11 East Adams Street
Suite 1500
Chicago, Illinois 60603
312-939-1000
Telex 253875 (WOODWARD CGO)

Woodward-Clyde Consultants

TEST RESULTS
RETAINING WALLS
SOIL BORING AND TESTING PROGRAM
MIDLAND PLANT - UNITS 1 AND 2
MIDLAND, MICHIGAN

for

Consumers Power Company
1945 West Parnall Road
Jackson, Michigan

by

Richard S. Ladd
Laboratory Director

and

Larry M. Campbell
Project Manager

6 November 1981

81C217
(81C4055)

Consulting Engineers, Geologists
and Environmental Scientists

Offices in Other Principal Cities

8203310558 820323
PDR ADOCK 05000329
A PDR

11 East Adams Street
Suite 1500
Chicago, Illinois 60603
312-939-1000
Telex 253875 (WOODWARD CGO)

Woodward-Clyde Consultants

TEST RESULTS
RETAINING WALLS
SOIL BORING AND TESTING PROGRAM
MIDLAND PLANT - UNITS 1 AND 2
MIDLAND, MICHIGAN

for

Consumers Power Company
1945 West Parnall Road
Jackson, Michigan

by

Richard S. Ladd
Laboratory Director

and

Larry M. Campbell
Project Manager

6 November 1981

81C217
(81C4055)

TABLE OF CONTENTS

		Page
1.	INTRODUCTION	1
2.	FIELD INVESTIGATION	1
3.	LABORATORY INVESTIGATION	3
	3.1 Index Property Testing	3
	3.2 Strength Testing	4

Table 1 Soil Boring Details

Fig. 1 Boring Location Plan

LIST OF APPENDICES

Appendix A	Logs of Borings
Table A-1	Boring Log Abbreviations
Figs. A-1 through A-3	Logs of Borings
Appendix B	Index Property Test Results
Table B-0	Laboratory Notations/Symbols
Tables B-1 and B-2	Laboratory Testing Summaries
Fig. B-0	Legend for Index Property Profiles
Figs. B-1 and B-2	Index Property Profiles
Appendix C	Particle-Size Distribution Curves
Figs. C-1 and C-2	Particle-Size Distribution Curves
Appendix D	Strength Test Results - UU Triaxial Compression Tests
Tables D-1 and D-2	UU Triaxial Test Series - Summaries
Figs. D-1 and D-2	UU Triaxial Test Series - Plots
Appendix E	Strength Test Results - $\overline{CIU}$ Triaxial Compression Tests
Tables E-1 through E-4	$\overline{CIU}$ Triaxial Test Series - Summaries
Figs. E-1 through E-4	$\overline{CIU}$ Triaxial Test Series - Plots
Appendix F	Supporting Data - UU Triaxial Compression Tests
Appendix G	Supporting Data - $\overline{CIU}$ Triaxial Compression Tests

1. INTRODUCTION

During the period 13 March through 5 November 1981, Woodward-Clyde Consultants (WCC) conducted a Soil Boring and Testing Program on the fill materials and underlying natural foundation soils in various areas at the Consumers Power Company (CPCo) Midland Plant - Units 1 and 2. This report describes the scope of the boring and sampling program and the subsequent laboratory testing program for the fill and foundation materials at the Retaining Walls. In addition, the results of these programs are presented in the form of logs of borings and both tabular and graphical data summaries of index property and strength testing.

All index property and strength testing have been completed. Tests have been performed on test specimens considered to be representative of the range of material types and material properties encountered in the Retaining Wall borings. The test results presented herein supersede a similar presentation of results given in our draft report of 23 October 1981 entitled "Preliminary Test Results, Retaining Walls, Soil Boring and Testing Program, Midland Plant - Units 1 and 2, Midland, Michigan."

Corps of Engineer (COE) personnel continually observed the drilling and sampling operations in the field. COE and CPCo personnel also visited our Clifton, NJ laboratory and observed laboratory operations, including extrusion of tubes, preparation of triaxial and consolidation test specimens, and performance of index and engineering property testing.

2. FIELD INVESTIGATION

Three borings (COE-14, COE-15, and COE-15A) were drilled, sampled, and logged in close proximity to the Retaining Walls, as shown on Fig. 1. Boring COE-15 encountered an obstruction (6-ft-dia concrete circulating water pipe) at a depth of about 17 ft (el. 617); the boring was relocated and redrilled as COE-15A. Samples of fill materials and foundation soils were obtained from borings COE-14 and COE-15A. Both borings were properly closed by backfilling the

boreholes from the bottom to the ground surface with a bentonite-cement grout. Boring COE-15 was cased to a depth of about 16.5 ft. Closure of this borehole will be completed by others following repair of the concrete pipe. Pertinent details of the drilling, sampling, and closing of the Retaining Wall borings are summarized in Table 1.

The Retaining Wall borings were continuously sampled (below depths of about 1.5 to 3 ft) through the fill materials (to the obstruction in COE-15) using "undisturbed" sampling techniques. Typically, undisturbed samples were obtained (and retained) in 3-in.-dia thin-walled tubes using Osterberg, Pitcher, and thin-walled tube samplers. Samples of the underlying foundation soils were also obtained using Osterberg and Pitcher samplers. Both borings COE-14 and COE-15A were advanced a minimum distance of 5 ft into cohesive foundation soils.

Synthesized logs of borings COE-14, COE-15, and COE-15A are presented, respectively, in Figs. A-1, A-2, and A-3 in Appendix A. The logs present descriptions of soil strata encountered in the boreholes and pertinent details of the drilling and sampling operations. These synthesized logs are based on the WCC boring inspectors' original field boring logs. The field boring logs are based on visual classification of the observed soil sample, which is typically only that at the ends of the thin-walled sampling tube. Abbreviations used on the logs are listed in Table A-1 in Appendix A.

At the western Retaining Wall, approximately 32.5 to 34 ft of predominately cohesive fill materials were encountered in boring COE-14, overlying foundation sand at about el. 601 to el. 599.5. The foundation sand deposit is about 20 ft thick and is underlain by foundation clay at about el. 580. At the eastern Retaining Wall, however, about 39.5 ft of granular and cohesive fill materials were encountered in boring COE-15A, directly overlying foundation till at about el. 594.6.

3. LABORATORY INVESTIGATION

Index property testing included processing of tube samples and determinations of density, water content, consistency (pocket penetrometer), liquid and plastic limits, particle-size distribution, and specific gravity. Strength testing included unconsolidated-undrained triaxial compression tests (UU) and isotropically consolidated-undrained triaxial compression tests with pore water pressure measurements ($\overline{CIU}$).

Index property and strength testing were performed as described in the following documents: (1) a memorandum dated 11 April 1981 from Mr. D. M. Hendron (WCC) to the attendees of the 1 April laboratory work plan meeting in Savoy, IL, (2) our letter to CPCo dated 5 May 1981 from Dr. H. M. Horn (WCC) documenting a telephone conference call on 29 April, (3) a memorandum dated 16 June 1981 from Mr. L. M. Campbell (WCC) documenting a project meeting on 11 June at our Clifton laboratory, (4) a memorandum dated 5 August 1981 from Mr. Campbell documenting a telephone conference call on 30 July, and (5) a memorandum dated 13 October 1981 from Mr. Campbell documenting a telephone call on 8 October.

Index property and strength tests were performed on samples of both fill and foundation materials from both borings COE-14 and COE-15A. No laboratory testing was performed on fill samples from boring COE-15. Laboratory test results from the Retaining Wall borings are presented subsequently in both tabular and graphical forms.

3.1 Index Property Testing

Index property test results and other pertinent data are listed for borings COE-14 and COE-15A in Tables B-1 and B-2, respectively, in Appendix B. The tube densities reported in these tables were calculated assuming the sample diameter was equal to that of the inside diameter of the sampling tube. Where two densities are reported, the larger value was calculated assuming the sample diameter was equal to that of the inside diameter of the cutting edge of the

tube. A list of abbreviations and symbols applicable to the laboratory testing data is included in Table B-0.

Selected index property data are plotted by boring to create index property profiles as presented on Figs. B-1 and B-2. Classifications of soil strata are based on pertinent index property testing or descriptions from the boring logs. The locations at which triaxial test specimens were selected are noted at the right margin of the profile figures. A legend illustrating soil symbols and test designations is presented on Fig. B-0.

All tube samples have not been extruded and processed for stratigraphy and index property testing. Accordingly, gaps exist in the index property profiles and in the locations of some strata changes. Tubes that have been extruded and processed are noted by a solid vertical bar at the right margin of the profile figures. Gaps where no sampling was attempted or where a sample was not recovered are indicated, respectively, as "no sample" and "no rec.".

Particle-size distribution data for selected sieve sizes are summarized in Tables B-1 and B-2; complete particle-size distribution curves and descriptions for 29 specimens from the Retaining Wall borings are presented in boring-number sequence on Figs. C-1 and C-2 in Appendix C.

3.2 Strength Testing

Strength testing included UU triaxial compression tests on fill materials and $\overline{CIU}$ triaxial tests on both fill materials and foundation soils. Strength test results are presented in both tabular and graphical forms in Appendices D and E for the UU and $\overline{CIU}$ tests, respectively.

Results of UU triaxial tests on cohesive fill materials are summarized by boring in Tables D-1 and D-2 in Appendix D. These UU test results are tabulated for conditions of peak deviator stress or deviator stress at about 20 percent

axial strain. Stress-strain characteristics of these materials are similarly presented on Figs. D-1 and D-2. A sketch of the specimen at test completion is also shown.

Results of the $\overline{CIU}$ triaxial test series are summarized in Tables E-1 through E-4 in Appendix E, respectively, for cohesive fill, foundation sand, and foundation clay (all from boring COE-14) and foundation till (boring COE-15A). $\overline{CIU}$ test results are presented graphically in a series of four plots (a, b, c, d) for each material type on Figs. E-1 through E-4. Stress-strain characteristics are presented on the first figure (a) of each series, and include deviator stress, obliquity (principal stress ratio), and A-factor plotted vs axial strain. A sketch of the specimen at test completion is also included. Stress paths are presented in p-q diagrams on the second figure (b) of each series. On the third figure (c), Mohr circles are plotted on a Mohr-Coulomb diagram of shear stress vs effective normal stress. On the fourth figure (d), the undrained shear stress is plotted vs the effective consolidation stress used in the test (except for test results on foundation sand, Fig. E-2).

As shown in Tables E-1 through E-4, failure characteristics have been summarized for conditions of both peak deviator stress and peak obliquity. For test specimens that cavitated prior to reaching the peak deviator stress, the data are summarized for the deviator stress when cavitation occurred. These failure conditions are noted by small arrows on the stress-strain characteristics plots ("a" figures). The condition of peak obliquity is noted by a solid (filled in) symbol on the p-q diagrams ("b" figures). Mohr circles are plotted on the "c" figures only for the condition of peak obliquity. The undrained strength data on the "d" figures, however, are presented for the conditions of peak deviator stress or the deviator stress at approximately 20 percent axial strain, as applicable.

The strength envelope plotted on the p-q diagram ("b" figure) is that determined by a linear regression analysis using all data points for the condition of peak obliquity (i.e., solid symbols). The slope and intercept ($\overline{\alpha}$ and $\overline{a}$) of the regression line on the p-q diagram were then mathematically converted to

the slope and intercept ($\bar{\phi}$ and $\bar{c}$) of the strength envelope of the Mohr-Coulomb diagram ("c" figure).

This procedure was used for all material types except for the foundation sand (Table E-2 and Fig. E-2); cohesion ($\bar{c}$) for this material was assumed to be zero. The slope ($\bar{\phi}$) of the strength envelope on the Mohr-Coulomb diagram was determined as the average of the $\bar{\phi}$'s for all tests in the series. This slope ($\bar{\phi}$) was then mathematically converted to the slope ($\bar{\alpha}$) of the strength envelope on the p-q diagram.

Detailed supporting data for the UU and $\overline{CIU}$ triaxial tests are presented in boring/sample-number order in Appendices F and G, respectively. These supporting data include copies of the original laboratory data sheet used for set up and take down of triaxial tests (front of form WCC L-202) and the summary calculation sheet for triaxial tests (back of form WCC L-202). In addition, for the UU tests, copies of the triaxial loading data sheets (forms WCC L-205 and L-205A) are included. For the $\overline{CIU}$ tests, copies of the computer listing of the recorded test data (piston displacement, piston load, and pore water pressure) are presented, followed by the printout of computed test results.

TABLE 1
Soil Boring Details
Retaining Walls

Boring Number	Date Started	Date Finished	Depth (ft)	Surface Elev. (ft)	Bottom Elev. (ft)	Drill Rig	No. of Samples U/D*	Notes
COE-14	9 April	10 April	60.8	633.5	572.7	B-56	27/1	a,c
COE-15	13 April	13 April	21.3	634.2	612.9	B-61	6/2	a,b,d
COE-15A	16 April	21 April	44.9	634.1	589.2	B-61	18/2	a,c

* U/D = Undisturbed sampler (thin-walled tube)
Disturbed sampler (auger)

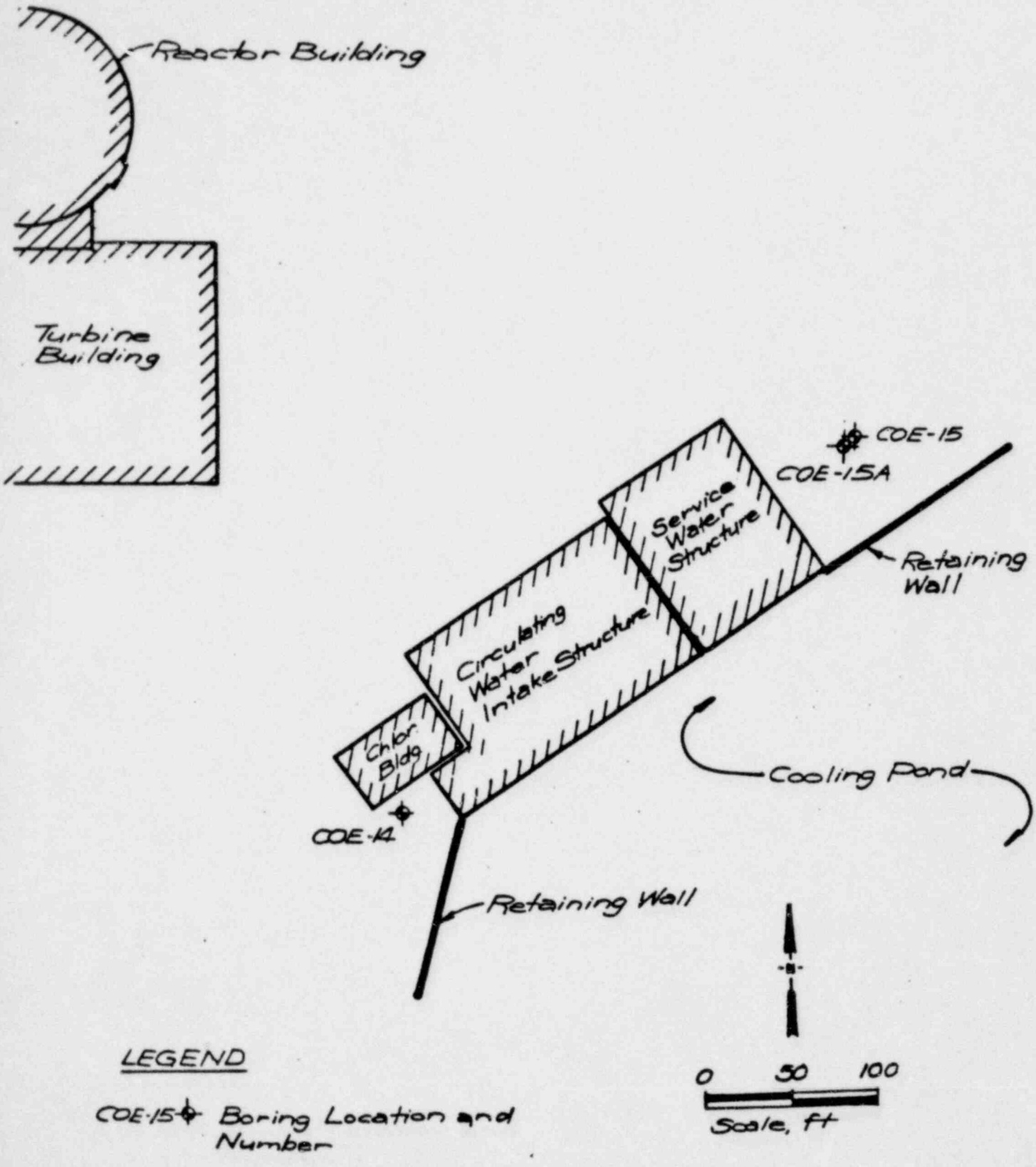
NOTES:

a) Continuous sampling through fill; advance borehole minimum distance of 5 ft into cohesive foundation soils.

b) Hit obstruction before completed; boring was redrilled as COE-15A.

c) Borehole closed by grouting.

d) Borehole cased to near top of obstruction; closure of borehole to be performed by others.



BORING LOCATION PLAN
RETAINING WALLS
MIDLAND PLANT - UNITS 1&2

81C217-4

Fig. 1

Appendix A
Logs of Borings

TABLE A-1

BORING LOG ABBREVIATIONS

Samplers

HR	High Recovery Core Barrel, 4" (ID) X 5 1/2" (OD)
HS	Hvorsley-Type Sampler
OS	Osterberg Sampler
PQ3	PQ-size Triple-Tube Core Barrel, 3 1/4" (ID) X 4 3/4" (OD)
PS	Pitcher Sampler
SS	Split Spoon (Barrel) Sampler
TW	Thin-walled (Shelby-type) Tube

bbl	Barrel
CFA	Continuous Flight Auger
cont	Continued
dia, ϕ	Diameter
dk	Dark
in., "	inch
ft, '	feet
ID	Inside Diameter
lb	Pounds
lt	Light
min	Minutes
N	Standard Penetration Test Resistance
N/A	Not Applicable
NX	Drill Rod Size--Outside Diameter 2-3/8 in.
OD	Outside Diameter
OK	Acceptable
P.P.	Pocket Penetrometer
PSI	Pounds Per Square Inch
S	Sample (such as S-4)
Sec	Seconds
Temp	Temperature
Therm	Thermometer
tr	Trace
TSF	Tons Per Square Foot
USGS	United States Geological Survey (elevation datum)
V.	Very
W/	With
F-C	Fine-Coarse
MED.	Medium
F-M	Fine-Medium
N	North
S	South
W	West
E	East

>	Greater Than
<	Less Than
~	Approximate

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIROMENTAL SCIENTISTS

Fig A-1

SHEET 1 OF 4

SYNTHESIZED LOG OF BORING C.O.E. :14.

project: MIDLAND NUCLEAR PLANT	project no.: 81C217
location: MIDLAND MICHIGAN	elevation & datum: +633.5 FT. USGS; Coordinates: S 5222 E 600
drilling agency: D & G DRILLING	date started: 9 APRIL 81; date finished: 10 APRIL 81
drilling equipment: MOBILE B-56	completion depth: 60.8 FT.; rock depth: NOT ENCOUNTERED
size & type of bit: 4 7/8 IN TRICONE ROLLER; 6 IN CFA	no. samples: dist. /, undist. 27, core NONE
casing: 5.2 FT - 5 IN. I.D. STEEL	water level: first N/A, compl. N/A, 24 hr. N/A
casing hammer: N/A weight — drop —	driller: LARRY KOLITZ; prepared by: LUKE L. HEFFERMAN
sampler: THIN WALL (TW), OSTERBERG (OS), PITCHER (PI)	supervisor: KEVIN O'CEA; reviewed by: [illegible] O'CEA
sampler hammer: N/A weight — drop —	

ELEV.	DESCRIPTION	DEPTH SCALE ft	SAMPLES: no. loc	type	recov.	blows/6in	REMARKS (DRILLING FLUID, FLUID LOSS, DEPTH OF CASING, CASING BLOWS, ETC.)	CASING BLOWS
633.5	GRAVEL w/ SOME FINES, MOIST. (GM)	1	S-1	JAR	N/A	—	APPROVAL FOR BORING LOCATION AND DRILLING CLEARANCE WAS GIVEN BY DONALD SIBCALL (C.P.O.). DRILLED THROUGH GRAVEL TO 1.5 FT WITH CFA. S-1 IS AUGER CUTTINGS	N/A
	V. STIFF, BROWN, LOW PLASTIC, SILTY CLAY w/ SOME SAND, FINE GRAVEL. (CL)	2	S-2	TW	1.4/2.5 FT	PP = 2.75 - 3.50 TSF	S-2 56% RECOVERY	
		3						
		4					CONTINUE TO ADVANCE BORING w/ 4 7/8 IN TRICONE ROLLER BIT AND BENTONITE DRILLING FLUID.	
628.5	BROWN, NON PLASTIC, SAND, w/ SOME SILT, TRACE FINE GRAVEL, FINE-COARSE SUBROUNDED SAND) WET. (SP) MIXED w/ GRAY, MED PLASTIC, SILTY CLAY w/ TRACE SAND, WET (CL) (SP+CL)	5	S-3	OS	1.0/2.5 FT	PP NOT USED ON SAND	S-3 64% RECOVERY	
		6					* NOTE: WATER LEVEL IN COOLING LAKE WAS AT +627.2 FT.	
	HARD BROWN, LOW PLASTIC, SILTY CLAY w/ SOME SAND, TRACE GRAVEL, MOIST. (CL)	7	S-4	OS	1.6/2.5 FT	PP > 4.5 TSF	S-4 64% RECOVERY	
		8						
		9					S-5 52% RECOVERY	
623.5	BECOMING STIFF, MORE PLASTIC, AND GRAY IN COLOR. (CL)	10	S-5	OS	1.3/2.5 FT	PP = 1.5 - 2.0 TSF		
		11						
		12					S-6 68% RECOVERY	
619.5	SOFT - HARD, BROWN & GRAY IN COLOR w/ POCKETS OF HARD GRAY SILTY CLAY (CL)	13	S-6	OS	1.7/2.5 FT	PP = 0.5 - 4.5 TSF		
		14						

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIROMENTAL SCIENTISTS

Fig A-1

KVNTHESIZED
LOG OF BORING COE-14...

SHEET 2 OF 4....

ELEV.	DESCRIPTION	DEPTH SCALE ft	SAMPLES no. loc	SAMPLES type	SAMPLES recov.	SAMPLES penetr resist blt/6in	REMARKS (DRILLING FLUID, FLUID LOSS, DEPTH OF CASING, CASING BLOWS, ETC.)	CASING BLOWS
619.5	STIFF TO V. STIFF, BROWN & GRAY, MED PLASTIC, SILTY CLAY W/ SOME SAND, TRACE FINE GRAVEL, MOIST. (CL)	15	S-7	OS	2.0/2.5 FT	PP: 1.75-2.5 TSF	S-7 80% RECOVERY	
		16						
	TRACE SAND, V. STIFF (CL)	17	S-8	OS	2.1/2.5 FT	PP: 2.5-3.5 TSF	S-8 84% RECOVERY	
614.5		18						
	BECOMING HARD (CL)	19	S-9	OS	2.0/2.5 FT	PP: 4.0 - 4.5 TSF	S-9 80% RECOVERY	
		20						
	SOME SAND, V. STIFF to HARD (CL)	21	S-10	OS	1.7/1.7 FT	PP: 3.0-4.5 TSF	S-10 REFUSAL AFTER 1.7 FT PUSH. BOTTOM OF TUBE IS BENT. 100% RECOVERY.	
		22						
609.5	BECOMES LOW PLASTIC SANDY CLAY W/ SOME SILT, TRACE GRAVEL, MOIST. (CL)	23	S-11	OS	SEE REMARKS	—	S-11 PUSH 1.0 FT. FLUID FLOWING FROM BOTTOM OF TUBE UPON EXTRACTION. BOTTOM OF TUBE IS BADLY BENT. NOT ABLE TO ACCURATELY RECORD RECOVERY	N/A
		24						
		25	S-12	OS	SEE REMARKS	NOT ABLE TO ATTAIN PP READING	S-12 BOTTOM OF TUBE BENT. FLUID IS FLOWING OUT OF BOTTOM OF TUBE. SAMPLE APPEARS DISTURBED ON TOP AND BOTTOM. EXTRUDED IN FIELD AND RETAINED IN JAR. NOT ABLE TO ACCURATELY RECORD RECOVERY.	
		26						
		27					SWITCH TO PITCHER SAMPLER	
	CHANGES to HARD BROWN SILTY CLAY W/ SOME FINE - V FINE SAND, DRY TO MOIST. LOW PLASTIC (CL)	28	S-13	PS	1.4/2.5 FT	PP > 4.5 TSF	S-13 56% RECOVERY	
604.5		29						
	CHANGES to MEDIUM STIFF to V. STIFF BROWN SANDY CLAY. LOW PLASTIC (CL)	30	S-14	PS	1.3/2.5 FT	PP = 0.5-2.5 TSF	S-14 52% RECOVERY	
		31						
601.5		32					← S-15 (see next page)	

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIROMENTAL SCIENTISTS Fig A-1

'YNTHESIZED
G OF BORING .COE:14...

SHEET.3..OF..4...

.EV.	DESCRIPTION	DEPTH SCALE ft	SAMPLES no. loc	SAMPLES type	SAMPLES recov.	SAMPLES penetr. resist. blc/ft	REMARKS (DRILLING FLUID, FLUID LOSS, DEPTH OF CASING, CASING BLOWS, ETC.)	CASING BLOWS
601.5	Brown Sandy CLAY (CL) LT BROWN, NON PLASTIC, SILTY SAND, FINE GRAINED POORLY GRADED ROUNDED SAND, WET. (SM)	33	S-15	PS	0.5/2.5 FT	NO PP ON SAND	S-15 SATURATED SAND AT BOTTOM OF TUBE. BOTTOM OF TUBE DENT AND CRUMPLED. 20 % RECOVERY	
		34					END OF SHIFT 9 APRIL 81 START OF SHIFT 10 APRIL 81	
	GRAY, NON PLASTIC, SAND W/TRACE SILT, SMALL FRAGMENTS OF LIGNITE, FINE SUBROUNDED SAND, WET LACUSTRINE SAND (SP)	35	S-16	PS	1.0/2.5 FT	NO PP ON SAND	S-16 DRILLING INDICATES CLAY AT 36.3 - 36.7 (FAST ADVANCE IN DRILLING) 40 % RECOVERY.	
596.2		36						
	BECOMING BROWN IN COLOR (SP)	37	S-17	PS	0.7/2.4	NO PP ON SAND	S-17 REFUSAL AFTER 2.4 FT PUSH. BOTTOM OF TUBE DENT. FLUID FLOWING FROM BOTTOM OF TUBE. 28 % RECOVERY	
		38					GRAVEL OR COBBLE INDICATED AT 37.2 FT - 37.6 FT WHEN CLEANING CORE HOLE.	
		39	S-18				S-18 OSTERBERG SAMPLER REFUSED 0.1 FT PUSH. SMALL AMOUNT OF SAND IN BOTTOM, RETAINED IN JAR	
	GRAY IN COLOR W/OUT LIGNITE FRAGMENTS (SP)	40	S-19	PS	1.1/2.5 FT	NO PP ON SAND	S-19 44 % RECOVERY	
		41						
571.5	BROWN IN COLOR (SP)	42	S-20	PS	0.7/2.5 FT	NO PP ON SAND	S-20 SAMPLE TUBE BENT ON BOTTOM. DIFFICULT TO REMOVE FROM PITCHER BARREL. BOTTOM CAP FELL OFF DURING REMOVAL OF TUBE. FLUID FLOWS OUT OF BOTTOM OF SAMPLE TUBE. TUBE IS OUT OF ROUND. 28 % RECOVERY	
		43						
		44	S-21	PS	1.7/2.5	NO PP ON SAND	S-21 68 % RECOVERY	
	BECOMING GRAY IN COLOR, POORLY GRADED SAND W/ PARTINGS OF DARK BROWN ORGANIC MATL., MOIST. (ML) (SP)	45						
		46						
586.5		47	S-22	PS	1.0/2.5 FT	NO PP ON SAND	S-22 40 % RECOVERY	
	W/ LIGNITE FRAGMENTS (SP)	48						
		49						
581.5		50	S-23					N/A

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIROMENTAL SCIENTISTS

Fig A-1

SYNTHESIZED LOG OF BORING CQE:14...

SHEET 4 OF 4

ELEV.	DESCRIPTION	DEPTH SCALE ft	SAMPLES no. loc	SAMPLES type	SAMPLES recov.	SAMPLES penetr. resist. b/ft/6in	REMARKS (DRILLING FLUID, FLUID LOSS, DEPTH OF CASING, CASING BLOWS, ETC.)	CASING BLOWS
573.5	LT GRAY NONPLASTIC FINE-V. FINE SAND W/ TRACE OF FINES, WET. (SP)	51	S-23	PS	1.3/2.5 FT.	No Pen. Sampler	S-23 DRILLING INDICATES SILT OR CLAY AT 50.1 FT. 52% RECOVERY	N/A
		52						
		53	S-24	PS	1.3/2.5 FT	N/A	S-24 DRILLRESISTENCE INDICATES MATL. CHANGE AT 53.0 FT. LARK GRAY SILTY CLAY ADHERING TO PITCHER BARREL FROM BOTTOM 54.2 FT TO 1.2 FT UP 53.0 FT. NO SILTY CLAY RECOVERED (WASHED OUT) 52% RECOVERY	
		54						
571.5	HARD BROWNISH GRAY, MED PLASTIC, SILTY CLAY W/ TRACE ORGANICS, LT GRAY DRY SILT (ROCK FLOUR), SAND, FAINT ORGANIC ODOR (CL)	55	S-25	PS	1.6/2.5 FT	PP > 4.5 TSF	S-25 64% RECOVERY	
		56						
	LESS SAND	57	S-26	PS	SEE REMARKS		S-26 CIRCULATION PLUGS UP. STOP RUN AT 0.8 FT. SAMPLE FALLS FROM BOTTOM OF TUBE UPON EXTRACTION. RETAINED IN JAR. RECOVERY 0.1/0.8 FT (12%) UNABLE TO ATTAIN PP READING	
	LESS SILT (ROCK FOUR) (CL)	58	S-27	OS	SEE REMARKS		S-27 SWITCH TO OSTERBERG SAMPLER REFUSAL AFTER 0.8 FT PUSH. BOTTOM OF TUBE CAVED IN ON ONE SIDE, THUS UNABLE TO RUN PP TEST. 100% RECOVERY (0.8/0.8 FT)	
573.5		59	S-28	PS	2.0/2.5 FT	PP > 4.5 TSF	S-28 80% RECOVERY	
		60						
	BOTTOM OF BORING 60.8 FT.	61					BORING BACKFILLED WITH BENTONITE-CEMENT GROUT UP TO GROUND SURFACE.	
		62						
		63						
		64						
568.5		65						
		66						
		67						
565.5		68						

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIROMENTAL SCIENTISTS

Fig A-2

SYNTHESIZED LOG OF BORING. COE-15

SHEET 1 OF 2

project: MIDLAND NUCLEAR PLANT		project no.: 81C217	
location: MIDLAND MICHIGAN		elevation & datum: 634.2 FT (USGS)	coordinates: S 5005 E 860
drilling agency: D & G DRILLING		date started: 13 APRIL '81	date finished: 13 APRIL 81
drilling equipment: MOBILE B-61		completion depth: 21.3 FT	rock depth: NOT ENCOUNTERED
size & type of bit: 6 IN. DIA CFA, 4 7/8 IN. TRICONE ROLLER		no. samples: dist. 2, undist. 6, core 0	
casing: 17 FT - 5 IN ID STEEL		water level: first N/A, compl. N/A, 24 hr. N/A	
casing hammer: / weight 320 drop 30 IN.		driller: BARRY THOMASSON	prepared by: LUKE L. HERRELMAN
sampler: THIN WALLED (TW), OSTERBERG (OS), PITCHER (PS)		supervisor: GEORGE K HELE	reviewed by: [illegible]
sampler hammer: N/A weight — drop —			

ELEV.	DESCRIPTION	DEPTH SCALE ft	SAMPLES: no. loc	type	recov.	penetr. resist. bl/6in	REMARKS (DRILLING FLUID, FLUID LOSS, DEPTH OF CASING, CASING BLOWS, ETC.)	CASING BLOWS
634.2	, GRAY-BROWN, FINE-MED GRAINED, POORLY GRADED GRAVEL, W/ SOME CLUMPS OF LOW PLASTIC SILTY CLAY, TRACE FINE SAND, WOOD, MOIST — (GP)	1	S-1	JAR	N/A	—	APPROVAL TO ADVANCE BOREHOLE WAS GIVEN BY DONALD SIGGALD (CPCO). BORING WAS STARTED 0.05 FT SOUTH OF CPCO SURVEY LOCATION. ADVANCED CORING W/ 6 IN. CFA TO 3.0 FT.	
	VERY STIFF - HARD, LT BROWN - GRAY, LOW PLASTIC, SILTY CLAY W/ FINE-MED GRAVEL, MOIST. (CL)	2	S-2	JAR	N/A	—	S-1 & S-2 TAKEN FROM AUGER CUTTINGS.	
	W/ TRACE FINE SAND, FINE GRAVEL. (CL)	3 4 5	S-3	TW	1.2/2.5 FT	PP 3.0-4.5 TSF	S-3 48% RECOVERY	
629.2							BORING CONTINUED W/ 4 7/8 IN TRICONE ROLLER BIT & BENTONITE SLURRY.	
	BECOMING V. STIFF, W/ LOW-MED PLASTICITY, AND MORE SAND. (CL)	6 7 8	S-4	OS	1.6/2.5 FT.	PP = 3.0-3.5 TSF	S-4 64% RECOVERY	
			S-5	OS	1.8/2.5 FT.	PP = 1.0-3.5 TSF	S-5 72% RECOVERY	
	TRACE-SOME MED. PLASTIC CLAY, FINE-COARSE SAND, FINE GRAVEL. (CL)	9 10						
624.2		11	S-6	OS	2.0/2.5 FT	PP = 1.1-3.0 TSF	S-6 80% RECOVERY	
620.2		12 13 14	S-7	↓	↓	↓		N/A

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIROMENTAL SCIENTISTS

Fig A-2

SYNTHESIZED LOG OF BORING COE-15

SHEET 2 OF 2

ELEV.	DESCRIPTION	DEPTH SCALE ft	SAMPLES no. loc	SAMPLES type	SAMPLES recov.	SAMPLES penetr. resist. BI/6IN	REMARKS (DRILLING FLUID, FLUID LOSS, DEPTH OF CASING, CASING BLOWS, ETC.)	CASING BLOWS
620.2	LT BROWN, FINE, POORLY GRADED CLAYEY GRAVEL, W/SOME FINE SAND, MOIST. (GC) FILL	15	S-7	CS	2.1/2.5FT	—	S-7 84% RECOVERY	N/A
	TRACE METAL WIRE, SATURATED GP	16	S-8	CS	1.3/1.6FT		S-8 LOST CIRCULATION AT 17.1 FT. AFTER 5 MIN FLUID LEVEL HAD DROPPED 7.0 FT 81% RECOVERY. NO. OF SAMPLE FELL OUT OF TUBE. PLACED IN JAR	54
	CONCRETE PIPE	17						3/0
615.2	VOID SPACE - RODS DROPPED 4 FT ±	18					HIT OBSTRUCTION AT 17.1 FT DEPTH. STOPPED ADVANCING BORE-HOLE. D. SIBBALD CFCO W/ D. ROYCE WIL CONCURRENCE GAVE OCAL AUTHORIZATION TO PROCEED. THE DRILL RODS DROPPED 4 ± FT AFTER ADVANCING BORE HOLE 0.2 FT. D. SIBBALD TURNED CONTROL OF BACKFILLING OPERATIONS TO OTHERS. (DRILLED THROUGH 72" Ø WATER LINE.) CASING LEFT IN PLACE DOWN TO 16.5 FT	N/A
		19	N/A	—	—	N/A		
		20						
		21						
	BOTTOM OF BORING 21.3 FT.	22						
610.5		23						
		24						
		25						
		26						
		27						
605.5		28						
		29						
		30						
		31						
602.5		32						

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIROMENTAL SCIENTISTS

Fig A-3

SHEET 1 OF 3

SYNTHESIZED LOG OF BORING. COE-15A

project: MIDLAND NUCLEAR PLANT	project no.: BIC 217
location: MIDLAND, MICHIGAN	elevation & datum: +634.1 FT (USGS); Coordinates: S 5010 E 855
drilling agency: D & G DRILLING	date started: 16 APRIL 81; date finished: 21 APRIL 81
drilling equipment: MOBILE B-61	completion depth: 44.9 FT; rock depth: NOT ENCOUNTERED
size & type of bit: 6 IN CFA, 4 7/8 IN & 4 7/8 IN TRICONE ROLLER	no. samples: dist. 2, undist. 18, core N/A
casing: 250 FT: 5 IN ID STEEL	water level first N/A, compl. N/A, 24 hr N/A
casing hammer: 1 weight 320 drop 30 IN.	driller: BARRY THOMASSON; prepared by: LUKE L. HEFFERNAN
sampler: THIN WALLED (TW), OSTERBERG (OS), PITCHER (PS)	supervisor: GEORGE K. HESS; reviewed by: KUVAN O'[illegible]
sampler hammer: N/A weight — drop —	

ELEV.	DESCRIPTION	DEPTH SCALE ft	SAMPLES: no. loc	type	recov.	penetr. resist. (bl/6in)	REMARKS (DRILLING FLUID, FLUID LOSS, DEPTH OF CASING, CASING BLOWS, ETC.)	CASING BLOWS
634.1	V. DENSE, GRAY-CROWN, FINE-MED POORLY GRADED SANDY GRAVEL, MOIST, (GP)	1	S-1	JAR	N/A	—	APPROVAL TO ADVANCE COE-15A WAS GIVEN BY WAYNE C. BIEHLER. BORING WAS STARTED 0.2 FT EAST OF CPC. SURVEY MARK. BORING WAS ADVANCED TO 3.0 FT W/ 6 IN. CFA	
			-	-	-	-		
	STIFF, MED BROWN, LOW PLASTIC SILTY CLAY W/SOME FINE-MED SAND, TRACE FINE-MED GRAVEL, MOIST (CL)	2	S-2	JAR	N/A	—	S-1 & S-2 WERE TAKEN FROM AUGER CUTTINGS.	
		3	S-3	TW	2.2/2.5 FT.	PP > 4.5 TSF	S-3 88% RECOVERY	
629.1	BECOMING HARD BROWN-GRAY. LOW-MED PLASTIC. (CL)	5					BORING CONTINUED W/4 7/8 IN TRICONE ROLLER BIT & BENTONITE SLURRY.	
		6	S-4	OS	1.2/2.5 FT	PP > 4.5 TSF	S-4 48% RECOVERY	
	LOW PLASTIC (CL)	7						
		8	S-5	OS	1.6/2.5 FT	PP 1.2 TO > 4.5 TSF	S-5 FILL NON HOMOGENEOUS 64% RECOVERY	
624.1	V. STIFF-HARD (CL)	9						
		10						
		11	S-6	OS	2.0/2.5 FT	PP = 3.75 TO > 4.5 TSF	S-6 80% RECOVERY	
		12						
		13						
620.1		14	S-7	↓	↓	↓		N/A

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIROMENTAL SCIENTISTS

Fig A-3

SYNTHESIZED LOG OF BORING COE-15A.

SHEET 2 OF 2

ELEV.	DESCRIPTION	DEPTH SCALE ft	SAMPLES: no. loc	SAMPLES: type	SAMPLES: recov.	SAMPLES: penetr. resist.	REMARKS (DRILLING FLUID, FLUID LOSS, DEPTH OF CASING, CASING BLOWS, ETC.)	CASING BLOWS
620.1	V. STIFF - HARD, GRAY-BROWN, LOW PLASTIC SILTY CLAY W/ SOME FINE-MED SAND, TRACE FINE-MED GRAVEL, MOIST. (CL) FILL	15	S-7 Cont.	OS	15/2.5 FT	PP = 2.6 TO > 4.5 TSF	S-7 60 % RECOVERY	
		16	S-8	OS	2.4/2.5 FT	PP = 2.75 TO 3.5 TSF	S-8 96 % RECOVERY	
		17						
		18	S-9	OS	0.6/2.5 FT	UNABLE TO ATTAIN PP	S-9A ONLY 24% RECOVERY AFTER INITIAL PUSH. DRILLER MADE SECOND ATTEMPT TO RECOVER MORE SAMPLE	
615.1	LT BROWN, FINE-MED GRAINED, POORLY GRADED SAND, W/ SOME SILT, TRACE CLAY MOIST-WET. (SM)	19					S-9B SET SAMPLER AT 18.5 FT. PUSHED TO 21.0 FT ONLY 8% RECOVERY	
		20	S-9B	OS	0.2/2.5 FT	UNABLE TO ATTAIN PP	DRILLED TO 20.5 FT W/ 4 7/8 IN TRICONE ROLLER BIT. LEFT SAMPLE FROM 20.5 - 21.0 FT. WILL TRY TO RECOVER IN NEXT ATTEMPT	
	LT. BROWN, FINE-MED, POORLY GRADED GRAVEL, W/ SOME SAND (GP)	21	SEE REMARKS				S-10 TOP 0.5 FT OF SAMPLE S-10 WAS DISTURBED FROM S-9B ATTEMPT. 0.5 FT OF SAMPLE SLIPPED OUT OF BOTTOM OF TUBE. PLACED IN JAR & LABELLED S-10B. 60% RECOVERY	
		22	S-10 (&B)	OS	1.5/2.5	UNABLE TO ATTAIN PP		43
		23					BORING GROUTED UP TO PROTECT IT WHILE BEING LEFT OVER THE WEEKEND	68
	LT BROWN, FINE-MED GRAINED POORLY GRADED CLAYEY SAND W/ TRACE GRAVEL, MOIST (SC)						END OF SHIFT 18 APRIL 81	
610.1	HARD, LT. BROWN-GRAY, LOW PLASTIC SILTY CLAY W/ TRACE FINE SUBROUNDED GRAVEL, SAND, MOIST. (CL)	24	S-11	OS	1.0/2.5 FT	PP > 4.5 TSF	START OF SHIFT 20 APRIL 81 SET CASING TO 23.0 FT. CLEANED OUT BORING TO 23.0 FT	123
		25					S-11 43% RECOVERY	
	MORE SAND	26	S-12	OS	SEE REMARKS	PP 3.6 TO 4.1 TSF	S-12 REFUSAL AFTER 1.2 FT PUSH, END OF TUBE BENT (PUSHED ON COBBLE). THE SAMPLE HAS SEPERATED IN THE TUBE & THUS AN ACCURATE RECOVERY WILL BE MADE IN THE LAB.	
	COBBLE	27	SEE REMARKS				DRILLED OUT COBBLE 26.5 - 27.0 FT W/ 4 3/4 IN. TRICONE ROLLER BIT.	
	LESS SAND	28	S-13	RS	0.7/2.5 FT	PP: 4.3 TO > 4.5 TSF	S-13 28 % RECOVERY	
605.1	LT BROWN, FINE-MED GRAINED POORLY GRADED SAND W/ TRACE COARSE SAND, MOIST. (SP)	29					DRILLS EASILY	
	V. STIFF-HARD, BROWN-TAN BROWN LOW PLASTIC SILTY CLAY, W/ SOME FINE-MED SAND, TRACE FINE GRAVEL, MED PLASTIC CLAY, MOIST. (CL)	30	S-14	OS	1.3/2.5 FT	PP: 4.5 TSF CONTINUED W/ PP: 2.6 TSF	S-14 52% RECOVERY	
602.1		31						
		32						

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIROMENTAL SCIENTISTS

Fig A-3

SYNTHESIZED LOG OF BORING CAE-15A..

SHEET 3 OF 3

ELEV.	DESCRIPTION	DEPTH SCALE ft	SAMPLES no. loc	SAMPLES type	SAMPLES recov.	SAMPLES penetr. resist. bl/6in	REMARKS (DRILLING FLUID, FLUID LOSS, DEPTH OF CASING, CASING BLOWS, ETC.)	CASING BLOWS
602.1	STIFF-V STIFF, BROWN, LOW PLASTIC SANDY CLAY W/ SOME SILT, TRACE FINE-MED GRAVEL, MOIST. (CL)	33	S-15	OS	1.9/2.5 FT	PP= 2.0 TO 2.2 TSF	S-15 76% RECOVERY	N/A
	BECOMING CLAYEY SAND	34						
	LT BROWN-BROWN, FINE GRAINED POORLY GRADED SAND W/ TRACE SILT, CLAY, MOIST. (SP)	35	S-16	OS	1.5/1.5FT	NO PP ON SAND	S-16 REFUSAL AFTER 1.5 FT PUSH. SAMPLE CLEAN TO SLIP OUT OF TUBE WHILE PLACING PACKER.. 100% RECOVERY	
	GRAVELLY ZONE 36.0 TO 36.3 FT	36	SEE REMARKS				DRILLED OUT W/ 4¾ IN TRICONE ROLLER BIT.	
597.1	SAND SIZE INCREASES W/ TRACE FINE-MED GRAVEL.	37	S-17	PS	0.5/2.5 FT	NO PP ON SAND	S-17 SWITCHED TO PITCHER SAMPLER 20% RECOVERY.	
		38						
		39	S-18	OS	1.1/1.1FT	PP > 4.5 TSF	S-18 SWITCHED BACK TO OSTERBERG SAMPLER DUE TO LOW RECOVERY IN PREVIOUS ATTEMPT. REFUSAL AFTER 1.1 FT PUSH 100% RECOVERY	
	HARD, GRAY, LOW PLASTIC SILTY CLAY W/ SOME FINE-MED SAND, TRACE FINE-MED GRAVEL, MOIST-DRY. (CL)	40	S-19	PS	0.9/2.5 FT	PP > 4.5 TSF	S-19 SWITCHED TO PITCHER SAMPLER 36% RECOVERY	
592	BECOMES CLAYEY SILT (ML)	41						
		42						
		43	S-20	PS	1.2/2.5 FT	PP > 4.5 TSF	S-20 48% RECOVERY	
	(ML)	44						
	BOTTOM OF BORING 44.9 FT.	45						
587.1		46					BORING BACKFILLED W/ BENTONITE-CEMENT GROUT TO GROUND SURFACE.	
		47						
		48						
		49						
584.1		50						

Appendix B
Index Property Test Results

TABLE B-0

WOODWARD-CLYDE CONSULTANTS

CLIFTON GEOTECHNICAL LABORATORY

FREQUENTLY USED NOTATION/SYMBOLS

1.1 TABLE OF CONTENTS

1.2 Strength Tests

1.2.1 Unconsolidated

1.2.2 Consolidated Triaxial: Individual Symbols

1.2.3 Consolidated Triaxial: Combined Symbols

1.2.4 Consolidated Simple Shear: Individual Symbols

1.2.5 Consolidated Simple Shear: Combined Symbols

1.2.6 Consolidated Direct Shear

1.3 Index Properties

1.4 Specimen Dimensional Properties

1.5 Stresses

1.6 Strains

1.7 Moduli

1.8 By Type of Test

1.8.1 Consolidation

1.8.2 Triaxial

1.8.3 Cyclic Testing

1.8.3.1 Stresses/Loads

1.8.3.2 Strains/Deformations

TABLE OF CONTENTS (continued)

1.8.3.3 Miscellaneous

1.8.4 Permeability

1.8.5 Sonic Velocity

1.9 Midland Units 1 and 2 Project Specific Notation/ Symbols

1.2 STRENGTH TESTS

1.2.1 UNCONSOLIDATED

PP	Pocket Penetrometer
TV	Torvane
LV	Labvane
CP	Cone Penetration
UC	Unconfined-Compression Triaxial Test
UU or Q	Unconsolidated-Undrained Triaxial Test

1.2.2 CONSOLIDATED-TRIAXIAL: INDIVIDUAL SYMBOLS

C	Consolidated
CI	Consolidated Isotropically
CA	Consolidated Anisotropically along a given stress path
CK_o	Consolidated Anisotropically along a K_o stress path
U	Undrained loading
D	Drained loading
U-C	Undrained loading in compression
U-E	Undrained loading in extension
With Bar or '	Undrained loading with pore water pressure measurements
CyS	Cyclic triaxial strength test
CyP	Cyclic triaxial property (moduli and damping) test

1.2.3 CONSOLIDATED-TRIAXIAL: COMBINED SYMBOLS

CIU-C	Isotropically-consolidated undrained triaxial compression test without pore water pressure measurements
$\overline{\text{CIU}}$-C or CIU'-C	Same as above but with pore water pressure measurements
$C\overline{K_o}U$-E or CK_oU'-E	Anisotropically (Ko)-consolidated undrained triaxial extension test with pore water pressure measurements
$\overline{\text{CAU}}$-C or CAU'-C	Anisotropically-consolidated undrained triaxial compression test with pore water pressure measurements
$\overline{\text{CAD}}$-C or CAD'-C	Anisotropically-consolidated drained triaxial compression test with volume change measurements
CyP-$\overline{\text{CIU}}$	Cyclic triaxial property test with isotropic-consolidation and pore water pressure measurements
CyS-$\overline{\text{CAU}}$	Cyclic triaxial strength test with anisotropic-consolidation and pore water pressure measurements
CyP-$\overline{\text{CIU}}$-C	Cyclic triaxial property test with isotropic-consolidation, pore water pressure measurements and post cyclic undrained loading in compression (post cyclic monotonic loading)

1.2.4 CONSOLIDATED-SIMPLE SHEAR (DIRECT SIMPLE SHEAR): INDIVIDUAL SYMBOLS

DSS	Undrained simple shear test with Ko consolidation
S- or α-	Shear stress applied during consolidation
CyS-	Cyclic undrained simple shear strength test
CyP-	Cyclic undrained simple-shear property (moduli and damping) test
-U	Undrained loading after undrained cyclic loading

1.2.5 CONSOLIDATED SIMPLE-SHEAR: COMBINED SYMBOLS

S-DSS or α-DSS	Undrained simple shear test with Ko consolidation and shear stress applied during consolidation
CyS-DSS	Cyclic undrained simple shear strength test
CyP-DSS-U	Cyclic undrained simple shear property test with post cyclic undrained loading (post cyclic monotonic loading)

1.2.6 CONSOLIDATED DIRECT-SHEAR

DS	Consolidated drained direct shear test
DS-R	Consolidated drained direct shear test with loading to obtain residual shear strength

1.3 INDEX PROPERTIES

W	Water Content
W_o or W_n	Initial or "natural" water content
W_c or W_f	Water content after consolidation or test
W_{max} or $W_{c,m}$	Water content at maximum induced consolidation stress
γ_{do}	Initial dry density (mass)
γ_{to}	Initial total density (mass)
γ_{dc} or γ_{df}	Dry density (mass) after consolidation or test
γ_{tc} or γ_{tf}	Total density (mass) after consolidation or test
$\gamma_{d,m}$	Dry density (mass) at maximum induced consolidation stress
$\gamma_{t,m}$	Total density (mass) at maximum induced consolidation stress
γ_{sat} or γ_s	Saturated density
γ_{sub} or γ_b	Submerged (buoyant) density
W_L or LL	Liquid limit
W_p or PL	Plastic limit
I_p or PI	Plasticity index
I_L or LI	Liquidity index
W_{opt}	Optimum water content - compaction test
γ_{max} or γ_{opt}	Maximum or optimum dry density (mass) - compaction test
γ_{min}	Minimum index density (mass) - relative density test
γ_{max}	Maximum index density (mass) - relative density test
D_r	Relative density

1.3 INDEX PROPERTIES (continued)

R_c	Percent compaction
G_s or G	Specific gravity of soil solids (particles)
G_a	Apparent specific gravity of soil solids (particles)
SC	Salt content or dissolved solids content
e	Void ratio
S	Degree of saturation
n	Porosity
N_g	Gas content
V_s	Volume of solids
V_w	Volume of water
V_a	Volume of air
V_v	Volume of voids
H_s	Height of solids
PP	Pocket penetrometer reading (undrained compressive strength)
TV	Torvane reading (undrained shear strength)

NOTES - (1) Subscript notation associated with relative density, void ratio, degree of saturation, etc.
a) subscript (0) indicates initial conditions
b) subscript (c or f) indicates conditions after consolidation or test
c) subscript (,m) indicates conditions at maximum induced consolidation stress

(2) A (-) or (') over or after these symbols indicates that the data has been corrected for dissolved solids (such as salt) contained in the pore fluid.

1.4 SPECIMEN DIMENSIONAL PROPERTIES

H_o or L_o	Initial height/length
H_c or L_c	Height/length after consolidation
H_f, L_f, H_T or L_T	Height/length after test
A_o	Initial area
A_c	Area after consolidation
A_{fm}	Area measured after test
V_o	Initial volume
V_c	Volume after consolidation
V_f	Volume after test
ΔL_c	Change in height/length during consolidation
ΔL_{max} or $\Delta L_{c,m}$	Change in height/length at maximum induced consolidation stress
ΔL_T or ΔH_T	Change in height/length during loading
ΔV_c	Change in volume during consolidation
ΔV_{max} or $\Delta V_{c,m}$	Change in volume at maximum induced consolidation stress
ΔV_T	Change in volume during drained loading
ΔV_m	Volume change measured
ΔV_a	Volume change calculated based on change in height
W or W_T	Total weight (mass)
W_o or W_{To}	Initial total weight (mass)
W_s	Dry weight (mass)
W_w	Weight (mass) of water
W_c or W_{Tc}	Total weight (mass) after consolidation or test
ΔW_c or ΔW_{Tc}	Change in total weight (mass) during consolidation

1.5 STRESSES

σ_c	Cell pressure
$\bar{\sigma}_c$ or σ'_c	Effective isotropic consolidation stress
$\bar{\sigma}_{3c}$ or σ'_{3c}	Effective isotropic consolidation or minor principal consolidation stress if principal stresses during consolidation are different
$\bar{\sigma}_{1c}$ or σ'_{1c}	Effective major principal consolidation stress
$\bar{\sigma}_v$ or σ'_v	Vertical effective stress
$\bar{\sigma}_h$ or σ'_h	Horizontal effective stress
$\sigma_1-\sigma_3$, $\sigma_v-\sigma_h$ or σ_d	Principal stress difference (deviator stress)
$\bar{\sigma}_1/\bar{\sigma}_3$ or σ'_1/σ'_3	Principal stress ratio (obliquity)
q	Peak shear stress - $(\sigma_v - \sigma_h)/2$
$\bar{p}$ or p'	Average principal stress - $(\bar{\sigma}_v + \bar{\sigma}_h)/2$
$\bar{p}_c$ or $\bar{\sigma}_p$	Average principal stress after consolidation
$\bar{p}_{max}$ or $\bar{\sigma}_{p,m}$	Average principal stress at maximum induce consolidation stress
$\bar{\sigma}_m$ or $\bar{p}_m$	Mean principal stress - $(\bar{\sigma}_v + 2\,\bar{\sigma}_h)/3$
$\bar{\sigma}_{m,m}$ or $\bar{p}_{m,m}$	Mean principal stress at maximum induced consolidation stress
$\bar{\sigma}_{max}$ or $\bar{\sigma}_{v,m}$	Maximum induced vertical consolidation stress
K_c or $\bar{\sigma}_{1c}/\bar{\sigma}_{3c}$	Consolidation principal stress ratio
K_o	Coefficient of earth pressure at rest or reciprocal of consolidation principal stress ratio
α or $\tau_c/\bar{\sigma}_{vc}$	Consolidation shear stress ratio - simple shear test
U_b	Backpressure

1.5 STRESSES (continued)

U	Pore water pressure
ΔU	Change in pore water pressure
OCR	Over-consolidation Ratio
S_u	Undrained shear strength
q_u	Undrained compressive strength
c	Total stress cohesion intercept - Mohr envelope
$\bar{c}$ or c'	Effective stress cohesion intercept - Mohr envelope
ϕ	Total stress angle of internal friction - Mohr envelope
$\bar{\phi}$ or ϕ'	Effective stress angle of internal friction - Mohr envelope
a	Total stress cohesion intercept - q - p envelope
α	Total stress angle of internal friction - q - p envelope
$\bar{a}$ or a'	Effective stress cohesion intercept - q - p envelope
$\bar{\alpha}$ or α'	Effective stress angle of internal friction - q - p envelope
$\bar{\delta}$ or δ'	Effective stress angle of external friction (between soil and another material) - Mohr envelope

1.6 STRAINS

ε_a	Axial strain
ε_v	Volumetric strain
ε_r	Radial strain
ε_{ac} or $\varepsilon_{a,c}$	Axial strain at end of consolidation
$\Delta\varepsilon_{ac}$ or $\Delta\varepsilon_{a,c}$	Change in axial strain during consolidation increment
$\varepsilon_{a\ max}$ or $\varepsilon_{a,m}$	Axial strain at maximum induced consolidation stress
ε_{vc} or $\varepsilon_{v,c}$	Volumetric strain at end of consolidation
$\Delta\varepsilon_{vc}$ or $\Delta\varepsilon_{v,c}$	Change in volumetric strain during consolidation increment
γ	Shear strain
ε_f or ε_T	Axial strain at end of test
ε_{vT} or $\varepsilon_{v,T}$	Volumetric strain during drained test
$\dot{\varepsilon}_a$	Axial strain rate
$\dot{\gamma}$	Shear strain rate
ε_{at}	Total axial strain during testing (consolidation plus loading)
ε_{vt}	Total volumetric strain during testing

1.7 MODULI

E	Young's modulus
E_s	Young's secant modulus
E_t	Young's tangent modulus
E_{pp}	Young's modulus from cyclic triaxial test and based on peak to peak measurements
G	Shear modulus - secant
G_t	Shear modulus - tangent
G_{pp}	Shear modulus from cyclic simple shear test and based on peak to peak measurements
μ	Poisson's ratio

1.8 BY TYPE OF TEST

1.8.1 CONSOLIDATION

C_c	Compression index
c_v	Coefficient of consolidation
r	Primary compression ratio
c_r or c_α	Coefficient of secondary compression or rate of secondary compression
CR	Compression ratio - $\Delta\varepsilon_v/\Delta \log \bar{\sigma}_v$
RR	Recompression ratio
SR	Swelling ratio
$\bar{\sigma}_{max}$, $\bar{\sigma}_{v,m}$ or $\bar{P}_c$	Maximum past consolidation pressure (stress) or maximum induce consolidation stress
t_{90}	Time for 90% primary consolidation (square root fitting method)
t_{50}	Time for 50% primary consolidation (log fitting method)
d_f	Final dial reading
d_s	Initial dial reading from fitting method
d'_o	Initial dial reading corrected for compressibility of stones and filter paper
d_{100}	Dial reading at 100% primary consolidation
d_{90}	Dial reading at 90% primary consolidation
d_{50}	Dial reading at 50% primary consolidation

1.8.2 TRIAXIAL

F_a	Actual load applied to test specimen
P_m	Measured load applied to loading rod (piston)
P_c	Load correction
P_{mo}	Load measured prior to starting triaxial test with piston not in contact with specimen during consolidation
ΔP_{af}	Load carried by filter strips
A_p	Area of loading rod (piston)
B or B_f	Skempton's B parameter
A	Skempton's A parameter
D_{os}	Initial diameter of test specimen
D_{om}	Initial diameter of rubber membrane
t_{om}	Initial thickness of rubber membrane
K_a	Axial membrane correction constant
C	Area correction factor during loading
LVDT	Linear variable differential transformer

1.8.3 CYCLIC TESTING

1.8.3.1 STRESSES/LOADS

$\pm \tau$	Cyclic shear stress amplitude
$\pm\sigma_d$	Cyclic deviator stress amplitude
SR or $\pm\sigma_d/2\sigma_{3c}$	Cyclic stress ratio - cyclic triaxial test
β or $\pm\tau/\sigma_{vc}$	Cyclic stress ratio - cyclic simple shear test
$\bar{\sigma}_{3min}$ or σ'_{3min}	Minimum effective minor principal stress with a given loading cycle - cyclic triaxial test
$\bar{\sigma}_{vmin}$ or σ'_{vmin}	Minimum effective vertical stress within a given loading cycle - cyclic simple shear test
CR or $\bar{\sigma}_{3min}/\bar{\sigma}_{3c}$	Effective confining ratio - cyclic triaxial test
CR_r	Effective confining ratio after cyclic loading - cyclic triaxial test
VCR or $\bar{\sigma}_{vmin}/\bar{\sigma}_{vc}$	Effective vertical confining ratio - cyclic simple shear test
VCR_r	Effective vertical confining ratio after cyclic loading - cyclic simple shear test
σ_{dc} or $\sigma_{d,c}$	Deviator stress in compression
σ_{de} or $\sigma_{d,e}$	Deviator stress in extension
OCR_{cy}	Overconsolidation ratio resulting from cyclic loading
OCR_{max} or OCR_m	Maximum OCR resulting from induced OCR and cyclic loading - (OCR X OCR_{cy})

$\bar{\sigma}_{v,cy}$	Effective vertical consolidation stress after cyclic loading
$\bar{P}_{cy}$	Average principal stress after cyclic loading - cyclic triaxial test
$\pm P$	Load amplitude - cyclic triaxial
P_c	Measured peak load in compression - cyclic triaxial
P_e	Measured peak load in extension - cyclic triaxial
P_{pp}	Measured peak to peak load - cyclic triaxial
$\pm P_h$	Horizontal load amplitude - cyclic simple shear
P_{hf} or $P_{h,f}$	Peak forward horizontal load - cyclic simple shear
P_{hb} or $P_{h,b}$	Peak backwards horizontal load - cyclic simple shear
ΔU_p	Peak positive change (increase) in pore pressure - cyclic triaxial test
ΔU_n	Peak negative change (decrease) in pore pressure - cyclic triaxial test
ΔP_v	Peak change in vertical load - cyclic simple shear
D_c	Percent deviation in measured compression load from programmed load - cyclic triaxial
D_e	Percent deviation in measured extension load from programmed load - cyclic triaxial
D_f	Percent deviation in measured forward load from programmed load - cyclic simple shear
D_h	Percent deviation in measured backwards load from programmed load - cyclic simple shear

1.8.3 CYCLIC TESTING (continued)

1.8.3.2 STRAINS/DEFORMATIONS

ε_{pp}	Peak-to-peak (double amplitude) axial strain - cyclic triaxial test
ε_{pe}	Peak axial strain in extension - cyclic triaxial test
ε_{pc}	Peak axial strain in compression - cyclic triaxial test
ε_m or $\varepsilon_{pc}+\varepsilon_{pp}/2$	Median cyclic axial strain - cyclic triaxial test
$\pm\varepsilon_a$ or $\varepsilon_{pp}/2$	Axial strain amplitude - cyclic triaxial test
γ_{pp}	Peak-to-peak (double amplitude) shear strain - cyclic simple shear test
γ_{pf}	Peak shear strain forward - cyclic simple shear test
γ_{pb}	Peak shear strain backwards - cyclic simple shear test
$\pm\gamma$	Shear strain amplitude - cyclic test
γ_m or $\gamma_{pf} + \gamma_{pp}/2$	Median cyclic shear strain - cyclic simple shear test
ΔL_{pp}	Peak-to-peak deformation within given loading cycle
ΔL_{cyl}	Peak-to-peak deformation of steel calibration cylinder - cyclic triaxial test

1.8.3.3 MISCELLANEOUS

N	Number of loading cycles
CF	Correction factor for equipment compressibility
λ	Damping ratio
LF	Factor of safety against applying a tensile stress (liftoff of loading platens)
TSF	Deformation trace scale factor
MTS	MTS Systems Corporation Loading System

1.8.4 PERMEABILITY

k	Coefficient of permeability or hydraulic conductivity
k_v	Vertical permeability
k_h	Horizontal permeability
h	Head
h_o	Initial head
h_f	Final head
i	Hydraulic gradient
k_{20^oC}	Permeability corrected to 20^oC
$k_{v,20^oC}$ or k_v @ 20^oC	Vertical permeability corrected to 20^oC
$k_{h,20^oC}$ or k_h @ 20^oC	Horizontal permeability corrected to 20^oC

1.8.5 SONIC VELOCITY

μ	Poisson's ratio
V_p	Velocity of compression wave
V_s	Velocity of shear wave

1.9 MIDLAND UNITS 1 AND 2 PROJECT SPECIFIC NOTATION/SYMBOLS

HR	High Recovery Core Barrel, 4" (ID) X 5 1/2" (OD)
HS	Hvorslev-Type Sampler
OS	Osterberg Sampler
PQ3	PQ-size Triple-Tube Core Barrel, 3 1/4" (ID) X 4 3/4" (OD)
PS	Pitcher Sampler
SS	Split Spoon (Barrel) Sampler
TW	Thin-walled (Shelby-type) Tube
SPT	Standard Penetration Test using SS sampler
Con	Consolidation
Spec	Specimen
( )	Parentheses indicates an assumed value

BIC4055T3 (BIC217) Prepared by JB Reviewed by JWS Checked by JWS

BORING NO. COE-14 GROUND SURFACE ELEV. (ft.) 633.5 Sheet 1 of 4

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
LAB. TESTING SUMMARY: RETAINING WALLS

Sample No.	Section No.	Depth ft.	Tube			Section					Ave. PP t/ft²	ω %	ω_L %	PI %	% Passing Sieve				G_s	Type Eng. Prop. Test	
			Type	Rec. ft	γ_t lb/ft³	USCS Symbol	ω %	γ_t lb/ft³	γ_d lb/ft³						# 4	# 10	# 40	# 200			
S-2		1.5 4.0	TW	1.22	126.8																
S-3		4.0-6.5	OS	1.27																	
S-4		6.5-9.0	OS	1.45	139.8																
	A	6.7					14.5				3.1 >4.5										
		6.9									1.8	19.8									
	B	7.2					13.7				2.25 >4.5										
	C	7.6				CL	15.9	137.2	118.4				25	12	95	92	85	63		UU	
	D	7.9					14.0				1.8										
S-5		9.0-11.5	OS	1.10	137.9																
	A	9.3					12.1				1.2										
		9.6									4.2										
	B	9.9				CL-ML	9.2	144.4	132.2				19	7	98	95	87	58	2.754	CIU	
S-6		11.5-14.0	OS	1.63	137.8 142.4																
	A	11.7					12.4				3.2 >4.5										
		11.9									4.0 >4.5	9.5									
	B	12.2					12.4				3.25 >4.5										
		12.5									3.4	13.3									
	C	12.8				CL	14.0	137.2	120.3				25	12	99	97	90	63		UU	

Table B-1 (1/4)

BIC4055T3 (BIC217) Prepared by JB Reviewed by JWS Checked by JWS

BORING NO. COE-14 GROUND SURFACE ELEV. (ft.) 633.5 Sheet 2 of 4

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
LAB TESTING SUMMARY RETAINING WALLS

Sample No.	Section No.	Depth ft.	Tube Type	Tube Rec. ft	Tube γ_t lb/ft³	Section USCS Symbol	Section w %	Section γ_t lb/ft³	Section γ_d lb/ft³	Ave. PP t/ft²	w %	w_L %	PI %	% Passing Sieve # 4	# 10	# 40	# 200	G_s	Type Eng. Prop. Test
S-7		14.0-16.5	OS	1.80	135.6 137.9														
	A	14.3					11.8			1.4									
		14.6								1.2	12.9								
	B	14.9				CL	11.7	137.8	123.4			22	8	97	94	87	63		UU
		15.2								1.5	15.6								
	C	15.5				CL	11.3	139.3	125.2			23	9	83	81	75	55	2.747	$\overline{CIU}$
	D	15.8					14.7			3.0									
S-9		19.0-21.5	OS	1.78	135.4 137.6														
	A	19.2					14.8												
		19.3								>4.5	10.3								
	B	19.6				CL	11.4	140.3	125.9			21	8	94	92	85	59	2.814	$\overline{CIU}$
		19.9								4.0 >4.5	10.9								
	C	20.2				CL	13.4	135.8	119.8			25	13	99	97	70	65		UU
		20.5								3.9	13.7								
	D	20.7					13.9	137.1	120.3	4.0 >4.5									
S-11		23.2-24.2	OS	0.70	119.0														
	A	23.4					15.0			1.1	14.1			97	94	87	60		
	B	23.8																	
S-12		24.2-26.7	OS in Jar	—	—														
S-15		31.7-34.2	PS	0.5	—														
	A	32.0				CL	12.6					22	9	98	96	88	53		

Table B-1 (2/4)

BIC4055T3 (BIC217) Prepared by JB Reviewed by JWS Checked by JWS

BORING NO. COE-14 GROUND SURFACE ELEV. (ft.) 633.5 Sheet 3 of 4

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
LAB TESTING SUMMARY: RETAINING WALLS

Sample No.	Section No.	Depth ft.	Tube			Section				Ave. PP t/ft²	ω %	ω_L %	PI %	% Passing Sieve				G_s	Type Eng. Prop. Test	
			Type	Rec. ft	γ_t lb/ft³	USCS Symbol	ω %	γ_c lb/ft³	γ_d lb/ft³					# 4	# 10	# 40	# 200			
S-16		34.2-36.7	PS	0.98	117.5 117.7															
	A	34.4																		
	B	35.0				SP	18.1							100	100	95	4			
S-17		36.7-39.1	PS	0.7	—															
	A	37.0				SP	14.4							98	97	82	4			
S-19		39.2-41.7	PS	1.03	128.0															
	A	39.3					14.9													
	B	39.7				SP-SM	18.4	129.1	109.0			Non-Plastic		100	97	90	10	2.676	CIU	
	C	40.1					16.3													
S-20		41.7-44.2	PS	0.7	—															
	A	42.0				SP-SM	15.6							99	96	73	11			
S-22		46.7-49.2	PS	0.88	122.7															
	A	46.8					10.0													
	B	47.2				SP-SM	12.8	120.5	106.8			Non-Plastic		100	100	94	5	2.661	CIU	
	C	47.5					14.8													

Table B-1 (3/4)

BIC4055T3 (BIC217) Prepared by VB Reviewed by JWS Checked by JWS

BORING NO. COE-14 GROUND SURFACE ELEV. (ft.) 633.5 Sheet 4 of 4

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.

LAB TESTING SUMMARY RETAINING WALLS

Sample No.	Section No.	Depth ft.	Tube Type	Tube Rec. ft	Tube γ_t lb/ft³	Section USCS Symbol	Section ω %	Section γ_t lb/ft³	Section γ_d lb/ft³	Ave. PP t/ft²	ω %	ω_L %	PI %	% Passing Sieve # 4	# 10	# 40	# 200	G_s	Type Eng. Prop. Test
S-23		49.2-51.7	PS	1.10	127.9 131.8														
	A	49.3					14.9												
		49.4									15.3								
	B	49.8				SM	20.3	127.4	105.9			Non-Plastic		100	100	100	42	2.682	CIU
		50.0									9.7								
	C	50.2					13.7												
S-25		54.2-54.7	PS	1.50	132.2 126.4														
	A	54.5					17.7			>4.5									
	B	55.0					17.7			>4.5									
	C	55.5				CL	18.2			>4.5		41	22	—	—	—	100		
S-26		56.7-57.5	PS in Var	0.1		CL	19.5					38	20						
S-27		57.5-58.3	OS	0.8		CL	19.7					42	24	—	—	—	99		
S-28		58.3-60.8	PS	1.95	131.6 134.9														
	A	58.6																	
	B	59.1				CL	19.7	132.5	110.7			40	21	—	—	—	100	2.773	CIU
	C	59.6				CL	20.0	132.0	109.9			40	23	—	—	—	99	—	CIU
	D	60.1				CL	20.1	131.7	109.7			40	23	—	—	—	99	2.760	CIU

Table B-1 (4/4)

BIC4055T3 (BIC217) Prepared by RBA Reviewed by JWS Checked by JWS

BORING NO. COE 15-A GROUND SURFACE ELEV. (ft.) 634.1 Sheet 1 of 3

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.

LAB TESTING SUMMARY: RETAINING WALLS

Sample No.	Section No.	Depth ft.	Tube			Section				Ave. PP t/ft²	ω %	ω_L %	PI %	% Passing Sieve				G_s	Type Eng. Prop. Test	
			Type	Rec. ft	γ_t lb/ft³	USCS Symbol	ω %	γ_t lb/ft³	γ_d lb/ft³					# 4	# 10	# 40	# 200			
S-3		30-55	TW	2.06	138.1 142.4															
	A	3.2					11.4			2.75 >4.5										
		3.4								2.4	12.6									
	B	3.7					11.5			2.4										
	C	4.0					9.7													
	D	4.4				CL	9.7	139.9	127.5			22	10	95	92	84	55		UU	
		4.7					12.0			3.9	10.5									
	E	5.0								4.0 >4.5										
S-5		80-10.5	OS	1.47	135.6 141.2															
	A	8.2				CL	10.8			3.25 >4.5		28	15							
		8.4								3.0	16.9									
	B	8.7				CL	12.5	138.7	123.3			21	9	97	93	83	51		UU	
		8.9								2.6	11.6									
	C	9.2					11.8	139.2	124.4	2.75										
S-7		130-155	OS	1.41	132.7															
	A	13.2					10.3			>4.5										
		13.4								2.8	15.4									
	B	13.7				CL	12.9	138.4	123.6			30	16	96	93	86	61		UU	
		13.8								3.25	13.4									
	C	14.0					11.9	140.7	125.7	4.25 >4.5										

Table B-2 (1/3)

BIC405ST3 (BIC217) Prepared by JB Reviewed by JWS Checked by JWS

BORING NO. COE-15A GROUND SURFACE ELEV. (ft.) 634.1 Sheet 2 of 3

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
LAB TESTING SUMMARY: RETAINING WALLS

Sample No.	Section No.	Depth ft.	Tube Type	Tube Rec. ft	Tube γ_t lb/ft³	Section USCS Symbol	Section ω %	Section γ_t lb/ft³	Section γ_d lb/ft³	Ave. PP t/ft²	ω %	ω_L %	PI %	% Passing Sieve # 4	# 10	# 40	# 200	G_s	Type Eng. Prop. Test
S-AA		18.0-20.5	OS	—	—														
	A	18.5					11.9			2.75				86.1	83.	77	54		
S-9B		18.5-21.0	OS in Jar	0.2	—	SM					21.4			97	93	75	28.		
S-11		23.0-25.3	OS	0.80	149.5 / 149.1														
	A	23.2				CL	11.0			>4.5		24	14	96.	94	88	70.		
	B	23.8					12.1			>4.5									
S-12		25.3-26.5	OS	—	—														
	A	25.6					13.8			3.75				98	96	89	70.		
	B	26.0				CL	14.6			3.75		26	12						
S-13		27.0-29.5	PS	0.50	127.8 / 130.4														
	A	29.2					11.8			>4.5				98	95	88	63.		
S-14		29.5-32.0	OS	1.18	135.7 / 140.7														
	A	29.6					11.9			3.0									
		29.7								2.9	12.0								
	B	30.0				CL	12.4	138.4	123.1			24	13	99.	98	93	50.		UU
		30.3								3.7 / >4.5	11.2								
	C	30.5				(SC)	32.1	142.9	108.2	>4.5				99.	98	93.	49		

Table B-2 (2/3)

BIC4055T3 (BIC217) Prepared by JB Reviewed by JWS Checked by JWS

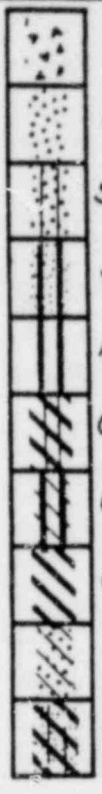
BORING NO. COE-15A GROUND SURFACE ELEV. (ft.) 634.1 Sheet 3 of 3

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
LAB TESTING SUMMARY RETAINING WALLS

Sample No.	Section No.	Depth ft.	Tube Type	Tube Rec. ft	Tube γ_t lb/ft³	Section USCS Symbol	Section ω %	Section γ_t lb/ft³	Section γ_d lb/ft³	Ave. PP t/ft²	ω %	ω_L %	PI %	% Passing Sieve # 4	# 10	# 40	# 200	G_s	Type Eng. Prop. Test
S-17		36.3-38.8	PS	0.50	145.9														
	A	36.6				CL	11.9			>4.5		24	13	99	99	93	63		
S-18		38.8-39.9	OS	1.02	142.3 / 140.8														
	A	39.2					10.8			>4.5									
	B	39.6				CL	10.8			>4.5		26	13	100	99	95	71		
S-19		39.9-42.4	PS	0.80	149.7														
	A	40.1																	
	B	40.5				CL	8.7	147.2	135.4			19	8	98	97	92	61	2.74	CIU
S-20		42.4-44.9	PS	1.10	150.7														
	A	42.7																	
	B	43.3				CL-ML	8.8	148.6	136.6			16	5	97	96	90.	56	2.72	CIU

Table B-2 (3/3)

LEGEND FOR INDEX PROPERTY PROFILES

SYMBOL		EXPLANATION
		Miscellaneous fill
	SP	Sand
	SP-SM	Sand with 5% to 12% fines (-200 Material)
	SM	Silty sand
	ML	Silt
	CL	Silty clay, plasticity index > 8%
	CL-ML	Silty clay, plasticity index of 4% to 7%
	CH	Clay
	SC	Clayey sand
	SC-SM	Silty clayey sand
		Tube sample processed

ABBREVIATION	EXPLANATION
CON	Consolidation test
UU	Unconsolidated, undrained triaxial test
$\overline{CIU}$	Isotropically consolidated undrained triaxial test with pore pressure measurements
$\overline{CAU}$	Anisotropically consolidated undrained triaxial test with pore pressure measurements
SPEC.	Specimen
NO REC.	No recovery
N.O SAMPLE	No sampling attempted

Fig. B-0

BMC 4055.73 (BMC LIT) Prepared by RSA/VE Reviewed by JWS Checked by MF

INDEX PROPERTIES FOR BORING NO. COE-14 MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.

Ground Surface Elev. 633.5

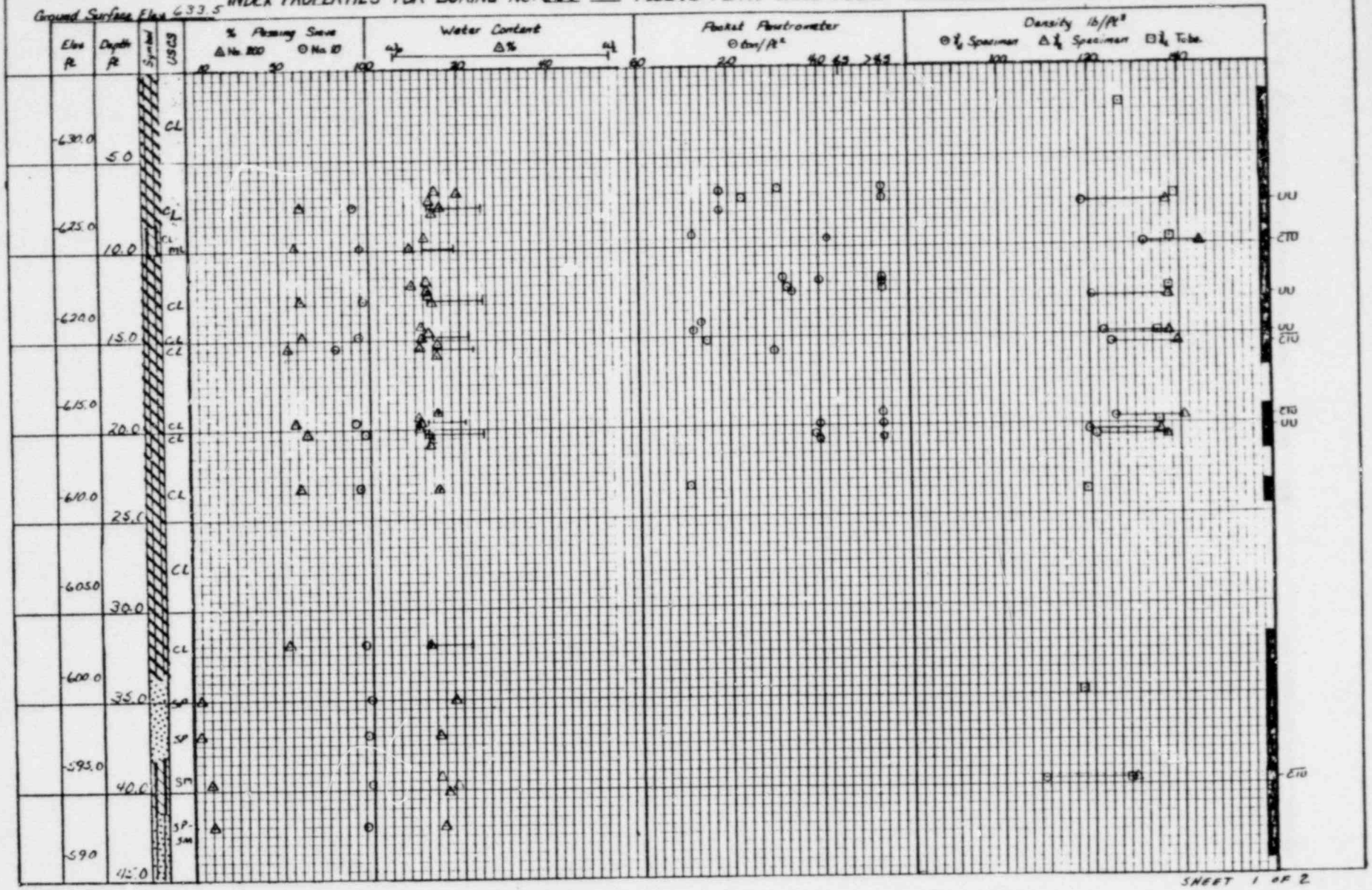


Fig. 8-1 (1/2)

SHEET 1 OF 2

BACKGOSS T3 (Rev. 2/71) Prepared by R.D.A. Reviewed by JWS Checked by MF

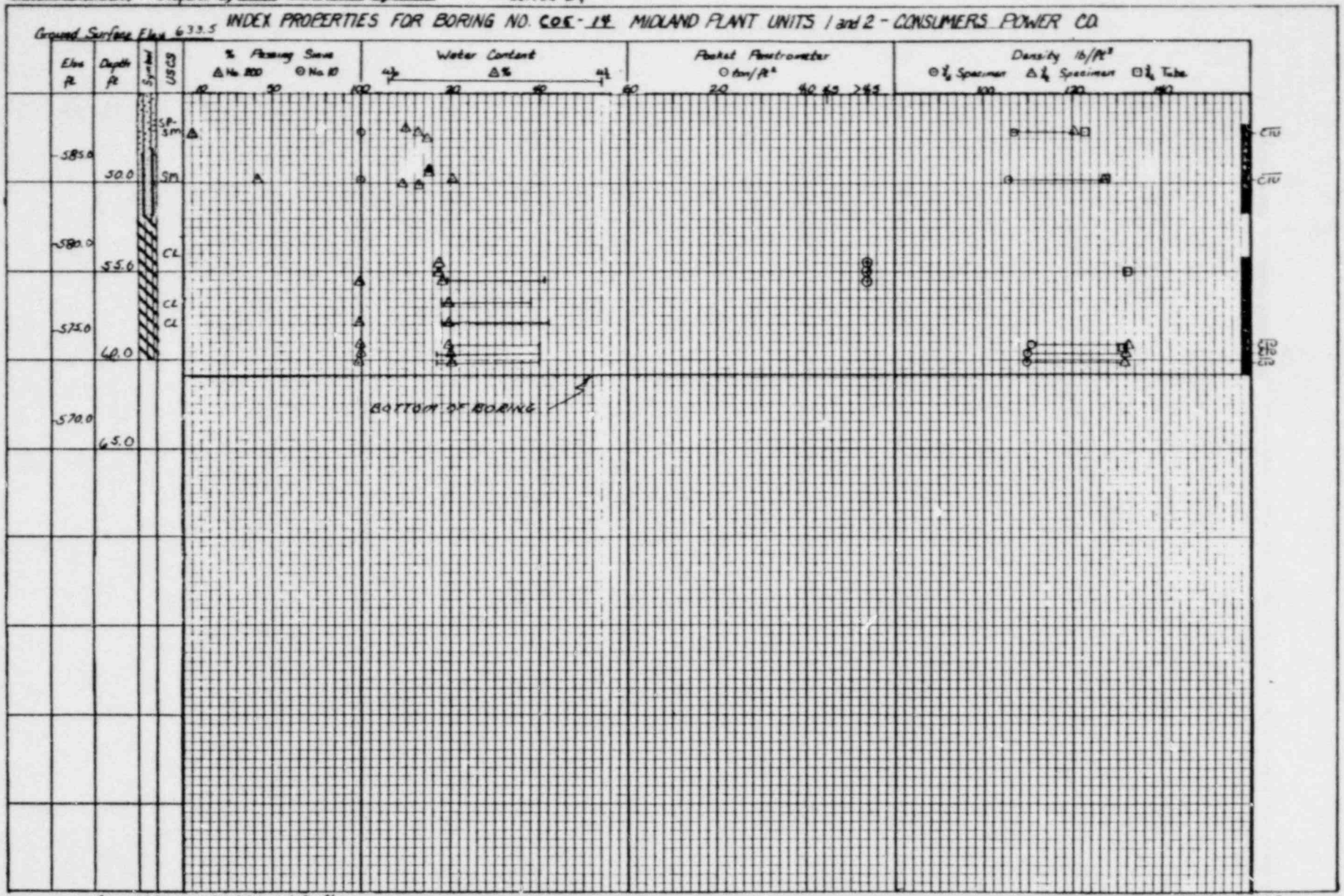
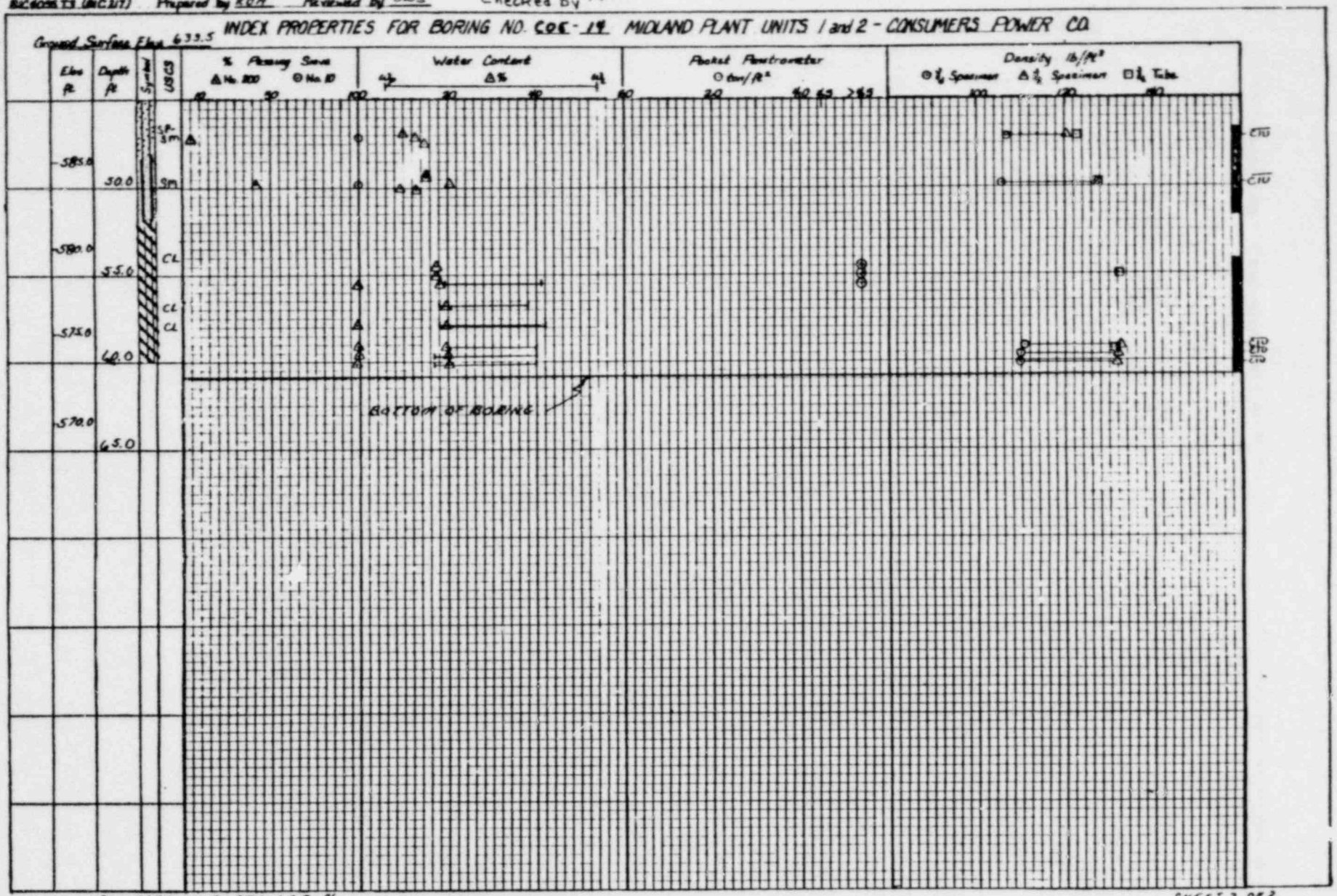


Fig B-1(2/2)

SUCCESS T3 (UNC 2/17) Prepared by RRA Reviewed by JWS Checked by RF



COMPLETION DEPTH 60.8 ft.

