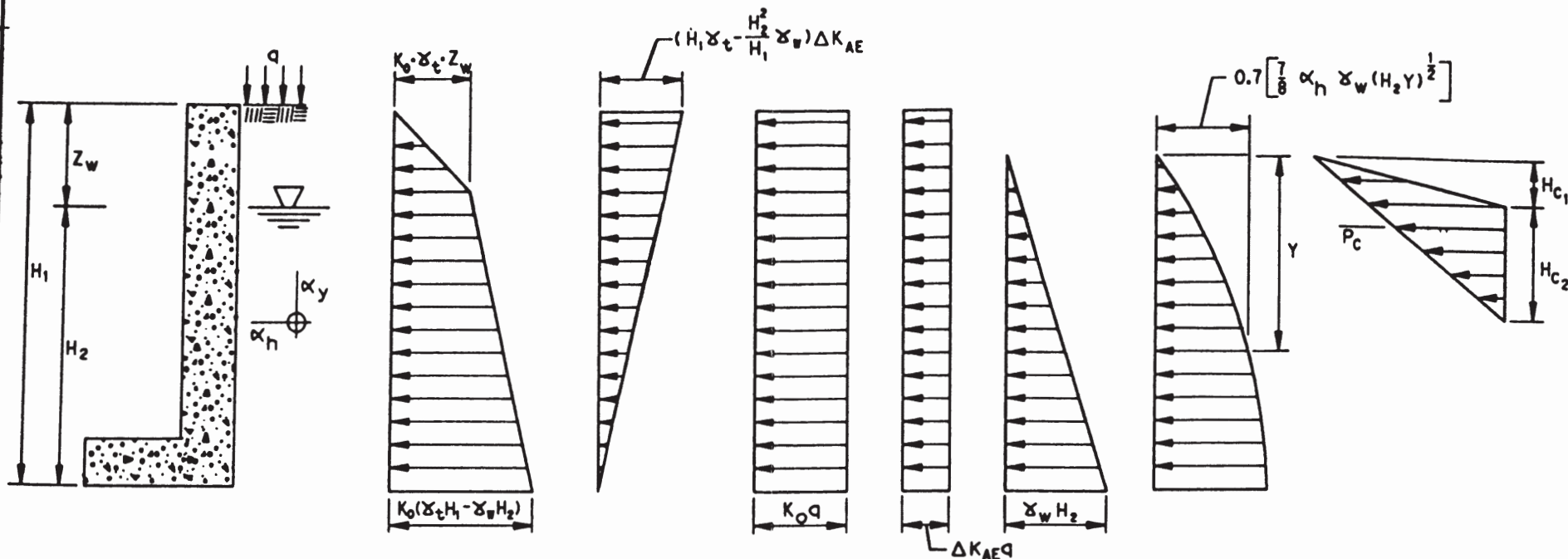
NOTE: ALL (100%) PASSING 2" SIEVE

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SURFACE WATER PIPE TRENCH BACK-FILL - HISTOGRAM OF GRADATION LIMITS FOR CRUSHED ROCK

FIGURE 2.5.4-53



#### BACKFILL

$$\gamma_t = 140 \text{ pcf}$$

$$\gamma_w = 62.4 \text{ pcf}$$

$$K_0 = 0.47$$

$$\sigma_c = 400 \text{ psf}$$

$$H_{c1} = 2 \text{ FT}$$

$$H_{c2} = 4 \text{ FT}$$

$$\Delta K_{AE} = 0.10 \text{ (SSE)}$$

$$\alpha_h = 0.12 \text{ g (SSE)}$$

$$\Delta K_{AE} = 0.05 \text{ (OBE)}$$

$$\alpha_h = 0.06 \text{ g (OBE)}$$

#### ROCK

$$\gamma_t = 140 \text{ pcf}$$

$$\gamma_w = 62.4 \text{ pcf}$$

$$K_0 = 0.33$$

$$\Delta K_{AE} = 0.04 \text{ (SSE)}$$

$$\alpha_h = 0.12 \text{ g (SSE)}$$

$$\Delta K_{AE} = 0.03 \text{ (OBE)}$$

$$\alpha_h = 0.06 \text{ g (OBE)}$$

\* APPLICABLE FOR  $H_2 \leq H_1$ ; IF  $H_2 > H_1$ ,  $H_2$  SHOULD BE TAKEN TO BE EQUAL TO  $H_1$  SINCE STANDING WATER DOES NOT AFFECT THE MAGNITUDE OF EFFECTIVE STRESS.

