BORING NUMBER	SAMPLE NUMBER/ TYPE	SAMPLE DEPTH (Feet)	VISUAL CLASSIFICATION	U S C	MOISTURE CONTENT (%)	UNIT DRY WEIGHT (pcf)	UNIT WET WEIGHT (pcf)	SPECIFIC GRAVITY OF SOLIDS	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	BAR LINEAR SHRINKAGE (%)	ABBREVIATED MECHANICAL ANALYSIS	COMPLETE MECHANICAL ANALYSIS	HYDROMETER ANALYSIS	STANDARD COMPACTION TEST	MODIFIED COMPACTION TEST	UNDRAINED SHEAR STRENGTH (ksf)*	TORVANE SHEAR (ksf)	SOIL SALINITY (Parts per Thousand)
87-154	1Q	1-2	Fill: Stiff red clay, with silt partings and pockets and calcareous nodules	CH	25														
	2Q	3-4	Firm light gray clay, with sand seams	CH	33	97			54	18		95					0.68		
	3Q	5-6	Firm red clay, with sand pockets, calcareous and ferrous nodules	CH	33														
	4Q	7-7.5	Fill: Olive gray and red clay, with sand pockets	CH	30														
	5J	10.5-11	Firm red silty clay, with clay partings	CL	28														
	6Q	13-14	D.C. Gry Clay, Sh Frag, Sd Sms, USo																
	7Q	15-16	D.C. So																
	8Q	17-18	Very soft olive gray clay, with shell fragments	CH	39	79			67	21		52					0.17		
	9J	20.5-21	Stiff red clay, with silty clay layer and calcareous and ferrous nodules	CH															
	10J	21.5-22	Brown sand, with clay pockets and free water	SM								22							
	11J	24.5-25	Red clayey silt, with clay pockets	ML															
	12Q	26-27	Stiff red silty clay, with clay partings	CL	26	103			33	18		99							
	13Q	28-29	Stiff gray clay, with silt stones and ferrous nodules	CH	36														
	14Q	30-31	Stiff red clay, with silt stones and ferrous nodules	CH	41														
	15Q	32-33	Stiff red clay, with calcareous nodules and sand pockets	CH	31	92			61	22		96					1.35		
	16Q	34-35	Stiff gray clay, with calcareous nodules	CH	29														
	17Q	36-37	Stiff gray and red clay, with silt partings and calcareous nodules	CH	24														
	18Q	38-39	Very stiff red and light gray clay, with calcareous nodules and silt seams	CH	28	97			66	23		99					2.40		
	19Q	40-41	Very stiff red clay	CH	32														
	20Q	42-43	Stiff red clay	CH	31														
	21Q	44-45	Stiff gray and red clay, with calcareous nodules	CH	33														
	22Q	46-47	Very stiff red clay	CH	28	97													
			CONTINUED																

* Based on Unconfined Compression Test

SUMMARY OF TEST RESULTS
DELIVERY ORDER No. 0023
SNAKE ISLAND DISPOSAL AREA
TEXAS CITY, TEXAS

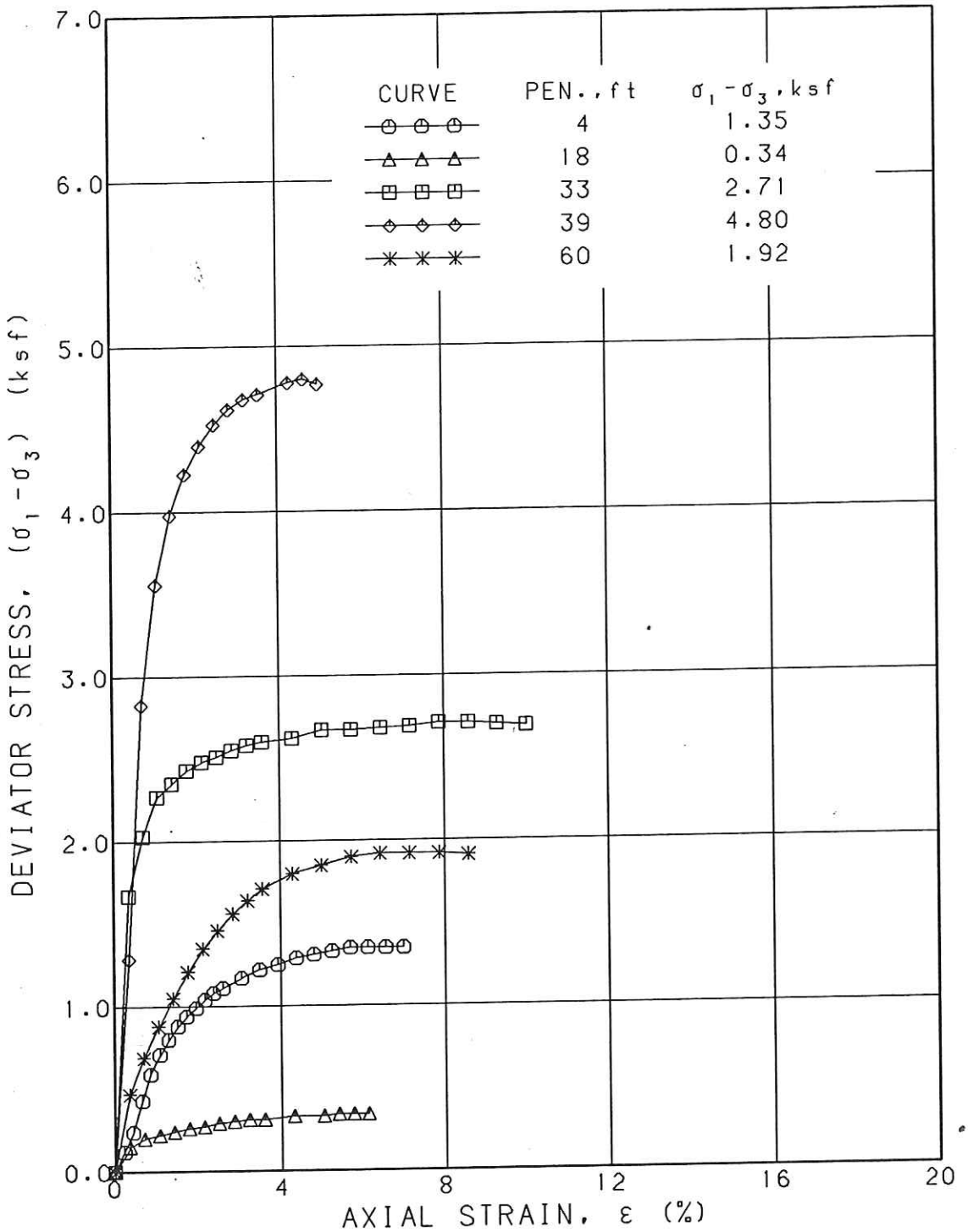
BORING NUMBER	SAMPLE NUMBER/ TYPE	SAMPLE DEPTH (Feet)	VISUAL CLASSIFICATION	U S C	MOISTURE CONTENT (%)	UNIT DRY WEIGHT (pcf)	UNIT WET WEIGHT (pcf)	SPECIFIC GRAVITY OF SOLIDS	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	BAR LINEAR SHRINKAGE (%)	ABBREVIATED MECHANICAL ANALYSIS	COMPLETE MECHANICAL ANALYSIS	HYDROMETER ANALYSIS	STANDARD COMPACTION TEST	MODIFIED COMPACTION TEST	UNDRAINED SHEAR STRENGTH (ksf)*	TORVANE SHEAR (ksf)	SOIL SALINITY (Parts per Thousand)
87-154	23Q	48-49	Stiff gray and red clay, with silt pockets	CH	28														
	24Q	54-55	Very stiff gray clay, with silt pockets and fine sand partings	CH	28	97			58	19									
	25Q	59-60	Firm olive gray sandy clay, with silt seams and organic matter	CL	32	92			36	16		85					0.96		
	26Q	64-65	Firm olive gray sandy clay, with ferrous nodules	CL	22														
	27Q	69-70	Stiff gray clay, slickensided, with silt pockets and partings	CH	32	86			70	23									
	28Q	74-75	Stiff olive gray clay, with silt stone, sand pockets and ferrous nodules	CH	44														