SHEET 2 OF 2

Fig B-1(2/2)

BECHTEL TJ (REV. 2-67) Prepared by RCA/NB Reviewed by JWS Checked by MF

INDEX PROPERTIES FOR BORING NO. C.O.E.-19A MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.

Ground Surface Elev. 634

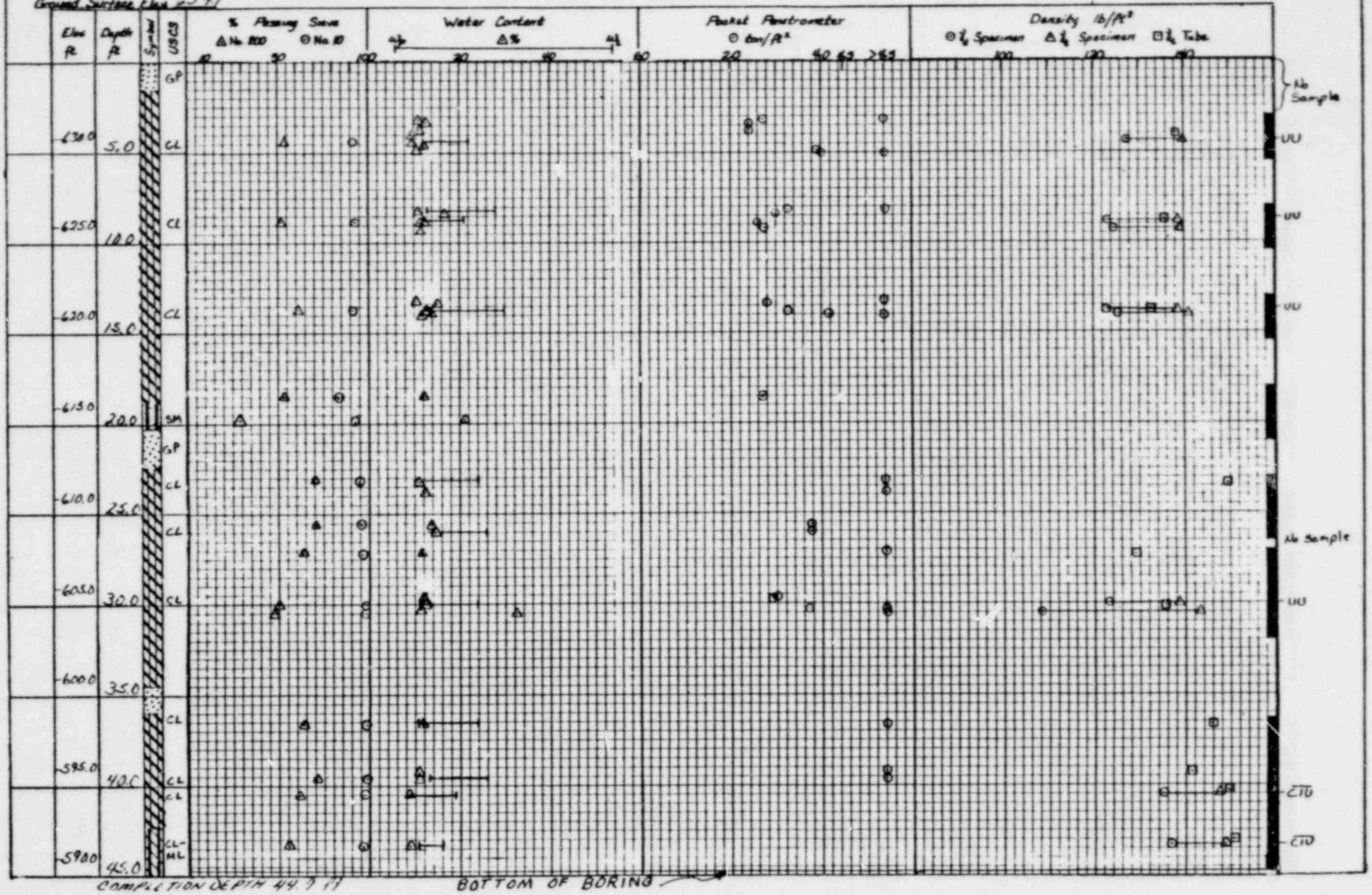
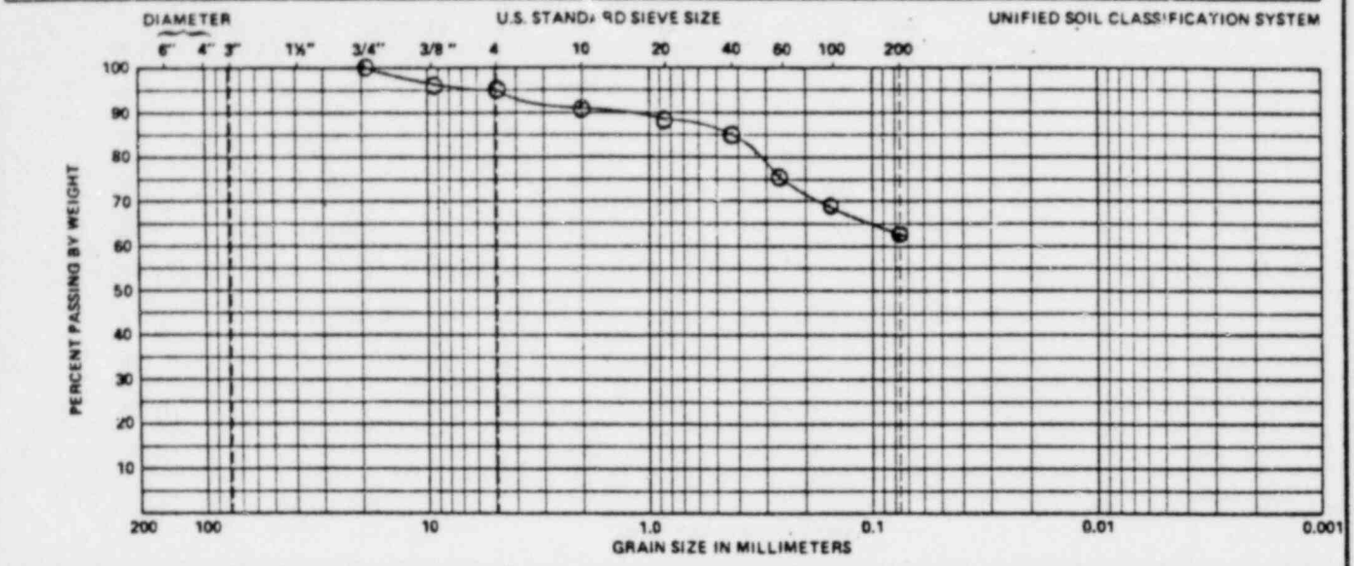


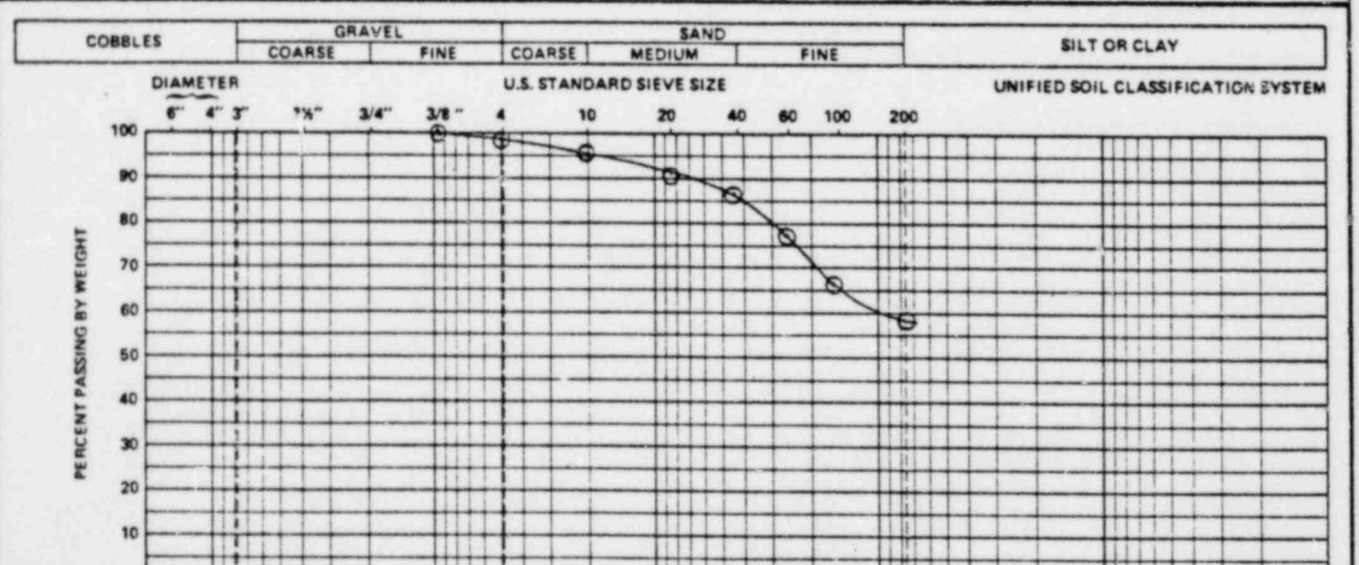
Fig. B-2 (1/1)

Appendix C
Particle-Size Distribution Curves

PARTICLE-SIZE DISTRIBUTION



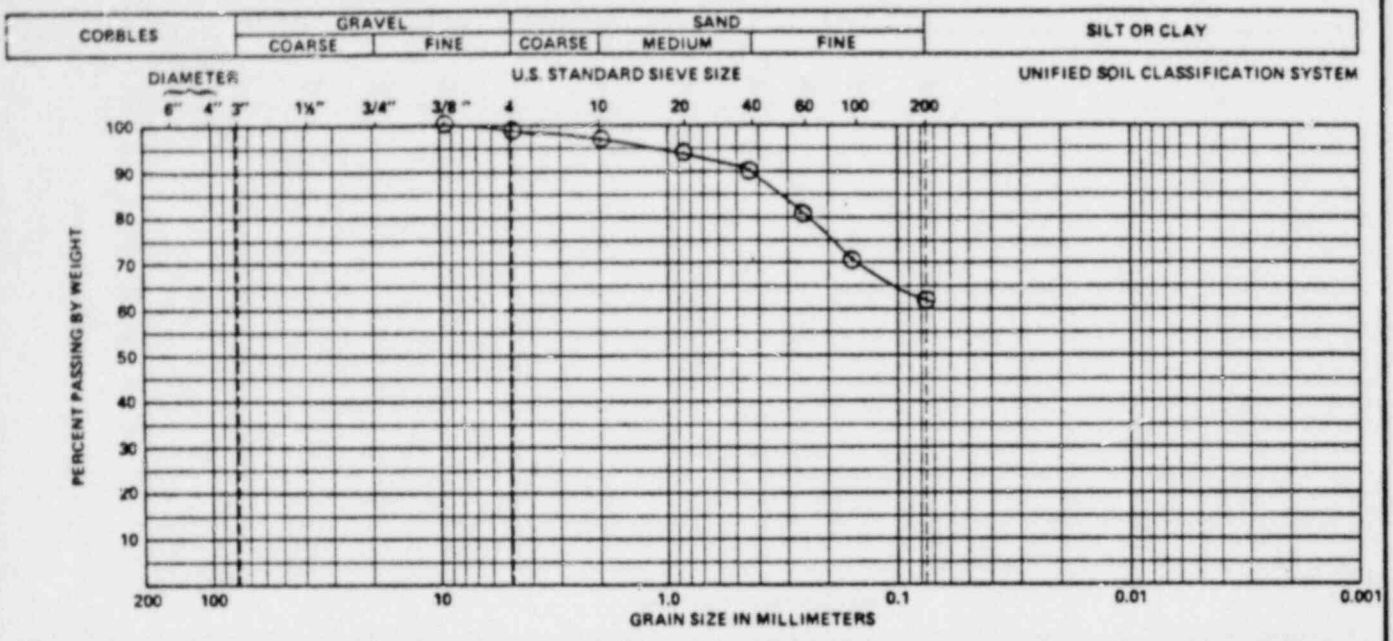
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	S-4C	7.6	⊙	CL, brown, f. sandy, m.p., silty CLAY, some f. gravel to m. sand - UU spec.	15.9	25	13



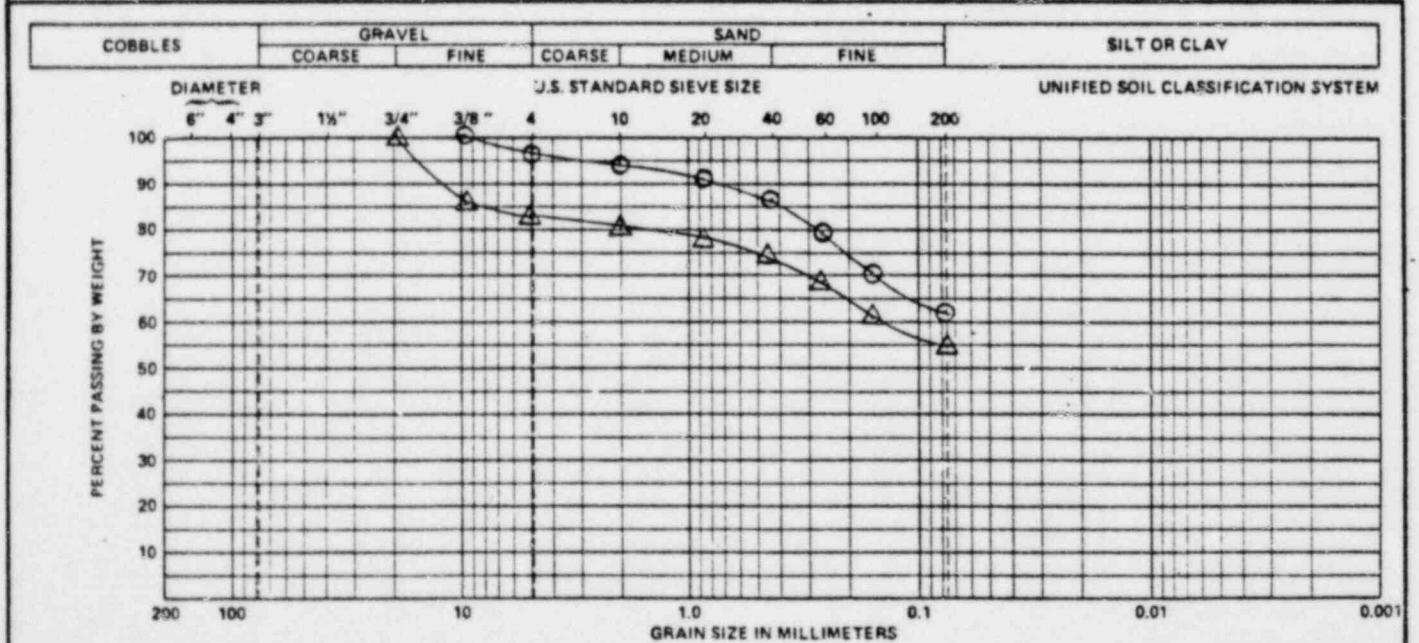
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	S-5B	9.9	⊙	CL-ML gray, f. sandy, S.P., silty CLAY, some f. gravel to m. sand - UU spec	9.2	19	12

Fig C-1 (1/7)

PARTICLE-SIZE DISTRIBUTION



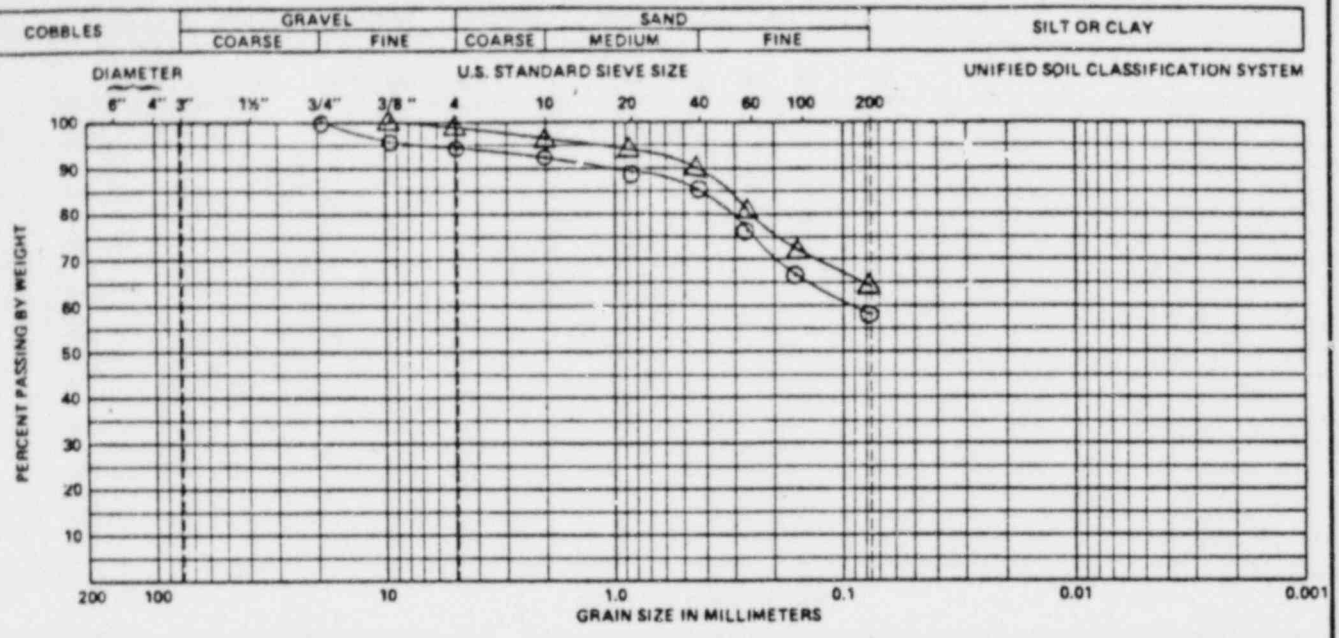
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	6C	12.8	⊙	CL, lt. brown, f. sandy, m.p. silty CLAY, tr. f. gravel to m. sand with occ. pockets c. to f. sand - UU spec	14.0	25	13



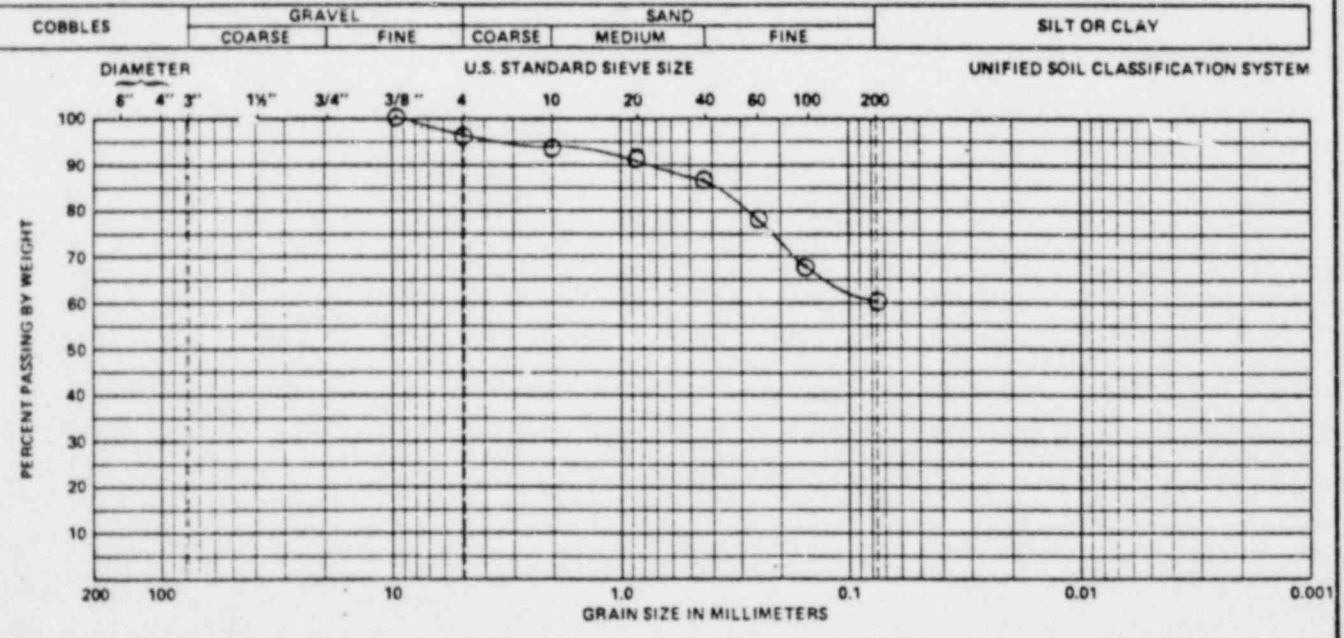
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	5-7B	14.9	⊙	CL, brown-gray, f. sandy, s.p. silty CLAY, some f. gravel to m. sand - UU spec	11.7	22	14
COE-14	5-7C	15.5	△	CL, brown-gray, c. to f. sandy, s.p. silty CLAY, some f. gravel - UU spec	11.3	23	14

Fig C-1 (2/7)

PARTICLE-SIZE DISTRIBUTION



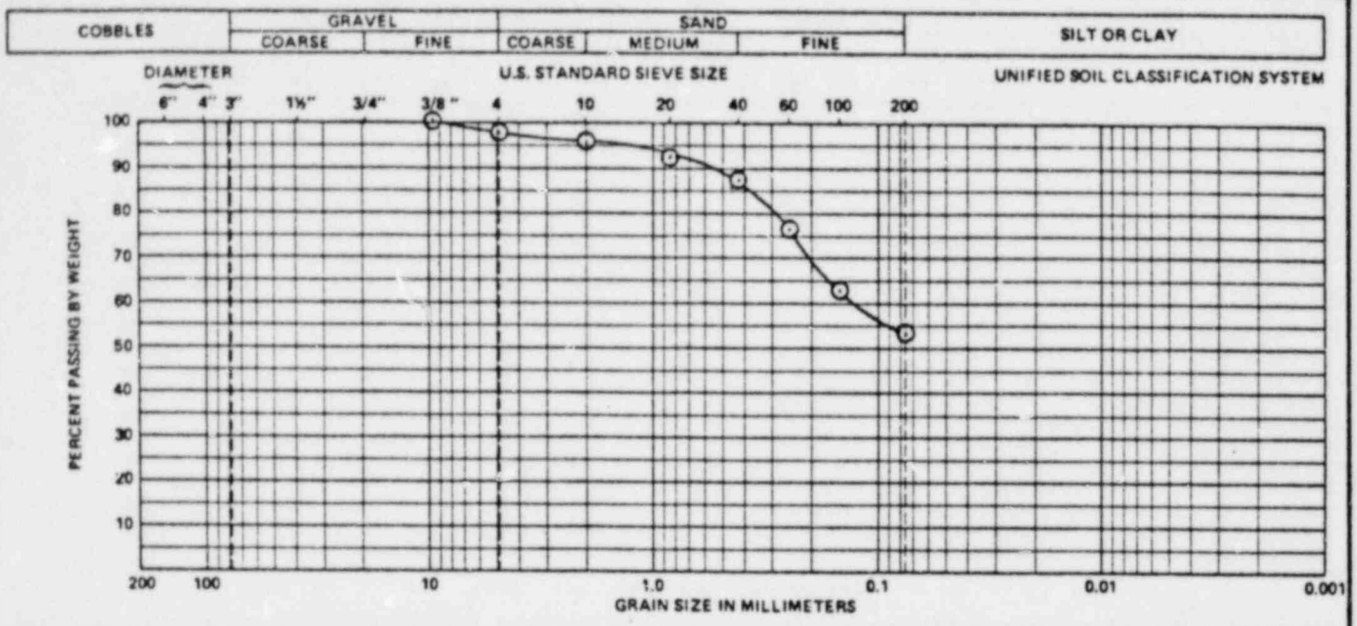
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	S-9B	19.6	⊙	CL, mottled brown and gray, f. sandy, s.p., silty CLAY, some f. gravel to m. sand- CIU spec.	11.4	21	13
COE-14	S-9C	20.2	△	CL, mottled brown and gray f. sandy, m.p., silty CLAY, tr. f. gravel to m. sand- UU spec.	19.4	25	12



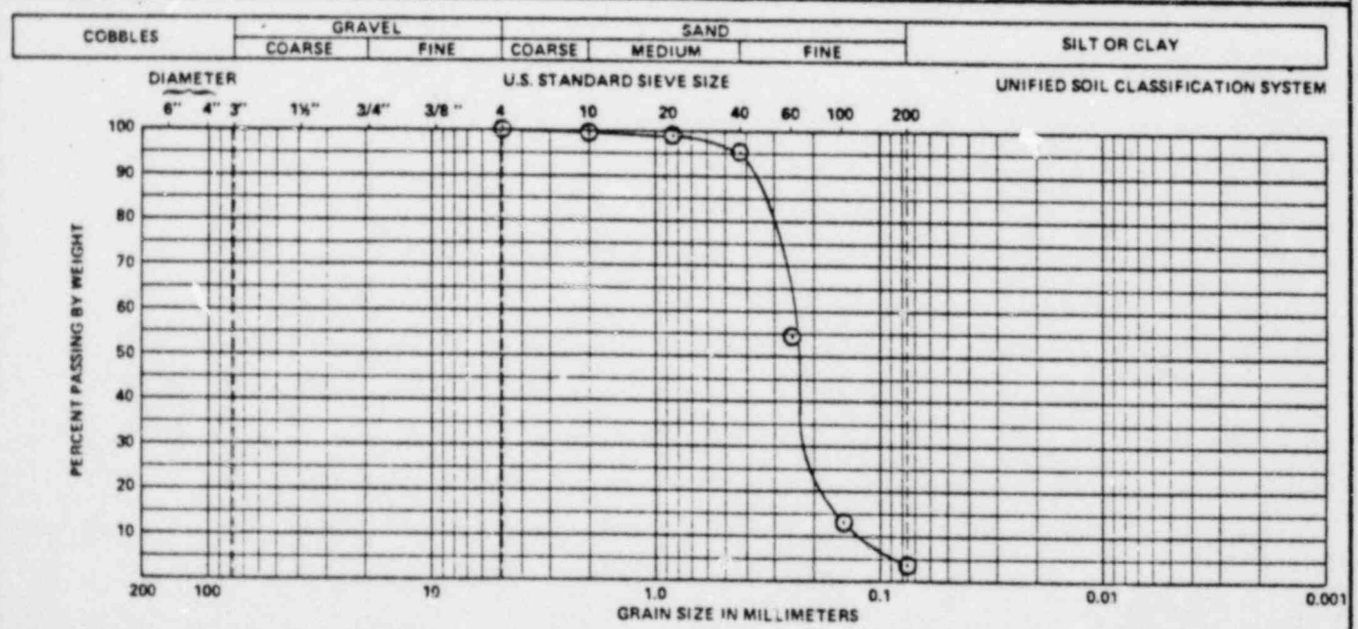
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	S-11A	23.4	⊙	CL, gray-brown, f. sandy, m.p. silty CLAY, some f. gravel to m. sand	15.0	—	—

Fig C-1 (3/7)

PARTICLE-SIZE DISTRIBUTION .



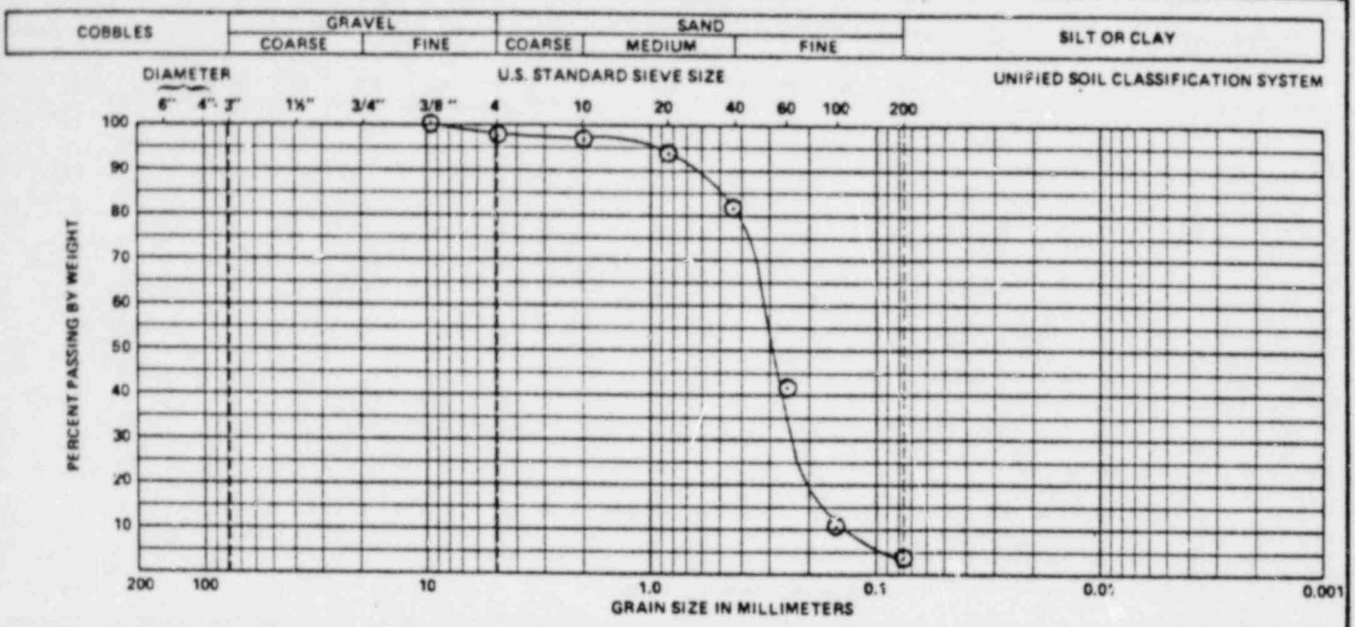
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	S15-A	32.0	⊙	CL, gray, f. Sandy, s.p. silty CLAY, trace f. gravel to m. sand	12.6	22	13



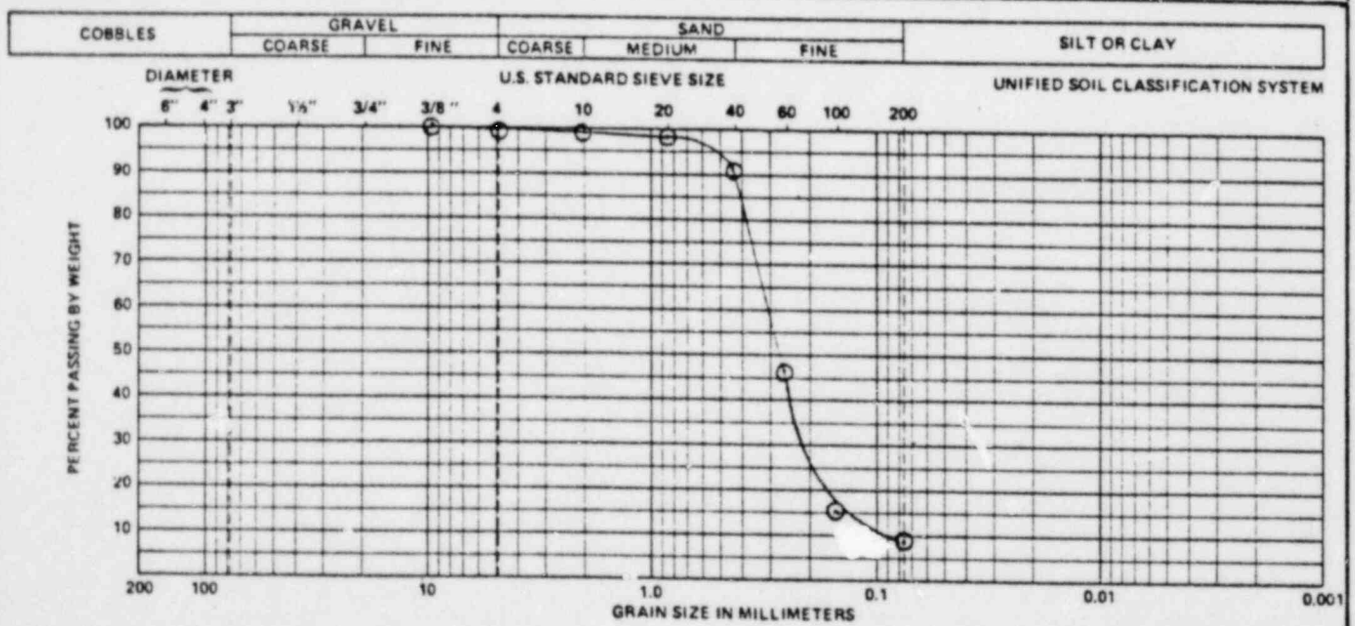
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	S16-B	35.0	⊙	SP, brown, f. SAND, trace c. to m. sand trace silt	18.1	—	—

Fig C-1 (4/7)

PARTICLE-SIZE DISTRIBUTION



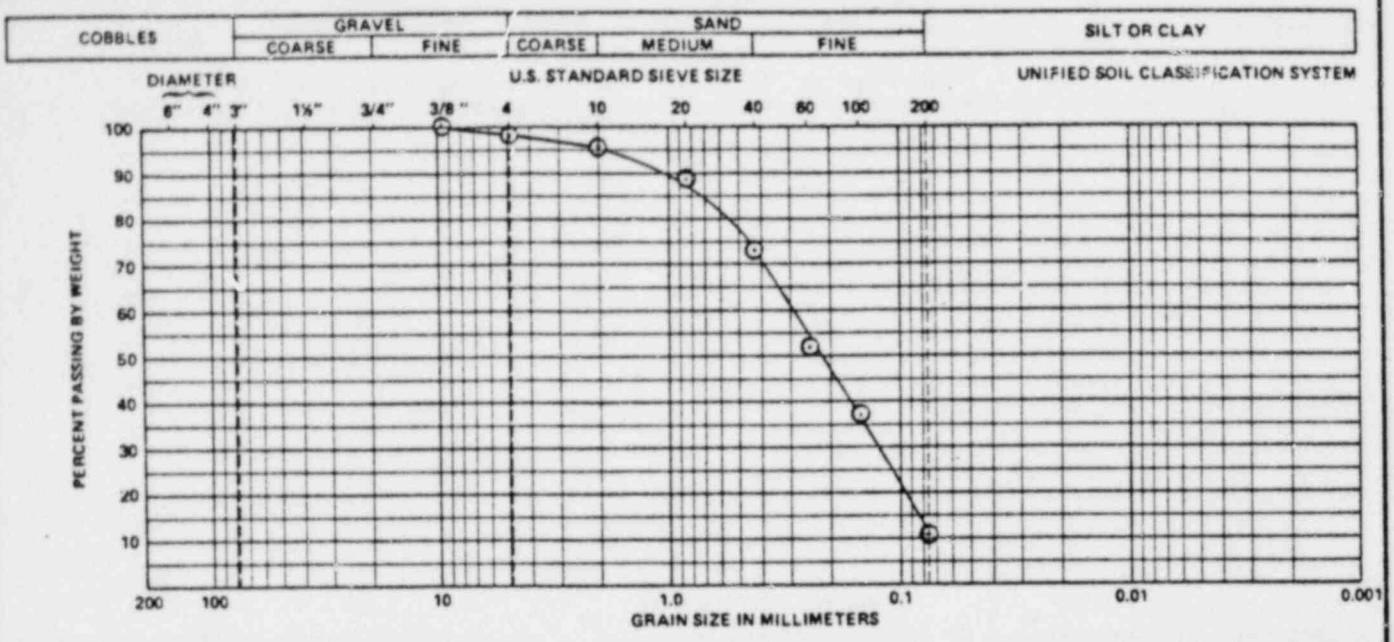
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-M	S17-A	37.0	⊙	SP brown m. to f. SAND, trace f. gravel and c. sand	14.4	—	—



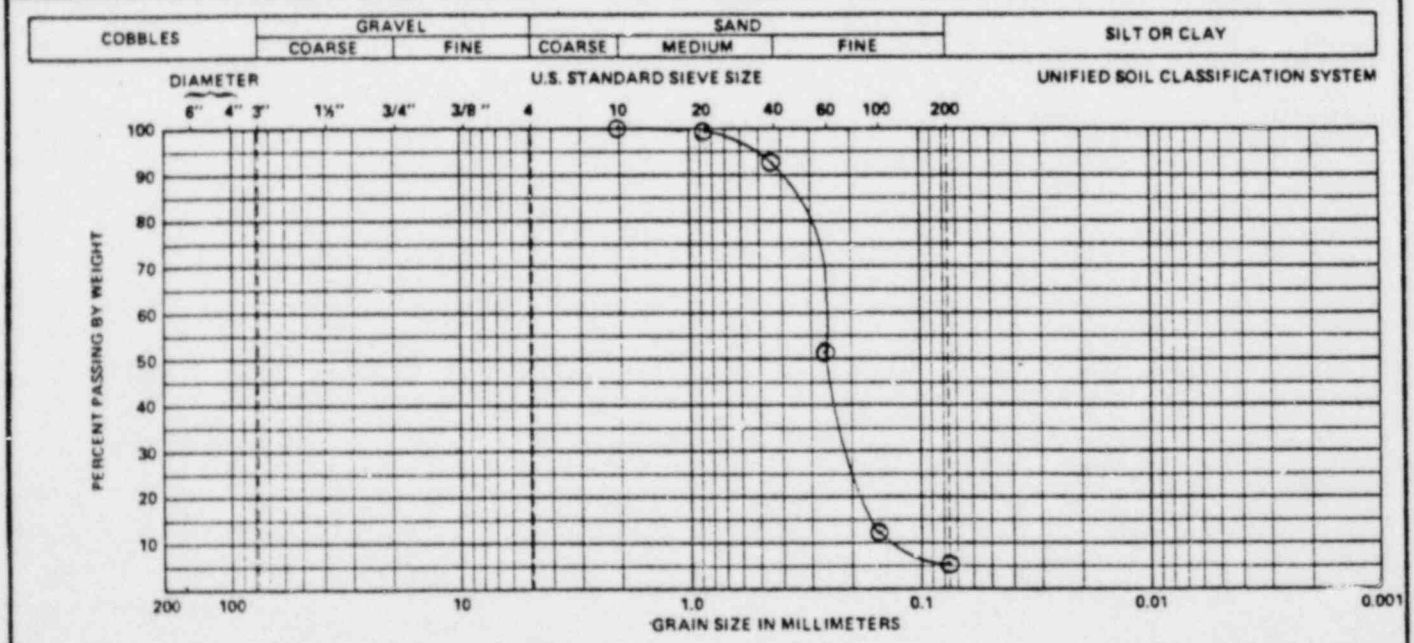
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	S-19B	39.7	⊙	SP-SM, lt. brown, f. SAND, tr. f. gravel to m. sand, tr. silt - CIU spec.	18.4	Non-plastic	

Fig C-1 (5/7)

PARTICLE-SIZE DISTRIBUTION



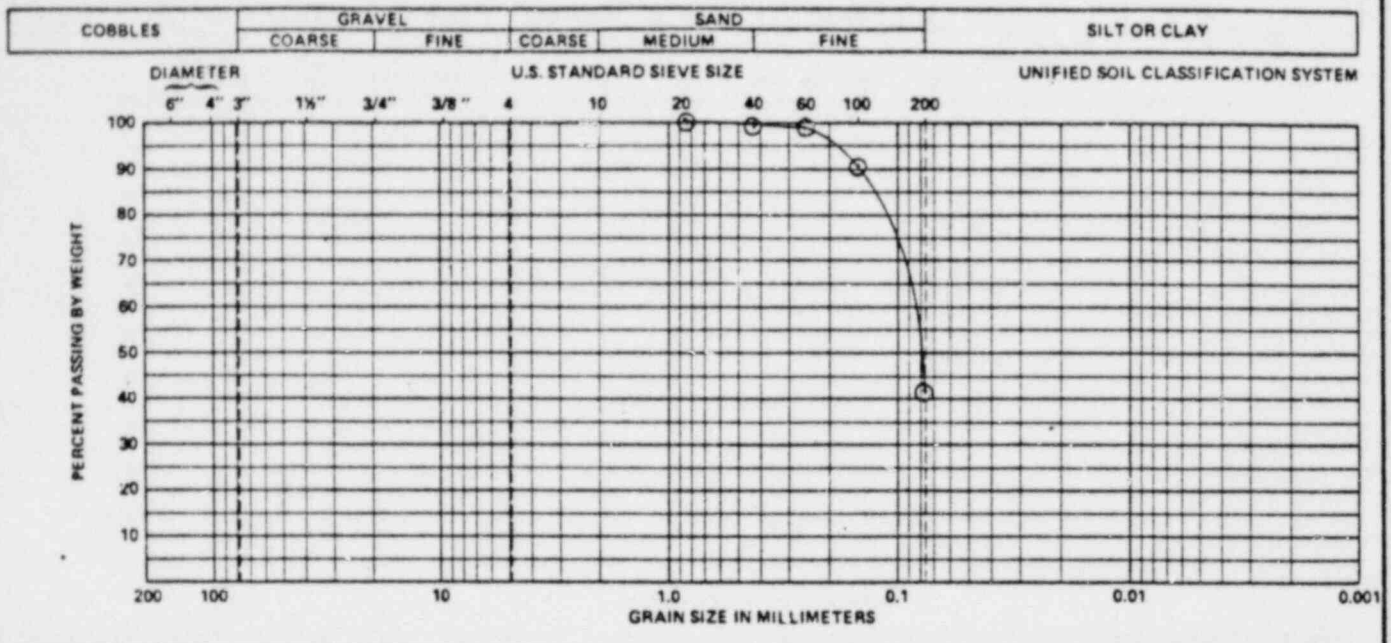
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	S20-A	42.0	⊙	SP-SM, gray m. to f. SAND, trace f. gravel to c. sand, trace silt	15.6	—	—



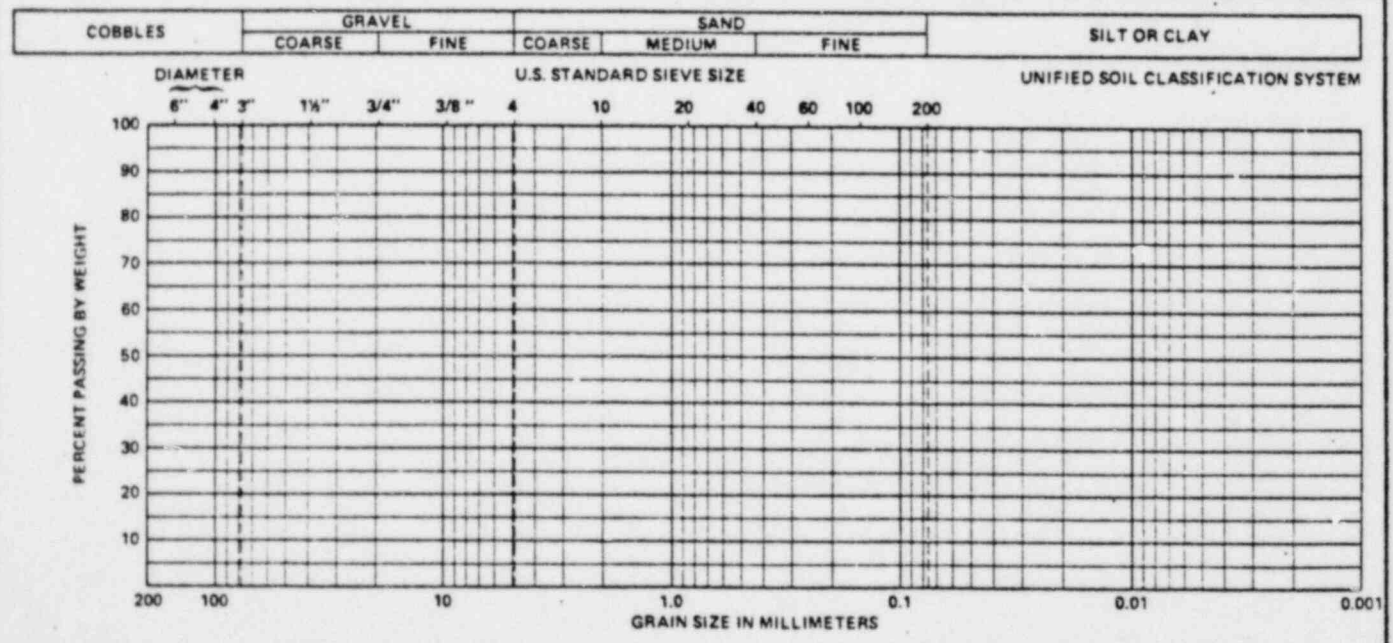
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	S-22-B	47.2	⊙	SP-SM, brown and gray-brown, f. SAND, tr. m. sand, tr. silt - CIU spec.	12.8	Non-plastic	

Fig C-1 (6/7)

PARTICLE-SIZE DISTRIBUTION



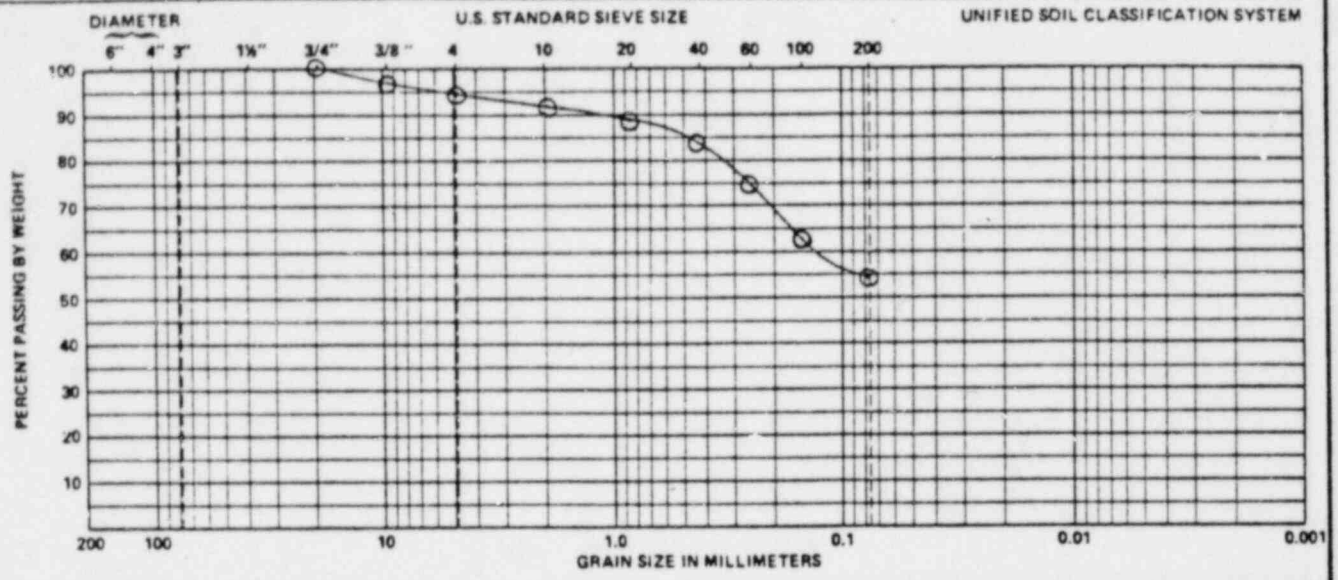
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-14	22B	49.8	⊙	SM brown and gray-brown, silty f. SAND to m. sand - CW spec.	20.3	Non-plastic	



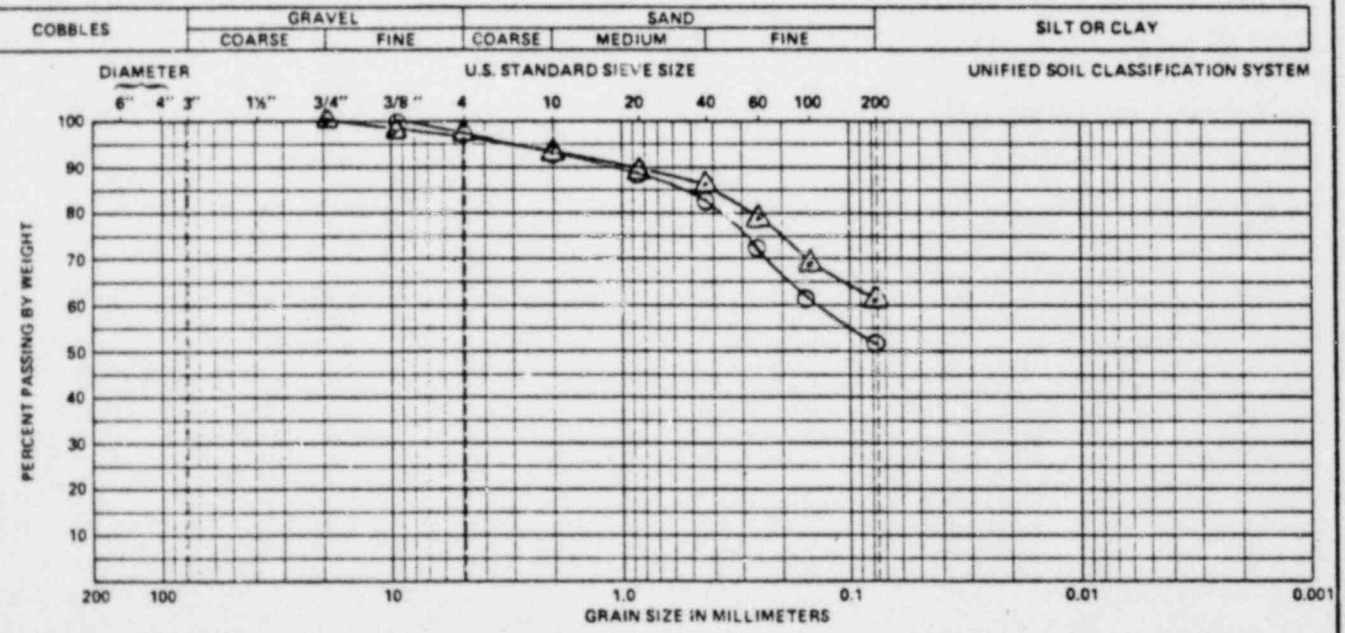
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)

Fig C-1 (7/7)

PARTICLE-SIZE DISTRIBUTION



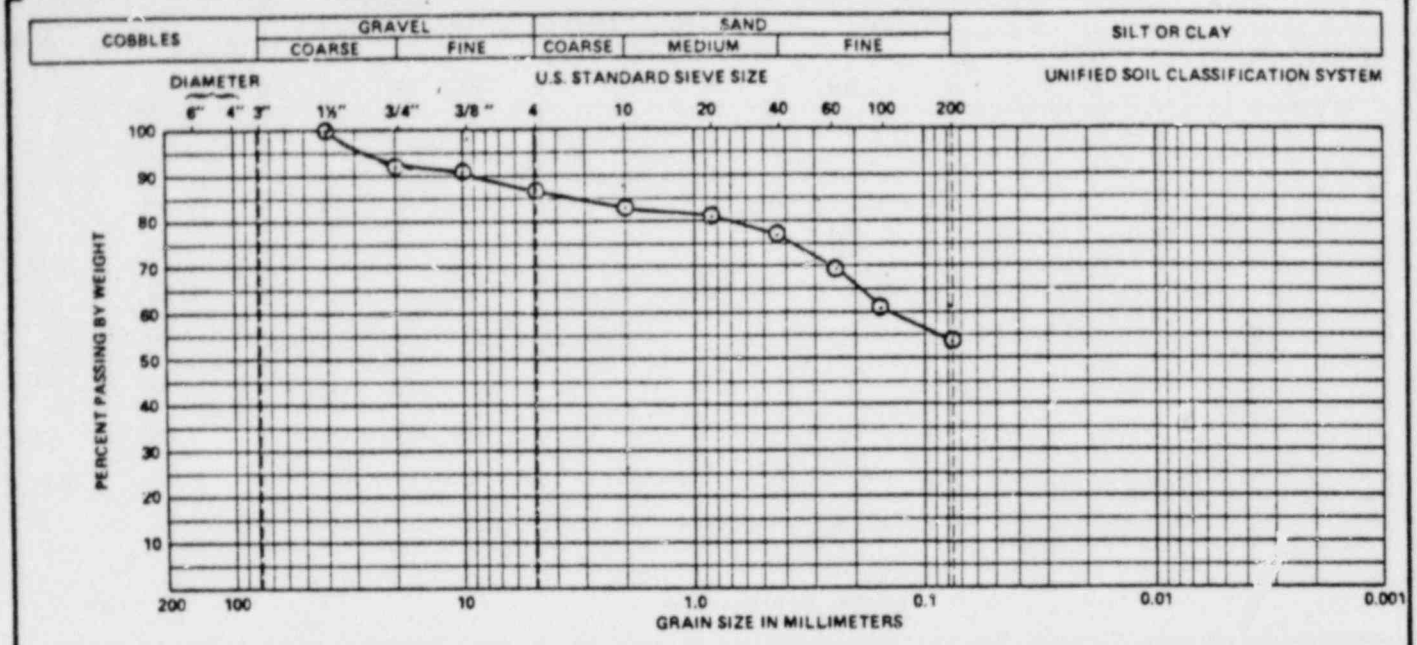
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-15A	3-D	4.4	⊙	CL, brown, f. sandy, s.p. to m.p., silty CLAY, some f. gravel to m. sand - UU spec	9.7	22	12



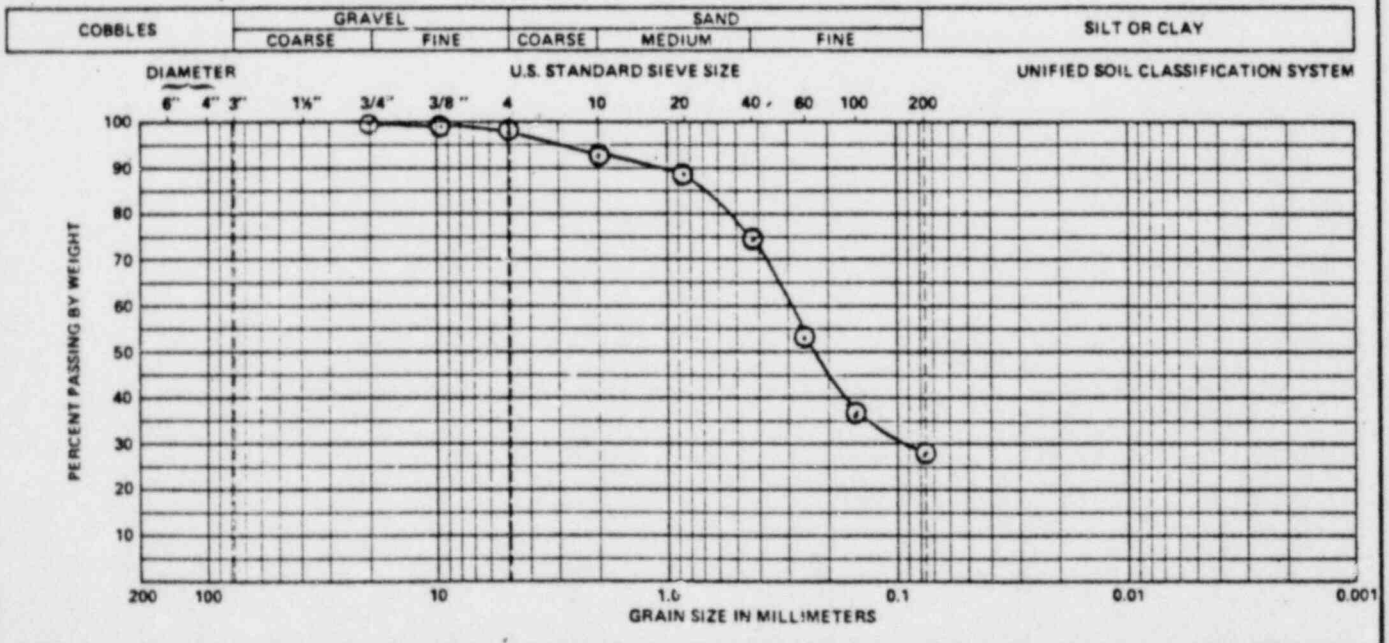
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-15A	5-B	8.7	⊙	CL, gray-brown, f. sandy, s.p., silty CLAY, some f. gravel to m. sand - UU spec	12.5	21	12
COE-15A	7-B	13.7	△	CL, gray-brown, m to f. sandy, m.p. silty CLAY, tr f. gravel to c. sand - UU spec.	12.9	30	14

Fig. C-2 (1/4)

PARTICLE-SIZE DISTRIBUTION



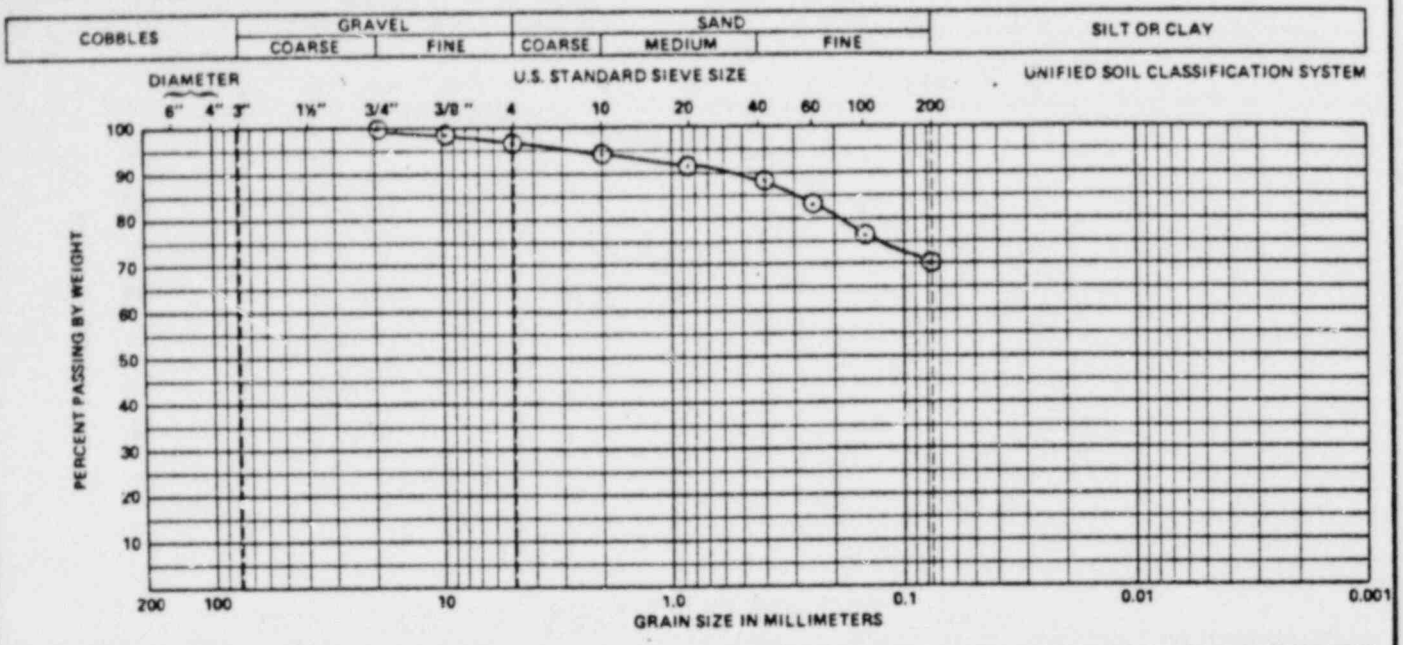
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE 15A	9A	18.5	⊙	CL, brown and gray, c. to f. sandy, silty CLAY, some c. to f. gravel	11.9	–	–



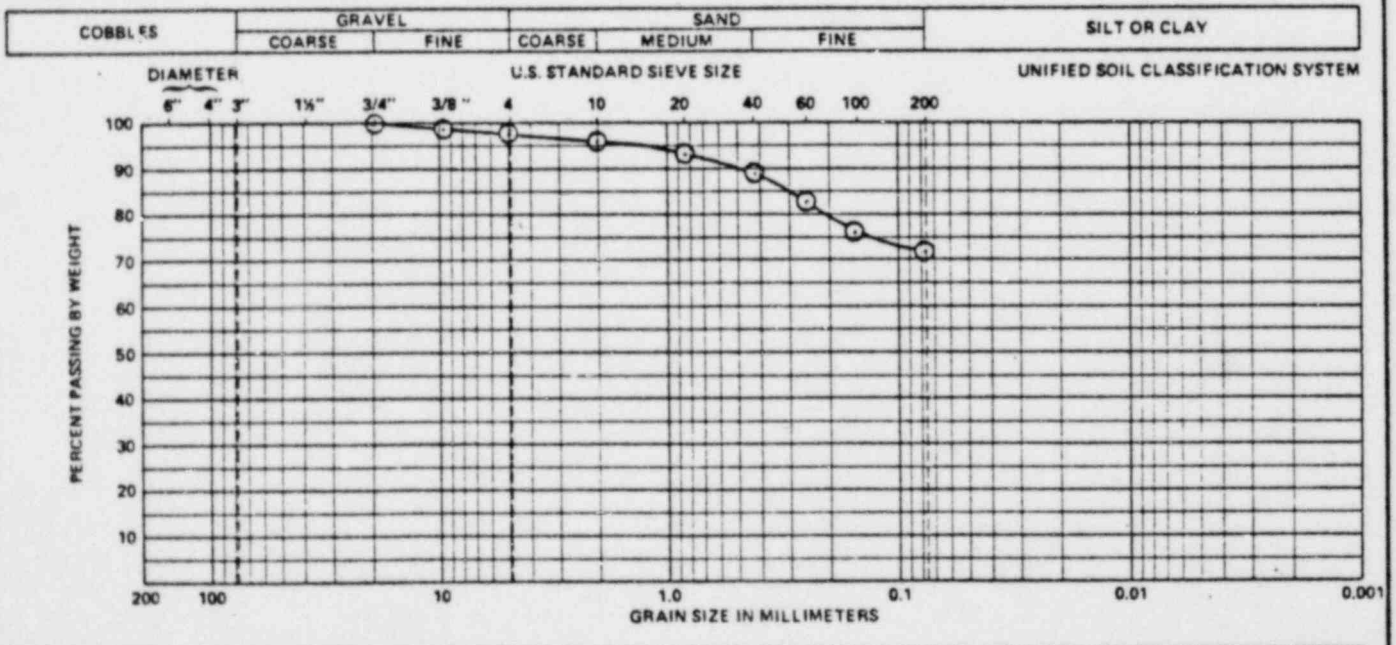
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE 15A	9B	18.5	⊙	SM, brown, m. to f. SAND, trace f. gravel to c. sand, some silt	21.4	–	–

Fig. C-2 (2/6)

PARTICLE-SIZE DISTRIBUTION



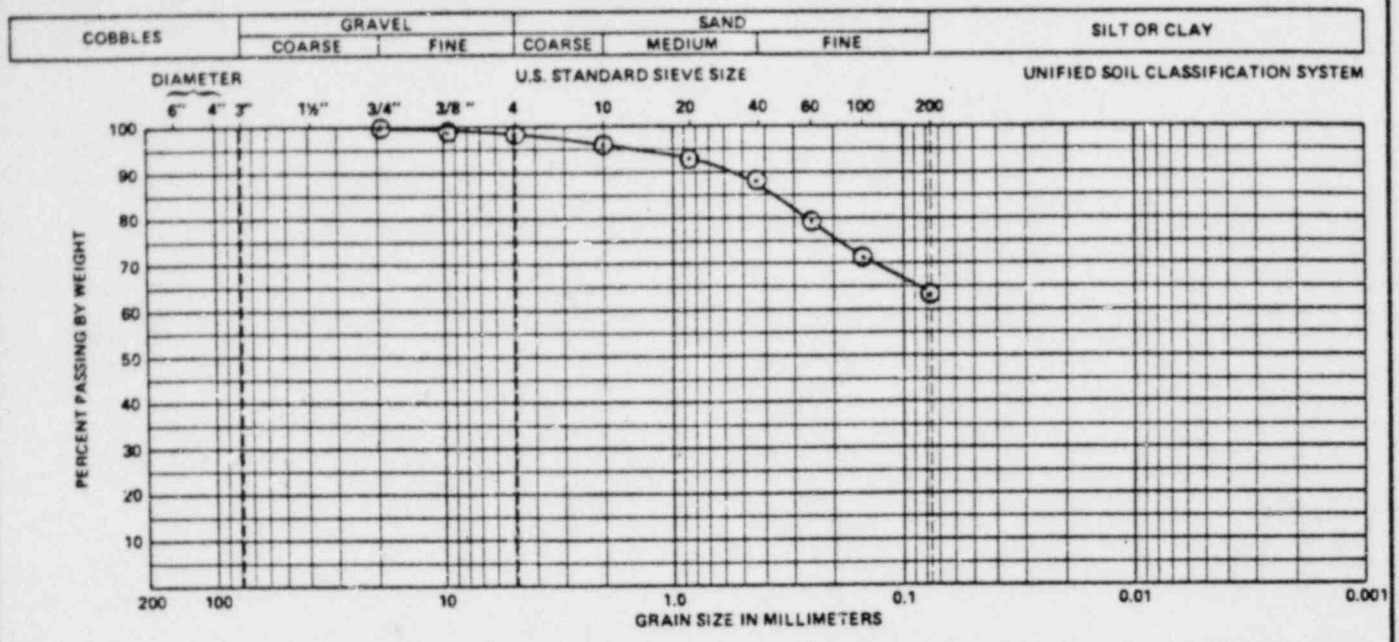
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE 15A	11-A	23.2	⊙	CL, brown, sp to mp., silty CLAY, trace f. gravel to m. sand, some f. sand	11.0	24	14



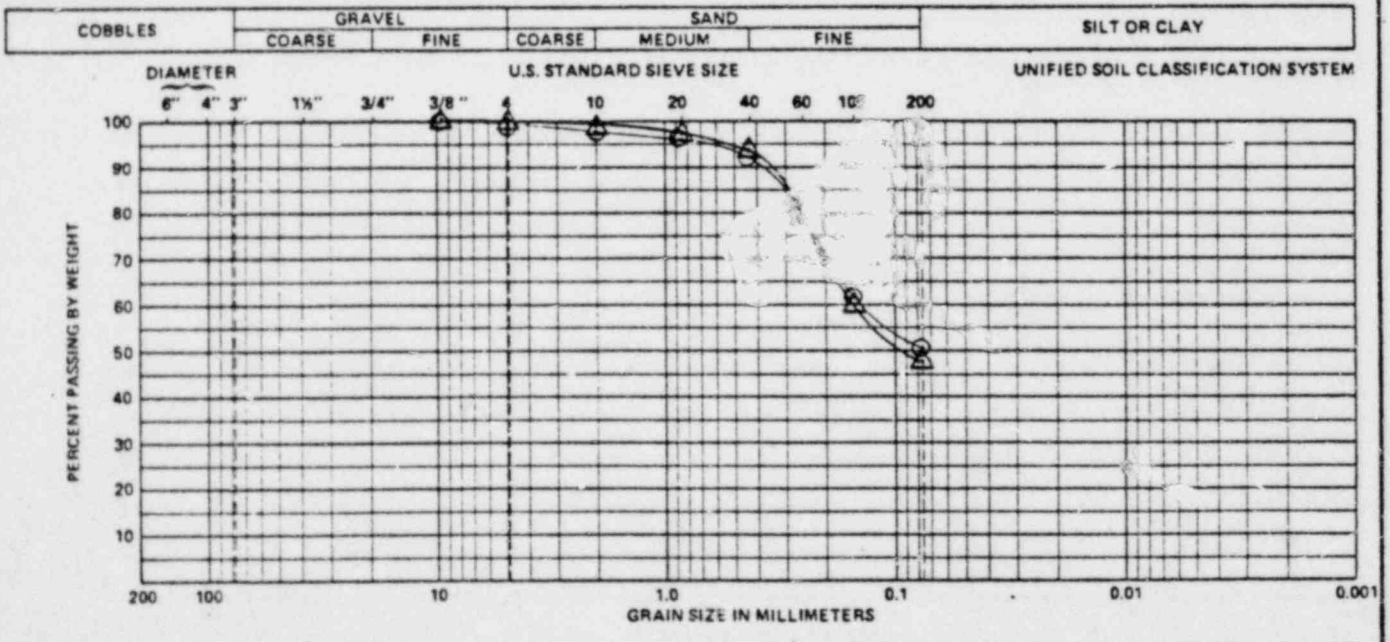
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE 15A	12-A	25.6	⊙	CL, mottled brown and gray, m.p., silty CLAY, trace f. gravel to m. sand, some f. sand	13.8	26	14

Fig. C-2 (3/6)

PARTICLE-SIZE DISTRIBUTION



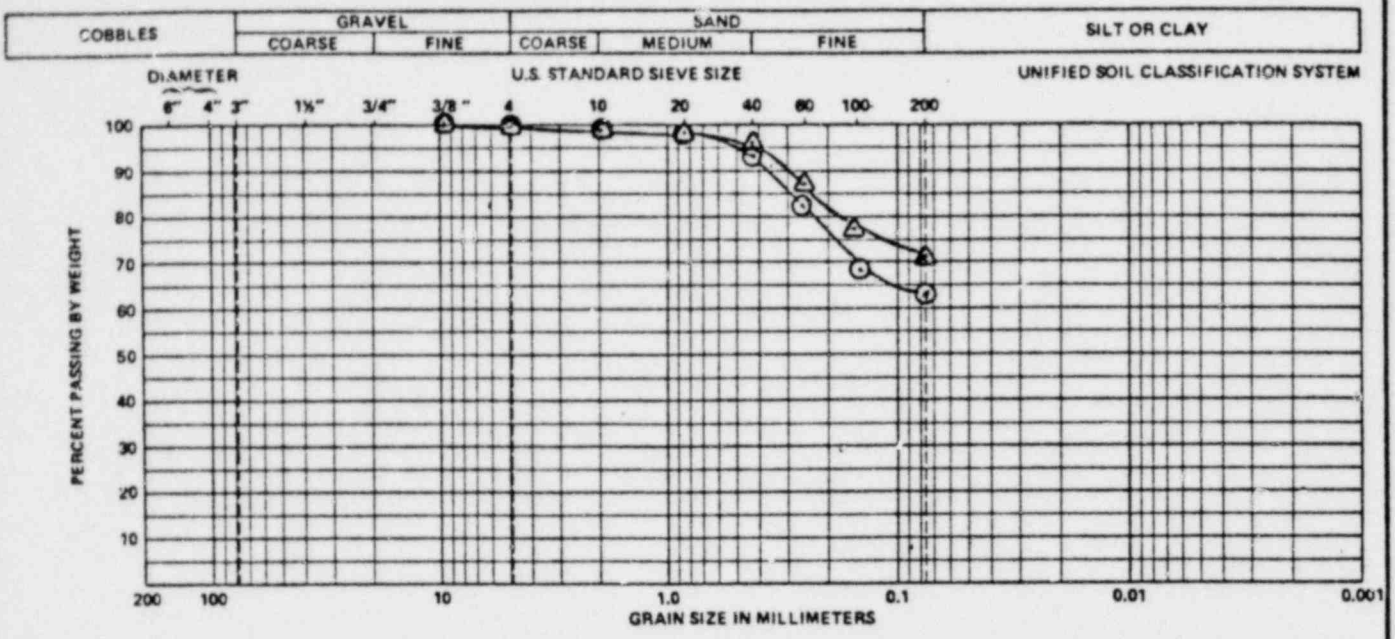
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE 15A	13-A	27.2	⊖	CL, mottled brown and gray, silty CLAY, trace f. gravel to m. sand, some f. sand	11.8	–	–



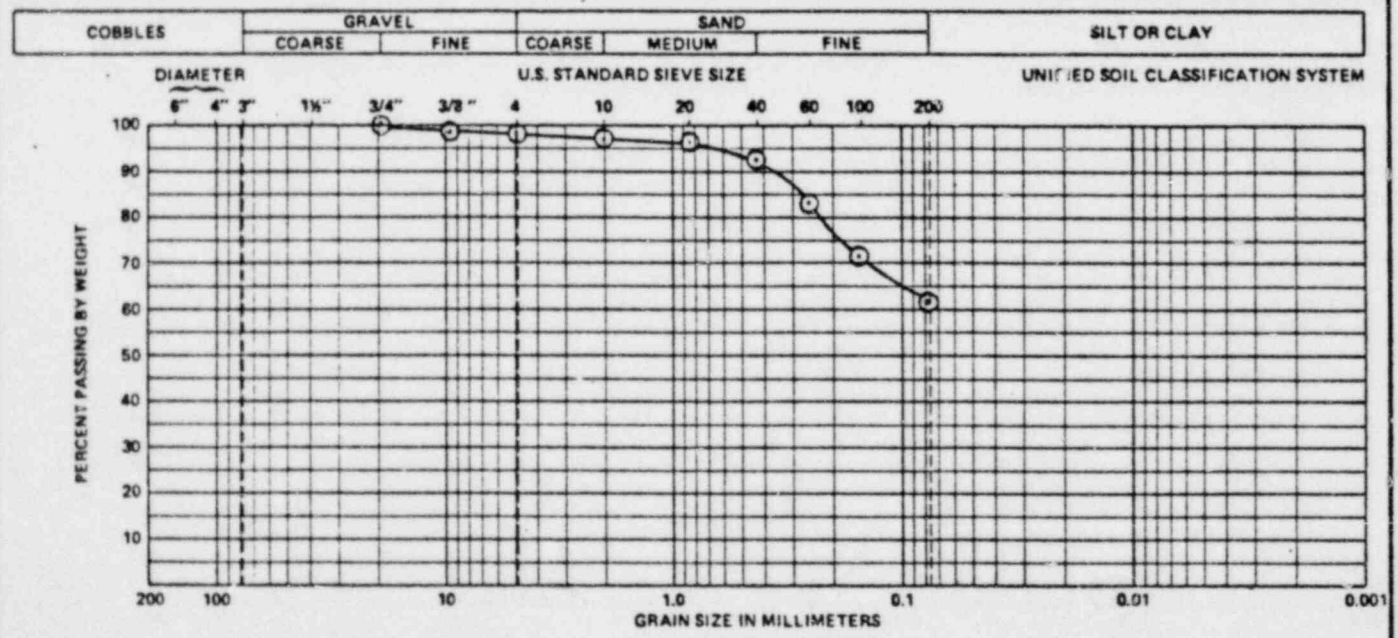
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE-15A	14-B	30.0	⊙	CL, brown, f. sandy, m.p., silty CLAY, tr. f. gravel to m. sand - UU spec	12.4	24	11
COE-15A	14-C	30.5	△	SC-SM, brown, silty clayey f. SAND, tr. f. gravel to m. sand	32.1	–	–

Fig C-2 (4/6)

PARTICLE-SIZE DISTRIBUTION



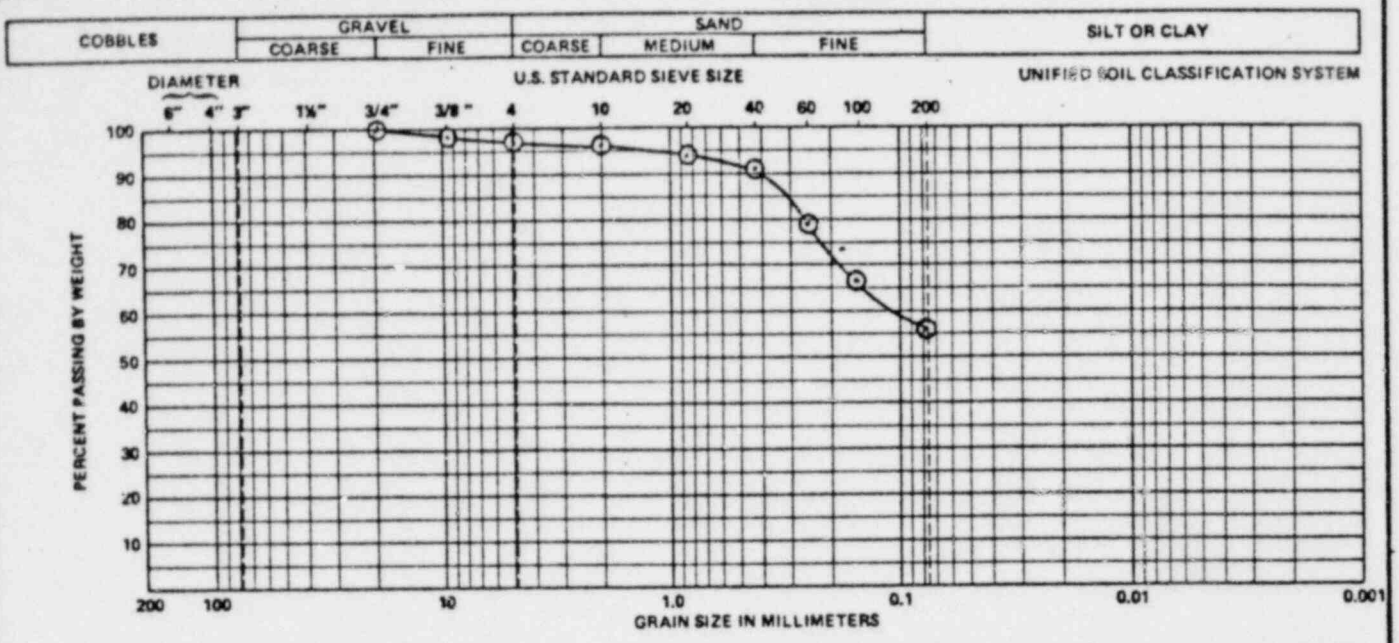
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE 15A	17-A	36.6	⊙	CL, gray, f. sandy, m.p., silty CLAY, trace f. gravel to m. sand	11.9	24	13
COE 15A	18-B	39.6	△	CL, Gray, m.p., silty CLAY, trace f. gravel to m. sand, some f. sand	10.8	26	13



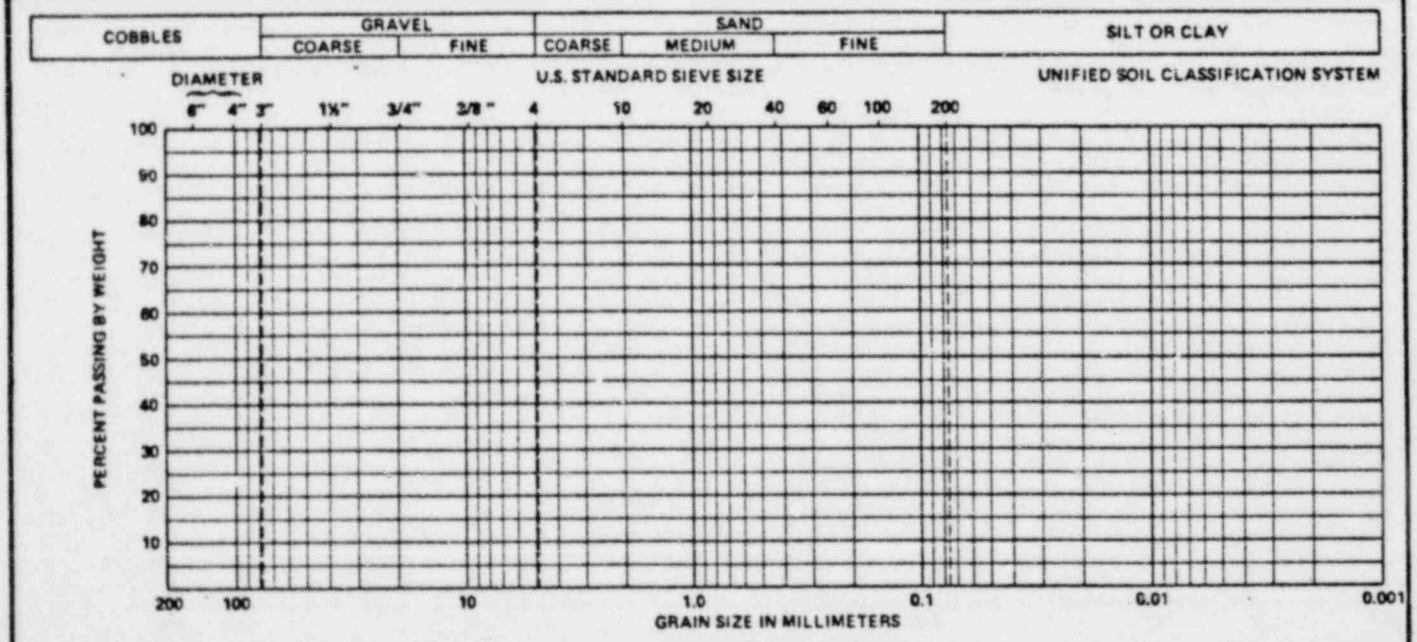
BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE 15A	19-B	40.5	⊙	CL, gray-brown, f. sandy, s.p., silty CLAY, trace f. gravel to m. sand	8.7	19	11

Fig C-2 (5/6)

PARTICLE-SIZE DISTRIBUTION



BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)
COE 159	20-B	43.3	⊙	CL-ML, gray-brown, f. sandy, S.P., silty CLAY, trace f. gravel to m. sand.	8.8	16	11



BORING	SAMPLE	DEPTH (ft)	SYMBOL	CLASSIFICATION	w (%)	w_L (%)	w_p (%)

Fig. C-2(6/6)

APPENDIX D

Strength Test Results

UU Triaxial Compression Tests

SECTION

81C4055T3 (81C217) Prepared by JWS Reviewed by BSL Checked by JB

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
UU TRIAXIAL DATA SUMMARY
AREA: RETAINING WALLS - COHESIVE FILL

Test No.	Boring No. COE-	Sample Section No. S-	Depth ft	Elev ft.	USCS Symbol	ω %	γ_t lb/ft³	γ_d lb/ft³	ω_L %	PI %	Percent Passing Sieve No. 4	Percent Passing Sieve No. 200	Spec. Dia. in.	σ_c Kip/ft²	ϵ_{ac} %	At Peak Stress ϵ_a %	At Peak Stress $\frac{\sigma_1-\sigma_3}{2}$ Kip/ft²	At Peak Stress $\frac{\sigma_1+\sigma_3}{2}$ Kip/ft²	
1	14	4-C	7.6	625.9	CL	15.9	137.2	118.4	25	12	95	62	2.9	0.950	0.23	20.1↑	0.932	1.882	
2	14	6-C	12.8	620.7	CL	14.0	137.2	120.3	25	12	99	63	2.9	1.302	0.29	20.3↑	1.201	2.503	
3	14	7-B	14.9	618.6	CL	11.7	137.8	123.4	22	8	97	63	2.0	1.443	0.25	16.5	3.482	4.925	
4	14	9-C	20.2	613.3	CL	13.4	135.8	119.8	25	13	99	65	2.9	1.801	0.41	20.1↑	1.502	3.303	

MATERIAL DESCRIPTIONS AND REMARKS

1 CL, brown, f. sandy, m.p., silty CLAY, some f. gravel to m. sand
2 CL, Lt. brown, f. sandy, m.p., silty CLAY, trace f. gravel to m. sand, occ. pocket c. to f. sand
3 CL, brown-gray, f. sandy, s.p., silty CLAY, some f. gravel to m. sand
4 CL, mottled brown and gray, f. sandy, m.p., silty CLAY, trace f. gravel to m. sand

