TABLE 2

SUMMARY OF LABORATORY TEST RESULTS

PROJECT: Port Arthur Waterway
AEC 270-94
Contract No. DACW-64-94-M-0608

BORING NO. 94-28

S #	Depth (Feet)	PP (tsf)	SPT Blows per Foot	Visual Classification	MC (%)	UDW (pcf)	LL (%)	PL (%)	Mechanical Analysis % Passing					Torvane (tsf)	QU (tsf)
									#4	#10	#40	#100	#200		
1	0 - 2	0	VSo	Dark gray organic clay (OH) w/shell	63										
2	2 - 4	0	VSo	Gray organic clay (OH)	58										
3	4 - 6	0	VSo	Gray organic clay (OH) w/shell	65	63	52	23						0.10	
4	6 - 8	0	VSo	Gray organic clay (OH) w/decomposed plants	155									0.16	
5	8 - 10	0	VSo	Gray organic clay (OH) w/decomposed plants	86	49	171							0.11	
6	10 - 12	0	VSo	Gray organic clay (OH) w/decomposed plants	76									0.10	
7	12 - 14	0	VSo	Gray organic clay (OH) w/shell	68										
8	14 - 16	0	VSo	Gray organic clay (OH) w/silt seams	68									0.13	✓
9	16 - 18	0	VSo	Gray organic clay (OH)	61	60	83	28	100	100	100	99.7	99.7	0.14	0.22
10	18 - 20	0	VSo	Gray organic clay (OH)	76										
11	20 - 22	0	VSo	Gray organic clay (OH)	69										
12	22 - 24	0	VSo	Gray organic clay (OH) w/shell	61										
13	24 - 26	0	VSo	Gray organic clay (OH) w/shell	52										
14	26 - 28	0	VSo	Gray organic clay (OH)	70										
15	28 - 30	0.75	Med	Gray organic clay (OH) w/ferrous nodules	76	54	57	23	100	100	99.9	99.5	84.2		0.35
16	30 - 32	3.0	Very Stiff	Gray sandy clay (CL) w/sand seams	21										
17	32 - 34	4.0	Hard	Gray sandy clay (CL) w/sand seams	21	104	36	17	100	100	100	99.9	93.1		1.26

S#: Sample Number; PP: Pocket Penetrometer Reading; MC: Moisture Content; QU: Unconfined Compressive Strength

TABLE 2 (continued)

SUMMARY OF LABORATORY TEST RESULTS

PROJECT: Port Arthur Waterway
AEC 270-94
Contract No. DACW-64-94-M-0608

BORING NO. 94-28

S #	Depth (Feet)	PP (tsf)	SPT Blows per Foot	Visual Classification	MC (%)	UDW (pcf)	LL (%)	PL (%)	Mechanical Analysis % Passing					Torvane (tsf)	QU (tsf)
									#4	#10	#40	#100	#200		
18	34 - 35.5	Dense	36	Gray silt (ML) w/sand	23										
19	39 - 40.5	Dense	38	Gray silt (ML) w/sand					100	100	100	91.7	90.8		
20	44 - 46	2.25	Very Stiff	Gray clay (CH) w/calcareous & ferrous nodules	27										
21	46 - 48	2.75	Very Stiff	Tan & gray clay (CH) w/calcareous nodules & sand seams	27	95	77	25	100	100	99.9	99.9	94.4		1.47
22	48 - 50	2.25	Very Stiff	Tan & gray clay (CH) w/calcareous nodules & sand seams, slickensided	32										
23	50 - 52	2.25	Very Stiff	Tan & gray clay (CH) w/sand seams & slickensided	32										

S#: Sample Number; PP: Pocket Penetrometer Reading; MC: Moisture Content; QU: Unconfined Compressive Strength

PROJECT NO. 270-94

AVILES ENGINEERING CORP. GEOTECHNICAL ENGINEERS

PROJECT: Port Authur Waterway BORING 94-28

DATE MAY 26, 1994 TYPE 3" CORE LOCATION SEE PLAN

Elevation: -

DEPTH IN FEET	DESCRIPTION	BLOWS/FOOT	M.C. %	U.D.W. PCF	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT
0	Very soft dark gray Organic Clay (OH)		63				
	Becomes gray below 2'		58				
4	W/shell @ 4'-6'		65	63		52	23
	W/decomposed plant @ 6'-12'		155				
8			86	49		171	
			76				
12	W/shell @ 12'-14'		88				
	W/silt seams @ 14'-16'		68				
16			61	60	100	83	28
			76				
20			69				
	W/shell @ 22'-26'		61				
24			52				
			70				
28	Medium below 28'		76	54	84	57	23
	Very stiff gray Sandy Clay (CL) w/sand seams		21				
32			21	104	93	36	17
	Dense gray Silt (ML) w/sand	36	23				
36							
40		38			91		