* Based on Unconfined Compression Test

SUMMARY OF TEST RESULTS
DELIVERY ORDER NO. 0023
SNAKE ISLAND DISPOSAL AREA
TEXAS CITY, TEXAS

Boring Number	Sample Number	Depth, ft	Weight of Dry Soil gms (Total Sample)	Percent Finer 0.375	#4	#10	#40	#200
87-153	7	20	79.08	100	97	93	91	56
87-153	9	25	94.60					100
87-153	11	32	74.19			100	99	99
87-153	17	44	93.86				100	99
87-154	2	4	78.40				100	95
87-154	8	18	96.55	100	90	80	73	52
87-154	10	22	98.07				100	22
87-154	12	27	96.81				100	99
87-154	15	33	77.63			100	99	96
87-154	18	39	61.76				100	99
87-154	25	60	82.57				100	85
87-155	3	6	45.18	100	99	99	98	86
87-155	6	12	50.46			100	99	90
87-155	7	14	87.94				100	89
87-155	10	20	98.24				100	61
87-155	12	25	125.46				100	39
87-155	14	30	56.87				100	99
87-155	17	36	60.43				100	99
87-155	23	48	89.51					100
87-156	3	6	80.00				100	93
87-156	9	20	81.41	100	94	92	89	66
87-156	11	25	93.30				100	23
87-156	13	32	57.81				100	96
87-156	16	38	59.26				100	97