Table D-1

BIC4055T3 (BIC217) Prepared by JWS Reviewed by RSL Checked by JB

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
UU TRIAXIAL DATA SUMMARY
AREA: RETAINING WALLS - COHESIVE FILL

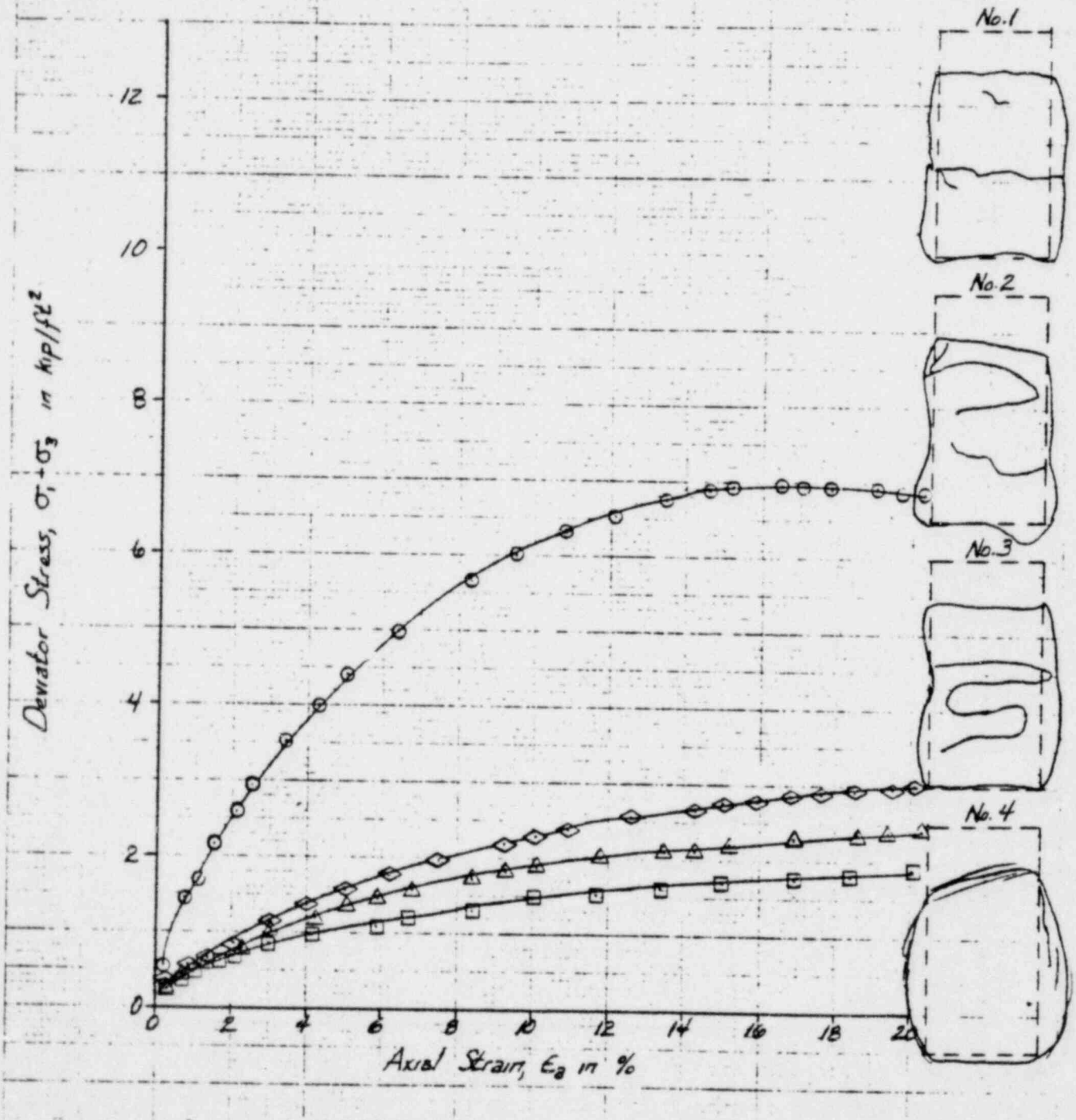
Test No.	Boring No. COE-	Sample No. S-	Depth ft	Elev ft.	USCS Symbol	ω %	γ_t lb/ft^3	γ_d lb/ft^3	ω_L %	PI %	Percent Passing Sieve No. 4	Percent Passing Sieve No. 200	Spec. Dia. in.	σ_c Kip/ft^2	ϵ_{ac} %	At Peak Stress ϵ_a %	At Peak Stress $\frac{\sigma_1-\sigma_3}{2}$ Kip/ft^2	At Peak Stress $\frac{\sigma_1+\sigma_3}{2}$ Kip/ft^2	
1	15A	3-D	4.4	629.7	CL	9.7	139.9	127.5	22	10	94	55	2.9	0.572	0.05	20.2	3.596	4.168	
2	15A	5-B	8.7	625.4	CL	12.5	138.7	123.3	21	9	97	51	2.9	1.025	0.18	20.2↑	1.514	2.539	
3	15A	7-B	13.7	620.4	CL	12.9	138.4	122.6	30	16	96	61	2.9	1.362	0.19	20.2↑	1.524	2.886	
4	15A	14-B	30.0	604.1	CL	12.4	138.4	123.1	24	13	99	50	2.9	2.464	0.32	20.2↑	1.969	4.433	

MATERIAL DESCRIPTIONS AND REMARKS

1 CL, brown, f. sandy, s.p. to m.p., silty CLAY, some f. gravel to m. sand
2 CL, gray-brown, f. sandy, s.p., silty CLAY, some f. gravel to m. sand
3 CL, gray-brown, m. to f. sandy, m.p., silty CLAY, trace f. gravel to c. sand
4 CL, brown, f. sandy, m.p., silty CLAY, trace f. gravel to m. sand

Table D-2

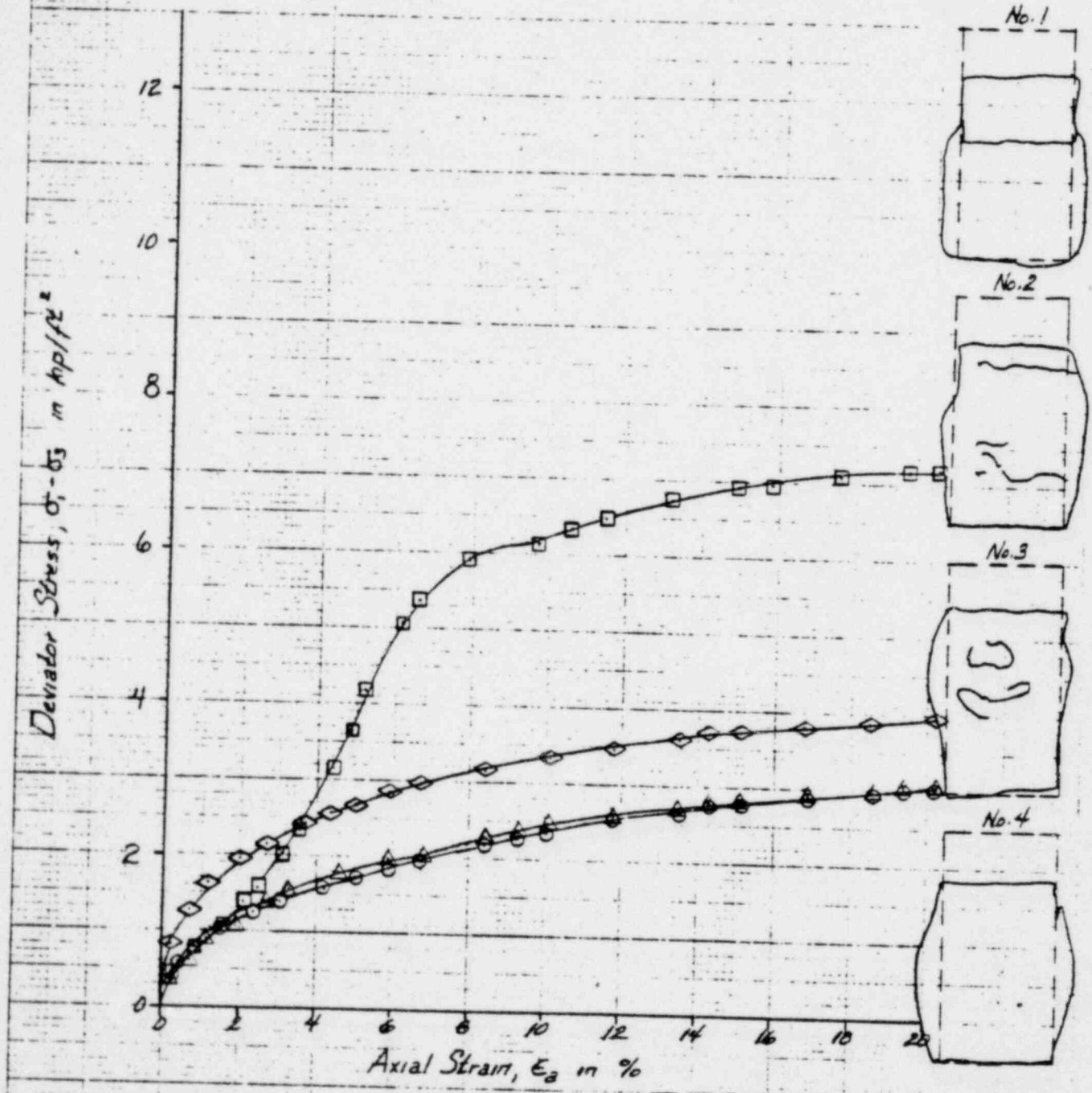
Test No.	Symbol	Boring No. COE-	Sample No.	Elev. ft	USCS Symbol	w_o %	γ_d lb/ft³	σ_c kip/ft²	ϵ_{ax} %	Spec Dia. inch	$\dot{\epsilon}$ %/hr
1	□	14	4-C	625.9	CL	15.9	118.4	0.950	0.23	2.9	59.6
2	△	14	6-C	620.7	CL	14.0	120.3	1.302	0.29	2.9	60.0
3	○	14	7-B	618.6	CL	11.7	123.4	1.443	0.25	2.0	45.1
4	◇	14	9-C	613.3	CL	13.4	119.8	1.801	0.41	2.9	~60



MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
UU - TRIAXIAL TESTS - STRESS/STRAIN CHARACTERISTICS
AREA: RETAINING WALLS - COHESIVE FILL Fig. D-1

8/C4/0SS73 Drawn by RBA Reviewed by RJL Checked by JWS

Test No.	Symbol	Boring No. COE-	Sample No.	Elev. ft.	USCS Symbol	ω_o %	γ_{do} lb/ft³	σ_c kip/ft²	ϵ_{ac} %	Spec. Dia. inch	$\dot{\epsilon}$ %/hr
1	□	15B	S-3D	629.7	CL	9.7	127.5	0.572	0.05	2.9	62.3
2	△	15A	S-5B	625.4	CL	12.5	123.3	1.025	0.18	2.9	60.0
3	○	15A	S-7B	620.4	CL	12.9	122.6	1.362	0.19	2.9	59.9
4	◇	15A	S-14B	604.1	CL	12.4	123.1	2.464	0.32	2.9	59.9



MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
UU-TRIAXIAL TESTS - STRESS/STRAIN CHARACTERISTICS
AREA: RETAINING WALLS - COHESIVE FILL Fig D-2

Drawn by KBA Reviewed by RPC Checked by JWS

B/C 4255T3

APPENDIX E

Strength Test Results

$\overline{CIU}$ Triaxial Compression Tests

BLC 6055 T3 (BLC 2 T) Prepared by PDF , , Reviewed by RSV Checked by JWS

Series - Test No.	Boring No. COE-	Sample / Section No. S-	Depth Elev. ft.	USCS Symbol	G_s	Limits w_L PI %	Percent Passing Sieve No. 4 / 200	w_n w_L %	γ_{wo} γ_{dry} lb/ft³	γ_{wo} γ_{sat} lb/ft³	S_r S_f %	Type Test	Spec. Dia. in.	$\bar{\sigma}_{3c}$ kip/ft²	$K_c = \frac{\bar{\sigma}_{3f}}{\bar{\sigma}_{3c}}$	ϵ_{zc} ϵ_{vc} %	t_c days $\dot{\epsilon}_a$ %/hr	At Peak Deviator Stress / At Peak Obliquity: ϵ_a %	$\frac{\sigma_1-\sigma_3}{2}$ kip/ft²	$\frac{\bar{\sigma}_1+\bar{\sigma}_3}{2}$ kip/ft²	$\bar{\sigma}_1/\bar{\sigma}_3$	A	$\frac{S_{uc}}{\bar{\sigma}_{3c}}$	$\bar{\phi}$ for c=0 degrees		Remarks
1-1	14	5-B	9.9 / 623.6	CL-ML	2.75	19 / 7	98 / 58	9.2 / 10.2	144.4 / 147.7	132.2 / 134.1	85 / 100	$\overline{CIU}$	2.0	1.063	0.938	0.25 / 1.37	1 / .12	19.8† / 1.96	3.407 / 1.124	6.737 / 1.855	3.046 / 4.075	-0.324 / 0.158	3.205 / 1.057	— / 37.3		B = 99.3 %
1-2	14	7-C	15.5 / 618.0	CL	2.75	23 / 9	89 / 55	11.3 / 11.1	139.3 / 145.7	125.2 / 131.1	84 / 100	$\overline{CIU}$	2.9	1.987	0.986	0.85 / 4.53	1 / 0.69	20.0† / 3.37	2.702 / 1.400	5.271 / 2.490	3.103 / 3.571	-0.105 / 0.322	1.360 / 0.705	— / 34.2		B = 97.2 %
1-3	14	9-B	19.6 / 613.9	CL	2.75 (assumed)	21 / 8	94 / 59	11.4 / 11.8	140.3 / 144.7	125.9 / 129.4	87 / 100	$\overline{CIU}$	2.9	2.946	0.989	0.87 / 2.70	1 / 0.66	20.0† / 3.39	3.646 / 2.036	7.536 / 3.674	2.874 / 3.485	-0.127 / 0.323	1.238 / 0.691	— / 33.6		B = 96.9 %

Table E-1

	DESCRIPTIONS OF MATERIALS TESTED
1-1	CL-ML, gray, f. sandy, s.p., silty CLAY, some f. gravel to m. sand
1-2	CL, brown-gray, c. to f. sandy, s.p., silty CLAY, some f. gravel
1-3	CL, mottled brown and gray, f. sandy, s.p., silty CLAY, some f. gravel to m. sand

STRENGTH ENVELOPE SUMMARY

Test Series	$\bar{\phi}$ degree	$\bar{c}$ kip/ft²	$\bar{\alpha}$ degree	$\bar{a}$ kip/ft²	Correlation Coefficient
1	30.4	0.196	26.8	0.169	0.9987

MIDLAND PLANT UNITS 1 and 2
CONSUMERS POWER CO.
$\overline{CIU}$-TRIAXIAL TEST SERIES
RETAINING WALL
COHESIVE FILL

BLC 4038 T3 (BLC 217) Prepared by DLT , , Reviewed by RSV Checked by HF

Series - Test No.	Boring No.	Sample / Section No.	Depth / Elev. ft.	USCS Symbol	G_s	Limits w_L / P_I %	Percent Passing Sieve No. # / #200	w_c %	γ_{dry} lb/ft³	γ_{sat} lb/ft³	S_r %	Type Test	Spec. Dia. in.	$\bar{\sigma}_{3c}$ Kip/ft²	$K_c = \frac{\bar{\sigma}_{3c}}{\bar{\sigma}_{3c}}$	ϵ_{ac} / ϵ_{vc} %	t_c days / $\dot{\epsilon}_a$ %/hr.	At Peak Deviator Stress: ϵ_a %	At Peak Obliquity: $\frac{\sigma_1-\sigma_3}{2}$ Kip/ft²	$\frac{\bar{\sigma}_1+\bar{\sigma}_3}{2}$ Kip/ft²	$\bar{\sigma}_1/\bar{\sigma}_3$	A	$\frac{S_{ur}}{\bar{\sigma}_{3c}}$	$\bar{\phi}$ for c=0 degrees		Remarks
1-1	14	23-B	49.8 / 593.7	SM	2.68	Non-plastic	100	20.3	127.4	105.9	94	$\overline{CIU}$	2.9	1.020	1.018	0.13	1	4.60	25.963	41.645	4.311	-0.283	—	—		B = 97.5% ⊛
							42	21.5	128.8	106.1	100					0.15	3.91	1.69	5.862	9.105	4.614	-0.191	—	40.1		
1-2	14	22-B	47.2 / 586.3	SP-SM	2.66	Non-plastic	100	12.8	120.5	106.0	62	$\overline{CIU}$	2.9	2.015	1.004	0.18	1	9.27	22.547	37.888	3.946	-0.295	—	—		B = 95.3%
							5	20.1	129.8	108.1	100					1.14	3.90	2.79	8.770	14.214	4.222	-0.196	—	38.1		
1-3	14	19-B	39.7 / 593.8	SP-SM	2.68	Non-plastic	100	13.4	129.1	109.0	93	$\overline{CIU}$	2.9	4.025	1.004	0.21	1	8.68	22.515	41.099	3.423	-0.324	—	—		B = 99.1% ⊛
							10	18.7	132.0	111.3	100					2.04	4.27	2.44	7.479	12.946	3.736	-0.097	—	35.3		

Table E-2

	DESCRIPTIONS OF MATERIALS TESTED
1-1	SM, brown and gray-brown, silty f. SAND, tr. m. sand
1-2	SP-SM, brown and gray-brown, f. SAND, tr. m. sand, tr. silt
1-3	SP-SM, lt. brown, f. SAND, tr. f. gravel to m sand, tr. silt

STRENGTH ENVELOPE SUMMARY					
Test Series	$\bar{\phi}$ degrees	$\bar{c}$ Kip/ft²	$\bar{\alpha}$ degrees	$\bar{a}$ Kip/ft²	Correlation Coefficient
1	37.8	(0.0)	31.5	(0.0)	—
	$\bar{c}$ assumed to be zero				

MIDLAND PLANT UNITS 1 and 2
CONSUMERS POWER CO.
$\overline{CIU}$ - TRIAXIAL TEST SERIES
RETAINING WALLS
FOUNDATION SAND

⊛ Cavitation occurred within sample prior to reaching peak deviator stress. Data presented are for the deviator stresses when cavitation occurred.

BLC 4055 T3 (BLC 217) Prepared by JWS, ____, ____ Reviewed by RSL Checked by MF

Series - Test No.	Boring No. COE-	Sample / Section No. S-	Depth / Elev. ft.	USCS Symbol	q_u	Limits w_L / PI %	Percent Passing Sieve No. 4 / 200	w_c / w_o %	γ_{dc} lb/ft³	γ_{do} lb/ft³	S_r / S_o %	Type Test	Spec. Dia. in.	$\bar{\sigma}_{3c}$ Kip/ft²	$K_{c,n}$ $\bar{\sigma}_{3c}/\bar{\sigma}_{3o}$	ϵ_{ao} / ϵ_{vo} %	t_c days / $\dot{\epsilon}_a$ %/hr	At Peak Deviator Stress: ϵ_a %	At Peak Deviator Stress: $\frac{\sigma_1-\sigma_3}{2}$ Kip/ft²	At Peak Obliquity: $\frac{\bar{\sigma}_1+\bar{\sigma}_3}{2}$ Kip/ft²	At Peak Obliquity: $\bar{\sigma}_1/\bar{\sigma}_3$	At Peak Obliquity: A	At Peak Obliquity: $S_u/\bar{\sigma}_{3c}$	At Peak Obliquity: $\bar{\phi}$ for c=0 degree		Remarks
1	14	28-B	59.1 / 574.4	CL	(2.7)	40 / 21	– / 100	19.7 / 20.3	132.5 / 132.9	110.7 / 110.4	98 / 100	$\bar{C}\bar{T}\bar{U}$	2.0	2.017	0.986	0.29 / -0.19	1 / 0.65	10.0 / 0.97	3.796 / 2.047	7.679 / 3.576	2.955 / 3.740	-0.243 / 0.125	1.882 / 1.025	— / 35.3		B_c = 98.6%
2	14	28-C	59.6 / 573.9	CL	(2.7)	40 / 23	– / 99	20.0 / 20.8	132.0 / 133.1	109.9 / 110.1	98 / 102	$\bar{C}\bar{T}\bar{U}$	2.0	4.002	0.987	0.65 / 0.18	2 / 0.70	3.90 / 2.94	4.257 / 3.776	8.471 / 7.289	3.021 / 3.150	0.021 / 0.068	1.064 / 0.944	— / 31.2		B_c = 98.4%
3	14	28-D	60.1 / 573.4	CL	(2.7)	40 / 23	– / 99	20.1 / 20.3	131.7 / 133.6	109.7 / 111.1	97 / 102	$\bar{C}\bar{T}\bar{U}$	2.0	7.989	0.990	1.04 / 1.22	2 / 0.70	3.40 / 2.93	6.103 / 4.964	11.235 / 10.820	2.664 / 2.695	0.184 / 0.217	0.639 / 0.621	— / 27.3		B_c = 96.0%

Table E-3

	DESCRIPTIONS OF MATERIALS TESTED
1	CL, gray-brown, plastic, silty CLAY, trace f. sand
2	CL, gray-brown, plastic, silty CLAY, trace f. sand
3	CL, gray-brown, plastic, silty CLAY, trace f. sand

STRENGTH ENVELOPE SUMMARY

Test Series	$\bar{\phi}$ degree	$\bar{c}$ Kip/ft²	$\bar{\alpha}$ degree	$\bar{a}$ Kip/ft²	Correlation Coefficient
1	23.6	0.772	21.8	0.708	0.9921

MIDLAND PLANT UNITS 1 and 2
CONSUMERS POWER CO.
$\bar{C}\bar{T}\bar{U}$ - TRIAXIAL TEST SERIES
RETAINING WALLS
FOUNDATION CLAY

BLC 4055 T3 (BLC 217) Prepared by JDVS, ____, ____ Reviewed by RSL Checked by MF

Series - Test No.	Boring No. COE-	Sample / Section No. S-	Depth / Elev. ft.	USCS Symbol	G_s	Limits w_L / PI %	Percent Passing Sieve No. # / 200	w_n %	γ_{dry} lb/ft³	γ_{wet} lb/ft³	S_r %	Type Test	Spec. Dia. in.	$\overline{\sigma}_{3c}$ Kip/ft²	$K_c = \frac{\overline{\sigma}_{3c}}{\overline{\sigma}_{1c}}$	ϵ_{ss} / ϵ_{vc} %	t_{ss} days / $\dot{\epsilon}_a$ %/hr	At Peak Deviator Stress: ϵ_a %	At Peak Deviator Stress: $\frac{\sigma_1-\sigma_3}{2}$ Kip/ft²	At Peak Deviator Stress: $\frac{\overline{\sigma}_1+\overline{\sigma}_3}{2}$ Kip/ft²	At Peak Deviator Stress: $\overline{\sigma}_1/\overline{\sigma}_3$	At Peak Deviator Stress: A	At Peak Deviator Stress: $S_u/\overline{\sigma}_{3c}$	At Peak Obliquity: $\overline{\phi}$ for c=0 degrees		Remarks
1	15A	19-B	40.5 / 593.6	CL	2.74	19 / 8	98 / 61	8.7 / 9.1	147.2 / 148.9	135.4 / 136.6	92 / 100	CIU	2.9	1.998	1.001	0.16 / 0.84	1 / 0.80	20.0[1] / 3.45	6.969 / 2.994	13.960 / 4.779	3.147 / 4.353	-0.322 / 0.035	3.489 / 1.498	— / 38.8		B = 98.9%
2	15A	20-B	43.3 / 590.8	CL-ML	(2.74)	16 / 5	97 / 56	8.8 / 7.8	148.6 / 151.4	136.6 / 140.4	97 / 100	CIU	2.9	8.000	0.996	0.59 / 2.83	1 / 0.79	20.0 / 1.90	23.095 / 8.859	42.818 / 14.658	3.342 / 4.055	-0.253 / 0.125	2.887 / 1.107	— / 37.2		B = 95.7%

DESCRIPTIONS OF MATERIALS TESTED

1 CL, gray-brown, f. sandy, s.p., silty CLAY, trace f. gravel to m. sand

2 CL-ML, gray-brown, f. sandy, s.p., silty CLAY, trace f. gravel to m. sand

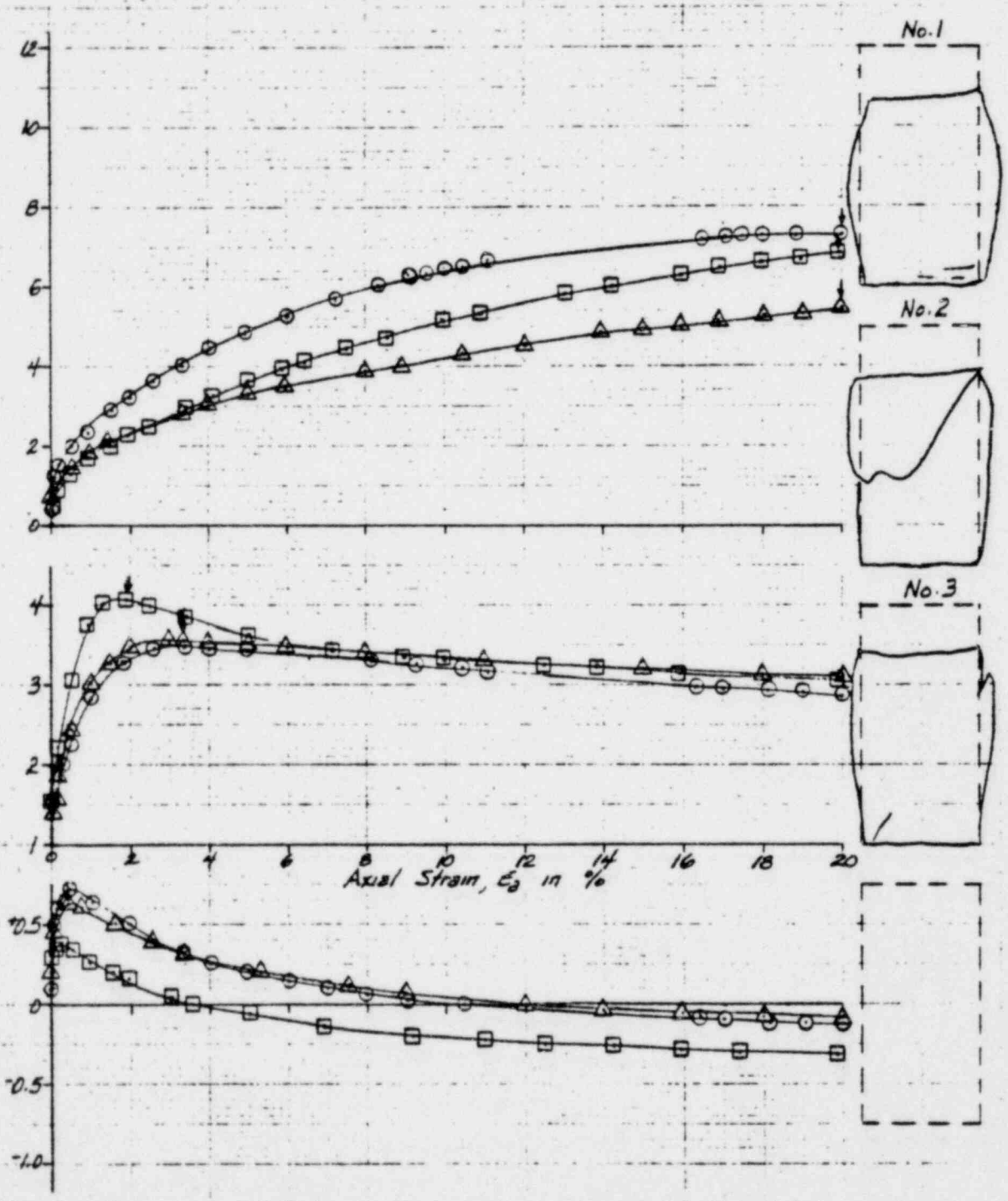
STRENGTH ENVELOPE SUMMARY

Test Series	$\overline{\phi}$ degree	$\overline{c}$ Kip/ft²	$\overline{\alpha}$ degree	$\overline{a}$ Kip/ft²	Correlation Coefficient
1	36.4	0.195	30.7	0.157	—

MIDLAND PLANT UNITS 1 and 2
CONSUMERS POWER CO.
CIU - TRIAXIAL TEST SERIES
RETAINING WALLS
FOUNDATION TILL

Table E-4

Test No.	Symbol	Boring No. COE-	Sample No.	Elev. ft.	USCS Symbol	w_c %	w_f %	γ_{wet} lb/ft³	γ_{dry} lb/ft³	$\bar{\sigma}_{vc}$ Kip/ft²	K_c	B-factor	$\dot{\epsilon}$ %/hr	t_f days
1	□	14	5-B	623.6	CL-ML	9.2	10.2	132.2	134.1	1.063	0.938	99.3	0.62	1
2	△	14	7-C	618.0	CL	11.9	11.1	125.2	131.1	1.987	0.986	97.2	0.69	1
3	⊙	14	9-B	613.9	CL	11.4	11.8	125.9	129.4	2.946	0.989	96.9	0.66	1



Specimens: 2.9 in. dia by 6.00 in. ht. with top, bottom and radial (filter strips) drainage boundaries

Reviewed by RR Checked by CRF JW2

BIC4025573 Drawn by JLW

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
CIU - TRIAXIAL TEST SERIES - STRESS/STRAIN CHARACTERISTICS
AREA: RETAINING WALLS - COHESIVE FILL Fig. E-1a

81C4055T3 Drawn by JLW Reviewed by RR Checked by DRF, JWS

Test No.	Symbol	Boring No. COE-	Sample No	Elev. ft.	$\bar{\sigma}_{vc}$ Kip/ft²
1	□	14	5-B	623.6	1.063
2	△	14	7-C	618.0	1.987
3	○	14	9-B	613.9	2.946

Note: 1) Solid symbols for conditions of peak obliquity
2) Strength envelope for conditions of peak obliquity

$\bar{\alpha}$ = 26.8°
$\bar{a}$ = 0.169 Kip/ft²

α

Shear Stress, $q = (\sigma_1 - \sigma_3)/2$ in Kip/ft²

Average Effective Stress, $p = (\bar{\sigma}_1 + \bar{\sigma}_3)/2$ in Kip/ft²

MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
CIU - TRIAXIAL TEST SERIES - STRESS PATHS
AREA: RETAINING WALLS - COHESIVE FILL Fig. E-1b

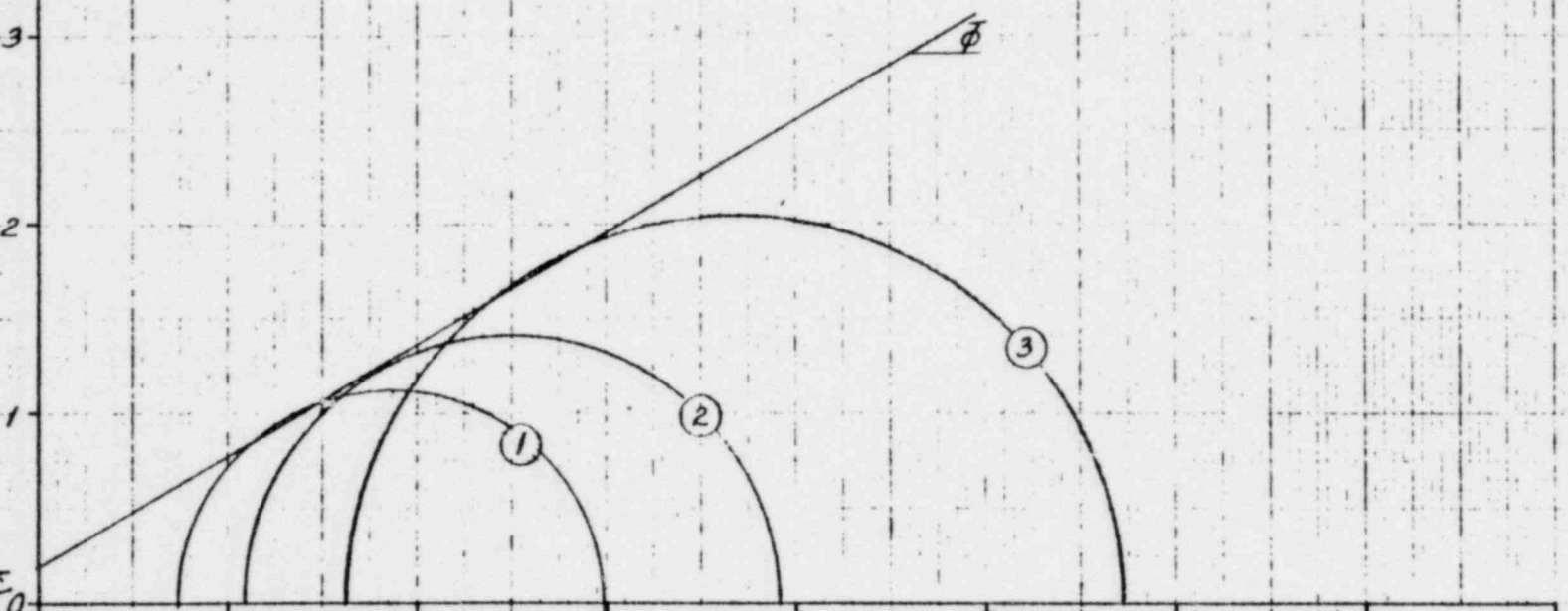
BIC4055T3 Drawn by RDF Reviewed by RR Checked by JWS

Test No.	Boring No. COE-	Sample No.	Depth ft.	$\bar{\sigma}_{vc}$ kip/ft²
1	14	5-B	9.9	1.063
2	14	7-C	15.5	1.987
3	14	9-B	19.6	2.946

Note: Mohr circles for conditions of peak obliquity

$\bar{\phi} = 30.4°$

$\bar{c} = 0.196$ kip/ft²



MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
CID - TRIAXIAL TEST SERIES - STRENGTH ENVELOPE
AREA: RETAINING WALLS - COHESIVE FILL

Fig. E-1c

BIC4055T3 Drawn by JLW Reviewed by RF Checked by DRF, JWS

Test No.	Symbol	Boring No COE-	Sample No	Elev. ft.	$\bar{\sigma}_{vc}$ Kip/ft²
1	□	14	5-B	623.6	1.063
2	△	14	7-C	618.0	1.987
3	○	14	9-B	613.9	2.946

Note: 1) Solid symbols for condition of peak obliquity
2) Strength envelope for conditions of peak obliquity

$\bar{\alpha} = 26.8°$
$\bar{a} = 0.169$ Kip/ft²

Shear Stress, $\beta = (\bar{\sigma}_1 - \bar{\sigma}_3)/2$ in Kip/ft²

Average Effective Stress, $p = (\bar{\sigma}_1 + \bar{\sigma}_3)/2$ in Kip/ft²

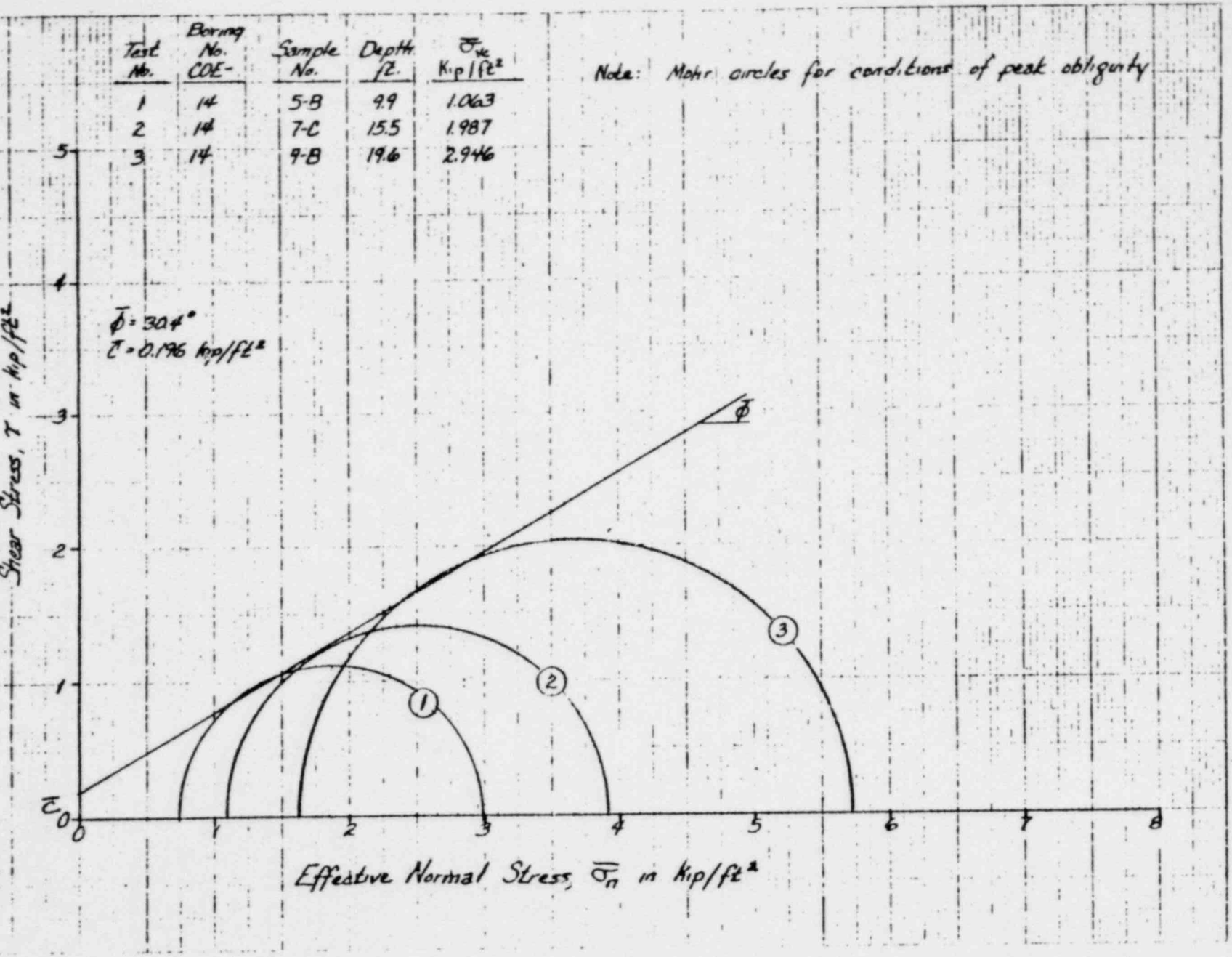
MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
CIU - TRIAXIAL TEST SERIES - STRESS PATHS
AREA: RETAINING WALLS - COHESIVE FILL Fig. E-1b

BIC405573 SAS1 3A Drawn by DF Reviewed by RR Checked by JWS 7-11

Test No.	Boring No. COE-	Sample No.	Depth ft.	$\bar{\sigma}_{vc}$ Kip/ft²
1	14	5-B	9.9	1.063
2	14	7-C	15.5	1.987
3	14	9-B	19.6	2.946

Note: Mohr circles for conditions of peak obliquity

$\bar{\phi} = 30.4°$
$\bar{c} = 0.196$ kip/ft²

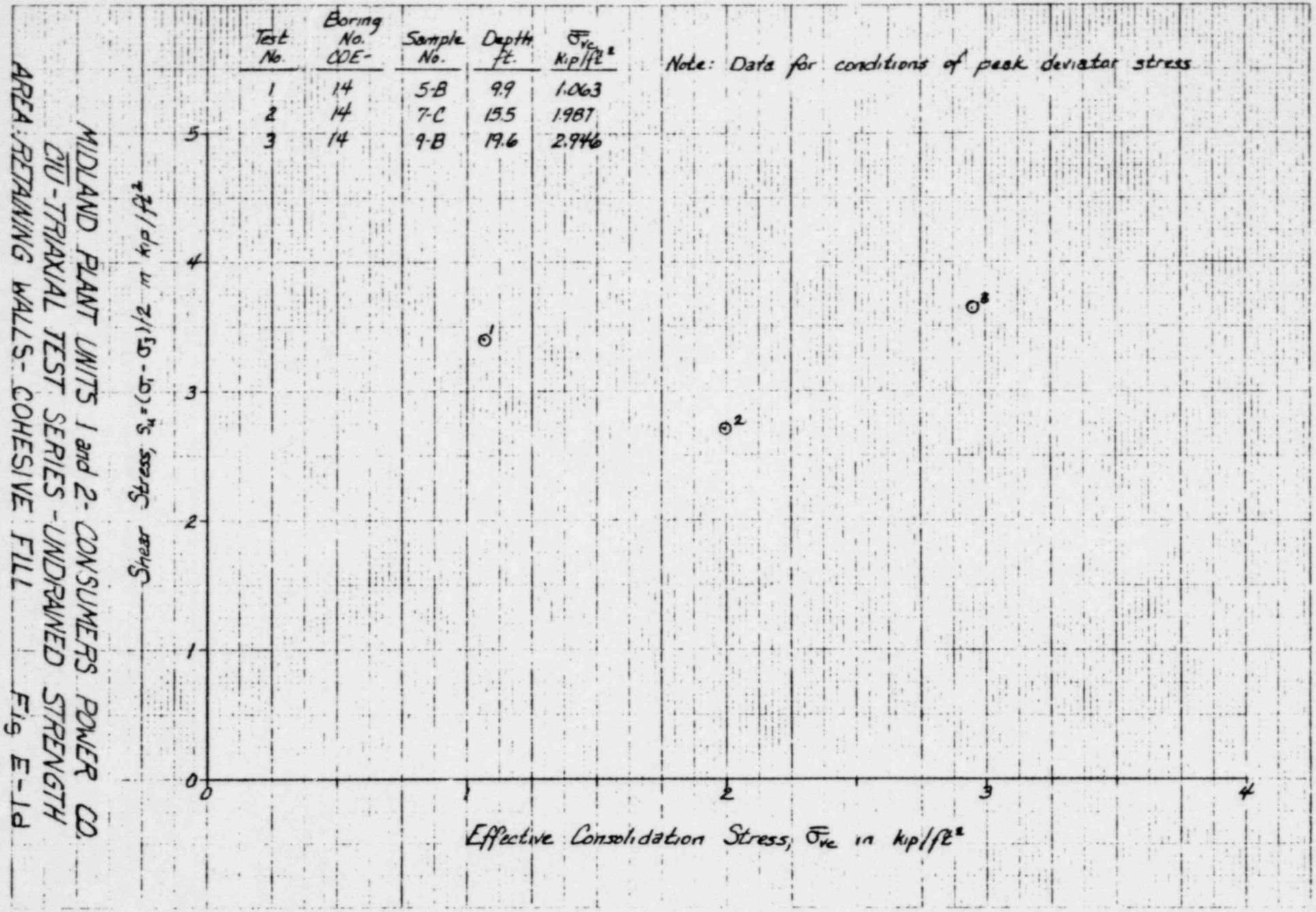


MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
CID - TRIAXIAL TEST SERIES - STRENGTH ENVELOPE
AREA: RETAINING WALLS - COHESIVE FILL Fig. E-1c

BK405573 Drawn by — Reviewed by RF Checked by JWS

Test No.	Boring No. COE-	Sample No.	Depth ft.	$\bar{\sigma}_{vc}$ kip/ft²
1	14	5-B	9.9	1.063
2	14	7-C	15.5	1.987
3	14	9-B	19.6	2.946

Note: Data for conditions of peak deviator stress



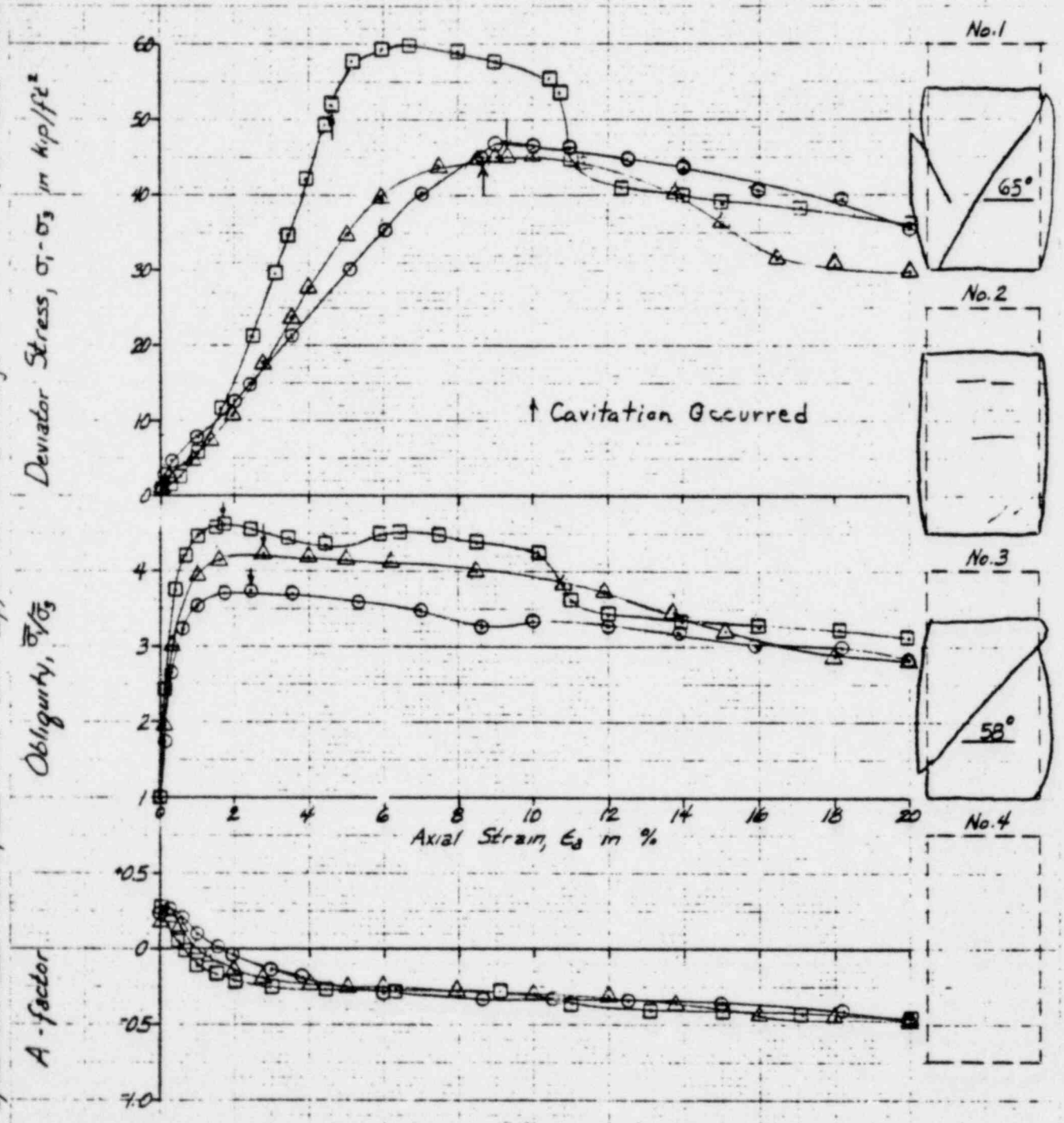
MIDLAND PLANT UNITS 1 and 2- CONSUMERS POWER CO.
CIU-TRIAXIAL TEST SERIES-UNDRAINED STRENGTH
AREA: RETAINING WALLS- COHESIVE FILL Fig E-1d

Test No.	Symbol	Boring No. COE-	Sample No.	Elev. ft.	USCS Symbol	w_o %	w_c %	γ_{do} lb/ft³	γ_{dc} lb/ft³	$\bar{\sigma}_{vc}$ kip/ft²	K_c	B-factor	$\dot{\epsilon}$ %/hr	t_c days
1	□	14	23-B	583.7	SM	20.3	21.5	105.9	106.1	1.020	1.018	99.5	3.91	1
2	△	14	22-B	586.3	SP-SM	12.8	20.1	106.8	108.1	2.015	1.004	95.3	3.90	1
3	○	14	19-B	593.8	SP-SM	18.4	18.7	109.0	111.3	4.025	1.004	99.1	4.27	1

Specimens: 2.9 in. dia. by 6.0 in. ht. with top and bottom drainage boundaries (no radial filter strips used)

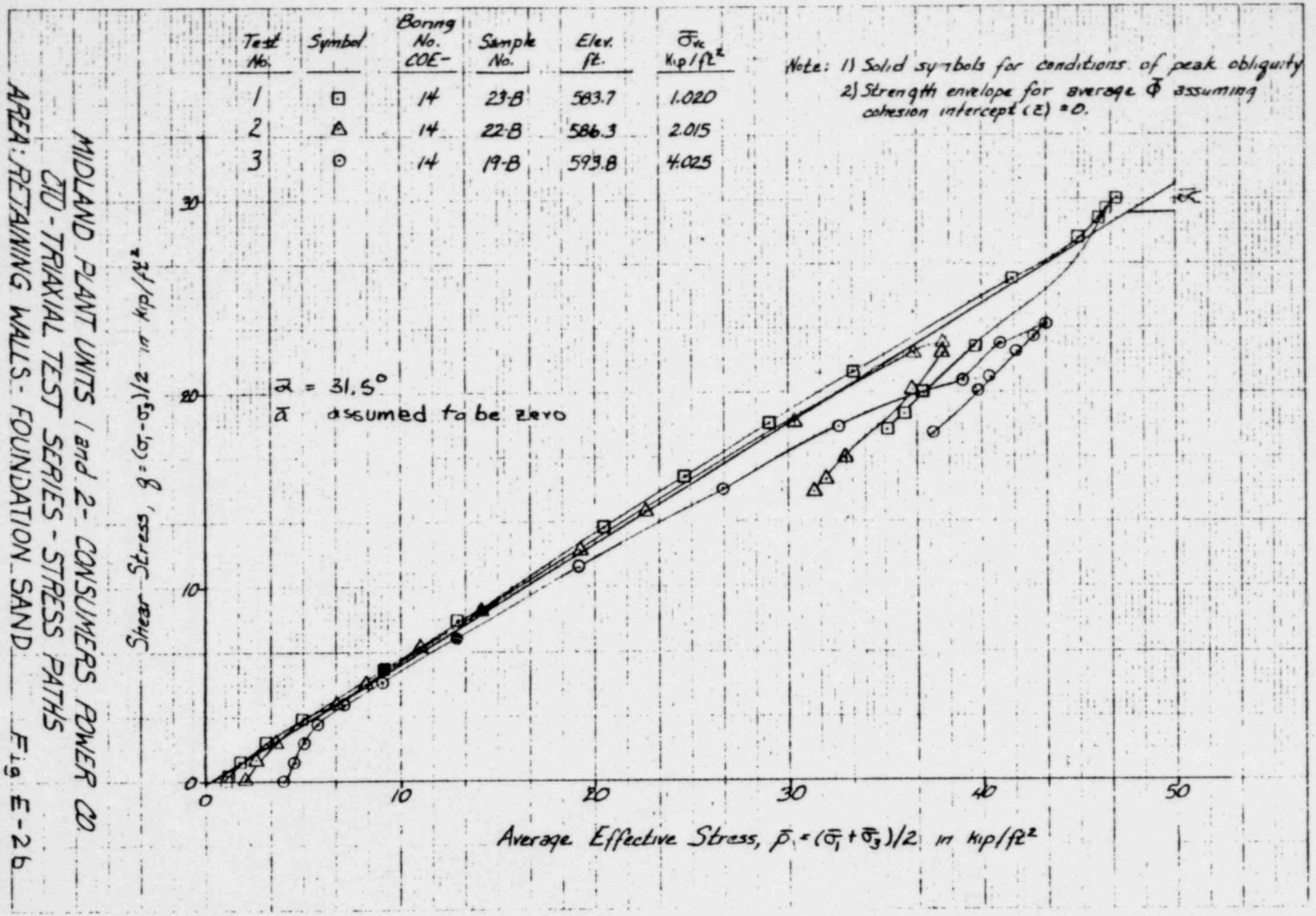
Reviewed by RSL Checked by RFF 3/15

BIC 405579 Drawn by JLW



MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
CIU - TRIAXIAL TEST SERIES - STRESS/STRAIN CHARACTERISTICS
AREA: RETAINING WALLS - FOUNDATION SAND Fig E-2a

BIC4055 73 SASLOA Drawn by JLW Reviewed by RFL Checked by PRF, JWS

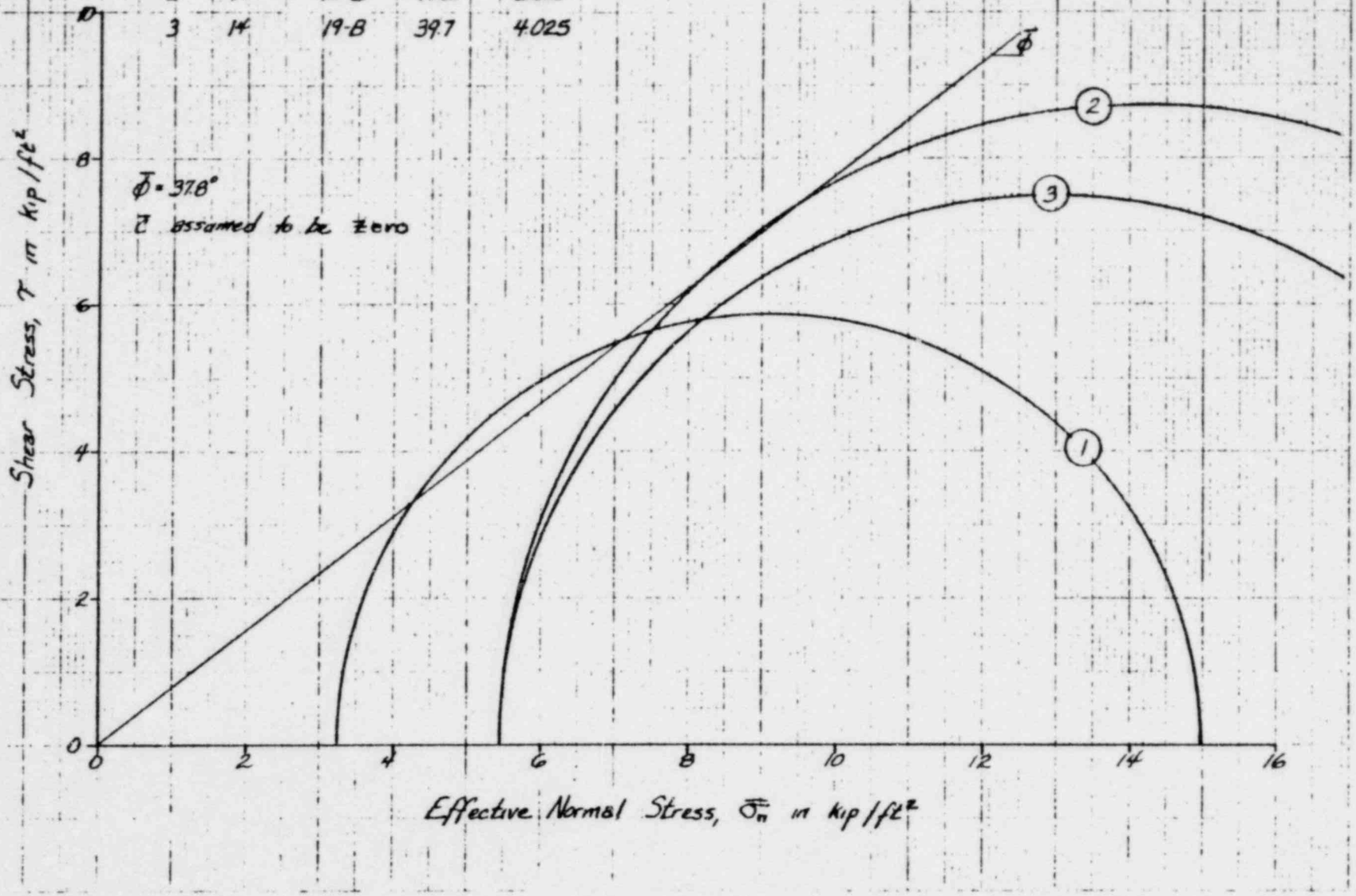


MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
CIU - TRIAXIAL TEST SERIES - STRESS PATHS
AREA: RETAINING WALLS - FOUNDATION SAND Fig. E-26

81C4055T3 Drawn by PLF Reviewed by RBL Checked by PLF, JB

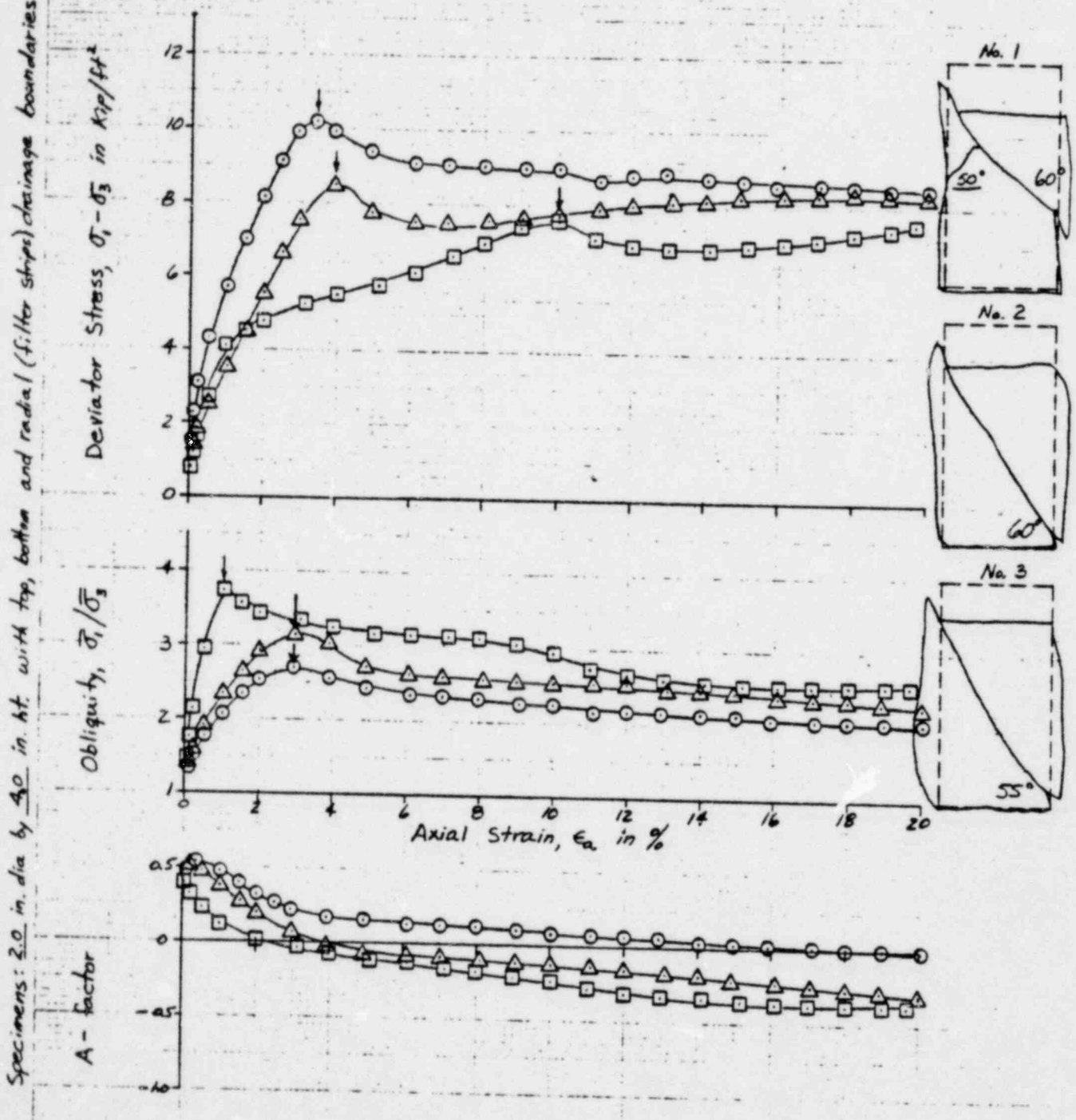
Test No.	Boring No. COE-	Sample No.	Depth ft.	$\bar{\sigma}_n$ kip/ft²
1	14	23-B	49.8	1.020
2	14	22-B	47.2	2.015
3	14	19-B	39.7	4.025

Note: Mohr circles for conditions of peak obliquity



MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
CID - TRIAXIAL TEST SERIES - STRENGTH ENVELOPE
AREA: RETAINING WALLS - FOUNDATION SAND Fig E-2c

Test No.	Symbol	Boring No. COE-	Sample No.	Elev. ft	USCS Symbol	w_o %	w_c %	γ_{do} lb/ft³	γ_{dc} lb/ft³	$\bar{\sigma}_{vc}$ Kip/ft²	K_c	B-factor	$\dot{\epsilon}$ %/hr	t_c days
1	□	14	28-B	574.4	CL	19.7	20.3	110.7	110.4	2.017	0.986	98.6	0.65	1
2	△	14	28-C	573.9	CL	20.0	20.8	109.9	110.1	4.002	0.987	98.4	0.70	2
3	○	14	28-D	573.4	CL	20.1	20.3	109.7	111.1	7.989	0.990	96.0	0.70	2



Specimens: 2.0 in. dia by 4.0 in. ht. with top, bottom and radial (filter strips) drainage boundaries

Reviewed by RLC Checked by JWS

Drawn by YB

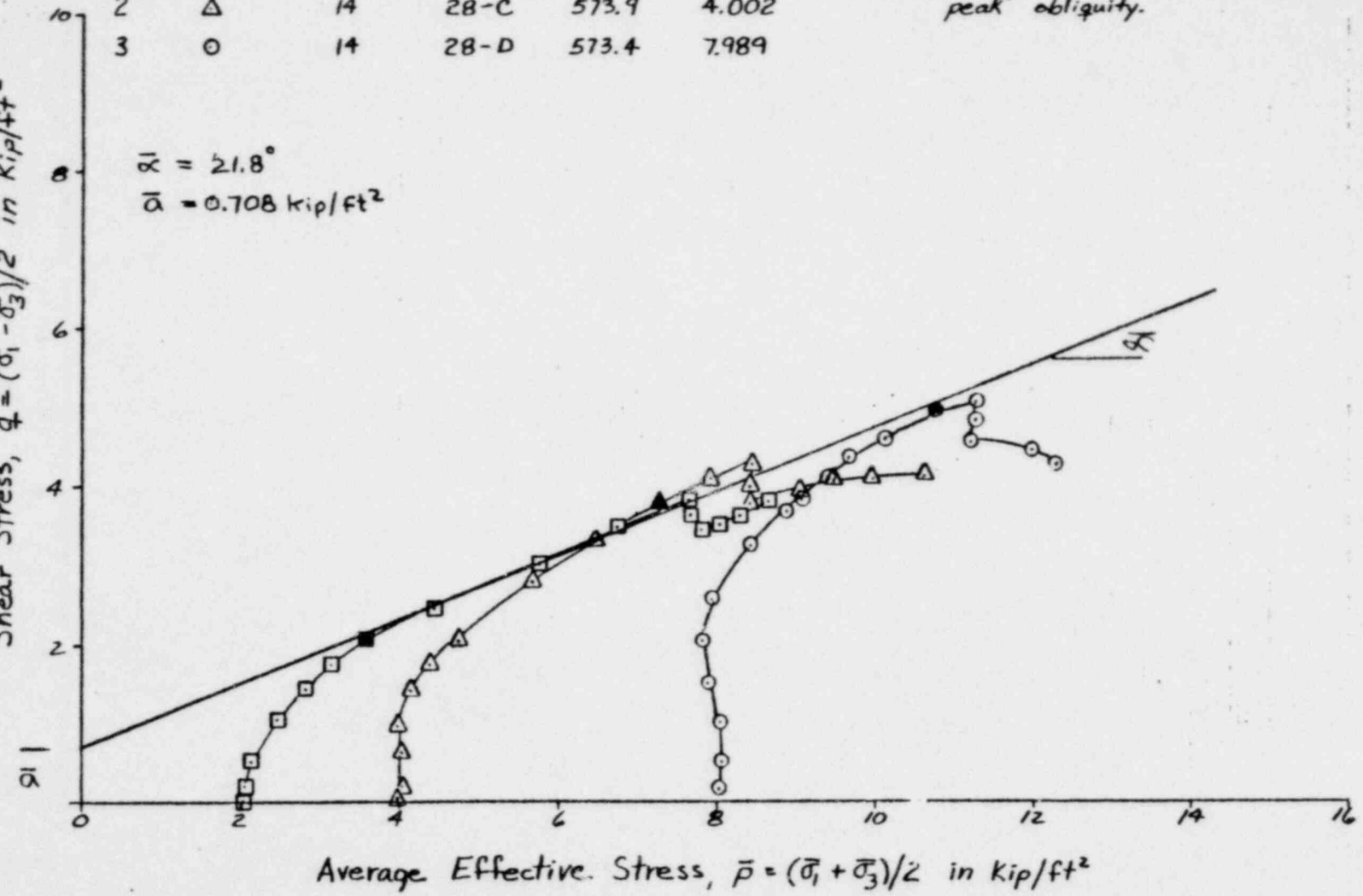
BIC4055T3

MIDLAND PLANT UNITS 1 and 2- CONSUMERS POWER CO.
$\overline{CTU}$- TRIAXIAL TEST SERIES - STRESS/STRAIN CHARACTERISTICS
AREA: RETAINING WALLS - FOUNDATION CLAY Fig E-3a

BIC4055T3 Drawn by JB & MF Reviewed by RSL Checked by JWS

Test No.	Symbol	Boring No. COE-	Sample No.	Elev. ft	$\bar{\sigma}_{rc}$ Kip/ft²
1	□	14	28-B	574.4	2.017
2	△	14	28-C	573.9	4.002
3	○	14	28-D	573.4	7.989

Note: 1) Solid symbols for conditions of peak obliquity.
2) Strength envelope for conditions of peak obliquity.



MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO.
$\overline{CIU}$ - TRIAXIAL TEST SERIES - STRESS PATHS
AREA: RETAINING WALLS - FOUNDATION CLAY Fig E-36

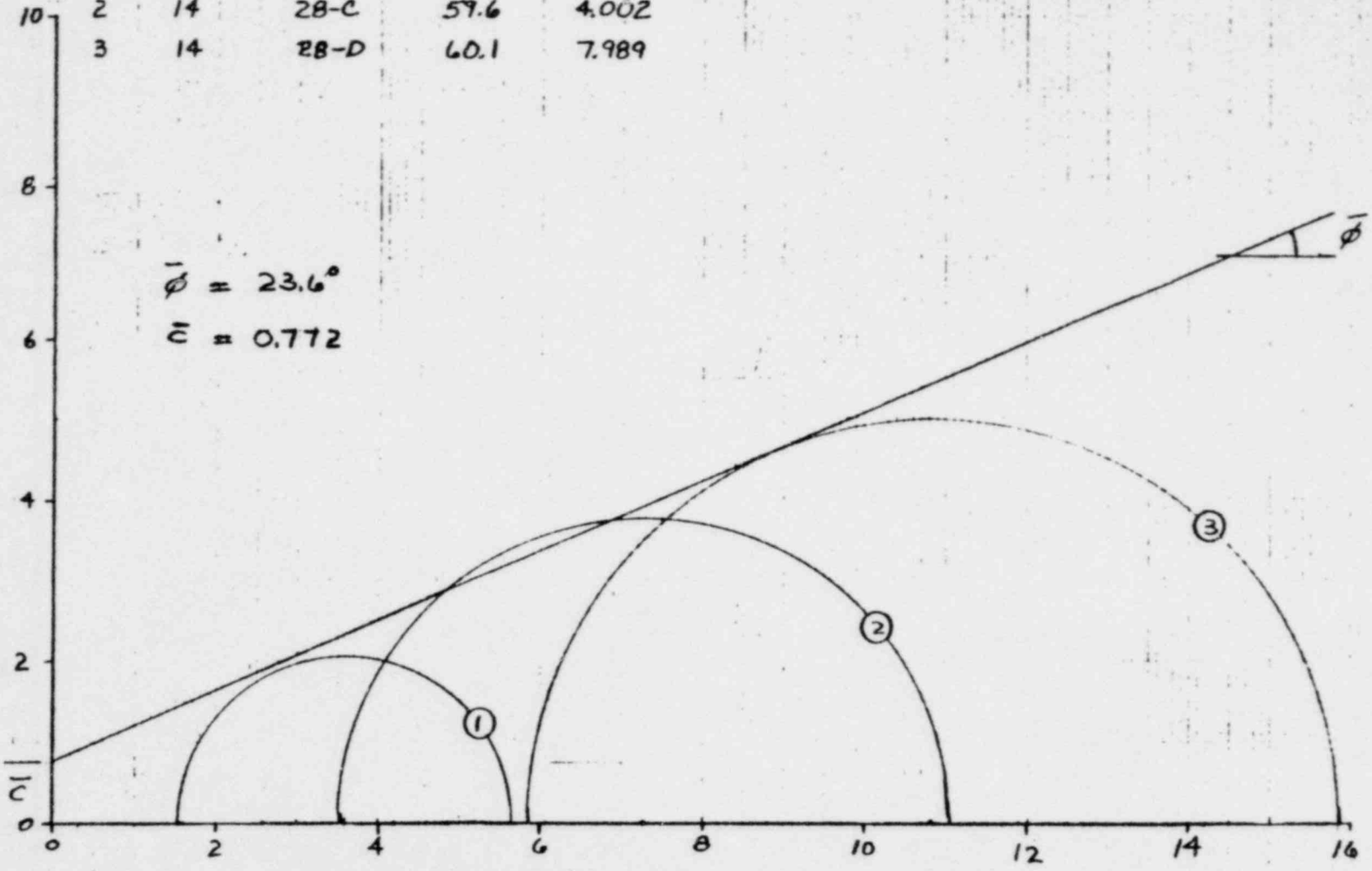
BIC4055 T3 Drawn by TF Reviewed by RR Checked by JWS

Test No.	Boring No. COE-	Sample No.	Depth ft.	$\bar{\sigma}_{ic}$ Kip/ft²
1	14	28-B	59.1	2.017
2	14	28-C	59.6	4.002
3	14	28-D	60.1	7.989

Note: Mohr circles for conditions of peak obliquity

$\bar{\phi} = 23.6°$

$\bar{c} = 0.772$



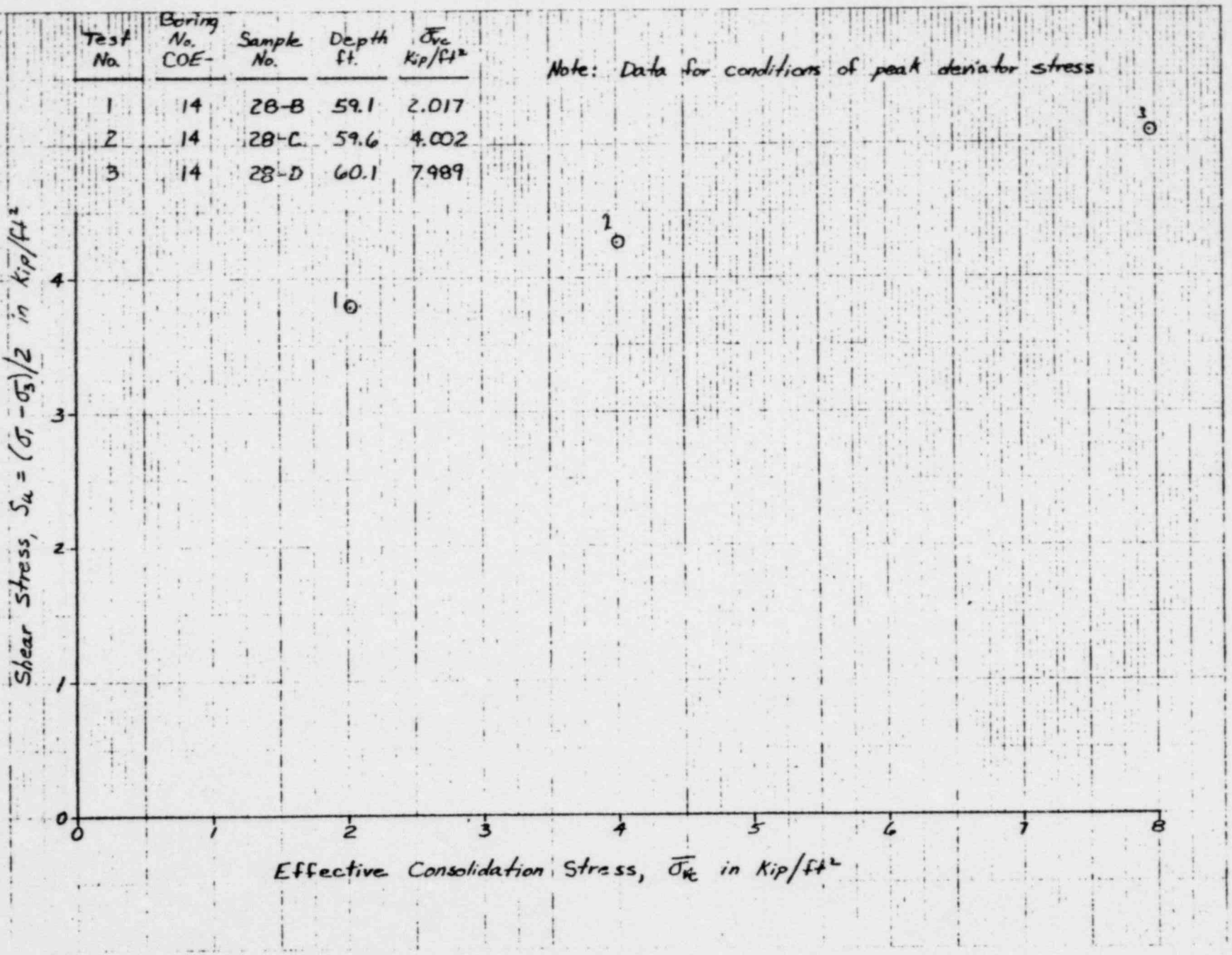
MIDLAND PLANT UNITS 1 and 2-CONSUMERS POWER CO.
$\overline{CU}$-TRIAXIAL TEST SERIES-STRENGTH ENVELOPE
AREA: RETAINING WALLS-FOUNDATION CLAY

Fig E-3c

81C405ST3 Drawn by MF Reviewed by RR Checked by JWS

Test No.	Boring No. COE-	Sample No.	Depth ft.	$\bar{\sigma}_{fc}$ Kip/ft²
1	14	28-B	59.1	2.017
2	14	28-C	59.6	4.002
3	14	28-D	60.1	7.989

Note: Data for conditions of peak deviator stress

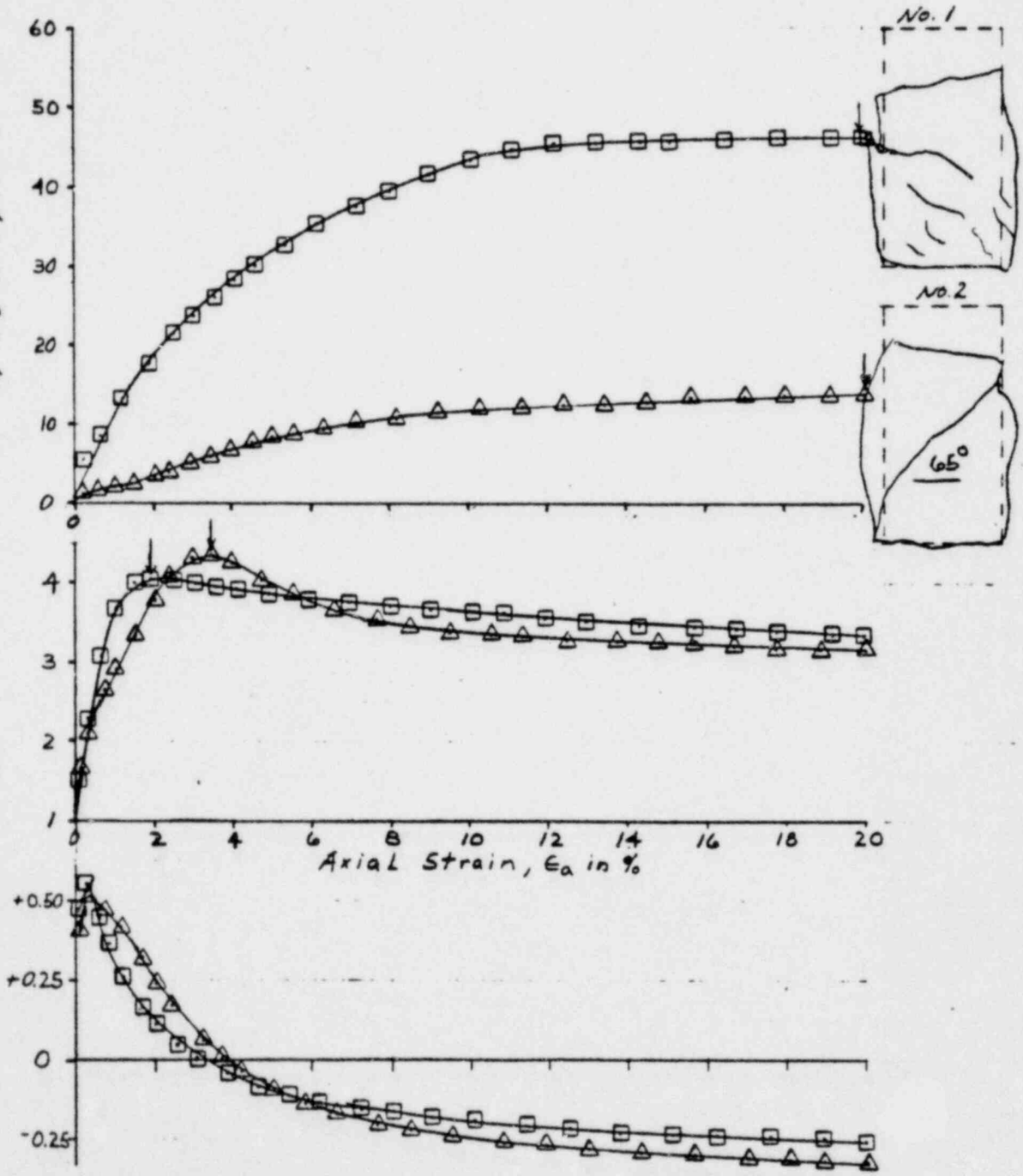


MIDLAND PLANT UNITS 1 and 2- CONSUMERS POWER CO.
$\overline{CIU}$- TRIAXIAL TEST SERIES- UNDRAINED STRENGTH
AREA: RETAINING WALLS- FOUNDATION CLAY Fig E-3d

Test No.	Symbol	Boring No. COE-	Sample No.	Elev. ft.	USCS Symbol	w_o %	w_c %	γ_{do} lb/ft³	γ_{dc} lb/ft³	$\bar{\sigma}_{vc}$ Kip/ft²	k_c	B-Factor %	$\dot{\epsilon}$ %/hr	t_c days
1	△	15A	19-B	593.6		8.7	9.1	135.4	136.6	1.998	1.001	98.9	0.80	1
2	□	15A	20-B	590.8		8.8	7.8	136.6	140.4	8.000	0.996	95.7	0.79	1

Specimens: 2.9 in. dia. by 6.0 in. ht. with top, bottom and radial (filter strips) drainage boundaries

81C4255T3 Drawn by JWS Reviewed by RA Checked by JF

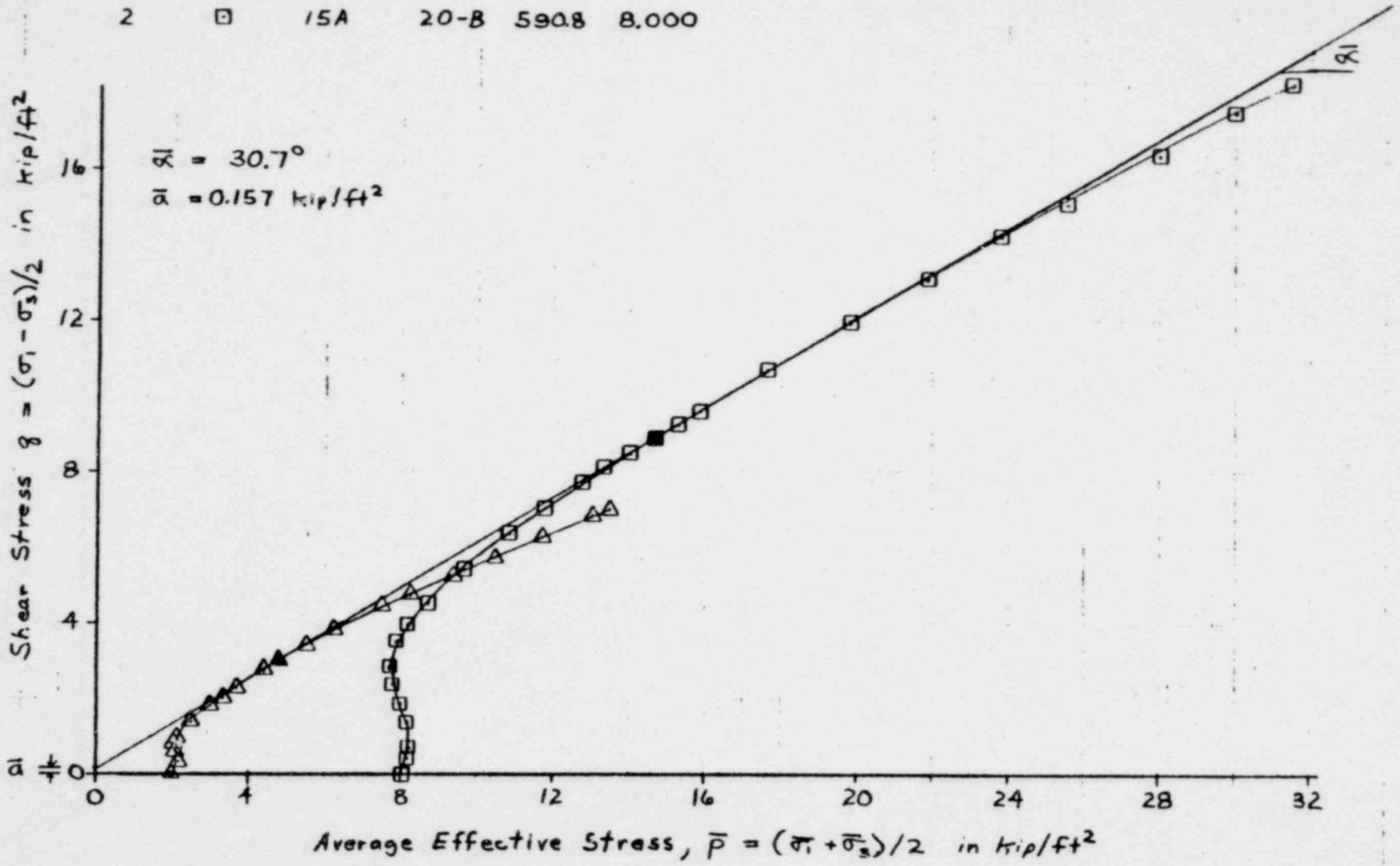


MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER CO..
$\overline{CTU}$ TRIAXIAL TEST SERIES - STRESS/STRAIN CHARACTERISTICS
AREA: RETAINING WALLS - FOUNDATION TILL Fig E-4a

Drawn by JWS Reviewed by RSL Checked by HF

Test No.	Symbol	Boring No. COE-	Sample No	Elev ft.	$\bar{\sigma}_{vc}$ Kip/ft²
1	△	15A	19-B	593.6	1.998
2	⊡	15A	20-B	590.8	8.000

Note: Solid symbols for conditions of peak obliquity
Strength envelope for conditions of peak obliquity



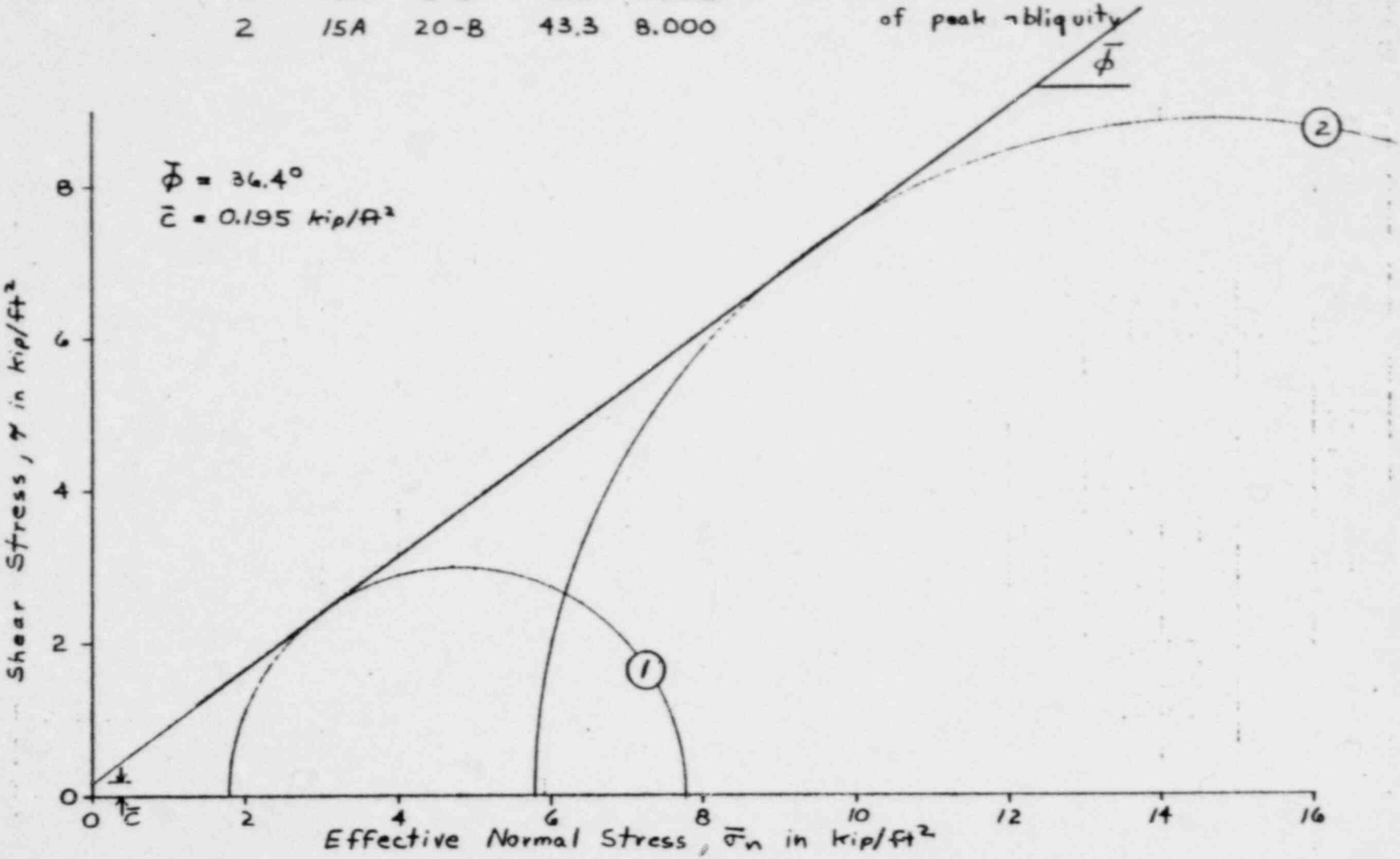
MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER Co.
CTU TRIAXIAL TEST SERIES - STRESS PATHS
AREA: RETAINING WALLS - FOUNDATION TILL

Fig E-4b

Drawn by JWS Reviewed by RA Checked by "

Test No.	Boring No. COE-	Sample No.	Depth ft.	$\bar{\sigma}_{vc}$ kip/ft²
1	15A	19-B	40.5	1.998
2	15A	20-B	43.3	8.000

Note: Mohr circles for conditions of peak obliquity

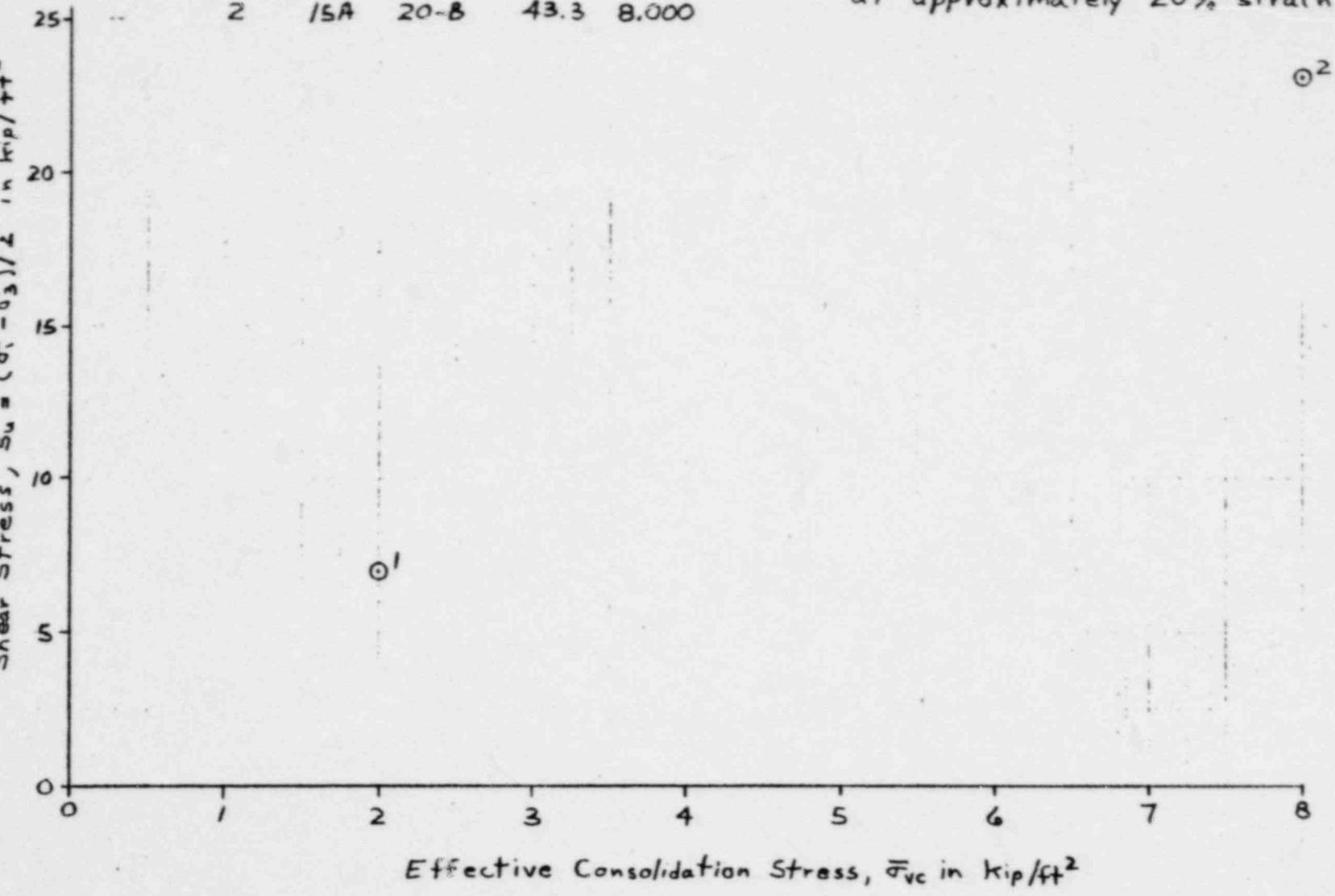


MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER Co.
CTU TRIAXIAL TEST SERIES - STRENGTH ENVELOPE
AREA: RETAINING WALLS - FOUNDATION TILL Fig E-4C

Drawn by JWS Reviewed by RSL Checked by VF

Test No.	Boring No. COE-	Sample No.	Depth ft.	$\bar{\sigma}_{vc}$ kip/ft²
1	15A	19-B	40.5	1.998
2	15A	20-B	43.3	8.000

Note: Data for conditions of peak deviator stress or deviator stress at approximately 20% strain.