COMPRESSIVE STRENGTH, TSF

○ POCKET PENETROMETER
△ CONFINED COMPRESSION
● UNCONFINED COMPRESSION
□ TORVANE

0.5 1 1.5 2

BORING DRILLED TO _____ FEET WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT _____ FEET WHILE DRILLING

WATER LEVEL AT _____ FEET AFTER _____ HOURS

DRILLED BY JH CHECKED BY QL LOGGED BY JH

PROJECT NO. 270-94

AVILES ENGINEERING CORP. GEOTECHNICAL ENGINEERS

PROJECT: Port Authur Waterway BORING 94-28

DATE MAY 26, 1994 TYPE 3" CORE LOCATION SEE PLAN

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION Elevation: -	BLOWS/FOOT	M.C. %	U.D.W. PCF	COMPRESSIVE STRENGTH, TSF ○ POCKET PENETROMETER △ CONFINED COMPRESSION ● UNCONFINED COMPRESSION □ TORVANE 0.5 1 1.5 2	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT
42										
46			Very stiff gray Clay (CH) w/calcareous, ferrous nodules & sand seams Becomes tan & gray below 46'		27 27	95	2.75	94	77	25
50			W/slickensided below 50'		32 32					
54			Bottom @ 52' Driller: Dempsey Gearen Logger: Wayne Sammons Weather: Partly Cloudy, 80°F Water Level: 11' MLT: 2.2' Rig: D & R 75							
58										
62										
66										
70										
74										
78										
82										

BORING DRILLED TO _____ FEET WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT _____ FEET WHILE DRILLING ▽

WATER LEVEL AT _____ FEET AFTER _____ HOURS ▽

DRILLED BY JH CHECKED BY QL LOGGED BY JH

REVIEWED BY: _____ DATE____
_____ DATE____

SUMMARY OF QUESTIONABLE
ERRONEOUS OR MISSING DATA
FOR

PROJECT: LABORATORY TESTING OF SOILS SAMPLES, CONTRACT NO. DACW64-93-M-0299 (GIWW - PT. ATRHUR)

BORING NO.	SAMPLE NO.	COMMENTS ON TEST RESULTS
Only one test was not performed - Borings No., 94-32, sample 3, Unconfined Compression Test was not performed because the contractor stated the sample was too short.		
Bori 94-27	1	Description on Plate 2 indicates shell from samples 1 - 12, but it is only listed on sample 1,5,7,8,& 12 on Table 1.
	14-16	Plate 2 and Table 1 do not agree on description, should be either Sandy Silt or Silt w/sand Moisture contents are given but Not ordered.
94-28	1	Table 2 states w/shell from 0-2 feet, Plate 3 does not.
	15	Table 2 states w/ferrous nodules from 28-30 feet, Plate 3 does not.
	20-23	Plate 3 states w/calcareous nodules, ferrous nodules & sand seams Table 2 does not show the sand seams for sample 20 or the calcareous and ferrous nodules for sample 23
	22	Plate 3 states slickensided below 50 feet. Table 2 shows slickensided from 48-50 and 50-52 feet.
94-30	9	Table 4 states w/shell from 16-22 feet, Plate 5 states shell from 18-22 feet.
94-31	1	Plate 6, beginning description should state w/shell 0-6 feet to agree with Table 5.
	3	Plastic limit performed not ordered,
	18	Table 5 states w/silt seams & decomposed plants, Plate 7 states silt seams but not decomposed plants Plate 6 is for boring 94-31
94-32	22	Table 6 stated LL 188, Plate 7 shows no LL value

AVILES ENGINEERING CORP. GEOTECHNICAL ENGINEERS

PROJECT: Port Authur Waterway BORING 94-28

DATE MAY 26, 1994 TYPE 3" CORE LOCATION SEE PLAN

PROJECT NO. 270-94

Elevation: -

DEPTH IN FEET	DESCRIPTION	BLOWS/FOOT	M.C. %	U.D.W. PCF	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT
0	Very soft dark gray Organic Clay (OH) w/shell 0-2'		63				
	Becomes gray below 2'		58				
4	W/shell @ 4'-6'		65	63		62	23
	W/decomposed plant @ 6'-12'		155				
8			86	49		171	
			76				
12	W/shell @ 12'-14'		68				
	W/silt seams @ 14'-16'		68				
16			61	60	100	83	28
			76				
20			69				
	W/shell @ 22'-26'		61				
24			62				
			70				
28	Medium below 28'		76	64	84	57	23
	Very stiff gray Sandy Clay (CL) w/sand seams		21				
32			21	104	93	36	17
	Dense gray Silt (ML) w/sand	36	23 NOT ordered				
36							
40		38			91		

