

U.S. ARMY CORPS OF ENGINEERS

DEPTH, FEET		SAMPLE	SAMPLE NO.	PEN./TORVANE SPT.-BLOW COUNT	BORING NO. <u>94-14</u>	DATE: BEGIN <u>3/17/94</u>	PAGE <u>1/2</u>		
					JOB NO. <u>146727-B</u>	COMPLETE <u>3/17/94</u> Thin Walled Tube			
					PROJECT <u>Wallisville Lake, Trinity River & Tributaries</u>	☒ 3" ☐ 6"			
					LOCATION <u>Near Wallisville, TX</u>				
					ELEVATION OF HOLE _____				
					MANUFACTURER'S DESIGNATION OF DRILL RIG <u>FATHING 36</u>				
					GROUNDWATER: DEPTH <u>0</u> ft., ELEV. _____ ft., at end of Drilling				
					WEATHER <u>Sunny</u>				
					DRILLER <u>RANDY GEARD</u>	LOGGER <u>PETER KOSINSKI</u>			
					COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
0		1	1.5		Dark gray	clay	stiff		
		2	1.25		Dark gray	clay	stiff		
		3	1.25		Dark gray	clay	stiff		
5		4	1.25		Yellowish Brown	clay	stiff	sand	scale nod
		5	4.0		Yellowish Brown	clay	v. stiff	sand	scale nod, sand pockets
10		6	4.0		Yellowish Brown	clay	v. stiff		scale nod
		7	2.0		Yellowish Brown	clay	v. stiff		
15		8	2.5		Yellowish Brown	clay	v. stiff		sls 16-18'
		9	3.0		Yellowish Brown	clay	v. stiff		** encounter water @ 18'
		10	2.5		Yellowish Brown	clay	v. stiff		w/ scale nod
20		11	3.0		Yellowish Brown	clay	v. stiff		w/ scale nod
		12	3.0		Yellowish Brown	clay	v. stiff		w/ scale nod
25		13	2.75		Yellowish Brown	clay	v. stiff		w/ silt prng at 25'
		14	3.75		Yellowish Brown	clay	v. stiff		w/ scale nod
		15	4.0		Yellowish Brown	clay	v. stiff		w/ scale nod & Fe st
30		16	4.0		Yellowish Brown	clay	v. stiff		w/ scale nod, few nod
		17	3.5		Yellowish Brown	clay	v. stiff		w/ scale nod & Fe nod
35		18	3.0		Yellowish Brown	clay	v. stiff	sand	w/ sand pockets 35.5'-36'

U.S. ARMY CORPS OF ENGINEERS

DEPTH, FEET		SAMPLE NO.	PEN/TORVANE SPM - BLOW COUNT	BORING NO. <u>9414</u> DATE: BEGIN <u>3/17/94</u> PAGE <u>2</u> / <u>2</u> JOB NO. <u>146727-6</u> COMPLETE <u>3/17/94</u> Thin Walled Tube PROJECT <u>Wallisville Lake, Trinity River & Tributaries</u> ☒ 3" ☐ 6" LOCATION <u>Near Wallisville, Tx</u> ELEVATION OF HOLE _____ MANUFACTURER'S DESIGNATION OF DRILL RIG _____ GROUNDWATER: DEPTH <u>0**</u> ft., ELEV. _____ ft., at end of Drilling WEATHER <u>SUNNY</u> DRILLER <u>Randy Green</u> LOGGER <u>Peter Kosmoski</u>				
				COLOR	MATERIAL TYPE	CONSISTENCY	SECONDARY CONSTITUENTS	STRUCTURAL FEATURES AND COMMENTS
35		19275	Yellowish Brown	clay	Very stiff	sand	w/ sand pockets, w/ calyey sand 37.5-38'	
40		20425	Reddish Brown	clay	hard		SL 38-40	
45							** water level at end of Drilling	
50								
55								
60								
65								
70								