RESULTS OF ABBREVIATED SIEVE ANALYSES



STRESS-STRAIN CURVES
UNCOFINED COMPRESSION TEST
BORING 87-154

McCLELLAND
ENGINEERS

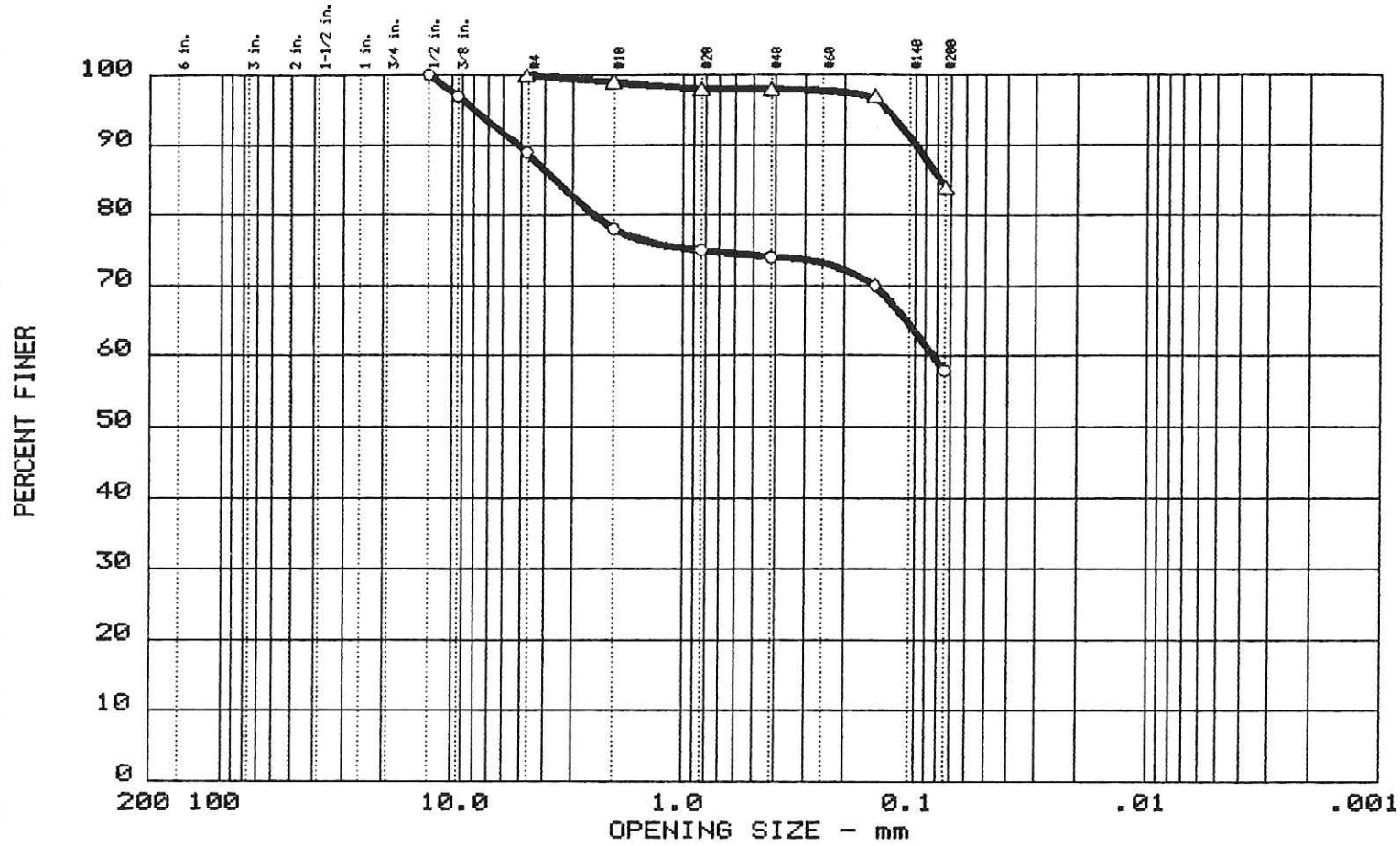
TABLE 1

RESULTS OF TESTS OF DISTURBED AND UNDISTURBED SOIL SAMPLES

SWDED-GL REPORT NO. 14604 TEXAS CITY CHANNEL - SNAKE ISLAND DISPOSAL AREA

BORING	NO.	SWD NO.	FLD NO.	DEPTH, FT	GR	SA	FI	LL	PL	PI	LS	WC, %	PCF	MAJOR TESTS	DESCRIPTION OF MATERIAL
87	154	87/7192	CTN-6	13.0 - 14.0	11	31	58	35	16	19		48.4	74	TRIAX-R	CL - SANDY LEAN CLAY, GRAY, VERY MOIST, SOFT TO MEDIUM HARDNESS, LAYERED IN TOP 0.3', SOME SHELLS (SEAM AT 13.3').
87	154	87/7193	CTN-7	15.0 - 16.0	0	16	84	33	15	18		42.2	79	T-Q(1PT), CONSOL	CL - LEAN CLAY WITH SAND, GRAY, VERY MOIST, VERY SOFT.
87	155	87/7194	CTN-8	15.0 - 16.0	0	19	81	31	16	15		40.2	80	T-Q(1PT), CONSOL	CL - LEAN CLAY WITH SAND, GRAY, VERY MOIST, SOFT.
87	155	87/7195	CTN-9	17.0 - 18.0	3	27	70	26	17	9		35.4	85	TRIAX-R	CL - SANDY LEAN CLAY, GRAY, VERY MOIST, SOFT, A FEW SCATTERED SHELLS.
87	156	87/7196	CTN-7	15.0 - 16.0	34	33	33	28	17	11		31.8	88	T-Q(1PT)	GC - CLAYEY GRAVEL WITH SAND, GRAY, VERY MOIST, SOFT, SOME SHELLS IN BOTTOM 0.2'.
87	156	87/7197	CTN-8	17.0 - 18.0	9	34	57	32	15	17		37.4	84	TRIAX-R	CL - SANDY LEAN CLAY, GRAY, VERY MOIST, SOFT, SOME SHELLS.
87	183	87/7198	CTN-5	10.0 - 11.0	0	12	88	26	16	10		41.2	78	T-Q(1PT), CONSOL	CL - LEAN CLAY, GRAY, MOIST, VERY SOFT.

GRAIN SIZE DISTRIBUTION TEST REPORT



	%+3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	11.0	31.0	58.0	
△	0.0	0.0	16.0	84.0	

	USCS Classification	% COLLOIDS	LL	PI	D_{60}	D_{30}	D_{10}	C_c	C_u
○	CL		35	19					
△	CL		33	18					

MATERIAL DESCRIPTION	TYPE OF TEST
○ SANDY LEAN CLAY (CL) △ LEAN CLAY WITH SAND (CL)	ASTM D 422-63(72) Mechanical analysis

Project No.: SWDED-GL NO. 14604
Project: TEXAS CITY - SNAKE ISLAND DISP. AREA
○ Location: 87-154,C-6,13.0-14.0, SWD NO. 87/7192
△ Location: 87-154,C-7,15.0-16.0, SWD NO. 87/7193

Date: FEBRUARY 1988

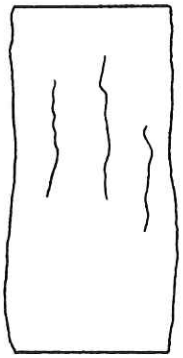
Remarks:

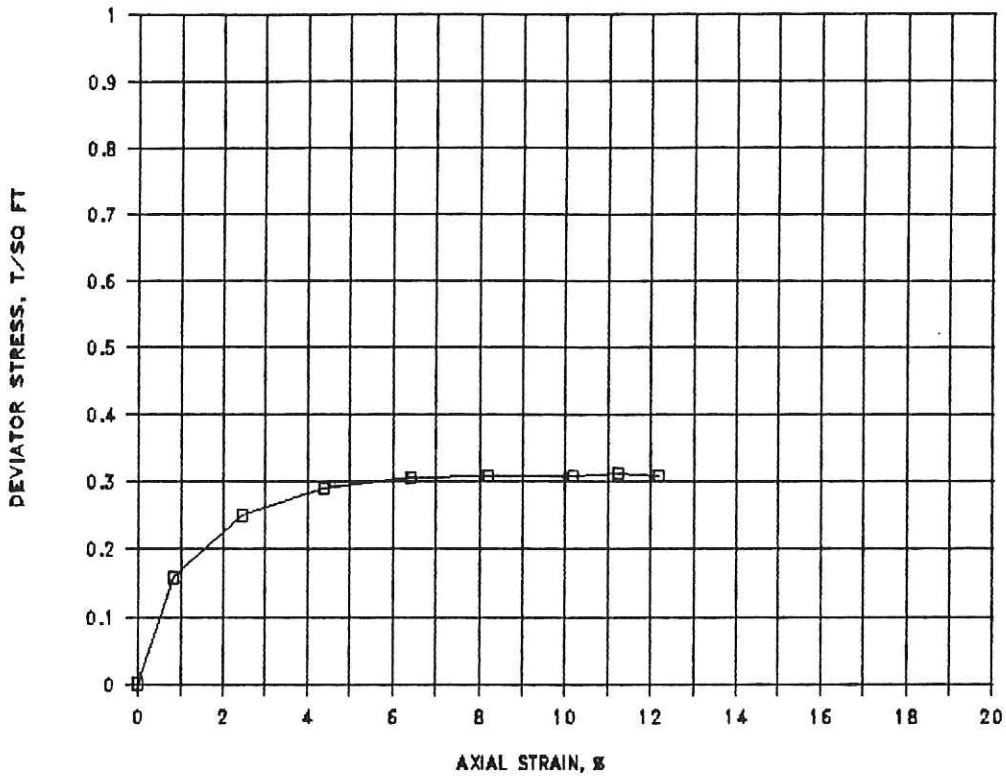
GRAIN SIZE DISTRIBUTION TEST REPORT

CORPS OF ENGINEERS - SOUTHWESTERN

Plate No. 6

ONE POINT TRIAX-Q COMPRESSION TEST





TEST NO.	1
TYPE OF SPECIMEN	UNDIST.
CONTROLLED STRESS TEST	
WATER CONTENT, %	37.5
VOID RATIO	1.010
SATURATION, %	99
DRY DENSITY, LB/CU FT	83
TIME TO FAILURE, MIN	14
MINOR PRINCIPAL STRESS, T/SQ FT	1.0
MAXIMUM DEVIATOR STRESS, T/SQ FT	0.31
INITIAL DIAMETER, IN.	2.7
INITIAL HEIGHT, IN.	6.1
LL	33
PL	15
PI	18
SPECIFIC GRAVITY	2.67

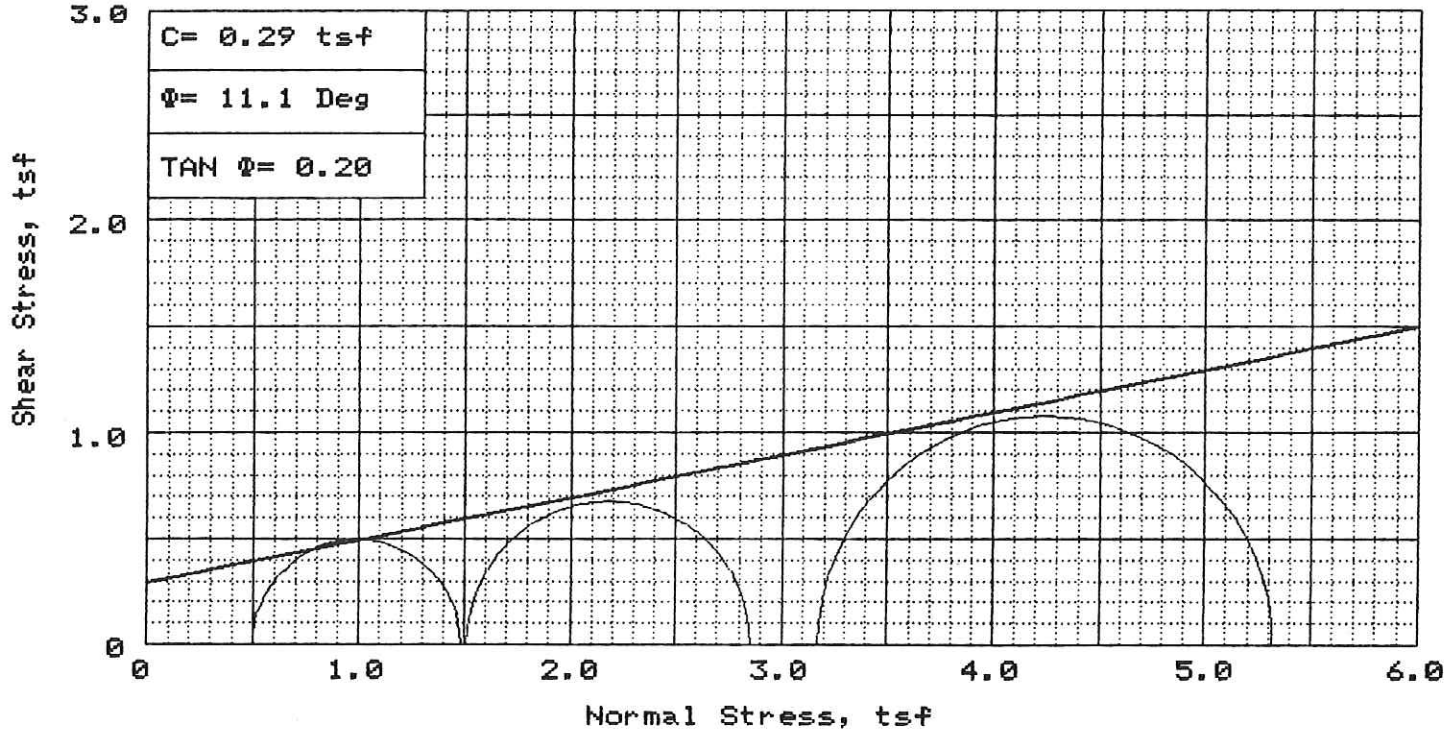
$q_u = .31$ tsf
$= 620$ psf
$S_u = 310$ psf

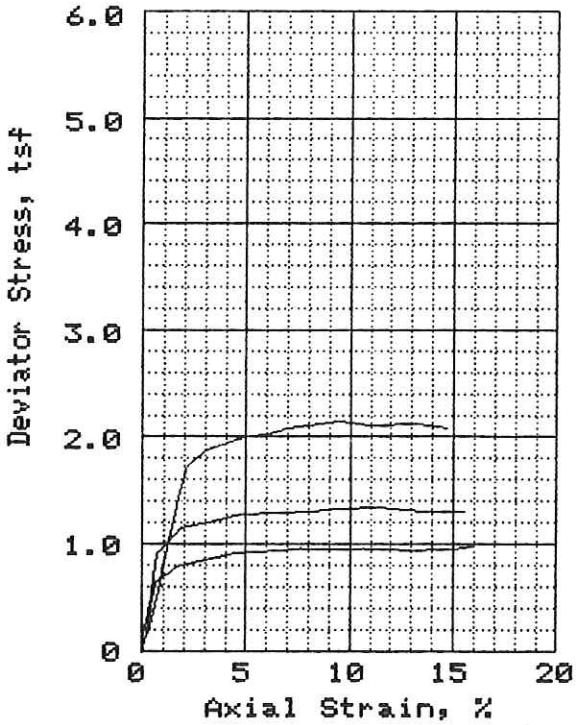
CLASSIFICATION: LEAN CLAY W/ SAND (CL)

SWDED-GL-REPORT NO. 14604

PROJECT:	TEXAS CITY - SNAKE ISLAND DISP. AREA
BORING NO.	87-154
SAMPLE NO.	87/7193
DEPTH	15.0-16.0
DATE	FEBRUARY 1988
LABORATORY	SWD