MIDLAND PLANT UNITS 1 and 2 - CONSUMERS POWER Co.
$\overline{CIU}$ TRIAXIAL TEST SERIES - UNDRAINED STRENGTH
AREA: RETAINING WALLS - FOUNDATION TILL Fig E-4d

Appendix F

Supporting Data

UU Triaxial Compression Tests

1 - ☐

1

WCC 4-202 (1.183)

TRIAXIAL TEST (Set Up / Take Down)

Proj. No 8104055 13 Proj. Eng. RSL Cell No 4 Piston dia.: ☒ 3/8"; ☐ 1/2"

Type Test UU File No _____

Loading conditions: ☐ Dynamic ☐ Static	☐ Undrained ☐ Drained	☐ Compression ☐ Extension	☒ Constant cell pressure ☐ Variable cell pressure

Type Consolidation: ☐ Isotropic ☐ Anisotropic ☐ K_o stress path ☐ 45° Stress path	Piston Screwed in: ☐ Yes; ☒ No

☐ Undisturbed ☐ Reconstituted

Boring No COE-14 Composite No _____

Sample No S-4C Specimen No _____

Depth (ft) 7.6 Remarks _____

☐ Ends capped with Castone; ☐ Geomarine Sample

☐ Impact ☐ Static ☐ Kneading ☐ Tamping ☐ Other

☐ Constant Effort _____ layers; _____ lb {Hammer Tamp

_____ Blows - Tamps / layer

☐ Undercompaction _____ layers; _____ Unit (%)

Water Content				Final
Location				Ave
Container No				608
Wgt. Container + Wet Soil (gm)				487.48
Wgt. Container + Dry Soil (gm)				440.25
Wgt. Container (gm)				141.32
Wgt. Dry Soil (gm)				298.93
WATER CONTENT (%)				15.80

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone(s) (a): _____ gm

Stone(s) (c): _____ gm

Wet Initial (a): 1391.5 gm

Wet Final (b): 1390.7 gm

Excess Oven-dry Dish No _____

Wgt. Dish + Dry Soil _____ gm

Wgt. Dish _____ gm

Wgt. Excess + Dry Soil _____ gm

Dimensions of Height (in) / Specimen Diameter (in) or _____

	Initial (L_o)	Final (L_f)	Initial	Final
1	5.987		1-T 2.855	
2	5.981		2-M 2.868	
3	5.985		3-B 2.870	
4	5.988		1'-T 2.866	
5	5.988		2'-M 2.865	
Ave	5.9858		3-B 2.871	
			Ave 2.8665	

$D_{ave} = (D_1 + 2D_m + D_b)/4$

ΔL_c = _____ in

ΔL_f = _____ in

$\Sigma \Delta L$ = _____ in

$L_o - L_f$ = _____ in.

$A_o = \pi D^2/4 = 6.4535$ in²

$V_o = 1h^3 \cdot 16.387 1 = 633.023$ cm³

Area $\frac{1}{5}$ 5454 $(D^2)^2$ = _____ 10^{-3} ft²

Membrane { Thickness 0.012 in; Circumference (L_m) = _____ in; Diam = L_m/π = _____ in

Filter Paper: Top + bottom: ☐ Yes; ☐ No

Filter Strips: ☐ Yes; ☐ No

_____ Vertical at ¼" - Whatman #54 or _____

_____ Spiral at ¼" : Whatman #1 or _____

Wgt top cap = 422.30 gm, 0.942 lbs

Wgt (cap, dial + piston) = _____ gm, _____ 10^{-3} lbs

Preliminary

γ_{co} = 137.23 lb/ft³ γ_{do} = _____ lb/ft³

Failure Sketch

Load

Final Visual Classification. ☐ See more detailed sketch on attached sheet; ☐ Photo taken.

Load Corr. Δ = 0.7 - 0.942 = -0.242 lbs

Memb. Corr. Δ = 109.4 × 0.012 / 2.8665 = 0.4287

Other Remarks: _____

Preliminary Cal. by RC Reviewed by RL

☐ Trimmed by _____ Set up by KB Taken down by _____

☐ Reconstituted Date _____ Date 5/20/84 Date _____

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS 2

Type Test: U.U ☒ Undisturbed, ☐ Reconstituted - Specimen: COE-14

☐ Dynamic / H_z or ____ # sinusoidal / or ____ ☒ Static 59.4 %/hr S-4C

Consolidation History Units: ☐ psf or ☒ psi	Max Induced Pore Pressure: Uncorr.	Corr. #	☒ Preshear/pore. ☐ Pre cyc-loading: Uncorr.	Corr. #	Preshear after Cy-loading: Uncorr.	Corr. #
σ_{cell}		—	0.954	—		—
u		—		—		—
$\bar{\sigma}_v$						
$\bar{\sigma}_h$						
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$						
OCR						
Consol. Time	☐ Overnight: ____ days ____ hours		☐ Overnight: ____ days ____ hours		☐ Overnight: ____ days ____ hours	

Corrected for effects of membrane, S. Hor strips, etc.

H_o = 5.9858 in.
A_o = 6.4535 in²
V_o = 633.023 cm³
Dov/Dom = ____
G_s: ____ ☐ Assumed ☐ Measured
e_o = ____ %
After Corr. Factors: C
Undrained: ____
$C = \frac{1}{G_s}\left(1 - \frac{A_c}{A_{bar}}\right)$ ____
Drained: ____
$C = \frac{1}{G_s}\left[1 - \frac{A_c(1+\varepsilon_v)}{A_{bar}}\right]$ ____

Calculate Wgt of Dry Soil	By Initial water Content	By Final water Content	By Total Overdried Specimen
W_1 (%)			
W_2 (%)			
W_{av} (%)	(15.87)	15.80	
Wgt. Wet Soil, W_T (gm)	1391.5	1390.7	
Initial Wgt Dry Soil (gm)	ΔV_T (cm³) during test ____		
Wgt Excess Overdry Soil	Corr. Wet Wgt. $W_T = W_T + \Delta V_T$		
Total Wgt Dry Soil, W_s (gm)	1200.95	(1200.95)	
W_s used:		Final = 1200.95 gm	

Variations in Height and Volume During Consolidation	During Initial Cons. with out back-Pressure	During Back-Pressuring	After Backpressuring: $\bar{\sigma}_h$(psi)	$\bar{\sigma}_v$(psi)	$\bar{\sigma}_p$(psi)
	ΔV_o = vol in		From ____ To ____	From ____ To ____	From ____ To ____
Sign Convention: (+) ΔV^{in}, (+) ΔV^{out} (-) ΔL^{up}, (+) ΔL^{down}					
ΔL (in)	0.014				
ΔV_m (cm³)	—				
$\Delta V_a = 3V_o(\Delta H/H_o)$	(4.442)				
$R = \Delta V_m / \Delta V_a$	Rused = ____				
Corrected $\Delta V_a = R \cdot \Delta V_a$					
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in ; $\Delta V_{rebound} = \sigma_{max}$ to σ_{start} = ____ cm³ ; ΔV_T (during drained loading) = ____ cm³

Calculation ΔV_c during consol. by Different Procedures	ΔV_c by W_{gt} change $= W_c - W_o - (\Delta V_o + \Delta V_T)$	ΔV_c by measured/calculated volume changes = Σ selected ΔV	ΔV_c assuming S = 100% $V_F = (W_c - W_o)/G_s$
	ΔW_{gt} = ____ gm	$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V$	Undrained: $\Delta V_c = V_o - V_F$
	$\Sigma(\Delta V_o + \Delta V_T)$ = ____	= 4.442 cm³	Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$
	∴ ΔV_c = ____ cm³		w_o = ____ % V_F = ____ cm³
			$V_p + \Delta V_T$ = ____ cm³
			∴ ΔV_c = ____ cm³

Conclusions: ΔV_c used (over / rebound) = 4.442 cm³ ∴ V_c = 628.581 cm³ ; ΔL_c = 0.014 in ; ∴ L_c = 5.9718 in

$A_c = V_c/L_c$ (cm³/in) / 16.387 = 6.4232 in² / 0.144 = 44.6058 x10⁻³ ft²

ε_{ac} = 0.23 % ; ε_v 0.70 % ; ε_{hc} = ____ ; $E_c^{\#}$ = ____ ; $\varepsilon_{vc}^{\#}$ = ____ # not in percent

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³ ; ΔL_{max} = ____ in

Summary	Height (in)	Area (ft² x10⁻³)	Volume (cm³)	Water Content (%)	Total / Dry Density (lb/ft³)	Saturation (%)		
Initial	5.9858	44.8160	633.023	15.87	137.23 118.44			
After Consol.	5.9718	44.6058	628.581	15.80	138.12 119.28			

$S = wG_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_d / (G_s \cdot \gamma_w (100) - \gamma_d)$

Calculated by ____ Reviewed by ____

Psi x 0.0172 = tsf
(W Sat S=100%) = $G_s \cdot \gamma_w - \gamma_d / (G_s \cdot \gamma_w / \gamma_d) = G_s \cdot \gamma_w - \gamma_d$
γ_w @ 20°C (tsf) = 62.32 lb/ft³ = 0.9982 gm/cm³ = (8.34) = 64.2 (lb/ft³)

WCC L-205 (8/76)

TRIAXIAL LOADING DATA: Type Test UU | Type Loading ☐ Load-"Stress"; ☐ Deformation-"Strain" | Loading Frame ☒ WF ☐ Other ☐ MTS ☐ WCC-Unit No.

Project No. 82405513 | Project Engineer ESL | Cell No. 4

Date 5/30/81 | Test No.

☒ Undisturbed ☐ Reconstituted

Boring No. COE-14C | Sample No.

Sample No. 3-4C | Specimen No.

Depth (FT) 7.6 | Remarks

σ_c = 0.9504 KSC lb/in.^{2} = 0.47 ton/ft^2

U_B = lb/in.^{2} = ton/ft^2

$\bar{\sigma}_{3c}$ = lb/in.^{2} = ton/ft^2

$\bar{\sigma}_{1c}$ = ton/ft^2

$\bar{\sigma}_{cmax}$ = tsf

OCR =

$\bar{\sigma}_{3c}/\bar{\sigma}_{1c}$	OCR = 1	max OCR

B - Factor

$\Delta U/\Delta \sigma_c$ = %

In . min.

for $\Delta\sigma_c$ = tsf

Proving Ring No.

Dial Range	Factor: Slope	Factor: Correction

Load (tons x 10^{-3}) = PR div x SF + CF

Load Transducer No. LCE-5

☒ Cal. Short - Ohms 576.6 Ω

☐ Ind. Cal. - Ref

Read ☒ Vishay Ch. 8

Out ☐ Other

Remarks:

Strain Dial No. F-2-10

Pressure Tranducer No.

☐ Cal. Short - Ohms

☐ Ind. Cal. - Ref

Read ☐ Vishay Ch.

Out ☐ Other

☐ Back pressure nulled to zero

Remarks:

Membrane: Thickness, t_{om}: in.

Circumference, c_{om}: in.

Weight Top Cap & Piston = gm

Filter Strips: ☐ Yes ☐ No

Vertical @ 1/4 in. | Whatman

Spiral @ 1/4 in. | No. 54 or

Filter Paper Top & Bottom ☐ Yes ☐ No

Loading Time / Strain Rate ϵ_{end} = %

Finish ● hr

Start ● hr

Δt (hr) = ϵ_{rate} = % / hr

During Consolidation

ΔL_c = In. ΔV_c = cm^3

ϵ_{ac} = % ϵ_{vc} = %

1 - ϵ_{vc} =

Initial Loading Conditions

Length = In.

Area = 10^{-3} ft^2

Volume = cm^3

Computor Program No.

$\sigma_1-\sigma_3$ corrected for:

☐ Filter Strips; ☐ σ_c on Piston

☐ Dilation; ☐ Weight Cap

☐ Membrane, Method

Time	Δt min/sec	Def Dial in	Load (lbs)		ϵ_a %	σ_{1-3} (KSF)	E ( )			Time	Δt min/sec	Def Dial in	Load (lbs)	ϵ_a %	σ_{1-3} (10^{-3} KSF)	E ( )			See Remarks
15.44		.000	0.7		0.0	0.0701						.035	16.6	0.586	0.3719				
		.001	3.4		0.017	0.0918						.040	17.6	0.670	0.3934	x			
		.003	5.8		0.050	0.1312						.045	18.7	0.754	0.4112				
		.005	6.9		0.084	0.1586						.050	19.7	0.837	0.4387				
		.010	9.3		0.167	0.2118						.060	21.9	1.005	0.4861	x			
		.015	11.1		0.251	0.2516	x					.070	23.6	1.172	0.5223				
		.020	12.6		0.335	0.2845						.080	25.4	1.340	0.5604				
		.025	14.0		0.419	0.3157						.090	27.0	1.507	0.5941				
		.030	15.5		0.502	0.3481						.100	28.5	1.675	0.6254	x			

Remarks:

Notations: (+) compression (decrease in volume); (-) extension (increase in Volume); Increasing burrette reading = Volume Increase

Test Started by KB Loading Date by KB; ; Calculated by Reviewed by KB Checked by NA

Sheet 1 of 2

TRIAXIAL LOADING DATA ("Second" Sheet) Sheet 2 of 2

Proj. No. 81C.4055.03 Cell No. RSL Test No. — Date: 5/30/91

Boring No. COE-14 Sample No. S-4C Specimen No. _____ Depth (ft) 7.6

Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	$\sigma_1 - \sigma_3$ (KSF)	$\bar{\varepsilon}$ ( )		Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	$\sigma_1 - \sigma_3$ (KSF)	$\bar{\varepsilon}$ ( )		See Remarks
		.110	30.1		1.842	0.6588					.900	91.6		15.07	1.683	x		
		.120	31.8		2.01	0.693	x				.950	94.6						
		.130	33.2								1.000	97.4		16.75	1.750	x		
		.140	34.2		2.34	0.7430					1.050	100.3						
		.150	35.8								1.100	102.9		18.42	1.807	x		
		.160	37.1		2.68	0.8022					1.150	105.8						
		.170	38.3							20:13	1.20	108.6		20.09	1.863	x		
		.180	39.5		3.01	0.850	x											
		.190	40.6															
		.200	41.8		3.35	0.896												
		.225	44.5															
		.250	47.1		4.19	0.998	x											
		.275	49.3															
		.300	51.6		5.02	1.081												
		.325	54.0															
		.350	55.9		5.86	1.159	x											
		.375	58.0															
		.400	59.7		6.70	1.224	x											
		.450	63.9															
		.500	67.0		8.37	1.344	x											
		.550	70.5															
		.600	73.7		10.05	1.447	x											
		.650	76.8															
		.700	80.0		11.72	1.537	x											
		.750	83.0															
		.800	86.0		13.40	1.616	x											
		.850	88.7															

Notation: (+) compressive (decrease in volume; (-) extension (volume increase); Increasing burrette reading = Volume increase +

Remarks: _____

Loading data by EB ; _____ ; _____ Calculated by [illegible] Reviewed by RC Checked by MA

WCC 4-202 (1.18.) 5

TRIAXIAL TEST (Set Up / Take Down)

Proj. No. 81C4055T2 Proj. Eng. RSL Cell No. 4 Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test U-U File No _____

Loading conditions:							
	☐ Dynamic	☐ Undrained	☐ Compression	☒ Constant cell pressure
	☐ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type Consolidation:			Piston Screwed in: ☐ Yes; ☐ No
☐ Isotropic	☐ K_o Stress path	
☐ Anisotropic	☐ 45° Stress path	

☒ Undisturbed	☐ Reconstituted	☐ Impact	☐ Constant Effort	
Boring No. C06-14	Composite No. _____	☐ Static	_____ layers; _____ blows (Hammer Temp)	
Sample No. 6C	Specimen No. _____	☐ Kneading	_____ Blows - Tamps / layer	
Depth (ft) 12.8	Remarks _____	☐ Tamping	☐ Undercompaction	
☐ Ends capped with Centaur; ☐ Geomarine Sample		☐ Other	_____ layers; _____ Unit (%)	

Water Content				Final
Locator				Ave
Container No.				C04
Wgt Container + Wet Soil (gm)				331.15
Wgt Container + Dry Soil (gm)				306.46
Wgt. Container (gm)				12990
Wgt Dry Soil (gm)				76.58
WATER CONTENT (%)				13.97

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc):	_____ gm
Stone (etc)	_____ gm
Wet Initial:	1395.3 gm
Wet Final:	1374.4 gm
Excess Oven Dry Dish No.	_____
Wgt Dish + Dry Soil	_____ gm
Wgt. Dish	_____ gm
Wgt. Excess + Dry Soil	_____ gm

Dimensions of Height (in) — Specimen Diameter (in) or _____

	Initial (L_o)	Final (L_f)	Initial	Final
1	5.941		1-T 2.896	
2	5.936		2-M 2.899	
3	5.937		3-B 2.902	
4	5.942		1'-T 2.865	
5	5.932		2'-M 2.872	
Ave	5.937		3-B 2.876	
			Ave 2.885	

$D_{ave} = (D_1 + 2D_m + D_b)/4$

ΔL_c = _____ in

ΔL_f = _____ in

$\Sigma \Delta L$ = _____ in

$L_o - L_f$ = _____ in.

$A_o = \pi D^2/4 = 6.5857$ in²

$V_o = 1h^3 \cdot 16.387 = 625.078$ cm³

Atm $\frac{1}{5.5454(D^2)^2}$ = _____ 10^{-3} in²

Membrane { Thickness = .011 in; Circumference (C_m) = _____ in; Diam = C_m/π = _____ in }

Filter Paper: Top + bottom: ☐ Yes; ☐ No

Filter Strips: ☐ Yes; ☐ No

_____ Vertical at ¼" - Whatman #54 or _____

_____ Spiral at ¼": Whatman #1 or _____

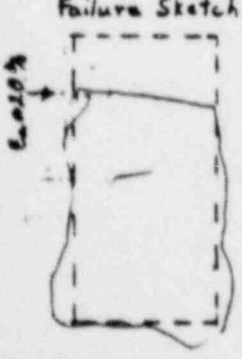
Wgt top cap: 42 - 38 gm, 0.249 kg/m³

Wgt (cap, dial + piston) = _____ gm, _____ 10^{-2} kg

Preliminary

γ_{co} = 137.16 lb/ft³ γ_{do} = _____ lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo Taken

Load Cell: $\chi = 0.8 - 0.342 = -0.142$ lbs

Head Cor. C.F. = $102.4 \times 0.012 / 2.882 = 0.426$ lbs

Other Remarks: _____

Preliminary Cal. by SK Reviewed by RSL

☐ Trimmed by _____ Setup by KB Taken down by KB

☐ Reconstituted Date _____ Date 5/30/91 Date 5/31/91

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS 6

COE-14
S-6C

Type Test U.U. ☒ Undisturbed ☐ Recompacted - Specimen:
☐ Dynamic / Hz or ____ # sinusoidal or ____ ☒ Static 50.0 %/hr

Consolidation History Units: tsf or KSF	Max Induced Pore Pressure Uncorr.	Corr. *	☒ Preshear/perm. ☐ Pre cyc-loading Uncorr.	Corr. *	Preshear after Cyc-loading Uncorr.	Corr. *
σ_{cell}			1.3018			
u						
$\bar{\sigma}_v$						
$\bar{\sigma}_h$						
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$						
OCR						
Consol. Time	☐ Overnight days ____ hours ____		☐ Overnight days ____ hours ____		☐ Overnight days ____ hours ____	

* Corrected for effects of membrane, S. Hor strips, etc.

H_o = 5.9288 in.
A_c = 6.5057 in²
V_o = 635.079 cm³
Dev/Dom = ____
G_s: ____ ☐ Assumed ☐ Measured
E_f = ____ %
Area Corr. Factors: C
Undrained: ____
$C = \frac{1}{\varepsilon_f}\left(1 - \frac{A_c}{A_{ion}}\right)$ ____
Drained = ____
$C = \frac{1}{\varepsilon_f}\left[1 - \frac{A_c}{A_{ion}}\frac{(1+\varepsilon v_c)}{}\right]$ ____

Calculate Wt of Dry Soil	By Initial water content	By Final water content	By Total Overdried Specimen
W_1 ( )			
W_2 ( )			
Wave (%)	(14.04)	13.97	
Wt. Wet Soil, Wt (gm)	1295.3	1294.4	
Total Wt Dry Soil (gm)	ΔV_T (cm³) during test		
Wt of Excess Drawdry Soil	Corr Wet Wt $W_c = W_w + \Delta V_T$		
Total Wt Oven Dry Soil W_s (gm)	1223.48	1223.48	
W_s used:	= 1223.48 gm		

Variations in Moist^re and Volume During Consolidation	During Initial Consol. with out back-pressure	During Back-pressuring ΔV_o = vol in	After Backpressuring = $\bar{\sigma}_{3(f)}$	= $\bar{\sigma}_{1(f)}$	$\bar{\sigma}_{p(f)}$
	Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down		From ____ To ____	From ____ To ____	From ____ To ____
ΔL (in)	0.017				
ΔV_m (cm³)	=				
$-\frac{\Delta V_a}{3V_o(\Delta\sigma/\sigma_3)}$	5.454				
$R = \Delta V_m / \Delta V_a$	Used = ____				
Corrected $\Delta V_a = R \cdot \Delta V_a$					
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5
ΔL_{cy} = ____ in	ΔV rebound = σ_{max} to σ_{test} = ____ cm³				
	ΔV_T (during drained loading) = ____ cm³				

γ_w @ 20°C (tread) - 62.32 lb/ft³ - 0.9982 gm/cm³ (6.M) - 6.2.2 (16/17)

ΔV_c of during Consolidation by Different Procedures

Calculation	ΔV_c by W_T Change $= W_c - W_s - (\Delta V_o + \Delta V_T)$	ΔV_c by recorded/calculated volume changes $= \Sigma$ selected ΔV	ΔV_c assuming $S = 100\%$ $V_F = (W_f/G_s - w_c) W_s/\gamma_w$ Undrained	Drained
	ΔW_T = ____ gm	ΔV_c = ΔV_1 ____ + ΔV_2 ____ + ΔV ____	$\Delta V_c = V_o - V_F$	$\Delta V_c = V_o - (V_F + \Delta V_T)$
	$\Sigma(\Delta V_o + \Delta V_T)$ = ____ cm³	= 5.454 cm³	w_o = ____ % V_F = ____ cm³	
	$\therefore \Delta V_c$ = ____ cm³		$V_p + \Delta V_T$ = ____ cm³	
			$\therefore \Delta V_c$ = ____ cm³	

Conclusions

ΔV_c used (over/rebound) = 5.454 cm³ $\therefore V_c$ = 629.625 cm³; ΔL_c = 0.017 in, $\therefore L_c$ = 5.9218 in
$A_c = V_c/L_c$ (cm³/in) / 16.3871 = 6.4882 in² / 0.144 = 45.0571 x10⁻³ ft²
ε_{vc} = 0.29 %; ε_v 0.86 %; $1-\varepsilon_v$ = ____ E_f^{ll} = ____; ε_{vc}^{ll} = ____ # not in percent
At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (in² or ft² x10⁻³)	Volume (cm³)	Water Content (%)	Total / Dry Density (lb/ft³)	Saturation (%)		
Initial	5.9288	45.3174	635.079	14.04	137.16 120.28			
After Consol.	5.9218	45.0571	629.625	13.97	138.26 121.31			

$S = wG_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_w / (G_s \cdot \gamma_w (1+w) - \gamma_t)$

Calculated by ____ Reviewed by ____

WCC L-205 (6/75)

TRIAXIAL LOADING DATA: Type Test UU — Type Loading — ☐ Load-"Stress"; ☐ Deformation-"Strain"

Project No. 76455 13 — Project Engineer RSL — Call No. 4 — Loading Frame: ☑ WF ☐ Other — ☐ MTS — ☐ WCC-Unit No.

Date 5/30/91 — Test No.

☑ Undisturbed ☐ Reconstituted

Boring No. COE-14 — Sample No.

Sample No. 6C — Specimen No.

Depth (FT) 12.8 — Remarks

σ_c = 9.04 1.3718 lb/in.^{2} = 0.65 ton/ft^2

U_B = lb/in.^{2} = ton/ft^2

$\bar{\sigma}_{3c}$ = lb/in.^{2} = ton/ft^2

$\bar{\sigma}_{1c}$ = ton/ft^2

$\bar{\sigma}_{cmax}$ = tsf

OCR =

$\bar{\sigma}_{3c}/\bar{\sigma}_{1c}$	OCR = 1	max OCR

B - Factor

$\Delta U/\Delta \sigma_c$ = %

in min.

for $\Delta \sigma_c$ = tsf

Proving Ring No.

Dial Range	Factor: Slope	Factor: Correction

Load (tons x 10^{-3}) = PR div x SF + CF

Load Transducer No. LCT-5

☑ Cal. Short - Ohms 56.61K

☐ Ind. Cal. - Ref

Read ☑ Vishay Ch. 8

Out ☐ Other

Remarks:

Strain Dial No. SX-10

Pressure Tranducer No.

☐ Cal. Short - Ohms

☐ Ind. Cal. - Ref

Read ☐ Vishay Ch.

Out ☐ Other

☐ Back pressure nulled to zero

Remarks:

Membrane: Thickness, t_{om}: in.

Circumference, c_{om}: in.

Weight Top Cap & Piston = gm

Filter Strips: ☐ Yes ☐ No

Vertical @ 1/4 in. | Whatman

Spiral @ 1/4 in. | No. 54 or

Filter Paper Top & Bottom ☐ Yes ☐ No

Loading Time / Strain Rate ϵ end = %

Finish @ hr

Start @ hr

Δt (hr) = ϵ_{rate} = % / hr

During Consolidation

ΔLc = in. ΔVc = cm^3

ϵ_{ac} = % ϵ_{vc} = %

1 - ϵ_{vc} =

Initial Loading Conditions

Length = in.

Area = 10^{-3} ft^2

Volume = cm^3

Computor Program No.

σ_1-σ_3 corrected for:

☐ Filter Strips; ☐ σ_c on Piston

☐ Dilation; ☐ Weight Cap

☐ Membrane, Method

Time	Δt minSec	Def Dial in	Load (lbs)		ϵ_a %	P/A (ksf)	E ( )			Time	Δt minSec	Def Dial in	Load (lbs)	ϵ_a %	P/A (ksf)	E ( )				See Remarks
13:18		000	0.8		0.0	0.037						.005	18.1	0.541	0.2982					
		001	3.0		0.017	0.0554						.010	19.4	0.615	0.4167	x				
		003	4.8		0.051	0.1062						.015	20.6	0.760	0.4524					
		005	6.5		0.084	0.1457						.020	21.8	0.841	0.4791					
		010	9.2		0.169	0.2056						.060	24.0	1.012	0.5379					
		015	11.7		0.253	0.2599	x					.070	24.7	1.182	0.5715					
		020	13.6		0.323	0.3013						.080	23.4	1.351	0.6179	x				
		025	15.2		0.427	0.3360						.090	30.6	1.511	0.6656					
		030	16.7		0.507	0.3[illegible]						.100	32.6	1.69[illegible]	0.7116					

Remarks:

Notations: (+) compression (decrease in volume); (-) extension (increase in Volume); Increasing burrette reading = Volume Increase

Test Started by KJB — Loading Date by [illegible] ; ; — Calculated by — Reviewed by [illegible] — Checked by NHA

Sheet 1 of

TRIAXIAL LOADING DATA ("Second" Sheet) Sheet 2 of 6

Proj. No. SAC40551 3 Cell No. 1 Test No. - Date: 5/30/82

Boring No. COE-14 Sample No. 6C Specimen No. - Depth (ft) 128

Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	$\frac{\sigma_1+\sigma_3}{2}$ (TSF)	$\bar{E}$ ( )		Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	$\frac{\sigma_1+\sigma_3}{2}$ (TSF)	$\bar{E}$ ( )		See Remarks
		.110	34.7		1.858	0.788					.100	121.2		15.20	2.218	x		
		.120	36.6		2.03	0.783	x				.950	124.5						
		.130	38.5								1.000	127.8		16.89	2.287	x		
		.140	40.4		2.36	0.867					1.050	131.2						
		.150	42.3								1.100	134.3		18.58	2.349	x		
		.160	44.6		2.70	0.953					1.150	137.7		19.42	2.38	x		
		.170	75.7							.014	1.200	140.5		20.26	2.402	x		
		.180	42.5		3.04	1.011	x											
		.190	49.2															
		.200	50.7		3.38	1.075												
		.225	54.6															
		.250	58.3		4.22	1.223	x											
		.275	61.8		4.64	1.270												
		.300	65.0		5.07	1.350	x											
		.325	68.3															
		.350	71.3		5.91	1.466	x											
		.375	74.2															
		.400	77.1		6.75	1.569	x											
		.425	82.4															
		.450	87.3		8.44	1.740	x											
		.550	92.4		9.29	1.822	x											
		.600	96.9		10.13	1.891	x											
		.650	101.4															
		.700	105.6		11.82	2.018	x											
		.750	109.7															
		.800	113.6		13.51	2.125	x											
		.850	117.5		14.35	2.171	x											

Notation: (+) compressive (decrease in volume; (-) extension (volume increase); Increasing burrette reading = Volume increase

Remarks:

Loading data by ___; ___; ___ Calculated by ___ Reviewed by ___ Checked by ___

3-0

9 WCC 4-202 (1180)

TRIAXIAL TEST (Set Up / Take Down)

Proj. No. 82C4055T3 Proj. Eng. RSL Cell No. H-5 Piston dia.: ☐ 3/8"; ☐ 1/2"

Type Test U U File No _____

Loading Conditions:				
☐ Dynamic	☐ Undrained	☐ Compression	☒ Constant cell pressure	
☐ Static	☐ Drained	☐ Extension	☐ Variable cell pressure	

Type Consolidation:			Piston Screwed in: ☐ Yes; ☒ No
☐ Isotropic	☐ K_o stress path		
☐ Anisotropic	☐ 45° Stress path		

☑ Undisturbed	☐ Reconstituted	☐ Impact	☐ Constant Effort
Boring No. COE-14	Composite No. _____	☐ Static	_____ layers; _____ 16 {Hammer Tamp
Sample No. S-7B	Specimen No. _____	☐ Kneading	_____ Blows - Tamps / layer
Depth (ft) 14.9	Remarks _____	☐ Tamping	☐ Undercompaction
☐ Ends capped with Castone; ☐ Geomarine Sample		☐ Other	_____ layers; _____ Unif (%)

Water Content				Final
Location				Ave
Container No				617
Wgt Container + Wet Soil (gm)				230.31
Wgt Container + Dry Soil (gm)				220.77
Wgt. Container (gm)				138.81
Wgt Dry Soil (gm)				81.96
WATER CONTENT (%)				11.64

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone(etc): _____ gm
Stone(etc) _____ gm
Wet Initial: 452.70 gm
Wet Final: 452.50 gm
Excess Oven dry - Dish No. _____
Wgt Dish + Dry Soil _____ gm
Wgt. Dish _____ gm
Wgt. Excess + Dry Soil _____ gm

Dimensions of Specimen	Height (in)		Diameter (in) or _____	
	Initial (L_o)	Final (L_f)	Initial	Final
1	3.943		1-T: 2.020	
2	3.945		2-M 2.016	
3	3.946		3-B 2.026	
4	3.943		1'-T: 1.997	
5	3.944		2'-M 1.999	
Ave	3.9442		3'-B 2.001	
			Ave 2.0102	

$D_{ave} = (D_T + 2D_M + D_B)/4$

ΔL_c = _____ in
ΔL_f = _____ in
$\Sigma \Delta L$ = _____ in
$L_o - L_f$ = _____ in

$A_o = \pi D^2/4 = 3.1737$ in²
$V_o = 1h^3 \cdot 16.387 = 205.129$ cm³
Area $= 5.5542(D^2)$ = _____ 10^{-2} ft²

Membrane: Thickness = 0.012 in; Circumference (C_m) = _____ in; Diam = C_m/π = _____ in

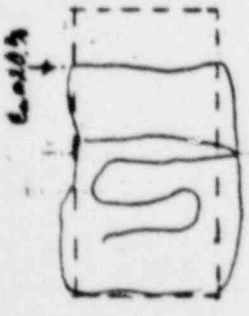
Filter Paper: Top + bottom: ☐ Yes; ☐ No

Filter Strips: ☐ Yes; ☐ No
_____ Vertical at ¼" - Whatman #54 or _____
_____ Spiral at ¼": Whatman #1 or _____

Wgt top cap = 2.852 gm, 0.496 10^{-2} lbs
Wgt (cap, dial + piston) = _____ gm, _____ 10^{-2} lbs

Preliminary
γ_{co} = 137.78 lb/ft³ γ_{do} = 123.41 lb/ft³

Failure Sketch



Final Visual Classification. ☐ See more detailed sketch on attached sheet; ☐ Photo Taken

Load Cell f: 10 − 0.496 = 0.504 lbs

Membrane Corr f: 102.4 × 0.012 / 2.0102 = 0.6113

Other Remarks: _____

Preliminary Cal. by _____ Reviewed by _____

☑ Trimmed by GDS Set up by KB Taken down by KB
☐ Reconstituted Date 5/15/82 Date 5/15/82 Date 5/15/82

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS

10

Type Test: U.U. ☒ Undisturbed; ☐ Reconstituted - Specimen: COE-14

☐ Dynamic / H_z or ____ ☐ sinusoidal or ____ ☒ Static 45.1 %/hr S-7B

Consolidation History Units: ~~tsf~~ or KSF	Max. Induced Pore Pressure Uncorr.	Corr. #	☒ Preshear/pore ☐ Pre cy-loading Uncorr.	Corr. #	Preshear after Cy-loading Uncorr.	Corr. #
σ_{cell}		———	1.4429	———		———
u_c		———		———		———
$\bar{\sigma}_v$						
$\bar{\sigma}_h$						
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$						
OCR						
Consol. Time	☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours	

Corrected for effects of membrane, S. Hor strips, etc.

H_o = 3.9442 in.
A_c = 3.1737 in²
V_o = 205.129 cm³
Dor/Dom = ____
G_s = ____ ☐ Assumed ☐ Measured
E_f = ____ %
Area Corr. Factors: C
Undrained = ____
$C = \frac{1}{\varepsilon_f}\left(1 - \frac{A_c}{A_{ISA}}\right)$ ____
Drained = ____
$C = \frac{1}{\varepsilon_f}\left[1 - \frac{A_c(1+\varepsilon_v)}{A_{ISA}}\right]$ ____

γ_w @ 20°C (tread) = 62.32 lb/ft³ • 0.9982 gm/cm³ (GAM) • 64.2 (lb/ft³)

Calculate Wgt of Dry Soil	By Initial water content	By Final water content	By Total Oven-dried Specimen
w_i (%)			
w_f (%)			
w_{ave} (%)	(11.69)	11.64	
Wgt. Wet Soil, W_T (gm)	452.70	452.50	
Initial Wgt Dry Soil (gm)	ΔV_T (cm³) during test		
Wgt Equiv. Dry Soil	Corr. Wet wgt. $W_o = W_T + \Delta V_T$		
Total Wgt Oven Dry Soil W_s (gm)	405.32	(405.32)	

W_s used: Final = 405.32 gm

Variations in Height and Volume During Consolidation	During Initial Cons. with out back-pressure	During Back-pressuring ΔV_o = vol in	After Backpressure: $\bar{\sigma}_{h(p-)}$ From ____ To ____	$\bar{\sigma}_{v(p-)}$ From ____ To ____	$\bar{\sigma}_{p(p-)}$ From ____ To ____
	Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down				
ΔL (in)	0.010				
ΔV_m (cm³)	—				
$-\Delta V_a = 3V_o(\Delta H/H_o)$	(1.560)				
$R = \Delta V_m / \Delta V_a$	Rused = ____				
Corrected $\Delta V_a = R \cdot \Delta V_a$					
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in; $\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ____ cm³; ΔV_T (during drained loading) = ____ cm³

Calculation of ΔV_c during Consolidation by Different Procedures	ΔV_c by W_T change $= W_o - W_i - (\Delta V_o + \Delta V_T)$	ΔV_c by recorded/calculated volume changes $= \Sigma$ selected ΔV	ΔV_c assuming $S = 100\%$ $V_F = (W_s - w_i W_s)/G_s$
		$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V$	Undrained: $\Delta V_c = V_o - V_F$
	ΔW_T = ____ gm	ΔV_c = 1.560 + ____ + ____	Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$
	$\Sigma(\Delta V_o + \Delta V_T)$ = ____ cm³	= 1.56 cm³	w_i = ____ % V_F = ____ cm³
	∴ ΔV_c = ____ cm³		$V_F + \Delta V_T$ = ____ cm³
			∴ ΔV_c = ____ cm³

Conclusions

ΔV_c used (ave value) = 1.56 cm³ ∴ V_c = 203.569 cm³; ΔL_c = 0.010 in; ∴ L_c = 3.9342 in

$A_c = V_c/L_c$ (cm³/in)/16.387 = 3.1576 in²/0.144 = 21.9276 $\times 10^{-3}$ ft²

ε_{ac} = 0.25 %; ε_v 0.76 %; $1-\varepsilon_v$ = ____ $E_f^{\#}$ = ____; $\varepsilon_{vc}^{\#}$ = ____ # not in percent

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (in² or ft² x10⁻³)	Volume (cm³)	Water Content (%)	Total or Dry Density (lb/ft³)	Saturation (%)		
Initial	3.9442	22.0396	205.129	11.69	137.78 123.36			
After Consol.	3.9342	21.9276	203.569	11.64	138.77 124.30			

$S = w G_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_t / (G_s \cdot \gamma_w (1+w) - \gamma_t)$

Calculated by ____ Reviewed by ____

$P_{ci} \times 0.0071 = tsf$

W_s for $S = 100\% = G_s \cdot \gamma_w - \gamma_d / (G_s \cdot \gamma_w - \gamma_d) \cdot V_o$

WCC L-205 (6/76)

TRIAXIAL LOADING DATA: Type Test UU | Type Loading ☐ Load-"Stress"; ☐ Deformation-"Strain" | Loading Frame ☑ WF ☐ Other ☐ MTS ☐ WCC-Unit No.

Project No. 84405513 | Project Engineer RSL | Call No. H-5 | Date 5/15/81 | Test No.

☑ Undisturbed ☐ Reconstituted

Boring No. COE-14 | Sample No.

Sample No. 7B | Specimen No.

Depth (FT) 14.9 | Remarks

σ_c = 1.443 Ksf = .72 ton/ft²

U_B = lb/in.² = ton/ft²

$\bar{\sigma}_{3c}$ = lb/in.² = ton/ft²

$\bar{\sigma}_{1c}$ = ton/ft²

$\bar{\sigma}_{cmax}$ = tsf | OCR =

$\bar{\sigma}_{3c}/\bar{\sigma}_{1c}$	OCR = 1	max OCR

B - Factor: $\Delta U/\Delta \sigma_c$ = % | in min. | for $\Delta\sigma_c$ = tsf

Proving Ring No.	Factor	
Dial Range	Slope	Correction

Load (tons x 10^{-3}) = PR div x SF + CF

Load Transducer No. LCI-5
☑ Cal. Short - Ohms 56.61
☐ Ind. Cal. - Ref
Read ☑ Vishay Ch. 8
Out ☐ Other
Remarks:

Strain Dial No.

Pressure Tranducer No.
☐ Cal. Short - Ohms
☐ Ind. Cal. - Ref
Read ☐ Vishay Ch.
Out ☐ Other
☐ Back pressure nulled to zero
Remarks:

Membrane: Thickness, t_{om}: .017 in.
Circumference, c_{om}: in.
Weight Top Cap & Piston = gm
Filter Strips: ☐ Yes ☐ No
Vertical @ 1/4 in. | Whatman
Spiral @ 1/4 in. | No. 54 or
Filter Paper Top & Bottom ☐ Yes ☐ No

Loading Time / Strain Rate ϵ_{end} = %
Finish ● hr
Start ● hr
Δt (hr) = ϵ_{rate} = % / hr

During Consolidation
ΔL_c = in. ΔV_c = cm³
ϵ_{ac} = % ϵ_{vc} = %
1 - ϵ_{vc} =

Initial Loading Conditions
Length = in.
Area = 10^{-3} ft²
Volume = cm³

Computor Program No.
σ_1-σ_3 corrected for:
☐ Filter Strips; ☐ σ_c on Piston
☐ Dilation; ☐ Weight Cap
☐ Membrane, Method

Time	Δt min/sec	Def Dial in	Load (lbs)		Ea %	σ1-σ3 (KSF)	E ( )			Time	Δt min/sec	Def Dial in	Load (lbs)	Ea %	σ1-σ3 (KSF)	E ( )				See Remarks
16:17		.000	1.0		0.0	0.0211						.035	35.7	0.890	1.5838					
		.001	6.1		0.025	0.2534						.040	38.3	1.017	1.6984	x				
		.003	9.9		0.076	0.4262						.045	41.1	1.144	1.8217					
		.005	12.3		0.127	0.5348						.050	43.7	1.211	1.9356					
		.010	17.9		0.254	0.5608	x					.060	49.0	1.525	2.1671	x				
		.015	21.6		0.381	0.9545						.070	53.7	1.779	2.3706					
		.020	25.3		0.508	1.1204						.080	58.3	2.03	2.568	x				
		.025	29.2		0.635	1.2949	x					.090	62.8	2.29	2.760					
		.030	32.8		0.763	1.4554	x					.100	66.6	2.54	2.930	x				

Remarks:

Notations: (+) compression (decrease in volume); (-) extension (increase in Volume); Increasing burrette reading = Volume Increase

Test Started by KB Loading Date by KB; ; Calculated by [illegible] Reviewed by RL Checked by NA

TRIAXIAL LOADING DATA ("Second" Sheet) Sheet 2 of 2

Proj. No. R104055.13 Cell No. H-5 Test No. — Date: 5/15/81

Boring No. COE-14 Sample No. 7B Specimen No. _____ Depth (ft) 14.9

Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	$\frac{\sigma_1-\sigma_3}{2}$ (KSF)	E ( )		Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	$\frac{\sigma_1-\sigma_3}{2}$ (KSF)	E ( )		See Remarks
		.135	80.9		3.43	3.518	x				.275	191.8		19.70	6.884	x		
		.150	86.0		3.81	3.726				22:01	.300	193.0		20.33	6.868	x		
		.160	89.6															
		.170	92.7		4.32	3.995	x											
		.180	96.3															
		.190	99.5		4.83	4.266												
		.200	102.9		5.08	4.400	x											
		.225	110.7															
		.250	117.9		6.35	4.973	x											
		.295	129.5															
		.325	137.3		8.26	5.671	x											
		.350	143.5															
		.375	148.1		9.53	6.030	x											
		.400	153.0		10.17	6.184												
		.425	157.7		10.80	6.327	x											
		.450	162.2															
		.475	166.1		12.07	6.565	x											
		.500	169.9															
		.530	174.5		13.47	6.782	x											
		.550	177.0		13.98	6.837												
		.575	179.4		14.62	6.875	x											
		.600	182.0		15.25	6.920	x											
		.650	186.1		16.52	6.963	*											
		.675	187.4		17.16	6.955	x											
		.700	188.6		17.79	6.942	x											
		.725	189.6															
		.750	190.8		19.06	6.906	x											

Notation: (+) compressive (decrease in volume); (-) extension (volume increase); Increasing burrette reading = Volume increase

Remarks: _____

Loading data by KG; _____; _____ Calculated by SB Reviewed by RC Checked by MH

4 - ◇

13 WCC 4-202 (1.182)

TRIAXIAL TEST (Set Up / Take Down)

Proj. No 81C4055T Proj. Eng MM Cell No 5 Piston dia.: ☐ 3/8"; ☐ 1/2"

Type Test UU File No

Loading conditions:							
☐ Dynamic	☐ Undrained	☐ Compression	☒ Constant cell pressure
☐ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type Consolidation:				Piston Screwed in: ☐ Yes; ☒ No
☐ Isotropic	☐ K_o stress path	
☐ Anisotropic	☐ 45° Stress path	

☒ Undisturbed	☐ Reconstituted	☐ Impact	☐ Constant Effort	
Boring No CW-4	Composite No	☐ Static	____ layers; ____ 16 {Hammer Tamp}	
Sample No S-9C	Specimen No	☐ Kneading	____ Blows - Tamps / layer	
Depth (ft) 20.2	Remarks ID 107	☐ Tamping	☐ Undercompaction	
☐ Ends capped with Castone; ☐ Geomarine Sample		☐ Other	____ layers; ____ Unif (%)	

Water Content				First
Location				Ave
Container No				250
Wgt Container + Wet Soil (gm)				472.41
Wgt Container + Dry Soil (gm)				447.60
Wgt. Container (gm)				219.49
Wgt Dry Soil (gm)				228.11
WATER CONTENT (%)				12.36

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc): ____ gm
Stone (etc): ____ gm
Wet Initial: 1363.2 gm
Wet Final: 1363.0 gm
Excess Ovendry - Dish No ____
Wgt Dish + Dry Soil ____ gm
Wgt. Dish ____ gm
Wgt. Excess + Dry Soil ____ gm

Dimensions of Specimen: Height (in) / Diameter (in) or ____

	Height Initial (L_o)	Height Final (L_f)	Diameter Initial	Diameter Final
1	5.976		1-T 2.820	
2	5.974		2-M 2.849	
3	5.986		3-B 2.882	
4	5.987		1'-T 2.858	
5	5.991		2'-M 2.857	
Ave	5.9868		3'-B 2.850	
			Ave 2.8517	

$D_{ave} = (D_1 + 2D_m + D_3)/4$

ΔL_c = ____ in
ΔL_t = ____ in
$\Sigma \Delta L$ = ____ in
$L_o - L_f$ = ____ in.

$A_o = \pi D^2/4 = 6.3869$ in²
$V_o = 1/3 \cdot 16.887 / = 666.595$ cm³
Area $= 5.5542 (D^2) =$ ____ cm²

Membrane { Thickness = .012 in; Circumference (C_m) = ____ in; Diam = C_m/π = 2.80 in }

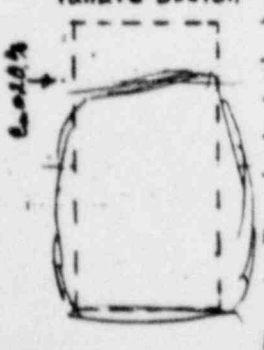
Filter Paper: Top + bottom: ☐ Yes; ☐ No

Filter Strips: ☐ Yes; ☐ No
____ Vertical at 1/4" - Whatman #54 or ____
____ Spiral at 1/4": Whatman #1 or ____

Wgt top cap: 427.3 gm, 0.942 lbs
Wgt (cap, disc, + piston) = ____ gm, ____ lbs

Preliminary
γ_{co} = 135.82 lb/ft³ γ_{do} = ____ lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo Taken

Load Corr. ℓ = 1.1 - 0.942 = 0.158 lbs

Memb. Corr. (ΔV) = 102.4 × 0.012 / 2.80 = 0.4389

Other Remarks: $\overline{\sigma_c}$ = 0.9 + [0.076 (depth - 7)] ~ Ksf
1.80 Ksf = 0.9 + ~ 12.51 Psi

Preliminary Cal. by GG / Reviewed by RF-Y

☐ Trimmed by ____ Setup by [illegible] Date 5/6/81 Taken down by [illegible] Date 5/12/81
☐ Reconstituted Date ____

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS 14

COE-14
S-SC

Type Test: U.U. ☒ Undisturbed ☐ Reconstituted - Specimen: ☐ Dynamic / H_z or ____ # sinusoidal / or ____ ☒ Static ~60 %/hr

Consolidation History Units: tsf or ksf	Max. Induced Pore Pressure Uncorr.	Corr. #	☒ Preshear/post. ☐ Pre cy-loading Uncorr.	Corr. #	Preshear after cy-loading Uncorr.	Corr. #
σ_{cell}		—	1.8014	—		—
u		—		—		—
$\bar{\sigma}_v$						
$\bar{\sigma}_h$						
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$						
OCR						
Consol. Time	☐ Overnight days ____ hours ____		☐ Overnight days ____ hours ____		☐ Overnight days ____ hours ____	

Corrected for effects of membrane, S. Hor strips, etc.

H_o = 5.9868 in.
A_c = 6.3869 in²
V_o = 626.595 cm³
Dev/Dom = ____
G_s = ____ ☐ Assumed ☐ Measured
E_s = ____ %
Area Corr. Factors, C
Undrained = ____
$C = \frac{1}{E_s}\left(1 - \frac{A_c}{A_{top}}\right)$
Drained = ____
$C = \frac{1}{E_s}\left[1 - \frac{A_c}{A_{sm}}(1+\varepsilon_v)\right]$

Calculate W_s of Dry Soil	By Initial water content	By Final water content	By Total Oven-dried Specimen
W_t (gm)			
W_b (gm)			
W_{am} (gm)	(13.38)	13.36	
W_s, W_{at} Soil, W_t (gm)	1363.2	1363.0	
Initial W_s / Dry Soil (gm)	ΔV_T (cm³) during test		
Wgt Excess Quantity Soil	Corr. Wgt. @ γ_w: $W_c = W_t + \Delta V_T$		
Total Wgt Oven Dry Soil, W_s (gm)	1202.36	(1202.36)	

W_s used: Final = 1202.36 gm

γ_w @ 20°C (Stand) = 62.32 lb/ft³ = 0.9982 gm/cm³ (SI) = 64.2 (lb/sqft)

Variations in Height and Volume During Consolidation

During Initial Consol. with out back-pressure: ΔV_b = vol in

During Back-pressuring

After Backpressuring: $\bar{\sigma}_{n(f-)}$ From ____ To ____; $\bar{\sigma}_{n(f+)}$ From ____ To ____; $\bar{\sigma}_{p(f+)}$ From ____ To ____

Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL^{MF}, (+) ΔL^{sm}

	Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5
ΔL (in)		0.0245				
ΔV_m (cm³)		—				
$-\Delta V_a = 3V_o(\Delta H/H_o)$		(7.698)				
$R = \Delta V_m / \Delta V_a$		Used = ____				
Corrected $\Delta V_c = R \cdot \Delta V_a$						

ΔL_{cy} = ____ in; $\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ____ cm³; ΔV_T (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures

ΔV_c by W_t Change = $W_c - W_b - (\Delta V_b + \Delta V_T)$
$\Delta W_{t.} =$ ____ gm
$\Sigma(\Delta V_b + \Delta V_T) =$ ____
$\therefore \Delta V_c =$ ____ cm³

ΔV_c by recorded / calculated volume changes = Σ selected ΔV
$\Delta V_c = 7.698 + \underbrace{\quad}_{\Delta V_1} + \underbrace{\quad}_{\Delta V_2} + \underbrace{\quad}_{\Delta V} = 7.698$ cm³

ΔV_c assuming $S = 100\%$: $V_F = (\frac{1}{G_s} - w\frac{\gamma_w}{\gamma_s})W_s/\gamma_w$
Undrained: $\Delta V_c = V_o - V_F$
Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$
$w_b =$ ____ %; $V_F =$ ____ cm³
$V_F + \Delta V_T =$ ____ cm³
$\therefore \Delta V_c =$ ____ cm³

Conclusions

ΔV_c used (ave / rebound) = 7.698 cm³ $\therefore V_c$ = 618.902 cm³; ΔL_c = 0.0245 in; $\therefore L_c$ = 5.9623 in
$A_c = V_c/L_c$ (cm³/in)/16.387 = 6.3344 in²/0.144 = 43.9889 $\times 10^{-3}$ ft²
ε_{ac} = 0.41 %; ε_v = 1.23 %; ε_v = ____; E_s^B = ____; ε_{vc}^B = ____ # not in person.
At max. rebound pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area ($\times 10^{-3}$ ft² / cm² / $\times 10^{-3}$)	Volume (cm³)	Water Content (%)	Total or Dry Density (lb/ft³)	Saturation (%)		
Initial	5.9868	44.3535	626.595	13.38	135.82 119.79			
After Consol.	5.9623	43.8889	618.902	13.36	137.51 121.30			

$S = wG_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_d / (G_s \cdot \gamma_w (10w) - \gamma_d)$

Psi x 0.0072 = ksf
W for S = 100 % = $G_s \cdot \gamma_w - \gamma_d / G_s \cdot \gamma_d$ = $G_s \cdot \gamma_w / G_s \cdot \gamma_d + 1$

Calculated by ____ Reviewed by ____

WCC L-205 (6/75)

TRIAXIAL LOADING DATA: Type Test UU — Type Loading 5 — ☑ Load-"Stress"; ☐ Deformation-"Strain"

Project No. 5KX055 T-5 — Project Engineer CR — Cell No. ____ — Loading Frame: ☑ WF ☐ Other ☐ MTS ☐ WCC-Unit No.

Date 7/16/81 — Test No. ID 107

☑ Undisturbed ☐ Reconstituted

Boring No. COE 14 — Sample No. ____

Sample No. S-9 — Specimen No. C

Depth (FT) 20.2 — Remarks ____

σ_c = 1.801 Kgf/cm² = ____ lb/in.² = ____ ton/ft²

u_B = ____ lb/in.² = ____ ton/ft²

$\bar{\sigma}_{3c}$ = ____ lb/in.² = ____ ton/ft²

$\bar{\sigma}_{1c}$ = ____ ton/ft²

$\bar{\sigma}_{cmax}$ = ____ tsf

OCR = ____

	OCR = 1	max OCR
$\bar{\sigma}_{3c}/\bar{\sigma}_{1c}$		

B - Factor: $\Delta U/\Delta \sigma_c$ = ____ %; in ____ min.; for $\Delta\sigma_c$ = ____ tsf

Proving Ring No. ____

Dial Range	Factor: Slope	Factor: Correction

Load (tons x 10^{-3}) = PR div x SF + CF

Load Transducer No. LCE-5

☑ Cal. Short - Ohms 886

☐ Ind. Cal. - Ref ____

Read ☑ Vishay Ch. 8

Out ☐ Other ____

Remarks: ____

Strain Dial No. F-2-10

Pressure Tranducer No. ____

☐ Cal. Short - Ohms ____

☐ Ind. Cal. - Ref ____

Read ☐ Vishay Ch. ____

Out ☐ Other ____

☐ Back pressure nulled to zero

Remarks: ____

Membrane: Thickness, t_{om}: ____ in.

Circumference, c_{om}: ____ in.

Weight Top Cap & Piston = ____ gm

Filter Strips: ☐ Yes ☐ No

____ Vertical @ 1/4 in. | Whatman

____ Spiral @ 1/4 in. | No. 54 or ____

Filter Paper Top & Bottom ☐ Yes ☐ No

Loading Time / Strain Rate ϵ_{end} = ____ %

Finish ____ @ ____ hr

Start ____ @ ____ hr

Δt (hr) = ____ ϵ_{rate} = ____ %/hr

During Consolidation: ΔL_c = ____ in. ΔV_c = ____ cm³; ϵ_{ac} = ____ % ϵ_{vc} = ____ %; $1-\epsilon_{vc}$ = ____

Initial Loading Conditions: Length = ____ in.; Area = ____ 10^{-3} ft²; Volume = ____ cm³

Computor Program No. ____

$\sigma_1-\sigma_3$ corrected for:

☐ Filter Strips; ☐ σ_c on Piston

☐ Dilation; ☐ Weight Cap

☐ Membrane, Method ____

Time	Δt min/sec	Def. Dial in	Load (lbs)		Ea %	$\frac{\sigma_1-\sigma_3}{2}$ (ksf)	E ( )			Time	Δt min/sec	Def. Dial in	Load (lbs)	Ea %	$\frac{\sigma_1-\sigma_3}{2}$ (ksf)	E ( )				See Remarks
13:05	0	0	11		0.0	0.0196						.050	23.6	0.839	0.5230					
		.003	7.8		0.050	0.1716						.060	25.5	1.006	0.5641					
		.005	10.9		0.084	0.2418						.070	27.6	1.174	0.6096					
		.010	13.2		0.168	0.2935						.080	29.9	1.342	0.6596	x				
		.015	15.2		0.252	0.3382	x					.090	32.0	1.509	0.7045					
		.020	16.8		0.335	0.3738						.100	34.0	1.677	0.7473					
		.025	18.1		0.419	0.4025						.110	36.6	1.845	0.8033					
		.030	19.3		0.503	0.4290						.120	39.8	2.01	0.850	x				
		.040	21.5		0.671	0.4772						.130	41.0	2.18	0.897					

Remarks: ____

Notations: (+) compression (decrease in volume); (-) extension (increase in Volume); Increasing burrette reading = Volume Increase

Test Started by ____ Loading Date by ____ ; ____ ; ____ Calculated by ____ Reviewed by ____ Checked by ____

Sheet 1 of 2

TRIAXIAL LOADING DATA ("Second" Sheet) Sheet 2 of 2

Proj. No. 81C4055F-3 Cell No. 5 Test No. 44 Date: 5/18/81

Boring No. LOC17 Sample No. 5-9 Specimen No. C Depth (ft) 20.~ 20#10T

Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	$\frac{P_{ff}}{\sigma_3}$ (TSF)	$\bar{\varepsilon}$ ( )		Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	$\frac{P_{ff}}{\sigma_3}$ (TSF)	$\bar{\varepsilon}$ ( )		See Remarks
		.140	43.4		2.35	0.948					1.000	154.3		16.77	2.849			
		.150	45.4								1.050	158.6		17.61	2.889			
		.160	47.8		2.68	1.040					1.100	162.6		18.45	2.929			
		.170	49.5								1.150	167.8		19.46	2.983			
		.180	51.8		3.02	1.124					1.200	170.6		20.13	3.005			
		.190	53.0															
		.200	55.7		3.35	1.204												
		.220	60.0								$\dot{\varepsilon} \simeq 60\%$							
		.240	63.3		4.03	1.359												
		.260	67.0															
		.280	70.6		4.70	1.504												
		.300	73.9		5.03	1.568												
		.325	77.5		5.45	1.637												
		.350	81.8															
		.375	85.1		6.22	1.782												
		.400	88.9															
		.450	95.6		7.55	1.971												
		.500	102.2															
		.550	101.4		9.22	2.192												
		.600	114.1		10.06	2.284												
		.650	120.0		10.90	2.378												
		.700	125.4															
		.750	130.6		12.58	2.536												
		.800	135.6															
		.850	140.4		14.26	2.670												
		.900	145.5		15.09	2.738												
		.950	149.9		15.93	2.790												

Notation: (+) compressive (decrease in volume); (-) extension (volume increase); Increasing burrette reading = Volume increase

Remarks: —

Loading data by —; —; — Calculated by [signature] Reviewed by [signature] Checked by MA

1-D

17 WCC 2-202 (1180)

TRIAXIAL TEST (Set Up / Take Down)

Proj. No 81C4055T3 Proj. Eng. RSL Cell No 4 Piston dia.: ☒ 3/8"; ☐ 1/2"

Type Test UU File No

Loading Conditions:							
☐ Dynamic	☐ Undrained	☐ Compression	☒ Constant cell pressure
☐ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type Consolidation:			Piston Screwed in: ☐ Yes; ☒ No
☐ Isotropic	☐ K_o stress path	
☐ Anisotropic	☐ 45° Stress path	

☒ Undisturbed	☐ Reconstituted	☐ Impact	☐ Constant Effort
Boring No COE-15A	Composite No	☐ Static	____ layers; ____ lb {Hammer Tamp
Sample No S-3D	Specimen No	☐ Kneading	____ Blows - Tamps / layer
Depth (ft) 4.4	Remarks	☐ Tamping	☐ Undercompaction
☐ Ends capped with Castone; ☐ Geomarine Sample		☐ Other	____ layers; ____ Unit (%)

Water Content				Final
Location				Ave
Container No				51
Wgt Container + Wet Soil (gm)				434.37
Wgt Container + Dry Soil (gm)			SIEVE	408.59
Wgt. Container (gm)				141.84
Wgt Dry Soil (gm)				266.75
WATER CONTENT (%)				9.65

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone(s) (w): ____ gm
Stone(s) ____ gm
Wet Initial: 1373.0 gm
Wet Final: 1322.3 gm
Excess Oven Dry Dish No ____
Wgt Dish + Dry Soil ____ gm
Wgt. Dish ____ gm
Wgt. Excess + Dry Soil ____ gm

Dimensions of Height (in)		Specimen Diameter (in) or ____		
	Initial (L_o)	Final (L_f)	Initial	Final
1	5.687		1-T 2.843	
2	5.682		2-M 2.832	
3	5.684		3-B 2.844	
4	5.683		1'-T 2.846	
5	5.689		2'-M 2.836	
Ave	5.685		3-B 2.843	
			Ave 2.8407	

$D_o = (D_1 + 2D_2 + D_3)/4$

ΔL_c = ____ in
ΔL_f = ____ in
$\Sigma \Delta L$ = ____ in
$L_o - L_f$ = ____ in

$A_o = \pi D^2/4 = 6.3377$ in²
$V_o = 1h^3 \cdot 16.387 1 = 590.424$ cm³
Area $= 5.545 + 2(D^2) =$ ____ cm²

Membrane { Thickness = 0.012 in; Circumference (C_m) = ____ in; Diam = C_m/π = ____ in }

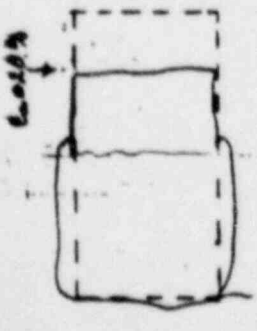
Filter Paper: Top + bottom: ☐ Yes; ☐ No

Filter Strips: ☐ Yes; ☐ No
____ Vertical at ¼" - Whatman #54 or ____
____ Spiral at ¼": Whatman #1 or ____

Wgt top cap = 697.3 gm, 0.942 pounds
Wgt (Cap, dial + piston) = ____ gm, ____ 10^{-2} lbs

Preliminary
Y_{co} = 139.89 lb/ft³ Y_{do} = ____ lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo taken

Load Cell = $3.97 \times 0.11045 - (0.942 + 1.043) = -1.547$ lbs

Horiz. Comp. ε = $109.4 \times 0.012 / 2.8407 = 0.4326$

Other Remarks: PISTON + DIAL = 473.01 = 1.043 lbs

Preliminary Cal. by RB Reviewed by RSL

☐ Trimmed by ____ Set up by RB Taken down by ____
☐ Excess/Total Dish ____ Date 5/20/85 Date ____

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS

18

COE-15A
S-3D

Type Test: _____ ☐ Undisturbed ☐ Reconstituted - Specimen: _____

☐ Dynamic / H_z or _____ # sinusoidal / or _____ ☒ Static 69.3 %/hr

Consolidation History Units: tsf or psf	Flow Induced Pore Pressure: Uncorr.	Corr. #	☒ Preshear/perm. ☐ Pre cy-loading: Uncorr.	Corr. #	Preshear after Cy-loading: Uncorr.	Corr. #
$\bar{\sigma}_{cell}$		—	0.5717	—		—
u		—		—		—
$\bar{\sigma}_v$						
$\bar{\sigma}_h$						
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$						
OCR						
Consol. Time	☐ Overnight: _____ days _____ hours		☐ Overnight: _____ days _____ hours		☐ Overnight: _____ days _____ hours	

Corrected for effects of membrane, S. Hor strips, etc.

H_o = 5.685 in

A_c = 6.2?7 in²

V_o = 590.424 cm³

Dav/Dom = _____

G_s: _____ ☐ Assumed ☐ Measured

E_f = _____ %

Area Corr. Factors: C

Undrained: _____

$C = \frac{1}{E_f}\left(1 - \frac{A_c}{A_{ISA}}\right)$

Drained: _____

$C = \frac{1}{E_f}\left[1 - \frac{A_c}{A_{ISA}}\frac{(1+2\nu_c)}{3}\right]$

Calculated Wt of Dry Soil	By Initial water Content	By Final water Content	By Total Oven-dried Specimen
W_s (%)			
W_b (%)			
W_{ave} (%)	(9.71)	9.65	
Wet Wt Soil, W_T (gm)	1??.0	1??.3	
Tot. Dry Wt Soil (W_s)	ΔW_T (tare) during test: _____		
Wt Excess Oven-dry Soil	Corr. Wet Wt: $W_c = W_T + \Delta W_T$		
Tot. Wt Oven Dry Soil, W_s (gm)	1?05.9?	(1?05.9?)	
W_s used:	final = 1?05.9? gm		

Variations in Height and Volume During Consolidation	During Initial Consol. with out back pressure	During Back-pressuring	After Backpressuring: = $\Delta H_{(f-i)}$	= $\Delta V_{(f-i)}$	= $\Delta V_{(f-i)}$
	ΔV_o = vol. in		From _____ To _____	From _____ To _____	From _____ To _____
Consolidation	Sign. Convention: (+) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down				
ΔL_c (in)	0.003				
ΔV_m (cm³)	—				
$= 3V_o(\Delta H/H_o)$	0.9?5				
$R = \Delta V_m/\Delta V_a$	Rused = _____				
Corrected $\Delta V_a = R\,\Delta V_a$					
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = _____ in

$\Sigma\Delta V_{rebound} = \bar{\sigma}_{max} \to \bar{\sigma}_{test}$ = _____ cm³

$\Sigma\Delta V_T$ (during drained loading) = _____ cm³

Calculation of ΔV_c during Consolidation by Different Procedures

ΔV_c by W_T Change = $W_c - W_b - (\Delta V_o + \Delta V_T)$

ΔW_T = _____ gm

$\Sigma(\Delta V_o + \Delta V_T)$ = _____ cm³

$\therefore \Delta V_c$ = _____ cm³

ΔV_c by recorded/calculated volume changes = Σ selected ΔV

ΔV_c = ΔV_1 + ΔV_2 + ΔV

= 0.9?5 cm³

ΔV_c assuming $S = 100\%$: $V_F = (W_c - w_b)G_s\gamma_w/\gamma_w$

Undrained: $\Delta V_c = V_o - V_F$

Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$

w_b = _____ % V_F = _____ cm³

$V_F + \Delta V_T$ = _____ cm³

$\therefore \Delta V_c$ = _____ cm³

Conclusions

ΔV_c used (ave. value) = 0.9?5 cm³ $\therefore V_c$ = 589.489 cm³; ΔL_c = 0.00? in, $\therefore L_c$ = 5.6?? in

$A_c = V_c/L_c$ (cm³/in)/16.387 = 6.?10 in²/0.144 = 42.96?2 $\times 10^{-3}$ ft²

ε_{ac} = 0.05 %; ε_v C.lt %; $1-\varepsilon_v$ = _____ E_f# = _____; ε_{vc}# = _____ # not if percent

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = _____ cm³; ΔL_{max} = _____ in

Summary	Height (in)	Area (ft² or cm² x 10^{-3})	Volume (cm³)	Water Content (%)	Total or Dry Density (lb/ft³)	Saturation (%)		
Initial	5.685	44.0118	590.424	9.71	139.8? 127.51			
After Consol.	5.6??	42.96?2	583.48?	9.65	140.04 127.71			

$S = wG_s\cdot\gamma_d/(G_s\cdot\gamma_w - \gamma_d) = w\cdot G_s\cdot\gamma_s/(G_s\cdot\gamma_w(1+w) - \gamma_s)$

Calculated by _____ Reviewed by _____

Psi x .0072 = dsf

W for S = 100% = $G_s\cdot\gamma_w - \gamma_d/G_s\cdot\gamma_d = G_s\cdot\gamma_w - \gamma_c/G_s(\gamma_c - \gamma_w)$

γ_w @ 20°C (tread) = 62.32 lb/ft³ @ 998.2 gm/cm³ (6.4°) @ 64.2 (18.5°)

WCC
L-205
(8/75)

TRIAXIAL LOADING DATA: Type Test [illegible] Type Loading ☐ Load-"Stress"; ☐ Deformation-"Strain"

Project No. [illegible] Project Engineer [illegible] Cell No. [illegible] Loading Frame ☑ WF ☐ Other ☐ MTS ☐ WCC-Unit No.

Date [illegible] Test No. [illegible]

☑ Undisturbed ☐ Reconstituted

Boring No. [illegible] Sample No. [illegible]

Sample No. [illegible] Specimen No. [illegible]

Depth (FT) [illegible] Remarks [illegible]

σ_c = [illegible] lb/in.^{2} = [illegible] ton/ft^2

U_B = [illegible] lb/in.^{2} = [illegible] ton/ft^2

$\bar{\sigma}_{3c}$ = [illegible] lb/in.^{2} = [illegible] ton/ft^2

$\bar{\sigma}_{1c}$ = [illegible] ton/ft^2

$\bar{\sigma}_{cmax}$ = [illegible] tsf

OCR = [illegible]

	OCR = 1	max OCR
$\bar{\sigma}_{3c}/\bar{\sigma}_{1c}$		

B - Factor

$\Delta U/\Delta \sigma_c$ = [illegible] %

in [illegible] min.

for $\Delta\sigma_c$ = [illegible] tsf

Proving Ring No.		
Dial Range	Factor	
	Slope	Correction

Load (tons x 10^{-3}) = PR div x SF + CF

Load Transducer No. [illegible]

☑ Cal. Short - Ohms [illegible]

☐ Ind. Cal. - Ref [illegible]

Read ☑ Vishay Ch. [illegible]

Out ☐ Other [illegible]

Remarks: [illegible]

Strain Dial No. [illegible]

Pressure Tranducer No. [illegible]

☐ Cal. Short - Ohms [illegible]

☐ Ind. Cal. - Ref [illegible]

Read ☐ Vishay Ch. [illegible]

Out ☐ Other [illegible]

☐ Back pressure nulled to zero

Remarks: [illegible]

Membrane: Thickness, t_{om}: [illegible] in.

Circumference, c_{om}: [illegible] in.

Weight Top Cap & Piston = [illegible] gm

Filter Strips: ☐ Yes ☐ No

___ Vertical @ 1/4 in. | Whatman

___ Spiral @ 1/4 in. | No. 54 or ___

Filter Paper Top & Bottom ☐ Yes ☐ No

Loading Time / Strain Rate ϵ_{end} = [illegible] %

Finish [illegible] @ [illegible] hr

Start [illegible] @ [illegible] hr

Δt (hr) = [illegible] ϵ_{rate} = [illegible] %/hr

During Consolidation

ΔLc = [illegible] in. ΔVc = [illegible] cm^3

ϵ_{ac} = [illegible] % ϵ_{vc} = [illegible] %

$1-\epsilon_{vc}$ = [illegible]

Initial Loading Conditions

Length = [illegible] in.

Area = [illegible] 10^{-3} ft^2

Volume = [illegible] cm^3

Computor Program No.

$\sigma_1-\sigma_3$ corrected for:

☐ Filter Strips; ☐ σ_c on Piston

☐ Dilation; ☐ Weight Cap

☐ Membrane, Method [illegible]

Time	Δt min/sec	Def Dial in	Load (lb)		Ea %	P/A (ksf)	E ( )			Time	Δt min/sec	Def Dial in	Load (lb)	Ea %	P/A (ksf)	E ( )			See Remarks
[illegible]		[illegible]	00		0.0	0.000						[illegible]	280	0.616	0.6620				
[illegible]		[illegible]	63		0.018	0.1781						[illegible]	300	0.764	0.7092				
[illegible]		[illegible]	86		0.053	0.2348						[illegible]	317	0.132	0.7466				
[illegible]		[illegible]	103		0.088	0.2696						[illegible]	333	0.880	0.7816	x			
[illegible]		[illegible]	151		0.176	0.3770						[illegible]	371	1.056	0.8650				
[illegible]		[illegible]	183		0.264	0.4483	x					[illegible]	411	1.232	0.9511				
[illegible]		[illegible]	214		0.352	0.5152						[illegible]	447	1.408	1.0313				
[illegible]		[illegible]	237		0.440	0.5696						[illegible]	475	1.584	1.1120	x			
[illegible]		[illegible]	258		0.528	0.6162						[illegible]	502	1.760	1.1721				

Remarks: [illegible]

Notations: (+) compression (decrease in volume); (-) extension (increase in Volume); Increasing burrette reading = Volume Increase

Test Started by [illegible] Loading Date by [illegible]; ___; ___ Calculated by [illegible] Reviewed by [illegible] Checked by [illegible]

TRIAXIAL LOADING DATA ("Second" Sheet) Sheet 2 of 2

Proj. No. GC70513 Cell No. 4 Test No. — Date: 3/30/92

Boring No. GE-15R Sample No. 3D Specimen No. _____ Depth (ft) 44

Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	P/A (KSF)	$\bar{E}$ ( )		Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	P/A (KSF)	$\bar{C}$ ( )		See Remarks
		110	50		1.936	1.261												
		120	61.2		2.11	1.322	x											
		130	65.4											15.84	6.373	x		
		140	70.2		2.46	1.581	x											
		~~150~~	8											17.60	7.107	x		
		160	~~80~~ 86		2.82	1.803												
		170	~~85.8~~											19.36	7.162	x		
		180	91.5		3.17	2.025	x							20.24	7.132	x		
		190	98.2							20 20	1 200	403.7		21.12	7.183	x		
		200	105.0		3.52	2.223												
		225	123.9															
		250	145.0		4.40	3.167	x											
		275	169.3		4.84	3.677	x											
		300	193.3		5.28	4.175	x											
		325	216.0															
		350	236.3		6.16	5.050	✓											
		375	252.6		6.60	5.370	x											
		~~400~~																
		450	286		7.92	5.836	x											
		500	300.5															
		550	300.9		9.68	6.171	x											
		600	312.1		10.56	6.395	x											
		650	323.3		11.44	6.494	x											
		700	333.0															
		750	342.1		13.20	6.827	x											
		800	351.7															
		850	359.8		14.96	6.905	x											

Notation: (+) compressive (decrease in volume; (-) extension (volume increase); Increasing burrette reading = Volume increase

Remarks: _____

Loading data by VI ; _____ ; _____ Calculated by _____ Reviewed by _____ Checked by _____

2-D

21 WCC 4-202 (118)

TRIAXIAL TEST (Set Up / Take Down)

Proj. No. 81C4055T8 Proj. Eng. RSL Cell No. 4 Piston dia.: ☒ 3/8"; ☐ 1/2"

Type Test U U File No _____

Loading Conditions:							
☐ Dynamic	☐ Undrained	☐ Compression	☒ Constant cell pressure
☐ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type Consolidation:			Piston Screwed in: ☐ Yes; ☒ No
☐ Isotropic	☐ K_o stress path	
☐ Anisotropic	☐ 45° Stress path	

☒ Undisturbed	☐ Reconstituted	☐ Impact	☐ Constant Effort
Boring No. COE-15A	Composite No. _____	☐ Static	_____ layers, _____ lb (Hammer Temp)
Sample No. 5B	Specimen No. _____	☐ Kneading	_____ Blows - Temps / layer
Depth (ft) 8.7	Remarks _____	☐ Tamping	☐ Undercompaction
☐ Ends capped with Coatbac; ☐ Geomarine Sample		☐ Other	_____ layers; _____ Unif (%)

Water Content				Final
Location				Ave
Container No				554
Wgt Container + Wet Soil (gm)				412.50
Wgt Container + Dry Soil (gm)				384.47
Wgt Container (gm)				127.50
Wgt Dry Soil (gm)				252.68
WATER CONTENT (%)				12.45

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (wt) :	_____ gm
Stone (wt)	_____ gm
Wet Initial :	1422.5 gm
Wet Final :	1421.4 gm
Excess Oven Dry - Dish No.	_____
Wgt Dish + Dry Soil	_____ gm
Wgt. Dish	_____ gm
Wgt. Excess Dry Soil	_____ gm

Dimensions of Specimen _____

	Height (in) Initial (L_o)	Height (in) Final (L_f)	Diameter (in) or _____ Initial	Diameter (in) or _____ Final
1	5.939		1-T 2.860	
2	5.932		2-M 2.863	
3	5.936		3-B 2.870	
4	5.934		1'-T 2.877	
5	5.927		2'-M 2.874	
Ave	5.935		3'-B 2.890	
			Ave 2.872	

$D_{ave} = (D_T + 2D_M + D_B)/4$

ΔL_c = _____ in

ΔL_c = _____ in

$\Sigma \Delta L$ = _____ in

$L_o - L_f$ = _____ in

$A_o = \pi D^2/4$ = 6.4973 in²

$V_o = 1h^3 \cdot 16.387$ = 621.151 cm³

From $\frac{5.5542(D^2)^2}{h}$ = _____ 10^{-2} cm³

Membrane { Thickness = .3 in; Circumference (C_m) = _____ in; Diam = C_m/π = _____ in }

Filter Paper: Top + bottom: ☐ Yes; ☐ No

Filter Strips: ☐ Yes; ☐ No

_____ Vertical at ¼" - Whatman #54 or _____

_____ Spiral at ¼" : Whatman #1 or _____

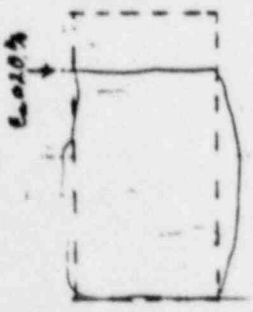
Wgt top cap = 427.30 gm, 0.2% 10^{-2} lbs

Wgt (Cap, Disk, Spiker) = _____ gm, _____ 10^{-2} lbs

Preliminary

γ_{co} = 139.73 lb/ft³ γ_{do} = _____ lb/ft³

Failure Sketch



Final Visual Classification. ☐ See more detailed sketch on attached sheet; ☐ Photo Taken

Load (psi) = 0.4 = 0.4 = 1.6

Load (psi) = 1.0 / 1.574 = 0.4976

Other Remarks: _____

Preliminary Cal. by _____ Reviewed by _____

☐ Trimmed by _____ Setup by KB Taken down by _____

☐ Excess Material Date _____ Date 6/1/87 Date _____

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS 22

Type Test: U.U. ☒ Undisturbed ☐ Reconstituted - Specimen: COE 15 A

☐ Dynamic / Hz or ____ ☐ sinusoidal or ____ ☒ Static 60.0 %/hr S-5B

Consolidation History Units: ☐ psf or ☐ tsf	Max. Induced Pore Pressure: Uncorr.	Corr. *	☒ Preshear/perm. ☐ Pre cy-loading: Uncorr.	Corr. *	Preshear after Cy-loading: Uncorr.	Corr. *
σ_{cell}		—	1.025	—		—
u		—		—		—
$\bar{\sigma}_v$						
$\bar{\sigma}_h$						
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$						
OCR						
Consol. Time	☐ Overnight: days ____ hours ____		☐ Overnight: days ____ hours ____		☐ Overnight: days ____ hours ____	

* Corrected for effects of membrane, S. Hor strips, etc.

H_o = 5.917 in

A_c = 6.7[illegible] in²

V_o = 6:1.151 cm³

Dea/Dem = ____

G_s = ____ ☐ Assumed ☐ Measured

P_c = ____ %

Area Corr. Factors: C

Undrained: ____

$C = \frac{1}{\varepsilon_1}\left(1 - \frac{A_c}{A_{ton}}\right)$ ____

Drained = ____

$C = \frac{1}{\varepsilon_1}\left[1 - \frac{A_c}{A_{ton}(1+\varepsilon_v)}\right]$ ____

Calculate W_{ot} of Dry Soil	By Initial water content	By Final water content	By Total Oven-dried Specimen
W_1 (%)			
W_2 (%)			
W_{ave} (%)	(12.51)	12.45	
Wgt. Wet Soil, W_T (gm)	1402.5	1401.8	
Initial Wgt Dry Soil (gm)	ΔV_T (cm³) during test		
Wgt Excess Quantity Soil	Corr. Wet Wgt. W_c: $W_T + \Delta V_T$		
Total Wgt Oven Dry Soil W_s (gm)	1264.60	1264.60	
W_s used:	(12.51) = 1264.62 gm		

Variations in Moist and Volume During Consolidation	During Initial Consol. with out back-Pressure	During Back-Pressuring ΔV_b = vol. in	After Backpressuring = $P_{(F_1)}$: From ____ To ____	= $P_{(F_2)}$: From ____ To ____	= $P_{(F_3)}$: From ____ To ____
	Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down				
ΔL (in)	0.011				
ΔV_m (cm³)					
$\frac{\Delta V_m}{3V_o(\Delta H/H)}$	(3.508)				
$R = \Delta V_m / \Delta V_a$	Rused = ____				
Corrected $\Delta V_a = R \cdot \Delta V_a$					
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in $|\Delta V_{rebound}| = \sigma_{max}$ to σ_{test} = ____ cm³

$|\Delta V_T$ (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by D. Sconza Procedure	ΔV_c by W_T Change = $W_c - W_o - (\Delta V_o + \Delta V_T)$	ΔV_c by recorded/calculated volume changes = Σ selected ΔV	ΔV_c assuming $S = 100\%$: $V_F = (W_{ave} - w_o)W_s/\gamma_w$
	ΔW_T = ____ gm	$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V$	Undrained: $\Delta V_c = V_o - V_F$
	$\Sigma(\Delta V_o + \Delta V_T)$ = ____ cm³	= 3.508 cm³	Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$
	$\therefore \Delta V_c$ = ____ cm³		w_o = ____ %; V_F = ____ cm³
			$V_F + \Delta V_T$ = ____ cm³
			$\therefore \Delta V_c$ = ____ cm³

Conclusions:

ΔV_c used (ave value) = 3.508 cm³ $\therefore V_c$ = 627.643 cm³; ΔL_c = 0.011 in, $\therefore L_c$ = 5.956 in

$A_c = V_c/L_c (5\pi/16)/16.387 1 = 6.4632$ in²/0.144 = 44.825 $\times 10^{-3}$ ft²

ε_{ac} = 0.185 %; ε_v ____ %; $1-\varepsilon_v$ = ____ E_{ff} = ____; ε_{vf} = ____ # not in percent

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (ft² x 10⁻³)	Volume (cm³)	Water Content (%)	Total/Dry Density (lb/ft³)	Saturation (%)		
Initial	5.917	45.0507	6:1.151	12.51	138.73 123.30			
After Consol.	5.956	44.8835	627.643	12.45	139.43 124.00			

$S = wG_s \cdot \gamma_d/(G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_s/(G_s \cdot \gamma_w(1+w) - \gamma_s)$

Calculated by ____ Reviewed by ____

Pcf x 0.0272 = tsf

W 3or 5 x 100 % = $G_s \cdot \gamma_w - \gamma_d / G_s \cdot \gamma_d$ = $G_s \cdot \gamma_w - \gamma_s / G_s (\gamma_s - \gamma_w)$ γ_w @ 20°C (tsf) = 62.37 lb/ft³ • 0.9982 gm/cm³ (G.M) • 6x2 (lb/sqf)

WCC
L-205
(6/75)

TRIAXIAL LOADING DATA: Type Test U U | Type Loading ☐ Load-"Stress"; ☐ Deformation-"Strain" | Loading Frame ☒ WF ☐ Other ☐ MTS ☐ WCC-Unit No.

Project No. 81C4055T3 | Project Engineer RSL | Cell No. 4 | Date _____ | Test No. _____

☒ Undisturbed ☐ Reconstituted

Boring No. COE-15A | Sample No. _____

Sample No. S-5B | Specimen No. _____

Depth (FT) 8.7 | Remarks _____

σ_c = 1.0253 lb/in.^{2} = 0.51 ton/ft^2

U_B = _____ lb/in.^{2} = _____ ton/ft^2

$\bar{\sigma}_{3c}$ = _____ lb/in.^{2} = _____ ton/ft^2

$\bar{\sigma}_{1c}$ = _____ ton/ft^2

$\bar{\sigma}_{cmax}$ = _____ tsf

OCR = _____

$\bar{\sigma}_{3c}/\bar{\sigma}_{1c}$	OCR = 1	max OCR

B - Factor

$\Delta U/\Delta \sigma_c$ = _____ %

in _____ min.

for $\Delta\sigma_c$ = _____ tsf

Proving Ring No.

Dial Range	Factor: Slope	Factor: Correction

Load (tons x 10^{-3}) = PR div x SF + CF

Load Transducer No. LCI-5

☒ Cal. Short - Ohms 5661 K

☐ Ind. Cal. - Ref _____

Read ☒ Vishay Ch. 2

Out ☐ Other _____

Remarks: _____

Strain Dial No. F2-10

Pressure Tranducer No. _____

☐ Cal. Short - Ohms _____

☐ Ind. Cal. - Ref _____

Read ☐ Vishay Ch. _____

Out ☐ Other _____

☐ Back pressure nulled to zero

Remarks: _____

Membrane: Thickness, t_{om}: _____ in.

Circumference, c_{om}: _____ in.

Weight Top Cap & Piston = _____ gm

Filter Strips: ☐ Yes ☐ No

_____ Vertical @ 1/4 in. | Whatman

_____ Spiral @ 1/4 in. | No. 54 or _____

Filter Paper Top & Bottom ☐ Yes ☐ No

Loading Time / Strain Rate ϵ_{end} = _____ %

Finish _____ @ _____ hr

Start _____ @ _____ hr

Δt (hr) = _____ ϵ_{rate} = _____ %/hr

During Consolidation

ΔL_c = _____ in. ΔV_c = _____ cm^3

ϵ_{ac} = _____ % ϵ_{vc} = _____ %

1 - ϵ_{vc} = _____

Initial Loading Conditions

Lungth = _____ in.

Area = _____ 10^{-3} ft^2

Volume = _____ cm^3

Computor Program No.