JOB NO. 14G727-12

DATE 4/12/94

PROJECT Lake Wallisville, Trinity River
and Tributaries,

AREA near Wallisville, Texas

BORING NO. 94-14

SAMPLE NO. 3

DEPTH 4-6 ft

SPECIMEN NO. 1

CLASSIFICATION

Dark gray, Clay, Stiff, w/calcareous nodules

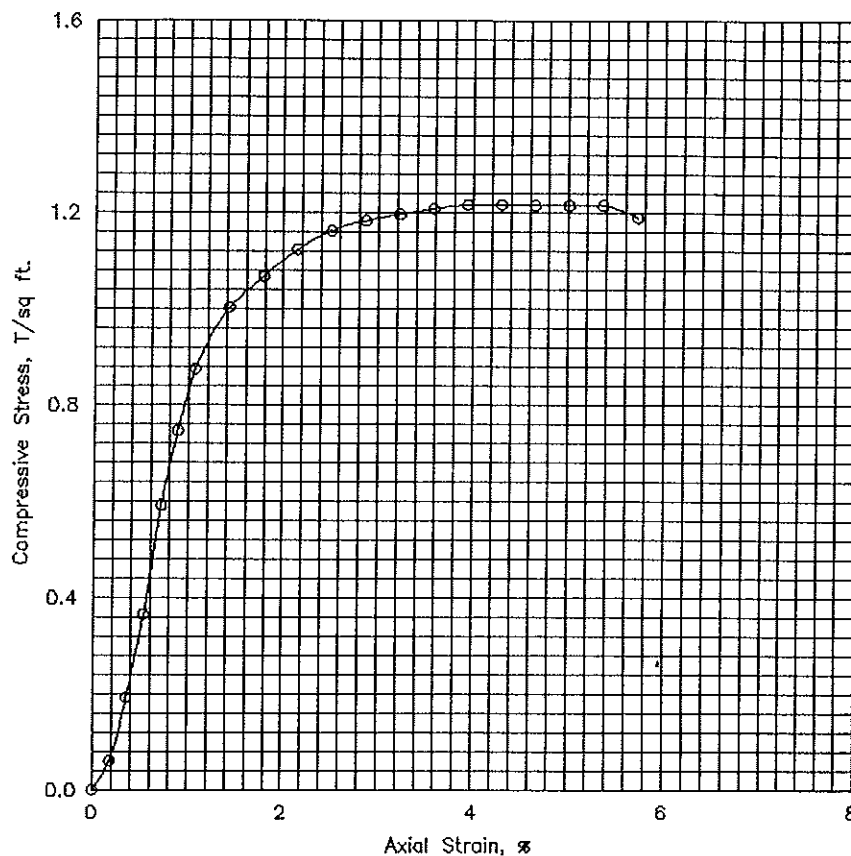
Tare No.	K1-6	Height	5.595 in.
Tare plus Wet Specimen	645.01 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	512.01 gm	Initial Area	6.290 sq in.
Water Weight	133.00 gm	Volume	35.194 cu in.
Tare Weight	42.56 gm	Volume of Solids	cu in.
Wet Specimen	1113.66 gm	Void Ratio	
Dry Specimen	867.80 gm	Saturation	%
Water Content	28.33 %	Dry Density	93.9 lb/cu ft
Specific Gravity of Solids			
LL = 63	PL =	PI =	

Proving Ring No. 10170

Proving Ring Constant, K = .766 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	7.0	5.4	.002	6.30	.061
.4	20.	.020	22.0	16.9	.004	6.31	.192
.5	30.	.030	42.0	32.2	.005	6.32	.366
.7	40.	.040	68.0	52.1	.007	6.34	.592
.9	50.	.050	86.0	65.9	.009	6.35	.747
1.0	60.	.060	101.0	77.4	.011	6.36	.876
1.4	80.	.080	116.0	88.9	.014	6.38	1.003
1.7	100.	.100	124.0	95.0	.018	6.40	1.068
2.0	120.	.120	131.0	100.3	.021	6.43	1.124
2.3	140.	.140	136.0	104.2	.025	6.45	1.163
2.6	160.	.160	139.0	106.5	.029	6.48	1.184
3.0	180.	.180	141.0	108.0	.032	6.50	1.197
3.3	200.	.200	143.0	109.5	.036	6.52	1.209
3.6	220.	.220	144.5	110.7	.039	6.55	1.217
3.9	240.	.240	145.0	111.1	.043	6.57	1.217
4.2	260.	.260	145.5	111.5	.046	6.60	1.216
4.5	280.	.280	146.0	111.8	.050	6.62	1.216
4.8	300.	.300	146.5	112.2	.054	6.65	1.216
5.2	320.	.320	144.0	110.3	.057	6.67	1.190