COMPRESSIVE STRENGTH, TSF

○ POCKET PENETROMETER
△ CONFINED COMPRESSION
● UNCONFINED COMPRESSION
□ TORVANE

0.5 1 1.5 2

BORING DRILLED TO _____ FEET WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT _____ FEET WHILE DRILLING

WATER LEVEL AT _____ FEET AFTER _____ HOURS

DRILLED BY DG CHECKED BY QL LOGGED BY WS

AVILES ENGINEERING CORP. GEOTECHNICAL ENGINEERS

PROJECT: Port Authur Waterway BORING 94 28

DATE MAY 26, 1994 TYPE 3" CORE LOCATION SEE PLAN

PROJECT NO. 270-94

Elevation	Samples	Cores	DESCRIPTION	BLOWS/FOOT	M.C. %	U.D.W. PCF	COMPRESSIVE STRENGTH, TSF (POCKET PENETROMETER / CONFINED COMPRESSION / UNCONFINED COMPRESSION / TORVANE) 0.5 1 1.5 2	200 MESH	LIQUID LIMIT	PLASTIC LIMIT
			Elevation							
42			Very stiff gray Clay (CH) w calcareous, ferrous nodules & sand seams		27					
46			Becomes tan & gray below 46'		27	95? can't read	● 2.75 O	94	77	35
					32					
50			W-slickensided below 50'		32					
			Bottom @ 52							
54			Driller: Dempsey Gearen Logger: Wayne Sammons Weather: Partly Cloudy, 80°F Water Level: 11' MLE: 2.2' Rig: D & R 75							
58										
62										
66										
70										
74										
78										
82										

BORING DRILLED TO FEET WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT FEET WHILE DRILLING

WATER LEVEL AT FEET AFTER ___ HOURS ▼

DRILLED BY DG CHECKED BY QL LOGGED BY WS

LOG OF BORING

PROJECT: Port Arthur
FOR:

BORING NO: 94-28
LOCATION:

DATE: 5-26-94 JOB NO: BORING TYPE 3" core
DRILLER: Dempsey Gearen REPORT NO. GROUND ELEV.:

LEGEND
S-Shelby Tube D-Denison Barrel P-Penetration Test J-Jar
■-Core ⊠-Penetration Sample ▯-No Recovery
▽-Static Water Table ▼-Hydrostatic Water Table

Depth in Feet	Sample Type & No.	Symbol	Elevation in Feet	Blows / Foot	PEN.	DESCRIPTION OF STRATUM
	S-1				0	Very soft G. SiCL, Jar Sample
	S-2				0	Very Soft G. SiCL, Jar Sample
5	S-3				0	Very Soft G. SiCL
	S-4				0	Very Soft D. G. SiCL w/ Wood
	S-5				0	Very Soft D. G. SiCL w/ Wood
10	S-6				0	Very Soft G. SiCL
	S-7				0	Very soft G. SiCL
15	S-8				0	Very Soft G. SiCL
	S-9				0	Very Soft G. SiCL
	S-10				0	Very Soft G. SiCL
20	S-11				0	Very Soft G. SiCL
	S-12				0	Very Soft G. SiCL w/shell, Jar Sample
25	S-13				0	Very Soft G. SiCL w/shell, Jar Sample
	S-14				0	Very Soft G. SiCL, Jar Sample
	S-15				0.75	Medium G. SiCL Medium Li. G. SiCL
30	S-16				3.0	Very stiff Li. G. SiCL
	S-17				4.0	Very Stiff Li. G. SiCL
35	S-18		14/17	/19		Dense G. Silt
40	S-19		17/18	/20		Dense G. Silt
45	S-20				2.25	Very Stiff G. & T. Clay w/Cal. Nod.

LOG OF BORING

PROJECT: Port Arthur
FOR:

BORING NO: 94-28
LOCATION:

DATE: 5-26-94 JOB NO: BORING TYPE 3" Core
DRILLER: Dempsey Gearon REPORT NO. GROUND ELEV.:

LEGEND

S-Shelby Tube D-Denison Barrel P-Penetration Test J-Jar
■-Core ⊠-Penetration Sample ▯-No Recovery
▽-Static Water Table ▼-Hydrostatic Water Table

Depth in Feet	Sample Type & No.	Symbol	Elevation in Feet	Blows / Foot	PEN.	DESCRIPTION OF STRATUM
	S-21				2.75	Very Stiff G. & T. Clay w/Cal. Nod
	S-22				2.25	Very Stiff G. & T. Clay w/Cal. Nod.
50	S-23				2.25	Very Stiff G. & T. Clay w/Cal. Nod
55						Rig - D. & R 75
						Driller - Dempsey Gearen
						Logger - Wayne Sammons
						Weather - Partly cloudy, 80°F
						Water Level - 11'
						MLT - +2.2'