\*\* FOR UNIFORM SURCHARGE ONLY.

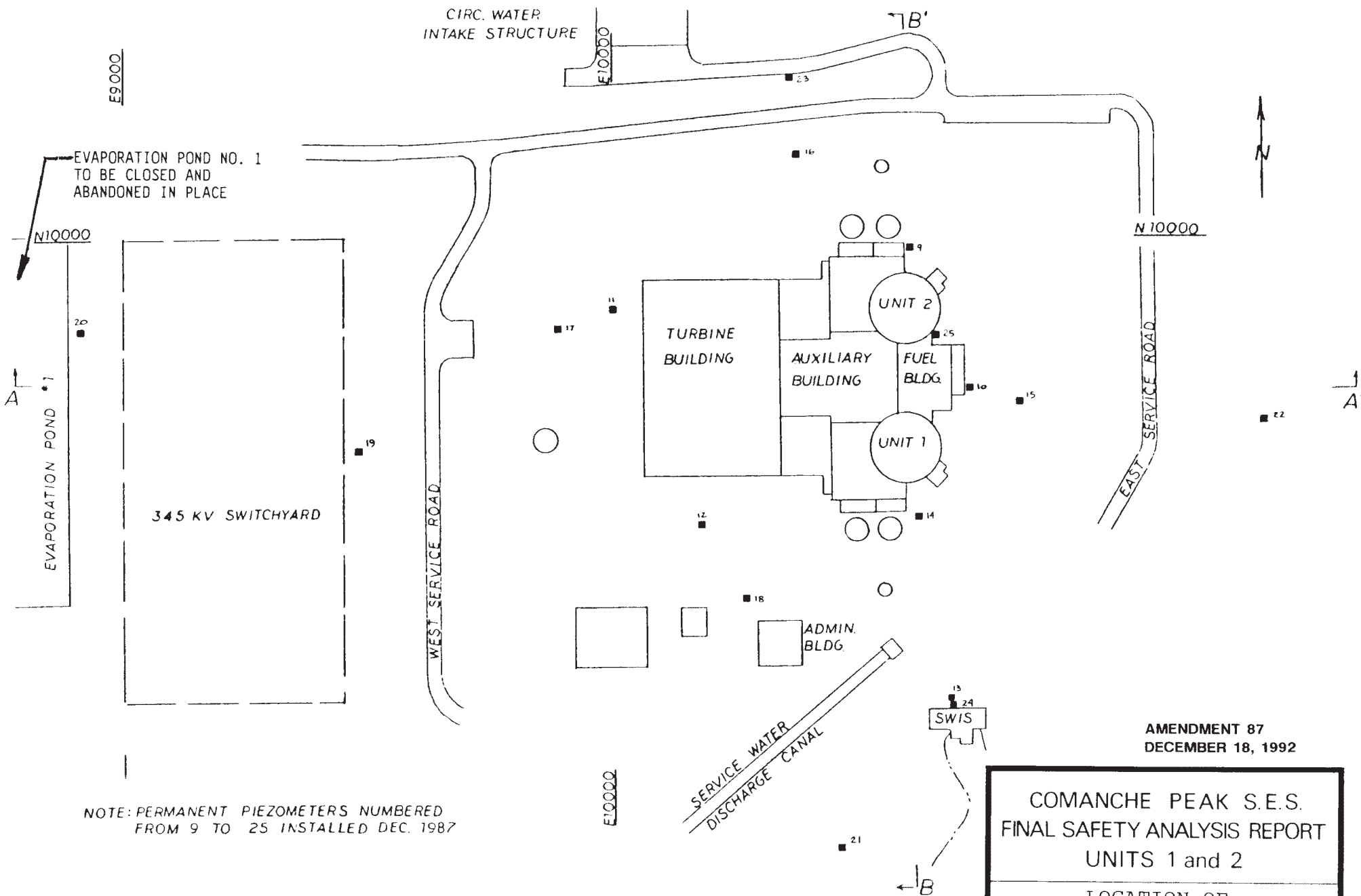
LOAD/LIN.FT. OF WALL	SOIL #	SURCHARGE**	WATER	COMPACTION
STATIC	$(H_1^2 \gamma_t - H_2^2 \gamma_w) \frac{K_0}{2}$	$K_0 q H_1$	$\frac{1}{2} H_2^2 \gamma_w$	$\frac{1}{2} \sigma_c H_{c2}$
DYNAMIC	$(H_1^2 \gamma_t - H_2^2 \gamma_w) \frac{1}{2} \Delta K_{AE}$	$\Delta K_{AE} q H_1$	$0.7 \left[ \frac{7}{12} \alpha_h \gamma_w H_2^2 \right]$	—
COMBINED	$\frac{1}{2} (H_1^2 \gamma_t - H_2^2 \gamma_w) K_0 + \Delta K_{AE}$	$\alpha (K_0 + \Delta K_{AE}) H_1$	$\frac{\gamma_w H_2}{2} (1 + 0.82 \alpha_h)$	$\frac{1}{2} \sigma_c H_{c2}$