Failure Sketches



□ Controlled stress
 ⊗ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	28.3 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	93.9		
Time to failure, min		t_f	3.60		
Unconfined compressive strength, T/sq ft		q_u	1.22		
Undrained shear strength, T/sq ft		S_u	.61		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Dark gray, Clay, Stiff, w/calcareous nodules					
LL	63	PL		PI	G_s
Remarks		Project Lake Wallisville, Trinity River			
		and Tributaries,			
		Area near Wallisville, Texas			
		Boring No.	94-14	Sample No.	3
		Depth	4-6 ft	Date	4/12/94
		UNCONFINED COMPRESSION TEST REPORT			

JOB NO. 14G727-12

DATE 4/12/94

PROJECT Lake Wallisville, Trinity River
and Tributaries,

AREA near Wallisville, Texas

BORING NO. 94-14

SAMPLE NO. 6

DEPTH 10-12 ft

SPECIMEN NO. 1

CLASSIFICATION

Yellowish gray, Clay, very stiff, w/calcareous nodules

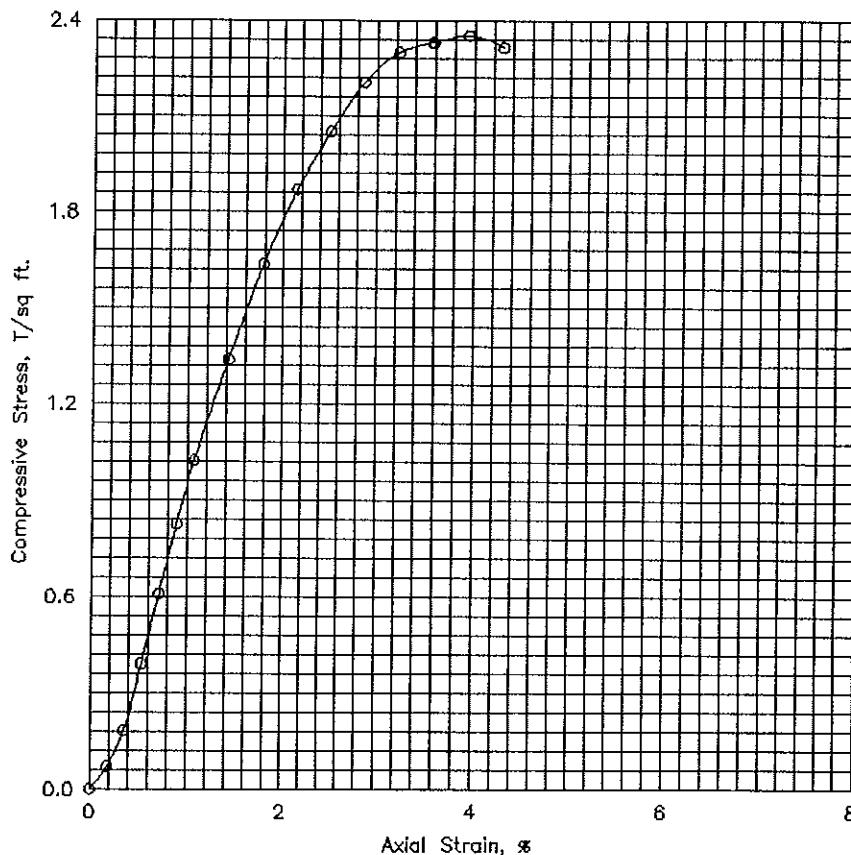
Tare No.	3	Height	5.595 in.
Tare plus Wet Specimen	557.44 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	480.82 gm	Initial Area	6.290 sq in.
Water Weight	76.62 gm	Volume	35.194 cu in.
Tare Weight	53.90 gm	Volume of Solids	cu in.
Wet Specimen	1232.72 gm	Void Ratio	
Dry Specimen	1045.15 gm	Saturation	%
Water Content	17.95 %	Dry Density	113.1 lb/cu ft
Specific Gravity of Solids			
LL = 65	PL =	PI =	