El.
-8.0 MLT





SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	58.4	47.7	39.2
	DRY DENSITY, pcf	65.3	72.9	81.5
	SATURATION, %	100.6	98.8	100.1
	VOID RATIO	1.55	1.29	1.04
	DIAMETER, in.	1.43	1.43	1.39
	HEIGHT, in.	3.03	2.99	3.05
TEST	WATER CONTENT, %	50.1	35.1	28.9
	DRY DENSITY, pcf	71.3	86.0	94.0
	SATURATION, %	100.0	100.0	100.0
	VOID RATIO	1.34	0.94	0.77
	DIAMETER, in.	1.37	1.35	1.31
	HEIGHT, in.	2.99	2.84	2.93
BACK PRESSURE, tsf		4.90	4.75	4.25
CELL PRESSURE, tsf		5.40	6.26	7.42
MAX. DEV. STRESS, tsf		0.98	1.34	2.14
PORE PRESSURE, tsf		4.90	4.75	4.25
TIME TO FAILURE, min.		390	390	390
ULT. DEV. STRESS, tsf		0.98	1.31	2.09
PORE PRESSURE, tsf		4.90	4.75	4.25
σ_1 FAILURE, tsf		1.48	2.85	5.32
σ_3 FAILURE, tsf		0.50	1.51	3.17

TYPE OF SAMPLE: UNDISTURBED
DESCRIPTION: SANDY LEAN CLAY (CL)

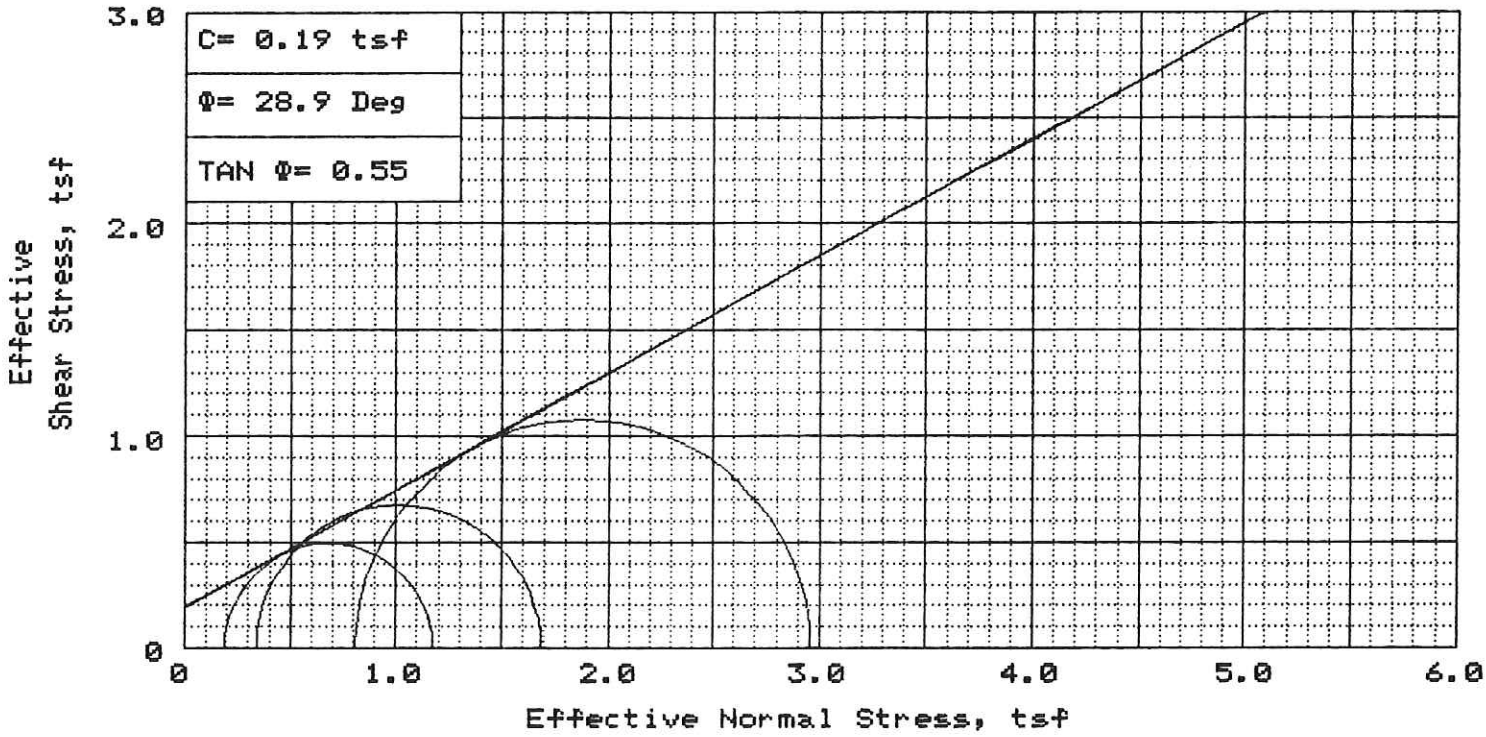
LL=35 PL=16 PI=19.0 GS=2.67

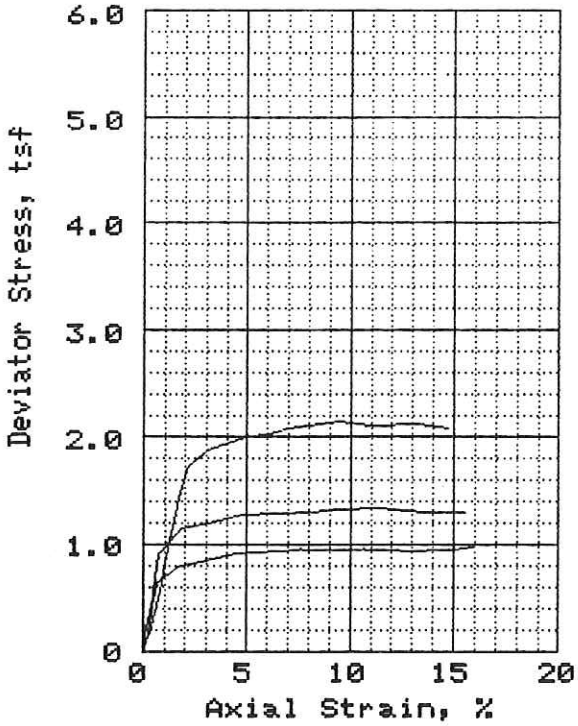
REMARKS:

CLIENT: US ARMY CORPS OF ENGINEERS
SWDED-GL NO. 14604
PROJECT: TEXAS CITY CHANNEL
GALVESTON DISTRICT
SAMPLE LOCATION: 87-154, CTN-6, 13.0-14.0
SWD NO. 87/7192
TYPE OF TEST: Consolidated undrained
DATE: 2-10-1988

TRIAXIAL COMPRESSION TEST

CORPS OF ENGINEERS - SOUTHWESTERN





SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	58.4	47.7	39.2
	DRY DENSITY, pcf	65.3	72.9	81.5
	SATURATION, %	100.6	98.8	100.1
	VOID RATIO	1.55	1.29	1.04
	DIAMETER, in.	1.43	1.43	1.39
	HEIGHT, in.	3.03	2.99	3.05
TEST	WATER CONTENT, %	50.1	35.1	28.9
	DRY DENSITY, pcf	71.3	86.0	94.0
	SATURATION, %	100.0	100.0	100.0
	VOID RATIO	1.34	0.94	0.77
	DIAMETER, in.	1.37	1.35	1.31
	HEIGHT, in.	2.99	2.84	2.93
BACK PRESSURE, tsf		4.90	4.75	4.25
CELL PRESSURE, tsf		5.40	6.26	7.42
MAX. DEV. STRESS, tsf		0.98	1.34	2.14
PORE PRESSURE, tsf		5.21	5.92	6.61
TIME TO FAILURE, min.		390	390	390
ULT. DEV. STRESS, tsf		0.98	1.31	2.09
PORE PRESSURE, tsf		5.21	5.90	6.63
$\bar{\sigma}_1$ FAILURE, tsf		1.17	1.68	2.96
$\bar{\sigma}_3$ FAILURE, tsf		0.19	0.34	0.81

TYPE OF SAMPLE: UNDISTURBED
DESCRIPTION: SANDY LEAN CLAY (CL)

LL=35 PL=16 PI=19.0 GS=2.67

REMARKS:

CLIENT: US ARMY CORPS OF ENGINEERS
SWDED-GL NO. 14604
PROJECT: TEXAS CITY CHANNEL
GALVESTON DISTRICT
SAMPLE LOCATION: 87-154, CTN-6, 13.0-14.0
SWD NO. 87/7192
TYPE OF TEST: Consolidated undrained w/pore p
DATE: 2-10-1988

TRIAXIAL COMPRESSION TEST

CORPS OF ENGINEERS - SOUTHWESTERN

CONSOLIDATION TEST RESULTS SWDED-GL 14604

Type of Specimen: UNDISTURBED		Before Test:	After Test:
Diam(in): 2.22	Ht(in): 0.696	Water Content, wo: 43.5	wf: 29.5
Overburden Pressure, po:		Void Ratio, eo 1.158	ef: 0.781
Preconsol. Pressure, pc:		Saturation, So: 100.3	Sf: 100.9
Compression Index, Cc:		Dry Density, lb/ft3: 77.2	
Class.: LEAN CLAY W/SAND (CL)		k20 at eo = x 10- cm/sec	
LL 33	Gs 2.67	Project: TEXAS CITY	
PL 15	D10	SNAKE ISLAND DISP. AREA	
Remarks:		Area: CTN-7	
		Boring No. 87-154	Smpl # 87/7193
		Depth: 15.0-16.0	Date: FEB 1988