AVILES ENGINEERING CORP. GEOTECHNICAL ENGINEERS

PROJECT: Port Authur Waterway BORING 94-28

DATE MAY 26, 1994 TYPE 3" CORE LOCATION SEE PLAN

PROJECT NO. 270-94

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION (Elevation: -)	BLOWS/FOOT	M.C. %	U.D.W. PCF	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT
0			Very soft dark gray Organic Clay (OH) w/shell @ 0'-2'		63				
			Becomes gray below 2'		58				
4			W/shell @ 4'-6'		65	63		52	23
			W/decomposed plant @ 6'-12'		155				
8					86	49		171	
					76				
12			W/shell @ 12'-14'		68				
			W/silt seams @ 14'-16'		68				
16					61	60	100	83	28
					76				
20					69				
			W/shell @ 22'-26'		61				
24					52				
					70				
28			Medium w/ferrous nodules below 28'		76	54	84	57	23
			Very stiff gray Sandy Clay (CL) w/sand seams		21				
32					21	104	93	36	17
36			Dense gray Silt (ML) w/sand	36	23				
40				38			91		

COMPRESSIVE STRENGTH, TSF

○ POCKET PENETROMETER
△ CONFINED COMPRESSION
● UNCONFINED COMPRESSION
□ TORVANE

0.5 1 1.5 2

BORING DRILLED TO _____ FEET WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT _____ FEET WHILE DRILLING

WATER LEVEL AT _____ FEET AFTER _____ HOURS

DRILLED BY DG CHECKED BY QL LOGGED BY WS

PROJECT NO. 270-94

AVILES ENGINEERING CORP. GEOTECHNICAL ENGINEERS

PROJECT: Port Authur Waterway BORING 94-28

DATE MAY 26, 1994 TYPE 3" CORE LOCATION SEE PLAN

DEPTH IN FEET	SYMBOL	CORES	DESCRIPTION	BLOWS/FOOT	M.C. %	U.D.W. PCF	COMPRESSIVE STRENGTH, TSF (○ POCKET PENETROMETER, △ CONFINED COMPRESSION, ● UNCONFINED COMPRESSION, □ TORVANE; 0.5, 1, 1.5, 2)	-200 MESH	LIQUID LIMIT	PLASTIC LIMIT
			Elevation: -							
42			Dense gray Silt (ML) w/sand							
46			Very stiff gray Clay (CH) w/calcareous, ferrous nodules Becomes tan & gray below 46' W/sand seams below 46'		27					
					27	95	2.75	94	77	25
50			W/slickensided below 48'		32					
					32					
54			Bottom @ 52'							
58			Driller: Dempsey Gearen Logger: Wayne Sammons Weather: Partly Cloudy, 80 F Water Level: 11' MLT: 2.2' Rig: D & R 76							
62										
66										
70										
74										
78										
82										

BORING DRILLED TO _____ FEET WITHOUT DRILLING FLUID

WATER ENCOUNTERED AT _____ FEET WHILE DRILLING

WATER LEVEL AT _____ FEET AFTER _____ HOURS

DRILLED BY DG CHECKED BY QL LOGGED BY WS

TABLE 2

SUMMARY OF LABORATORY TEST RESULTS

PROJECT: Port Arthur Waterway
AEC 270-94
Contract No. DACW-64-94-M-0608

BORING NO. 94-28

S #	Depth (Feet)	PP (tsf)	SPT Blows per Foot	Visual Classification	MC (%)	UDW (pcf)	LL (%)	PL (%)	Mechanical Analysis % Passing					Torvane (tsf)	QU (tsf)
									#4	#10	#40	#100	#200		
1	0 - 2	0		Dark gray organic clay (OH) w/shell	63										
2	2 - 4	0		Gray organic clay (OH)	58										
3	4 - 6	0		Gray organic clay (OH) w/shell	65	63	52	23						0.10	
4	6 - 8	0		Gray organic clay (OH) w/decomposed plants	155									0.16	
5	8 - 10	0		Gray organic clay (OH) w/decomposed plants	86	49	171							0.11	
6	10 - 12	0		Gray organic clay (OH) w/decomposed plants	76									0.10	
7	12 - 14	0		Gray organic clay (OH) w/shell	68										
8	14 - 16	0		Gray organic clay (OH) w/silt seams	68									0.13	
9	16 - 18	0		Gray organic clay (OH)	61	60	83	28	100	100	100	99.7	99.7	0.14	0.22
10	18 - 20	0		Gray organic clay (OH)	76										
11	20 - 22	0		Gray organic clay (OH)	69										
12	22 - 24	0		Gray organic clay (OH) w/shell	61										
13	24 - 26	0		Gray organic clay (OH) w/shell	52										
14	26 - 28	0		Gray organic clay (OH)	70										
15	28 - 30	0.75		Gray organic clay (OH) w/ferrous nodules	76	54	57	23	100	100	99.9	99.5	84.2		0.35
16	[illegible] - 32	3.0		Gray sandy clay (CL) w/sand seams	21										
17	[illegible]	4.0		Gray sandy clay (CL) w/sand seams	21	104	36	17	100	100	100	99.9	93.1		1.26