Proving Ring No. 10170

Proving Ring Constant, K = .766 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	8.0	6.1	.002	6.30	.070
.3	20.	.020	21.0	16.1	.004	6.31	.183
.5	30.	.030	45.0	34.5	.005	6.32	.392
.7	40.	.040	70.0	53.6	.007	6.34	.609
.9	50.	.050	95.0	72.8	.009	6.35	.826
1.0	60.	.060	118.0	90.4	.011	6.36	1.024
1.4	80.	.080	155.0	118.7	.014	6.38	1.340
1.6	100.	.100	190.0	145.5	.018	6.40	1.636
2.0	120.	.120	218.0	167.0	.021	6.43	1.870
2.3	140.	.140	240.0	183.8	.025	6.45	2.052
2.6	160.	.160	259.0	198.4	.029	6.48	2.206
2.9	180.	.180	271.0	207.6	.032	6.50	2.300
3.2	200.	.200	276.0	211.4	.036	6.52	2.333
3.4	220.	.220	279.5	214.1	.039	6.55	2.354
3.9	240.	.240	276.0	211.4	.043	6.57	2.316

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	17.9 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	113.1		
Time to failure, min		t_f	3.40		
Unconfined compressive strength, T/sq ft		q_u	2.35		
Undrained shear strength, T/sq ft		S_u	1.18		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Yellowish gray, Clay, very stiff, w/calcareous nodules					
LL	65	PL		PI	G_c
Remarks		Project Lake Wallisville, Trinity River			
		and Tributaries,			
		Area near Wallisville, Texas			
		Boring No. 94-14	Sample No. 6		
		Depth 10-12 ft	Date 4/12/94		
		UNCONFINED COMPRESSION TEST REPORT			

JOB NO. 14G727-12

DATE 4/12/94

PROJECT Lake Wallisville, Trinity River
and Tributaries,

AREA near Wallisville, Texas

BORING NO. 94-14

SAMPLE NO. 10

DEPTH 18-20 ft

SPECIMEN NO. 1

CLASSIFICATION

Olive gray, Clay, very stiff, w/calcareous nodules

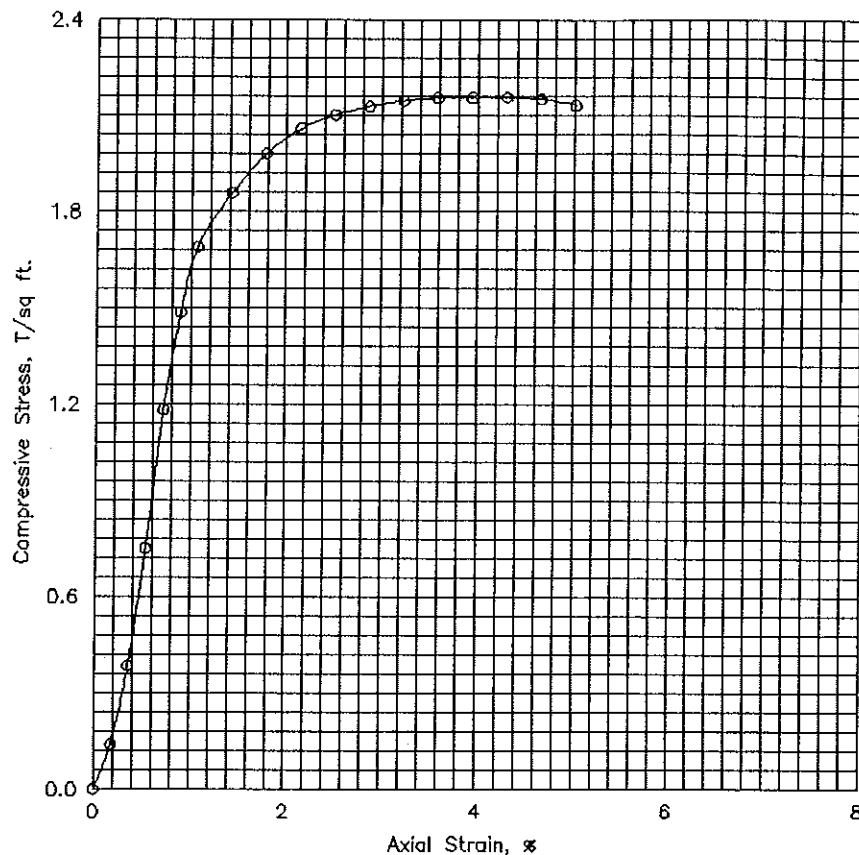
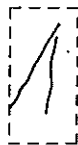
Tare No.	K1-17	Height	5.595 in.
Tare plus Wet Specimen	637.80 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	502.35 gm	Initial Area	6.290 sq in.
Water Weight	135.45 gm	Volume	35.194 cu in.
Tare Weight	42.58 gm	Volume of Solids	cu in.
Wet Specimen	1131.07 gm	Void Ratio	
Dry Specimen	873.68 gm	Saturation	%
Water Content	29.46 %	Dry Density	94.6 lb/cu ft
Specific Gravity of Solids			
LL = 83	PL =	PI =	