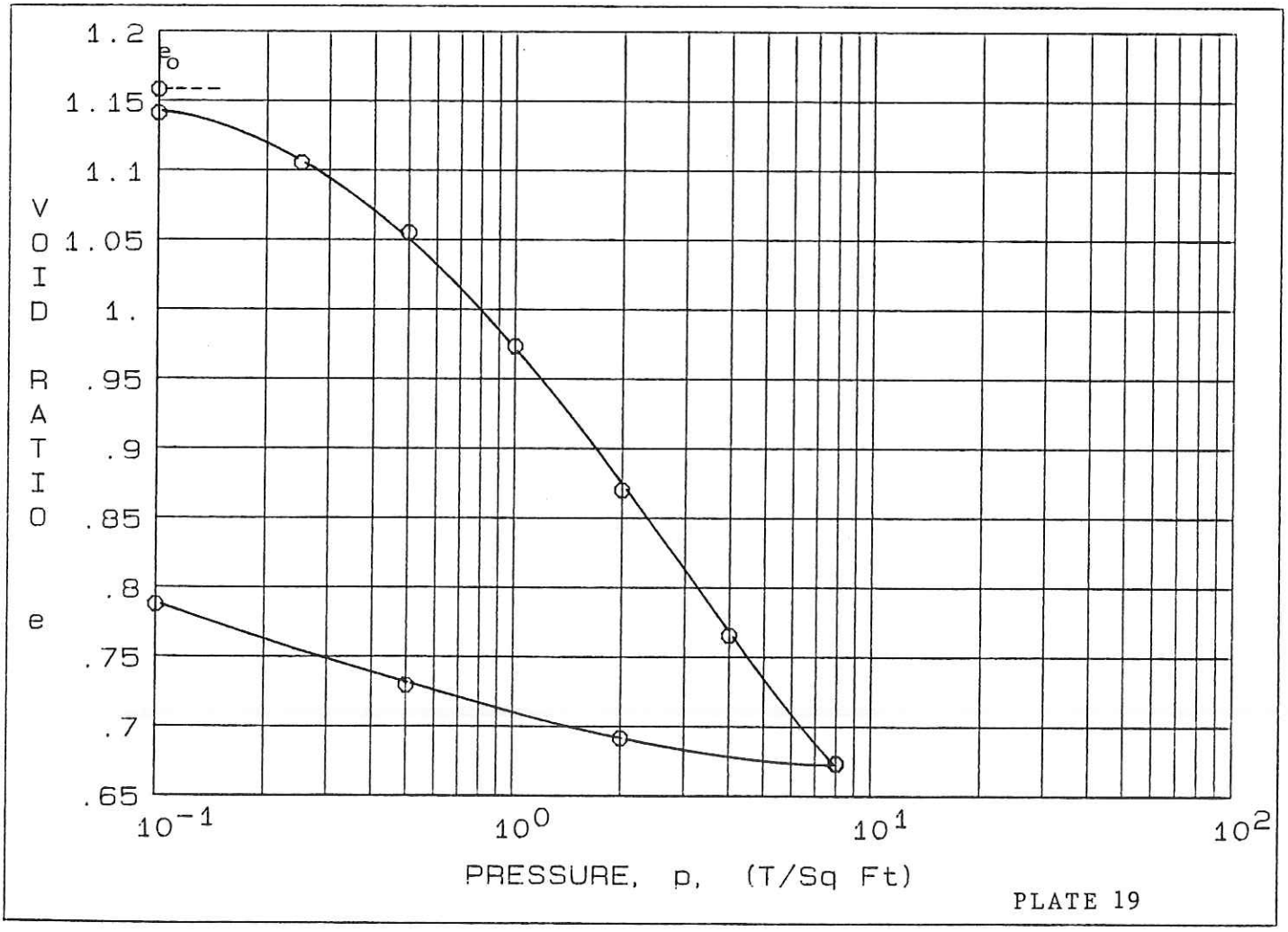
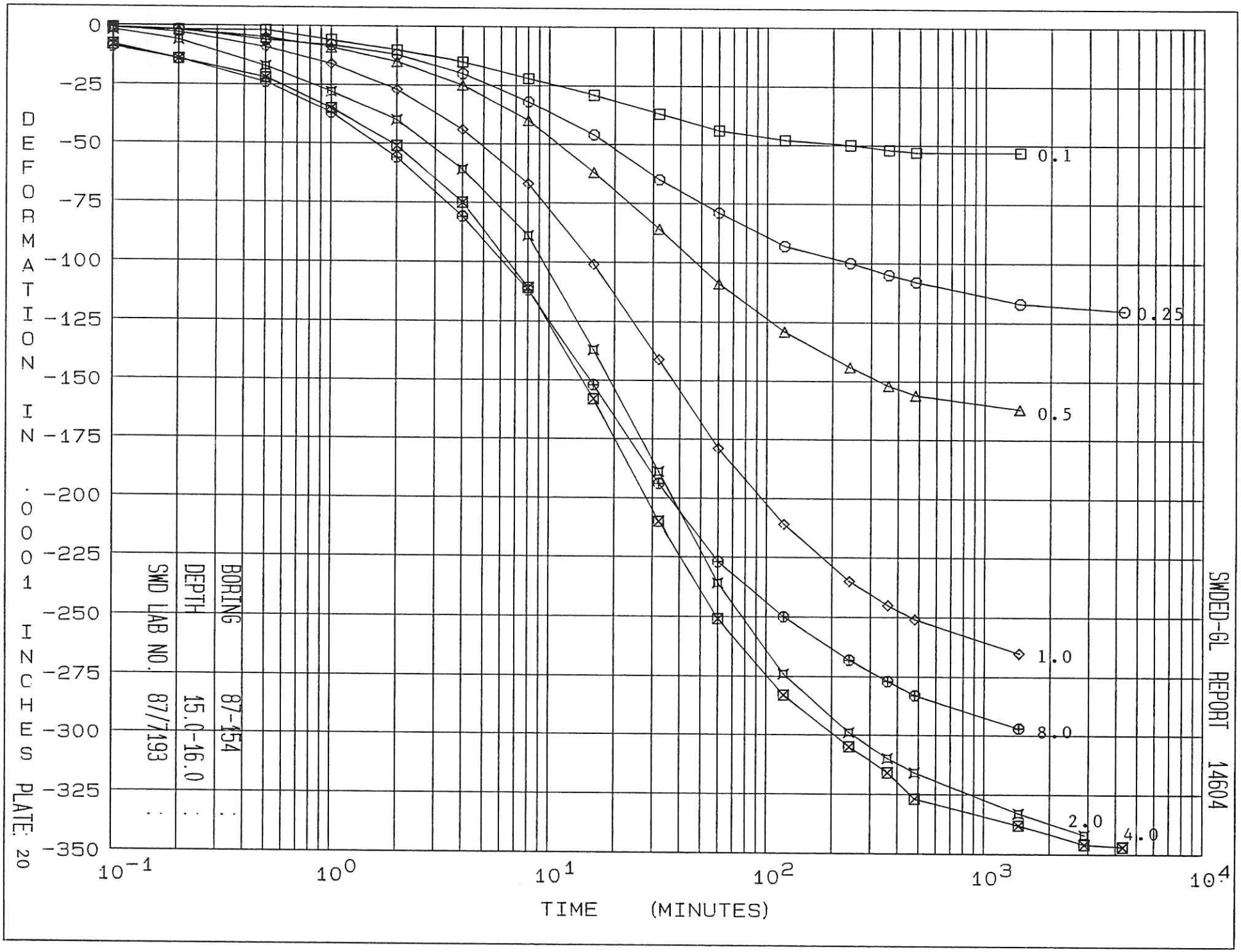
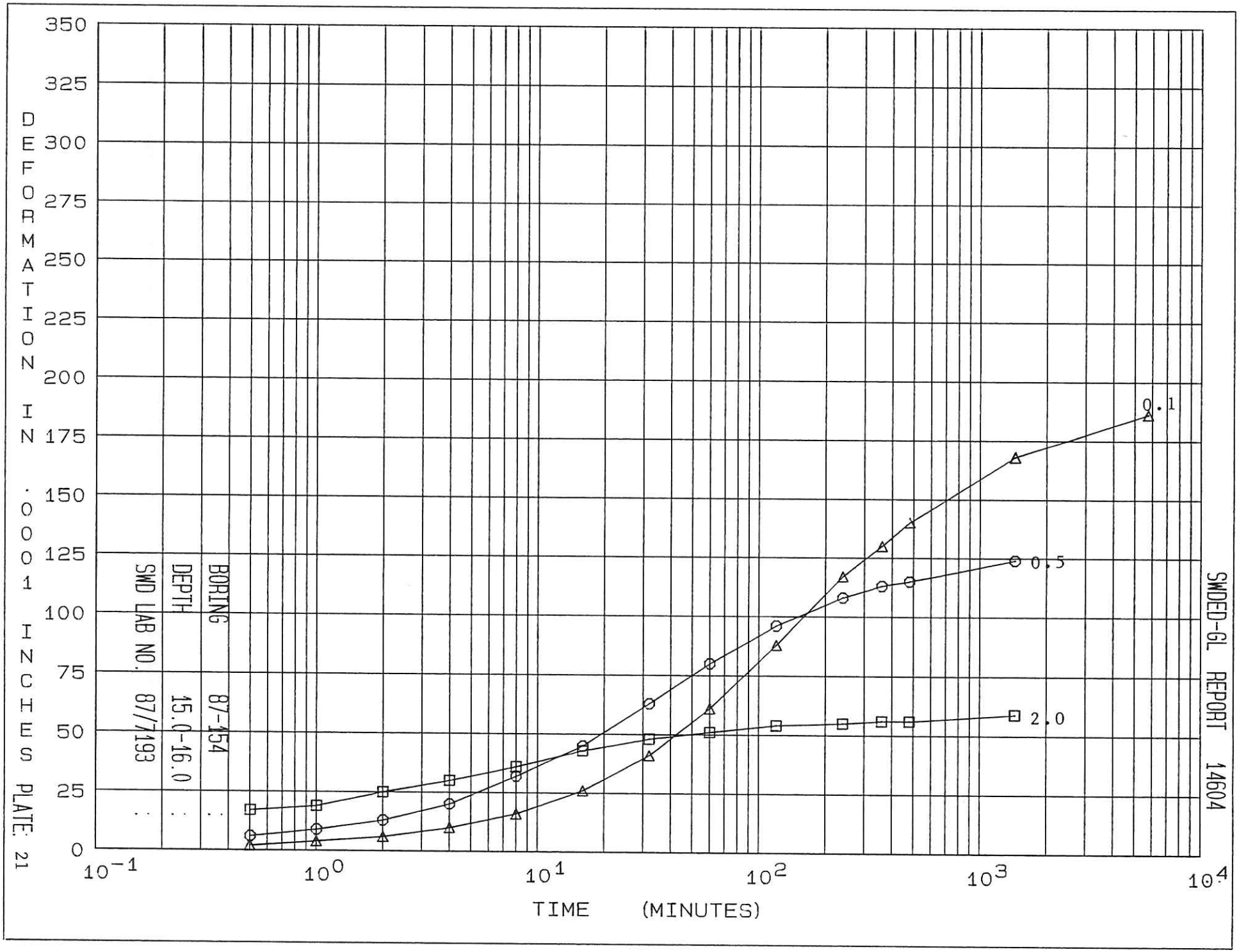
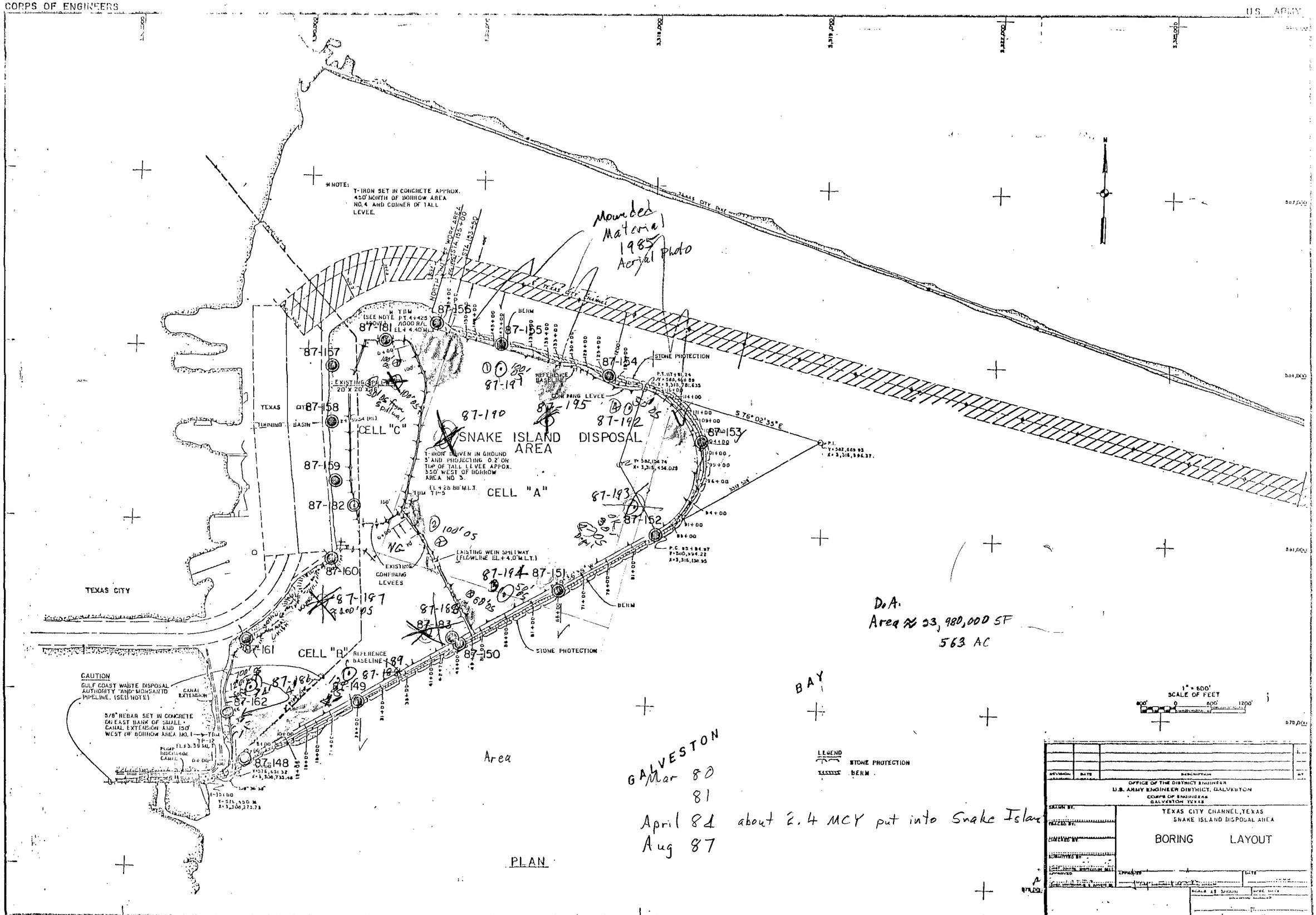


PLATE 19


DEFORMATION IN .0001 INCHES
0
-25
-50
-75
-100
-125
-150
-175
-200
-225
-250
-275
-300
-325
-350
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
TIME (MINUTES)
0.1
0.25
0.5
1.0
8.0
2.0
4.0
BORING 87-154
DEPTH 15.0-16.0
SWD LAB NO. 87/7193
PLATE 20
SWDED-GL REPORT 14604


DEFORMATION IN .0001 INCHES
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
TIME (MINUTES)
0.1
0.5
2.0
BORING 87-154
DEPTH 15.0-16.0
SWD LAB NO. 87/7193
SWDED-GL REPORT 14604
PLATE: 21

CORPS OF ENGINEERS

U.S. ARMY