S#: Sample Number; PP: Pocket Penetrometer Reading; MC: Moisture Content; QU: Unconfined Compressive Strength

TABLE 2 (continued)

SUMMARY OF LABORATORY TEST RESULTS

PROJECT: **Port Arthur Waterway**
AEC 270-94
Contract No. DACW-64-94-M-0608

BORING NO. 94-28

S #	Depth (Feet)	PP (tsf)	SPT Blows per Foot	Visual Classification	MC (%)	UDW (pcf)	LL (%)	PL (%)	Mechanical Analysis % Passing					Torvane (tsf)	QU (tsf)
									#4	#10	#40	#100	#200		
18	34 - 35.5		36	Gray silt (ML) w/sand	23										
19	39 - 40.5		38	Gray silt (ML) w/sand					100	100	100	91.7	90.8		
20	44 - 46	2.25		Gray clay (CH) w/calcareous & ferrous nodules	27										
21	46 - 48	2.75	V Stiff	Tan & gray clay (CH) w/calcareous & ferrous nodules & sand seams	27	95	77	25	100	100	99.9	99.9	94.4		1.47
22	48 - 50	2.25	"	Tan & gray clay (CH) w/calcareous & ferrous nodules & sand seams, slickensided	32										
23	50 - 52	2.25	"	Tan & gray clay (CH) w/calcareous & ferrous nodules & sand seams, slickensided	32										

Check

S#: Sample Number; PP: Pocket Penetrometer Reading; MC: Moisture Content; QU: Unconfined Compressive Strength

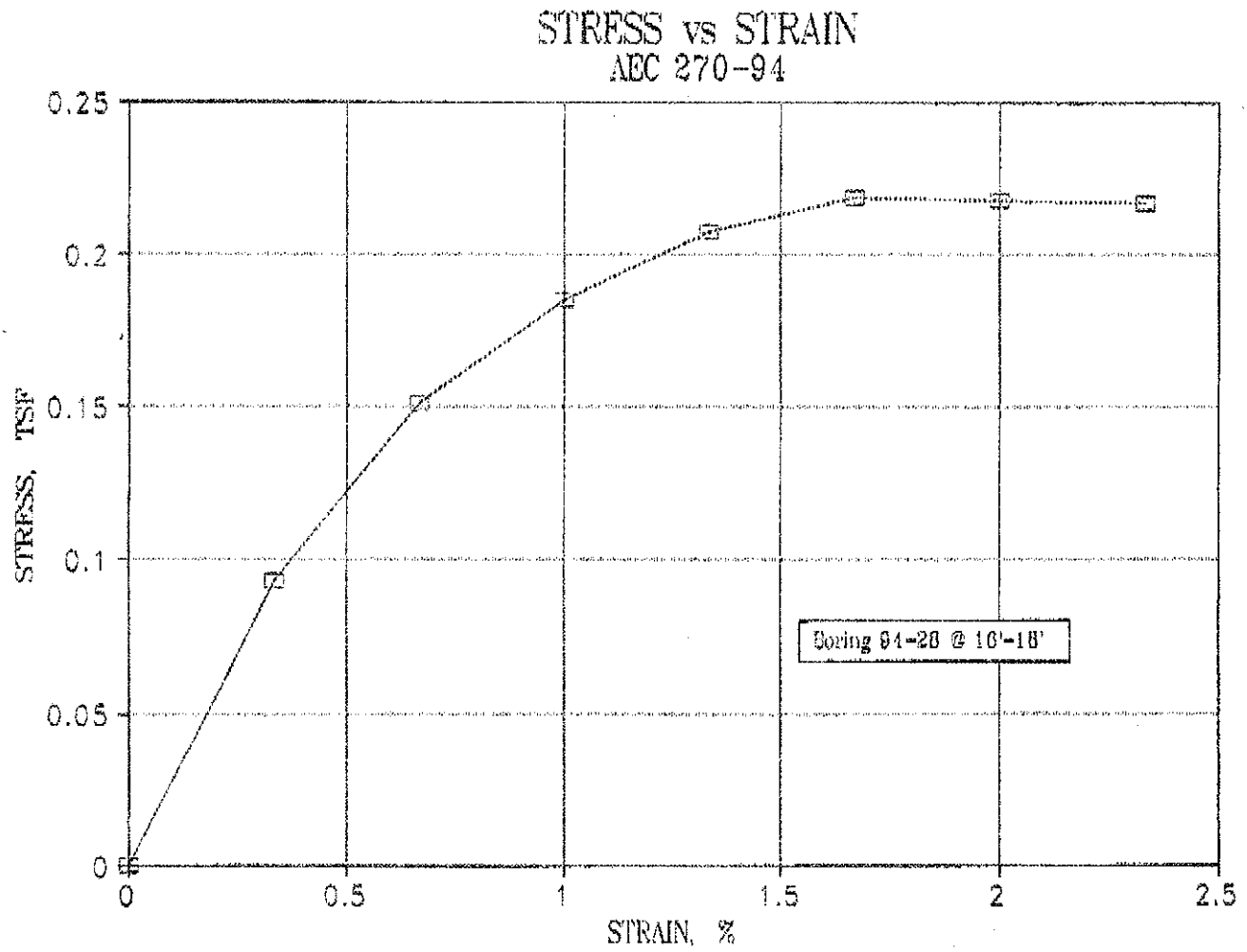
STRESS vs STRAIN
AEC 270-94
0.25
0.2
0.15
0.1
0.05
0
STRESS, TSF
0
0.5
1
1.5
2
2.5
STRAIN, %
Boring 91-28 @ 16'-18'