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STATIC AND DYNAMIC LATERAL  
EARTH PRESSURES

FIGURE 2.5.4-54

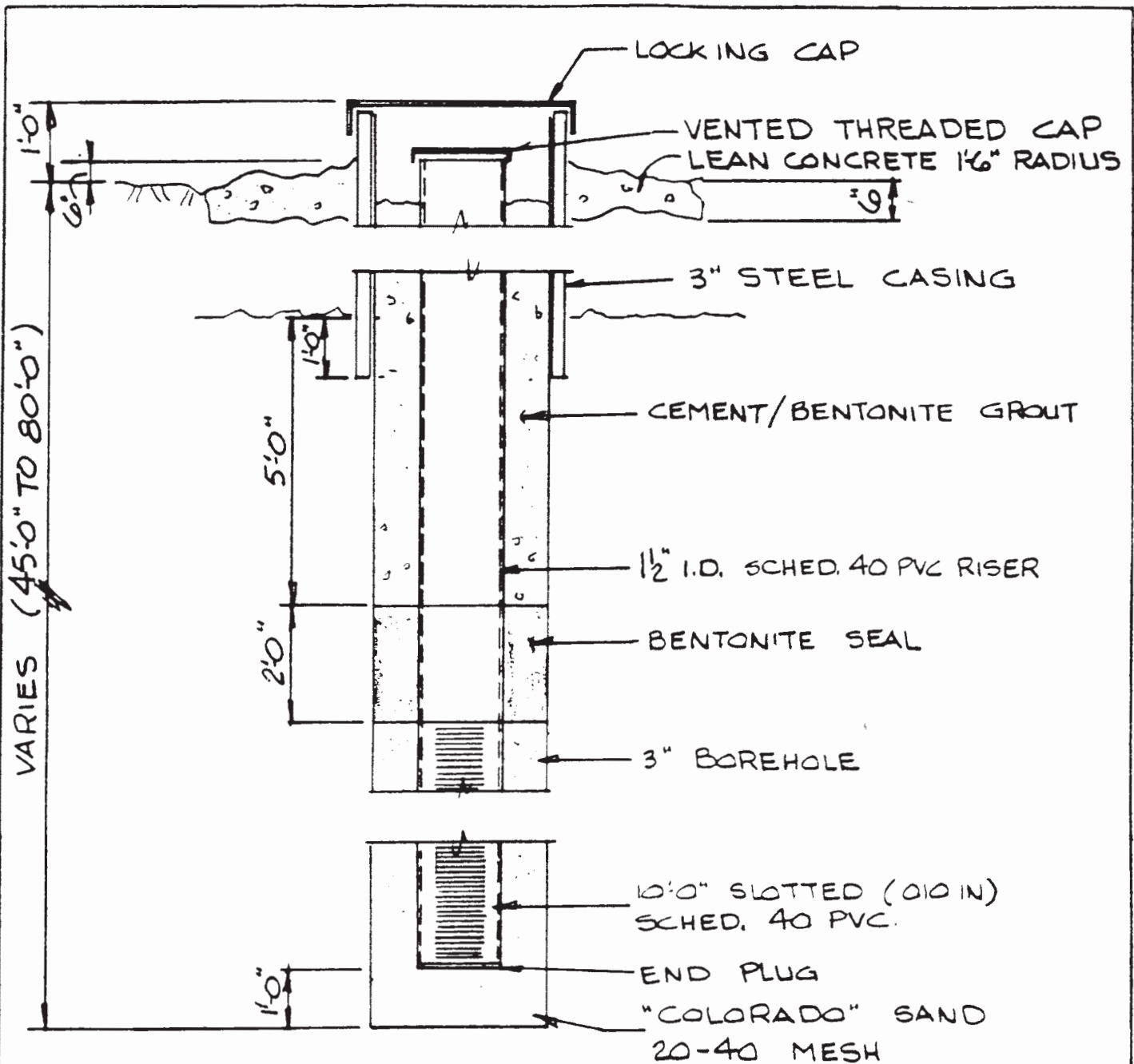
October 14, 1988



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LOCATION OF  
PIEZOMETERS

FIGURE 2.5.4-55



PIEZOMETER DETAIL