Proving Ring No. 10170

Proving Ring Constant, K = .766 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	16.0	12.3	.002	6.30	.140
.4	20.	.020	44.0	33.7	.004	6.31	.384
.5	30.	.030	86.0	65.9	.005	6.32	.750
.7	40.	.040	136.0	104.2	.007	6.34	1.184
.9	50.	.050	171.0	131.0	.009	6.35	1.486
1.1	60.	.060	195.0	149.4	.011	6.36	1.691
1.4	80.	.080	215.0	164.7	.014	6.38	1.858
1.7	100.	.100	230.0	176.2	.018	6.40	1.981
2.0	120.	.120	240.0	183.8	.021	6.43	2.059
2.3	140.	.140	246.0	188.4	.025	6.45	2.103
2.6	160.	.160	250.0	191.5	.029	6.48	2.129
3.0	180.	.180	253.0	193.8	.032	6.50	2.147
3.3	200.	.200	255.0	195.3	.036	6.52	2.156
3.4	220.	.220	256.0	196.1	.039	6.55	2.156
3.9	240.	.240	257.0	196.9	.043	6.57	2.157
4.3	260.	.260	257.5	197.2	.046	6.60	2.153
4.4	280.	.280	256.0	196.1	.050	6.62	2.132

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	29.5 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	94.6		
Time to failure, min		t_f	3.92		
Unconfined compressive strength, T/sq ft		q_u	2.16		
Undrained shear strength, T/sq ft		S_u	1.08		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Olive gray, Clay, very stiff, w/calcareous nodules					
LL	83	PL		PI	G_s
Remarks			Project Lake Wallisville, Trinity River		
			and Tributaries,		
			Area near Wallisville, Texas		
			Boring No. 94-14	Sample No. 10	
			Depth 18-20 ft	Date 4/12/94	
			UNCONFINED COMPRESSION TEST REPORT		

JOB NO. 14G727-12

DATE 4/11/94

PROJECT Lake Wallisville, Trinity River
and Tributaries,

AREA near Wallisville, Texas

BORING NO. 94-14

SAMPLE NO. 14

DEPTH 26-28 ft

SPECIMEN NO. 1

CLASSIFICATION

Olive gray, Clay, Very stiff, w/calcareous nodules

Tare No.	W10	Height	5.595 in.
Tare plus Wet Specimen	596.11 gm	Average Diameter	2.830 in.
Tare plus Dry Specimen	487.94 gm	Initial Area	6.290 sq in.
Water Weight	108.17 gm	Volume	35.194 cu in.
Tare Weight	42.30 gm	Volume of Solids	cu in.
Wet Specimen	1187.65 gm	Void Ratio	
Dry Specimen	955.68 gm	Saturation	%
Water Content	24.27 %	Dry Density	103.4 lb/cu ft
Specific Gravity of Solids			
LL = 60	PL =	PI =	