FIGURE 3

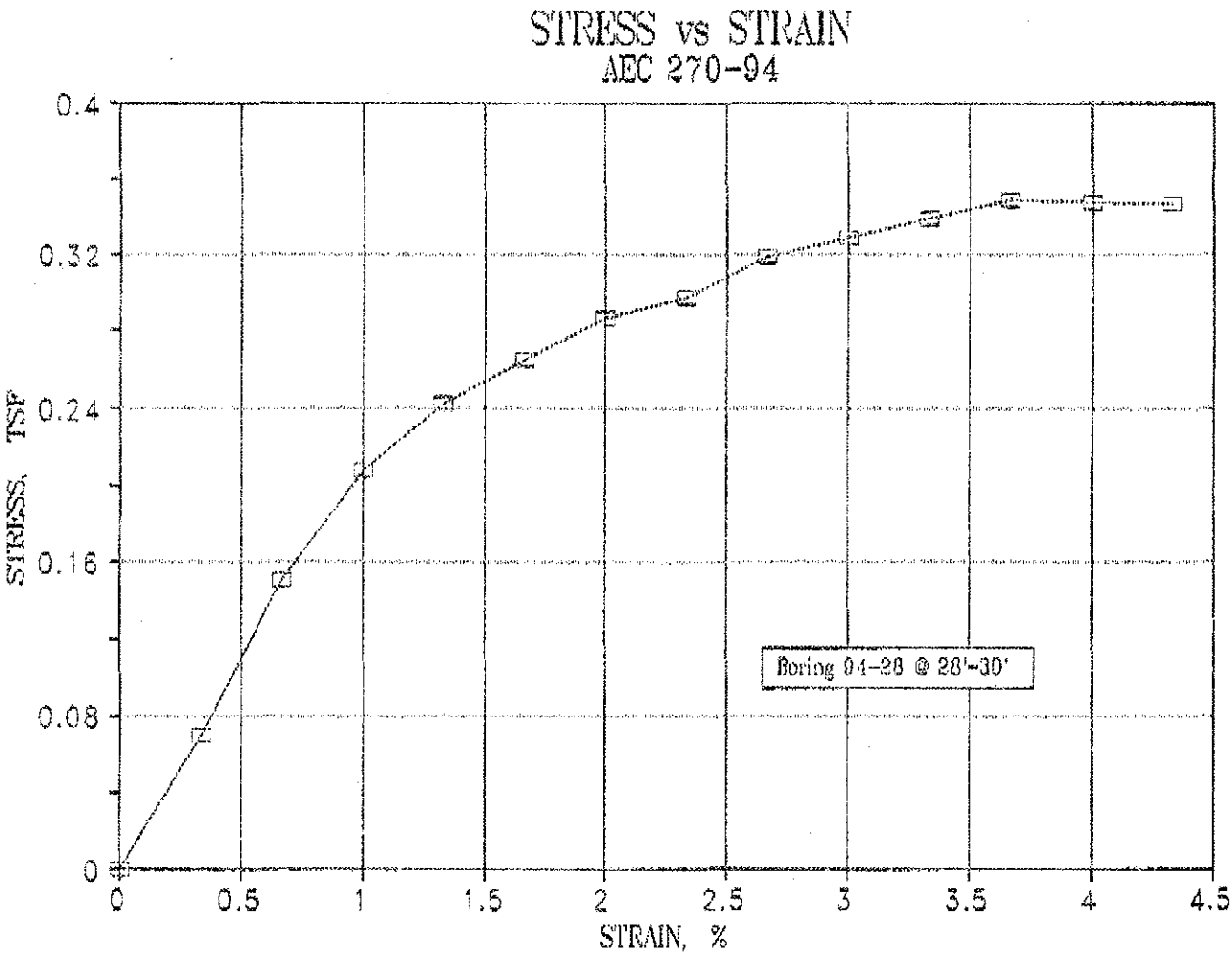
STRESS vs STRAIN
AEC 270-94
STRESS, TSF
STRAIN, %
0.4
0.32
0.24
0.16
0.08
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
Boring 94-28 @ 28'-30'