σ_1-σ_3 corrected for:

☐ Filter Strips; ☐ σ_c on Piston

☐ Dilation; ☐ Weight Cap

☐ Membrane, Method _____

Time	Δt min/sec	Def Dial in	Load (lbs)		Ea %	P/A (ksf)	E ( )			Time	Δt min/sec	Def Dial in	Load (lbs)	Ea %	P/A (ksf)	E ( )				See Remarks
0		.000	0.6		00	0.020						.03	15.6	0.221	0.513					
		.001	2.8		0.01	0.063							28.1	0.675	0.651	x				
		.003	5.7		0.051	0.132						.15	30.2	0.153	0.613					
		.005	7.8		0.084	0.1801							32.2	0.511	0.745					
		.010	12.1		0.163	0.252							36.3	1.112	0.840					
		.015	15.2		0.252	0.3[illegible]	x						40.5	1.181	0.599	x				
		020	17.9		0.321	0.[illegible]							43.7	1.350	0.963					
		.025	20.8		0.422	0.466							46.9	1.519	1.093					
		.030	23.3		0.506	0.[illegible]							49.9	1.691	1.63[illegible]					

Remarks: _____

Notations: (+) compression (decrease in volume); (-) extension (increase in Volume); Increasing burrette reading = Volume Increase

Test Started by KB | Loading Date by KB ; _____ ; _____ | Calculated by _____ | Reviewed by RA | Checked by MA

Sheet 1 of 2

TRIAXIAL LOADING DATA ("Second" Sheet) Sheet 2 of 2

Proj. No. 81C4055T3 Cell No. 4 Test No. _____ Date: 6/[illegible]

Boring No. COE-15A Sample No. S-5B Specimen No. _____ Depth (ft) 87

Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	P/A (tsf)	E ( )		Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	P/A (tsf)	$\bar{c}$ ( )		See Remarks
		.110	53.0		1.856	1.517	x				1.1[illegible]	155.5		15.19	2.832	x		
		.120	55.1		2.02	1.701					1.150	157.0						
		.130	57.6								1.200	161.0		16.87	2.915	x		
		.140	59.9		2.36	1.300					1.050	———						
		.150	62.0								1.100	168.3		18.56	2.980	x		
		.160	64.1		2.70	1.385	x				1.150	172.1		19.41	3.013	x		
		.170	66.1							20:16	1.200	175.0		20.25	3.028	x		
		.180	67.9		3.04	1.460												
		.190	69.5															
		.200	71.6		3.37	1.534	x											
		.225	76.0															
		.250	80.3		4.22	1.702												
		.275	84.3		4.64	1.778	x											
		.300	87.9		5.06	1.844												
		.325	91.6															
		.350	95.0		5.31	1.913	x											
		.375	98.5															
		.400	101.8		6.75	2.033	x											
		.450	108.2															
		.500	113.8		8.44	2.292	x											
		.550	119.4		9.28	2.380	x											
		.600	124.8		10.12	2.462	x											
		.650	130.3															
		.700	135.2		11.81	2.612	x											
		.750	140.1															
		.800	144.7		13.50	2.737	x											
		.850	149.0		14.34	2.790	x											

Notation: (+) compressive (decrease in volume); (-) extension (volume increase); increasing burrette reading = Volume increase

Remarks: _____

Loading data by LB; _____; _____ Calculated by _____ Reviewed by _____ Checked by _____

3.0

25 WCC 4-202 (1183)

TRIAXIAL TEST (Set Up / Take Down)

Proj. No 81C4055T3 Proj. Eng. RSL Cell No 4 Piston dia. ☒ 3/8"; ☐ 1/2"

Type Test UU File No _____

Loading Conditions:	☐ Dynamic ☐ Static	☐ Undrained ☐ Drained	☐ Compression ☐ Extension	☒ Constant cell pressure ☐ Variable cell pressure

Type Consolidation:	☐ Isotropic ☐ Anisotropic	☐ K_o stress path ☐ 45° Stress path

Piston Screwed in: ☐ Yes; ☒ No

☒ Undisturbed	☐ Reconstituted	☐ Impact	☐ Constant Effort	
Boring No COE-15A	Composite No _____	☐ Static	_____ layers, _____ blows (Hammer Temp)	
Sample No 7B	Specimen No _____	☐ Kneading	_____ Blows - Tamps / layer	
Depth (ft) 13.7	Remarks _____	☐ Tamping	☐ Undercompaction	
☐ Ends capped with Castone; ☐ Geomarine Sample		☐ Other	_____ layers; _____ Unif (%)	

Water Content				Final
Location				Ave
Container No				622
Wgt Container + Wet Soil (gm)				416.63
Wgt Container + Dry Soil (gm)				356.20
Wgt. Container (gm)				150.09
Wgt Dry Soil (gm)				206.11
WATER CONTENT (%)				12.93

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone(etc): _____ gm
Stone(etc) _____ gm
Wet Initial: 1377 gm
Wet Final: 1280 gm
Excess Oven dry Dish No _____
Wgt Dish + Dry Soil _____ gm
Wgt. Dish _____ gm
Wgt. Excess + Dry Soil _____ gm

Dimensions of Height (in)

	Initial (L_o)	Final (L_f)
1	5.959	
2	5.958	
3	5.939	
4	5.936	
5	5.945	
Ave	5.9275	

ΔL_c = _____ in
ΔL_p = _____ in
$\Sigma \Delta L$ = _____ in
$L_o - L_f$ = _____ in.

Specimen Diameter (in) or _____

	Initial	Final
1-T	2.872	
2-M	2.865	
3-B	2.863	
1'-T	2.877	
2'-M	2.877	
3'-B	2.871	
Ave	2.8713	

$D_{ave} = (D_1 + 2D_2 + D_3)/4$

$A_o = \pi D^2/4$ = 6.4751 in^2
V_o = $1h^3 \cdot 16.387$ = 630.176 cm^3
Area $\frac{\pi}{4}(D^2)^2$ = _____ $10^{-3} m^2$

Membrane { Thickness = .01 in; Circumference (C_m) = _____ in; Diam = C_m/π = _____ in }

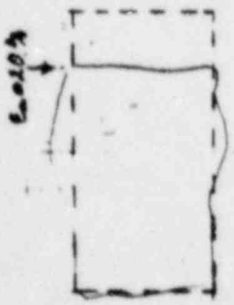
Filter Paper: Top + bottom: ☐ Yes; ☐ No

Filter Strips: ☐ Yes; ☐ No
_____ Vertical at ¼" - Whatman #54 or _____
_____ Spiral at ¼": Whatman #1 or _____

Wgt top cap = 477.2 gm, 0.7 10^{-3} kg
Wgt (Cap, disk + piston) = _____ gm, _____ 10^{-3} kg

Preliminary
Y_{cc} = 128.6 lb/ft³ Y_{do} = _____ lb/ft³

Failure Sketch



Final Visual Classification. ☐ See more detailed sketch on attached sheet; ☐ Photo Taken.

Vert. Strain = 0.2 - 0.9 = -0.045 ins.
Vert. Strain = $\Delta L/L_o$ = 0.012/2.8713 = 0.4%

Other Remarks: _____

Preliminary Cal. by RK Reviewed by RG

☐ Trimmed by _____ Setup by RK Taken down by _____
☐ Excess/Total Data _____ Date 6/18 Date _____

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS

26

COE-ISA S-7B

Type Test: U.U. ☒ Undisturbed ☐ Reconstituted - Specimen: ☐ Dynamic / H_z or ____ ☐ sinusoidal or ____ ☒ Static 59.9 %/hr

Consolidation History Units: ~~CSF~~ or KSF	New Induced Pore Pressure Uncorr.	New Induced Pore Pressure Corr.*	☒ Preshear/perm. ☐ Pre cyc-loading Uncorr.	Preshear/perm. ☐ Pre cyc-loading Corr.*	Preshear after Cyc-loading Uncorr.	Preshear after Cyc-loading Corr.*
σ_{cell}		—	1.3622	—		—
u		—		—		—
$\bar{\sigma}_v$						
$\bar{\sigma}_h$						
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$						
OCR						
Consol. Time	☐ Overnight: days ____ hours ____		☐ Overnight: days ____ hours ____		☐ Overnight: days ____ hours ____	

* Corrected for effects of membrane, S. Hor strips, etc.

H_o = 5.933 in
A_c = 6.7741 in²
V_o = 630.176 cm³
Dav/Dom = ____
G_s = ____ ☐ Assumed ☐ Measured
P_c = ____ %
Area Corr. Factors: C
Undrained: $\varepsilon_{vc} = \frac{1}{E_t}\left(1 - \frac{K_c}{1+2K_c}\right)$ ____
Drained: $\varepsilon_{vc} = \frac{1}{C_{cg}}\left[1 - \frac{K_c}{1+2K_c}(1+\varepsilon_{vt})\right]$ ____

Calculate W_s of Dry Soil	By Initial water content	By Final water content	By Total Oven-dried Specimen
W_1 (%)			
W_2 (%)			
W_{av} (%)	(12.91)	12.82	
Wgt. Wet Soil, Wt (gm)	1397.2	1396.9	
Wgt of Wet Dry Soil (gm)	ΔV_T (cm³) during test		
Wgt Excess Over Dry Soil	Corr. Wet wgt. W_c: $W_c = \Delta V_T$		
Total Wgt Over Dry Soil, W_s (gm)	1227.40	(1227.40)	
W_s used:		W_s = 1227.40 gm	

γ_w @ 20°C (Stand.) = 62.32 lb/ft³ = 0.9982 gm/cm³ = (G.M) = 6.42 (lb/ft³)

Variations in Height and Volume During Consolidation	During Initial Load without back-pressure	During Back-pressuring ΔV_o = vol in	After Backpressuring = $\bar{\sigma}_{3(i)}$ From ____ To ____	= $\bar{\sigma}_{1(i)}$ From ____ To ____	$\bar{\sigma}_{1(f)}$ From ____ To ____
Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down					
ΔL (in)	0.011				
ΔV_m (cm³)	—				
$-\Delta V_a = 3V_o(\Delta H/H_o)$	(-.502)				
$R = \Delta V_m / \Delta V_a$	Used = ____				
Corrected $\Delta V_a = R \cdot \Delta V_a$					
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5
ΔL_{cg} = ____ in	$\Delta V_{rebound} = \sigma_{max}$ to σ_{start} = ____ cm³				
	ΔV_T (during drained loading) = ____ cm³				

Calculation of ΔV_c During Consolidation by Different Procedures

- ΔV_c by W_2 Change = $W_c - W_s - (\Delta V_o + \Delta V_T)$
  - ΔW_2 = ____ gm
  - $\Sigma(\Delta V_o + \Delta V_T)$ = ____
  - $\therefore \Delta V_c$ = ____ cm³
- ΔV_c by recorded/calculated volume changes = Σ selected ΔV
  - ΔV_c = ΔV_1 (____) + ΔV_2 (____) + ΔV (____)
  - = (-.502) cm³
- ΔV_c assuming S_r = 100%: $V_F = (\gamma_s - w_2\gamma_s)W_s/\gamma_w$
  - Undrained: $\Delta V_c = V_o - V_F$
  - w_2 = ____ %; V_F = ____ cm³
  - Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$
  - $V_F + \Delta V_T$ = ____ cm³
  - $\therefore \Delta V_c$ = ____ cm³

Conclusions

ΔV_c used (ave. value) = (-.502) cm³ $\therefore V_c$ = 626.674 cm³; ΔL_c = 0.011 in, $\therefore L_c$ = 5.928 in

$A_c = V_c/L_c$ (cm³/in) / 16.387 = 6.4511 in² / 0.144 = 44.7991 x10⁻³ ft²

ε_{vc} = 0.18 %; ε_v 0.56 %; $1-\varepsilon_v$ = ____ E_t = ____; ε_{vt} = ____ # not in percent

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (ft² x10⁻³)	Volume (cm³)	Water Content (%)	Total or Dry Density (lb/ft³)	Saturation (%)		
Initial	5.939	44.9660	630.176	12.91	138.42 / 122.59			
After Consol.	5.928	44.7991	626.674	12.89	139.16 / 123.27			

$S = W G_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_s / (G_s \cdot \gamma_w (1+w) - \gamma_s)$

W for S=100% = $G_s \cdot \gamma_w - \gamma_d / G_s \cdot \gamma_d$ = $G_s \cdot \gamma_w - \gamma_s / G_s \cdot \gamma_s$ = $(G_s - \gamma_s / \gamma_w)/G_s$

$P_{ci} \times .0072$ = tsf

Calculated by ____ Reviewed by ____

WCC
L-205
(8/78)

TRIAXIAL LOADING DATA: Type Test CU Type Loading ☐ Load-"Stress"; ☐ Deformation-"Strain"

Project No. 21C 405513 Project Engineer PSL Cell No. 4 Loading Frame ☑ WF ☐ Other ☐ MTS ☐ WCC-Unit No.

Date 6/1/81 Test No.

☑ Undisturbed ☐ Reconstituted

Boring No. COE-151 Sample No.

Sample No. 7B Specimen No.

Depth (FT) 13.7 Remarks

σ_c = 1,362 KSF lb/in.^{2} = 0.68 ton/ft^2

U_B = lb/in.^{2} = ton/ft^2

$\bar{\sigma}_{3c}$ = lb/in.^{2} = ton/ft^2

$\bar{\sigma}_{1c}$ = ton/ft^2

$\bar{\sigma}_{cmax}$ = tsf

OCR =

$\bar{\sigma}_{3c}/\bar{\sigma}_{1c}$	OCR = 1	max OCR

B - Factor

$\Delta U/\Delta \sigma_c$ = %

t/t = min.

$\Delta\sigma_c$ = tsf

Proving Ring No.

Dial Range	Factor: Slope	Factor: Correction

Load (tons x 10^{-3}) = PR div x SF + CF

Load Transducer No. LCI-5

☑ Cal. Short - Ohms 52.61K

☐ Ind. Cal. - Ref

Read ☐ Vishay Ch. 8

Out ☐ Other

Remarks:

Strain Dial No. F2-10

Pressure Transducer No.

☐ Cal. Short - Ohms

☐ Ind. Cal. - Ref

Read ☐ Vishay Ch.

Out ☐ Other

☐ Back pressure nulled to zero

Remarks:

Membrane: Thickness, t_{om}: in.

Circumference, c_{om}: in.

Weight Top Cap & Piston = gm

Filter Strips: ☐ Yes ☒ No

Vertical @ 1/4 in. | Whatman

Spiral @ 1/4 in. | No. 54 or

Filter Paper Top & Bottom ☐ Yes ☐ No

Loading Time / Strain Rate ϵ_{end} = %

Finish ● hr

Start ● hr

Δt (hr) = ϵ_{rate} = %/hr

During Consolidation

ΔL_c = in. ΔV_c = cm^3

ϵ_{ac} = % ϵ_{vc} = %

$1-\epsilon_{vc}$ =

Initial Loading Conditions

Length = in.

Area = 10^{-3} ft^2

Volume = cm^3

Computor Program No.

$\sigma_1-\sigma_3$ corrected for:

☐ Filter Strips; ☐ σ_c on Piston

☐ Dilation; ☒ Weight Cap

☒ Membrane, Method II

Time	Δt min/sec	Def Dial in	Load (lbs)		Ea %	P/A (KSF)	E ( )			Time	Δt min/sec	Def Dial in	Load (lbs)	Ea %	P/A (10^{-3} KSF)	E ( )				See Remarks
		000	0.9		0.0	0.0202						035	30.6	0.390	0.6166					
		001	8.5		0.017	0.1898						040	32.5	0.675	0.7178					
		003	10.8		0.051	0.2409						045	34.1	0.753	0.7572					
		005	12.3		0.084	0.2741						050	35.7	0.843	0.7941	x				
		010	17.6		0.152	0.3916						060	38.6	1.012	0.8561					
		015	20.9		0.203	0.4644						070	41.2	1.181	0.9033					
		020	23.9		0.254	0.5304						080	43.5	1.350	0.9427					
		025	26.5		0.122	0.5514	x					090	45.8	1.518	1.0107	x				
		030	29.1		0.542	0.6218						100	48.0	1.687	1.0742					

Remarks:

Notations: (+) compression (decrease in volume); (-) extension (increase in Volume); Increasing burrette reading = Volume Increase

Test Started by Loading Date by ; ; Calculated by Reviewed by PL Checked by NT

Sheet 1 of 2

TRIAXIAL LOADING DATA ("Second" Sheet) Sheet 2 of 2

Proj. No. [redacted] Cell No. 4 Test No. _____ Date: 6/1/31

Boring No. [redacted] Sample No. 7B Specimen No. _____ Depth (ft) 13.7

Time	Δt min:sec	Def. Dial in.	Load (lb)		ε_a %	σ_1/σ_3 (kg/cm^2)	E ( )		Time	Δt min:sec	Def. Dial in.	Load (lb)		ε_a %	σ_1/σ_3 (kg/cm^2)	$\bar{c}$ ( )		See Remarks
		.100	50.1		1.687	1.0934					.850	146.5		14.34	2.740	x		
		.110	52.1		1.856	1.1336					.900	150.3		15.18	2.781	x		
		.120	54.2		2.02	1.171					.950	155.0						
		.132	56.2								1.000	159.1		16.81	2.852	x		
		.140	58.1		2.36	1.256	x				1.050	163.3						
		.150	59.8								1.100	167.5		18.56	2.966	x		
		.160	61.9		2.70	1.333					1.150	172.0						
		.170	63.5							20.17	1.200	176.0		20.24	3.047	x		
		.180	65.0		3.04	1.394	x											
		.190																
		.200	66.0		3.37	1.463												
		.225	70.8															
		.250	74.8		4.22	1.581	x											
		.275	78.5		4.64	1.651												
		.300	82.2		5.06	1.720	x											
		.325	85.9															
		.350	89.1		5.30	1.846	x											
		.375	92.7															
		.400	96.0		6.75	1.970	x											
		.450	102.0															
		.500	108.1		8.43	2.174	x											
		.550	114.2		9.28	2.273	x											
		.600	119.5		10.12	2.354	x											
		.652	125.3															
		.700	130.5		11.81	2.519	x											
		.750	135.8															
		.800	140.7		13.50	2.663	x											

Notation: (+) compressive (decrease in volume; (-) extension (volume increase); Increasing burrette reading = Volume increase

Remarks: _____

Loading data by [redacted]; _____; _____ Calculated by [redacted] Reviewed by [redacted] Checked by [redacted]

10-41

29 WCC 2-2 (118)

TRIAXIAL TEST (Set Up / Take Down)

Proj. No 81CY053 Proj. Eng. [illegible] Cell No 3 Piston dia. ☒ 3/8"; ☐ 1/2"

Type Test [illegible] File No _____

Loading Conditions:				
☐ Dynamic ☒ Static	☐ Undrained ☐ Drained	☐ Compression ☐ Extension	☐ Constant cell pressure ☐ Variable cell pressure	

Type Consolidation:			Piston Screwed in: ☐ Yes; ☐ No
☐ Isotropic ☐ Anisotropic	☐ K_o Stress path ☐ 45° Stress path		

☒ Undisturbed ☐ Reconstituted		☐ Impact ☐ Static ☐ Kneading ☐ Tamping ☐ Other	☐ Constant Effort: ____ layers, ____ lb. Hammer Tamp; ____ Blows-Tamps/layer; ☐ Undercompaction: ____ layers; ____ Un. (%)
Boring No. COE 1A	Composite No. ____		
Sample No. 3-14	Specimen No. B		
Depth (ft) 30.0	Remarks ____		
☐ Ends capped with Castone; ☐ Geomarine Sample			

Water Content				Final
Location				Ape
Container No.				428
Wgt Container + Wet Soil (gm)				406.70
Wgt Container + Dry Soil (gm)				384.63
Wgt. Container (gm)				206.47
Wgt Dry Soil (gm)				178.16
WATER CONTENT (%)				12.39

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc):	____ gm
Stone (etc)	____ gm
Wet Initial	1387.9 gm
Wet Final	1387.4 gm
Excess Ovendry Dish No.	____
Wgt Dish + Dry Soil	____ gm
Wgt. Dish	____ gm
Wgt. Excess + Dry Soil	____ gm

Dimensions of Height (in)

	Initial (L_o)	Final (L_f)
1	5.958	
2	5.954	
3	5.958	
4	5.960	
5	5.954	
Ave	5.9568	

Specimen Diameter (in) or ____

	Initial	Final
1-T	2.852	
2-M	2.856	
3-B	2.853	
1'-T	2.856	
2'-M	2.859	
3-B	2.857	
Ave	2.8559	

$D_{ave} = (D_1 + 2D_m + D_b)/4$

ΔL_c = ____ in

ΔL_s = ____ in

$\Sigma \Delta L$ = ____ in

$L_o - L_f$ = ____ in

$A_o = \pi D^2/4 = 6.4153$ in²

$V_o = h_o \cdot 16.387 = 626.196$ cm³

$A_{corr} = .5454 (D^2)^2 =$ ____ 10^{-2} kg²

Membrane { Thickness = 0.012 in; Circumference (Cm) = ____ in; Diam = Cm/π = ____ in

Filter Paper: Top + bottom: ☐ Yes; ☐ No

Filter Strips: ☐ Yes; ☐ No

____ Vertical at ¼" - Whatman #54 or ____

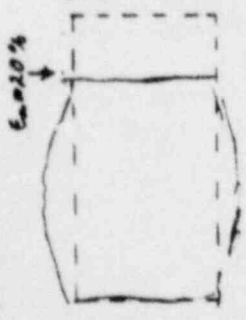
____ Spiral at ¼" - Whatman #1 or ____

Wgt top cap = 407.30 gm, 0.3 [illegible] Ic = ____

Wgt (cap, dial + piston) = ____ gm, ____ 10^{-2} kg

Preliminary V_{so} = 128.37 in³ γ_{do} = ____ lb/ft³

Failure Sketch



Final Visual Classification. ☐ See more detailed sketch on attached sheet; ☐ Photo Taken

[illegible] = 1.5 - 0.942 = 0.558 in

[illegible] = 10.1 x 0.012/2.8 = 0.4322

Other Remarks: [illegible] = 17.11 psi

Preliminary Cal. by [signature] Reviewed by [signature]

☐ Trimmed by ____ Setup by [signature] Taken down by [signature]

☐ Reconstituted Date ____ Date 6/3/81 Date 6/3/81

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS 30

COE-15A
S-14B

Type Test: U.U. ☒ Undisturbed; ☐ Reconstituted - Specimen:
☐ Dynamic / Hz or ____ ☐ Sinusoidal or ____ ☒ Static 59.9 %/hr

Consolidation History Units: psf or K/F	Max. Induced Pore Pressure Uncorr.	Corr. *	☒ Preshear/perm. ☐ Pre cy-loading Uncorr.	Corr. *	Preshear after Cy-loading Uncorr.	Corr. *
σ_{cell}		—	2.463	—		—
u		—		—		—
$\bar{\sigma}_v$						
$\bar{\sigma}_h$						
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v/\bar{\sigma}_h$						
OCR						
Consol. Time	☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours	

* Corrected for effects of membrane, S. Mon strips, etc.

H_o = 5.96 in
A_o = 6.15 in²
V_o = 670.34 cm³
Dav/Dom = ____
G_s = ____ ☐ Assumed ☐ Measured
B_g = ____ %
Area Corr. Factors: C
Undrained: ____
$C = \frac{1}{\varepsilon_1}(1 - A_c/A_{ton})$
Drained: ____
$C = \frac{1}{\varepsilon_1}\left[1 - \frac{A_o(1+\varepsilon_v)}{A_{ton}}\right]$

Calculate Wgt of Dry Soil	By Initial Water Content	By Final Water Content	By Total Oven-dried Specimen
W_1 (%)			
W_2 (%)			
W_{ave} (%)	12.41	12.32	
Wgt Wet Soil, W_T (gm)	1267.2	1287.6	
Total Wgt Dry Soil (gm)	ΔV_T (cm³) during test		
Wgt Excess Overdry Soil	Corr. Wet Wgt. @ B_g: $W_T + \Delta V_T$		
Total Wgt Oven Dry Soil W_s (gm)	1126.62	1144.62	
W_s used:		= 1144.62 gm	

Variations in Height and Volume During Consolidation	During Initial Consol without back-pressure	During Back-pressuring	After Backpressuring: $\bar{\sigma}_h$ (psi)	$\bar{\sigma}_h$ (psi)	$\bar{\sigma}_h$ (psi)
	ΔV_b = vol. in		From ____ To ____	From ____ To ____	From ____ To ____

Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down

ΔL (in)	0.012				
ΔV_m (cm³)	—				
$-\Delta V_a = 3V_o(\Delta H/H_o)$	(-) 22.1				
$R = \Delta V_m/\Delta V_a$	R_{used} = ____				
Corrected ΔV_m & ΔV_a					
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in; $\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ____ cm³; ΔV_T (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures

ΔV_c by Wgt Change = $W_o - W_s - (\Delta V_b + \Delta V_T)$
ΔW_{gt} = ____ gm
$\Sigma(\Delta V_b + \Delta V_T)$ = ____ cm³
$\therefore \Delta V_c$ = ____ cm³

ΔV_c by recorded/calculated volume changes = Σ selected ΔV
$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V$
= (-) 22.1 cm³

ΔV_c assuming S = 100 % at
Undrained: $\Delta V_c = V_o - V_F$
w_o = ____ % V_F = ____ cm³
$V_F + \Delta V_T$ = ____ cm³
$\therefore \Delta V_c$ = ____ cm³

Drained: $V_F = (\frac{1}{G_s \gamma_w} + w\frac{1}{\gamma_w})W_s/\gamma_w$
$\Delta V_c = V_o - (V_F + \Delta V_T)$

Conclusions

ΔV_c used (ave. value) = 500 cm³ $\therefore V_c$ = 620.714 cm³; ΔL_c = 0.012 in, $\therefore \varepsilon_c$ = 5.27 in
$A_c = V_c/L_c$ (cm³/in)/16.3871 = 6.3742 in²/0.144 = 44.26 x10⁻³ ft²
ε_{ac} = 0.389 %; ε_v 1.96 %; 1-ε_v = ____ E_s# = ____; ε_{vc}# = ____ # not in percent

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (ft² x10⁻³)	Volume (cm³)	Water Content (%)	Total/Dry Density (lb/ft³)	Saturation (%)	
Initial	5.965	44.5507	676.196	12.41	138.37 123.09		
After Consol.	5.975	44.2656	690.904	12.39	139.68 124.28		

$S = W G_s \cdot \gamma_d/(G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_d/(G_s \cdot \gamma_w (1+w) - \gamma_t)$

Calculated by [illegible] Reviewed by [illegible]

Psi x 0.072 = tsf
W for S = 100 % = $G_s \cdot \gamma_w - \gamma_d/G_s \cdot \gamma_d = G_s \gamma_w - \gamma_t/G_s(\gamma_t - \gamma_w)$ γ_w @ 20°C (tread) = 62.32 lb/ft³ = 0.9982 gm/cm³ (Bath) = 64.2 (lb/ft³)

WCC L-205 (8/75)

TRIAXIAL LOADING DATA: Type Test UU — Type Loading ☐ Load-"Stress"; ☐ Deformation-"Strain"

Project No. 81C4055 1,3 — Project Engineer NA — Cell No. 3 — Loading Frame: ☑ WF ☐ Other — ☐ MTS ☐ WCC-Unit No.

Date 6/3/81 — Test No.

☑ Undisturbed ☐ Reconstituted

Boring No. Core 15A — Sample No.

Sample No. S-14 — Specimen No. B

Depth (FT) 30.0 — Remarks

σ_c = 2.464 KSF lb/in.^{2} = ton/ft^2 — $\bar{\sigma}_{cmax}$ = tsf — OCR =

U_B = lb/in.^{2} = ton/ft^2

$\bar{\sigma}_{3c}$ = lb/in.^{2} = ton/ft^2

$\bar{\sigma}_{1c}$ = ton/ft^2

$\bar{\sigma}_{3c}/\bar{\sigma}_{1c}$	OCR = 1	max OCR

B - Factor: $\Delta U/\Delta \sigma_c$ = %; in min.; for $\Delta\sigma_c$ = tsf

Proving Ring No.

Dial Range	Factor: Slope	Factor: Correction

Load Transducer No. 1CL-5

☑ Cal. Short - Ohms 56.61

☐ Ind. Cal. - Ref

Read ☑ Vishay Ch. 8

Out ☐ Other

Remarks:

Load (tons x 10^{-3}) = PR div x SF + CF

Strain Dial No.

Pressure Tranducer No.

☐ Cal. Short - Ohms

☐ Ind. Cal. - Ref

Read ☐ Vishay Ch.

Out ☐ Other

☐ Back pressure nulled to zero

Remarks:

Membrane: Thickness, t_{om}: in.

Circumference, c_{om}: in.

Weight Top Cap & Piston = gm

Filter Strips: ☐ Yes ☐ No

Vertical @ 1/4 in. | Whatman

Spiral @ 1/4 in. | No. 54 or

Filter Paper Top & Bottom ☐ Yes ☐ No

Loading Time / Strain Rate — ϵ_{end} = %

Finish @ hr

Start @ hr

Δt (hr) = — ϵ_{rate} = % / hr

During Consolidation

ΔLc = in. — ΔVc = cm^3

ϵ_{ac} = % — ϵ_{vc} = %

1 - ϵ_{vc} =

Initial Loading Conditions

Length = in.

Area = 10^{-3} ft^2

Volume = cm^3

Computor Program No.

σ_1-σ_3 corrected for:

☐ Filter Strips; ☐ σ_c on Piston

☐ Dilation; ☐ Weight Cap

☐ Membrane, Method

Time	Δt min:sec	Def Dial in	Load (lbs)		ϵ_a %	P/A (10^{-3})	E ( )			Time	Δt min:sec	Def Dial in	Load (lbs)	ϵ_a %	P/A (10^{-3} KSF)	E ( )			See Remarks
15:41	0	0	4.5		0.0	0.0199						.050	63.2	0.844	1.3954				
		.003	10.4		0.051	0.2101						.060	69.1	1.011	1.5211				
		.005	20.1		0.084	0.4552						.080	73.0	1.179	1.6103	x			
		.010	30.6		0.168	0.6791						.080	76.5	1.341	1.6853				
		.015	37.2		0.253	0.8238	x					.090	80.2	1.516	1.7643				
		.020	42.0		0.337	0.9205						.100	83.3	1.664	1.8291				
		.025	45.6		0.421	0.9901						.120	87.0	2.021	1.9141	x			
		.030	48.8		0.505	1.0521						.140	89.3	2.201	1.9636				
		.040	53.2		0.674	1.1530	x					.160	91.1	2.382	2.0033	x			

Remarks:

Notations: (+) compression (decrease in volume); (-) extension (increase in Volume); Increasing burrette reading = Volume Increase

Test Started by — Loading Date by ; ; — Calculated by — Reviewed by — Checked by NA

Sheet 1 of

TRIAXIAL LOADING DATA ("Second" Sheet) Sheet 2 of 2

Proj. No. 81C4055 Cell No. _____ Test No. 4UU Date: 6/25/81

Boring No. 05-15A Sample No. 05-14 Specimen No. B Depth (ft) 90.0

Time	Δt min:sec	Def. Dial in.	Load (lbs)		ε_a %	P/A (kSF)	E ( )		Time	Δt min:sec	Def. Dial in.	Load ( )		ε_a %	P/A ( )	E ( )		See Attached
		.190	103.8		3.03	3.241												
		.200	108.0															
		.220	112.5		3.71	3.418	x											
		.240	116.5															
		.260	120.1		4.38	3.562	x											
		.280	123.7															
		.300	126.9		5.05	3.687	x											
		.325	130.9															
		.350	135.0		5.89	3.831	x											
		.375	138.5															
		.400	142.3		6.74	3.956	x											
		.450	149.0															
		.500	155.4		8.42	3.166	x											
		.550																
		.600	167.3		10.11	3.342	x											
		.650	172.7															
		.700	178.0		11.79	3.484	x											
		.750	183.4															
		.800	188.3		13.47	3.611	x											
		.850	193.2		14.32	3.666	x											
		.900	197.1		15.16	3.720	x											
		.950	201.3															
		1.000	206.9		16.84	3.803	x											
		1.050	211.6															
		1.100	215.7		18.53	3.879	x											
		1.150	219.7															
10:14		1.200	223.8		20.21	3.938	*											

Notation: (+) compressive (decrease in volume; (-) extension (volume increase); Increasing burrette reading = Volume increase

32

Remarks: _____

Loading data by NA ; _____ ; _____ Calculated by _____ Reviewed by _____ Checked by NA

Appendix G

Supporting Data

$\overline{CIU}$ Triaxial Compression Tests

TRIAXIAL TEST (Set Up / Take Down)

WCC 2-202 (1180)

Proj. No. 81CROSS T Proj. Eng. DM Cell No. 5 Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test CIU - C File No T-217

Loading Conditions:	☐ Dynamic	☒ Undrained	☐ Compression	☒ Constant cell pressure
	☒ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type Consolidation: ☒ Isotropic ☐ Ko Stress path ☐ Anisotropic ☐ 45° Stress path

Piston Screwed in: ☐ Yes; ☒ No

☒ Undisturbed ☐ Reconstituted

Boring No Coe 14 Composite No ____ Specimen No B

Sample No S-5 Remarks ____

Depth (ft) 9.9

☐ Ends capped with Castone; ☐ Geomarine Sample

☐ Impact ☐ Static ☐ Kneading ☐ Tamping ☐ Other

☐ Constant Effort ____ layers; ____ lb {Hammer / Tamp} ____ Blows - Tamps / layer ☐ Undercompaction ____ layers; ____ Uni (%)

Water Content				Final
Location	Top	Bot		Ave
Container No	4105	1B41		501
Wgt Container + Wet Soil (gm)	73.55	70.35		326.21
Wgt Container + Dry Soil (gm)	70.83	67.03		315.03
Wgt Container (gm)	39.73	33.28		204.52
Wgt Dry Soil (gm)	31.10	33.75	ave	110.51
WATER CONTENT (%)	8.75	9.84	9.89	10.12

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc): ____ gm

Stone (etc): ____ gm

Wet Initial: 483.45 gm

Wet Final: 487.60 gm

Excess Ovendry - Dish No ____

Wgt Dish + Dry Soil ____ gm

Wgt. Dish ____ gm

Wgt. Excess + Dry Soil ____ gm

Dimensions of Height (in)		Specimen Diameter (in) at ____		
Initial (Lo)	Final (Lf)	Initial	Final	
1 4.014	3.257	1-T 2.016	2.135	
2 4.019	3.261	2-M 2.020	2.415	
3 4.016	3.251	3-B 1.997	2.171	
4 4.015	3.258	1'-T 2.015		
5 4.018	3.260	2'-M 2.015		
Ave 4.0164	3.2575	3-B 2.000		
		Ave 2.0105	2.2385	

Dave = (D1 + 2D2 + D3)/4

ΔLc = ____ in

ΔLf = ____ in

ΣΔL = ____ in

Lo - Lf = ____ in

Ao = π D²/4 = 3.1747 in²

Vo = h · Ao · 16.387 = 208.950 cm³

Mem Corr = 1 - ε/(1 - ε) = 28.47760 cm³

Membrane { Thickness = 0.0275 in; Circumference (Cm) = 5.723 in; Diam = Cm/π = 1.8217 in }

Filter Paper: Top + bottom: ☐ Yes; ☒ No

Filter Strips: ☒ Yes; ☐ No

12 Vertical at ¼" - Whatman ____ or ____

____ Spiral at ¼": Whatman ____ or ____

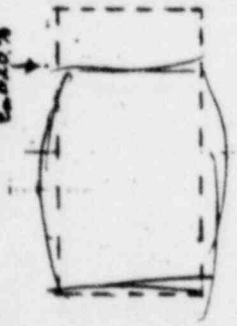
Wgt top cap: ____ gm, 0.25 10^{-2} lbs

Wgt (cap, dial + piston) = ____ gm, ____ 10^{-2} lbs

Preliminary

Yco = 144.45 lb/ft³ Ydo = 132.17 lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo taken.

Other Remarks: ID # 103 Ce found 1 Ref

Preliminary Cal. by ____ Reviewed by ____

☐ Processed by ____ Date 5/16/81

☐ Reconstituted Set up by ____ Date 5/16/81

Taken down by ____ Date 5/22/81

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS

Type Test: CIU-C ☒ Undisturbed ☐ Reconstituted - Specimen: T-217

☐ Dynamic / H_z or ____ # sinusoidal or ____ ☒ Static 0.62 %/hr 34

Consolidation History Units: psf or KSF	Max. Induced Pore Pressure Uncorr.	Max. Induced Pore Pressure Corr.*	☒ Preshear/psuedo ☐ Pre cyc-loading Uncorr.	☒ Preshear/psuedo ☐ Pre cyc-loading Corr.*	Preshear after Cyc-loading Uncorr.	Preshear after Cyc-loading Corr.*
σ_{cell}		—	15.4339	—		—
$u_{..}$		—	14.400	—		—
$\bar{\sigma}_v$			—	1.0291		
$\bar{\sigma}_h$			1.0338	1.0974		
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$			—	1.0632		
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$			1.00	0.9377		
OCR			~~1.00~~	—		
Consol. Time	☐ Overnight days ____ hours ____		☐ Overnight days ____ hours ____		☐ Overnight days ____ hours ____	

* Corrected for effects of membrane, S. Mor strips, etc.

H_o = 4.0164 in
A_c = 3.1747 in²
V_o = 208.950 cm³
Dav/Dom = 1.1036
G_s = 2.754 ☐ Assumed ☒ Measured
B_s = 99.3 %
Area Corr. Factors: C
Undrained = 1.866
$C = \frac{1}{\varepsilon_a}\left(1 - \frac{A_c}{A_{ave}}\right)$
Drained = ____
$C = \frac{1}{\varepsilon_a}\left[1 - \frac{A_c(1+\varepsilon_v \varepsilon_a)}{A_{ave}}\right]$

Calculate W_s of Dry Soil	By Initial Water Content	By Final Water Content	By Total Oven-dried Specimen
W_1 (%)			
W_2 (%)			
W_{ave} (%)	9.29	10.12	
Wgt. Wet Soil, W_T (gm)	483.45	487.60	
Initial Wgt Dry Soil (gm)	ΔW_T (gm) during test	(-3.85) corr	=
Wgt Excess Over Dry Soil	Corr. Wet wgt. = $W_T + \Delta W_T$		=
Total Wgt Oven Dry Soil, W_s (gm)	442.36	442.79	
W_s used:		ave = 442.58 gm	

Variations in Height and Volume During Consolidation	During Initial Consol with out back-pressure	During Back-pressuring ΔV_o = 3.10 vol in	After Backpressuring: $\bar{\sigma}_c(p_c)$ From 3.4 To 7.2	$\bar{\sigma}_r(p_r)$ From ____ To ____	$\bar{\sigma}_h(p_r)$ From ____ To ____
Sign Convention: (-) ΔV in, (+) ΔV out (-) ΔL^{HP}, (+) ΔL^{axial}					
ΔL (in)	0.004	0.002	0.0029		
ΔV_m (cm³)	(-4.50)	(-3.18)	(1.24)		
$-\frac{\Delta V_a}{3V_o(\Delta H/H_o)}$	0.624	0.328	0.609		
$R = \Delta V_m / \Delta V_a$	Recal = 2.02		2.036		
Corrected ΔV_a: $R \cdot \Delta V_a$	(1.270)	(0.668)			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5
ΔL_{cy} = ____ in	$\Delta V_{rebound} = \sigma_{max}$ to σ_{start} = ____ cm³				
	ΔV_T (during drained loading) = ____ cm³				

Calculation of ΔV_c during Consolidation by Different Procedures	ΔV_c by W_T Change $= W_o - W_s - (\Delta V_o + \Delta V_T)$	ΔV_c by recorded/calculated volume changes = Σ selected ΔV	ΔV_c assuming $S = 100\%$ $V_F = (W_{fc} - w_i)W_s/\gamma_w$
	ΔW_T = -4.15 gm	$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V_3$	Undrained: $\Delta V_c = V_o - V_F$
	$\Sigma(\Delta V_o + \Delta V_T)$ (-7.40) cm³	= 1.270 + 0.668 + 1.24	Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$
	$\therefore \Delta V_c$ = 3.25 cm³	= 3.178 cm³	w_o = 10.17 % V_F = 206.086 cm³
			$V_F + \Delta V_T$ = ____ cm³
			$\therefore \Delta V_c$ = 2.864 cm³

Conclusions:
ΔV_c used (ave / rebound) = 2.864 cm³ $\therefore V_c$ = 206.086 cm³; ΔL_c = 0.010 in; $\therefore L_c$ = 4.0064 in
$A_c = V_c/L_c$ (cm³/in)/16.387 = 3.1390 in² / 0.144 = 21.7986 $\times 10^{-3}$ ft²
ε_{ac} = 0.25 %; ε_v 1.37 %; $1-\varepsilon_v$ = 0.9863 $E_f^{\#}$ = 1.1853; $\varepsilon_{vc}^{\#}$ = ____ # not in percent.
At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (in² / cm² / ft² x10⁻³)	Volume (cm³)	Water Content (%)	Total or Dry Density (lb/ft³)	Saturation (%)		
Initial	4.0164	22.0465	208.950	9.23	144.45 132.24	85.3		
After Consol.	4.0064	21.7986	206.086	10.17	147.71 134.07	100.0		

$S = W G_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_w / (e_c \cdot \gamma_w (100 w) - \gamma_w)$

Calculated by ____ Reviewed by ____

Psi x 0.0072 = ksf
w for S = 100% = $G_s \cdot \gamma_w - \gamma_d / G_s \cdot \gamma_d \cdot \gamma_w$
γ_w @ 20°C (Stand) = 62.32 lb/ft³ • 0.9982 gm/cm³ (SAM) • 6.2 (lb/ft³)

1	DATA FILE IDENT. NO.	T-217
2	PROJECT NO.	81C4055T3
3	BORING NO.	COE-14
4	SAMPLE NO.	S-5
5	SPECIMEN NO.	B
6	DEPTH	9.9
7	TEST NO.	ID-103
8	FILE # FOR LOAD CELL OR PROVING RING	2000
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	4.0164
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.0105
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	208.95
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.255
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	1.015
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	1.335
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.0275
25	MEMBRANE DIAMETER IN INCHES	1.8217
26	FILTER STRIP CORRECTION CONSTANT	1.596
27	RIGHT CYLINDER DISTORTION FACTOR	1.266
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	7.7169
35	BACK PRESSURE IN TSF	7.200
36	AXIAL DEFORMATION IN INCHES	0.010
37	VOLUME CHANGE IN CU. CM.	2.864
38	PISTON DRAG CORRECTION IN TONS*10**-3	10.04
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.	0.	0.
.04590.	20.08.	7.205
.04594.	20.296.	7.207
.04603.	20.785.	7.209
.04617.	21.436.	7.213
.04626.	22.413.	7.218
.04630.	23.227.	7.223
.04640.	24.258.	7.228
.04658.	25.886.	7.241
.04667.	26.646.	7.243
.04685.	27.949.	7.252
.04695.	28.437.	7.259
.04708.	28.871.	7.260
.04722.	29.739.	7.268
.04727.	30.065.	7.270
.04740.	30.441.	7.274

.04667.	26.646.	7.243
.04685.	27.949.	7.252
.04695.	28.437.	7.259
.04708.	28.871.	7.260
.04722.	29.739.	7.268
.04727.	30.065.	7.270
.04740.	30.445.	7.274
.04750.	30.716.	7.277
.04786.	31.910.	7.286
.04805.	32.507.	7.293
.04823.	32.99.	7.298
.04860.	33.91.	7.309
.04878.	34.29.	7.314
.04896.	34.73.	7.317
.04938.	35.32.	7.325
.04956.	35.70.	7.329
.04974.	36.14.	7.332
.05015.	36.68.	7.338
.05029.	36.90.	7.341
.05048.	37.22.	7.344
.05084.	37.82.	7.351
.05107.	38.15.	7.353
.05126.	38.42.	7.357
.05199.	39.40.	7.366
.05240.	39.88.	7.370
.05277.	40.37.	7.374
.05355.	41.19.	7.383
.05391.	41.62.	7.383
.05433.	42.00.	7.389
.05506.	42.87.	7.395
.05543.	43.30.	7.399
.05625.	44.06.	7.404
.05781.	45.47.	7.414
.05864.	46.23.	7.417
.05951.	46.72.	7.418
.06107.	47.97.	7.428
.06189.	48.13.	7.429
.06272.	48.78.	7.431
.06519.	50.25.	7.437
.06643.	51.12.	7.440
.06762.	51.88.	7.443
.07340.	55.13.	7.449
.07551.	56.06.	7.448
.07753.	57.14.	7.449
.07959.	58.01.	7.450
.08376.	60.02.	7.449
.08587.	61.05.	7.445
.08798.	61.97.	7.445
.09014.	62.[illegible].	7.444
.09431.	64.09.	7.440
.09862.	65.77.	7.434
.10284.	67.40.	7.429
.10715.	69.03.	7.421
.11586.	72.07.	7.405
.12003.	73.53.	7.396
.12439.	75.21.	7.389
.12865.	76.52.	7.376
.13727.	79.17.	7.355
.14163.	80.59.	7.344
.14603.	82.05.	7.332
.15891.	86.66.	7.298
.16322.	87.97.	7.286
.16753.	89.21.	7.274
.17189.	90.35.	7.261
.18055.	93.01.	7.238
.18495.	94.21.	7.226
.18936.	95.40.	7.213

.16753.	89.21.	7.274
.17189.	90.35.	7.261
.18055.	93.01.	7.238
.19495.	94.21.	7.226
.18936.	95.40.	7.213
.19371.	96.54.	7.201
.21100.	101.21.	7.153
.21998.	103.65.	7.128
.22943.	106.26.	7.105
.23892.	108.43.	7.083
.24745.	110.33.	7.062
.25611.	112.50.	7.038
.26460.	114.61.	7.017
.27289.	116.73.	6.998
.28115.	118.63.	6.979
.29770.	122.59.	6.944
.30572.	124.44.	6.924
.32232.	128.29.	6.890
0.3306.	130.13.	6.872
0.3390.	132.36.	6.852
0.3474.	134.10.	6.838
0.3557.	136.18.	6.821
0.3639.	137.95.	6.805
0.3800.	141.48.	6.774
0.3880.	143.38.	6.757
0.3960.	144.95.	6.741
0.4041.	146.96.	6.726
0.4123.	148.64.	6.711
0.4204.	150.59.	6.697
0.4285.	152.44.	6.683
0.4366.	154.12.	6.667
0.4446.	155.53.	6.654
0.4604.	159.17.	6.624
0.4684.	160.74.	6.608
0.4763.	162.48.	6.600
0.4842.	164.27.	6.584
0.4999.	167.47.	6.560
0.5076.	169.21.	6.547
0.5153.	170.84.	6.533
0.5232.	172.19.	6.520
0.5389.	175.34.	6.500
0.5467.	176.81.	6.490
0.5544.	178.16.	6.481
0.5624.	179.36.	6.475
0.5702.	180.61.	6.466
0.5780.	181.96.	6.455
0.5857.	183.32.	6.445
0.5935.	184.89.	6.432
0.6012.	186.47.	6.420
0.6170.	189.40.	6.395
0.6252.	191.24.	6.382
0.6332.	192.65.	6.371
0.6416.	194.12.	6.359
0.6498.	195.80.	6.346
0.6580.	197.48.	6.335
0.6663.	199.17.	6.324
0.6745.	200.52.	6.313
0.6827.	202.21.	6.305
0.6998.	205.57.	6.278
0.7081.	207.36.	6.274
0.7164.	209.10.	6.263
0.7248.	210.56.	6.250
0.7332.	212.03.	6.240
0.7418.	213.93.	6.230
0.7505.	215.01.	6.218
0.7592.	216.53.	6.206
0.7667.	217.67.	6.194
0.7696.	218.38.	6.189

0.7410. 213.73. 6.230
0.7505. 215.01. 6.218
0.7592. 216.53. 6.206
0.7667. 217.67. 6.194
0.7696. 218.38. 6.189
0.7770. 219.57. 6.178
0.7861. 220.82. 6.169
0.7949. 222.88. 6.157
0.8037. 224.13. 6.150
0.8122. 225.70. 6.138
0.8210. 227.28. 6.127
0.8296. 228.42. 6.118
0.8384. 230.05. 6.105
0.8406. 230.64. 6.104
-999..0.0.0.0

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.A USING FILE NO. T-217

PROJ. NO.	81C4055T3	REVIEWED BY:
BORING NO.	COE-14	DATE: 2/1/91
SAMPLE NO.	S-5	INPUT DATA CHECKED BY:
SPECIMEN NO.	B	
DEPTH(FT.)	9.9	TEST NO. ID-103

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
4.0164	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.0105	INITIAL DIAMETER OF SPECIMEN IN INCHES
208.95	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.2550	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
1.0150	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
1.3350	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0275	MEMBRANE THICKNESS IN INCHES
1.8217	MEMBRANE DIAMETER IN INCHES
1.5960	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.2660	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

7.7169	CELL PRESSURE IN TSF
7.2000	BACK PRESSURE IN TSF
.0100	AXIAL DEFORMATION DURING CONSOL. IN INCHES
2.86	VOLUME CHANGE DURING CONSOL. IN CU. CM.
10.0400	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	1.0291	KSF
LATERAL	=	1.0974	KSF
MEAN	=	1.0746	KSF
PBAR	=	1.0632	KSF
LATERAL/AXIAL	=	1.0664	
AXIAL/LATERAL	=	.9377	
OCR	=	1.000	

10.0400	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NORMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 1.0632 KSF

AXIAL DEVIATOR	OCTAHEDRAL	DELTA-U	A-FACTOR	Q	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM

NONE FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 1.0632 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	Q KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM
0.0000	-.0684	.9377	0.0000	0.0000	-.0342	1.0632	0.000	0.000	-.0643	0.0000	-.0321	1.0000	0.0000
.0010	-.0585	.9465	.0040	.4073	-.0293	1.0642	983.898	986.917	-.0551	.0038	-.0275	1.0009	925.3705
.0032	-.0363	.9667	.0080	.2495	-.0181	1.0713	988.077	917.930	-.0341	.0075	-.0171	1.0076	929.3009
.0067	-.0067	.9938	.0160	.2596	-.0034	1.0781	914.369	1416.102	-.0063	.0150	-.0032	1.0139	859.9770
.0090	.0379	1.0352	.0220	.2070	.0189	1.0944	1182.344	2858.498	.0356	.0207	.0178	1.0293	1112.0112
.0100	.0751	1.0708	.0360	.2508	.0376	1.0990	1437.193	2808.274	.0707	.0339	.0353	1.0336	1351.7003
.0125	.1222	1.1162	.0460	.2414	.0611	1.1125	1526.919	1769.451	.1149	.0433	.0575	1.0464	1436.0887
.0170	.1965	1.1916	.0720	.2718	.0982	1.1237	1560.317	1597.897	.1848	.0677	.0924	1.0568	1467.4956
.0192	.2311	1.2263	.0760	.2537	.1156	1.1370	1558.256	1431.909	.2174	.0715	.1087	1.0694	1465.5621
.0237	.2905	1.2895	.0940	.2619	.1452	1.1487	1513.321	1104.307	.2732	.0884	.1366	1.0804	1423.2998
.0262	.3126	1.3160	.1080	.2834	.1563	1.1458	1453.720	745.902	.2940	.1016	.1470	1.0776	1367.2441
.0295	.3322	1.3365	.1100	.2745	.1661	1.1536	1360.140	867.102	.3125	.1035	.1562	1.0849	1279.2307
.0329	.3717	1.3826	.1260	.2863	.1859	1.1573	1335.722	1159.275	.3496	.1185	.1748	1.0885	1256.2659
.0342	.3866	1.3996	.1300	.2857	.1933	1.1607	1330.354	858.227	.3636	.1223	.1818	1.0917	1251.2168
.0374	.4037	1.4207	.1380	.2923	.2018	1.1613	1260.801	508.237	.3797	.1298	.1898	1.0922	1185.8009
.0399	.4159	1.4362	.1440	.2973	.2079	1.1614	1212.542	544.316	.3911	.1354	.1956	1.0923	1140.4132
.0489	.4698	1.5022	.1620	.3010	.2349	1.1704	1100.031	583.905	.4418	.1524	.2209	1.1007	1034.5947
.0537	.4967	1.5391	.1760	.3114	.2484	1.1698	1052.999	525.677	.4672	.1655	.2336	1.1002	990.3604
.0582	.5184	1.5688	.1860	.3169	.2592	1.1707	1009.006	465.399	.4876	.1749	.2438	1.1011	948.9842
.0674	.5598	1.6279	.2060	.3279	.2799	1.1713	932.027	412.752	.5265	.1937	.2632	1.1017	876.5851
.0719	.5767	1.6558	.2180	.3379	.2884	1.1678	897.415	408.846	.5424	.2050	.2712	1.0984	844.0314
.0764	.5965	1.6829	.2240	.3368	.2982	1.1717	870.476	343.965	.5610	.2107	.2805	1.1020	818.6956
.0869	.6225	1.7260	.2400	.3473	.3113	1.1688	795.407	313.281	.5855	.2257	.2928	1.0992	748.0914
.0914	.6395	1.7528	.2480	.3503	.3198	1.1693	774.883	408.644	.6015	.2332	.3007	1.0997	728.7888
.0958	.6593	1.7816	.2540	.3490	.3296	1.1731	759.148	335.718	.6200	.2389	.3100	1.1033	713.9892
.1061	.6830	1.8214	.2660	.3539	.3415	1.1730	708.317	255.566	.6424	.2502	.3212	1.1032	666.1821
.1096	.6928	1.8392	.2720	.3573	.3464	1.1719	694.622	289.220	.6516	.2558	.3258	1.1022	653.3021
.1143	.7070	1.8627	.2780	.3585	.3535	1.1730	678.233	297.910	.6649	.2615	.3325	1.1032	637.8875
.1233	.7336	1.9107	.2920	.3640	.3668	1.1723	650.397	274.970	.6900	.2746	.3450	1.1026	611.7079
.1290	.7482	1.9334	.2960	.3624	.3741	1.1756	632.748	252.379	.7037	.2784	.3518	1.1057	595.1084
.1338	.7601	1.9578	.3040	.3668	.3800	1.1736	619.219	243.862	.7149	.2859	.3574	1.1037	582.3845
.1520	.8032	2.0357	.3220	.3693	.4016	1.1771	573.359	220.835	.7554	.3028	.3777	1.1071	539.2524
.1622	.8242	2.0738	.3300	.3696	.4121	1.1796	550.126	219.099	.7751	.3104	.3876	1.1095	517.4017
.1715	.8457	2.1134	.3380	.3696	.4229	1.1824	533.055	208.087	.7954	.3179	.3977	1.1121	501.3463
.1909	.8813	2.1885	.3560	.3747	.4407	1.1822	497.365	196.101	.8289	.3348	.4145	1.1119	467.7785
.1999	.9001	2.2138	.3560	.3674	.4501	1.1916	484.413	182.612	.8466	.3348	.4233	1.1207	455.5974
.2104	.9165	2.2562	.3680	.3735	.4582	1.1878	468.053	182.304	.8620	.3461	.4310	1.1172	440.2101
.2286	.9545	2.3301	.3800	.3714	.4772	1.1948	447.374	205.827	.8977	.3574	.4489	1.1238	420.7613
.2379	.9732	2.3716	.3880	.3723	.4866	1.1962	437.889	181.488	.9153	.3649	.4577	1.1251	411.8408
.2583	1.0060	2.4379	.3980	.3703	.5030	1.2026	415.864	157.727	.9461	.3743	.4731	1.1311	391.1265
.2973	1.0665	2.5693	.4180	.3681	.5333	1.2129	381.769	156.577	1.0031	.3931	.5015	1.1408	359.0590
.3180	1.0992	2.6317	.4240	.3630	.5496	1.2232	367.164	125.307	1.0338	.3988	.5169	1.1505	345.3232
.3397	1.1194	2.6666	.4260	.3585	.5597	1.2314	349.640	114.754	1.0528	.4007	.5264	1.1581	328.8412
.3786	1.1725	2.7992	.4460	.3592	.5863	1.2380	327.721	81.017	1.1028	.4195	.5514	1.1643	308.2260
.3991	1.1778	2.8128	.4480	.3593	.5889	1.2386	312.224	79.279	1.1077	.4214	.5539	1.1649	293.6515
.4198	1.2053	2.8666	.4520	.3546	.6027	1.2484	303.381	115.776	1.1336	.4251	.5668	1.1741	285.3342
.4815	1.2661	2.9977	.4640	.3475	.6330	1.2668	277.152	108.199	1.1908	.4364	.5954	1.1914	260.6652
.5124	1.3025	3.0748	.4700	.3426	.6513	1.2791	267.531	112.066	1.2251	.4420	.6125	1.2030	251.6164
.5421	1.3341	3.1455	.4760	.3391	.6671	1.2889	258.696	99.196	1.2548	.4477	.6274	1.2122	243.3069
.6864	1.4670	3.4053	.4880	.3175	.7335	1.3434	223.684	80.936	1.3797	.4590	.6899	1.2635	210.3782
.7391	1.5037	3.4573	.4860	.3088	.7519	1.3638	212.715	78.246	1.4143	.4571	.7071	1.2827	200.0616
.7895	1.5475	3.5369	.4880	.3017	.7737	1.3837	204.670	76.468	1.4554	.4590	.7277	1.3014	192.4949
.8409	1.5815	3.6011	.4900	.2966	.7908	1.3988	196.203	71.548	1.4874	.4609	.7437	1.3156	184.5315
.9450	1.6616	3.7234	.4880	.2817	.8308	1.4409	183.062	77.376	1.5627	.4590	.7814	1.3552	172.1729
.9977	1.7026	3.7543	.4800	.2706	.8513	1.4694	177.508	73.071	1.6013	.4514	.8006	1.3820	166.9492
1.0503	1.7385	3.8123	.4800	.2652	.8693	1.4874	172.032	55.996	1.6351	.4514	.8176	1.3990	161.7985
1.1042	1.7621	3.8410	.4780	.2607	.8810	1.5013	165.766	48.326	1.6573	.4496	.8286	1.4120	155.9056
1.2083	1.8172	3.8922	.4700	.2488	.9086	1.5369	156.048	56.240	1.7091	.4420	.8545	1.4455	146.7656
1.3159	1.8812	3.9376	.4590	.2344	.9406	1.5810	148.158	59.126	1.7693	.4308	.8847	1.4870	139.3445
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.9715	1.6220	141.529	57.907	1.8275	.4214	.9138	1.5255	133.1103
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

.9977	1.7026	3.7543	.4800	.2706	.8513	1.4694	177.508	73.071	1.6013	.4514	.8006	1.3820	166.9492
1.0503	1.7385	3.8123	.4800	.2652	.8693	1.4874	172.032	55.996	1.6351	.4514	.8176	1.3990	161.7985
1.1042	1.7621	3.8410	.4780	.2607	.8810	1.5013	165.766	48.326	1.6573	.4496	.8286	1.4120	155.9056
1.2083	1.8172	3.8922	.4700	.2488	.9086	1.5369	156.048	56.[illegible]0	1.7091	.4420	.8545	1.4455	146.7656
1.3159	1.8812	3.9376	.4580	.2344	.9406	1.5810	148.158	59.126	1.7693	.4308	.8847	1.4870	139.3445
1.4212	1.9431	3.9872	.4480	.2222	.9715	1.6220	141.529	57.907	1.8275	.4214	.9139	1.5255	133.1103
1.5288	2.0045	4.0072	.4320	.2079	1.0023	1.6688	135.588	54.345	1.8853	.4063	.9426	1.5695	127.5222
1.7462	2.1167	4.0293	.4000	.1825	1.0583	1.7571	125.431	54.830	1.9908	.3762	.9954	1.6526	117.6873
1.8503	2.1771	4.0372	.3820	.1695	1.0886	1.8054	121.358	61.447	2.0476	.3593	1.0238	1.6980	114.1390
1.9591	2.2477	4.0751	.3680	.1583	1.1238	1.8547	118.218	57.770	2.1140	.3461	1.0570	1.7444	111.1958
2.0654	2.3016	4.0404	.3420	.1436	1.1508	1.9078	114.743	50.587	2.1647	.3217	1.0823	1.7943	107.9171
2.2806	2.4102	4.0158	.3000	.1203	1.2051	2.0043	108.679	51.977	2.2668	.2822	1.1334	1.8850	102.2137
2.3894	2.4684	4.0055	.2780	.1089	1.2342	2.0555	106.165	53.951	2.3215	.2615	1.1608	1.9332	99.8497
2.4993	2.5281	3.9905	.2540	.0971	1.2641	2.1094	103.891	56.560	2.3777	.2389	1.1889	1.9840	97.7108
2.8207	2.7169	3.9736	.1860	.0660	1.3584	2.2721	98.741	53.752	2.5553	.1749	1.2776	2.1369	92.8674
2.9283	2.7694	3.9532	.1620	.0563	1.3847	2.3224	96.906	47.285	2.6046	.1524	1.3023	2.1843	91.1417
3.0359	2.8186	3.9304	.1380	.0470	1.4093	2.3712	95.094	43.387	2.6509	.1298	1.3255	2.2301	89.4376
3.1447	2.8632	3.8981	.1120	.0373	1.4316	2.4196	93.222	44.922	2.6929	.1053	1.3465	2.2756	87.6770
3.3609	2.9688	3.8707	.0660	.0208	1.4844	2.5186	90.368	45.700	2.7922	.0621	1.3961	2.3687	84.9925
3.4707	3.0155	3.8495	.0420	.0127	1.5078	2.5660	88.855	42.236	2.8362	.0395	1.4181	2.4134	83.5696
3.5808	3.0617	3.8234	.0160	.0042	1.5308	2.6152	87.412	41.163	2.8795	.0150	1.4398	2.4596	82.2125
3.6893	3.1056	3.8016	-.0080	-.0035	1.5528	2.6613	86.029	40.949	2.9208	-.0075	1.4604	2.5029	80.9116
4.1209	3.2846	3.7260	-.1040	-.0321	1.6423	2.8472	81.364	41.418	3.0892	-.0978	1.5446	2.6778	76.5241
4.3450	3.3773	3.6908	-.1540	-.0458	1.6886	2.9438	79.300	41.594	3.1764	-.1448	1.5882	2.7687	74.5828
4.5809	3.4759	3.6710	-.2000	-.0575	1.7380	3.0394	77.371	37.583	3.2692	-.1881	1.6346	2.8586	72.7685
4.8178	3.5549	3.6418	-.2440	-.0685	1.7774	3.1231	75.206	32.701	3.3434	-.2295	1.6717	2.9373	70.7320
5.0307	3.6232	3.6106	-.2860	-.0787	1.8116	3.1994	73.380	34.349	3.4077	-.2690	1.7038	3.0091	69.0151
5.2469	3.7023	3.5781	-.3340	-.0898	1.8512	3.2[illegible]	71.866	36.325	3.4821	-.3141	1.7411	3.0917	67.5910
5.4588	3.7787	3.5560	-.3760	-.0990	1.8893	3.3[illegible]7	70.475	36.519	3.5539	-.3536	1.7770	3.1673	66.2824
5.6657	3.8553	3.5421	-.4140	-.1068	1.9276	3.44[illegible]	69.253	34.702	3.6259	-.3894	1.8130	3.2393	65.1330
5.8719	3.9221	3.5225	-.4520	-.1146	1.9610	3.5[illegible]	67.958	33.009	3.6887	-.4251	1.8444	3.3067	63.9158
6.2849	4.0610	3.4986	-.5220	-.1278	2.0305	[illegible]	65.702	32.730	3.8194	-.4909	1.9097	3.4383	61.7935
6.4851	4.1247	3.4765	-.5620	-.1355	2.06[illegible]	[illegible]	[illegible].656	31.774	3.8793	-.5286	1.9397	3.5061	60.8102
6.8995	4.2561	3.4544	-.6300	-.1472	2.1280	3.862[illegible]	62.678	30.735	4.0029	-.5925	2.0015	3.6323	58.9496
7.1061	4.3176	3.4389	-.6660	-.1534	2.1588	3.9291	61.721	33.255	4.0608	-.6264	2.0304	3.6954	58.0491
7.3158	4.3946	3.4272	-.7060	-.1598	2.1973	4.0079	61.005	31.774	4.1332	-.6640	2.0666	3.7695	57.3761
7.5255	4.4508	3.4205	-.7340	-.1641	2.2254	4.0642	60.052	30.098	4.1861	-.6903	2.0930	3.8225	56.4797
7.7326	4.5200	3.4131	-.7680	-.1691	2.2600	4.1331	59.338	30.810	4.2511	-.7223	2.1256	3.8873	55.8081
7.9373	4.5778	3.4026	-.8000	-.1739	2.2889	4.1943	58.535	28.144	4.3055	-.7524	2.1527	3.9448	55.0534
8.3392	4.6906	3.3835	-.8620	-.1829	2.3453	4.3132	57.067	29.411	4.4116	-.8107	2.2058	4.0566	53.6726
8.5388	4.7520	3.3734	-.8960	-.1877	2.3760	4.3782	56.452	27.272	4.4693	-.8427	2.2347	4.1178	53.0939
8.7385	4.7995	3.3591	-.9280	-.1925	2.3997	4.4342	55.706	27.928	4.5140	-.8728	2.2570	4.1705	52.3920
8.9407	4.8643	3.3559	-.9580	-.1961	2.4322	4.4969	55.171	28.431	4.5750	-.9010	2.2875	4.2294	51.8892
9.1454	4.9151	3.3460	-.9880	-.2002	2.4575	4.5526	54.491	27.607	4.6227	-.9292	2.3113	4.2818	51.2499
9.3475	4.9766	3.3437	-1.0160	-.2034	2.4883	4.6116	53.971	29.306	4.6805	-.9556	2.3403	4.3373	50.7601
9.5497	5.0336	3.3394	-1.0440	-.2066	2.5168	4.6684	53.425	26.396	4.7341	-.9819	2.3671	4.3907	50.2469
9.7519	5.0833	3.3276	-1.0760	-.2109	2.5416	4.7256	52.827	21.999	4.7809	-1.0120	2.3905	4.4445	49.6848
9.9516	5.1220	3.3174	-1.1020	-.2144	2.5610	4.7713	52.157	23.600	4.8173	-1.0364	2.4087	4.4875	49.0539
10.3459	5.2317	3.3038	-1.1620	-.2214	2.6158	4.8867	51.228	24.925	4.9205	-1.0929	2.4602	4.5960	48.1808
10.5456	5.2757	3.2906	-1.1940	-.2256	2.6379	4.9411	50.676	23.863	4.9619	-1.1230	2.4809	4.6471	47.6611
10.7428	5.3263	3.2963	-1.2100	-.2265	2.6632	4.9827	50.217	26.078	5.0095	-1.1380	2.5047	4.6863	47.2296
10.9400	5.3785	3.2870	-1.2420	-.2303	2.6893	5.0411	49.789	24.531	5.0586	-1.1681	2.5293	4.7412	46.8272
11.3319	5.4670	3.2775	-1.2900	-.2354	2.7335	5.1340	48.848	24.185	5.1418	-1.2133	2.5709	4.8286	45.9424
11.5241	5.5166	3.2732	-1.3160	-.2380	2.7583	5.1851	48.464	24.566	5.1884	-1.2377	2.5942	4.8767	45.5806
11.7163	5.5615	3.2652	-1.3440	-.2412	2.7807	5.2359	48.051	20.067	5.2306	-1.2641	2.6153	4.9244	45.1931
11.9134	5.5946	3.2545	-1.3700	-.2444	2.7973	5.2788	47.534	18.978	5.2618	-1.2885	2.6309	4.9647	44.7064
12.3053	5.6775	3.2511	-1.4100	-.2480	2.8388	5.3609	46.694	20.090	5.3398	-1.3261	2.6699	5.0420	43.9168
12.5000	5.7145	3.2476	-1.4300	-.2499	2.8573	5.3998	46.263	17.913	5.3746	-1.3449	2.6873	5.0786	43.5112
12.6922	5.7469	3.2441	-1.4480	-.2517	2.8734	5.4343	45.817	14.788	5.4050	-1.3619	2.7025	5.1110	43.0919
12.8919	5.7723	3.2433	-1.4600	-.2527	2.8862	5.4594	45.305	13.478	5.4290	-1.3732	2.7145	5.1346	42.6103
13.0866	5.8000	3.2380	-1.4780	-.2546	2.9000	5.4916	44.842	15.103	5.4550	-1.3901	2.7275	5.1649	42.1750
13.2813	5.8312	3.2308	-1.5000	-.2571	2.9156	5.5295	44.420	16.204	5.4843	-1.4108	2.7421	5.2006	41.7775
13.4734	5.8627	3.2255	-1.5200	-.2591	2.9313	5.5656	44.020	18.190	5.5139	-1.4296	2.7570	5.2345	41.4015
13.6681	5.9016	3.2181	-1.5460	-.2619	2.9508	5.6114	43.678	20.189	5.5505	-1.4540	2.7753	5.2776	41.0795
13.8603	5.9408	3.2126	-1.5700	-.2642	2.9704	5.6554	43.355	18.768	5.5874	-1.4766	2.7937	5.3190	40.7759
14.2547	6.0084	3.1962	-1.6200	-.2696	3.0042	5.7400	42.630	19.936	5.6510	-1.5236	2.8255	5.3985	40.0938
14.4594	6.0549	3.1921	-1.6460	-.2719	3.0274	5.7896	42.348	19.022	5.6947	-1.5481	2.8474	5.4452	39.8299
14.6590	6.0955	3.1954	-1.6680	-.2742	3.0427	5.8273	41.980	15.136	5.7235	-1.5688	2.8617	5.4807	39.4825
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.0584	5.8674	41.599	17.096	5.7530	-1.5913	2.8765	5.5184	39.1242

13.6681	5.9016	3.2181	-1.5460	-.2619	2.9508	5.6114	43.678	20.189	5.5505	-1.4540	2.7753	5.2776	41.0795	
13.8603	5.9408	3.2126	-1.5700	-.2642	2.9704	5.6554	43.355	18.768	5.5874	-1.4766	2.7927	5.3190	40.7759	
14.2547	6.0084	3.1962	-1.6200	-.2696	3.0042	5.7400	42.630	19.936	5.6510	-1.5236	2.8255	5.3985	40.0939	
14.4594	6.0549	3.1921	-1.6460	-.2719	3.0274	5.7896	42.348	19.022	5.6947	-1.5491	2.8474	5.4452	39.8289	
14.6590	6.0855	3.1854	-1.6680	-.2742	3.0427	5.8273	41.980	15.136	5.7295	-1.5689	2.8617	5.4807	39.4825	
14.8687	6.1168	3.1776	-1.6920	-.2767	3.0584	5.8674	41.599	17.096	5.7530	-1.5913	2.8765	5.5184	39.1242	
15.0734	6.1562	3.1712	-1.7180	-.2792	3.0781	5.9135	41.295	19.136	5.7900	-1.6158	2.8950	5.5618	38.8385	
15.2781	6.1952	3.1678	-1.7400	-.2811	3.0976	5.9555	40.997	18.847	5.8266	-1.6365	2.9133	5.6012	38.5531	
15.4852	6.2338	3.1643	-1.7620	-.2829	3.1169	5.9972	40.698	15.687	5.8630	-1.6572	2.9315	5.6405	38.2770	
15.6899	6.2598	3.1565	-1.7840	-.2853	3.1299	6.0327	40.333	15.685	5.8875	-1.6779	2.9437	5.6738	37.9337	
15.8946	6.2980	3.1575	-1.8000	-.2862	3.1490	6.0682	40.054	17.798	5.9234	-1.6929	2.9617	5.7072	37.6711	
16.3214	6.3703	3.1419	-1.8540	-.2915	3.1852	6.1593	39.049	18.194	5.9914	-1.7437	2.9957	5.7929	37.1028	
16.5286	6.4106	3.1494	-1.8620	-.2910	3.2053	6.1879	39.199	18.902	6.0293	-1.7512	3.0146	5.8198	36.8669	
16.7357	6.4487	3.1460	-1.8840	-.2927	3.2243	6.2294	38.941	15.674	6.0651	-1.7719	3.0325	5.8588	36.6243	
16.9454	6.4759	3.1362	-1.9100	-.2955	3.2379	6.2695	38.620	12.987	6.0907	-1.7964	3.0453	5.8965	36.3223	
17.1551	6.5031	3.1308	-1.9300	-.2974	3.2516	6.3036	38.306	16.194	6.1163	-1.8152	3.0581	5.9286	36.0277	
17.3697	6.5448	3.1301	-1.9500	-.2987	3.2724	6.3449	38.073	12.375	6.1554	-1.8340	3.0777	5.9674	35.8079	
17.5869	6.5564	3.1170	-1.9740	-.3018	3.2782	6.3752	37.669	8.887	6.1664	-1.8566	3.0832	5.9960	35.4279	
17.6040	6.5834	3.1090	-1.9980	-.3043	3.2917	6.4132	37.361	10.731	6.1917	-1.8791	3.0959	6.0317	35.1383	
17.9912	6003	3.0980	-2.0220	-.3072	3.3001	6.4461	37.066	15.570	6.2077	-1.9017	3.1038	6.0626	34.8612	
18.0636	6.6163	3.0963	-2.0320	-.3080	3.3081	6.4643	37.006	16.092	6.2227	-1.9111	3.1113	6.0797	34.8048	
18.2483	6.6349	3.0874	-2.0540	-.3105	3.3174	6.4960	36.734	8.355	6.2402	-1.9318	3.1201	6.1096	34.5485	
18.4754	6.6500	3.0800	-2.0720	-.3125	3.3250	6.5221	36.363	13.341	6.2544	-1.9487	3.1272	6.1341	34.2004	
18.6951	6.6940	3.0778	-2.0960	-.3141	3.3470	6.5687	36.172	13.502	6.2958	-1.9713	3.1479	6.1779	34.0201	
18.9147	6.7093	3.0732	-2.1100	-.3156	3.3546	6.5909	35.833	9.849	6.3102	-1.9845	3.1551	6.1988	33.7010	
19.1269	6.7363	3.0659	-2.1340	-.3179	3.3682	6.6289	35.576	12.297	6.3356	-2.0071	3.1678	6.2346	33.4602	
19.3465	6.7623	3.0596	-2.1560	-.3200	3.3812	6.6645	35.307	8.508	6.3601	-2.0277	3.1800	6.2681	33.2068	
19.5612	6.7734	3.0514	-2.1740	-.3222	3.3867	6.6886	34.976	8.730	6.3705	-2.0447	3.1853	6.2907	32.8957	
19.7809	6.8004	3.0431	-2.2000	-.3248	3.4002	6.7287	34.724	17.938	6.3959	-2.0691	3.1979	6.3284	32.6588	
19.8358	6.8134	3.0457	-2.2020	-.3245	3.4067	6.7373	34.694	113.640	6.4081	-2.0710	3.2040	6.3365	32.6298	STOP

A.BASIC RESPRT

CDOS 16K BASIC, VERSION 5.4

(2) △

TRIAXIAL TEST (Set Up / Take Down)

43 WCC 2-202 (1/80)

Proj. No 81C4055 T-3 Proj. Eng. MV C / W No ____ Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test CIU-C File No T-218

Loading Conditions:							
☐ Dynamic	☒ Undrained	☒ Compression	☒ Constant cell pressure
☒ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type Consolidation:			Piston Screwed in: ☐ Yes; ☒ No
☒ Isotropic	☐ K_o Stress path	
☐ Anisotropic	☐ 45° Stress path	

☒ Undisturbed	☐ Reconstituted	☐ Impact	☐ Constant Effort
Boring No COE 14	Composite No ____	☐ Static	____ layers; ____ 16 {Hammer Tamp}
Sample No S-7C	Specimen No ____	☐ Kneading	____ Blows - Tamps / layer
Depth (ft) 15-5	Remarks: ID 105	☐ Tamping	☐ Undercompaction
☐ Ends capped with Castone; ☐ Geomarine Sample		☐ Other	____ layers; ____ Uni (%)

Water Content				Final
Location	A-2			Ave
Container No	CA-1			357
Wgt Container + Wet Soil (gm)	76.15			556.11
Wgt Container + Dry Soil (gm)	70.43			519.88
Wgt. Container (gm)	30.86			194.43
Wgt Dry Soil (gm)	39.55			325.45
WATER CONTENT (%)	14.46			11.13

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc):	____ gm
Stone (etc):	____ gm
Wet Initial:	1421.6 gm
Wet Final:	1419.8 gm
Excess Oven dry Dish No.	____
Wgt Dish + Dry Soil	____ gm
Wgt. Dish	____ gm
Wgt. Excess Dry Soil	____ gm

Dimensions of Specimen — Height (in) / Diameter (in) or ____

	Initial (L_o)	Final (L_f)	Initial	Final	$D_{ave} = (D_1 + 2D_m + D_b)/4$
1	5.974	4.782	1-T 2.869	2.980	
2	5.935	4.657	2-M 2.876	3.365	
3	5.960	4.826	3-B 2.880	3.060	
4	5.967	4.797	1'-T 2.893		
5	5.974	4.828	2'-M 2.863		
Ave	5.9697	4.8062	3'-B 2.899		
			Ave 2.8800	3.1925	

ΔL_c = ____ in.
ΔL_f = ____ in.
$\Sigma \Delta L$ = ____ in.
$L_o - L_f$ = ____ in.

$A_o = \pi D^2/4 = 6.5144$ in²
$V_o = 1h^3 \cdot 16.887 / = 637.278$ cm³
Area $\frac{1}{5.5542(D^2)^2} = 55.5895$ 10^{-2} tsf

Membrane { Thickness = 0.0125 in; Circumference (C_m) = 8.79825 in; Diam = C_m/π = 2.8006 in }

Filter Paper: Top + bottom: ☐ Yes; ☒ No

Filter Strips: ☒ Yes; ☐ No

16 Vertical at ¼" - Whatman #54

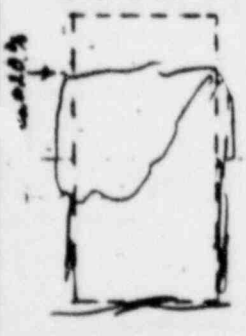
____ Spiral at ¼": Whatman #1 or ____

Wgt top cap: ____ gm, 0.51 10^{-2} tons

Wgt (Cap, dial + piston) = ____ gm, ____ 10^{-2} tons

Preliminary γ_{co} = 139.26 lb/ft³ γ_{do} = 121.67 lb/ft³

Failure Sketch



Final Visual Classification. ☐ See more detailed sketch on attached sheet; ☐ Photo Taken.

Other Remarks: σ_c final 2 tsf

Preliminary Cal. by RB Reviewed by RR

☐ Trimmed by ____ Date ____ Set up by RB Date 5/16/81 Taken down by RB Date 5/22/81

☐ Reconstituted

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS 44

Type Test: CIU-C ☒ Undisturbed ☐ Reconstituted - Specimen: T-219

☐ Dynamic f = ___ or ___ ☐ sinusoidal or ___ ☒ Static 0.69 %/hr

Consolidation History Units: CSF or KSF	Max. Induced Pore Pressure Uncorr.	Max. Induced Pore Pressure Corr.*	☒ Preshear/post-Cy. ☐ Pre-Cy-loading Uncorr.	☒ Preshear/post-Cy. ☐ Pre-Cy-loading Corr.*	Preshear after Cy-loading Uncorr.	Preshear after Cy-loading Corr.*
σ_{cell}		—	16.4016	—		—
$u_{..}$		—	14.400	—		—
$\bar{\sigma}_v$			—	1.9727		
$\bar{\sigma}_h$			2.0016	2.0009		
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$			—	1.9868		
$K_c = \bar{\sigma}_v/\bar{\sigma}_h$			1.00	0.9859		
OCR			~~1.00~~	—		
Consol. Time	☐ Overnight ___ days ___ hours		☐ Overnight ___ days ___ hours		☐ Overnight ___ days ___ hours	

* Corrected for effects of membrane, S. Hor strips, etc.