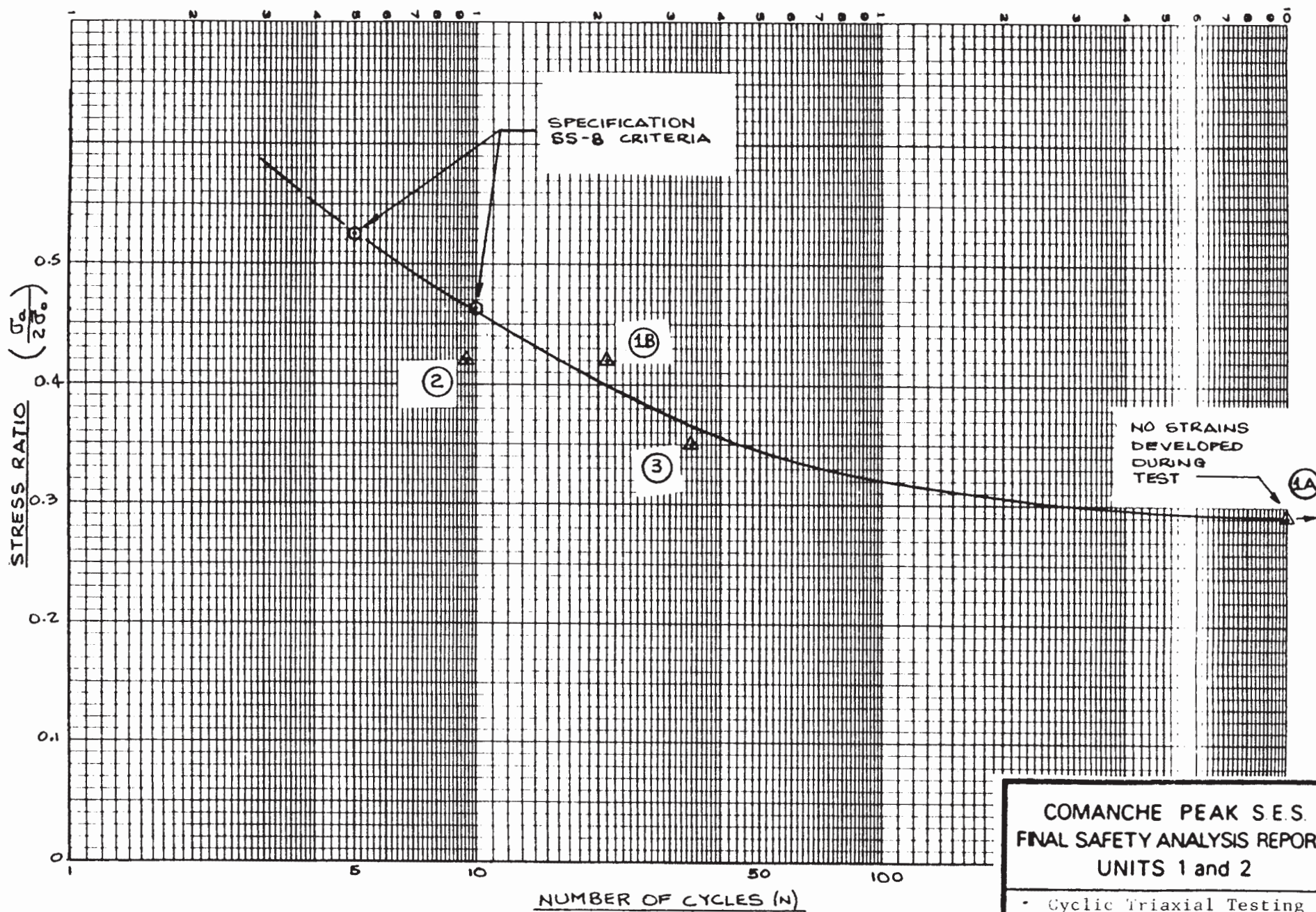
Amendment 67  
February 5, 1988

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PIEZOMETER DETAIL

FIG. 2.5.4-56





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• Cyclic Triaxial Testing  
Bridgeport Limestone •

Figure 2.5.4-57

Amendment 75  
November 18, 1988