FIGURE 4

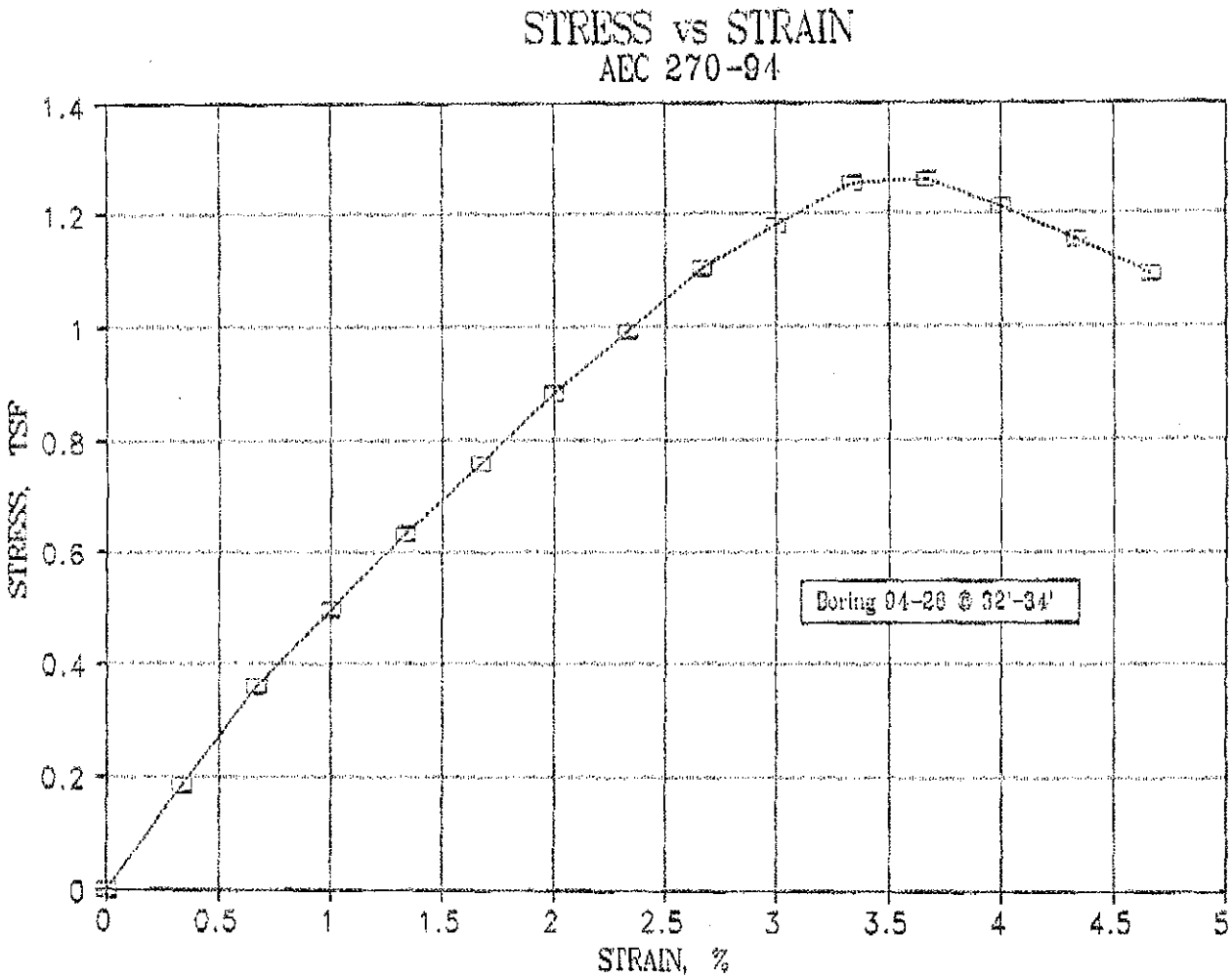
STRESS vs STRAIN
AEC 270-94
STRESS, TSF
STRAIN, %
Boring 94-20 @ 32'-34'
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5