Proving Ring No. 10170

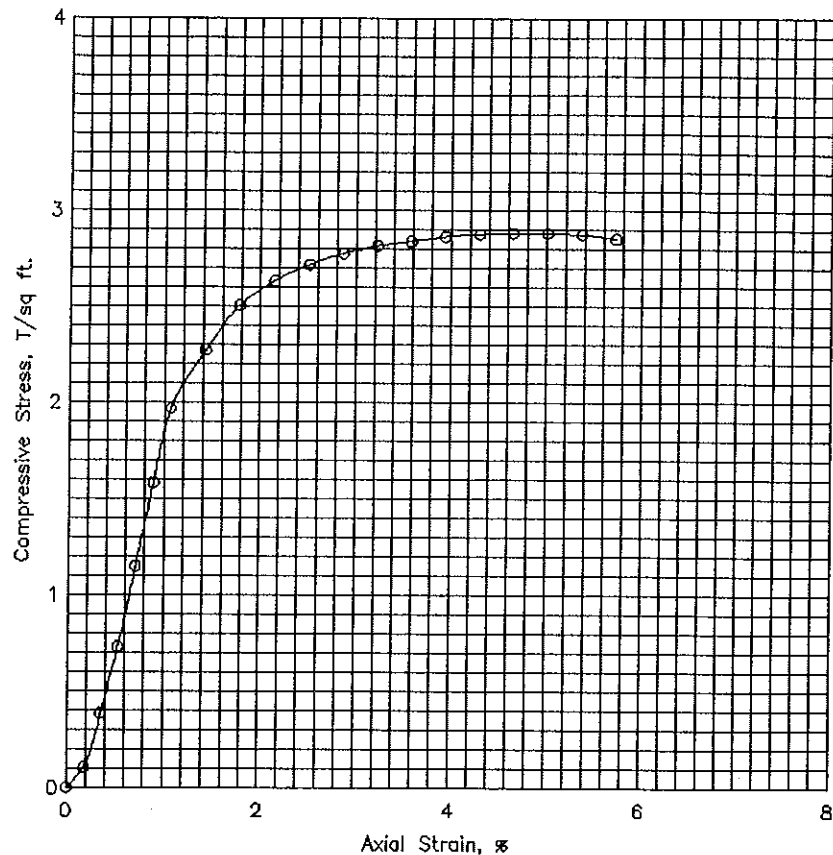
Proving Ring Constant, K = .766 lbs/div.

Elapsed Time min.	Dial Reading 0.001"	Cumulative Change in.	Proving Ring Dial Reading	Axial Load lb	Axial Strain	Area Corr. sq in.	Compr. Stress tsf
.0	0.	.000	.0	.0	.000	6.29	.000
.2	10.	.010	12.0	9.2	.002	6.30	.105
.3	20.	.020	44.0	33.7	.004	6.31	.384
.5	30.	.030	84.0	64.3	.005	6.32	.733
.7	40.	.040	132.0	101.1	.007	6.34	1.149
.9	50.	.050	182.0	139.4	.009	6.35	1.582
1.1	60.	.060	227.0	173.9	.011	6.36	1.969
1.4	80.	.080	263.0	201.5	.014	6.38	2.273
1.7	100.	.100	291.0	222.9	.018	6.40	2.506
2.0	120.	.120	307.0	235.2	.021	6.43	2.634
2.3	140.	.140	318.0	243.6	.025	6.45	2.718
2.7	160.	.160	326.0	249.7	.029	6.48	2.777
3.0	180.	.180	332.0	254.3	.032	6.50	2.817
3.3	200.	.200	336.0	257.4	.036	6.52	2.841
3.6	220.	.220	340.0	260.4	.039	6.55	2.864
4.0	240.	.240	343.0	262.7	.043	6.57	2.878
4.3	260.	.260	345.0	264.3	.046	6.60	2.884
4.6	280.	.280	346.0	265.0	.050	6.62	2.882
4.9	300.	.300	346.5	265.4	.054	6.65	2.875
5.2	320.	.320	345.0	264.3	.057	6.67	2.852