H_o = 5.9697 in.
A_c = 6.5144 in²
V_o = 637.279 cm³
Dav/Dom = 1.0284
G_s: 2.747 ☐ Assumed ☒ Measured
B_{fg} = 97.2 %
Area Corr. Factors: C
Undrained = 1.138
$C = \frac{1}{\varepsilon_1}\left(1 - \frac{A_c}{A_{sm}}\right)$
Drained = ___
$C = \frac{1}{\varepsilon_1}\left[1 - \frac{A_c(1+\varepsilon_v)}{A_{sm}}\right]$

Calculate W_{wt} of Dry Soil	By Initial water content	By Final water content	By Total Oven-dried Specimen
W_1 (%)			
W_2 (%)			
W_{ave} (%)	14.46	11.13	
W_{wt} Wet Soil, W_T (gm)	1421.6	1419.8	
Initial W_{wt} Dry Soil (gm)	ΔV_T (cm³) during test		
W_{wt} Excess Over Dry Soil	Corr. Wet W_{wt}: $W_c = W_T + \Delta V_T$		
Est. W_{wt} Oven Dry Soil, W_s (gm)	1242.01	1277.60	
W_s used:		Final = 1277.60 gm	

Variations in Height and Volume During Consolidation	During Initial Consol. without back-pressure	During Back-Pressuring ΔV_o = 10.62 vol in	After Backpressuring = $\bar{\sigma}_{c(P_{-1})}$ = $\bar{\sigma}_{c(P_{-1})}$ $\bar{\sigma}_{P(P_{-1})}$ From 3.47 To 6.95	From 3.47 To 13.9	From ___ To ___
Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL^{up}, (+) ΔL^{down}					
ΔL (in)	0.0159	0.0069	0.0074	0.0277	
ΔV_m (cm³)	(±7.78)	-10.60	3.02	9.84	
$-\Delta V_a = 3V_o(\Delta H/H_o)$	5.092	2.210	2.370		
$R = \Delta V_m/\Delta V_a$	Rused = 1.274	1.274			
Corrected $\Delta V_a = R \cdot \Delta V_a$	6.487	2.816			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ___ in ; $\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ___ cm³ ; ΔV_T (during drained loading) = ___ cm³

Calculation of ΔV_c during Consolidation by Dissipation Procedure	ΔV_c by W_{wt} Change $= W_c - W_s - (\Delta V_o + \Delta V_T)$	ΔV_c by recorded/calculated volume changes $= \Sigma$ selected ΔV	ΔV_c assuming S = 100% Undrained: $V_F = (W_c - w_c)W_s/\gamma_w$; $\Delta V_c = V_o - V_F$	Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$
	ΔW_{wt} = 1.8 gm	$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V$	w_c = 11.13 %	V_F = 608.381 cm³
	$\Sigma(\Delta V_o + \Delta L)$ = (-12.0) cm³	= 6.487 + 2.816 + 9.84	$V_F + \Delta V_T$ = ___ cm³	
	$\therefore \Delta V_c$ = (13.80) cm³	= 19.143 cm³	$\therefore \Delta V_c$ = 28.898 cm³	

Conclusions

ΔV_c used (ave. value) = 28.898 cm³ ; $\therefore V_c$ = 608.381 cm³ ; ΔL_c = 0.0505 in ; $\therefore L_c$ = 5.9192 in

$A_c = V_c/L_c$ (cm²/in) / 16.387 = 6.2721 in² / 0.144 = 43.5560 x10⁻³ ft²

ε_{ac} = 0.85 % ; ε_v = 4.63 % ; $1-\varepsilon_v$ = 0.9547 ; $\varepsilon_1^{\#}$ = 0.1908 ; $\varepsilon_{vc}^{\#}$ = ___ # not in percent

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ___ cm³ ; ΔL_{max} = ___ in

Summary	Height (in)	Area (in² / cm² / ft² x10⁻³)	Volume (cm³)	Water Content (%)	Total or Dry Density (lb/ft³)	Saturation (%)		
Initial	5.9697	45.2389	637.279	11.27	139.26 125.16	84.2		
After Consol.	5.9192	43.5560	608.381	11.13	145.70 131.10	100.0		

$S = W G_s \cdot \gamma_d/(G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_w/(G_s \cdot \gamma_w(100w) - \gamma_w)$

Calculated by RS Reviewed by RR

Psi x 0.0072 = ksf
W for S=100% = $G_s \cdot \gamma_w - \gamma_d/G_s \cdot \gamma_d$ = $G_s \cdot \gamma_w - \gamma_d/\gamma_d$ = e = $\gamma_w \cdot 62.32$ (lb/ft³) = 0.9982 gm/cm³ (g/ml) = 8.32 (lb/gal)

1	DATA FILE IDENT. NO.	T-219
2	PROJECT NO.	81C4055T3
3	BORING NO.	COE-14
4	SAMPLE NO.	S-7
5	SPECIMEN NO.	C
6	DEPTH	15.5
7	TEST NO.	ID-105
8	FILE # FOR LOAD CELL OR PROVING RING	2000
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	5.9697
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.880
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	637.279
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.51
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	1.27
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	1.595
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.0125
25	MEMBRANE DIAMETER IN INCHES	2.8006
26	FILTER STRIP CORRECTION CONSTANT	2.128
27	RIGHT CYLINDER DISTORTION FACTOR	1.138
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	8.2009
35	BACK PRESSURE IN TSF	7.200
36	AXIAL DEFORMATION IN INCHES	0.0505
37	VOLUME CHANGE IN CU. CM.	28.898
38	PISTON DRAG CORRECTION IN TONS*10**-3	10.97
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.00720.	21.94.	7.217
.00735.	22.806.	7.219
.00748.	24.760.	7.226
.00761.	26.878.	7.231
.00779.	29.702.	7.240
.00792.	31.982.	7.253
.00805.	34.26.	7.263
.00818.	35.67.	7.269
.00832.	37.46.	7.279
.00862.	40.94.	7.296
.00875.	42.35.	7.303
.00888.	43.65.	7.312
.00902.	45.12.	7.317
.00938.	47.74.	7.33[illegible]

.00862.	40.94.	7.296
.00875.	42.35.	7.303
.00888.	43.65.	7.312
.00902.	45.12.	7.317
.00928.	47.24.	7.336
.00959.	49.30.	7.347
.00989.	51.15.	7.360
.01020.	52.83.	7.372
.01050.	54.30.	7.383
.01121.	56.96.	7.405
.01151.	58.15.	7.414
.01177.	59.18.	7.424
.01217.	60.27.	7.433
.01248.	61.14.	7.440
.01278.	62.06.	7.449
.01318.	62.93.	7.457
.01344.	63.63.	7.462
.01383.	64.34.	7.472
.01445.	65.70.	7.484
.01480.	66.40.	7.492
.01515.	67.00.	7.498
.01550.	67.54.	7.505
.01690.	69.82.	7.526
.01755.	70.80.	7.536
.01826.	71.73.	7.545
.01900.	72.59.	7.554
.02027.	74.28.	7.571
.02101.	75.04.	7.580
.02171.	75.74.	7.585
.02237.	76.40.	7.592
.02443.	78.57.	7.613
.02583.	79.82.	7.624
.02719.	81.06.	7.632
.02855.	82.26.	7.643
.03135.	84.38.	7.659
.03271.	85.46.	7.667
.03411.	86.33.	7.673
.03551.	87.15.	7.681
.03971.	90.02.	7.697
.04177.	91.49.	7.706
.04383.	92.74.	7.712
.04659.	94.42.	7.721
.05346.	98.33.	7.735
.05692.	100.29.	7.741
.06043.	102.30.	7.748
.06384.	103.76.	7.751
.07080.	107.40.	7.759
.07426.	108.87.	7.759
.07768.	110.55.	7.761
.08114.	112.02.	7.763
.08797.	115.00.	7.762
.09493.	117.77.	7.762
.10181.	120.60.	7.761
.10881.	123.42.	7.756
.12313.	128.31.	7.748
.12996.	130.70.	7.744
.13684.	132.92.	7.739
.14367.	135.15.	7.732
.15755.	139.38.	7.721
.16460.	141.39.	7.714
.17170.	143.35.	7.709
.17853.	145.25.	7.700
.18549.	147.20.	7.694
.19250.	149.10.	7.688
.19950.	151.27.	7.680
.20646.	153.18.	7.673
.21347.	154.97.	7.665
.22713.	158.41.	7.649

.17853.	145.25.	7.700
.18549.	147.20.	7.694
.19250.	149.10.	7.688
.19950.	151.27.	7.680
.20646.	153.18.	7.673
.21347.	154.97.	7.665
.22713.	158.61.	7.649
.23414.	160.45.	7.645
.24110.	162.30.	7.637
.24802.	163.98.	7.628
.26177.	167.51.	7.615
.27570.	170.93.	7.598
.29002.	174.19.	7.585
.30469.	177.83.	7.571
.31958.	180.98.	7.554
0.3472.	186.79.	7.529
0.3611.	189.83.	7.514
0.3748.	192.60.	7.501
0.3880.	195.48.	7.487
0.4017.	198.14.	7.477
0.4150.	201.01.	7.465
0.4282.	203.62.	7.453
0.4418.	206.66.	7.441
0.4554.	209.10.	7.428
0.4826.	214.26.	7.407
0.4962.	216.98.	7.395
0.5097.	219.64.	7.385
0.5229.	222.08.	7.372
0.5359.	224.69.	7.361
0.5491.	227.29.	7.349
0.5624.	229.58.	7.339
0.5755.	232.07.	7.330
0.5888.	235.01.	7.319
0.6150.	239.62.	7.298
0.6281.	242.23.	7.288
0.6412.	244.40.	7.279
0.6539.	246.63.	7.267
0.6667.	249.12.	7.258
0.6797.	251.78.	7.248
0.6927.	253.74.	7.239
0.7055.	255.91.	7.228
0.7186.	258.52.	7.219
0.7444.	263.51.	7.200
0.7573.	265.58.	7.192
0.7701.	267.86.	7.183
0.7829.	269.76.	7.174
0.7960.	271.93.	7.165
0.8089.	274.48.	7.156
0.8219.	276.71.	7.152
0.8347.	279.04.	7.138
0.8476.	281.16.	7.131
0.8740.	284.85.	7.116
0.8869.	287.02.	7.105
0.8999.	288.76.	7.098
0.9129.	290.61.	7.089
0.9257.	292.62.	7.080
0.9389.	295.12.	7.072
0.9523.	297.12.	7.064
0.9660.	299.35.	7.057
0.9798.	301.47.	7.050
1.0074.	305.70.	7.033
1.0214.	307.77.	7.026
1.0353.	310.10.	7.017
1.0492.	312.22.	7.011
1.0633.	314.39.	7.002
1.0771.	316.67.	6.996
1.0912.	319.39.	6.993
1.1051.	322.27.	6.982
1.1191.	324.17.	[illegible]

```
1.0633.  314.39.  7.002
1.0771.  316.67.  6.996
1.0912.  319.39.  6.993
1.1051.  322.27.  6.982
1.1191.  324.17.  6.973
1.1329.  326.18.  6.969
1.1472.   328.7.  6.959
1.1612.   330.1.  6.954
1.1753.   332.2.  6.945
1.1872.   334.7.  6.939
1.1895.   335.1.  6.934
1.1922.   335.6.  6.936
-999..0.0.0.0
```

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-219

PROJ. NO.	81C4055T3	REVIEWED BY:
BORING NO.	COE-14	DATE: 5/26/81
SAMPLE NO.	S-7	INPUT DATA CHECKED BY:
SPECIMEN NO.	C	
DEPTH(FT.)	15.5	TEST NO. ID-105

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
5.9697	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.8800	INITIAL DIAMETER OF SPECIMEN IN INCHES
637.28	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.5100	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
1.2700	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
1.5950	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0125	MEMBRANE THICKNESS IN INCHES
2.8006	MEMBRANE DIAMETER IN INCHES
2.1280	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.1380	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

8.2008	CELL PRESSURE IN TSF
7.2000	BACK PRESSURE IN TSF
.0505	AXIAL DEFORMATION DURING CONSOL. IN INCHES
28.90	VOLUME CHANGE DURING CONSOL. IN CU. CM.
10.9700	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	1.9727 KSF
LATERAL	=	2.0009 KSF
MEAN	=	1.9915 KSF
PBAR	=	1.9868 KSF
LATERAL/AXIAL	=	1.0143
AXIAL/LATERAL	=	.9859
OCR	=	1.000

10.9700	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NOMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 1.9868 KSF

AXIAL	DEVIATOR	DELTA-U	A-FACTOR	Q	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM

NONE
YES

FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 1.9868 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	D KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	D NORM	P-BAR NORM	SECANT NORM
0.0000	-.0283	.9859	0.0000	0.0000	-.0141	1.9868	0.000	0.000	-.0142	0.0000	-.0071	1.0000	0.0000
.0025	-.0085	.9957	.0040	.2025	-.0043	1.9927	779.308	1408.270	-.0043	.0026	-.0021	1.0030	392.2437
.0047	.0362	1.0183	.0180	.2791	.0181	2.0010	1363.344	2122.906	.0182	.0091	.0091	1.0072	686.2023
.0069	.0847	1.0430	.0280	.2478	.0424	2.0153	1631.345	2167.524	.0427	.0141	.0213	1.0143	821.0933
.0100	.1494	1.0764	.0460	.2589	.0747	2.0296	1782.400	2252.029	.0752	.0232	.0376	1.0216	897.1224
.0122	.2016	1.1045	.0720	.3132	.1008	2.0297	1889.864	2376.539	.1015	.0362	.0507	1.0216	951.2117
.0144	.2538	1.1330	.0920	.3262	.1269	2.0358	1964.136	1921.812	.1277	.0463	.0639	1.0247	988.5946
.0166	.2860	1.1508	.1040	.3309	.1430	2.0399	1898.341	1599.847	.1440	.0523	.0720	1.0268	955.4781
.0189	.3270	1.1742	.1240	.3490	.1635	2.0404	1877.493	1650.921	.1646	.0624	.0823	1.0270	944.9849
.0240	.4066	1.2206	.1580	.3634	.2033	2.0462	1812.589	1519.036	.2046	.0795	.1023	1.0299	912.3175
.0262	.4388	1.2399	.1720	.3682	.2194	2.0483	1783.671	1410.296	.2209	.0866	.1104	1.0310	897.7621
.0284	.4685	1.2587	.1900	.3825	.2343	2.0452	1750.330	1386.702	.2358	.0956	.1179	1.0294	880.9810
.0307	.5021	1.2788	.2060	.3771	.2511	2.0520	1724.966	1261.186	.2527	.1007	.1264	1.0328	868.2147
.0351	.5505	1.3123	.2380	.4112	.2753	2.0382	1647.067	999.243	.2771	.1198	.1385	1.0259	829.0062
.0404	.5975	1.3432	.2600	.4155	.2987	2.0397	1549.741	864.148	.3007	.1309	.1504	1.0266	780.0198
.0454	.6396	1.3730	.2860	.4282	.3198	2.0347	1469.648	780.821	.3219	.1440	.1610	1.0241	739.7075
.0507	.6779	1.4009	.3100	.4390	.3389	2.0299	1393.224	694.717	.3412	.1560	.1706	1.0217	701.2416
.0558	.7113	1.4262	.3320	.4489	.3556	2.0246	1326.511	581.008	.3580	.1671	.1790	1.0190	667.6632
.0677	.7716	1.4748	.3760	.4701	.3858	2.0107	1180.639	517.558	.3884	.1892	.1942	1.0120	594.2424
.0728	.7986	1.4970	.3940	.4765	.3993	2.0062	1135.523	532.051	.4019	.1983	.2010	1.0098	571.5346
.0772	.8219	1.5179	.4140	.4870	.4110	1.9979	1101.166	447.681	.4137	.2084	.2068	1.0056	554.2418
.0840	.8465	1.5395	.4320	.4939	.4232	1.9922	1041.815	369.245	.4261	.2174	.2130	1.0027	524.3693
.0892	.8661	1.5570	.4460	.4987	.4331	1.9880	1002.651	392.384	.4359	.2245	.2180	1.0006	504.6569
.0943	.8869	1.5771	.4640	.5070	.4435	1.9804	970.788	349.476	.4464	.2335	.2232	.9968	488.6198
.1010	.9064	1.5960	.4800	.5135	.4532	1.9741	925.180	324.024	.4562	.2416	.2281	.9936	465.6640
.1054	.9222	1.6104	.4900	.5155	.4611	1.9720	901.593	299.923	.4642	.2466	.2321	.9926	453.7925
.1120	.9381	1.6292	.5100	.5278	.4690	1.9600	862.720	266.019	.4722	.2567	.2361	.9865	434.2264
.1225	.9686	1.6603	.5340	.5357	.4843	1.9512	813.853	278.162	.4875	.2688	.2438	.9821	409.6309
.1284	.9842	1.6784	.5500	.5432	.4921	1.9431	788.578	245.605	.4954	.2768	.2477	.9780	396.9094
.1343	.9976	1.6933	.5620	.5478	.4988	1.9377	763.819	214.558	.5021	.2829	.2511	.9753	384.4474
.1402	1.0096	1.7085	.5760	.5550	.5048	1.9297	740.167	208.692	.5082	.2899	.2541	.9713	372.5429
.1639	1.0603	1.7667	.6180	.5677	.5302	1.9131	664.291	206.222	.5337	.3111	.2668	.9629	334.3527
.1749	1.0821	1.7939	.6380	.5746	.5410	1.9040	635.006	184.537	.5446	.3211	.2723	.9583	319.6131
.1868	1.1026	1.8198	.6560	.5801	.5513	1.8962	605.224	161.055	.5550	.3302	.2775	.9544	304.6233
.1994	1.1215	1.8452	.6740	.5862	.5607	1.8877	576.741	162.420	.5645	.3392	.2822	.9501	290.2869
.2208	1.1588	1.8962	.7080	.5964	.5794	1.8723	537.589	153.204	.5832	.3564	.2916	.9424	270.5807
.2333	1.1754	1.9219	.7260	.6032	.5877	1.8626	515.887	130.740	.5916	.3654	.2958	.9375	259.6579
.2451	1.1906	1.9412	.7360	.6038	.5953	1.8602	497.217	128.872	.5993	.3704	.2996	.9363	250.2608
.2563	1.2050	1.9633	.7500	.6082	.6025	1.8534	481.191	132.436	.6065	.3775	.3032	.9329	242.1945
.2911	1.2523	2.0359	.7920	.6185	.6262	1.8351	439.922	125.101	.6303	.3986	.3152	.9236	221.4227
.3147	1.2793	2.0778	.8140	.6225	.6397	1.8266	415.444	115.433	.6439	.4097	.3220	.9194	209.1024
.3377	1.3061	2.1154	.8360	.6220	.6531	1.8240	395.118	114.656	.6574	.4178	.3287	.9181	198.8717
.3607	1.3320	2.1593	.8520	.6263	.6660	1.8149	377.123	104.124	.6704	.4288	.3352	.9135	189.8140
.4080	1.3772	2.2330	.8840	.6290	.6886	1.8056	344.485	98.072	.6932	.4449	.3466	.9088	173.3869
.4310	1.4003	2.2719	.9000	.6300	.7002	1.8011	331.479	88.829	.7048	.4530	.3524	.9065	166.8408
.4546	1.4186	2.3027	.9120	.6303	.7093	1.7982	318.246	74.695	.7140	.4590	.3570	.9051	160.1805
.4783	1.4357	2.3381	.9280	.6339	.7178	1.7908	306.082	78.813	.7226	.4671	.3613	.9013	154.0579
.5492	1.4962	2.4374	.9600	.6297	.7481	1.7891	277.567	87.354	.7531	.4832	.3765	.9005	139.7057
.5840	1.5273	2.4931	.9780	.6287	.7637	1.7866	266.351	82.102	.7687	.4922	.3844	.8992	134.0604
.6188	1.5534	2.5365	.9900	.6259	.7767	1.7876	255.582	74.950	.7818	.4983	.3909	.8998	128.6400
.6655	1.5884	2.5996	1.0080	.6235	.7942	1.7871	242.931	72.306	.7995	.5073	.3997	.8995	122.2729
.7815	1.6691	2.7297	1.0360	.6103	.8346	1.7995	217.186	69.319	.8401	.5214	.4201	.9057	109.3146
.8400	1.7095	2.7938	1.0480	.6031	.8547	1.8077	206.878	69.435	.8604	.5275	.4302	.9099	104.1268
.8993	1.7509	2.8647	1.0620	.5969	.8754	1.8144	197.839	60.042	.8813	.5345	.4406	.9132	99.5771
.9569	1.7798	2.9077	1.0680	.5906	.8899	1.8229	188.956	56.593	.8958	.5375	.4479	.9175	95.1058
1.0745	1.8538	3.0216	1.0840	.5759	.9269	1.8439	175.162	56.258	.9331	.5456	.4665	.9281	88.1628
1.1329	1.8828	3.0532	1.0840	.5672	.9414	1.8584	168.684	55.133	.9477	.5456	.4738	.9354	84.9023
1.1907	1.9179	3.1006	1.0880	.5590	.9589	1.8719	163.442	57.445	.9653	.5476	.4826	.9422	82.2639
1.2492	1.9496	3.1447	1.0920	.5521	.9748	1.8838	158.331	54.945	.9813	.5496	.4906	.9481	79.6918
1.3045	1.9777	3.1857	1.0960	.5467	.9889	1.8939	154.069	51.101	1.0136	.5486	.5068	.9653	75.3218

.9569	1.7798	2.9077	1.0680	.5906	.8999	1.8229	188.956	56.593	.8958	.5375	.4479	.9175	95.1058	
1.0245	1.8538	3.0216	1.0840	.5759	.9269	1.8439	175.162	56.258	.9331	.5456	.4665	.9281	90.1628	
1.1329	1.8828	3.0532	1.0840	.5672	.9414	1.8584	168.684	55.133	.9477	.5456	.4738	.9354	84.9023	
1.1907	1.9179	3.1006	1.0880	.5590	.9589	1.8719	163.442	57.445	.9653	.5476	.4826	.9422	82.2639	
1.2492	1.9496	3.1447	1.0920	.5521	.9748	1.8838	158.331	54.945	.9813	.5496	.4906	.9481	79.6918	
1.3645	2.0138	3.2105	1.0900	.5337	1.0069	1.9179	149.649	53.017	1.0136	.5486	.5068	.9653	75.3218	
1.4821	2.0730	3.2755	1.0900	.5187	1.0365	1.9475	141.773	51.196	1.0434	.5486	.5217	.9802	71.3577	
1.5984	2.1335	3.3367	1.0880	.5033	1.0667	1.9798	135.246	51.376	1.0738	.5476	.5369	.9965	68.0724	
1.7166	2.1935	3.3764	1.0780	.4852	1.0967	2.0198	129.424	46.547	1.1040	.5426	.5520	1.0166	65.1422	
1.9585	2.2959	3.4449	1.0620	.4569	1.1480	2.0870	118.669	42.823	1.1556	.5345	.5778	1.0504	59.7290	
2.0739	2.3459	3.4770	1.0540	.4439	1.1729	2.1200	114.475	41.421	1.1807	.5305	.5904	1.0671	57.6181	
2.1902	2.3919	3.4991	1.0440	.4313	1.1959	2.1530	110.499	39.748	1.2039	.5255	.6019	1.0837	55.6168	
2.3055	2.4379	3.5105	1.0300	.4176	1.2190	2.1901	106.968	38.419	1.2271	.5184	.6135	1.1023	53.9395	
2.5400	2.5245	3.5420	1.0080	.3948	1.2622	2.2554	100.499	35.518	1.2706	.5073	.6353	1.1352	50.5835	
2.6591	2.5651	3.5470	.9940	.3832	1.2826	2.2897	97.527	33.492	1.2911	.5003	.6455	1.1525	49.0875	
2.7791	2.6045	3.5606	.9840	.3737	1.3023	2.3194	94.735	32.934	1.3109	.4953	.6555	1.1674	47.6824	
2.8945	2.6426	3.5529	.9660	.3616	1.3213	2.3565	92.275	33.104	1.3301	.4862	.6650	1.1861	46.4441	
3.0121	2.6816	3.5608	.9540	.3519	1.3408	2.3880	89.968	32.534	1.3497	.4802	.6749	1.2019	45.2831	
3.1305	2.7194	3.5674	.9420	.3427	1.3597	2.4189	87.771	34.384	1.3687	.4741	.6844	1.2175	44.1771	
3.2487	2.7630	3.5698	.9260	.3316	1.3815	2.4567	85.919	34.503	1.3907	.4661	.6953	1.2365	43.2448	
3.3663	2.8008	3.5714	.9120	.3223	1.4004	2.4896	84.039	30.827	1.4097	.4590	.7049	1.2531	42.2990	
3.4848	2.8358	3.5658	.8960	.3127	1.4179	2.5231	82.187	30.187	1.4273	.4510	.7137	1.2699	41.3666	
3.7155	2.9069	3.5561	.8640	.2942	1.4535	2.5907	78.998	30.510	1.4631	.4349	.7316	1.3040	39.7615	
3.8340	2.9427	3.5694	.8560	.2880	1.4713	2.6166	77.490	30.347	1.4811	.4308	.7406	1.3170	39.0025	
3.9515	2.9786	3.5649	.8400	.2792	1.4893	2.6506	76.092	28.975	1.4992	.4228	.7496	1.3341	38.2989	
4.0685	3.0106	3.5529	.8220	.2704	1.5053	2.6846	74.694	28.270	1.5153	.4137	.7577	1.3512	37.5952	
4.3008	3.0783	3.5538	.7960	.2561	1.5391	2.7445	72.232	28.290	1.5494	.4006	.7747	1.3814	36.3558	
4.5361	3.1429	3.5359	.7620	.2401	1.5715	2.8108	69.910	26.237	1.5819	.3835	.7909	1.4148	35.1871	
4.7780	3.2034	3.5315	.7360	.2276	1.6017	2.8671	67.636	26.224	1.6123	.3704	.8062	1.4431	34.0426	
5.0258	3.2714	3.5292	.7080	.2144	1.6357	2.9292	65.654	25.017	1.6466	.3564	.8233	1.4743	33.0451	
5.2774	3.3282	3.5071	.6740	.2006	1.6641	2.9916	63.601	22.392	1.6752	.3392	.8376	1.5058	32.0118	
5.7440	3.4318	3.4912	.6240	.1801	1.7159	3.0935	60.238	22.614	1.7273	.3141	.8637	1.5570	30.3190	
5.9788	3.4859	3.4764	.5940	.1688	1.7429	3.1506	58.776	21.906	1.7545	.2990	.8773	1.5858	29.5834	
6.2103	3.5340	3.4650	.5680	.1592	1.7670	3.2007	57.360	21.720	1.7787	.2859	.8894	1.6110	28.8708	
6.4333	3.5845	3.4522	.5400	.1492	1.7923	3.2540	56.157	21.072	1.8042	.2718	.9021	1.6378	28.2653	
6.6648	3.6296	3.4495	.5200	.1419	1.8148	3.2966	54.884	20.772	1.8269	.2617	.9134	1.6593	27.6243	
6.8894	3.6792	3.4433	.4960	.1335	1.8396	3.3454	53.813	20.855	1.8518	.2496	.9259	1.6838	27.0854	
7.1124	3.7230	3.4335	.4720	.1256	1.8615	3.3914	52.742	21.191	1.8739	.2376	.9369	1.7070	26.5464	
7.3422	3.7752	3.4295	.4480	.1175	1.8876	3.4416	51.803	19.909	1.9002	.2255	.9501	1.7322	26.0736	
7.5720	3.8145	3.4142	.4220	.1095	1.9072	3.4872	50.750	17.630	1.9199	.2124	.9600	1.7552	25.5435	
8.0315	3.8980	3.4030	.3800	.0965	1.9490	3.5711	48.886	18.703	1.9619	.1913	.9810	1.7974	24.6052	
8.2613	3.9422	3.3948	.3560	.0893	1.9711	3.6173	48.061	18.983	1.9842	.1792	.9921	1.8207	24.1902	
8.4893	3.9849	3.3916	.3360	.0834	1.9925	3.6587	47.273	17.915	2.0057	.1691	1.0028	1.8415	23.7936	
8.7123	4.0230	3.3773	.3100	.0762	2.0115	3.7038	46.501	18.009	2.0249	.1560	1.0124	1.8642	23.4049	
8.9320	4.0646	3.3709	.2880	.0700	2.0323	3.7466	45.822	18.617	2.0458	.1450	1.0229	1.8858	23.0635	
9.1550	4.1054	3.3616	.2640	.0635	2.0527	3.7911	45.152	16.745	2.0664	.1329	1.0332	1.9082	22.7263	
9.3796	4.1395	3.3540	.2440	.0582	2.0698	3.8282	44.434	16.196	2.0835	.1228	1.0418	1.9268	22.3648	
9.6010	4.1776	3.3515	.2260	.0533	2.0888	3.8654	43.807	19.023	2.1027	.1138	1.0513	1.9455	22.0490	
9.8257	4.2244	3.3487	.2040	.0476	2.1122	3.9108	43.281	18.007	2.1263	.1027	1.0631	1.9684	21.7845	
10.2683	4.2917	3.3315	.1620	.0371	2.1458	3.9866	42.070	16.489	2.1601	.0815	1.0800	2.0065	21.1750	
10.4896	4.3310	3.3275	.1420	.0321	2.1655	4.0263	41.558	15.720	2.1799	.0715	1.0900	2.0265	20.9172	
10.7109	4.3612	3.3212	.1240	.0278	2.1806	4.0595	40.981	14.183	2.1951	.0624	1.0976	2.0432	20.6269	
10.9255	4.3928	3.3084	.1000	.0222	2.1964	4.0994	40.466	15.784	2.2110	.0503	1.1055	2.0633	20.3673	
11.1417	4.4292	3.3056	.0820	.0179	2.2146	4.1357	40.007	17.380	2.2293	.0413	1.1147	2.0816	20.1366	
11.3613	4.4686	3.3021	.0620	.0133	2.2343	4.1754	39.580	14.666	2.2491	.0312	1.1246	2.1016	19.9216	
11.5810	4.4937	3.2936	.0440	.0092	2.2468	4.2060	39.046	12.473	2.2618	.0221	1.1309	2.1170	19.6528	
11.7972	4.5229	3.2828	.0220	.0043	2.2615	4.2427	38.578	15.211	2.2765	.0111	1.1382	2.1355	19.4174	
12.0185	4.5603	3.2809	.0040	.0003	2.2802	4.2795	38.179	16.454	2.2953	.0020	1.1477	2.1540	19.2164	
12.4544	4.6301	3.2724	-.0340	-.0079	2.3151	4.3526	37.403	13.999	2.3304	-.0171	1.1652	2.1908	18.8260	
12.6723	4.6562	3.2673	-.0500	-.0112	2.3281	4.3817	36.966	12.957	2.3436	-.0252	1.1718	2.2054	18.6059	
12.8886	4.6863	3.2621	-.0680	-.0150	2.3432	4.4149	36.580	12.151	2.3587	-.0342	1.1794	2.2221	18.4114	
13.1048	4.7088	3.2532	-.0860	-.0188	2.3544	4.4442	36.147	11.317	2.3700	-.0433	1.1850	2.2369	18.1937	
13.3261	4.7359	3.2468	-.1040	-.0225	2.3680	4.4758	35.751	14.043	2.3837	-.0523	1.1918	2.2528	17.9940	
13.5441	4.7704	3.2439	-.1220	-.0261	2.3852	4.5112	35.430	14.262	2.4011	-.0614	1.2005	2.2706	17.8327	
13.7637	4.7983	3.2484	-.1300	-.0276	2.3991	4.5332	35.067	13.240	2.4151	-.0654	1.2075	2.2817	17.6501	
13.9799	4.8281	3.2330	-.1580	-.0332	2.4140	4.5762	34.738	12.712	2.4301	-.0795	1.2150	2.3033	17.4844	
14.1979	4.8535	3.2302	-.1720	-.0359	2.4267	4.6030	34.383	10.168	2.4429	-.0866	1.2214	2.3168	17.3060	
14.6439	4.8932	3.2172	-.2020	-.0418	2.4461	4.6526	33.601	10.227	2.4624	-.1017	1.2312	2.3417	16.9121	
					2.4589	4.6875	33.281	9.769	2.4753	-.1127	1.2376	2.3593	16.7509	

13.5441	4.7704	3.2439	-.1220	-.0261	2.3852	4.5112	35.430	14.262	2.4011	-.0614	1.2005	2.2706	17.8227
13.7637	4.7983	3.2484	-.1300	-.0276	2.3991	4.5332	35.067	13.240	2.4151	-.0654	1.2075	2.2817	17.6501
13.9799	4.8281	3.2330	-.1580	-.0332	2.4140	4.5762	34.738	12.712	2.4301	-.0795	1.2150	2.3033	17.4944
14.1979	4.8535	3.2302	-.1720	-.0359	2.4267	4.6030	34.383	10.168	2.4429	-.0866	1.2214	2.3168	17.3060
14.6439	4.8922	3.2172	-.2020	-.0418	2.4461	4.6526	33.601	10.227	2.4624	-.1017	1.2312	2.3417	16.9121
14.8618	4.9179	3.2067	-.2240	-.0460	2.4589	4.6875	33.281	9.769	2.4753	-.1127	1.2376	2.3593	16.7509
15.0814	4.9349	3.2005	-.2380	-.0497	2.4675	4.7101	32.909	8.207	2.4839	-.1198	1.2419	2.3707	16.5640
15.3011	4.9539	3.1912	-.2560	-.0522	2.4770	4.7377	32.561	9.412	2.4934	-.1289	1.2467	2.3846	16.3887
15.5173	4.9759	3.1835	-.2740	-.0555	2.4880	4.7668	32.249	11.939	2.5045	-.1379	1.2523	2.3993	16.2317
15.7403	5.0065	3.1815	-.2900	-.0584	2.5032	4.7982	31.986	11.394	2.5199	-.1460	1.2599	2.4151	16.0994
15.9667	5.0271	3.1752	-.3060	-.0614	2.5135	4.8246	31.662	9.793	2.5302	-.1540	1.2651	2.4283	15.9360
16.1981	5.0513	3.1724	-.3200	-.0638	2.5257	4.8509	31.359	9.925	2.5425	-.1611	1.2712	2.4416	15.7838
16.4313	5.0732	3.1686	-.3340	-.0663	2.5366	4.8759	31.047	9.258	2.5534	-.1681	1.2767	2.4542	15.6267
16.8976	5.1159	3.1553	-.3680	-.0724	2.5579	4.9315	30.443	8.776	2.5749	-.1852	1.2875	2.4821	15.3226
17.1341	5.1357	3.1509	-.3820	-.0749	2.5679	4.9556	30.139	9.421	2.5849	-.1923	1.2925	2.4943	15.1694
17.3689	5.1602	3.1449	-.4000	-.0780	2.5801	4.9860	29.872	9.564	2.5973	-.2013	1.2986	2.5096	15.0354
17.6037	5.1806	3.1425	-.4120	-.0801	2.5903	5.0083	29.590	8.701	2.6075	-.2074	1.3038	2.5208	14.8932
17.8419	5.2014	3.1351	-.4300	-.0832	2.6007	5.0368	29.311	9.274	2.6180	-.2164	1.3090	2.5351	14.7529
18.0751	5.2243	3.1339	-.4420	-.0852	2.6122	5.0604	29.060	11.258	2.6295	-.2225	1.3148	2.5470	14.6264
18.3133	5.2545	3.1409	-.4480	-.0858	2.6273	5.0817	28.847	13.382	2.6447	-.2255	1.3224	2.5577	14.5192
18.5481	5.2876	3.1351	-.4700	-.0895	2.6438	5.1203	28.660	10.184	2.6614	-.2366	1.3307	2.5772	14.4251
18.7846	5.3025	3.1255	-.4880	-.0926	2.6512	5.1459	28.378	6.770	2.6689	-.2456	1.3344	2.5901	14.2834
19.0178	5.3194	3.1253	-.4960	-.0939	2.6597	5.1625	28.119	8.818	2.6774	-.2496	1.3387	2.5984	14.1530
19.2594	5.3445	3.1183	-.5160	-.0972	2.6722	5.1952	27.897	6.291	2.6900	-.2597	1.3450	2.6149	14.0410
19.4959	5.3497	3.1119	-.5260	-.0990	2.6748	5.2080	27.585	4.737	2.6926	-.2647	1.3463	2.6213	13.8841
19.7341	5.3470	3.1036	-.5440	-.1020	2.6835	5.2348	27.340	10.441	2.7013	-.2738	1.3507	2.6348	13.7607
19.9351	5.3 84	3.1044	-.5560	-.1037	2.6972	5.2606	27.201	11.664	2.7151	-.2798	1.3575	2.6478	13.6910
19.9740	5.3981	3.0976	-.5660	-.1055	2.6991	5.2725	27.167	10.304	2.7170	-.2849	1.3585	2.6538	13.6739
20.0196	5.4031	3.1029	-.5620	-.1047	[illegible]15	5.2710	27.130	166.100	2.7195	-.2829	1.3598	2.6530	13.6552 STOP

A.BASIC RESPRT

CDOS 16K BASIC, VERSION 5.4

0.024

(3)

TRIAXIAL TEST (Set Up / Take Down)

53 WCC 4-202 (1180)

Proj. No. BLKOSS T-3 Proj. Eng. LM Cell No. 4-1 Piston dia.: ☐ 3/8"; ☑ 1/2"

Type Test CIU-C File No T-221

Loading Conditions:							
☐ Dynamic	☐ Undrained	☑ Compression	☒ Constant cell pressure
☒ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type Consolidation: ☑ Isotropic ☐ Anisotropic ☐ K_o stress path ☐ 45° Stress path

Piston Screwed in: ☐ Yes; ☑ No

☑ Undisturbed ☐ Reconstituted

Boring No. COP 14 Composite No. ____

Sample No. 5-SB Specimen No. ____

Depth (ft) 19.6 Remarks: ED 107

☐ End capped with Cerbar; ☐ Geomarine Sample

☐ Impact ☐ Static ☐ Kneading ☐ Tamping ☐ Other

☐ Constant Effort: ____ layers; ____ blows {Hammer / Tamp}

☐ Undercompaction: ____ layers; ____ Uni (%)

Water Content				Final
Location	KU			Ave
Container No.	4A39			383
Wgt Container + Wet Soil (gm)	73.35			545.35
Wgt Container + Dry Soil (gm)	69.40			508.38
Wgt. Container (gm)	33.99			194.92
Wgt Dry Soil (gm)	35.41			313.46
WATER CONTENT (%)	11.09			11.79

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc): ____ gm

Stone (etc): ____ gm

Wet Initial: 1430.5 gm

Wet Final: 1435.1 gm

Excess Ovendry Dish No. ____

Wgt Dish + Dry Soil ____ gm

Wgt. Dish ____ gm

Wgt. Excess + Dry Soil ____ gm

Dimensions of Specimen — Height (in) / Diameter (in) or ____

	Initial (L_o)	Final (L_f)	Initial	Final
1	6.000	4.831	1-T 2.864	3.025
2	6.006	4.782	2-M 2.867	3.420
3	5.999	4.893	3-B 2.885	3.200
4	6.001	4.858	1'-T 2.865	
5	6.003	4.795	2'-M 2.868	
Ave	6.0018	4.8318	3-B 2.870	
			Ave 2.8705	3.2662

$D_{ave} = (D_T + 2D_M + D_B)/4$

ΔL_c = ____ in

ΔL_e = ____ in

$\Sigma \Delta L$ = ____ in

$L_o - L_f$ = ____ in

$A_o = \pi D^2/4 = 6.4715$ in²

$V_o = A_o \cdot 16.887 / 1 = 636.486$ cm³

Area $\frac{\pi}{4}(5.5542(0^{\circ})^2 = 58.1875$ cm²

Membrane: Thickness = 0.0275 in; Circumference (C_m) = 8.9225 in; Diam = C_m/π = 2.8435 in

Filter Paper: Top + bottom: ☐ Yes; ☑ No

Filter Strips: ☑ Yes; ☐ No

16 Vertical at 1/4": Whatman #54 or ____

____ Spiral at 1/4": Whatman #1 or ____

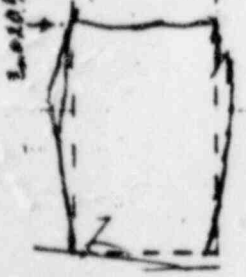
Wgt top cap = ____ gm, ____ 10^{-3} lbs

Wgt (cap, dial + piston) = ____ gm, ____ 10^{-3} lbs

Preliminary

γ_{co} = 140.31 lb/ft³ γ_{do} = 126.30 lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo Taken

Other Remarks: $\bar{\sigma}_m$ = 3 Ksf. Problem with data logger

Preliminary Cal. by GG Reviewed by RA

☐ Trimmed by ____ Date ____

☐ Reconstituted Date ____

Set up by ____ Date 5/18/87

Taken down by ____ Date 5/22/87

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS

54

T-221

Type Test: CIU-C ☒ Undisturbed; ☐ Reconstituted - Specimen: COE-14

☐ Dynamic f / H_d or ____ # sinusoids / or ____ ☒ Static ε 0.66 %/hr S-SB

Consolidation History Units: psf or KSF	Max. Induced Pore Pressure Uncorr.	Corr.*	☒ Preshear/perm. ☐ Pre cyc-loading Uncorr.	Corr.*	Pressure after Cyc-loading Uncorr.	Corr.*
σ_{cell}		—	17.364	—		—
u_i		—	14.400	—		—
$\bar{\sigma}_v$			—	2.9299		
$\bar{\sigma}_h$			2.9664	2.9620		
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$			—	2.9460		
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$			1.00	0.9892		
OCR			1.00	—		
Consol. Time	☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours	

* Corrected for effects of membrane, S. Mar strips, etc.

H_o = 6.0018 in.
A_s = 6.4715 in²
V_o = 636.486 cm³
Dav/Dom = 1.0095
G_s = 2.75 ☒ Assumed ☐ Measured
B_g = 96.9 %
Area Corr. Factors: C
Undrained = 1.277
$C = \frac{1}{\varepsilon_a}(1 - A_c/A_{ISM})$
Drained = ____
$C = \frac{1}{\varepsilon_a}\left[1 - \frac{A_c - (1+\varepsilon_v)}{A_{ISM}}\right]$

Calculate Wgt of Dry Soil	By Initial water Content	By Final Water Content	By Total Oven-dried Specimen
W_i (%)			
W_f (%)			
W_{ave} (%)	11.09	11.79	
Wgt. Wet Soil, W_T (gm)	1430.5	1435.1	
Initial Wgt Dry Soil (gm)	ΔV_T (cm³) during test		
Wgt Excess Drainage Soil	Corr. Wet Wgt. $W_c = W_T + \Delta V_T$		
Total Wgt Oven Dry Soil, W_s (gm)	1287.69	(1283.75)	
W_s used:		Final = 1283.75 gm	

Variations in Height and Volume During Consolidation	During Initial Consol. without back-Pressure	During Back-Pressuring	After Backpressuring: $=_{(mid)}$	$=_{(r.f.)}$	$=_{(p.)}$
		ΔV_o = 12.56 cm³ vol in	From 5.2 To 10.4	From 5.2 To 20.6	From ____ To ____
Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL^{up}, (+) ΔL^{down}					
ΔL (in)	0.017	0.003	0.014	0.022	
ΔV_m (cm³)	(±5.85)	-12.56	3.18	8.28	
$-\Delta V_a = 3V_o(\Delta H/H_o)$	5.409	0.954	4.454		
$R = \Delta V_m/\Delta V_a$	R_{used} = 0.714		0.714		
Corrected $\Delta V_c = R \cdot \Delta V_a$	3.862	0.681			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in; $\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ____ cm³; ΔV_T (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures

ΔV_c by W_T change = $W_c - W_s - (\Delta V_o + \Delta V_T)$

ΔW_T = −4.6 gm

$\Sigma(\Delta V_o + \Delta V_T)$ = (−19.41) cm³

$\therefore \Delta V_c$ = (14.81) cm³

ΔV_c by recorded/calculated volume changes = Σ selected ΔV

$\Delta V_c = \overset{\Delta V_1}{3.862} + \overset{\Delta V_2}{0.681} + \overset{\Delta V_3}{8.28}$

= 12.823 cm³

ΔV_c assuming S = 100 % $V_F = (W_f - w_i)W_s/\gamma_w$

Undrained: $\Delta V_c = V_o - V_F$

Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$

w_f = 11.79 % V_F = 619.287 cm³

$V_F + \Delta V_T$ = ____ cm³

$\therefore \Delta V_c$ = 17.199 cm³

Conclusions

ΔV_c used (ave. value) = 17.199 cm³ $\therefore V_c$ = 619.287 cm³; ΔH_c = 0.052 in; $\therefore L_c$ = 5.9498 in

$A_c = V_c/L_c$ (cm²/in)/16.387 = 6.3517 in² / 0.144 = 44.1088 $\times 10^{-3}$ ft²

ε_{ac} = 0.87 %; ε_v = 2.70 %; $1-\varepsilon_v$ = 0.9730 E_f^{tr} = 0.1894; ε_{vc}^{tr} = ____ # not in percent

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (cm² or ft² x10⁻³)	Volume (cm³)	Water Content (%)	Total or Dry Density (lb/ft³)	Saturation (%)		
Initial	6.0018	44.9410	636.486	11.43	140.31 125.92	87.1		
After Consol.	5.9498	44.1088	619.287	11.79	144.67 129.41	100.0		

$S = W G_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_t / (G_s \cdot \gamma_w (1+w) - \gamma_t)$

Calculated by RG Reviewed by RG

$P_{ci} \times 0.0072 = tsf$

w for $S = 100\%$ = $G_s \cdot \gamma_d - \gamma_d / G_s \cdot \gamma_w - \gamma_d = G_s \cdot \gamma_w - \gamma_t / G_s (\gamma_t - \gamma_w)$

γ_w @ 20°C (Stead) = 62.32 lb/ft³ • 0.9982 gm/cm³ (GeoM) • 6.42 (lb/ft³)

1	DATA FILE IDENT. NO.	T-221
2	PROJECT NO.	91C4055T3
3	BORING NO.	CDE-14
4	SAMPLE NO.	S-9
5	SPECIMEN NO.	B
6	DEPTH	19.6
7	TEST NO.	ID-107
8	FILE # FOR LOAD CELL OR PROVING RING	2000
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	6.0018
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.8705
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	636.486
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.51
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	1.27
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	1.595
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.0275
25	MEMBRANE DIAMETER IN INCHES	2.8433
26	FILTER STRIP CORRECTION CONSTANT	2.128
27	RIGHT CYLINDER DISTORTION FACTOR	1.277
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	8.6832
35	BACK PRESSURE IN TSF	7.200
36	AXIAL DEFORMATION IN INCHES	0.052
37	VOLUME CHANGE IN CU. CM.	17.199
38	PISTON DRAG CORRECTION IN TONS*10**-3	17.613
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.00733,	23.23,	7.221
.00747,	24.095,	7.222
.00756,	27.026,	7.232
.00770,	30.879,	7.244
.00784,	33.86,	7.256
.00793,	36.03,	7.265
.00806,	38.96,	7.279
.00820,	41.46,	7.290
.00834,	43.63,	7.302
.00848,	45.53,	7.313
.00861,	47.16,	7.321
.00871,	48.89,	7.332
.00880,	50.36,	7.340
.00894,	51.77,	7.351

.00820.	41.46.	7.290
.00834.	43.63.	7.302
.00848.	45.53.	7.313
.00861.	47.16.	7.321
.00871.	48.89.	7.332
.00880.	50.36.	7.340
.00894.	51.77.	7.351
.00907.	53.23.	7.359
.00921.	54.59.	7.368
.00930.	55.89.	7.377
.00949.	57.20.	7.385
.00958.	58.28.	7.394
.00985.	60.45.	7.413
.01013.	62.35.	7.426
.01040.	64.30.	7.440
.01068.	65.99.	7.455
.01095.	67.62.	7.469
.01127.	68.92.	7.481
.01150.	70.44.	7.495
.01178.	71.79.	7.509
.01210.	73.10.	7.520
.01237.	74.13.	7.532
.01265.	75.32.	7.543
.01288.	76.19.	7.556
.01352.	78.25.	7.573
.01412.	80.04.	7.594
.01471.	81.83.	7.613
.01531.	83.30.	7.629
.01586.	84.66.	7.644
.01646.	86.18.	7.661
.01710.	87.48.	7.675
.01765.	88.78.	7.689
.01824.	89.92.	7.702
.01889.	91.11.	7.713
.01948.	92.31.	7.727
.02067.	94.21.	7.749
.02187.	96.16.	7.768
.02315.	97.53.	7.787
.02434.	99.25.	7.804
.02549.	100.99.	7.819
.02677.	102.46.	7.834
.02796.	104.03.	7.850
.02920.	105.44.	7.862
.03049.	106.85.	7.874
.03177.	108.32.	7.886
.03310.	109.62.	7.898
.03434.	110.60.	7.907
.03562.	111.95.	7.915
.03681.	113.26.	7.923
.03874.	114.99.	7.935
.04062.	116.73.	7.946
.04254.	118.47.	7.956
.04447.	120.15.	7.964
.04649.	121.72.	7.975
.04841.	123.13.	7.980
.05034.	124.71.	7.989
.05182.	125.68.	7.993
.05483.	128.02.	8.002
.05800.	130.35.	8.012
.06120.	132.63.	8.019
.06441.	134.96.	8.025
.06767.	137.24.	8.029
.07092.	139.58.	8.031
.07418.	141.53.	8.037
.07744.	143.76.	8.039
.08074.	146.04.	8.040
.08399.	148.10.	8.041
.08725.	150.1[illegible]	[illegible]

.09069.	152.44.	8.041
.09413.	154.50.	8.040
.10096.	158.73.	8.038
.10783.	162.86.	8.034
.11471.	166.77.	8.028
.12154.	170.73.	8.023
.12838.	174.47.	8.012
.13507.	178.33.	8.007
.14190.	182.13.	7.993
.14869.	185.87.	7.984
.15547.	189.78.	7.975
.16230.	193.36.	7.962
.16909.	196.83.	7.953
.18248.	203.51.	7.929
.19577.	209.97.	7.905
.20898.	216.32.	7.883
.22223.	222.23.	7.858
.23543.	228.63.	7.833
.24852.	234.17.	7.809
.26134.	239.65.	7.785
.27464.	245.95.	7.762
.28789.	250.51.	7.739
.30128.	256.31.	7.716
.31476.	261.68.	7.686
0.3282.	267.17.	7.666
0.3419.	272.00.	7.644
0.3555.	277.31.	7.620
0.3690.	282.58.	7.597
0.3827.	287.57.	7.574
0.3963.	292.78.	7.551
0.4099.	297.77.	7.530
0.4235.	302.77.	7.506
0.4371.	307.60.	7.486
0.4508.	312.10.	7.465
0.4645.	317.26.	7.444
0.4784.	320.89.	7.423
0.4923.	325.56.	7.403
0.5063.	329.9.	7.383
0.5203.	333.9.	7.368
0.5340.	338.4.	7.344
0.5476.	342.2.	7.326
0.5614.	346.0.	7.310
0.5752.	350.4.	7.292
0.5889.	354.6.	7.273
0.6023.	358.1.	7.257
0.6159.	361.4.	7.240
0.6293.	365.7.	7.226
0.6426.	367.8.	7.209
0.6558.	370.5.	7.195
0.6692.	373.7.	7.183
0.9718.	389.2.	7.005
0.9816.	437.9.	6.914
0.9829.	438.0.	6.912
0.9880.	438.7.	6.903
0.9944.	439.8.	6.898
1.0075.	441.7.	6.887
1.0207.	443.8.	6.874
1.0340.	445.2.	6.867
1.0474.	448.3.	6.857
1.0606.	450.3.	6.850
1.0739.	452.5.	6.841
1.0872.	454.2.	6.829
1.1009.	455.7.	6.823
1.1142.	457.7.	6.814
1.1275.	460.5.	6.805
1.1412.	461.8.	6.799
1.1545.	464.4.	6.789

.19577.	209.97.	7.905
.20898.	216.32.	7.883
.22223.	222.23.	7.858
.23543.	228.63.	7.833
.24852.	234.17.	7.809
.26134.	239.65.	7.785
.27464.	245.95.	7.762
.28789.	250.51.	7.739
.30128.	256.31.	7.716
.31476.	261.68.	7.686
0.3282.	267.17.	7.666
0.3419.	272.00.	7.644
0.3555.	277.31.	7.620
0.3690.	282.58.	7.597
0.3927.	287.57.	7.574
0.3963.	292.78.	7.551
0.4099.	297.77.	7.530
0.4235.	302.77.	7.506
0.4371.	307.60.	7.486
0.4508.	312.10.	7.465
0.4645.	317.26.	7.444
0.4784.	320.89.	7.423
0.4923.	325.56.	7.403
0.5063.	329.9.	7.383
0.5203.	333.9.	7.368
0.5340.	338.4.	7.344
0.5476.	342.2.	7.326
0.5614.	346.0.	7.310
0.5752.	350.4.	7.292
0.5889.	354.6.	7.273
0.6023.	358.1.	7.257
0.6159.	361.4.	7.240
0.6293.	365.7.	7.226
0.6426.	367.8.	7.209
0.6558.	370.5.	7.195
0.6692.	373.7.	7.183
0.9718.	389.2.	7.005
0.9816.	437.9.	6.914
0.9829.	438.0.	6.912
0.9880.	438.7.	6.903
0.9944.	439.8.	6.898
1.0075.	441.7.	6.887
1.0207.	443.8.	6.874
1.0340.	445.2.	6.867
1.0474.	448.3.	6.857
1.0606.	450.3.	6.850
1.0739.	452.5.	6.841
1.0872.	454.2.	6.829
1.1009.	455.7.	6.823
1.1142.	457.7.	6.814
1.1275.	460.5.	6.805
1.1412.	461.8.	6.799
1.1545.	464.4.	6.789
1.1680.	466.7.	6.781
1.1816.	468.5.	6.773
1.1952.	470.4.	6.765
1.1995.	471.2.	6.763

-999..0.0.0.0

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-221.

PROJ. NO.	81C4055T3	REVIEWED BY: PS
BORING NO.	COE-14	DATE: 6/4/91
SAMPLE NO.	S-9	INPUT DATA CHECKED BY:
SPECIMEN NO.	B	
DEPTH(FT.)	19.6	TEST NO. ID-107.

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
6.0018	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.8705	INITIAL DIAMETER OF SPECIMEN IN INCHES
636.49	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.5100	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
1.2700	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
1.5950	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0275	MEMBRANE THICKNESS IN INCHES
2.8435	MEMBRANE DIAMETER IN INCHES
2.1280	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.2770	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

8.6832	CELL PRESSURE IN TSF
7.2000	BACK PRESSURE IN TSF
.0520	AXIAL DEFORMATION DURING CONSOL. IN INCHES
17.20	VOLUME CHANGE DURING CONSOL. IN CU. CM.
11.6150	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	2.9299 KSF
LATERAL	=	2.9620 KSF
MEAN	=	2.9513 KSF
PBAR	=	2.9460 KSF
LATERAL/AXIAL	=	1.0110
AXIAL/LATERAL	=	.9892
OCR	=	1.000

11.6150	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NORMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 2.9460 KSF

AXIAL	DEVIATOR OR TOTAL	DELTA-U	A-FACTOR	Q	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM

NONE — FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES — IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 2.940 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	Q KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM
0.0000	-.0321	.9892	0.0000	0.0000	-.0160	2.9460	0.000	0.000	-.0109	0.0000	-.0054	1.0000	0.0000
.0024	-.0126	.9957	.0020	.1026	-.0063	2.9537	827.618	2607.260	-.0043	.0007	-.0021	1.0026	280.9338
.0039	.0537	1.0183	.0220	.2563	.0269	2.9669	2220.378	4046.553	.0182	.0075	.0091	1.0071	753.7048
.0062	.1409	1.0483	.0460	.2658	.0705	2.9865	2782.583	3285.990	.0478	.0156	.0239	1.0138	944.5444
.0086	.2084	1.0721	.0700	.2911	.1042	2.9962	2805.421	3055.887	.0707	.0238	.0354	1.0171	952.2967
.0101	.2575	1.0896	.0880	.3039	.1287	3.0027	2871.507	3139.753	.0874	.0299	.0437	1.0193	974.7296
.0123	.3238	1.1138	.1160	.3260	.1619	3.0079	2900.357	2717.814	.1099	.0394	.0550	1.0210	984.5226
.0146	.3803	1.1347	.1380	.3346	.1901	3.0141	2820.180	2243.079	.1291	.0468	.0645	1.0231	957.3068
.0170	.4293	1.1533	.1620	.3511	.2147	3.0147	2718.141	1953.939	.1457	.0550	.0729	1.0233	922.6696
.0193	.4722	1.1700	.1840	.3648	.2361	3.0141	2609.269	1754.145	.1603	.0625	.0802	1.0231	885.7133
.0215	.5090	1.1843	.2000	.3696	.2545	3.0165	2515.343	2005.431	.1728	.0679	.0864	1.0240	853.8301
.0232	.5481	1.2001	.2220	.3826	.2741	3.0141	2501.652	2261.219	.1861	.0754	.0930	1.0231	849.1827
.0247	.5814	1.2134	.2380	.3880	.2907	3.0147	2482.940	1773.766	.1973	.0808	.0987	1.0233	842.8311
.0271	.6132	1.2269	.2600	.4029	.3066	3.0086	2384.554	1429.677	.2081	.0883	.1041	1.0213	809.4341
.0292	.6461	1.2405	.2760	.4070	.3231	3.0091	2319.054	1405.522	.2193	.0937	.1097	1.0214	787.2001
.0316	.6768	1.2537	.2940	.4147	.3384	3.0064	2243.404	1622.068	.2297	.0998	.1149	1.0205	761.5209
.0331	.7061	1.2665	.3120	.4226	.3531	3.0031	2229.586	1431.901	.2397	.1059	.1198	1.0194	756.8304
.0363	.7356	1.2793	.3280	.4272	.3678	3.0018	2114.643	1267.033	.2497	.1113	.1248	1.0190	717.8130
.0378	.7600	1.2905	.3460	.4368	.3800	2.9960	2094.505	1343.999	.2580	.1174	.1290	1.0170	710.9772
.0424	.8068	1.3137	.3840	.4566	.4044	2.9824	1985.465	992.369	.2746	.1303	.1373	1.0124	673.9636
.0471	.8516	1.3337	.4100	.4640	.4258	2.9778	1877.713	937.288	.2891	.1392	.1445	1.0108	637.3873
.0516	.8954	1.3548	.4380	.4722	.4477	2.9717	1797.585	886.646	.3040	.1487	.1520	1.0087	610.1880
.0563	.9334	1.3743	.4680	.4847	.4667	2.9607	1714.762	806.682	.3168	.1589	.1584	1.0050	582.0737
.0608	.9700	1.3934	.4960	.4950	.4850	2.9510	1647.033	673.601	.3293	.1684	.1646	1.0017	559.0835
.0662	.9991	1.4091	.5200	.5043	.4995	2.9415	1557.163	712.046	.3391	.1765	.1696	.9985	528.5770
.0701	1.0332	1.4280	.5480	.5144	.5166	2.9306	1520.011	763.095	.3507	.1860	.1754	.9948	515.9660
.0748	1.0635	1.4457	.5760	.5258	.5317	2.9177	1464.803	593.554	.3610	.1955	.1805	.9904	497.2256
.0802	1.0928	1.4622	.5980	.5316	.5464	2.9104	1403.064	525.680	.3709	.2030	.1855	.9879	476.2685
.0847	1.1158	1.4768	.6220	.5419	.5579	2.8979	1355.053	536.120	.3787	.2111	.1894	.9837	459.9711
.0894	1.1424	1.4928	.6440	.5483	.5712	2.8892	1313.492	533.888	.3878	.2186	.1939	.9807	445.8632
.0933	1.1618	1.5069	.6700	.5612	.5809	2.8729	1279.878	464.356	.3944	.2274	.1972	.9752	434.4532
.1040	1.2076	1.5348	.7040	.5679	.6038	2.8618	1191.627	410.416	.4099	.2390	.2050	.9714	404.4965
.1141	1.2474	1.5629	.7460	.5830	.6237	2.8397	1121.189	397.859	.4234	.2532	.2117	.9639	380.5864
.1240	1.2872	1.5910	.7840	.5942	.6436	2.8216	1063.630	361.847	.4369	.2661	.2185	.9578	361.0480
.1341	1.3197	1.6150	.8160	.6036	.6599	2.8059	1007.905	323.966	.4480	.2770	.2240	.9524	342.1321
.1434	1.3498	1.6379	.8460	.6122	.6749	2.7909	963.901	329.498	.4582	.2872	.2291	.9474	327.1951
.1535	1.3835	1.6645	.8800	.6217	.6917	2.7737	922.476	299.709	.4696	.2987	.2348	.9415	313.1334
.1642	1.4121	1.6875	.9080	.6287	.7060	2.7600	879.464	288.211	.4793	.3082	.2397	.9369	298.5330
.1735	1.4408	1.7111	.9360	.6355	.7204	2.7464	849.144	281.474	.4891	.3177	.2445	.9323	288.2409
.1834	1.4658	1.7329	.9620	.6422	.7329	2.7329	816.873	245.530	.4976	.3265	.2488	.9277	277.2864
.1943	1.4919	1.7542	.9840	.6457	.7459	2.7239	784.361	252.310	.5064	.3340	.2532	.9246	266.2504
.2042	1.5182	1.7786	1.0120	.6528	.7591	2.7091	759.187	236.491	.5154	.3435	.2577	.9196	257.7052
.2242	1.5596	1.8183	1.0560	.6634	.7798	2.6858	709.932	208.882	.5294	.3585	.2647	.9117	240.9854
.2444	1.6021	1.8577	1.0940	.6694	.8011	2.6691	668.733	178.650	.5438	.3714	.2719	.9060	227.0005
.2659	1.6337	1.8927	1.1320	.6796	.8168	2.6468	626.484	160.821	.5545	.3843	.2773	.8985	212.6592
.2859	1.6687	1.9291	1.1660	.6856	.8343	2.6304	594.904	185.234	.5664	.3958	.2832	.8929	201.9395
.3052	1.7065	1.9663	1.1960	.6879	.8532	2.6192	569.604	170.847	.5793	.4060	.2896	.8891	193.3515
.3267	1.7379	2.0011	1.2260	.6926	.8690	2.6050	541.733	137.736	.5899	.4162	.2950	.8843	183.8905
.3467	1.7718	2.0398	1.2580	.6974	.8859	2.5899	520.242	156.892	.6014	.4270	.3007	.8791	176.5955
.3676	1.8019	2.0726	1.2820	.6990	.9010	2.5810	498.945	141.622	.6117	.4352	.3058	.8761	169.3662
.3893	1.8320	2.1062	1.3060	.7006	.9160	2.5720	478.875	142.301	.6219	.4433	.3109	.8731	162.5536
.4108	1.8634	2.1418	1.3300	.7017	.9317	2.5637	461.440	134.470	.6325	.4515	.3163	.8702	156.6353
.4331	1.8909	2.1759	1.3540	.7041	.9454	2.5534	443.971	110.375	.6418	.4596	.3209	.8668	150.7055
.4540	1.9112	2.2020	1.3720	.7060	.9556	2.5456	428.078	115.486	.6488	.4657	.3244	.8641	145.3107
.4755	1.9399	2.2324	1.3880	.7038	.9699	2.5440	414.736	136.236	.6585	.4712	.3292	.8635	140.7815
.4955	1.9677	2.2630	1.4040	.7020	.9839	2.5419	403.617	125.545	.6679	.4766	.3340	.8628	137.0072
.5279	2.0040	2.3064	1.4280	.7013	1.0020	2.5360	385.686	113.708	.6803	.4847	.3401	.8609	130.9207
.5595	2.0405	2.3495	1.4500	.6996	1.0203	2.5323	370.434	114.274	.6927	.4922	.3463	.8596	125.7435
.5918	2.0770	2.3921	1.4700	.6970	1.0385	2.5305	356.393	110.489	.7050	.4990	.3523	.8590	120.9771
					1.0560	2.5321	343.497	101.764	.7169	.5044	.3585	.8595	116.5963

60

.4755	1.9399	2.2324	1.3880	.7038	.9699	2.5440	414.736	136.236	.6585	.4712	.3292	.8635	140.7815	
.4955	1.9677	2.2630	1.4040	.7020	.9839	2.5419	403.617	125.545	.6679	.4766	.3340	.8628	137.0072	
.5279	2.0040	2.3064	1.4280	.7013	1.0020	2.5360	385.686	113.708	.6803	.4847	.3401	.8609	130.9207	
.5595	2.0405	2.3495	1.4500	.6996	1.0203	2.5323	370.434	114.274	.6927	.4922	.3463	.8596	125.7435	
.5918	2.0770	2.3921	1.4700	.6970	1.0385	2.5305	356.393	110.489	.7050	.4990	.3525	.8590	120.9771	
.6242	2.1120	2.4309	1.4860	.6930	1.0560	2.5321	343.487	101.764	.7169	.5044	.3585	.8595	116.5963	
.6582	2.1445	2.4748	1.5080	.6928	1.0722	2.5263	330.698	92.577	.7279	.5119	.3640	.8575	112.2538	
.6904	2.1734	2.5051	1.5180	.6893	1.0867	2.5307	319.429	95.261	.7378	.5153	.3689	.8591	108.4299	
.7229	2.2061	2.5470	1.5360	.6862	1.1031	2.5291	309.621	96.751	.7489	.5214	.3744	.8585	105.1005	
.7444	2.2260	2.5698	1.5440	.6837	1.1130	2.5311	303.350	90.678	.7556	.5241	.3778	.8592	102.9720	
.7983	2.2739	2.6242	1.5620	.6773	1.1369	2.5370	288.845	89.048	.7719	.5302	.3859	.8612	98.0481	
.8516	2.3215	2.6822	1.5820	.6721	1.1608	2.5408	276.367	87.821	.7880	.5370	.3940	.8625	93.8124	
.9054	2.3679	2.7334	1.5960	.6650	1.1840	2.5500	265.074	87.080	.8038	.5418	.4019	.8656	89.9789	
.9594	2.4153	2.7838	1.6080	.6570	1.2077	2.5617	255.110	86.081	.8199	.5458	.4099	.8698	86.5969	
1.0142	2.4615	2.8287	1.6160	.6480	1.2308	2.5768	245.879	85.564	.8356	.5485	.4178	.8747	83.4635	
1.0688	2.5090	2.8695	1.6200	.6375	1.2545	2.5966	237.753	78.707	.8517	.5499	.4258	.8814	80.7049	
1.1236	2.5476	2.9154	1.6320	.6326	1.2738	2.6039	229.599	77.694	.8648	.5540	.4324	.8939	77.9370	
1.1784	2.5941	2.9562	1.6360	.6229	1.2970	2.6231	222.868	86.095	.8806	.5553	.4403	.8904	75.6523	
1.2338	2.6425	2.9957	1.6380	.6124	1.3213	2.6454	216.776	83.491	.8970	.5560	.4485	.8980	73.5842	
1.2884	2.6860	3.0316	1.6400	.6033	1.3430	2.6651	210.962	79.453	.9118	.5567	.4559	.9047	71.6107	
1.3432	2.7295	3.0676	1.6420	.5946	1.3647	2.6848	205.590	81.247	.9265	.5574	.4633	.9114	69.7872	
1.4011	2.7776	3.1009	1.6400	.5837	1.3888	2.7109	200.540	78.934	.9428	.5567	.4714	.9202	68.0732	
1.4589	2.8207	3.1303	1.6380	.5741	1.4104	2.7345	195.551	75.901	.9575	.5560	.4787	.9282	66.3794	
1.5737	2.9093	3.1905	1.6340	.5555	1.4547	2.7828	186.915	75.843	.9876	.5547	.4938	.9446	63.4480	
1.6891	2.9954	3.2418	1.6260	.5370	1.4977	2.8338	179.232	72.237	1.0168	.5519	.5084	.9619	60.8400	
1.8048	3.0763	3.2818	1.6140	.5192	1.5381	2.8863	172.230	70.596	1.0442	.5479	.5221	.9797	58.4633	
1.9196	3.1580	3.3252	1.6040	.5027	1.5790	2.9372	166.191	68.956	1.0720	.5445	.5360	.9970	56.4132	
2.0345	3.2347	3.3636	1.5820	.4842	1.6173	2.9975	160.567	68.546	1.0980	.5370	.5490	1.0175	54.5044	
2.1470	3.3139	3.3837	1.5720	.4698	1.6569	3.0471	155.846	68.956	1.1249	.5336	.5624	1.0344	52.9018	
2.2618	3.3913	3.3912	1.5440	.4509	1.6957	3.1139	151.362	67.020	1.1512	.5241	.5756	1.0570	51.3796	
2.3759	3.4673	3.4141	1.5260	.4360	1.7336	3.1699	147.288	68.130	1.1770	.5180	.5885	1.0760	49.9967	
2.4898	3.5467	3.4388	1.5080	.4213	1.7734	3.2276	143.737	66.172	1.2039	.5119	.6020	1.0956	48.7915	
2.6046	3.6186	3.4445	1.4820	.4059	1.8093	3.2896	140.163	61.676	1.2283	.5031	.6142	1.1167	47.5781	
2.7187	3.6879	3.4614	1.4640	.3935	1.8440	3.3423	136.828	59.781	1.2519	.4970	.6259	1.1345	46.4461	
2.9438	3.8203	3.4705	1.4160	.3675	1.9102	3.4565	130.866	57.821	1.2968	.4807	.6484	1.1733	44.4224	
3.1672	3.9472	3.4757	1.3680	.3437	1.9736	3.5680	125.643	56.266	1.3399	.4644	.6699	1.2112	42.6492	
3.3892	4.0710	3.4846	1.3240	.3226	2.0355	3.6739	121.063	53.318	1.3819	.4494	.6909	1.2471	41.0946	
3.6119	4.1843	3.4781	1.2740	.3020	2.0922	3.7807	116.737	53.223	1.4204	.4325	.7102	1.2833	39.6262	
3.8337	4.3075	3.4777	1.2240	.2819	2.1538	3.8923	113.196	51.415	1.4622	.4155	.7311	1.3212	38.4241	
4.0537	4.4116	3.4692	1.1760	.2645	2.2058	3.9924	109.619	47.401	1.4975	.3992	.7488	1.3552	37.2099	
4.2692	4.5140	3.4604	1.1280	.2480	2.2570	4.0916	106.484	50.290	1.5323	.3829	.7661	1.3889	36.1459	
4.4928	4.6326	3.4632	1.0820	.2318	2.3163	4.1970	103.826	44.674	1.5725	.3673	.7863	1.4247	35.2437	
4.7155	4.7134	3.4462	1.0360	.2181	2.3567	4.2835	100.637	41.774	1.5999	.3517	.8000	1.4540	34.1609	
4.9405	4.8197	3.4430	.9900	.2039	2.4099	4.3827	98.205	44.905	1.6361	.3361	.8180	1.4877	33.3357	
5.1671	4.9161	3.4183	.9300	.1878	2.4581	4.4910	95.765	43.025	1.6688	.3157	.8344	1.5245	32.5072	
5.3930	5.0144	3.4189	.8900	.1762	2.5072	4.5802	93.576	39.844	1.7021	.3021	.8511	1.5547	31.7642	
5.6232	5.0977	3.4079	.8460	.1647	2.5489	4.6659	91.226	38.407	1.7304	.2872	.8652	1.5838	30.9685	
5.8518	5.1906	3.3973	.7980	.1526	2.5953	4.7605	89.249	40.475	1.7619	.2709	.8810	1.6159	30.2956	
6.0787	5.2821	3.3887	.7520	.1413	2.6410	4.8523	87.423	38.542	1.7930	.2553	.8965	1.6471	29.6756	
6.3090	5.3667	3.3775	.7060	.1305	2.6834	4.9407	85.574	37.790	1.8217	.2397	.9109	1.6771	29.0480	
6.5375	5.4555	3.3684	.6600	.1200	2.7277	5.0312	83.939	37.664	1.8518	.2240	.9259	1.7078	28.4930	
6.7661	5.5389	3.3615	.6180	.1107	2.7695	5.1150	82.337	36.416	1.8802	.2098	.9401	1.7363	27.9492	
6.9947	5.6219	3.3487	.5700	.1005	2.8110	5.2046	80.833	35.407	1.9084	.1935	.9542	1.7667	27.4387	
7.2233	5.7008	3.3424	.5300	.0921	2.8504	5.2841	79.367	32.729	1.9351	.1799	.9676	1.7937	26.9410	
7.4535	5.7721	3.3314	.4880	.0838	2.8860	5.3619	77.871	33.760	1.9593	.1657	.9797	1.8201	26.4334	
7.6838	5.8563	3.3258	.4460	.0754	2.9281	5.4461	76.633	29.408	1.9879	.1514	.9940	1.8487	26.0131	
7.9174	5.9083	3.3079	.4040	.0677	2.9541	5.5142	75.029	26.672	2.0056	.1371	1.0028	1.8718	25.4685	
8.1510	5.9809	3.3002	.3640	.0602	2.9904	5.5906	73.770	29.388	2.0302	.1236	1.0151	1.8977	25.0410	
8.3863	6.0460	3.2899	.3240	.0529	3.0230	5.6633	72.477	26.105	2.0523	.1100	1.0262	1.9224	24.6021	
8.6216	6.1037	3.2857	.2940	.0475	3.0519	5.7223	71.168	26.965	2.0719	.0998	1.0360	1.9424	24.1578	
8.8519	6.1714	3.2701	.2460	.0392	3.0857	5.8042	70.081	26.353	2.0949	.0835	1.0474	1.9702	23.7891	
9.0805	6.2247	3.2597	.2100	.0331	3.1124	5.8670	68.904	22.947	2.1130	.0713	1.0565	1.9915	23.3893	
9.3124	6.2771	3.2525	.1780	.0278	3.1386	5.9253	67.756	25.060	2.1308	.0604	1.0654	2.0113	22.9978	
9.5444	6.3410	3.2462	.1420	.0218	3.1705	5.9934	66.773	26.674	2.1524	.0482	1.0762	2.0344	22.6660	
9.7746	6.4004	3.2371	.1040	.0157	3.2002	6.0613	65.808	23.033	2.1726	.0353	1.0863	2.0575	22.3385	
9.9998	6.4460	3.2280	.0720	.0106	3.2230	6.1162	64.782	19.053	2.1881	.0244	1.0940	2.0761	21.9902	
10.2284	6.4868	3.2160	.0380	.0053	3.2434	6.1707	63.734	22.342	2.2019	.0129	1.1010	2.0947	21.6343	
10.4536	6.5472	3.2152	.0100	.0010	3.2736	6.2291	62.938	17.202	2.2225	.0034	1.1112	2.1145	21.3643	
						6.2717	61.779	10.231	2.2282	-.0081	1.1141	2.1289	20.9709	

9.5444	6.3410	3.2462	.1420	.0218	3.1705	5.9934	66.773	26.674	2.1524	.0482	1.0762	2.0344	22.6660
9.7746	6.4004	3.2371	.1040	.0157	3.2002	6.0613	65.808	23.033	2.1726	.0353	1.0863	2.0575	22.3385
9.9998	6.4460	3.2280	.0720	.0106	3.2230	6.1162	64.782	19.053	2.1881	.0244	1.0940	2.0761	21.9902
10.2284	6.4868	3.2160	.0380	.0053	3.2434	6.1707	63.734	22.342	2.2019	.0129	1.1010	2.0947	21.6343
10.4536	6.5472	3.2153	.0100	.0010	3.2736	6.2291	62.938	17.202	2.2225	.0034	1.1112	2.1145	21.3643
10.6772	6.5642	3.1957	-.0240	-.0042	3.2821	6.2717	61.779	10.231	2.2282	-.0081	1.1141	2.1289	20.9709
10.8990	6.5928	3.1846	-.0520	-.0084	3.2964	6.3142	60.784	14.782	2.2379	-.0177	1.1190	2.1433	20.6330
11.1242	6.6303	3.1797	-.0760	-.0120	3.3152	6.3571	59.891	5.561	2.2507	-.0258	1.1253	2.1579	20.3300
16.2101	6.3474	2.8656	-.4320	-.0690	3.1737	6.5760	39.355	256.547	2.1546	-.1466	1.0773	2.2322	13.3589
16.3748	7.2017	3.0091	-.6140	-.0861	3.6008	7.1854	44.176	256.977	2.4446	-.2084	1.2223	2.4391	14.9955
16.3967	7.2006	3.0066	-.6180	-.0866	3.6003	7.1889	44.111	-1.495	2.4442	-.2098	1.2221	2.4403	14.9734
16.4824	7.2021	2.9969	-.6360	-.0891	3.6011	7.2077	43.890	3.531	2.4447	-.2159	1.2224	2.4466	14.8986
16.5900	7.2079	2.9929	-.6460	-.0904	3.6039	7.2207	43.641	3.877	2.4467	-.2193	1.2233	2.4511	14.8137
16.8101	7.2132	2.9822	-.6680	-.0934	3.6066	7.2456	43.100	3.094	2.4485	-.2268	1.2242	2.4595	14.6304
17.0320	7.2215	2.9703	-.6940	-.0970	3.6108	7.2760	42.588	.890	2.4513	-.2356	1.2257	2.4698	14.4565
17.2555	7.2171	2.9614	-.7080	-.0990	3.6085	7.2880	42.011	4.562	2.4[illegible]3	-.2403	1.2249	2.4739	14.2605
17.4808	7.2421	2.9575	-.7280	-.1014	3.6211	7.3208	41.613	6.870	2.4583	-.2471	1.2292	2.4850	14.1254
17.7026	7.2479	2.9515	-.7420	-.1033	3.6240	7.3380	41.124	3.280	2.4603	-.2519	1.2302	2.4909	13.9595
17.9261	7.2567	2.9443	-.7600	-.1057	3.6284	7.3607	40.660	1.933	2.4633	-.2580	1.2316	2.4986	13.8021
18.1497	7.2566	2.9317	-.7840	-.1090	3.6283	7.3849	40.159	-1.075	2.4632	-.2661	1.2316	2.5068	13.6318
18.3799	7.2518	2.9241	-.7960	-.1108	3.6259	7.3948	39.630	-.012	2.4616	-.2702	1.2308	2.5101	13.4522
18.6035	7.2564	2.9161	-.8140	-.1132	3.6282	7.4153	39.178	5.072	2.4632	-.2763	1.2316	2.5171	13.2989
18.8270	7.2745	2.9116	-.8320	-.1154	3.6372	7.4426	38.809	2.112	2.4693	-.2824	1.2347	2.5264	13.1736
19.0573	7.2656	2.9031	-.8440	-.1173	3.6328	7.4505	38.293	1.206	2.4663	-.2865	1.2331	2.5291	12.9986
19.2808	7.2796	2.8967	-.8640	-.1198	3.6398	7.4778	37.922	4.936	2.4711	-.2933	1.2355	2.5383	12.8726
19.5077	7.2877	2.8908	-.8800	-.1219	3.6439	7.4982	37.523	1.603	2.4738	-.2987	1.2369	2.5452	12.7371
19.7363	7.2869	2.8826	-.8960	-.1241	3.6434	7.5140	37.084	-.065	2.4735	-.3041	1.2368	2.5506	12.5880
19.9649	7.2875	2.8749	-.9120	-.1264	3.6437	7.5306	36.662	2.541	2.4737	-.3096	1.2369	2.5563	12.4449
20.0371	7.2909	2.8738	-.9160	-.1269	3.6455	7.5365	36.547	233.350	2.4749	-.3109	1.2375	2.5583	12.4059 STOP

A.BASIC RESPRT

CDOS 16K BASIC, VERSION 5.4

30

63 WCC 4-02 (1.180)

TRIAXIAL TEST (Set Up / Take Down)

Proj. No. 8/c 40 II-T-3 Proj. Eng. RSL Cell No. H-3 Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test C I U - C File No T-247

Loading Conditions: ☐ Dynamic ☒ Static	☒ Undrained ☐ Drained	☒ Compression ☐ Extension	☒ Constant cell pressure ☐ Variable cell pressure
Type Consolidation: ☒ Isotropic ☐ Anisotropic	☐ K_o stress path ☐ 45° Stress path	Piston Sealed in: ☐ Yes; ☒ No	

☒ Undisturbed ☐ Reconstituted ☐ Impact ☐ Constant Effort

Boring No CCE-14 Composite No ____ ☐ Static ____ layers; ____ Blows (Hammer Tamp)

Sample No S-19 Specimen No B ☐ Kneading ____ Blows - Tamps / layer

Depth (ft) 39.7 Remarks ID # 115 ☐ Tamping ☐ Undercompaction

☐ Ends capped with Castone; ☐ Geomarine Sample ☐ Other ____ layers; ____ Un.: (%)

Water Content				Final
Location	Top	Bot		Ave
Container No	LA-90	LA-121		SH
Wgt Container + Wet Soil (gm)	87.99	103.80		2196.2
Wgt Container + Dry Soil (gm)	76.61	93.48		1988.2
Wgt. Container (gm)	33.85	34.34		673.50
Wgt Dry Soil (gm)	42.76	59.14	ave	1114.7
WATER CONTENT (%)	17.26	17.45	17.35	18.66

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc): 1421.5 gm

Stone (etc): 97.11 gm

Wet Initial: 1324.39 gm

Wet Final: ____ gm

Excess Ovendry Dish No 624

Wgt Dish + Dry Soil 152.55 gm

Wgt. Dish 149.14 gm

Wgt. Excess Dry Soil 03.41 gm

Dimensions of Specimen

	Height (in) Initial (L_o)	Final (L_f)	Diameter (in) Initial	Final
1	5.970		1-T 2.932	
2	5.967		2-M 2.939	
3	5.965		3-B 2.941	
4	5.961		1'-T on 2.9373	
5	5.973		2'-M −0.050 Dust mbr. ×2	
Ave	5.9684		3-B	
			Ave 2.8873	

$D_o^2 = (D_1 + 2D_m + D_3)/4$

ΔL_c = ____ in

ΔL_f = ____ in

$\Sigma \Delta L$ = ____ in

$L_o - L_f$ = ____ in

$A_o = \pi D^2/4 = 6.5475$ in²

$V_o = 1h^3 \cdot 16.387 / = 640.377$ cm³

$A_{em} = 5.5454 (D^2)^2 =$ ____ 10^{-3} ft²

Membrane { Thickness = 0.025 in; Circumference (C_m) = 8.5917 in; Diam = C_m/π = 5.8436 in

Filter Paper: Top + bottom: ☐ Yes; ☒ No

Filter Strips: ☐ Yes; ☒ No

____ Vertical at ¼" Whatman #54 or ____

____ Spiral at ¼" Whatman #1 or ____

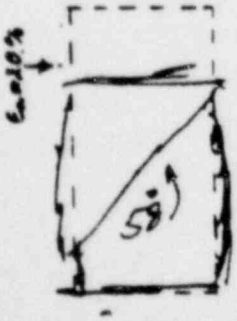
Wgt top cap = ____ gm, ____ 10^{-3} tons

Wgt (Cap, dial + piston) = ____ gm, ____ 10^{-3} tons

Preliminary

γ_{co} = 129.11 lb/ft³ γ_{do} = 110.02 lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo Taken

Other Remarks: ____

Preliminary Cal. by ____ Reviewed by ____

☐ Trimmed by ____ Setup by ____ Taken down by ____

☐ Reconstituted Date ____ Date 6/9/8 Date 6/17/81

See test for Subsequent calculations

TRIAXIAL TEST SUMMARY CALCULATIONS

L 4

Type Test: CIU-C ☒ Undisturbed; ☐ Reconstituted - Specimen: T-247

☐ Dynamic f / Hz or ____ # sinusoidal or ____ ☒ Static e 4.27 %/hr

Consolidation History Units: tsf or KSF	Max. Induced Pore Pressure Uncorr.	Corr. #	☒ Preshear/pore ☐ Pre cy-loading Uncorr.	corr. #	Preshear after cy-loading Uncorr.	Corr. #
σ_{cell}		—	18.388	—		—
u		—	14.372	—		—
$\bar{\sigma}_v$			—			
$\bar{\sigma}_h$			4.0176			
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$			—			
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$			1.00			
OCR			1.00			
Consol. Time	☐ Overnight ____ days ____ hours		☒ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours	

Corrected for effects of membrane, S. Hor strips, etc.