FIGURE 5

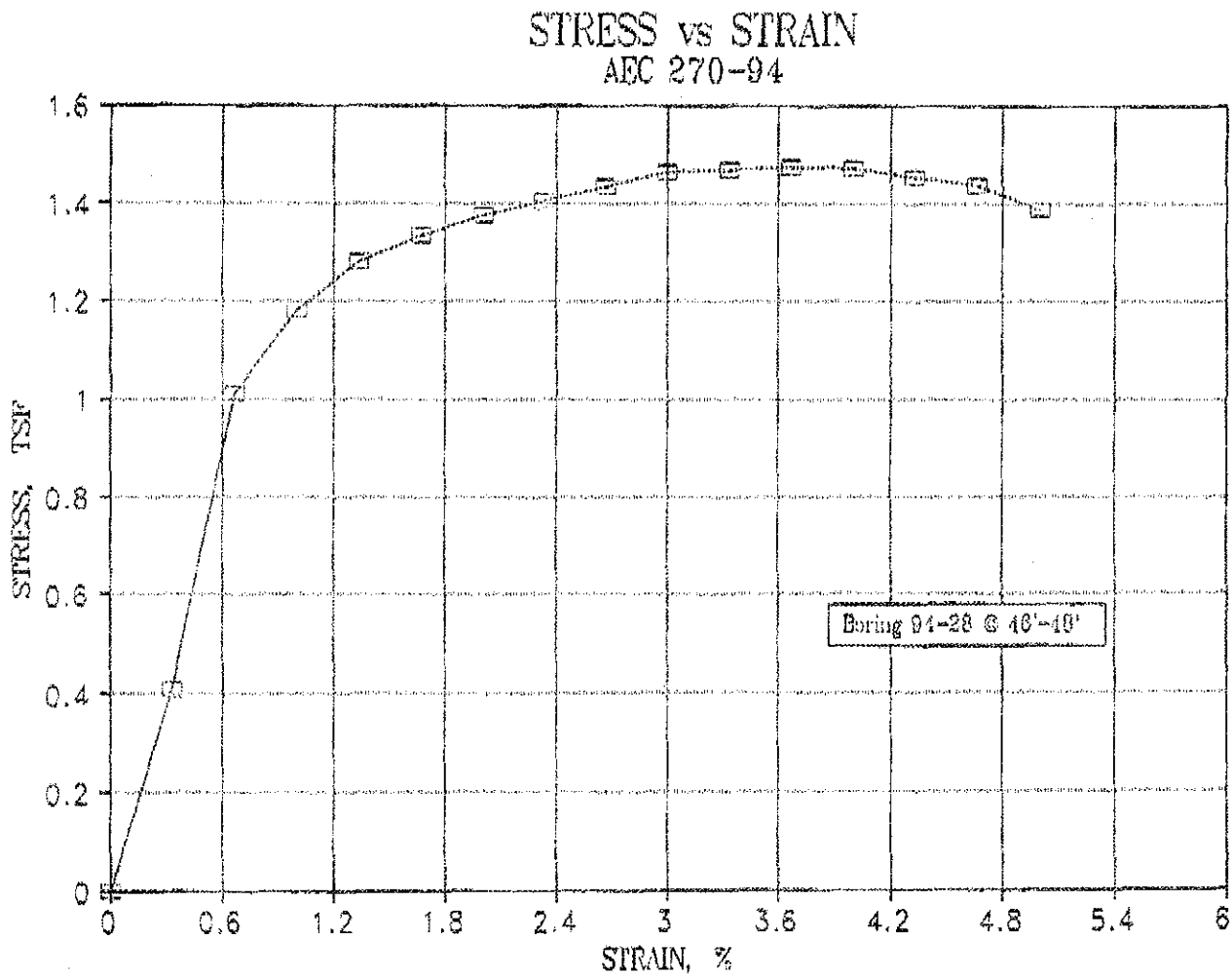
STRESS vs STRAIN
AEC 270-94
STRESS, TSF
STRAIN, %
Boring 94-28 @ 46'-48'
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
0
0.6
1.2
1.8
2.4
3
3.6
4.2
4.8
5.4
6

FIGURE 6