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Job No. 14G727-12

Failure Sketches



☐ Controlled stress
☒ Controlled strain

Test No.		1			
Type of Specimen		Undisturbed			
Initial	Water content	w_0	24.3 %	%	%
	Void ratio	e_0			
	Saturation	S_0	%	%	%
	Dry density, lb/cu ft	γ_d	103.4		
Time to failure, min		t_f	4.27		
Unconfined compressive strength, $T/sq\ ft$		q_u	2.88		
Undrained shear strength, $T/sq\ ft$		S_u	1.44		
Sensitivity ratio		S_t			
Initial specimen diameter, in.		D_0	2.830		
Initial specimen height, in.		H_0	5.595		
Classification Olive gray, Clay, Very stiff, w/calcareous nodules					
LL	60	PL		PI	G_s
Remarks		Project Lake Wallisville, Trinity River			
		and Tributaries,			
		Area near Wallisville, Texas			
		Boring No. 94-14	Sample No. 14		
		Depth 26-28 ft	Date 4/11/94		
		UNCONFINED COMPRESSION TEST REPORT			

SUMMARY OF LABORATORY TEST RESULTS

Contract No. DACW64-93-D-0005 Delivery Order No. 0012

Boring No. 94-14

S #	Depth (ft)	P P (tsf)	SPT Blows per Foot	Visual Classification	U S C	Mc (%)	Dry Unit Wt (pcf)	Wet Unit Wt (pcf)	L L (%)	PL (%)	Mechanical Analysis % Passing					Torvane Shear Strength (tsf)	q u (tsf)
											#4	#10	#40	#100	#200		
1	0 - 2	1.00		Dark gray, Clay, Stiff	C H	29.1											
2	2 - 4	1.25		Dark gray, Clay, Stiff	C H	26.4											
3	4 - 6	1.25		Dark gray, Clay, Stiff, w/calcareous nodules	C H	28.3	93.9	120.6	63		100.0	100.0	99.5	99.0	98.2		1.22
4	6 - 8	1.00		Yellowish gray, Clay, Stiff, w/calcareous nodules	C H	31.4											
5	8 - 10	2.00		Yellowish gray, Clay, Very stiff, Sand pocket and calcareous nodules	C H	19.2											
6	10 - 12	3.00		Yellowish gray, Clay, Hard, w/calcareous nodules	C H	18.0	113.1	133.4	65		100.0	100.0	99.6	98.5	98.2		2.35
7	12 - 14	2.25		Yellowish gray, Clay, Very stiff, w/organic material, slickensided	C H	31.0											
8	14 - 16	2.25		Yellowish gray, Clay, Very stiff, w/calcareous nodules	C H	34.0											
9	16 - 18	2.50		Yellowish gray, Clay, Very stiff	C H	30.6											
10	18 - 20	2.25		Olive gray, Clay, Very stiff, w/calcareous nodules	C H	29.5	94.6	122.4	83		100.0	100.0	99.2	98.7	97.6		2.16
11	20 - 22	3.00		Olive gray, Clay, Very stiff	C H	24.3											
12	22 - 24	3.00		Yellowish brown, Clay, Very stiff, w/calcareous nodules	C H	23.6											
13	24 - 26	2.75		Yellowish brown, Clay, very stiff, w/calcareous nodules	C H	23.3											
14	26 - 28	3.00		Olive gray, Clay, Very stiff, w/calcareous nodules	C H	24.3	103.4	128.5	60		100.0	100.0	99.6	98.7	98.2		2.88
15	28 - 30	3.50		Olive gray, Clay, Very stiff, w/calcareous nodules and ferrous stain	C H	25.5											
16	30 - 32	3.00		Yellowish brown, Clay, Very stiff, w/calcareous nodules and ferrous stain	C H	25.0											
17	32 - 34	3.25		Yellowish brown, Clay, Very stiff, w/calcareous nodules and ferrous stain	C H	27.0											
18	34 - 36	2.50		Yellowish brown, Clay, Very stiff, w/ferrous stain	C H	26.3											
19	36 - 38	2.50		Brown, Clay, Very stiff, w/calcareous nodules	C H	26.5											
20	38 - 40	4.50		Brown, Clay, Hard, w/calcareous nodules	C H	26.5											

S # : Sample Number, P P : Pocket Penetrometer Reading, U S C : Unified Soil Classification, M c : Moisture Content
q u : Uncogined Compressive Strength, W O H : Weight of hammer, W O P : Weight of Pipe