H_o = 5.9684 in
A_o = 6.5475 in²
V_o = 640.377 cm³
Dor/Dom = 1.0132
G_s = 2.678 ☐ Assumed ☒ Measured
B_s = 99.1 %
Area Corr. Factors: C
Undrained: ____
$C = \frac{1}{\varepsilon_a}(1 - A_c/A_{sm})$
Drained: ____
$C = \frac{1}{\varepsilon_a}\left[1 - \frac{A_c(1+\varepsilon_v)}{A_{sm}}\right]$

γ_w @ 20°C (tread) = 62.32 lb/ft³ = 0.9982 gm/cm³ (SAM) = 64.2 (lb/ft³)

Calculate Wgt of Dry Soil	By Initial Water Content	By Final Water Content	By Total Ovendried Specimen
w_1 (%)			
w_2 (%)			
w_{ave} (%)	17.35	18.66	
Wgt. Wet Soil, W_T (gm)	1324.89	(1326.75)	
Actual Wgt Dry Soil (gm)	ΔV_T (cm³) during test	[illegible]	1114.7
wgt Excess Overdry Soil	Corr. Wet wgt. = $W_T + \Delta V_T$		3.41
Total Wgt Oven Dry Soil, W_s (gm)	1128.58	(1118.11)	1118.11
W_s used:		Final = 1118.11 gm	

Variations in Height and Volume During Consolidation	During Initial Consol with out back-pressure	During Back-Pressure ΔV_o = 9.2% vol in	After Backpressuring $\bar{\sigma}_h$ (psi) From 3.65 To 6.95	$\bar{\sigma}_h$ (psi) From 3.45 To 37.9	$\bar{\sigma}_h$ (psi) From ____ To ____
Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down					
ΔL (in)	0.0004	0.002	0.0026	0.0101	
ΔV_m (cm³)	(-2.80 / +4.160)	(-8.36 / +8.36)	2.16	(6.81)	
$-\frac{\Delta V_a}{+3V_o(\Delta H/H_o)}$	0.129	0.644	0.837		
$R = \Delta V_m / \Delta V_a$	Rused = 2.581	2.581			
corrected $\Delta V_a = R \cdot \Delta V_a$	(0.333)	(1.662)			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

Cal cy = ____ in; $\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ____ cm³; ΔV_T (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures

ΔV_c by W_T Change = $W_c - W_b - (\Delta V_o + \Delta V_T)$

ΔW_T = −2.36 gm
$\Sigma(\Delta V_o + \Delta V_T)$ = (−13.82) cm³
∴ ΔV_c = (11.46) cm³

ΔV_c by recorded/calculated volume changes = Σ selected ΔV

$\Delta V_c = \overset{\Delta V_1}{0.333} + \overset{\Delta V_2}{1.662} + \overset{\Delta V}{6.81}$
= 8.805 cm³

ΔV_c assuming S = 100% $V_F = (1/\varepsilon_a - w_i)W_s/\gamma_w$

Undrained: $\Delta V_c = V_o - V_F$
w_o = 18.66 % V_F = 627.285 cm³
$V_F + \Delta V_T$ = ____ cm³
∴ ΔV_c = 13.092 cm³

Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$

Conclusions

ΔV_c used (ave'd values) = 13.092 cm³ ∴ V_c = 627.285 cm³; ΔL_c = 0.0125 in; ∴ L_c = 5.9559 in
$A_c = V_c/L_c$ (cm³/in)/16.387 = 6.4271 in² / 0.144 = 44.6327 x10⁻³ ft²
ε_{ac} = 0.21 %; ε_v = 2.04 %; $1-\varepsilon_v$ = ____ $E_s^{\#}$ = ____; $\varepsilon_{vc}^{\#}$ = ____ # not in percent
At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (ft² or ft² x10⁻³)	Volume (cm³)	Water Content (%)	Total or Dry Density (lb/ft³)	Saturation (%)		
Initial	5.9684	45.4687	640.377	18.45	129.11 109.00	93.0		
After Consol.	5.9559	44.6327	627.285	18.66	132.04 111.28	100.0		

Psi x 0.0072 = tsf

(w for S=100%) = $G_s \cdot \gamma_w - \gamma_d / G_s \cdot \gamma_d$ = $G_s \cdot \gamma_w - \gamma_t / G_s \cdot \gamma_t$

$S = wG_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_t / (G_s \cdot \gamma_w (1+w) - \gamma_t)$

Calculated by [signature] Reviewed by [signature]

1	DATA FILE IDENT. NO.	T-27
2	PROJECT NO.	81C055I3
3	BORING NO.	CDE-14
4	SAMPLE NO.	S-1'
5	SPECIMEN NO.	B
6	DEPTH	39.'
7	TEST NO.	ID-15
8	FILE # FOR LOAD CELL OR PROVING RING	200
9	FILE # FOR PORE PRESSURE CONST.	100
10	FILE # FOR CELL PRESSURE CONST	200
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	5.984
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.873
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	640.377
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.5[illegible]
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	1.27
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	1.595
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.025
25	MEMBRANE DIAMETER IN INCHES	2.8496
26	FILTER STRIP CORRECTION CONSTANT	0.0
27	RIGHT CYLINDER DISTORTION FACTOR	1.96
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	9.1944
35	BACK PRESSURE IN TSF	7.1856
36	AXIAL DEFORMATION IN INCHES	0.0125
37	VOLUME CHANGE IN CU. CM.	13.092
38	PISTON DRAG CORRECTION IN TONS*10**-3	14.035
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.0090,	26.070,	7.217
.00925,	30.850,	7.225
.00960,	40.85,	7.243
.01000,	49.47,	7.264
.01040,	61.14,	7.291
.01076,	68.92,	7.311
.01129,	80.04,	7.342
.01187,	90.32,	7.372
.01240,	99.49,	7.403
.01361,	118.12,	7.460
.01414,	125.34,	7.487
.01472,	133.40,	7.514
.01543,	140.07,	7.539
.01605,	148.13,	7.564

.01240.	99.49.	7.403
.01361.	119.12.	7.460
.01414.	125.34.	7.487
.01472.	133.40.	7.514
.01543.	140.07.	7.539
.01605.	148.13.	7.564
.01788.	166.75.	7.627
.01877.	175.92.	7.656
.01970.	183.43.	7.684
.02059.	191.21.	7.709
.02241.	204.83.	7.750
.02335.	211.78.	7.768
.02428.	217.89.	7.784
.02522.	223.45.	7.798
.02615.	228.73.	7.810
.02708.	233.73.	7.822
.02806.	238.18.	7.831
.02895.	243.18.	7.840
.02989.	248.19.	7.848
.03180.	256.25.	7.857
.03278.	261.25.	7.861
.03371.	264.86.	7.865
.03460.	268.75.	7.866
.03656.	275.98.	7.868
.03843.	283.48.	7.868
.04034.	290.71.	7.865
.04225.	297.66.	7.859
.04416.	304.61.	7.852
.04790.	317.11.	7.833
.04981.	324.34.	7.821
.05177.	331.0.	7.809
.05377.	337.1.	7.793
.05755.	350.7.	7.762
.06151.	364.9.	7.730
.06538.	377.7.	7.692
.06925.	391.3.	7.655
.07312.	405.4.	7.614
.08095.	433.0.	7.526
.08491.	447.4.	7.481
.08878.	462.1.	7.433
.09260.	476.3.	7.386
.09656.	491.1.	7.336
.10043.	506.1.	7.285
.10439.	521.6.	7.233
.10826.	536.9.	7.179
.11217.	552.2.	7.126
.11987.	583.0.	7.019
.12365.	598.3.	6.962
.12752.	614.2.	6.907
.13134.	629.7.	6.848
.13891.	662.0.	6.733
.14642.	694.5.	6.614
.15403.	728.4.	6.492
.16164.	762.0.	6.366
.17680.	831.8.	6.109
.18450.	867.1.	5.974
.19210.	903.8.	5.838
.19971.	940.2.	5.700
.21501.	1014.4.	5.421
.22257.	1051.4.	5.276
.23018.	1089.4.	5.130
.23774.	1128.9.	4.985
.25660.	1224.5.	4.611
.26794.	1282.0.	4.386
.27920.	1341.5.	4.154
.29058.	1401.6.	3.924
.31358.	1520.8.	3.449
.32510.	1580.5.	3.215

.25660.	1224.5.	4.611
.26794.	1282.0.	4.386
.27920.	1341.5.	4.154
.29058.	1401.6.	3.924
.31358.	1520.8.	3.449
.325[illegible].	1580.5.	3.2125
0.3367.	1640.8.	2.9739
0.3483.	1700.6.	2.7365
0.3712.	1817.6.	2.2605
0.3826.	1877.9.	2.0231
0.3940.	1936.0.	1.7870
0.4053.	1993.5.	1.5544
0.4284.	2109.7.	1.0845
0.5233.	2240.3.	.05904
0.5261.	2438.5.	-.06507
0.5297.	2500.2.	-.27715
0.5336.	2524.7.	-0.3976
0.5373.	2539.7.	-0.4723
0.5414.	2550.8.	-0.5253
0.5493.	2569.1.	-0.5916
0.5530.	2574.1.	-0.6109
0.5572.	2579.7.	-0.6278
0.5612.	2584.1.	-0.6386
0.5690.	2591.6.	-0.6507
0.5770.	2598.6.	-0.6543
0.5850.	2604.2.	-0.6555
0.5920.	2608.9.	-0.6543
0.6078.	2617.2.	-0.6470
0.6158.	2621.4.	-0.6434
0.6237.	2623.1.	-0.6410
0.6316.	2625.8.	-0.6362
0.6472.	2630.3.	-0.6326
0.6552.	2631.7.	-0.6314
0.6631.	2635.6.	-0.6314
0.6711.	2638.3.	-0.6302
0.6868.	2643.9.	-0.6290
0.6947.	2645.6.	-0.6302
0.7025.	2648.6.	-0.6290
0.7106.	2650.0.	-0.6314
0.7262.	2653.6.	-0.6326
0.7342.	2655.8.	-0.6338
0.7420.	2658.9.	-0.6350
0.7539.	2661.4.	-0.6374
0.7658.	2665.0.	-0.6398
0.7778.	2666.7.	-0.6422
0.7896.	2670.0.	-0.6434
0.8017.	2673.6.	-0.6470
0.8138.	2675.9.	-0.6494
0.8380.	2672.2.	-0.6543
0.8497.	2671.7.	-0.6567
0.8615.	2675.9.	-0.6579
0.8735.	2675.6.	-0.6603
0.8854.	2671.7.	-0.6627
0.8972.	2666.1.	-0.6627
0.9092.	2653.9.	-0.6639
0.9213.	2645.6.	-0.6639
0.9332.	2634.7.	-0.6615
0.9571.	2634.4.	-0.6567
0.9652.	2639.7.	-0.6567
0.9809.	2648.3.	-0.6519
0.9967.	2663.1.	-0.6494
1.0127.	2673.6.	-0.6482
1.0283.	2674.5.	-0.6470
1.0445.	2686.1.	-0.6458
1.0605.	2703.7.	-0.6434
1.0766.	2715.0.	-0.6446
1.0930.	2722.0.	-0.6446
1.1090.	2721.4.	-0.6446
1.124[illegible]	[illegible]	[illegible]

```
0.9967. 2663.1.-0.6494
1.0127. 2673.6.-0.6482
1.0283. 2674.5.-0.6470
1.0445. 2686.1.-0.6458
1.0605. 2703.7.-0.6434
1.0766. 2715.0.-0.6446
1.0930. 2722.0.-0.6446
1.1090. 2721.4.-0.6446
1.1249. 2725.6.-0.6434
1.1406. 2716.2.-0.6446
1.1566. 2697.0.-0.6446
1.1729. 2671.1.-0.6458
1.1891. 2643.6.-0.6446
1.2051. 2608.6.-0.6422
-999..0.0.0.0
```

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-247

PROJ. NO.	81C4055T3	REVIEWED BY:
BORING NO.	COE-14	DATE: 6/9/81
SAMPLE NO.	S-19	INPUT DATA CHECKED BY:
SPECIMEN NO.	B	
DEPTH(FT.)	39.7	TEST NO. ID-115

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
5.9684	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.8873	INITIAL DIAMETER OF SPECIMEN IN INCHES
640.38	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.5100	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
1.2700	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
1.5950	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0250	MEMBRANE THICKNESS IN INCHES
2.8496	MEMBRANE DIAMETER IN INCHES
0.0000	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.9000	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

9.1944	CELL PRESSURE IN TSF
7.1856	BACK PRESSURE IN TSF
.0125	AXIAL DEFORMATION DURING CONSOL. IN INCHES
13.09	VOLUME CHANGE DURING CONSOL. IN CU. CM.
14.0350	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	4.0323 KSF
LATERAL	=	4.0173 KSF
MEAN	=	4.0223 KSF
PBAR	=	4.0248 KSF
LATERAL/AXIAL	=	.9963
AXIAL/LATERAL	=	1.0037
OCR	=	1.000

14.0350	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NORMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 4.0248 KSF

AXIAL STRAIN	DEVIATOR OR TOTAL	DELTA-U	A-FACTOR	Q	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM

6
-6

NONE — FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES — IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 4.0248 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	Q KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM
0.0000	.0150	1.0037	0.0000	0.0000	.0075	4.0248	0.000	0.000	.0037	0.0000	.0019	1.0000	0.0000
.0042	.0773	1.0193	.0160	.2570	.0386	4.0400	1492.792	2646.820	.0192	.0040	.0096	1.0038	368.4110
.0101	.3012	1.0760	.0520	.1817	.1506	4.1159	2840.824	3342.080	.0748	.0129	.0374	1.0226	705.9242
.0168	.4942	1.1260	.0940	.1962	.2471	4.1704	2853.819	3381.455	.1228	.0234	.0614	1.0362	709.0531
.0235	.7554	1.1952	.1480	.1999	.3777	4.2470	3149.756	3384.723	.1877	.0368	.0938	1.0552	782.5807
.0296	.9295	1.2427	.1880	.2056	.4647	4.2941	3094.548	2837.460	.2309	.0467	.1155	1.0669	768.8638
.0384	1.1782	1.3127	.2500	.2149	.5891	4.3564	3025.237	2577.446	.2927	.0621	.1464	1.0824	751.6430
.0482	1.4080	1.3798	.3100	.2225	.7040	4.4113	2890.762	2331.275	.3498	.0770	.1749	1.0960	718.2318
.0571	1.6129	1.4425	.3720	.2328	.8065	4.4518	2799.098	2175.152	.4007	.0924	.2004	1.1061	695.4571
.0774	2.0289	1.5746	.4860	.2413	1.0145	4.5458	2601.844	1928.825	.5041	.1208	.2521	1.1294	646.4478
.0863	2.1900	1.6298	.5400	.2483	1.0950	4.5723	2520.202	1828.004	.5441	.1342	.2721	1.1360	626.1633
.0960	2.3698	1.6922	.5940	.2523	1.1849	4.6082	2451.832	1545.775	.5888	.1476	.2944	1.1449	609.1763
.1080	2.5182	1.7465	.6440	.2573	1.2591	4.6324	2318.642	1485.377	.6257	.1600	.3128	1.1510	576.0843
.1184	2.6978	1.8118	.6940	.2587	1.3489	4.6722	2266.448	1536.502	.6703	.1724	.3351	1.1609	563.1161
.1491	3.1120	1.9733	.8200	.2648	1.5560	4.7533	2077.145	1355.824	.7732	.2037	.3866	1.1810	516.0825
.1640	3.3158	2.0562	.8780	.2660	1.6579	4.7972	2012.161	1215.231	.8238	.2181	.4119	1.1919	499.9367
.1797	3.4823	2.1294	.9340	.2694	1.7412	4.8245	1929.984	1110.662	.8652	.2321	.4326	1.1987	479.5191
.1946	3.6549	2.2041	.9820	.2698	1.8274	4.8628	1870.445	1070.552	.9081	.2440	.4540	1.2082	464.7263
.2252	3.9563	2.3405	1.0660	.2705	1.9782	4.9295	1750.471	980.052	.9830	.2649	.4915	1.2248	434.9178
.2409	4.1100	2.4098	1.1020	.2691	2.0550	4.9703	1699.585	918.661	1.0212	.2738	.5106	1.2349	422.2747
.2566	4.2448	2.4722	1.1340	.2681	2.1224	5.0057	1648.708	819.938	1.0547	.2818	.5273	1.2437	409.6340
.2723	4.3673	2.5295	1.1620	.2670	2.1837	5.0390	1598.144	760.207	1.0851	.2887	.5425	1.2520	397.0709
.2879	4.4835	2.5835	1.1860	.2654	2.2418	5.0731	1551.837	724.016	1.1140	.2947	.5570	1.2605	385.5657
.3036	4.5934	2.6362	1.2100	.2643	2.2967	5.1040	1508.217	648.184	1.1413	.3006	.5706	1.2681	374.7279
.3200	4.6909	2.6817	1.2280	.2626	2.3455	5.1348	1461.136	663.790	1.1655	.3051	.5828	1.2758	363.0304
.3350	4.8008	2.7323	1.2460	.2604	2.4004	5.1717	1428.744	715.710	1.1928	.3096	.5964	1.2850	354.9822
.3507	4.9107	2.7823	1.2620	.2578	2.4553	5.2107	1395.789	622.550	1.2201	.3136	.6100	1.2946	346.7944
.3828	5.0867	2.8583	1.2800	.2524	2.5433	5.2807	1324.828	606.867	1.2638	.3180	.6319	1.3120	329.1636
.3993	5.1961	2.9038	1.2880	.2486	2.5980	5.3274	1297.637	584.026	1.2910	.3200	.6455	1.3236	322.4077
.4149	5.2746	2.9383	1.2960	.2464	2.6373	5.3586	1267.730	535.257	1.3105	.3220	.6553	1.3314	314.9773
.4298	5.3594	2.9709	1.2980	.2429	2.6797	5.3990	1243.386	522.103	1.3316	.3225	.6658	1.3414	308.9286
.4627	5.5163	3.0315	1.3020	.2367	2.7582	5.4735	1188.863	497.701	1.3706	.3235	.6853	1.3599	295.3819
.4941	5.6792	3.0915	1.3020	.2299	2.8396	5.5549	1146.279	503.477	1.4110	.3235	.7055	1.3802	284.8017
.5262	5.8357	3.1444	1.2960	.2226	2.9179	5.6392	1106.177	478.282	1.4499	.3220	.7250	1.4011	274.8381
.5583	5.9859	3.1900	1.2840	.2150	2.9930	5.7263	1069.535	468.001	1.4872	.3190	.7436	1.4227	265.7340
.5903	6.1359	3.2334	1.2700	.2075	3.0680	5.8153	1036.842	447.732	1.5245	.3155	.7623	1.4449	257.6111
.6531	6.4045	3.2994	1.2320	.1928	3.2023	5.9876	978.282	456.532	1.5913	.3061	.7956	1.4977	243.0615
.6852	6.5602	3.3351	1.2080	.1846	3.2801	6.0894	955.209	459.502	1.6299	.3001	.8150	1.5130	237.3290
.7181	6.7029	3.3657	1.1840	.1770	3.3514	6.1848	931.310	410.527	1.6654	.2942	.8327	1.5367	231.3911
.7517	6.8330	3.3847	1.1520	.1690	3.4165	6.2818	907.010	422.972	1.6977	.2862	.8488	1.5608	225.3536
.8152	7.1240	3.4336	1.0900	.1533	3.5620	6.4894	872.097	457.202	1.7700	.2708	.8850	1.6123	216.6791
.8816	7.4271	3.4828	1.0260	.1384	3.7135	6.7049	840.704	436.983	1.8439	.2549	.9227	1.6659	208.8792
.9466	7.6988	3.5099	.9500	.1236	3.8494	6.9168	811.699	431.130	1.9128	.2360	.9564	1.7185	201.6727
1.0116	7.9873	3.5426	.8760	.1099	3.9937	7.1350	788.088	451.979	1.9845	.2176	.9923	1.7728	195.8064
1.0766	8.2861	3.5706	.7940	.0960	4.1431	7.3665	768.277	451.210	2.0588	.1973	1.0294	1.8303	190.8842
1.2080	8.8680	3.6087	.6180	.0698	4.4340	7.8334	732.832	448.950	2.2033	.1535	1.1017	1.9463	182.0777
1.2745	9.1707	3.6282	.5280	.0577	4.5854	8.0748	718.355	465.257	2.2785	.1312	1.1393	2.0062	178.4808
1.3395	9.4795	3.6439	.4320	.0456	4.7397	8.3251	706.560	469.294	2.3553	.1073	1.1776	2.0684	175.5501
1.4037	9.7767	3.6571	.3380	.0346	4.8884	8.5678	695.449	464.088	2.4291	.0840	1.2145	2.1287	172.7895
1.4701	10.0857	3.6686	.2380	.0236	5.0429	8.8223	685.016	473.133	2.5059	.0591	1.2529	2.1920	170.1975
1.5351	10.3986	3.6791	.1360	.0131	5.1993	9.0807	676.402	483.311	2.5836	.0338	1.2918	2.2562	168.0571
1.6016	10.7211	3.6901	.0320	.0030	5.3606	9.3460	668.461	487.023	2.6637	.0080	1.3319	2.3221	166.0843
1.6666	11.0388	3.6967	-.0760	-.0069	5.5194	9.6129	661.461	485.649	2.7427	-.0189	1.3713	2.3884	164.3450
1.7322	11.3555	3.7040	-.1820	-.0161	5.6778	9.8772	654.674	487.013	2.8214	-.0452	1.4107	2.4541	162.6588
1.8615	11.9911	3.7169	-.3960	-.0331	5.9956	10.4090	643.351	493.727	2.9793	-.0984	1.4896	2.5862	159.8456
1.9250	12.3058	3.7180	-.5100	-.0415	6.1529	10.6804	638.487	499.063	3.0575	-.1267	1.5287	2.6536	158.6370
1.9900	12.6322	3.7239	-.6200	-.0492	6.3161	10.9536	634.041	498.374	3.1386	-.1540	1.5693	2.7215	157.5322
2.0541	12.9493	3.7230	-.7380	-.0571	6.4747	11.2301	629.682	506.836	3.2174	-.1834	1.6087	2.7902	156.4492
2.1812	13.6093	3.7298	-.9680	-.0712	6.8046	11.7901	623.246	521.739	3.3813	-.2405	1.6907	2.9293	154.8503
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.1351	12.3587	617.835	530.939	3.5456	-.2996	1.7728	3.0706	153.5057

1.8615	11.9911	3.7169	-.3960	-.0331	5.9956	10.4090	643.351	495.727	2.9793	-.0994	1.4896	2.5862	159.8456
1.9250	12.3058	3.7180	-.5100	-.0415	6.1529	10.6804	638.487	499.063	3.0575	-.1267	1.5287	2.6536	158.6370
1.9900	12.6322	3.7239	-.6200	-.0492	6.3161	10.9536	634.041	498.374	3.1386	-.1540	1.5693	2.7215	157.5322
2.0541	12.9493	3.7230	-.7380	-.0571	6.4747	11.2301	629.682	506.836	3.2174	-.1834	1.6087	2.7902	156.4492
2.1812	13.6093	3.7298	-.9680	-.0712	6.8046	11.7901	623.246	521.739	3.3813	-.2405	1.6907	2.9293	154.8502
2.3073	14.2703	3.7319	-1.2060	-.0846	7.1351	12.3587	617.835	530.939	3.5456	-.2996	1.7728	3.0706	153.5059
2.4351	14.9572	3.7356	-1.4500	-.0971	7.4786	12.9462	613.627	533.689	3.7162	-.3603	1.8581	3.2166	152.4603
2.5628	15.6341	3.7334	-1.7020	-.1090	7.8171	13.5366	609.445	539.537	3.8844	-.4229	1.9422	3.3633	151.4212
2.8174	17.0324	3.7323	-2.2160	-.1302	8.5162	14.7498	604.014	545.843	4.2318	-.5506	2.1159	3.6647	150.0719
2.9467	17.7335	3.7267	-2.4960	-.1403	8.8668	15.3704	601.309	556.223	4.4060	-.6177	2.2030	3.8189	149.3997
3.0743	18.4610	3.7246	-.7580	-.1495	9.2305	16.0062	600.013	565.664	4.5868	-.6852	2.2934	3.9769	149.0778
3.2020	19.1781	3.7197	-3.0340	-.1583	9.5891	16.6407	598.466	563.047	4.7649	-.7538	2.3825	4.1345	148.6933
3.4589	20.6292	3.7109	-3.5920	-.1743	10.3146	17.9243	595.970	565.264	5.1255	-.8925	2.5627	4.4534	148.0732
3.5859	21.3472	3.7023	-3.8820	-.1820	10.6736	18.5733	594.897	570.247	5.3039	-.9645	2.6519	4.6147	147.8067
3.7136	22.0816	3.6956	-4.1740	-.1892	11.0408	19.2328	594.206	587.526	5.4864	-1.0371	2.7432	4.7785	147.6351
3.8406	22.8435	3.6932	-4.4640	-.1956	11.4218	19.9036	594.405	587.707	5.6757	-1.1091	2.8378	4.9452	147.6845
4.1572	24.6649	3.6723	-5.2120	-.2115	12.3325	21.5623	592.941	572.024	6.1282	-1.2950	3.0641	5.3573	147.3208
4.3476	25.7480	3.6599	-5.6620	-.2201	12.8740	22.5539	591.887	579.454	6.3973	-1.4068	3.1986	5.6037	147.0588
4.5367	26.8475	3.6482	-6.1260	-.2282	13.4318	23.5757	591.810	587.312	6.6745	-1.5221	3.3372	5.8576	147.0397
4.7277	27.9805	3.6387	-6.5860	-.2355	13.9903	24.5943	591.518	574.778	6.9520	-1.6363	3.4760	6.1106	146.9671
5.1139	30.1623	3.6105	-7.5360	-.2500	15.0811	26.6353	589.514	561.150	7.4941	-1.8724	3.7470	6.6177	146.4691
5.3073	31.2403	3.5975	-8.0090	-.2565	15.6201	27.6473	588.341	555.728	7.7619	-1.9899	3.8809	6.8692	146.1777
5.5021	32.3195	3.5846	-8.4862	-.2627	16.1598	28.6642	587.130	549.002	8.0300	-2.1085	4.0150	7.1218	145.8768
5.6969	33.3788	3.5717	-8.9610	-.2686	16.6894	29.6687	585.651	537.370	8.2932	-2.2264	4.1466	7.3714	145.5094
6.0814	35.4200	3.5425	-9.9130	-.2800	17.7100	31.6414	582.187	537.734	8.8004	-2.4630	4.4002	7.8615	144.6488
6.2728	36.4624	3.5310	-10.3878	-.2850	18.2312	32.6375	581.040	530.740	9.0593	-2.5809	4.5297	8.1090	144.3638
6.4642	37.4517	3.5172	-10.8600	-.2901	18.7258	33.6044	579.140	513.951	9.3052	-2.6982	4.6526	8.3493	143.8918
6.6539	38.4212	3.5040	-11.3252	-.2949	19.2106	34.5544	577.198	503.932	9.5461	-2.8138	4.7730	8.5853	143.4093
7.0418	40.3483	3.4778	-12.2650	-.3041	20.1741	36.4579	572.772	280.401	10.0248	-3.0473	5.0124	9.0582	142.3096
8.6351	41.2674	3.2562	-14.3189	-.3462	20.6837	39.0191	478.885	3928.225	10.2781	-3.5569	5.1390	9.6946	118.9827
8.6821	45.0309	3.4231	-14.5641	-.3236	22.5154	41.0990	518.487	4798.051	11.1883	-3.6186	5.5941	10.2114	128.8221
8.7426	46.1210	3.4264	-14.9883	-.3251	23.0605	42.0683	527.372	1197.726	11.4591	-3.7240	5.7296	10.4522	131.0296
8.8081	46.5086	3.4162	-15.2292	-.3276	23.2543	42.5036	527.851	467.211	11.5554	-3.7838	5.7777	10.5602	131.1487
8.8702	46.7214	3.4085	-15.3786	-.3293	23.3607	42.7589	526.554	267.323	11.6083	-3.8209	5.8041	10.6238	130.8263
8.9390	46.8536	3.4022	-15.4846	-.3306	23.4268	42.9310	523.978	169.785	11.6411	-3.8473	5.8206	10.6665	130.1863
9.0717	47.0493	3.3960	-15.6172	-.3321	23.5246	43.1615	518.473	93.712	11.6897	-3.8802	5.8449	10.7238	128.8186
9.1338	47.0741	3.3925	-15.6558	-.3327	23.5370	43.2125	515.219	38.704	11.6959	-3.8898	5.8480	10.7365	128.0100
9.2043	47.1005	3.3898	-15.6896	-.3333	23.5503	43.2596	511.558	24.435	11.7025	-3.8982	5.8512	10.7482	127.1006
9.2715	47.1081	3.3875	-15.7112	-.3337	23.5541	43.2850	507.935	3.510	11.7044	-3.9036	5.8522	10.7545	126.2004
9.4024	47.1024	3.3843	-15.7354	-.3342	23.5512	43.3065	500.800	-9.407	11.7030	-3.9096	5.8515	10.7598	124.4275
9.5368	47.0830	3.3824	-15.7426	-.3345	23.5415	43.3040	493.543	-24.289	11.6981	-3.9114	5.8491	10.7592	122.6244
9.6711	47.0372	3.3798	-15.7450	-.3349	23.5186	43.2836	486.214	-35.893	11.6867	-3.9120	5.8434	10.7541	120.8036
9.7886	46.9929	3.3779	-15.7426	-.3352	23.4965	43.2591	479.924	-45.878	11.6757	-3.9114	5.8379	10.7491	119.2407
10.0539	46.8494	3.3723	-15.7280	-.3359	23.4237	43.1729	465.833	-54.374	11.6401	-3.9077	5.8200	10.7266	115.7398
10.1882	46.7760	3.3695	-15.7208	-.3363	23.3880	43.1291	458.971	-71.451	11.6219	-3.9060	5.8109	10.7157	114.0349
10.3209	46.6590	3.3641	-15.7160	-.3370	23.3205	43.0658	451.938	-81.550	11.5928	-3.9048	5.7964	10.7000	112.2875
10.4535	46.5597	3.3602	-15.7064	-.3375	23.2783	43.0066	445.254	-77.859	11.5681	-3.9024	5.7841	10.6853	110.6268
10.7154	46.3479	3.3503	-15.6992	-.3389	23.1739	42.8937	432.394	-87.017	11.5155	-3.9006	5.7577	10.6573	107.4315
10.8497	46.2227	3.3443	-15.6968	-.3398	23.1114	42.8288	425.887	-76.406	11.4844	-3.9000	5.7422	10.6411	105.8149
10.9824	46.1436	3.3402	-15.6968	-.3404	23.0718	42.7893	420.023	-68.026	11.4647	-3.9000	5.7324	10.6313	104.3579
11.1167	46.0410	3.3353	-15.6944	-.3411	23.0205	42.7357	414.025	-75.580	11.4392	-3.8994	5.7196	10.6180	102.8676
11.3803	45.8439	3.3256	-15.6920	-.3425	22.9220	42.6349	402.703	-82.300	11.3903	-3.8988	5.6951	10.5930	100.0547
11.5130	45.7248	3.3197	-15.6944	-.3434	22.8624	42.5778	397.029	-81.123	11.3607	-3.8994	5.6803	10.5788	98.6448
11.6439	45.6299	3.314	-15.6920	-.3441	22.8150	42.5281	391.749	-83.490	11.3371	-3.8988	5.6686	10.5664	97.3330
11.7799	45.5013	3.3076	-15.6968	-.3452	22.7507	42.4687	386.134	-91.692	11.3051	-3.9000	5.6526	10.5517	95.9380
12.0418	45.2687	3.2955	-15.6992	-.3470	22.6344	42.3550	375.804	-86.647	11.2474	-3.9006	5.6237	10.5234	93.3713
12.1762	45.1552	3.2895	-15.7016	-.3479	22.5776	42.3007	370.726	-78.330	11.2192	-3.9012	5.6096	10.5099	92.1097
12.3071	45.0607	3.2844	-15.7040	-.3487	22.5304	42.2559	366.013	-81.863	11.1957	-3.9018	5.5978	10.4988	90.9387
12.5069	44.8778	3.2745	-15.7088	-.3503	22.4389	42.1694	358.703	-86.984	11.1502	-3.9030	5.5751	10.4773	89.1225
12.7067	44.7131	3.2656	-15.7136	-.3517	22.3566	42.0920	351.767	-90.665	11.1093	-3.9042	5.5547	10.4581	87.3992
12.9082	44.5138	3.2550	-15.7184	-.3533	22.2589	41.9973	344.732	-92.077	11.0598	-3.9054	5.5299	10.4346	85.6514
13.1063	44.3450	3.246	-15.7208	-.3547	22.1725	41.9154	338.233	-84.486	11.0178	-3.9060	5.5089	10.4142	84.0365
13.3095	44.1748	3.2367	-15.7280	-.3563	22.0874	41.8377	331.792	-89.220	10.9756	-3.9077	5.4878	10.3949	82.4362
13.5127	43.9824	3.2264	-15.7328	-.3579	21.9912	41.7465	325.380	-111.681	10.9278	-3.9089	5.4639	10.3722	80.8430
13.9190	43.4597	3.1988	-15.7426	-.3625	21.7298	41.4952	312.125	-123.164	10.7979	-3.9114	5.3989	10.3098	77.5499
14.1154	43.2285	3.1865	-15.7474	-.3645	21.6143	41.3846	306.144	-98.281	10.7405	-3.9126	5.3702	10.2823	76.0638
14.3135	43.0722	3.1783	-15.7498	-.3659	21.5361	41.3090	300.814	-97.480	10.7016	-3.9132	5.3508	10.2635	74.7396
14.5150	42.8994	3.1671	-15.7546	-.3680	21.4192	41.1971	295.028	-130.607	10.6435	-3.9144	5.3218	10.2357	73.3019
[illegible]	[illegible]	[illegible]	[illegible]	-.3707	21.2742	41.0570	289.051	-152.002	10.5715	-3.9155	5.2857	10.2009	71.8169
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.4923	-3.9155	5.2464	10.1612	70.3394

data - problem with data logger JWS

4=0 assumption corrected

2.0E-14 4/98

17

13.5127	43.9824	3.2264	-15.7328	-.3579	21.9912	41.7465	325.380	-111.681	10.9278	-3.9089	5.4639	10.3722	80.8430
13.9190	43.4597	3.1988	-15.7426	-.3625	21.7298	41.4952	312.125	-123.184	10.7979	-3.9114	5.3989	10.3098	77.5499
14.1154	43.2285	3.1865	-15.7474	-.3645	21.6143	41.3846	306.144	-98.281	10.7405	-3.9126	5.3702	10.2823	76.0638
14.3135	43.0722	3.1783	-15.7498	-.3659	21.5361	41.3090	300.814	-97.480	10.7016	-3.9132	5.3508	10.2635	74.7396
14.5150	42.8384	3.1660	-15.7546	-.3680	21.4192	41.1971	295.028	-130.607	10.6435	-3.9144	5.3218	10.2357	73.3019
14.7148	42.5484	3.1508	-15.7594	-.3707	21.2742	41.0570	289.051	-152.002	10.5715	-3.9155	5.2857	10.2009	71.8169
14.9129	42.2336	3.1348	-15.7594	-.3734	21.1168	40.8998	283.100	-184.400	10.4933	-3.9155	5.2466	10.1619	70.3394
15.1144	41.8106	3.1132	-15.7618	-.3773	20.9053	40.6909	276.528	-193.774	10.3882	-3.9161	5.1941	10.1100	68.7054
15.3176	41.4498	3.0949	-15.7618	-.3806	20.7249	40.5107	270.505	-188.082	10.2985	-3.9161	5.1493	10.0652	67.2089
15.5174	41.0531	3.0754	-15.7570	-.3841	20.5265	40.3077	264.465	-155.812	10.1999	-3.9149	5.1000	10.0148	65.7083
15.9197	40.5994	3.0534	-15.7474	-.3882	20.2997	40.0716	258.948	-82.137	10.0872	-3.9126	5.0436	9.9561	63.3439
16.0547	40.5297	3.0498	-15.7474	-.3889	20.2649	40.0369	252.355	-56.442	10.0699	-3.9126	5.0350	9.9475	62.6994
16.3183	40.3671	3.0426	-15.7378	-.3902	20.1836	39.9463	247.282	-44.271	10.0295	-3.9102	5.0148	9.9250	61.4390
16.5836	40.2959	3.0395	-15.7328	-.3908	.1479	39.9059	242.896	-40.221	10.0118	-3.9089	5.0059	9.9149	60.3494
16.8522	40.1519	3.0324	-15.7304	-.3921	.0760	39.8318	238.170	-80.967	9.9761	-3.9083	4.9880	9.8965	59.1752
17.1141	39.8681	3.0183	-15.7280	-.3945	19.9341	39.6877	232.867	-78.982	9.9055	-3.9077	4.9528	9.8607	57.8575
17.3861	39.7332	3.0116	-15.7256	-.3961	19.8666	39.6182	229.448	-33.073	9.8720	-3.9071	4.9360	9.8434	56.7595
17.6548	39.6888	3.0099	-15.7208	-.3965	19.8444	39.5914	224.720	-34.807	9.8610	-3.9060	4.9305	9.8368	55.8333
17.9251	39.5453	3.0023	-15.7232	-.3980	19.7726	39.5224	220.530	-65.565	9.8253	-3.9065	4.9127	9.8196	54.7925
18.2004	39.3304	2.9914	-15.7232	-.4002	19.6652	39.4152	216.013	-98.459	9.7719	-3.9065	4.8860	9.7930	53.6701
18.4691	39.0111	2.9752	-15.7232	-.4035	19.5055	39.2558	211.142	-105.874	9.6926	-3.9065	4.8463	9.7534	52.4599
18.7360	38.7631	2.9629	-15.7208	-.4060	19.3815	39.1298	206.810	-129.856	9.6310	-3.9060	4.8155	9.7221	51.3836
18.9996	38.3233	2.9403	-15.7232	-.4107	19.1617	38.9126	201.626	-191.849	9.5217	-3.9065	4.7609	9.6681	50.0956
19.2683	37.7407	2.9108	-15.7232	-.4171	18.8704	38.6216	195.792	-232.365	9.3770	-3.9065	4.6885	9.5958	48.6459
19.5420	37.0624	2.8762	-15.7256	-.4248	18.5312	38.2852	189.578	-251.274	9.2084	-3.9071	4.6042	9.5122	47.1022
19.8140	36.3696	2.8413	-15.7232	-.4328	18.1848	37.9367	183.480	-273.746	9.0363	-3.9065	4.5182	9.4257	45.5869
20.0826	35.5830	2.8019	-15.7184	-.4423	17.7915	37.5389	177.109	1348.500	8.8409	-3.9054	4.4204	9.3268	44.0040 STOP

A.BASIC RESPRT

CDOS 16K BASIC, VERSION 5.4

0.074

2D

TRIAXIAL TEST (Set Up / Take Down)

73 WCC 4-202 (1180)

Proj. No. 81C4055-1-3 Proj. Eng. RSL Cell No. H-7 Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test CU Test No T-245

Loading Conditions			Consolidation		Piston Screwed in
☐ Dynamic	☒ Undrained	☒ Compression	☒ Constant cell pressure	Type: ☒ Isotropic	☐ Yes; ☒ No
☒ Static	☐ Drained	☐ Extension	☐ Variable cell pressure	☐ Anisotropic	☐ K₀ stress path
					☐ 45° Stress path

☒ Undisturbed ☐ Reconstituted

Boring No. COE-14 Composite No. ____

Sample No. S-12 Specimen No. D

Depth (ft) 47.2 Remarks ID # 118

☐ Endo capped with Castone; ☐ Geomarine Sample

☐ Impact ☐ Static ☐ Kneading ☐ Tamping ☐ Other

☐ Constant Effort: ____ layers; ____ 16 [Hammer Jamp]

____ Blows-Tamps/layer

☐ Undercompaction: ____ layers; ____ Unif (%)

Water Content				Final
Location	Top	Bot		Ave
Container No	UA-71	UA-206		SF
Wgt Container + Wet Soil (gm)	98.82	90.20		218.47
Wgt Container + Dry Soil (gm)	93.72	81.81		196.92
Wgt. Container (gm)	34.11	32.14		29.65
Wgt Dry Soil (gm)	59.61	49.67		167.27
WATER CONTENT (%)	8.56	16.89	12.72	20.09

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc): 1359.4 gm

Stone (etc): 1122.20 gm

Wet Initial: 237.2 gm

Wet Final: ____ gm

Excess Overdry Dish No. 250

Wgt Dish + Dry Soil 243.81 gm

Wgt. Dish 219.49 gm

Wgt. Excess Dry Soil 24.32 gm

Dimensions of Specimen

	Height (in) Initial (Lo)	Final (Lf)	Diameter (in) Initial	Final
1	6.012		1-T 2.876	3.055
2	6.009		2-M 2.881	3.391
3	6.008		3-B 2.872	3.127
4	6.007		1'-T 2.890	3.241
5	6.007		2'-M 2.886	-(2×0.0265)
Ave	6.0082		3'-B 2.871	
			Ave 2.8792	3.188

Dave = (D₁ + 2D_M + D_B)/4

ΔLc = ____ in

ΔLt = ____ in

ΣΔL = ____ in

Lo − Lf = ____ in

$A_o = \pi D^2/4 = 6.5112$ in²

$V_o = 1h^3 \cdot 16.387 1 = 64.873$ cm³

Area $5.5542(D^2) = 55.4229$ 10⁻³ m²

Membrane: Thickness = 0.0265 in; Circumference (Cm) = 8.8012⁵ in; Diam = Cm/π = 2.8015 in

Filter Paper: Top + bottom: ☐ Yes; ☒ No

Filter Strips: ☐ Yes; ☒ No

____ Vertical at ¼" - Whatman #54 or ____

____ Spiral at ¼" - Whatman #1 or ____

Wgt top cap: ____ gm, 0.57 10⁻³ kg

Wgt (cap, dial + piston) = ____ gm, ____ 10⁻³ kg

Preliminary

γ_{co} = 120.48 lb/ft³ γ_{do} = 106.80 lb/ft³

Failure Sketch

Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo Taken

SM brown mix of SAND some silt

Other Remarks: ____

Preliminary Cal. by CC Reviewed by RR

☐ Trimmed by ____ Setup by [illegible] Taken down by [illegible]

☐ Accept. Total Date ____ Date 6/11/84 Date 6/15/84

See back for Summary Calculations

8.831

TRIAXIAL TEST SUMMARY CALCULATIONS 74

Type Test: CTD-C ☒ Undisturbed; ☐ Reconstituted - Specimen: T-245

☐ Dynamic / H_z or ____ ☐ sinusoidal or ____ ☒ Static 3.90 %/hr

Consolidation History Units: tsf or KSF	Max Induced Pore Pressure Uncorr.	Corr.*	☒ Preshear/pore. ☐ Pre cy-loading Uncorr.	Corr.*	Preshear after Cy-loading Uncorr.	Corr.*
$\bar{\sigma}_{cell}$		———	16.3584	———		———
$u_{..}$		———	14.3568	———		———
$\bar{\sigma}_v$			—			
$\bar{\sigma}_h$			2.0016			
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$			—			
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$			1.00			
OCR			1.00			
Consol. Time	☐ Overnight days hours		☐ Overnight 1 days hours		☐ Overnight days hours	

* Corrected for effects of membrane, S. Hor strips, etc.

H_o = 6.0082 in
A_o = 6.5142 in²
V_o = 641.073 cm³
Dor/Dom = ____
G_s = 2.661 ☐ Assumed ☒ Measured
B_s = 95.3 %
Area Corr. Factors C
Undrained = $\frac{1.842}{A_c/A_{ISM}}$
$C = \frac{1}{\varepsilon_1}\left(1 - \frac{A_c}{A_{ISM}}\right)$
Drained = ____
$C = \frac{1}{\varepsilon_1}\left[1 - \frac{A_o(1+\varepsilon_{vt})}{A_{ISM}}\right]$

Calculate Wgt of Dry Soil	By Initial Water Content	By Final Water Content	By Total Oven-dried Specimen
W_1 (%)			
W_2 (%)			
W_{ave} (%)	12.72	11.09	
Wgt. Wet Soil, W_T (gm)	1237.2	(1317.41)	
Initial Wgt Dry Soil (gm)	ΔV_T (cm³) during test ____ (+) or (-)		1077.7
Wgt Excess Over Dry Soil	Corr. Wet Wgt. $= W_T + \Delta V_T$		24.32
Total Wgt. Oven Dry Soil, W_s (gm)	1097.59	(1097.09)	1097.02
W_s used:		Final = 1097.02 gm	

Variations in Height and Volume During Consolidation	During Initial Consol. without back-pressure	During Back-Pressuring ΔV_o = 61.88 vol in	After Backpressuring $\bar{\sigma}_h$ (psi) From 2.5 To 13.9	$\bar{\sigma}_h$ (psi) From ____ To ____	$\bar{\sigma}_h$ (psi) From ____ To ____
Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down					
ΔL (in)	0.0025	0.0025	0.006		
ΔV_m (cm³)	—	(-61.88 +62.05)	(2.99)		
$= 3V_o(\Delta H/H_o)$ ΔV_a	0.800	0.800	1.921		
$R = \Delta V_m / \Delta V_a$	Rused = 1.556		1.556		
corrected $\Delta V_a = R \cdot \Delta V_a$	(1.245)	(1.245)			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in
$\Delta V_{rebound} = \bar{\sigma}_{max}$ to $\bar{\sigma}_{test}$ = ____ cm³
ΔV_T (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures	ΔV_c by Wgt. Change $= W_o - W_s - (\Delta V_o + \Delta V_T)$	ΔV_c by recorded/calculated volume changes = Σ selected ΔV	ΔV_c assuming S = 100% $V_F = (1/G_s \cdot \gamma_w)W_s/\gamma_w$
	$\Delta W_{wt.}$ = -80.21 gm	$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V_3$	Undrained: $\Delta V_c = V_o - V_F$
	$\Sigma(\Delta V_o + \Delta V_T)$ = ____ cm³	= 1.245 + 1.245 + 2.99	Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$
	$\therefore \Delta V_c$ = ____ cm³	= 5.48 cm³	w_o = 20.09 % V_F = 633.791 cm³
			$V_F + \Delta V_T$ = ____ cm³
			$\therefore \Delta V_c$ = 7.282 cm³

ΔV_c used (ave of values) = 7.282 cm³ $\therefore V_c$ = 633.791 cm³; ΔL_c = 0.011 in; $\therefore L_c$ = 5.9972 in
$A_c = V_c/L_c$ (cm³/in) / 16.387 = 6.4490 in² / 0.144 = 44.7850 $\times 10^{-3}$ ft²
ε_{ac} = 0.18 %; ε_v = 1.14 %; $1-\varepsilon_v$ = ____ E_s* = 0.1043; ε_{vc}* = ____ * not in percent.
At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (ft² or cm² ×10⁻³)	Volume (cm³)	Water Content (%)	Total / Dry Density (lb/ft³)	Saturation (%)		
Initial	6.0082	45.2167	641.073	12.78	120.48 / 106.83	61.6		
After Consol.	5.9972	44.7850	633.791	20.09	129.77 / 108.06	100.0		

$S = \omega G_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = \omega \cdot G_s \cdot \gamma_w / (G_s \cdot \gamma_w (1+\omega) - \gamma_t)$

Psi x 0.072 = tsf
ω for S = 100% = $G_s \cdot \gamma_w - \gamma_d / G_s \cdot \gamma_d = G_s \cdot \gamma_w - \gamma_t / G_s(\gamma_t - \gamma_w)$ γ_w @ 20°C (Steel) = 62.32 lb/ft³ • 0.9982 gm/cm³ (SAM) • 64.2 (lb/ft³)

Calculated by ____ Reviewed by ____

1	DATA FILE IDENT. NO.	T-245
2	PROJECT NO.	81C4055T3
3	BORING NO.	COE-14
4	SAMPLE NO.	S-22
5	SPECIMEN NO.	B
6	DEPTH	47.2
7	TEST NO.	ID-118
8	FILE # FOR LOAD CELL OR PROVING RING	2000
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	6.0082
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.8793
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	641.073
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.51
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	1.27
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	1.595
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.0265
25	MEMBRANE DIAMETER IN INCHES	2.8015
26	FILTER STRIP CORRECTION CONSTANT	0.0
27	RIGHT CYLINDER DISTORTION FACTOR	1.842
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	8.1792
35	BACK PRESSURE IN TSF	7.1784
36	AXIAL DEFORMATION IN INCHES	0.011
37	VOLUME CHANGE IN CU. CM.	7.282
38	PISTON DRAG CORRECTION IN TONS*10**-3	10.70
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.01030,	21.400,	7.214
.01063,	27.237,	7.222
.01103,	34.18,	7.233
.01143,	40.57,	7.245
.01178,	45.02,	7.257
.01240,	54.19,	7.279
.01281,	58.92,	7.292
.01339,	65.86,	7.310
.01401,	71.70,	7.327
.01463,	76.70,	7.344
.01525,	82.54,	7.360
.01592,	87.82,	7.377
.01636,	91.43,	7.387
.01694,	95.60,	7.399

.01338.	65.86.	7.310
.01401.	71.70.	7.327
.01463.	76.70.	7.344
.01525.	82.54.	7.360
.01592.	87.82.	7.377
.01636.	91.43.	7.387
.01694.	95.60.	7.399
.01752.	100.61.	7.411
.01814.	103.94.	7.422
.01877.	107.55.	7.433
.02059.	116.73.	7.458
.02157.	120.62.	7.469
.02344.	128.40.	7.485
.02441.	131.73.	7.492
.02539.	135.07.	7.497
.02633.	138.13.	7.502
.02731.	141.18.	7.505
.02820.	144.80.	7.508
.02917.	146.74.	7.509
.03011.	149.80.	7.511
.03109.	152.58.	7.511
.03300.	157.58.	7.511
.03398.	160.64.	7.510
.03491.	163.42.	7.509
.03589.	165.92.	7.507
.03780.	171.20.	7.502
.03976.	175.92.	7.495
.04167.	182.04.	7.487
.04363.	187.32.	7.477
.04554.	193.43.	7.467
.04937.	204.27.	7.443
.05128.	210.67.	7.431
.05319.	216.50.	7.416
.05506.	222.62.	7.402
.05697.	229.01.	7.386
.06084.	241.79.	7.352
.06498.	256.52.	7.314
.06845.	269.59.	7.279
.07245.	284.87.	7.237
.07984.	314.33.	7.152
.08362.	330.1.	7.107
.08749.	346.5.	7.058
.09127.	363.2.	7.009
.09505.	380.4.	6.958
.09879.	397.4.	6.905
.10252.	415.2.	6.854
.10635.	433.8.	6.797
.11004.	452.1.	6.740
.11760.	489.9.	6.622
.12507.	530.8.	6.498
.13263.	572.2.	6.369
.14042.	617.8.	6.229
.14776.	660.0.	6.094
.15532.	705.9.	5.952
.16288.	753.1.	5.803
.17031.	801.5.	5.652
.17769.	850.4.	5.498
.18503.	900.7.	5.339
.19242.	950.7.	5.181
.19971.	1002.2.	5.020
.20714.	1055.8.	4.853
.21474.	1110.3.	4.682
.22195.	1160.6.	4.521
.22929.	1212.8.	4.356
.23672.	1265.1.	4.192
.24415.	1317.6.	4.029
.25153.	1369.9.	3.868
.25909.	1430.7.	3.707

.23672.	1265.1.	4.192
.24415.	1317.6.	4.027
.25153.	1369.9.	3.868
.25909.	1420.7.	3.707
.26652.	1470.5.	3.553
.27399.	1519.9.	3.400
.28155.	1568.0.	3.2522
.28938.	1616.4.	3.1016
.29641.	1659.5.	2.9703
.30415.	1705.6.	2.8305
.31162.	1748.1.	2.7004
.31914.	1789.8.	2.5726
.32675.	1829.6.	2.4509
0.3347.	1869.3.	2.3316
0.3501.	1943.8.	2.1123
0.3657.	2012.2.	1.9135
0.3819.	2075.8.	1.7303
0.3967.	2126.7.	1.5821
0.4121.	2175.3.	1.4399
0.4275.	2220.1.	1.3122
0.4429.	2262.3.	1.1953
0.4584.	2297.0.	1.0893
0.4740.	2330.1.	0.9929
0.4877.	2358.5.	0.9049
0.5033.	2385.1.	0.8242
0.5195.	2407.1.	0.7495
0.5346.	2427.9.	0.6820
0.5503.	2446.3.	0.6181
0.5661.	2463.2.	0.5603
0.5824.	2478.0.	0.5073
0.5981.	2490.2.	0.4566
0.6139.	2501.0.	0.4121
0.6299.	2510.2.	0.3687
0.6455.	2517.2.	0.3301
0.6612.	2523.3.	.29402
0.6769.	2528.0.	.26028
0.6926.	2532.4.	.23015
0.7082.	2533.8.	.20003
0.7240.	2536.6.	.17231
0.7398.	2537.7.	.14701
0.7559.	2536.3.	.12652
0.7718.	2533.8.	.10483
0.7871.	2527.4.	.08314
0.8032.	2513.8.	.06507
0.8192.	2482.7.	.04699
0.8354.	2442.4.	.03253
0.8516.	2404.3.	.02048
0.8680.	2381.5.	.00964
0.8839.	2358.2.	.00000
0.8998.	2323.4.	-.00361
0.9158.	2280.6.	-.01205
0.9322.	2194.2.	-.01687
0.9484.	2116.4.	-.01928
0.9644.	2096.7.	-.01928
0.9810.	2076.4.	-.01807
0.9975.	2070.3.	-.01687
1.0129.	2075.5.	-.01566
1.0292.	2071.6.	-.01325
1.0451.	2085.8.	-.01084
1.0615.	2094.4.	-.00843
1.0657.	2093.3.	-.00843
1.0659.	2092.8.	-.00843
1.0772.	2102.5.	-.00602
1.0932.	2109.4.	-.00120
1.1093.	2110.8.	.00000
1.1250.	2117.2.	.00000
1.1406.	2127.8.	.00000
1.1571.	[illegible]	[illegible]

→ beginning of modified flow

```
1.0772. 2102.5.-.00602
1.0932. 2109.4.-.00120
1.1093. 2110.8. .00000
1.1250. 2117.2. .00000
1.1406. 2127.8. .00000
1.1571. 2128.6. .00000
1.1726. 2143.1. .00241
1.1884. 2150.3. .00723
1.2049. 2150.3. .01084
1.2130. 2154.7. .01325
1.2137. 2154.5. .01325
1.2144. 2156.1. .01325
1.2151. 2155.6. .01325
-999..0.0.0.0
```

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-245

PROJ. NO.	81C4055T3	REVIEWED BY:
BORING NO.	COE-14	DATE:
SAMPLE NO.	S-22	INPUT DATA CHECKED BY:
SPECIMEN NO.	B	
DEPTH(FT.)	47.2	TEST NO. ID-118

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
6.0082	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.8793	INITIAL DIAMETER OF SPECIMEN IN INCHES
641.07	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.5100	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
1.2700	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
1.5950	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0265	MEMBRANE THICKNESS IN INCHES
2.8015	MEMBRANE DIAMETER IN INCHES
0.0000	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.8420	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

8.1792	CELL PRESSURE IN TSF
7.1784	BACK PRESSURE IN TSF
.0110	AXIAL DEFORMATION DURING CONSOL. IN INCHES
7.28	VOLUME CHANGE DURING CONSOL. IN CU. CM.
10.7000	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	2.0190 KSF
LATERAL	=	2.0110 KSF
MEAN	=	2.0137 KSF
PBAR	=	2.0150 KSF
LATERAL/AXIAL	=	.9960
AXIAL/LATERAL	=	1.0040
OCR	=	1.000

10.7000	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NORMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 2.0150 KSF

AXIAL STRAIN	DEVIATOR STRESS	OBLIQUITY	DELTA-U	A-FACTOR	Q	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM

NUMB
YES

FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 2.0150 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	Q KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM
0.0000	.0080	1.0040	0.0000	0.0000	.0040	2.0150	0.000	0.000	.0040	0.0000	.0020	1.0000	0.0000
.0055	.1383	1.0693	.0160	.1228	.0691	2.0842	2367.404	2345.009	.0686	.0079	.0343	1.0244	1174.8779
.0122	.2932	1.1486	.0380	.1332	.1466	2.1196	2342.861	2229.800	.1455	.0189	.0728	1.0519	1162.6979
.0188	.4357	1.2236	.0620	.1449	.2179	2.1669	2269.985	1918.506	.2162	.0308	.1081	1.0754	1126.5315
.0247	.5349	1.2779	.0860	.1632	.2675	2.1925	2135.197	1838.699	.2655	.0427	.1327	1.0881	1059.6399
.0350	.7394	1.3931	.1300	.1777	.3697	2.2507	2088.602	1759.365	.3669	.0645	.1835	1.1170	1036.5157
.0419	.8447	1.4554	.1560	.1864	.4224	2.2774	1999.211	1583.864	.4192	.0774	.2096	1.1302	992.1536
.0514	.9993	1.5494	.1920	.1937	.4997	2.3187	1930.211	1431.740	.4959	.0953	.2480	1.1507	957.9110
.0619	1.1293	1.6326	.2260	.2016	.5646	2.3497	1812.515	1156.287	.5604	.1122	.2802	1.1661	899.5015
.0722	1.2405	1.7084	.2600	.2110	.6202	2.3713	1706.979	1165.821	.6156	.1290	.3078	1.1768	847.1268
.0825	1.3703	1.7972	.2920	.2143	.6852	2.4042	1650.515	1153.085	.6801	.1449	.3400	1.1931	819.1053
.0937	1.4876	1.8829	.3260	.2203	.7438	2.4288	1578.922	1071.470	.7383	.1618	.3691	1.2054	783.5759
.1010	1.5678	1.9416	.3460	.2218	.7839	2.4489	1543.637	1024.949	.7781	.1717	.3890	1.2153	766.0648
.1107	1.6604	2.0118	.3700	.2239	.8302	2.4712	1492.390	1053.535	.8240	.1836	.4120	1.2264	740.6324
.1204	1.7716	2.0956	.3940	.2234	.8858	2.5028	1464.895	931.703	.8792	.1955	.4396	1.2421	726.9874
.1307	1.8453	2.1569	.4160	.2264	.9227	2.5177	1405.456	737.123	.9158	.2064	.4579	1.2495	697.4895
.1412	1.9253	2.2239	.4380	.2284	.9626	2.5357	1357.519	714.878	.9555	.2174	.4777	1.2584	673.6995
.1716	2.1282	2.3974	.4880	.2302	1.0641	2.5872	1235.703	596.803	1.0562	.2422	.5281	1.2839	613.2456
.1879	2.2140	2.4750	.5100	.2312	1.1070	2.6080	1173.887	537.321	1.0987	.2531	.5494	1.2943	582.5678
.2191	2.3854	2.6238	.5420	.2280	1.1927	2.6618	1085.074	501.093	1.1838	.2690	.5919	1.3210	538.4927
.2353	2.4586	2.6897	.5560	.2269	1.2293	2.6843	1041.578	450.567	1.2201	.2759	.6101	1.3322	516.9067
.2516	2.5319	2.7522	.5660	.2242	1.2660	2.7110	1003.079	438.449	1.2565	.2809	.6283	1.3454	497.8008
.2673	2.5990	2.8111	.5760	.2223	1.2995	2.7346	969.364	418.472	1.2898	.2859	.6449	1.3571	481.0688
.2836	2.6658	2.8655	.5820	.2190	1.3329	2.7620	937.069	472.301	1.3230	.2888	.6615	1.3707	465.0417
.2985	2.7454	2.9292	.5880	.2148	1.3727	2.7957	917.117	397.998	1.3624	.2918	.6812	1.3874	455.1400
.3146	2.7874	2.9615	.5900	.2123	1.3937	2.8148	883.349	343.683	1.3833	.2928	.6917	1.3969	438.3820
.3303	2.8544	3.0143	.5940	.2087	1.4272	2.8443	861.702	399.176	1.4166	.2948	.7083	1.4115	427.6392
.3467	2.9151	3.0571	.5940	.2043	1.4575	2.8746	838.581	356.468	1.4467	.2948	.7233	1.4266	416.1647
.3785	3.0239	3.1339	.5940	.1969	1.5119	2.9290	796.776	375.138	1.5007	.2948	.7503	1.4536	395.4181
.3949	3.0907	3.1780	.5920	.1920	1.5453	2.9644	780.709	399.546	1.5338	.2938	.7669	1.4711	387.4443
.4104	3.1512	3.2175	.5900	.1877	1.5756	2.9967	765.965	361.337	1.5639	.2928	.7819	1.4872	380.1274
.4267	3.2055	3.2494	.5860	.1833	1.6027	3.0278	749.350	346.134	1.5908	.2908	.7954	1.5026	371.8820
.4585	3.3202	3.3136	.5760	.1739	1.6601	3.0952	722.318	336.285	1.6477	.2859	.8239	1.5360	358.4669
.4912	3.4223	3.3617	.5620	.1646	1.7111	3.1602	695.048	365.023	1.6984	.2789	.8492	1.5683	344.9332
.5231	3.5553	3.4267	.5460	.1539	1.7776	3.2427	678.156	383.547	1.7644	.2710	.8822	1.6093	336.5504
.5558	3.6695	3.4709	.5260	.1436	1.8348	3.3198	658.828	382.708	1.8211	.2610	.9105	1.6475	326.9582
.5876	3.8020	3.5261	.5060	.1333	1.9010	3.4061	645.664	391.180	1.8868	.2511	.9434	1.6903	320.4251
.6515	4.0360	3.5987	.4580	.1137	2.0180	3.5711	618.289	400.489	2.0030	.2273	1.0015	1.7722	306.8399
.6833	4.1744	3.6469	.4340	.1041	2.0872	3.6643	609.726	414.589	2.0716	.2154	1.0358	1.8185	302.5903
.7152	4.3001	3.6757	.4040	.0941	2.1500	3.7571	600.146	408.921	2.1340	.2005	1.0670	1.8646	297.8362
.7463	4.4320	3.7105	.3760	.0850	2.2160	3.8511	592.755	427.785	2.1995	.1866	1.0997	1.9112	294.1681
.7782	4.5697	3.7411	.3440	.0754	2.2849	3.9520	586.190	429.095	2.2678	.1707	1.1339	1.9613	290.9101
.8427	4.8445	3.7920	.2760	.0570	2.4223	4.1574	573.912	442.130	2.4042	.1370	1.2021	2.0632	284.8169
.9118	5.1610	3.8496	.2000	.0388	2.5805	4.3916	565.167	471.574	2.5613	.0993	1.2806	2.1794	280.4770
.9696	5.4414	3.8926	.1300	.0239	2.7207	4.6019	560.368	487.668	2.7004	.0645	1.3502	2.2838	278.0951
1.0363	5.7687	3.9355	.0460	.0080	2.8843	4.8495	555.877	500.612	2.8628	.0228	1.4314	2.4067	275.8667
1.1595	6.3979	3.9964	-.1240	-.0194	3.1989	5.3341	551.068	521.847	3.1751	-.0615	1.5875	2.6472	273.4801
1.2226	6.7339	4.0262	-.2140	-.0318	3.3669	5.5921	550.140	536.714	3.3418	-.1062	1.6709	2.7752	273.0196
1.2871	7.0726	4.0486	-.3120	-.0441	3.5413	5.8645	549.650	551.461	3.5149	-.1548	1.7574	2.9104	272.7762
1.3501	7.4371	4.0717	-.4100	-.0552	3.7186	6.1498	550.253	570.504	3.6909	-.2035	1.8454	3.0470	273.0754
1.4132	7.8017	4.0920	-.5120	-.0657	3.9009	6.42	551.510	577.425	3.8718	-.2541	1.9359	3.1881	273.6993
1.4755	8.1612	4.1040	-.6180	-.0758	4.0806	6.7098	553.562	590.456	4.0502	-.3067	2.0251	3.3299	274.2216
1.5377	8.5372	4.1257	-.7200	-.0844	4.2686	6.9998	554.663	609.239	4.2368	-.3573	2.1184	3.4738	275.2642
1.6016	8.9293	4.1383	-.8340	-.0935	4.4646	7.3099	557.028	619.903	4.4314	-.4139	2.2157	3.6277	276.4379
1.6631	9.3143	4.1475	-.9480	-.1019	4.6572	7.6165	559.574	627.318	4.6225	-.4705	2.3112	3.7798	277.7011
1.7892	10.1070	4.1631	-1.1840	-.1173	5.0535	8.2488	564.452	657.957	5.0158	-.5876	2.5079	4.0937	280.1218
1.9137	10.9629	4.1838	-1.4320	-.1307	5.4814	8.9248	572.435	685.479	5.4406	-.7107	2.7203	4.4291	284.0837
2.0398	11.8249	4.1947	-1.6900	-.1430	5.9125	9.6138	579.320	706.381	5.8684	-.8387	2.9342	4.7711	287.5007
2.1697	12.7717	4.2079	-1.9700	-.1544	6.3859	10.3673	588.276	720.403	6.3383	-.9777	3.1691	5.1450	291.9453
2.2921	13.6439	4.2206	-2.2400	-.1643	6.8215	11.0729	594.877	730.738	6.7707	-1.1117	3.3853	5.4952	295.2211

2.6631	9.3143	4.1475	-.9480	-.1019	4.6572	7.6165	559.574	627.318	4.6225	-.4705	2.3112	3.7798	277.7011
1.7892	10.1070	4.1631	-1.1840	-.1173	5.0535	8.2488	564.452	657.957	5.0158	-.5876	2.5079	4.0937	280.1218
1.9137	10.9629	4.1838	-1.4320	-.1307	5.4814	8.9248	572.435	685.478	5.4406	-.7107	2.7203	4.4291	284.0837
2.0398	11.8249	4.1947	-1.6900	-.1430	5.9125	9.6138	579.320	706.381	5.8684	-.8387	2.9342	4.7711	287.5007
2.1697	12.7717	4.2079	-1.9700	-.1544	6.3859	10.3673	588.276	720.403	6.3383	-.9777	3.1691	5.1450	291.9453
2.2921	13.6430	4.2090	-2.2400	-.1643	6.8215	11.0729	594.877	730.738	6.7707	-1.1117	3.3853	5.4952	295.2211
2.4181	14.5879	4.2164	-2.5240	-.1731	7.2940	11.8294	602.942	758.648	7.2396	-1.2526	3.6198	5.8706	299.2235
2.5442	15.5557	4.2183	-2.8220	-.1815	7.7779	12.6114	611.108	783.065	7.7199	-1.4005	3.8599	6.2587	303.2761
2.6681	16.5449	4.2217	-3.1240	-.1889	8.2724	13.4079	619.804	803.560	8.2108	-1.5504	4.1054	6.6540	307.5916
2.7911	17.5399	4.2222	-3.4320	-.1958	8.7700	14.2135	628.128	820.991	8.7046	-1.7032	4.3523	7.0538	311.7229
2.9135	18.5599	4.2213	-3.7500	-.2022	9.2799	15.0415	636.750	825.784	9.2108	-1.8610	4.6054	7.4647	316.0014
3.0368	19.5681	4.2197	-4.0660	-.2079	.7841	15.8617	644.113	834.926	9.7111	-2.0178	4.8556	7.8717	319.6555
3.1583	20.6035	4.2195	-4.3880	-.2131	10.3018	16.7014	652.106	859.052	10.2250	-2.1776	5.1125	8.2884	323.6221
3.2822	21.6768	4.2192	-4.7220	-.2179	10.8384	17.5721	660.191	861.395	10.7576	-2.3434	5.3788	8.7205	327.6349
3.4089	22.7622	4.2169	-5.0640	-.2226	11.3811	18.4568	667.488	842.100	11.2962	-2.5131	5.6481	9.1596	331.2560
3.5291	23.7573	4.2114	-5.3860	-.2268	11.8786	19.2764	672.947	834.093	11.7901	-2.6729	5.8950	9.5663	333.9651
3.6515	24.7859	4.2074	-5.7160	-.2307	12.3930	20.1208	678.561	833.767	12.3006	-2.8367	6.1503	9.9854	336.7514
3.7754	25.8106	4.2040	-6.0440	-.2343	12.9053	20.9811	683.435	826.600	12.8091	-2.9995	6.4045	10.4024	339.1700
3.8993	26.8341	4.2014	-6.3700	-.2375	13.4171	21.7989	687.968	825.260	13.3170	-3.1613	6.6585	10.8182	341.4199
4.0224	27.8486	4.1996	-6.6920	-.2404	13.9243	22.6282	692.142	799.514	13.8205	-3.3211	6.9102	11.2298	343.4912
4.1484	28.8251	4.1936	-7.0140	-.2434	14.4125	23.4385	694.649	771.510	14.3051	-3.4809	7.1525	11.6319	344.7351
4.2723	29.7770	4.1902	-7.3220	-.2460	14.8885	24.2225	696.787	760.834	14.7775	-3.6337	7.3889	12.0210	345.7964
4.3969	30.7153	4.1862	-7.6280	-.2484	15.3577	24.9977	698.387	735.846	15.2432	-3.7856	7.6216	12.4057	346.5905
4.5229	31.6209	4.1826	-7.9236	-.2507	15.8105	25.7461	698.946	705.314	15.6926	-3.9323	7.8463	12.7771	346.8675
4.6535	32.5247	4.1772	-8.2248	-.2530	16.2623	26.4993	698.757	687.243	16.1411	-4.0817	8.0706	13.1509	346.7738
4.7707	33.3245	4.1739	-8.4874	-.2548	16.6622	27.1618	698.352	669.744	16.5380	-4.2121	8.2690	13.4797	346.5728
4.8998	34.1727	4.1702	-8.7670	-.2566	17.0864	27.8656	697.269	639.189	16.9590	-4.3508	8.4795	13.8289	346.0356
5.0243	34.9464	4.1656	-9.0272	-.2584	17.4732	28.5126	695.381	610.635	17.3429	-4.4800	8.6715	14.1500	345.0988
5.1497	35.6989	4.1606	-9.2828	-.2601	17.8495	29.1446	693.063	579.358	17.7164	-4.6068	8.8582	14.4636	343.9480
5.2766	36.4077	4.1553	-9.5262	-.2617	18.2038	29.7424	689.828	542.657	18.0681	-4.7276	9.0341	14.7603	342.3429
5.4092	37.1060	4.1507	-9.7648	-.2633	18.5530	30.3302	685.832	514.987	18.4147	-4.8460	9.2073	15.0520	340.3595
5.6660	38.3982	4.1433	-10.2034	-.2658	19.1991	31.4150	677.556	473.124	19.0560	-5.0637	9.5280	15.5904	336.2525
5.9261	39.5506	4.1355	-10.6010	-.2681	19.7753	32.3889	667.261	412.946	19.6279	-5.2610	9.8139	16.0737	331.1434
6.1962	40.5848	4.1267	-10.9674	-.2703	20.2924	33.2725	654.863	351.647	20.1411	-5.4428	10.0706	16.5123	324.9907
6.4430	41.3755	4.1164	-11.2638	-.2723	20.6878	33.9644	642.053	301.655	20.5336	-5.5899	10.2668	16.8556	318.6335
6.6998	42.1020	4.1048	-11.5482	-.2744	21.0510	34.6121	628.287	256.486	20.8941	-5.7311	10.4470	17.1771	311.8018
6.9566	42.7442	4.0937	-11.8036	-.2762	21.3721	35.1888	614.327	238.438	21.2128	-5.8578	10.6064	17.4632	304.8736
7.2134	43.3265	4.0836	-12.0374	-.2779	21.6633	35.7139	600.531	196.092	21.5018	-5.9738	10.7509	17.7238	298.0272
7.4718	43.7540	4.0677	-12.2494	-.2801	21.8770	36.1397	585.479	157.247	21.7139	-6.0790	10.8570	17.9352	290.5574
7.7319	44.1418	4.0536	-12.4422	-.2820	22.0709	36.5266	570.799	145.034	21.9064	-6.1747	10.9532	18.1272	283.2718
7.9604	44.4639	4.0388	-12.6182	-.2839	22.2319	36.8637	558.464	118.817	22.0662	-6.2621	11.0331	18.2945	277.1503
8.2205	44.7153	4.0227	-12.7796	-.2859	22.3577	37.1510	543.851	75.947	22.1910	-6.3422	11.0955	18.4370	269.8984
8.4906	44.8645	4.0024	-12.9290	-.2883	22.4322	37.3752	528.306	55.445	22.2650	-6.4163	11.1325	18.5483	262.1836
8.7424	45.0046	3.9848	-13.0640	-.2904	22.5023	37.5804	514.693	43.314	22.3346	-6.4833	11.1673	18.6501	255.4283
9.0042	45.0857	3.9650	-13.1918	-.2927	22.5429	37.7489	500.629	24.521	22.3748	-6.5467	11.1874	18.7337	248.4487
9.2677	45.1333	3.9457	-13.3074	-.2950	22.5667	37.8884	486.912	8.451	22.3984	-6.6041	11.1992	18.8030	241.6409
9.5395	45.1301	3.9252	-13.4134	-.2973	22.5651	37.9930	473.005	-8.956	22.3969	-6.6567	11.1984	18.8549	234.7396
9.8012	45.0863	3.9033	-13.5148	-.2999	22.5432	38.0727	459.924	-22.340	22.3751	-6.7070	11.1876	18.8944	228.2479
10.0647	45.0127	3.8820	-13.6038	-.3024	22.5064	38.1250	447.154	-34.276	22.3386	-6.7512	11.1693	18.9204	221.9102
10.3315	44.9044	3.8591	-13.6906	-.3050	22.4522	38.1579	434.558	-47.788	22.2848	-6.7943	11.1424	18.9367	215.6595
10.5916	44.7614	3.8360	-13.7678	-.3077	22.3807	38.1637	422.536	-58.479	22.2138	-6.8326	11.1069	18.9396	209.6931
10.8534	44.5991	3.8129	-13.8400	-.3105	22.2995	38.1549	410.849	-66.990	22.1333	-6.8684	11.0667	18.9353	203.8931
11.1152	44.4106	3.7891	-13.9074	-.3133	22.2053	38.1284	399.477	-73.195	22.0398	-6.9019	11.0199	18.9221	198.2495
11.3770	44.2159	3.7663	-13.9677	-.3161	22.1079	38.0915	388.573	-84.601	21.9431	-6.9318	10.9716	18.9037	192.8381
11.6371	43.9693	3.7405	-14.0279	-.3192	21.9846	38.0286	377.768	-90.288	21.8207	-6.9617	10.9104	18.8726	187.4760
11.9006	43.7433	3.7170	-14.0834	-.3221	21.8716	37.9713	367.506	-91.479	21.7086	-6.9892	10.8543	18.8441	182.3833
12.1640	43.4873	3.6926	-14.1340	-.3252	21.7436	37.8941	357.442	-105.312	21.5815	-7.0143	10.7908	18.8058	177.3885
12.4325	43.1827	3.6670	-14.1750	-.3284	21.5914	37.7830	347.274	-116.987	21.4304	-7.0346	10.7152	18.7507	172.3424
12.6976	42.8631	3.6401	-14.2183	-.3319	21.4316	37.6668	337.506	-133.745	21.2718	-7.0562	10.6359	18.6930	167.4950
12.9527	42.4882	3.6100	-14.2617	-.3359	21.2441	37.5229	327.964	-168.281	21.0857	-7.0777	10.5429	18.6216	162.7595
13.2212	41.9792	3.5730	-14.2979	-.3408	20.9896	37.3048	317.455	-244.354	20.8331	-7.0956	10.4166	18.5134	157.5440
13.4880	41.1813	3.5185	-14.3340	-.3483	20.5906	36.9422	305.259	-325.001	20.4371	-7.1136	10.2186	18.3334	151.4918
13.7581	40.2324	3.4561	-14.3629	-.3572	20.1167	36.4974	292.376	-342.501	19.9667	-7.1279	9.9834	18.1127	145.0983
14.0282	39.3309	3.3975	-14.3870	-.3660	19.6654	36.0706	280.313	-285.100	19.5188	-7.1399	9.7594	17.9008	139.1115
14.3017	38.6852	3.3550	-14.4087	-.3727	19.3426	35.7697	270.438	-238.860	19.1984	-7.1507	9.5992	17.7515	134.2112
14.5668	38.0446	3.3132	-14.4280	-.3795	19.0223	35.4689	261.119	-275.856	18.8805	-7.1602	9.4403	17.6022	129.5861
14.8319	37.2225	3.2622	-14.4352	-.3881	18.6113	35.0653	250.908	-332.163	18.4725	-7.1638	9.2363	17.4020	124.5188
15.0987	36.2775	3.2025	-14.4521	-.3987	18.1387	34.6099	240.215	-476.921	18.0035	-7.1722	9.0018	17.1760	119.2123
				-.4139	17.2189	33.8000	225.275	-573.873	17.1898	-7.1770	8.5949	16.7740	111.7981

14.0282	39.3809	3.3475	-14.3870	-.3660	19.6654	36.0706	280.313	-285.100	19.5188	-7.1399	9.7594	17.9008	139.1115
14.3017	38.6852	3.3550	-14.4087	-.3727	19.3426	35.7697	270.438	-238.860	19.1984	-7.1507	9.5992	17.7515	134.2112
14.5668	38.0446	3.3132	-14.4280	-.3795	19.0223	35.4689	261.119	-275.856	18.8805	-7.1602	9.4403	17.6022	129.5861
14.8319	37.2225	3.2622	-14.4352	-.3881	18.6113	35.0653	250.908	-332.163	18.4725	-7.1638	9.2363	17.4020	124.5188
15.0987	36.2775	3.2025	-14.4521	-.3987	18.1387	34.6099	240.215	-476.921	18.0035	-7.1722	9.0018	17.1760	119.2123
15.3722	34.6378	3.1017	-14.4617	-.4179	17.3189	33.8000	225.275	-573.873	17.1898	-7.1770	8.5949	16.7740	111.7981
15.6423	33.1571	3.0112	-14.4666	-.4367	16.5785	33.0648	211.919	-375.915	16.4550	-7.1794	8.2275	16.4091	105.1698
15.9091	32.6137	2.9782	-14.4666	-.4440	16.3068	32.7934	204.950	-202.478	16.1853	-7.1734	8.0926	16.2744	101.7109
16.1859	32.0566	2.9447	-14.4641	-.4516	16.0283	32.5127	198.003	-160.623	15.9088	-7.1782	7.9544	16.1352	98.2673
16.4610	31.7265	2.9249	-14.4617	-.4562	15.8632	32.3455	192.688	-86.965	15.7450	-7.1770	7.8725	16.0522	95.6259
16.7178	31.5879	2.9167	-14.4593	-.4582	15.7940	32.2741	189.900	-80.705	15.6762	-7.1758	7.8381	16.0168	93.7459
16.9896	31.2959	2.8995	-14.4545	-.4623	15.6479	32.1236	184.159	-55.588	15.5313	-7.1734	7.7656	15.9421	91.3930
17.2547	31.2860	2.8994	-14.4497	-.4623	15.6430	32.1142	181.272	-21.020	15.5264	-7.1710	7.7632	15.9374	89.9604
17.5282	31.1812	2.8936	-14.4449	-.4637	15.5906	32.0573	177.846	-74.126	15.4744	-7.1686	7.7372	15.9091	88.2602
17.5982	31.1042	2.8889	-14.4449	-.4649	15.5521	32.0189	176.701	-211.297	15.4362	-7.1686	7.7181	15.8901	87.6918
17.6015	31.0938	2.8883	-14.4449	-.4650	15.5469	32.0136	176.608	-160.767	15.4310	-7.1686	7.7155	15.8875	87.6459
17.7900	31.0771	2.8878	-14.4400	-.4651	15.5385	32.0007	174.644	-28.453	15.4227	-7.1662	7.7113	15.8811	86.6709
18.0568	30.9489	2.8811	-14.4304	-.4668	15.4745	31.9273	171.354	-63.577	15.3591	-7.1614	7.6796	15.8447	85.0382
18.3252	30.7365	2.8684	-14.4280	-.4699	15.3683	31.8190	167.684	-65.069	15.2537	-7.1602	7.6268	15.7909	83.2171
18.5870	30.6030	2.8602	-14.4280	-.4720	15.3015	31.7526	164.604	-39.385	15.1874	-7.1602	7.5937	15.7579	81.6895
18.8471	30.5308	2.8558	-14.4280	-.4731	15.2654	31.7168	161.949	-55.581	15.1516	-7.1602	7.5758	15.7402	80.3709
19.1223	30.3013	2.8418	-14.4280	-.4767	15.1507	31.6025	158.419	-45.242	15.0377	-7.1602	7.5189	15.6834	78.6190
19.3807	30.2830	2.8412	-14.4232	-.4768	15.1415	31.5888	156.212	-28.189	15.0286	-7.1578	7.5143	15.6787	77.5237
19.6442	30.1531	2.8344	-14.4135	-.4786	15.0766	31.5148	153.456	-68.910	14.9642	-7.1530	7.4821	15.6398	76.1559
19.9193	29.9096	2.8203	-14.4063	-.4823	14.9548	31.3869	150.113	-65.594	14.8433	-7.1495	7.4216	15.5760	74.4972
20.0544	29.8519	2.8173	-14.4015	-.4830	14.9260	31.3575	148.815	-77.736	14.8147	-7.1471	7.4074	15.5594	73.8529
20.0660	29.8388	2.8165	-14.4015	-.4832	14.9194	31.3480	148.663	-4.339	14.8082	-7.1471	7.4041	15.5562	73.7774
20.0777	29.8509	2.8172	-14.4015	-.4830	14.9255	31.3521	148.637	-22.426	14.8142	-7.1471	7.4071	15.5592	73.7645
20.0894	29.8335	2.8162	-14.4015	-.4833	14.9168	31.3434	148.464	1077.350	14.8056	-7.1471	7.4028	15.5549	73.6787 STOP

A.BASIC RESPRT

CDOS 16K BASIC, VERSION 5.4

0.028

1D

83 WCC 4-202 (1180)

TRIAXIAL TEST (Set Up / Take Down)

Proj. No. 8C405-1-2 Proj. Eng. RSL Cell No. 4-B Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test CU-C File No T-246

Loading Conditions:	☐ Dynamic ☒ Static	☒ Undrained ☐ Drained	☒ Compression ☐ Extension	☒ Constant cell pressure ☐ Variable cell pressure
Type Consolidation:	☒ Isotropic ☐ Anisotropic	☐ Ko stress path ☐ 45° stress path	Piston Screwed in: ☐ Yes; ☒ No	

☒ Undisturbed ☐ Reconstituted

Boring No. COE-14 Composite No. ____

Sample No. S-23 Specimen No. B

Depth (ft) 49.8 Remarks ID # 119

☐ Endo capped with Castone; ☐ Geomarine Sample

☐ Impact ☐ Static ☐ Kneading ☐ Tamping ☐ Other

☐ Constant Effort: ____ layers; ____ 16 (Hammer Tamp) ____ Blows-Tamps/layer

☐ Undercompaction: ____ layers; ____ Unif (%)

Water Content					Final
Location	Top	Bot			Ave
Container No.	LB-16	LA-110			G
Wgt. Container + Wet Soil (gm)	87.50	109.15			1858.2
Wgt. Container + Dry Soil (gm)	78.80	101.01			1627.9
Wgt. Container (gm)	33.28	34.21			554.84
Wgt. Dry Soil (gm)	45.52	66.80			1073.06
WATER CONTENT (%)	18.01	12.13	avg 15.10		21.46

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc): 1420.7 gm

Stone (etc): 223.85 gm

Wet Initial: 1196.85 gm

Wet Final: ____ gm

Excess Oven Dry - Dish No. 402

Wgt. Dish + Dry Soil: 212.01 gm

Wgt. Dish: 207.00 gm

Wgt. Excess Dry Soil: 05.01 gm

Dimensions of Height (in)		Specimen Diameter (in) or Wire Saw		
	Initial (L_o)	Final (L_f)	Initial	Final
1	5.987		1-T 2.868	3.113
2	5.991		2-M 2.873	3.461
3	5.989		3-B 2.880	3.151
4	5.991		1'-T 2.864	3.2965
5	5.994		2'-M 2.868	-(0.0245)
Ave	5.9904		3'-B 2.872	
			Ave 2.8708	3.2475

$D_{ave} = (D_T + 2D_M + D_B)/4$

ΔL_c = ____ in

ΔL_t = ____ in

$\Sigma \Delta L$ = ____ in

$L_o - L_f$ = ____ in

$A_o = \pi D^2/4 = 6.4729$ in²

$V_o = h_o \cdot 16.387 1 = 635.414$ cm³

Atm $\$.5454 2(D^2)^2 = 57.5214$ 10^{-2} tsf

Membrane: Thickness = 0.0245 in; Circumference (C_m) = 8.942 in; Diam = C_m/π = 2.8468 in

Filter Paper: Top + bottom: ☐ Yes; ☒ No

Filter Strips: ☐ Yes; ☒ No

____ Vertical at ¼" - Whatman #54 or ____

____ Spiral at ¼" - Whatman #1 or ____

Wgt top cap = ____ gm, 0.57 10^{-2} tons

Wgt (cap, dial + piston) = ____ gm, ____ 10^{-2} tons

Preliminary γ_{co} = 117.40 lb/ft³ γ_{do} = 110.70 lb/ft³

Failure Sketch



Final Visual Classification. ☐ See more detailed sketch on attached sheet; ☐ Photo Taken.

SM, gray f-SAND Some silt

Some f silt

Other Remarks: ____

Preliminary Cal. by ____ Reviewed by ____

☐ Trimmed by ____ Setup by ____ Taken down by ____

☐ Reconstituted Date ____ Date 6/11/84 Date 6/16/84

See back for Summary Calculations

8.8715

TRIAXIAL TEST SUMMARY CALCULATIONS 84

Type Test: CIV-C ☒ Undisturbed; ☐ Reconstituted - Specimen: T-246

☐ Dynamic / Hz or ____ # sinusoidal or ____ ☒ Static e 3.91 %/hr

Consolidation History Units: tsf or KSF	Max Induced Pore Pressure Uncorr.	Corr. #	☒ Preshear/pore ☐ Pre cy-loading Uncorr.	Corr. #	Preshear after Cy-loading Uncorr.	Corr. #
σ_{cell}		—	15.393	—		—
u		—	14.385	—		—
$\bar{\sigma}_v$			—			
$\bar{\sigma}_h$			1.008			
$\bar{\sigma}_p = (\bar{\sigma}_v - \bar{\sigma}_h)/2$			—			
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$			1.00			
OCR			1.00			
Consol. Time	☐ Overnight days	hours	☐ Overnight days	hours	☐ Overnight days	hours

Corrected for effects of membrane, S. Hor strips, etc.

H_o = 5.9904 in
A_o = 6.4729 in²
V_o = 635.414 cm³
Dav/Dom = 1.0086
G_s = 2.682 ☐ Assumed ☒ Measured
B_s = 99.5 %
Area Corr. Factor: C
Undrained = 2.021
$C = \frac{1}{\varepsilon_a}\left(1 - \frac{A_c}{A_{sm}}\right)$
Drained = ____
$C = \frac{1}{\varepsilon_a}\left[1 - \frac{A_c(1+\varepsilon_v)}{A_{sm}}\right]$

Calculate Wgt of Dry Soil	By Initial Water Content	By Final Water Content	By Total Oven-dried Specimen
w_1 (%)			
w_2 (%)			
w_{ave} (%)	15.10	21.46	
Wgt Wet Soil, W_T (gm)	1296.85	(1309.42)	
Partial Wgt Dry Soil (gm)	ΔV_T (cm³) during test	-) Sm ; (+) Exp	1073.06
Wgt Excess Oven-dry Soil	Corr. Wet Wgt. = $W_T + \Delta V_T$		5.01
Total Wgt. Oven Dry Soil, W_s (gm)	1196.72	(1078.07)	1078.07
W_s used:	Final = 1078.07 gm		

γ_w = 62.32 (fresh) = 62.42 (salt) = 0.9982 gm/cm³ (Ba++) = 64.2 (lb/ft³)

Variations in Height and Volume During Consolidation	During Initial Consol. without back-pressure	During Back-pressuring ΔV_b = 3.88 vol in	After Backpressuring $\bar{\sigma}_h$ (psi) From 3.5 To 7.0	$\bar{\sigma}_h$ (psi) From ____ To ____	$\bar{\sigma}_h$ (psi) From ____ To ____
	Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down				
ΔL (in)	0.003	0.003	0.002		
ΔV_m (cm³)	(+2.50 -7.75)	(-3.88 +0.10)	1.22		
$= \frac{\Delta V_a}{3V_o(\Delta H/H_o)}$	0.955	0.955	0.636		
$R = \Delta V_m / \Delta V_a$	R_{used} = 1.918	1.918			
Corrected $\Delta V_a = R \cdot \Delta V_a$	(1.832)	(1.832)			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in; $\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ____ cm³; ΔV_T (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures	ΔV_c by Wgt Change $= W_o - W_s - (\Delta V_b + \Delta V_T)$	ΔV_c by recorded/calculated volume changes = Σ selected ΔV	ΔV_c assuming S = 100% $V_F = (W_s/\gamma_w - w_1 G_s)/G_s$ Undrained / Drained
	$\Delta W_{gt.}$ = -12.57 gm	$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V$	$\Delta V_c = V_o - V_F$
	$\Sigma(\Delta V_b + \Delta V_4)$ (-11.63) cm³	= 1.832 + 1.832 + 1.22	w_1 = 21.46 % V_F = 634.461 cm³
	$\therefore \Delta V_c$ = -0.94 cm³	= 4.884 cm³	$V_F + \Delta V_T$ = ____ cm³
			$\therefore \Delta V_c$ = 0.953 cm³

Conclusions:
ΔV_c used (ave of values) = 0.953 cm³ $\therefore V_c$ = 634.461 cm³; ΔL_c = 0.008 in; $\therefore L_c$ = 5.9824 in
$A_c = V_c/L_c$ (cm³/in)/16.387 = 6.4718 in² / 0.144 = 44.9433 $\times 10^{-3}$ ft²
ε_{ac} = 0.13 %; ε_v 0.15 %; 1-ε_v = ____ $\varepsilon_a^{\#}$ = 0.1046; $\varepsilon_{vt}^{\#}$ = ____ # not in percent
At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (in² or cm² $\times 10^{-3}$ ft²)	Volume (cm³)	Water Content (%)	Total / Dry Density (lb/ft³)	Saturation (%)		
Initial	5.9904	44.9507	635.414	20.29	127.42 / 105.92	94.1		
After Consol.	5.9824	44.9433	634.461	21.46	128.84 / 106.08	100.0		

Psi x 0.0072 = tsf
w for S=100% = $G_s \cdot \gamma_d / \gamma_w - \gamma_d / G_s \cdot \gamma_d$ = $G_s \cdot \gamma_w - \gamma_t / G_s \cdot \gamma_t$

$S = w G_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_t / (G_s \cdot \gamma_w (1+w) - \gamma_t)$

Calculated by ____ Reviewed by ____

1	DATA FILE IDENT. NO.	T-246
2	PROJECT NO.	81C4055T3
3	BORING NO.	COE-14
4	SAMPLE NO.	S-23
5	SPECIMEN NO.	B
6	DEPTH	49.8
7	TEST NO.	ID-119
8	FILE # FOR LOAD CELL OR PROVING RING	2000
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	5.9904
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.8708
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	635.414
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.51
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	1.27
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	1.595
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.0245
25	MEMBRANE DIAMETER IN INCHES	2.8463
26	FILTER STRIP CORRECTION CONSTANT	0.0
27	RIGHT CYLINDER DISTORTION FACTOR	2.091
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	7.6968
35	BACK PRESSURE IN TSF	7.1928
36	AXIAL DEFORMATION IN INCHES	0.008
37	VOLUME CHANGE IN CU. CM.	0.953
38	PISTON DRAG CORRECTION IN TONS*10**-3	10.70
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

ØIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.0036.	21.400.	7.222
.00382.	27.515.	7.239
.00435.	33.62.	7.256
.00480.	38.63.	7.270
.00542.	43.63.	7.287
.00600.	48.35.	7.304
.00644.	51.13.	7.314
.00689.	53.64.	7.323
.00738.	56.97.	7.332
.00805.	60.03.	7.344
.00862.	62.53.	7.352
.00929.	65.59.	7.360
.00991.	67.81.	7.366
.01063.	70.03.	7.372

.00689.	53.64.	7.323
.00738.	56.97.	7.332
.00805.	60.03.	7.344
.00862.	62.53.	7.352
.00929.	65.59.	7.360
.00991.	67.81.	7.366
.01063.	70.03.	7.372
.01125.	72.53.	7.377
.01187.	73.65.	7.379
.01245.	76.15.	7.381
.01312.	78.09.	7.384
.01498.	83.65.	7.387
.01592.	85.88.	7.387
.01690.	87.82.	7.386
.01783.	90.32.	7.384
.01881.	93.10.	7.383
.01974.	95.60.	7.379
.02072.	98.10.	7.375
.02166.	100.61.	7.373
.02268.	103.11.	7.368
.02361.	105.61.	7.363
.02455.	108.94.	7.358
.02553.	111.72.	7.352
.02646.	114.78.	7.346
.02744.	117.28.	7.339
.02842.	120.62.	7.333
.03033.	125.90.	7.320
.03215.	132.57.	7.305
.03411.	139.24.	7.289
.03607.	146.19.	7.273
.03798.	153.97.	7.255
.03989.	160.92.	7.234
.04185.	168.98.	7.214
.04376.	177.87.	7.193
.04572.	185.93.	7.173
.04763.	193.71.	7.149
.04959.	203.16.	7.126
.05150.	213.17.	7.101
.05342.	221.51.	7.078
.05528.	230.95.	7.051
.05720.	241.24.	7.023
.05911.	251.52.	6.997
.06102.	261.53.	6.969
.06307.	272.37.	6.939
.06680.	294.32.	6.878
.07063.	317.95.	6.816
.07441.	341.8.	6.749
.07832.	367.7.	6.676
.08215.	393.2.	6.602
.08593.	420.2.	6.526
.08980.	447.7.	6.446
.09354.	476.3.	6.364
.09727.	505.2.	6.281
.10105.	535.8.	6.193
.10475.	567.5.	6.106
.10848.	597.5.	6.016
.11204.	629.7.	5.923
.11564.	662.3.	5.828
.11951.	697.3.	5.726
.12316.	731.5.	5.624
.13028.	801.5.	5.420
.13766.	875.4.	5.199
.14487.	950.7.	4.975
.15198.	1026.3.	4.747
.15932.	1107.5.	4.501
.16648.	1190.3.	4.256
.17382.	1273.7.	3.999
.18103.	1359.9.	[illegible]

.15198.	1026.3.	4.747
.15932.	1107.5.	4.501
.16648.	1190.3.	4.256
.17382.	1273.7.	3.998
.18103.	1359.9.	3.742
.18846.	1446.9.	3.475
.19553.	1533.0.	3.2113
.20282.	1623.6.	2.9365
.21030.	1715.9.	2.6522
.21741.	1805.9.	2.3750
.22453.	1897.1.	2.0930
.23174.	1990.5.	1.8038
.23890.	2081.9.	1.5183
.24610.	2175.3.	1.2291
.25691.	2317.3.	0.7832
.26768.	2460.2.	0.3386
.27853.	2604.4.	-.11327
.28952.	2747.8.	-0.5663
.30032.	2876.0.	-0.8880
.31193.	2934.1.	-0.8447
.32368.	2974.4.	-0.8025
0.3352.	3008.5.	-0.7772
0.3471.	3039.9.	-0.7675
0.3588.	3070.0.	-0.7663
0.3694.	3098.3.	-0.7687
0.3804.	3121.1.	-0.7736
0.3882.	3135.8.	-0.7784
0.4042.	3159.2.	-0.7892
0.4201.	3178.4.	-0.7989
0.4517.	3202.0.	-0.8181
0.4678.	3205.3.	-0.8278
0.4836.	3209.9.	-0.8350
0.4993.	3211.2.	-0.8422
0.5151.	3214.2.	-0.8435
0.5309.	3221.7.	-0.8519
0.5470.	3229.2.	-0.8579
0.5628.	3234.2.	-0.8627
0.5789.	3237.8.	-0.8676
0.6109.	3230.6.	-0.8676
0.6268.	3216.4.	-0.8663
0.6431.	3134.4.	-0.8688
0.6619.	2639.2.	-0.8700
0.6785.	2562.7.	-0.8688
0.6945.	2561.4.	-0.8676
0.7102.	2535.8.	-0.8651
0.7262.	2521.3.	-0.8615
0.7422.	2516.6.	-0.8603
0.7739.	2521.1.	-0.8579
0.7897.	2530.5.	-0.8555
0.8058.	2543.6.	-0.8519
0.8217.	2555.5.	-0.8495
0.8379.	2563.6.	-0.8483
0.8538.	2566.9.	-0.8447
0.8697.	2569.7.	-0.8422
0.8856.	2577.2.	-0.8410
0.9012.	2580.5.	-0.8410
0.9326.	2606.4.	-0.8374
0.9484.	2620.8.	-0.8374
0.9637.	2633.1.	-0.8350
0.9797.	2646.4.	-0.8338
0.9953.	2665.0.	-0.8326
1.0107.	2687.3.	-0.8302
1.0266.	2712.8.	-0.8278
1.0428.	2732.8.	-0.8278
1.0586.	2747.3.	-0.8266
1.0909.	2775.4.	-0.8242
1.1065.	2791.5.	-0.8218
1.1227.	2799.8.	-0.8206
1.1387.	2807.1.	-0.8194

```
1.0428. 2732.8.-0.8278
1.0586. 2747.3.-0.8266
1.0909. 2775.4.-0.8242
1.1065. 2791.5.-0.8218
1.1227. 2799.8.-0.8206
1.1387. 2807.6.-0.8181
1.1546. 2807.0.-0.8169
1.1706. 2808.4.-0.8157
1.1868. 2813.4.-0.8157
1.2021. 2827.1.-0.8133
1.2059. 2829.0.-0.8145
-999.,0.0,0.0
```

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-246

PROJ. NO.	81C4055T3	REVIEWED BY: NF
BORING NO.	COE-14	DATE: 4/29/81
SAMPLE NO.	S-23	INPUT DATA CHECKED BY:
SPECIMEN NO.	B	
DEPTH(FT.)	49.8	TEST NO. ID-119

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
5.9904	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.8708	INITIAL DIAMETER OF SPECIMEN IN INCHES
635.41	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.5100	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
1.2700	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
1.5950	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0245	MEMBRANE THICKNESS IN INCHES
2.8463	MEMBRANE DIAMETER IN INCHES
0.0000	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
2.0910	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

7.6968	CELL PRESSURE IN TSF
7.1928	BACK PRESSURE IN TSF
.0080	AXIAL DEFORMATION DURING CONSOL. IN INCHES
.95	VOLUME CHANGE DURING CONSOL. IN CU. CM.
10.7000	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	1.0291	KSF
LATERAL	=	1.0113	KSF
MEAN	=	1.0172	KSF
PBAR	=	1.0202	KSF
LATERAL/AXIAL	=	.9827	
AXIAL/LATERAL	=	1.0176	
OCR	=	1.000	

10.7000	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NOMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 1.0202 KSF

AXIAL	DEVIATOR	OCTAHEDRAL	DELTA-U	A-FACTOR	Q	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM

NONE — FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT

YES — IS DATA NORMALIZATION REQUIRED?

DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 1.0202 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	Q KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM
0.0000	.0178	1.0176	0.0000	0.0000	.0089	1.0202	0.000	0.000	.0174	0.0000	.0087	1.0000	0.0000
.0037	.1538	1.1574	.0340	.2500	.0769	1.0542	3698.668	2615.168	.1508	.0333	.0754	1.0333	3625.3982
.0125	.2895	1.3069	.0680	.2503	.1447	1.0881	2167.322	1505.762	.2838	.0667	.1419	1.0665	2124.3879
.0201	.4008	1.4379	.0960	.2506	.2004	1.1157	1909.522	1275.459	.3929	.0941	.1964	1.0936	1871.6946
.0304	.5118	1.5807	.1300	.2631	.2559	1.1372	1623.093	1075.721	.5017	.1274	.2508	1.1147	1591.7240
.0401	.6166	1.7277	.1640	.2739	.3083	1.1556	1492.544	959.202	.6043	.1608	.3022	1.1327	1462.9769
.0475	.6792	1.8198	.1840	.2786	.3391	1.1664	1391.140	788.657	.6648	.1804	.3324	1.1433	1363.5813
.0550	.7338	1.9067	.2020	.2821	.3669	1.1762	1301.980	820.139	.7193	.1980	.3596	1.1529	1276.1885
.0632	.8076	2.0206	.2200	.2785	.4038	1.1951	1250.000	752.707	.7916	.2156	.3958	1.1714	1225.2370
.0744	.8753	2.1407	.2440	.2845	.4376	1.2050	1152.801	592.250	.8580	.2392	.4290	1.1811	1129.9644
.0839	.9306	2.2386	.2600	.2848	.4653	1.2166	1087.771	591.986	.9121	.2548	.4561	1.1925	1066.2220
.0951	.9982	2.3575	.2760	.2815	.4991	1.2344	1030.794	538.248	.9784	.2705	.4892	1.2100	1010.3744
.1055	1.0472	2.4477	.2880	.2798	.5236	1.2469	975.948	439.466	1.0264	.2823	.5132	1.2222	956.6146
.1175	1.0961	2.5409	.3000	.2782	.5480	1.2594	917.609	469.234	1.0744	.2941	.5372	1.2344	899.4312
.1279	1.1512	2.6415	.3100	.2735	.5756	1.2769	886.368	384.300	1.1284	.3039	.5642	1.2516	868.8091
.1382	1.1757	2.6861	.3140	.2712	.5879	1.2852	837.645	402.551	1.1524	.3078	.5762	1.2597	821.0512
.1479	1.2309	2.7753	.3180	.2621	.6154	1.3088	820.015	474.648	1.2065	.3117	.6032	1.2828	803.7705
.1591	1.2735	2.8528	.3240	.2580	.6367	1.3241	789.094	386.715	1.2483	.3176	.6241	1.2978	773.4621
.1902	1.3956	3.0484	.3300	.2395	.6978	1.3791	724.317	351.687	1.3680	.3235	.6840	1.3518	709.9684
.2059	1.4444	3.1200	.3300	.2313	.7222	1.4035	692.751	284.482	1.4158	.3235	.7079	1.3757	679.0278
.2223	1.4867	3.1757	.3280	.2233	.7434	1.4267	660.743	305.200	1.4573	.3215	.7286	1.3984	647.6543
.2379	1.5415	3.2427	.3240	.2126	.7707	1.4581	640.568	361.752	1.5109	.3176	.7555	1.4292	627.8786
.2542	1.6023	3.3245	.3220	.2032	.8012	1.4905	623.229	361.513	1.5706	.3156	.7853	1.4610	610.8834
.2698	1.6570	3.3762	.3140	.1916	.8285	1.5258	607.576	342.359	1.6241	.3078	.8121	1.4956	595.5397
.2862	1.7115	3.4266	.3060	.1807	.8558	1.5611	591.867	340.935	1.6776	.2999	.8388	1.5302	580.1424
.3019	1.7663	3.4902	.3020	.1727	.8832	1.5925	579.211	334.095	1.7313	.2960	.8657	1.5610	567.7372
.3189	1.8208	3.5313	.2920	.1619	.9104	1.6297	565.326	335.038	1.7847	.2862	.8924	1.5975	554.1273
.3345	1.8753	3.5713	.2820	.1518	.9377	1.6670	555.346	406.932	1.8382	.2764	.9191	1.6340	544.3453
.3502	1.9481	3.6349	.2720	.1409	.9741	1.7134	551.215	416.493	1.9095	.2666	.9548	1.6794	540.2953
.3666	2.0087	3.6735	.2600	.1306	1.0043	1.7557	543.104	399.540	1.9689	.2548	.9844	1.7209	532.3454
.3821	2.0754	3.7189	.2480	.1205	1.0377	1.8010	538.477	380.415	2.0343	.2431	1.0172	1.7654	527.8097
.3985	2.1297	3.7398	.2340	.1108	1.0649	1.8422	529.967	387.911	2.0875	.2294	1.0438	1.8057	519.4687
.4149	2.2025	3.7903	.2220	.1016	1.1013	1.8906	526.587	401.677	2.1589	.2176	1.0794	1.8531	516.1553
.4468	2.3171	3.8419	.1960	.0852	1.1586	1.9739	514.612	418.090	2.2712	.1921	1.1356	1.9348	504.4176
.4772	2.4623	3.9128	.1660	.0679	1.2311	2.0765	512.226	459.622	2.4135	.1627	1.2068	2.0354	502.0786
.5100	2.6071	3.9716	.1340	.0517	1.3036	2.1809	507.719	451.154	2.5555	.1313	1.2777	2.1377	497.6697
.5428	2.7579	4.0329	.1020	.0372	1.3790	2.2883	504.853	494.601	2.7033	.1000	1.3516	2.2430	494.8517
.5747	2.9268	4.0960	.0660	.0227	1.4634	2.4087	506.192	500.044	2.8688	.0647	1.4344	2.3610	496.1644
.6066	3.0772	4.1166	.0240	.0078	1.5386	2.5260	504.347	501.893	3.0163	.0235	1.5081	2.4759	494.3556
.6394	3.2517	4.1652	-.0160	-.0050	1.6259	2.6532	505.797	567.862	3.1873	-.0157	1.5937	2.6007	495.7774
.6713	3.4443	4.2209	-.0580	-.0169	1.7221	2.7915	510.423	567.100	3.3760	-.0569	1.6880	2.7362	500.3120
.7041	3.6183	4.2616	-.0980	-.0272	1.8091	2.9185	511.387	528.206	3.5466	-.0961	1.7733	2.8607	501.2566
.7360	3.7860	4.2712	-.1460	-.0388	1.8930	3.0504	511.990	573.906	3.7110	-.1431	1.8555	2.9899	501.8474
.7688	3.9899	4.3157	-.1920	-.0483	1.9950	3.1983	516.701	649.544	3.9109	-.1882	1.9555	3.1350	506.4651
.8007	4.2060	4.3557	-.2420	-.0573	2.1030	3.3563	523.075	617.424	4.1226	-.2372	2.0613	3.2899	512.7130
.8328	4.3851	4.3748	-.2880	-.0660	2.1926	3.4919	524.432	605.715	4.2983	-.2823	2.1491	3.4228	514.0432
.8639	4.5882	4.3902	-.3420	-.0748	2.2941	3.6475	529.064	671.249	4.4973	-.3352	2.2487	3.5752	518.5837
.8960	4.8094	4.4125	-.3980	-.0831	2.4047	3.8141	534.806	690.369	4.7142	-.3901	2.3571	3.7385	524.2119
.9279	5.0302	4.4421	-.4500	-.0898	2.5151	3.9765	540.194	681.681	4.9305	-.4411	2.4653	3.8977	529.4926
.9598	5.2447	4.4564	-.5060	-.0968	2.6224	4.1397	544.578	674.562	5.1408	-.4960	2.5704	4.0577	533.7896
.9941	5.4768	4.4721	-.5660	-.1037	2.7384	4.3158	549.147	715.281	5.3683	-.5548	2.6841	4.2303	538.2687
1.0564	5.9465	4.4992	-.6880	-.1161	2.9733	4.6726	561.203	770.909	5.8237	-.6744	2.9144	4.5801	550.0858
1.1205	6.4513	4.5381	-.8120	-.1262	3.2256	5.0490	574.185	796.379	6.3235	-.7959	3.1617	4.9490	562.8103
1.1836	6.9595	4.5555	-.9460	-.1363	3.4797	5.4371	586.472	823.617	6.8216	-.9273	3.4108	5.3294	574.8541
1.2490	7.5104	4.5706	-1.0920	-.1458	3.7552	5.8586	599.889	843.879	7.3616	-1.0704	3.6808	5.7425	588.0056
1.3130	8.0513	4.5761	-1.2400	-.1544	4.0256	6.2771	611.835	875.047	7.8918	-1.2154	3.9459	6.1527	599.7145
1.3762	8.6232	4.5879	-1.3920	-.1618	4.3116	6.7150	625.305	901.557	8.4524	-1.3644	4.2262	6.5820	612.9174
1.4409	9.2041	4.5906	-1.5520	-.1690	4.6020	7.1655	637.543	931.528	9.0218	-1.5213	4.5109	7.0235	624.9135
1.5024	9.7975	4.5959	-1.7120	-.1753	4.9037	7.6312	651.166	970.319	9.6132	-1.6820	4.8066	7.4800	638.2666
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8.1013	664.081	996.457	10.2094	-1.8447	5.1047	7.9408	650.9254

1.2469	7.3104	4.5706	-1.0920	-.1458	3.7952	5.6586	599.884	843.879	7.9216	-1.0704	3.6908	5.7425	589.0956	
1.3130	8.0513	4.5761	-1.2400	-.1544	4.0256	6.2771	611.835	875.047	7.8918	-1.2154	3.9459	6.1527	599.7145	
1.3762	8.6232	4.5879	-1.3920	-.1618	4.3116	6.7150	625.305	901.557	8.4524	-1.3644	4.2262	6.5820	612.9174	
1.4409	9.2041	4.5906	-1.5520	-.1690	4.6020	7.1655	637.543	931.528	9.0218	-1.5213	4.5109	7.0235	624.9135	
1.5034	9.8075	4.5959	-1.7160	-.1753	4.9037	7.6312	651.166	970.319	9.6132	-1.6820	4.8066	7.4800	638.2666	
1.5658	10.4157	4.5998	-1.8820	-.1810	5.2078	8.1013	664.081	996.457	10.2094	-1.8447	5.1047	7.9408	650.9254	
1.6289	11.0586	4.6028	-2.0580	-.1864	5.5293	8.5987	677.787	1046.346	10.8395	-2.0172	5.4197	8.4284	664.3599	
1.6908	11.7236	4.6145	-2.2320	-.1907	5.8618	9.1052	692.326	1040.140	11.4913	-2.1878	5.7457	8.9249	678.6113	
1.7531	12.3502	4.6075	-2.4120	-.1956	6.1751	9.5986	703.447	1067.820	12.1056	-2.3642	6.0528	9.4084	689.5117	
1.8127	13.0230	4.6080	-2.5980	-.1998	6.5115	10.1210	717.471	1129.791	12.7650	-2.5465	6.3825	9.9205	703.2577	
1.8728	13.7024	4.6064	-2.7880	-.2037	6.8512	10.6507	730.692	1126.646	13.4309	-2.7328	6.7155	10.4397	716.2175	
1.9375	14.4297	4.6043	-2.9920	-.2076	7.2149	11.2183	743.835	1143.536	14.1439	-2.9327	7.0719	10.9961	729.1000	
1.9985	15.1391	4.5981	-3.1960	-.2114	7.5696	11.7771	756.623	1189.752	14.8392	-3.1327	7.4196	11.5438	741.6352	
2.1175	16.5873	4.5938	-3.6040	-.2175	8.2936	12.9091	782.486	1225.003	16.2587	-3.5326	8.1293	12.6534	766.9850	
2.2409	18.1086	4.5805	-4.0460	-.2237	9.0543	14.1118	807.380	1257.062	17.7499	-3.9659	8.8749	13.8323	791.3075	
2.3614	19.6523	4.5696	-4.4940	-.2289	9.8262	15.3317	831.470	1289.338	19.2630	-4.4050	9.6315	15.0280	814.9988	
2.4803	21.1948	4.5552	-4.9500	-.2338	10.5974	16.5589	853.815	1321.263	20.7749	-4.8519	10.3874	16.2309	836.9013	
2.6030	22.8446	4.5398	-5.4420	-.2384	11.4223	17.8759	876.955	1372.481	22.3921	-5.3342	11.1960	17.5218	859.5826	
2.7227	24.5205	4.5314	-5.9320	-.2421	12.2603	19.2039	899.958	1383.699	24.0348	-5.8145	12.0174	18.8234	882.1296	
2.8453	26.1979	4.5120	-6.4480	-.2463	13.0990	20.5586	920.104	1400.350	25.6789	-6.3203	12.8395	20.1513	901.8768	
2.9659	27.9256	4.5031	-6.9600	-.2494	13.9628	21.9345	940.967	1414.130	27.3724	-6.8221	13.6862	21.4999	922.3271	
3.0901	29.6578	4.4868	-7.4940	-.2528	14.8289	23.3346	959.205	1419.890	29.0703	-7.3455	14.5352	22.8723	940.2035	
3.2082	31.3656	4.4723	-8.0214	-.2559	15.6828	24.7159	977.102	1456.453	30.7443	-7.8625	15.3721	24.2263	957.7459	
3.3301	33.1543	4.4598	-8.5710	-.2587	16.5771	26.1599	995.060	1458.122	32.4975	-8.4012	16.2488	25.6416	975.3481	
3.4551	34.9653	4.4444	-9.1396	-.2615	17.4826	27.6340	1011.465	1463.827	34.2726	-8.9585	17.1363	27.0865	991.4280	
3.5740	36.7234	4.4302	-9.6940	-.2641	18.3617	29.0674	1027.021	1484.333	35.9959	-9.5020	17.9979	28.4916	1006.6759	
3.6930	38.4960	4.4159	-10.2580	-.2666	19.2480	30.5178	1041.922	1494.031	37.7334	-10.0548	18.8667	29.9132	1021.2822	
3.8135	40.3022	4.4015	-10.8364	-.2690	20.1511	31.9993	1056.357	1482.786	39.5038	-10.6217	19.7519	31.3654	1035.4305	
3.9332	42.0578	4.3865	-11.4074	-.2714	21.0289	33.4481	1068.850	1475.256	41.2247	-11.1814	20.6123	32.7855	1047.6760	
4.0536	43.8434	4.3732	-11.9858	-.2735	21.9217	34.9193	1081.164	1488.093	42.9748	-11.7484	21.4874	34.2276	1059.7463	
4.2343	46.5404	4.3508	-12.8776	-.2768	23.2702	37.1597	1098.721	1493.993	45.6185	-12.6225	22.8092	36.4236	1076.9561	
4.4143	49.2326	4.3313	-13.7668	-.2797	24.6163	39.3950	1114.899	1490.042	48.2573	-13.4941	24.1286	38.6146	1092.8131	
4.5956	51.9253	4.3110	-14.6705	-.2826	25.9626	41.6452	1129.493	1463.437	50.8967	-14.3799	25.4483	40.8202	1107.1177	
4.7794	54.5747	4.2899	-15.5766	-.2855	27.2873	43.8760	1141.512	1365.307	53.4935	-15.2680	26.7468	43.0068	1118.8986	
4.9599	56.9006	4.3020	-16.2200	-.2852	28.4503	45.6824	1146.859	874.521	55.7735	-15.8987	27.8867	44.7775	1124.1401	
5.1540	57.7946	4.3708	-16.1334	-.2793	28.8973	46.0428	1121.019	364.823	56.6497	-15.8138	28.3248	45.1307	1098.8119	
5.3504	58.3230	4.4185	-16.0490	-.2753	29.1615	46.2227	1089.743	239.536	57.1676	-15.7311	28.5838	45.3070	1068.1553	
5.5429	58.7274	4.4524	-15.9984	-.2725	29.3637	46.3744	1059.182	189.607	57.5640	-15.6815	28.7820	45.4557	1038.1993	
5.7418	59.0639	4.4761	-15.9790	-.2706	29.5320	46.5233	1028.349	163.876	57.8939	-15.6625	28.9469	45.6017	1007.9772	
5.9374	59.3741	4.4949	-15.9766	-.2692	29.6870	46.6760	999.699	162.888	58.1979	-15.6601	29.0989	45.7514	979.8952	
6.1146	59.6703	4.5113	-15.9814	-.2679	29.8352	46.8290	975.513	131.345	58.4883	-15.6648	29.2441	45.9013	956.2492	
6.2985	59.8459	4.5196	-15.9912	-.2673	29.9230	46.9267	949.883	83.752	58.6604	-15.6744	29.3302	45.9970	931.0657	
6.4289	59.9398	4.5231	-16.0008	-.2670	29.9699	46.9832	932.079	46.805	58.7524	-15.6838	29.3762	46.0525	913.6144	
6.6963	59.9976	4.5220	-16.0224	-.2672	29.9988	47.0338	895.714	6.018	58.8090	-15.7050	29.4045	46.1021	877.9704	
6.9621	59.9722	4.5165	-16.0418	-.2676	29.9861	47.0406	861.155	-36.759	58.7841	-15.7240	29.3921	46.1088	844.0956	
7.4903	59.6343	4.4888	-16.0802	-.2698	29.8172	46.9103	795.916	-94.994	58.4530	-15.7617	29.2265	45.9810	780.1494	
7.7594	59.2952	4.4650	-16.0996	-.2716	29.6476	46.7602	763.940	-124.919	58.1205	-15.7807	29.0603	45.8339	748.8066	
8.0235	58.9682	4.4430	-16.1140	-.2734	29.4841	46.6113	734.718	-128.449	57.8000	-15.7948	28.9000	45.6879	720.1638	
8.2860	58.6189	4.4197	-16.1284	-.2753	29.3094	46.4511	707.233	-130.829	57.4577	-15.8089	28.7288	45.5309	693.2227	
8.5501	58.2793	4.3993	-16.1310	-.2769	29.1397	46.2841	681.415	-113.242	57.1248	-15.8114	28.5624	45.3672	667.9166	
8.8142	58.0207	4.3809	-16.1478	-.2784	29.0104	46.1717	658.063	-98.749	56.8714	-15.8279	28.4357	45.2570	645.0274	
9.0833	57.7527	4.3629	-16.1598	-.2799	28.8764	46.0498	635.616	-107.923	56.6087	-15.8397	28.3043	45.1376	623.0244	
9.3474	57.4457	4.3431	-16.1694	-.2816	28.7228	45.9060	614.272	-121.439	56.3077	-15.8491	28.1538	44.9966	602.2010	
9.6165	57.1049	4.3214	-16.1792	-.2835	28.5525	45.7456	593.635	-150.380	55.9737	-15.8587	27.9868	44.8394	581.8752	
10.1514	56.1734	4.2671	-16.1792	-.2882	28.0867	45.2801	553.179	-208.679	55.0606	-15.8587	27.5303	44.3831	542.2203	
10.4172	55.5270	4.2300	-16.1766	-.2915	27.7635	44.9545	532.860	-456.363	54.4270	-15.8561	27.2135	44.0639	522.3042	
10.6897	53.7028	4.1230	-16.1816	-.3015	26.8514	44.0475	502.213	-1757.342	52.6390	-15.8610	26.3195	43.1749	492.2643	
11.0039	44.7617	3.6026	-16.1840	-.3618	22.3809	39.5796	406.617	-1718.298	43.8750	-15.8634	21.9375	38.7955	398.5621	
11.2814	43.1206	3.5075	-16.1816	-.3755	21.5603	38.7568	382.069	-359.391	42.2664	-15.8610	21.1332	37.9890	374.5002	
11.5489	42.7800	3.4880	-16.1792	-.3784	21.3900	38.5842	370.272	-204.939	41.9325	-15.8587	20.9663	37.8199	362.9366	
11.8113	42.0385	3.4456	-16.1742	-.3850	21.0193	38.2087	355.767	-245.295	41.2058	-15.8538	20.6029	37.4518	348.7194	
12.0788	41.4821	3.4142	-16.1670	-.3900	20.7410	37.9234	343.283	-177.145	40.6603	-15.8467	20.3302	37.1722	336.4822	
12.3462	41.0910	3.3918	-16.1646	-.3937	20.5455	37.7257	332.678	-124.712	40.2770	-15.8444	20.1385	36.9783	326.0882	
12.8761	40.5442	3.3605	-16.1598	-.3989	20.2721	37.4478	314.741	-81.487	39.7410	-15.8397	19.8705	36.7060	308.5061	
13.1402	40.3863	3.3520	-16.1550	-.4003	20.1931	37.3643	307.214	-49.746	39.5862	-15.8350	19.7931	36.6241	301.1277	
13.4093	40.2794	3.3467	-16.1478	-.4012	20.1397	37.3038	300.251	-43.418	39.4815	-15.8279	19.7407	36.5648	294.3028	
13.6751	40.1542	3.3401	-16.1430	-.4023	20.0771	37.2366	293.499	-59.395	39.3587	-15.8232	19.6794	36.4990	287.6853	
13.9459	39.9601	3.3290	-16.1407	-.4042	19.9800	37.1374	286.409	-85.720	39.1685	-15.8209	19.5842	36.4017	280.7351	
14.2117	39.7641	3.3180	-16.1383	-.4058	19.8875	36.9978	279.187	-101.387	38.9086	-15.8138	19.4543	36.2649	273.6561	

12.8761	40.5442	3.3605	-16.1598	-.3989	20.2721	37.4478	314.741	-81.487	39.7410	-15.8397	19.8705	36.7060	308.5061	
13.1402	40.3863	3.3520	-16.1550	-.4003	20.1931	37.3643	307.214	-49.746	39.5862	-15.8350	19.7921	36.6241	301.1277	
13.4093	40.2794	3.3467	-16.1478	-.4012	20.1397	37.3038	300.251	-43.418	39.4815	-15.8279	19.7407	36.5648	294.3028	
13.6751	40.1542	3.3401	-16.1430	-.4023	20.0771	37.2366	293.499	-59.395	39.3587	-15.8232	19.6794	36.4990	287.6053	
13.9459	39.9601	3.3290	-16.1406	-.4042	19.9800	37.1374	286.409	-85.720	39.1685	-15.8209	19.5842	36.4017	280.7351	
14.2117	39.6949	3.3145	-16.1394	-.4063	19.8475	36.9978	279.187	-101.387	38.9086	-15.8138	19.4543	36.2649	273.6561	
14.4775	39.4212	3.2992	-16.1284	-.4095	19.7106	36.8561	272.170	-89.522	38.6402	-15.8089	19.3201	36.1260	266.7788	
14.7432	39.2191	3.2877	-16.1260	-.4115	19.6095	36.7529	265.893	-88.270	38.4421	-15.8065	19.2211	36.0248	260.6258	
15.0040	38.9570	3.2724	-16.1260	-.4143	19.4785	36.6221	259.525	-73.145	38.1953	-15.8065	19.0926	35.8966	254.3842	
15.5289	38.7164	3.2593	-16.1188	-.4167	19.3582	36.4951	249.204	-42.881	37.9495	-15.7995	18.9747	35.7721	244.2676	
15.7930	38.6110	3.2531	-16.1188	-.4178	19.3055	36.4421	241.269	-45.341	37.8461	-15.7995	18.9230	35.7207	239.5282	
16.0487	38.4812	3.2461	-16.1140	-.4191	19.2406	36.3731	239.666	-30.139	37.7189	-15.7948	18.8594	35.6526	234.9183	
16.3162	38.3487	3.2386	-16.1116	-.4205	19.1744	36.3047	234.926	-34.436	37.5890	-15.7924	18.7945	35.5855	230.2719	
16.5770	38.2983	3.2360	-16.1092	-.4210	19.1491	36.2774	230.926	-9.178	37.5396	-15.7901	18.7698	35.5587	226.3513	
16.8344	38.3008	3.2367	-16.1044	-.4209	19.1504	36.2741	227.410	6.596	37.5421	-15.7854	18.7710	35.5555	222.9048	
17.1002	38.3332	3.2392	-16.0996	-.4204	19.1666	36.2857	224.065	-4.644	37.5739	-15.7807	18.7869	35.5669	219.6263	
17.3710	38.2751	3.2358	-16.0996	-.4210	19.1375	36.2569	220.237	-35.720	37.5168	-15.7807	18.7584	35.5387	215.8741	
17.6351	38.1431	3.2283	-16.0972	-.4224	19.0716	36.1888	216.191	-52.947	37.3975	-15.7783	18.6938	35.4719	211.9079	
18.1750	37.8411	3.2112	-16.0924	-.4257	18.9205	36.0336	208.106	-50.286	37.0915	-15.7736	18.5457	35.3198	203.9838	
18.4357	37.7247	3.2050	-16.0876	-.4269	18.8624	35.9709	204.532	-66.449	36.9774	-15.7689	18.4887	35.2583	200.4798	
18.7065	37.4857	3.1913	-16.0852	-.4296	18.7428	35.8492	200.293	-89.652	36.7431	-15.7666	18.3715	35.1391	196.3252	
18.9740	37.2422	3.1777	-16.0802	-.4323	18.6211	35.7228	196.187	-112.289	36.5044	-15.7617	18.2522	35.0152	192.3001	
19.2398	36.8873	3.1572	-16.0778	-.4364	18.4436	35.5432	191.632	-128.582	36.1565	-15.7593	18.0783	34.8391	187.8354	
19.5072	36.5566	3.1381	-16.0754	-.4402	18.2783	35.3759	187.309	-114.901	35.8325	-15.7569	17.9162	34.6751	183.5989	
19.7747	36.2727	3.1215	-16.0754	-.4437	18.1363	35.2342	183.340	-84.314	35.5541	-15.7569	17.7771	34.5362	179.7080	
20.0338	36.1109	3.1126	-16.0706	-.4456	18.0554	35.1488	180.161	-77.654	35.3955	-15.7522	17.6978	34.4525	176.5923	
20.0973	36.0519	3.1088	-16.0730	-.4464	18.0259	35.1218	179.298	1404.200	35.3377	-15.7546	17.6689	34.4260	175.7465	STOP

A.BASIC RESPRT

CDOS 16K BASIC, VERSION 5.4

TRIAXIAL TEST (Set Up / Take Down)

93 WCC 2-202 (1/80)

Proj. No. E(C)055-F Proj. Eng. REL Cell No. 4-B Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test CIU - C File No. J-320

Loading Conditions							
☐ Dynamic	☒ Undrained	☒ Compression	☒ Constant Cell pressure
☒ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type Consolidation			Piston Screwed in: ☐ Yes; ☒ No
☐ Isotropic	☐ Ko stress path	
☐ Anisotropic	☐ 45° Stress path	

☒ Undisturbed ☐ Reconstituted

Boring No. COE-14 Composite No. _____

Sample No. S-2E Specimen No. B

Depth (ft) 59.1 Remarks _____

☐ Ends capped with Castone; ☐ Geomarine Sample

☐ Impact ☐ Static ☐ Kneading ☐ Tamping ☐ Other

☐ Constant Effort: _____ layers; _____ lb {Hammer Tamp.; _____ Blows-Tamps/layer

☐ Undercompaction: _____ layers; _____ Uni (%)

Water Content				Final
Location				Ave
Container No	CA-1	CA-20		650
Wgt. Container + Wet Soil (gm)	57.20	69.62		290.20
Wgt Container + Dry Soil (gm)	51.75	63.82		265.12
Wgt. Container (gm)	30.88	34.02		139.18
Wgt Dry Soil (gm)	46.87	29.80		125.94
WATER CONTENT (%)	20.16	19.46	19.81	20.31

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc): _____ gm

Stone (etc): _____ gm

Wet Initial: 435.71 gm

Wet Final: 437.91 gm

Excess Oven dry - Dish No. _____

Wgt Dish + Dry Soil _____ gm

Wgt. Dish _____ gm

Wgt. Excess + Dry Soil _____ gm

Dimensions of Specimen — Height (in) or Diameter (in) or _____

	Initial (Lo)	Final (Lf)	Initial	Final	$D_{ave}^2 = (D_1^2 + 2D_m^2 + D_3^2)/4$
1	3.944	3.233	1-T 2.012	2.175	
2	3.949	3.263	2-M 2.011	2.350	
3	3.941	3.241	3-B 2.012	2.150	
4	3.943	3.215	1'-T 2.018		
5	3.941	3.240	2'-M 2.009		
Ave	3.9424	3.2384	3'-B 2.008		
			Ave 2.0118	2.2562	

ΔL_c = _____ in.

ΔL_f = _____ in.

$\Sigma \Delta L$ = _____ in.

$L_o - L_f$ = _____ in.

$A_o = \pi D^2/4 = 3.1788$ in²

$V_o = 1h^3 \cdot 16.3871 = 205.363$ cm³

Area $\frac{1}{5.5542(D^2)} = 27.7655$ 10^{-3} ft²

Membrane { Thickness = 0.0110 in; Circumference (C_m) = 5.7065 in; Diam = C_m/π = 1.8164 in

Filter Paper: Top + bottom: ☐ Yes; ☒ No

Filter Strips: ☒ Yes; ☐ No

12 Vertical at ¼" - Whatman #54 or _____

_____ Spiral at ¼" - Whatman #1 or _____

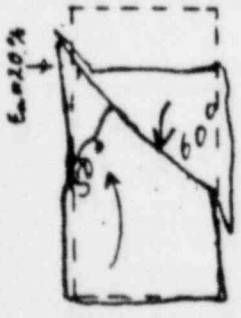
Wgt top cap = _____ gm, 0.1255 10^{-3} tons

Wgt (cap, dial + piston) = _____ gm, _____ 10^{-3} tons

Preliminary

γ_{co} = 131.46 lb/ft³ γ_{do} = 110.55 lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo taken.

Other Remarks: 2 KSF

Preliminary Cal. by IB Reviewed by RA

☒ Trimmed by CA Date 10/8/81 Setup by HWK Date 10/8/81 Taken down by _____ Date 10/14/81

☐ Reconstituted

_ See back for Summary; Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS 9 4

Type Test: CID-C ☒ Undisturbed; ☐ Reconstituted - Specimen T-320

☐ Dynamic f / H_d or ____ ☐ Sinusoidal or ____ ☒ Static = .648 %/hr.

Consolidation History Units: tsf or KSF	Max. Induced Pore Pressure Uncorr.	Corr. #	☒ Preshear/perm. ☐ Pre cy-loading Uncorr.	corr. #	Preshear after Cy-loading Uncorr.	Corr. #
σ_{cell}			16.4160			
u			14.4144			
$\bar{\sigma}_v$						
$\bar{\sigma}_h$			2.0016			
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$			1.00			
OCR						
Consol. Time	☐ Overnight ____ days ____ hours		☒ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours	

Corrected for effects of membrane, filter strips, etc.

H_o = 3.9424 in

A_o = 3.1782 in²

V_o = 205.363 cm³

Dec/Dom = ____

G_s = 2.766 ☒ Assumed ☐ Measured

B_g = 98.6 %

Area Corr. Factors: C

Undrained = 1.107

$C = \frac{1}{\varepsilon_1}\left(1 - \frac{A_c}{A_{sm}}\right)$

Drained = ____

$C = \frac{1}{\varepsilon_1}\left[1 - \frac{A_c(1+\varepsilon_v)}{A_{sm}}\right]$

Calculate Wgt. of Dry Soil	By Initial Water Content	By Final Water Content	By Total Oven-dried Specimen
W_1 (%)			
W_2 (%)			
W_{ave} (%)	19.81	20.31	
Wgt. Wet Soil, W_T (gm)	435.71	437.95	
Partial Wgt Dry Soil (gm)	ΔV_T (cm³) during test		
Wgt Excess Overlay Soil	Corr. Wet Wgt. $W_c = W_T + \Delta V_T$		
Total Wgt. Oven Dry Soil, W_s (gm)	363.67	364.02	

W_s used: W_s final = 364.02 gm

Variations in Height and Volume During Consolidation	During Initial Consol. without Back-Pressure	During Back-Pressuring ΔV_b = .72 vol in	After Backpressuring $\bar{\sigma}_h$ (psi) From 13.9 To 14.1	$\bar{\sigma}_h$ (psi) From ____ To ____	$\bar{\sigma}_h$ (psi) From ____ To ____
	Sign Convention: (-) ΔV in, (+) ΔV out / (-) ΔL up, (+) ΔL down				
ΔL (in)	0.0062	0.0051	0.0002		
ΔV_m (cm³)	.4 -0.3	-0.72 0.94	0.010		
$\Delta V_a = 3V_o(\Delta H/H_o)$	0.97	0.80	0.031		
$R = \Delta V_m / \Delta V_a$	Used = 0.32		0.32		
Corrected $\Delta V_a = R \cdot \Delta V_a$	0.31	0.26			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{eq} = ____ in $|\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ____ cm³

$|\Delta V_T$ (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures	ΔV_c by W_{gt} Change $= W_o - W_f - (\Delta V_b + \Delta V_T)$	ΔV_c by recorded/calculated volume changes = Σ selected ΔV	ΔV_c assuming S = 100% $V_F = (1/\varepsilon_{vc} - w_i \frac{G_s}{e}) W_o / \gamma_w$
			Undrained: $\Delta V_c = V_o - V$
	$\Delta W_{gt.}$ = -2.24 gm	$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V$	w_o = 20.3 % V_F = 205.907 cm³
	$\Sigma(\Delta V_b + \Delta V_T)$ = -1.02 cm³	= 0.31 + 0.26 + 0.01	$V_F + \Delta V_T$ = ____ cm³
	$\therefore \Delta V_c$ = -1.22 cm³	= 0.58 cm³	$\therefore \Delta V_c$ = -0.544 cm³

Conclusions

ΔV_c used (ave ✓ value) = -.395 cm³ $\therefore V_c$ = 205.758 cm³; ΔL_c = 0.0115 in; $\therefore L_c$ = 3.9309 in

$A_c = V_c/L_c$ (cm³/in)/16.387 = 3.1942 in²/0.144 = 22.1820 $\times 10^{-3}$ ft²

ε_{ac} = 0.29 %; ε_v = 0.19 %; $1-\varepsilon_v$ = ____ ε_f # = .1817; ε_{vc} # = ____ # not in percent

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (in² cm² ft² $\times 10^{-3}$)	Volume (cm³)	Water Content (%)	Total / Dry Density (lb/ft³)	Saturation (%)		
Initial	3.9424	22.0748	205.363	19.69	132.46 / 110.66	97.7		
After Consol.	3.9309	22.1820	205.758	20.31	132.88 / 110.45	100.2		

$S = w G_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_c / (\varepsilon_v \cdot \gamma_w (1+w) - \gamma_c)$ → G_s for S. 100% = 2.769

Calculated by TB Reviewed by RB

Psi x .0072 = tsf

w for S = 100% = $G_s \cdot \gamma_d / \gamma_w - \gamma_d / G_s \cdot \gamma_d$ = $G_s \cdot \gamma_w - \gamma_c / G_s \cdot \gamma_d$ = $G_s \cdot \gamma_w - \gamma_c / (G_s \gamma_c - \gamma_w)$

γ_w @ 20°C (Stand.) = 62.32 lb/ft³ • 0.9982 gm/cm³ (G.M.) = 64.2 (lb/ft³)

1	DATA FILE IDENT. NO.	T-320
2	PROJECT NO.	81C405ST3
3	BORING NO.	COE-14
4	SAMPLE NO.	S-28
5	SPECIMEN NO.	B
6	DEPTH	59.1
7	TEST NO.	ID-123
8	FILE # FOR LOAD CELL OR PROVING RING	2000
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	3.9424
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.0118
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	205.36
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.255
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	1.015
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	0.0
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.0110
25	MEMBRANE DIAMETER IN INCHES	1.8164
26	FILTER STRIP CORRECTION CONSTANT	1.596
27	RIGHT CYLINDER DISTORTION FACTOR	1.107
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	8.2080
35	BACK PRESSURE IN TSF	7.2072
36	AXIAL DEFORMATION IN INCHES	0.0115
37	VOLUME CHANGE IN CU. CM.	-0.395
38	PISTON DRAG CORRECTION IN TONS*10**-3	11.15
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.0073.	22.3.	7.222
.00744.	23.457.	7.228
.00766.	25.575.	7.247
.00783.	27.801.	7.270
.00801.	29.973.	7.288
.00818.	32.145.	7.309
.00840.	34.20.	7.327
.00853.	35.56.	7.339
.00871.	36.76.	7.350
.00884.	37.79.	7.359
.00902.	38.87.	7.366
.00910.	39.91.	7.375
.00923.	40.83.	7.38
.00941.	41.64.	7.

.00853.	35.56.	7.354
.00871.	36.76.	7.350
.00884.	37.79.	7.359
.00902.	38.87.	7.366
.00910.	39.91.	7.375
.00923.	40.83.	7.383
.00941.	41.64.	7.389
.00954.	42.02.	7.392
.00963.	42.89.	7.396
.00972.	43.49.	7.402
.00985.	44.03.	7.408
.00989.	44.58.	7.410
.01002.	44.96.	7.412
.01011.	45.44.	7.416
.01020.	45.99.	7.418
.01033.	46.31.	7.421
.01037.	46.64.	7.423
.01050.	47.07.	7.426
.01068.	47.78.	7.429
.01085.	48.59.	7.435
.01107.	49.25.	7.439
.01125.	49.90.	7.444
.01164.	51.25.	7.450
.01208.	52.88.	7.462
.01248.	53.97.	7.465
.01283.	55.16.	7.471
.01322.	56.14.	7.478
.01370.	57.23.	7.482
.01410.	58.31.	7.489
.01449.	59.29.	7.492
.01493.	60.43.	7.499
.01572.	62.17.	7.501
.01742.	65.64.	7.515
.01830.	67.71.	7.523
.01961.	69.77.	7.525
.02093.	72.59.	7.531
.02224.	75.09.	7.535
.02351.	77.59.	7.537
.02522.	81.01.	7.541
.02693.	84.32.	7.542
.02872.	87.64.	7.542
.03214.	94.21.	7.536
.03389.	97.68.	7.535
.03612.	102.02.	7.532
.03831	106.26.	7.523
.04054.	110.44.	7.516
.04282.	113.97.	7.501
.04527.	117.28.	7.483
.04759.	119.51.	7.462
.05000.	122.28.	7.448
.05434.	124.99.	7.414
.05648.	125.65.	7.401
.06073.	127.22.	7.374
.06498.	128.69.	7.351
.06914.	129.88.	7.330
.07334.	131.08.	7.310
.07759.	132.38.	7.291
.08613.	134.28.	7.255
.09480.	136.23.	7.223
.11201.	141.99.	7.169
.12068.	144.49.	7.141
.12931.	146.50.	7.114
.13798.	148.51.	7.089
.14630.	150.35.	7.065
.15571.	152.42.	7.039
.16504.	154.26.	7.012
.17463.	156.32.	6.987
.18349.	157.63.	6.964
.19271.	[illegible]	[illegible]

.15571.	152.42.	7.039
.16504.	154.26.	7.012
.17463.	156.32.	6.987
.18348.	157.63.	6.964
.19972.	160.99.	6.921
.20791.	162.41.	6.904
.21601.	163.98.	6.882
.22394.	166.10.	6.866
.23195.	168.54.	6.849
.23992.	170.66.	6.831
.24780.	172.99.	6.812
.25577.	175.71.	6.793
.26392.	178.26.	6.771
.28016.	183.37.	6.725
.28826.	185.59.	6.701
.29650.	188.04.	6.679
.30451.	190.32.	6.655
.31248.	193.25.	6.629
.32076.	196.13.	6.600
0.3291.	198.52.	6.571
0.3371.	200.80.	6.543
0.3451.	203.51.	6.512
0.3615.	207.69.	6.447
0.3695.	209.65.	6.416
0.3775.	211.71.	6.385
0.3853.	213.34.	6.357
0.3931.	215.02.	6.327
0.4012.	216.38.	6.298
0.4093.	216.60.	6.267
0.4171.	214.53.	6.243
0.4249.	211.71.	6.224
0.4327.	208.45.	6.209
0.4405.	205.68.	6.196
0.4484.	204.76.	6.187
0.4562.	204.27.	6.177
0.4639.	204.43.	6.169
0.4719.	204.76.	6.161
0.4798.	204.71.	6.152
0.4876.	204.38.	6.142
0.4956.	204.00.	6.131
0.5033.	204.00.	6.121
0.5112.	204.16.	6.112
0.5192.	204.43.	6.103
0.5273.	204.87.	6.090
0.5356.	205.47.	6.079
0.5440.	205.90.	6.070
0.5525.	206.44.	6.060
0.5611.	207.15.	6.049
0.5693.	207.96.	6.041
0.5776.	208.62.	6.029
0.5859.	209.76.	6.019
0.5944.	210.95.	6.010
0.6031.	212.31.	5.998
0.6120.	213.12.	5.988
0.6211.	214.43.	5.976
0.6304.	215.57.	5.964
0.6341.	216.00.	5.961
0.6393.	216.81.	5.956
0.6481.	218.12.	5.946
0.6571.	219.26.	5.939
0.6663.	220.62.	5.927
0.6758.	222.19.	5.920
0.6854.	223.77.	5.909
0.6948.	225.56.	5.898
0.7050.	227.13.	5.892
0.7146.	228.65.	5.880
0.7240.	230.50.	5.871
0.7338.	231.90.	5.860

```
0.6571. 219.26.  5.937
0.6663. 220.62.  5.927
0.6758. 222.19.  5.920
0.6854. 223.77.  5.909
0.6948. 225.56.  5.898
0.7050. 227.13.  5.892
0.7146. 228.65.  5.880
0.7240. 230.50.  5.871
0.7338. 231.80.  5.859
0.7388. 232.62.  5.854
0.7435. 233.65.  5.846
0.7536. 236.09.  5.835
0.7632. 237.83.  5.822
0.7725. 240.00.  5.808
0.7804. 242.93.  5.796
-999..0.0.0.0
```

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-320

PROJ. NO.	B1C4055T3	REVIEWED BY: JRU
BORING NO.	COE-14	DATE: 22 Oct 81
SAMPLE NO.	S-28	INPUT DATA CHECKED BY: JB 16 October 1981
SPECIMEN NO.	B	
DEPTH(FT.)	59.1	TEST NO. ID-123

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
3.9424	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.0118	INITIAL DIAMETER OF SPECIMEN IN INCHES
205.36	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.2550	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
1.0150	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
0.0000	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0110	MEMBRANE THICKNESS IN INCHES
1.8164	MEMBRANE DIAMETER IN INCHES
1.5960	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.1070	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

8.2080	CELL PRESSURE IN TSF
7.2072	BACK PRESSURE IN TSF
.0115	AXIAL DEFORMATION DURING CONSOL. IN INCHES
-.40	VOLUME CHANGE DURING CONSOL. IN CU. CM.
11.1500	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	2.0026 KSF
LATERAL	=	2.0307 KSF
MEAN	=	2.0214 KSF
PBAR	=	2.0167 KSF
LATERAL/AXIAL	=	1.0141
AXIAL/LATERAL	=	.9861
OCR	=	1.000

11.1500	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NORMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 2.0167 KSF

AXIAL STRAIN	DEVIATOR STRESS	OBLIQUITY	DELTA-U	A-FACTOR	Θ	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	Θ NORM	P-BAR NORM	SECANT NORM

NONE — FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES — IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 2.0167 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	Q KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM
0.0000	-.0281	.9861	0.0000	0.0000	-.0141	2.0167	0.000	0.000	-.0140	0.0000	-.0070	1.0000	0.0000
.0036	.0237	1.0118	.0120	.2312	.0119	2.0306	1456.786	1577.478	.0118	.0060	.0059	1.0069	722.3719
.0092	.1188	1.0600	.0500	.3403	.0594	2.0401	1604.299	2005.240	.0589	.0248	.0294	1.0116	795.5182
.0135	.2188	1.1131	.0960	.3888	.1094	2.0441	1831.396	2221.145	.1085	.0476	.0542	1.0136	908.1284
.0181	.3163	1.1666	.1320	.3832	.1582	2.0569	1907.093	2192.761	.1568	.0655	.0784	1.0200	945.6641
.0224	.4139	1.2229	.1740	.3936	.2069	2.0637	1974.408	1951.094	.2052	.0863	.1026	1.0233	979.0430
.0280	.5060	1.2779	.2100	.3931	.2530	2.0738	1908.855	1745.839	.2509	.1041	.1255	1.0283	946.5376
.0313	.5670	1.3156	.2340	.3931	.2835	2.0803	1902.110	1508.832	.2812	.1160	.1406	1.0315	943.1929
.0359	.6207	1.3498	.2560	.3945	.3104	2.0851	1808.985	1283.847	.3078	.1269	.1539	1.0339	897.0153
.0392	.6669	1.3796	.2740	.3942	.3334	2.0902	1774.043	1224.699	.3307	.1359	.1653	1.0365	879.6890
.0438	.7151	1.4104	.2880	.3874	.3576	2.1003	1698.725	1674.195	.3546	.1428	.1773	1.0415	842.3412
.0458	.7618	1.4417	.3060	.3873	.3809	2.1057	1725.184	1769.476	.3778	.1517	.1889	1.0441	855.4614
.0491	.8030	1.4699	.3220	.3874	.4015	2.1103	1692.833	1016.632	.3982	.1597	.1991	1.0464	839.4197
.0537	.8391	1.4945	.3340	.3851	.4196	2.1163	1615.675	648.729	.4161	.1656	.2080	1.0494	801.1595
.0570	.8559	1.5062	.3400	.3846	.4280	2.1187	1551.454	1106.185	.4244	.1686	.2122	1.0506	769.3143
.0593	.8949	1.5318	.3480	.3770	.4475	2.1302	1557.318	1437.619	.4438	.1726	.2219	1.0563	772.2224
.0616	.9218	1.5517	.3600	.3790	.4609	2.1316	1542.987	949.410	.4571	.1785	.2285	1.0570	765.1157
.0649	.9458	1.5702	.3720	.3819	.4729	2.1317	1501.380	1576.450	.4690	.1845	.2345	1.0570	744.4846
.0659	.9705	1.5865	.3760	.3765	.4852	2.1400	1515.661	1467.447	.4812	.1864	.2406	1.0612	751.5658
.0692	.9873	1.5981	.3800	.3742	.4937	2.1444	1467.542	722.196	.4896	.1884	.2448	1.0633	727.7051
.0715	1.0087	1.6141	.3880	.3742	.5044	2.1471	1450.502	1004.426	.5002	.1924	.2501	1.0647	719.2558
.0738	1.0333	1.6305	.3920	.3693	.5167	2.1554	1438.797	750.168	.5124	.1944	.2562	1.0688	713.4513
.0771	1.0474	1.6415	.3980	.3700	.5237	2.1565	1395.387	939.366	.5194	.1974	.2597	1.0693	691.9260
.0781	1.0622	1.6522	.4020	.3687	.5311	2.1599	1396.121	1014.255	.5267	.1993	.2634	1.0710	692.2899
.0814	1.0813	1.6663	.4080	.3677	.5406	2.1634	1362.836	633.100	.5362	.2023	.2681	1.0728	675.7850
.0860	1.1129	1.6883	.4140	.3628	.5564	2.1732	1326.973	762.009	.5518	.2053	.2759	1.0776	658.0016
.0903	1.1489	1.7160	.4260	.3619	.5745	2.1792	1303.395	678.360	.5697	.2112	.2849	1.0806	646.3101
.0959	1.1782	1.7378	.4340	.3597	.5891	2.1859	1257.803	576.159	.5842	.2152	.2921	1.0839	623.7025
.1005	1.2070	1.7607	.4440	.3594	.6035	2.1903	1229.203	616.923	.5985	.2202	.2993	1.0861	609.5211
.1104	1.2669	1.8045	.4560	.3521	.6335	2.2082	1172.989	625.075	.6282	.2261	.3141	1.0950	581.6461
.1216	1.3393	1.8636	.4800	.3510	.6696	2.2204	1124.527	559.769	.6641	.2380	.3321	1.1010	557.6154
.1318	1.3874	1.8981	.4860	.3433	.6937	2.2385	1074.217	532.688	.6880	.2410	.3440	1.1100	532.6686
.1407	1.4402	1.9396	.4980	.3391	.7201	2.2529	1043.720	513.809	.7141	.2469	.3571	1.1171	517.5459
.1506	1.4833	1.9767	.5120	.3387	.7417	2.2605	1003.636	413.804	.7355	.2539	.3678	1.1209	497.6695
.1628	1.5313	2.0135	.5200	.3334	.7656	2.2764	957.789	430.265	.7593	.2579	.3796	1.1288	474.9356
.1730	1.5789	2.0548	.5340	.3323	.7894	2.2862	928.989	451.562	.7829	.2648	.3915	1.1337	460.6545
.1829	1.6220	2.0880	.5400	.3272	.8110	2.3018	902.190	441.800	.8043	.2678	.4022	1.1414	447.3661
.1941	1.6723	2.1324	.5540	.3258	.8361	2.3129	876.037	414.253	.8292	.2747	.4146	1.1469	434.3975
.2142	1.7486	2.1873	.5580	.3140	.8743	2.3471	829.482	365.454	.8671	.2767	.4335	1.1639	411.3123
.2574	1.9004	2.3153	.5860	.3038	.9502	2.3950	749.115	378.414	.9424	.2906	.4712	1.1876	371.4612
.2798	1.9913	2.3936	.6020	.2981	.9956	2.4245	721.647	336.783	.9874	.2985	.4937	1.2022	357.8408
.3132	2.0805	2.4602	.6060	.2873	1.0403	2.4651	673.350	317.476	1.0317	.3005	.5158	1.2224	333.8918
.3467	2.2038	2.5598	.6180	.2768	1.1019	2.5148	643.696	346.891	1.0928	.3064	.5464	1.2470	319.1874
.3801	2.3127	2.6462	.6260	.2674	1.1563	2.5612	615.894	331.820	1.1468	.3104	.5734	1.2700	305.4016
.4124	2.4215	2.7286	.6300	.2571	1.2108	2.6116	594.045	339.638	1.2008	.3124	.6004	1.2950	294.5670
.4559	2.5704	2.8454	.6380	.2455	1.2852	2.6781	570.019	336.434	1.2746	.3164	.6373	1.3280	282.6535
.4994	2.7142	2.9514	.6400	.2333	1.3571	2.7480	549.163	323.307	1.3459	.3174	.6730	1.3627	272.3116
.5449	2.8581	3.0549	.6400	.2217	1.4291	2.8200	529.679	321.610	1.4173	.3174	.7086	1.3983	262.6504
.6319	3.1428	3.2402	.6280	.1980	1.5714	2.9744	501.803	332.402	1.5584	.3114	.7792	1.4749	248.8272
.6764	3.2931	3.3439	.6260	.1884	1.6466	3.0515	490.996	334.178	1.6329	.3104	.8165	1.5131	243.4684
.7332	3.4808	3.4669	.6200	.1766	1.7404	3.1514	478.597	329.664	1.7260	.3074	.8630	1.5626	237.3203
.7889	3.6638	3.5639	.6020	.1630	1.8319	3.2609	468.002	322.948	1.8168	.2985	.9084	1.6170	232.0665
.8456	3.8438	3.6638	.5880	.1518	1.9219	3.3649	457.893	288.506	1.9060	.2916	.9530	1.6686	227.0540
.9036	3.9945	3.7117	.5580	.1386	1.9972	3.4703	445.170	242.220	1.9807	.2767	.9904	1.7208	220.7452
.9659	4.1345	3.7398	.5220	.1253	2.0673	3.5763	430.948	190.449	2.0502	.2588	1.0251	1.7734	213.6928
1.0250	4.2267	3.7250	.4800	.1127	2.1133	3.6644	415.124	172.511	2.0959	.2380	1.0479	1.8171	205.8463
1.0863	4.3425	3.7500	.4520	.1033	2.1712	3.7503	402.355	142.788	2.1533	.2241	1.0766	1.8597	199.5143
1.1967	4.4493	3.7012	.3840	.0857	2.2246	3.8717	374.155	68.995	2.2062	.1904	1.1031	1.9199	185.5308
1.2511	4.4717	3.6727	.3580	.0795	2.2359	3.9090	359.670	46.570	2.2174	.1775	1.1087	1.9383	178.3485
1.3502	4.4515	3.5940	.3040	.0646	2.2639	3.9911	335.185	49.729	2.2452	.1507	1.1226	1.9790	166.2072
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	313.994	42.327	2.2707	.1279	1.1354	2.0146	155.7001

.9659	4.1345	3.7398	.5220	.1253	2.0673	3.5763	430.948	190.449	2.0502	.2588	1.0251	1.7734	213.6928	
1.0250	4.2267	3.7250	.4800	.1127	2.1133	3.6644	415.124	172.511	2.0959	.2380	1.0479	1.8171	205.8463	
1.0863	4.3425	3.7500	.4520	.1033	2.1712	3.7503	402.355	142.788	2.1533	.2241	1.0766	1.8597	199.5143	
1.1967	4.4493	3.7012	.3840	.0857	2.2246	3.8717	374.155	68.995	2.2062	.1904	1.1031	1.9199	185.5308	
1.2511	4.4717	3.6727	.3580	.0795	2.2359	3.9090	359.670	46.570	2.2174	.1775	1.1087	1.9383	178.3485	
1.3592	4.5278	3.6215	.3040	.0666	2.2639	3.9911	335.185	49.729	2.2452	.1507	1.1226	1.9790	166.2072	
1.4673	4.5793	3.5825	.2580	.0559	2.2896	4.0628	313.996	42.337	2.2707	.1279	1.1354	2.0146	155.7001	
1.5732	4.6185	3.5443	.2160	.0464	2.3092	4.1245	295.367	36.982	2.2902	.1071	1.1451	2.0452	146.4625	
1.6800	4.6579	3.5106	.1760	.0374	2.3290	4.1842	278.929	41.035	2.3097	.0873	1.1549	2.0748	138.3114	
1.7881	4.7068	3.4860	.1380	.0290	2.3534	4.2467	264.795	38.929	2.3339	.0684	1.1670	2.1058	131.3029	
2.0054	4.7778	3.4309	.0660	.0138	2.3889	4.3543	239.650	32.803	2.3691	.0327	1.1846	2.1591	118.8342	
2.2260	4.8504	3.3900	.0020	.0003	2.4252	4.4547	219.165	42.213	2.4051	.0010	1.2026	2.2089	108.6768	
2.6638	5.0759	3.3745	-.1060	-.0209	2.5379	4.6756	191.609	47.317	2.5170	-.0526	1.2585	2.3185	95.0127	
2.8843	5.1710	3.3572	-.1620	-.0313	2.5855	4.7792	180.255	38.257	2.5641	-.0803	1.2821	2.3699	89.3825	
3.1039	5.2443	3.3372	-.2120	-.0404	2.6221	4.8660	169.867	33.197	2.6005	-.1051	1.3002	2.4129	84.2314	
3.3244	5.3171	3.3139	-.2660	-.0500	2.6585	4.9564	160.787	31.997	2.6366	-.1319	1.3183	2.4577	79.7288	
3.5361	5.3827	3.2944	-.3140	-.0583	2.6913	5.0373	153.018	30.792	2.6691	-.1557	1.3345	2.4978	75.8764	
3.7755	5.4559	3.2751	-.3660	-.0670	2.7280	5.1260	145.255	28.564	2.7054	-.1815	1.3527	2.5418	72.0273	
4.0128	5.5189	3.2506	-.4200	-.0760	2.7595	5.2116	138.233	27.926	2.7366	-.2083	1.3683	2.5843	68.5452	
4.2568	5.5904	3.2341	-.4700	-.0839	2.7952	5.2975	131.991	23.595	2.7721	-.2331	1.3861	2.6269	65.4500	
4.4819	5.6307	3.2095	-.5160	-.0915	2.8153	5.3637	126.259	22.714	2.7921	-.2559	1.3960	2.6597	62.6074	
4.8951	5.7445	3.1804	-.6020	-.1046	2.8723	5.5068	117.928	24.627	2.8485	-.2985	1.4243	2.7306	58.4766	
5 1034	5.7897	3.1695	-.6360	-.1096	2.8949	5.5635	114.000	23.333	2.8709	-.3154	1.4355	2.7588	56.5286	
5.3095	5.8412	3.1532	-.6800	-.1162	2.9206	5.6333	110.544	31.007	2.8964	-.3372	1.4482	2.7934	54.8152	
5.5112	5.9159	3.1553	-.7120	-.1201	2.9579	5.7028	107.854	40.034	2.9335	-.3531	1.4667	2.8278	53.4811	
5.7150	6.0036	3.1604	-.7460	-.1240	3.0018	5.7807	105.542	39.703	2.9770	-.3699	1.4885	2.8665	52.3349	
5.9177	6.0773	3.1589	-.7820	-.1285	3.0387	5.8537	103.173	38.730	3.0135	-.3878	1.5068	2.9027	51.1599	
6.1182	6.1597	3.1589	-.8200	-.1329	3.0798	5.9330	101.138	44.718	3.0544	-.4066	1.5272	2.9420	50.1510	
6.3209	6.2577	3.1644	-.8580	-.1369	3.1289	6.0201	99.445	45.887	3.1030	-.4255	1.5515	2.9852	49.3116	
6.5283	6.3477	3.1625	-.9020	-.1419	3.1739	6.1092	97.666	43.369	3.1476	-.4473	1.5738	3.0294	48.4292	
6.9414	6.5267	3.1558	-.9940	-.1521	3.2634	6.2909	94.431	39.821	3.2364	-.4929	1.6182	3.1195	46.8254	
7.1475	6.6016	3.1464	-1.0420	-.1576	3.3008	6.3764	92.756	38.100	3.2735	-.5167	1.6367	3.1619	45.9946	
7.3571	6.6852	3.1428	-1.0860	-.1622	3.3426	6.4624	91.249	38.731	3.3149	-.5385	1.6575	3.2045	45.2476	
7.5609	6.7617	3.1345	-1.1340	-.1675	3.3809	6.5488	89.803	44.188	3.3529	-.5623	1.6765	3.2473	44.5304	
7.7636	6.8647	3.1317	-1.1860	-.1725	3.4324	6.6524	88.784	49.046	3.4040	-.5881	1.7020	3.2987	44.0252	
7.9743	6.9644	3.1245	-1.2440	-.1784	3.4822	6.7603	87.688	42.217	3.4534	-.6169	1.7267	3.3522	43.4818	
8.1864	7.0431	3.1111	-1.3020	-.1846	3.5216	6.8578	86.378	36.895	3.4925	-.6456	1.7462	3.4006	42.8322	
8.3899	7.1177	3.0982	-1.3580	-.1905	3.5589	6.9512	85.172	40.847	3.5295	-.6734	1.7647	3.4469	42.2340	
8.5935	7.2094	3.0870	-1.4200	-.1967	3.6047	7.0592	84.222	38.146	3.5749	-.7041	1.7875	3.5004	41.7628	
9.0107	7.3998	3.0479	-1.5500	-.2109	3.6699	7.2546	81.769	30.308	3.6396	-.7686	1.8198	3.5973	40.5466	
9.2142	7.3996	3.0290	-1.6120	-.2176	3.6998	7.3466	80.612	30.262	3.6692	-.7993	1.8346	3.6429	39.9727	
9.4177	7.4630	3.0121	-1.6740	-.2240	3.7315	7.4404	79.543	27.213	3.7008	-.8301	1.8503	3.6895	39.4427	
9.6161	7.5091	2.9944	-1.7300	-.2301	3.7546	7.5197	78.382	23.694	3.7235	-.8578	1.8618	3.7287	38.8669	
9.8145	7.5570	2.9756	-1.7900	-.2366	3.7785	7.6037	77.285	20.292	3.7473	-.8876	1.8736	3.7704	38.3229	
10.0206	7.5909	2.9547	-1.8480	-.2432	3.7955	7.6788	76.034	5.340	3.7641	-.9164	1.8820	3.8077	37.7027	
10.2267	7.5790	2.9209	-1.9100	-.2517	3.7895	7.7350	74.385	-28.727	3.7582	-.9471	1.8791	3.8355	36.8853	
10.4251	7.4765	2.8721	-1.9580	-.2616	3.7382	7.7318	71.986	-59.083	3.7073	-.9709	1.8537	3.8340	35.6955	
10.6235	7.3445	2.8217	-1.9960	-.2714	3.6723	7.7040	69.400	-70.757	3.6419	-.9898	1.8210	3.8202	34.4129	
10.8219	7.1957	2.7715	-2.0260	-.2812	3.5978	7.6597	66.752	-69.965	3.5681	-1.0046	1.7840	3.7982	33.0999	
11.0204	7.0669	2.7287	-2.0520	-.2900	3.5334	7.6214	64.381	-66.255	3.5042	-1.0175	1.7521	3.7792	31.9243	
11.2213	7.0114	2.7075	-2.0700	-.2948	3.5057	7.6118	62.734	-23.397	3.4767	-1.0264	1.7384	3.7745	31.1075	
11.4198	6.9733	2.6900	-2.0900	-.2993	3.4867	7.6129	61.310	-12.721	3.4578	-1.0364	1.7289	3.7750	30.4016	
11.6157	6.9611	2.6804	-2.1060	-.3021	3.4805	7.6229	60.171	-4.674	3.4518	-1.0443	1.7259	3.7800	29.8367	
11.8192	6.9548	2.6724	-2.1220	-.3047	3.4774	7.6359	59.081	-6.776	3.4486	-1.0522	1.7243	3.7864	29.2964	
12.0201	6.9338	2.6601	-2.1400	-.3082	3.4669	7.6436	57.919	-13.201	3.4382	-1.0612	1.7191	3.7902	28.7200	
12.2186	6.9021	2.6446	-2.1600	-.3126	3.4511	7.6479	56.719	-16.336	3.4225	-1.0711	1.7113	3.7923	28.1251	
12.4221	6.8681	2.6279	-2.1820	-.3173	3.4340	7.6530	55.516	-13.077	3.4057	-1.0820	1.7028	3.7949	27.5285	
12.6180	6.8496	2.6158	-2.2020	-.3211	3.4248	7.6639	54.508	-7.897	3.3965	-1.0919	1.6982	3.8003	27.0285	
12.8189	6.8368	2.6059	-2.2200	-.3243	3.4184	7.6757	53.553	-5.342	3.3902	-1.1008	1.6951	3.8061	26.5553	
13.0225	6.8280	2.5970	-2.2380	-.3274	3.4140	7.6894	52.649	-2.784	3.3858	-1.1097	1.6929	3.8129	26.1068	
13.2285	6.8255	2.5867	-2.2640	-.3313	3.4127	7.7143	51.809	.091	3.3845	-1.1226	1.6923	3.8253	25.6905	
13.4397	6.8285	2.5793	-2.2860	-.3344	3.4142	7.7380	51.018	-.193	3.3860	-1.1336	1.6930	3.8370	25.2980	
13.6534	6.8246	2.5718	-2.3040	-.3373	3.4123	7.7542	50.191	-.906	3.3841	-1.1425	1.6920	3.8451	24.8880	
13.8696	6.8246	2.5645	-2.3240	-.3402	3.4123	7.7744	49.408	1.394	3.3841	-1.1524	1.6920	3.8551	24.5000	
14.0884	6.8307	2.5580	-2.3460	-.3431	3.4153	7.7996	48.684	3.965	3.3871	-1.1633	1.6936	3.8676	24.1410	
14.2970	6.8414	2.5547	-2.3620	-.3450	3.4207	7.8211	48.049	3.667	3.3924	-1.1712	1.6962	3.8782	23.8259	
14.5081	6.8461	2.5473	-2.3860	-.3482	3.4230	7.8476	47.382	6.450	3.3947	-1.1831	1.6974	3.8914	23.4950	
14.7193	6.8487	2.5453	-2.4060	-.3500	3.4343	7.8791	46.856	10.844	3.4059	-1.1931	1.7030	3.9070	23.2341	
14.9355	6.8504	2.5444	-2.4240	-.3514	3.4462	7.9092	46.336	12.127	3.4177	-1.2020	1.7089	3.9219	22.9766	

13.4397	6.8285	2.5793	-2.2860	-.3244	3.4142	7.7380	51.018	-.193	3.3860	-1.1336	1.6930	3.8370	25.2980	
13.6534	6.8246	2.5718	-2.3040	-.3373	3.4123	7.7542	50.191	-.906	3.3841	-1.1425	1.6920	3.8451	24.8880	
13.8696	6.8246	2.5645	-2.3240	-.3402	3.4123	7.7744	49.408	1.394	3.3841	-1.1524	1.6920	3.8551	24.5000	
14.0884	6.8307	2.5580	-2.3460	-.3431	3.4153	7.7996	48.684	3.965	3.3871	-1.1633	1.6936	3.8676	24.1410	
14.2970	6.8414	2.5547	-2.3620	-.3450	3.4207	7.8211	48.049	3.667	3.3924	-1.1712	1.6962	3.8782	23.8259	
14.5081	6.8461	2.5473	-2.3860	-.3482	3.4230	7.8476	47.382	6.450	3.3947	-1.1831	1.6974	3.8914	23.4950	
14.7193	6.8687	2.5453	-2.4060	-.3500	3.4343	7.8791	46.856	10.844	3.4059	-1.1931	1.7030	3.9070	23.2341	
14.9355	6.8924	2.5444	-2.4240	-.3514	3.4462	7.9092	46.336	12.127	3.4177	-1.2020	1.7089	3.9219	22.9766	
15.1568	6.9218	2.5426	-2.4480	-.3534	3.4609	7.9480	45.853	8.400	3.4323	-1.2139	1.7161	3.9412	22.7372	
15.3832	6.9298	2.5374	-2.4680	-.3559	3.4649	7.9722	45.230	7.370	3.4362	-1.2238	1.7181	3.9532	22.4283	
15.6147	6.9557	2.5350	-2.4920	-.3581	3.4779	8.0094	44.726	9.582	3.4491	-1.2357	1.7246	3.9716	22.1782	
15.8513	6.9745	2.5309	-2.5160	-.3606	3.4873	8.0430	44.177	7.449	3.4584	-1.2476	1.7292	3.9883	21.9060	
15.9455	6.9811	2.5303	-2.5220	-.3611	3.4905	8.0524	43.957	9.800	3.4617	-1.2506	1.7308	3.9929	21.7971	
16.0777	6.9978	2.5306	-2.5320	-.3617	3.4989	8.0708	43.700	12.099	3.4700	-1.2555	1.7350	4.0021	21.6693	
16.3016	7.0237	2.5295	-2.5520	-.3632	3.5118	8.1040	43.258	9.871	3.4828	-1.2655	1.7414	4.0185	21.4504	
16.5306	7.0424	2.5289	-2.5660	-.3643	3.5212	8.1276	42.773	9.667	3.4921	-1.2724	1.7461	4.0302	21.2096	
16.7646	7.0685	2.5265	-2.5900	-.3663	3.5342	8.1648	42.331	12.322	3.5050	-1.2843	1.7525	4.0487	20.9906	
17.0063	7.1011	2.5288	-2.6040	-.3667	3.5506	8.1953	41.921	13.380	3.5212	-1.2912	1.7606	4.0638	20.7875	
17.2505	7.1305	2.5285	-2.6260	-.3681	3.5667	8.2338	41.516	15.020	3.5373	-1.3021	1.7686	4.0828	20.5862	
17.4896	7.1736	2.5298	-2.6480	-.3691	3.5868	8.2761	41.177	14.097	3.5572	-1.3131	1.7786	4.1038	20.4185	
17.7491	7.2032	2.5321	-2.6600	-.3693	3.6016	8.3031	40.742	11.641	3.5718	-1.3190	1.7859	4.1172	20.2027	
17.9933	7.2322	2.5304	-2.6840	-.3712	3.6161	8.3418	40.350	14.524	3.5862	-1.3309	1.7931	4.1364	20.0084	
18.2325	7.2733	2.5332	-2.7020	-.3716	3.6367	8.3806	40.046	12.555	3.6066	-1.3398	1.8033	4.1557	19.8577	
18.4818	7.2931	2.5295	-2.7260	-.3739	3.6465	8.4148	39.613	10.095	3.6164	-1.3517	1.8082	4.1726	19.6429	
18.6090	7.3087	2.5295	-2.7360	-.3745	3.6543	8.4327	39.426	16.085	3.6241	-1.3567	1.8121	4.1815	19.5502	
18.7285	7.3325	2.5294	-2.7520	-.3755	3.6662	8.4607	39.302	21.408	3.6359	-1.3646	1.8180	4.1954	19.4884	
18.9855	7.3913	2.5345	-2.7740	-.3755	3.6957	8.5124	39.080	18.571	3.6651	-1.3755	1.8326	4.2210	19.3783	
19.2297	7.4261	2.5334	-2.8000	-.3773	3.7131	8.5560	38.764	17.779	3.6824	-1.3884	1.8412	4.2427	19.2219	
19.4663	7.4765	2.5348	-2.8280	-.3785	3.7383	8.6095	38.552	30.748	3.7074	-1.4023	1.8537	4.2692	19.1168	
19.6673	7.5573	2.5437	-2.8520	-.3777	3.7786	8.6741	38.569	118.045	3.7474	-1.4142	1.8737	4.3012	19.1250	STOP

A.BASIC RESPRT

CDOS 16K BASIC. VERSION 5.4

TRIAXIAL TEST (Set Up / Take Down)

103 WCC 4-202 (1980)

Proj. No BICHOSU Proj. Eng. MM Cell No 1 Piston dia.: ☐ 3/8" ☒ 1/2"

Type Test CIU-C File No I-321

Loading Conditions:							
☐ Dynamic	☒ Undrained	☒ Compression	☒ Constant Cell pressure
☒ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type of Consolidation:			Piston Screwed in: ☐ Yes; ☒ No
☒ Isotropic	☐ Ko stress path		
☐ Anisotropic	☐ 45° Stress path		

☒ Undisturbed	☐ Reconstituted	☐ Impact	☐ Constant Effort	
Boring No COE 14	Composite No	☐ Static	____ layers; ____ lb {Hammer Tamp.}	
Sample No S-28	Specimen No C	☐ Kneading	____ Blows-Tamps/layer	
Depth (ft) 57.6	Remarks	☐ Tamping	☐ Undercompaction	
☐ Ends capped with Castone; ☐ Geomarine Sample		☐ Other	____ layers; ____ Uni (%)	

Water Content				N Final
Location	T	B		Ave
Container No	LA-35	LA114		595
Wgt. Container + Wet Soil (gm)	55.01	114.51		272.91
Wgt Container + Dry Soil (gm)	51.50	100.95		247.90
Wgt. Container (gm)	33.79	34.37		127.77
Wgt Dry Soil (gm)	17.71	66.58		120.13
WATER CONTENT (%)	19.82	20.37	20.09	20.85

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc): ____ gm

Stone (etc): ____ gm

Wet Initial: 432.35 gm

Wet Final: 435.35 gm

Excess Ovendry - Dish No ____

Wgt Dish + Dry Soil ____ gm

Wgt. Dish ____ gm

Wgt. Excess Dry Soil ____ gm

Dimensions of Specimen

Height (in) — Diameter (in) or ____

	Initial (Lo)	Final (Lf)	Initial	Final	Dave = (D1+2D2+D3)/4
1	3.940	3.240	1-T 2.018	2.285	
2	3.940	3.247	2-M 2.007	2.315	
3	3.941	3.250	3-B 2.005	2.155	
4	3.9415	3.235	1'-T 2.010		
5	3.941	7240	2'-M 2.004		
Ave	3.9407	3.2424	3-B 2.004		
			Ave 2.0083	2.2675	

ΔLc = ____ in

ΔLe = ____ in

ΣΔL = ____ in

Lo - Lf = ____ in

Ao = πD²/4 = 3.1677 in²

Vo = 1h² · 16.387 = 204.561 cm³

Atm 1.5454(D²)² = 28.0431 10⁻³ kg

Membrane: Thickness = 0.0105 in; Circumference (Cm) = 5.74375 in; Diam = Cm/π = 1.8283 in

Filter Paper: Top + bottom: ☐ Yes; ☒ No

Filter Strips: ☒ Yes; ☐ No

12 Vertical at ¼" - Whatman #54

____ Spiral at ¼" - Whatman #1 or ____

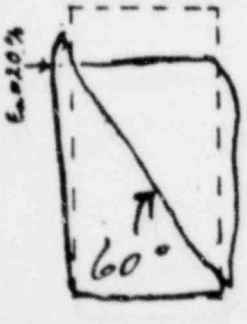
Wgt top cap = ____ gm, 0.255 10⁻³ kg

Wgt (cap, dial + piston) = ____ gm, ____ 10⁻³ kg

Preliminary

Yco = 131.95 lb/ft³ Yd = 109.88 lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo taken.

Other Remarks: 4 KSF

Preliminary Cal. by TD Reviewed by RD

☐ Trimmed ☐ Reconstituted by RD Date 10/8/81

Set up by MM Date 10/8/81

Taken down by MM Date 10/14/81

See back for Summary; Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS T-321

Type Test: CID-C ☒ Undisturbed ☐ Reconstituted-Specimen 104

☐ Dynamic f_1/H_2 or ____ ☐ Sinusoidal or ____ ☒ Static $\dot{\epsilon}$ .695 %/hr.

Consolidation History Units: tsf or KP	Max Induced Pwt Pressure: Uncorr.	Corr.*	☒ Preshear/perm. ☐ Pre-cy loading: Uncorr.	Corr.*	Preshear after Cy-loading: Uncorr.	Corr.*
$\bar{\sigma}_{cell}$		——	18.4032	——		
u		——	14.4000	——		
$\bar{\sigma}_v$			/			
$\bar{\sigma}_h$			4.0032			
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$			/			
$K_c = \bar{\sigma}_v/\bar{\sigma}_h$			1.00			
OCR						
Consol. Time	☐ Overnight ____ days ____ hours		☐ Overnight 2 days ____ hours		☐ Overnight ____ days ____ hours	

* Corrected for effects of membrane, filter strips, etc.

H_o = 3.9407 in
A_o = 3.1677 in²
V_o = 204.561 cm³
D_{ov}/D_{om} = ____
G_s = 2.766 ☒ Assumed ☐ Measured
B_g = 98.4 %
Area Corr. Factors: C
Undrained = 1.161
$C = \frac{1}{\epsilon_f}\left(1 - \frac{A_c}{A_{sm}}\right)$
Drained = ____
$C = \frac{1}{\epsilon_f}\left[1 - \frac{A_c(1+\epsilon_{vf})}{A_{sm}}\right]$

Calculate W_{gt} of Dry Soil	By Initial Water Content	By Final Water Content	By Total Oven-dried Specimen
w_1 (%)			
w_2 (%)			
w_{ave} (%)	20.09	20.85	
Wgt. of Wet Soil, W_T (gm)	432.35	435.35	
Partial Wgt Dry Soil (gm)	ΔW_T (time) during test		
Wgt Excess Overdry Soil	Corr. Wet Wgt. $W_c = W_T + \Delta W_T$		
Total Wgt. Oven Dry Soil, W_s (gm)	360.02	360.24	

W_s used: $W_{s\,used}$ = 360.24 gm

Variations in Height and Volume During Consolidation	During Initial Consol. with out back-pressure	During Back-Pressuring ΔV_b = vol. in	After Backpressuring $\bar{\sigma}_h$ (psi) From 13.9 To 27.8	$\bar{\sigma}_h$ (psi) From 13.9 To 27.8	$\bar{\sigma}_h$ (psi) From ____ To ____
	Sign Convention: (-) ΔV in, (+) ΔV out, (-) ΔL up, (+) ΔL down				
ΔL (in)	0.009	0.004	0.011	0.0126	
ΔV_m (cm³)	-0.9 -0.4	-1.72 -0.08	1.33	-1.62 -0.02	
$\frac{\Delta V_a}{3V_o} = (\Delta H/H_o)$	+0.40	0.62	1.71		
$R = \Delta V_m/\Delta V_a$	Rused = 0.78		0.78		
Corrected $\Delta V_a = R \cdot \Delta V_a$	1.09	0.48			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in $\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ____ cm³

ΔV_T (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures

ΔV_c by W_{gt} change $= W_o - W_s - (\Delta V_b + \Delta V_T)$

ΔW_{gt} = -3.00 gm
$\Sigma(\Delta V_b + \Delta V_T)$ = -2.12 cm³
$\therefore \Delta V_c$ = -0.88 cm³

ΔV_c by recorded/calculated volume changes = Σ selected ΔV

$\Delta V_c = \overset{\Delta V_1}{1.09} + \overset{\Delta V_2}{0.48} + \overset{\Delta V}{-0.03} = 3.16$ cm³

ΔV_c assuming S = 100% $V_F = (W_s/G_s + w_i W_s)/\gamma_w$

Undrained: $\Delta V_c = V_o - V_F$
w_i = 20.85 %
V_F = 205.719 cm³
$V_F + \Delta V_T$ = ____ cm³
$\therefore \Delta V_c$ = -1.16 cm³

Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$

Conclusions

ΔV_c used (ave ✓ values) = 0.373 cm³ $\therefore V_c$ = 204.188 cm³; ΔL_c = 0.0256 in; $\therefore L_c$ = 3.9151 in

$A_c = V_c/L_c$ (cm³/in)/16.387 = 3.1826 in²/0.144 = 22.1016 $\times 10^{-3}$ ft²

ϵ_{ac} = 0.65 %; ϵ_v 0.18 %; $1-\epsilon_v$ = ____ $\epsilon_{vf}^{\#}$ = .1825; $\epsilon_{ve}^{\#}$ = ____ # not in percent.

At max. induced pwt pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (in² — cm² ft² $\times 10^{-3}$)	Volume (cm³)	Water Content (%)	Total/Dry Density (lb/ft³)	Saturation (%)		
Initial	3.9407	21.9981	204.561	20.02	131.95 / 109.94	97.5		
After Consol.	3.9151	22.1016	204.188	20.85	133.11 / 110.14	102.1		

$S = \omega G_s \cdot \gamma_d/(G_s \cdot \gamma_w - \gamma_d) = \omega \cdot G_s \cdot \gamma_d/(G_s \cdot \gamma_w(100\omega) - \gamma_d)$ → G_s for S = 100% = 2.799

Calculated by TB Reviewed by RR

psi × 0.0072 = tsf
w for S = 100% = $G_s \cdot \gamma_d/\gamma_w - \gamma_d/G_s \cdot \gamma_w = G_s \cdot \gamma_w - \gamma_d/G_s \cdot \gamma_w$
γ_w @ 20°C (tsm) = 62.32 lb/ft³ = 0.9982 gm/cm³ (G.M) = 64.2 (lb/ft³)

1	DATA FILE IDENT. NO.	T-321
2	PROJECT NO.	81C4055T3
3	BORING NO.	COF-14
4	SAMPLE NO.	S-28
5	SPECIMEN NO.	C
6	DEPTH	59.6
7	TEST NO.	ID-123
8	FILE # FOR LOAD CELL OR PROVING RING	2000
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	1
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	3.9407
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.0083
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	204.56
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.255
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	1.015
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	0.0
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.0105
25	MEMBRANE DIAMETER IN INCHES	1.8283
26	FILTER STRIP CORRECTION CONSTANT	1.596
27	RIGHT CYLINDER DISTORTION FACTOR	1.161
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION **RING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	9.2016
35	BACK PRESSURE IN TSF	7.200
36	AXIAL DEFORMATION IN INCHES	0.0256
37	VOLUME CHANGE IN CU. CM.	0.373
38	PISTON DRAG CORRECTION IN TONS*10**-3	12.87
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0	0145.25.	74.7.223
.01452.	25.996.	7.224
.01457.	26.106.	7.229
.01471.	26.544.	7.231
.01480.	27.583.	7.238
.01485.	28.623.	7.245
.01489.	29.718.	7.255
.01503.	30.977.	7.265
.01513.	32.071.	7.277
.01522.	34.42.	7.300
.01531.	35.46.	7.307
.01550.	38.52.	7.339
.01569.	40.50.	7.358
.01583.	42.34.	7.382

.01503.	30.977.	7.265
.01513.	32.071.	7.277
.01522.	34.42.	7.300
.01531.	35.46.	7.307
.01550.	38.52.	7.329
.01569.	40.50.	7.358
.01583.	42.36.	7.382
.01602.	44.22.	7.400
.01635.	47.34.	7.439
.01672.	50.07.	7.471
.01714.	52.48.	7.504
.01756.	54.83.	7.531
.01799.	56.80.	7.557
.01841.	58.45.	7.576
.01883.	59.92.	7.598
.01925.	61.24.	7.615
.01972.	62.39.	7.632
.02056.	64.58.	7.659
.02145.	66.44.	7.683
.02230.	68.13.	7.703
.02319.	69.89.	7.720
.02450.	71.91.	7.744
.02576.	73.94.	7.762
.02712.	75.52.	7.783
.02839.	77.60.	7.795
.03021.	79.96.	7.811
.03190.	82.20.	7.828
.03363.	84.39.	7.842
.03546.	86.36.	7.846
.03724.	88.44.	7.864
.03902.	90.30.	7.865
.04127.	92.93.	7.879
.04357.	95.50.	7.884
.04586.	97.91.	7.894
.04806.	100.37.	7.899
.05031.	103.00.	7.898
.05251.	105.46.	7.904
.05481.	107.98.	7.906
.05706.	110.49.	7.900
.05935.	113.18.	7.897
.06160.	115.48.	7.897
.06610.	120.62.	7.888
.07050.	126.04.	7.885
.07491.	131.68.	7.867
.07945.	137.53.	7.852
.08390.	143.33.	7.832
.09304.	155.32.	7.786
.10199.	167.80.	7.723
.11117.	180.17.	7.646
.12040.	191.82.	7.563
.12977.	202.22.	7.481
.13895.	210.60.	7.388
.14781.	217.00.	7.303
.15718.	223.73.	7.221
.16734.	226.63.	7.131
.17728.	222.31.	7.060
.18749.	217.60.	7.018
.19737.	213.99.	6.992
.20698.	211.91.	6.973
.21616.	210.71.	6.960
.22506.	209.88.	6.947
.23387.	209.23.	6.936
.24282.	208.57.	6.928
.25205.	208.74.	6.920
.26062.	208.52.	6.915
.26957.	209.45.	6.908
.27833.	210.05.	6.900
.28728.	210.45.	6.899

.26062.	208.52.	6.915
.26957.	209.45.	6.908
.27833.	210.05.	6.900
.28728.	210.65.	6.889
.29627.	211.42.	6.880
.30541.	211.91.	6.869
.31450.	212.62.	6.855
.32359.	213.61.	6.847
0.3324.	215.08.	6.837
0.3410.	216.34.	6.829
0.3504.	217.16.	6.812
0.3596.	218.15.	6.801
0.3686.	218.92.	6.788
0.3774.	220.34.	6.776
0.3863.	221.40.	6.763
0.3954.	222.[illegible].	6.749
0.4044.	223.[illegible].	6.736
0.4132.	224.[illegible].	6.725
0.4220.	225.[illegible].	6.710
0.4306.	226.91.	6.695
0.4396.	229.04.	6.679
0.4484.	230.79.	6.665
0.4572.	232.54.	6.649
0.4657.	233.97.	6.632
0.4745.	235.28.	6.616
0.4835.	236.32.	6.599
0.4925.	237.47.	6.581
0.5014.	237.96.	6.564
0.5103.	238.89.	6.551
0.5191.	240.59.	6.533
0.5278.	241.79.	6.514
0.5367.	242.23.	6.499
0.5451.	243.60.	6.481
0.5540.	244.36.	6.462
0.5629.	245.95.	6.441
0.5716.	246.99.	6.425
0.5805.	248.14.	6.406
0.5896.	249.84.	6.387
0.5990.	250.49.	6.363
0.6086.	251.37.	6.341
0.6179.	250.82.	6.323
0.6267.	251.86.	6.305
0.6359.	253.67.	6.286
0.6451.	255.64.	6.270
0.6543.	256.6[illegible].	6.251
0.[illegible]634.	257.4[illegible].	6.233
0.6728.	259.2[illegible].	6.214
0.6822.	260.2[illegible].	6.192
0.6917.	260.4[illegible].	6.173
0.6953.	260.5[illegible].	6.167
0.7005.	262.1[illegible].	6.155
0.7094.	264.8[illegible].	6.139
0.7187.	265.6[illegible].	6.119
0.7278.	265.65.	6.100
0.7370.	266.09.	6.082
0.7457.	266.58.	6.069
0.7547.	267.41.	6.049
0.7652.	268.01.	6.029
0.7748.	268.77.	6.008
0.7841.	269.49.	5.988
0.7936.	269.43.	5.975
0.7985.	269.32.	5.964
-999..0.0.0.0		

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-321

PROJ. NO.	81C4055T3	REVIEWED BY: JWS
BORING NO.	CDE-14	DATE: 2-20-4
SAMPLE NO.	S-2B	INPUT DATA CHECKED BY: JE
SPECIMEN NO.	C	
DEPTH(FT.)	59.6	TEST NO. ID-123

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
3.9407	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.0083	INITIAL DIAMETER OF SPECIMEN IN INCHES
204.56	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.3000	PISTON DIAMETER IN INCHES
.2550	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
1.0150	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
0.0000	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0105	MEMBRANE THICKNESS IN INCHES
1.8283	MEMBRANE DIAMETER IN INCHES
1.5960	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.1610	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

9.2016	CELL PRESSURE IN TSF
7.2000	BACK PRESSURE IN TSF
.0256	AXIAL DEFORMATION DURING CONSOL. IN INCHES
.37	VOLUME CHANGE DURING CONSOL. IN CU. CM.
12.8700	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, STC:

AXIAL	=	3.9760 KSF
LATERAL	=	4.0283 KSF
MEAN	=	4.0109 KSF
PBAR	=	4.0022 KSF
LATERAL/AXIAL	=	1.0132
AXIAL/LATERAL	=	.9870
OCR	=	1.000

12.8700	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NOMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 4.0022 KSF

AXIAL STRAIN	DEVIATOR STRESS	OBLIQUITY	DELTA-U	A-FACTOR	O	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	O NORM	P-BAR NORM	SECANT NORM
					KSF	KSF	KSF	KSF					

NUMB FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 4.0022 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	σ KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	σ NORM	P-BAR NORM	SECANT NORM
0.0000	-.0523	.9870	0.0000	0.0000	-.0261	4.0022	0.000	0.000	-.0131	0.0000	-.0065	1.0000	0.0000
.0005	-.0407	.9899	.0020	.1732	-.0204	4.0059	2259.636	1320.911	-.0102	.0005	-.0051	1.0009	564.6038
.0018	-.0359	.9911	.0120	.7306	-.0179	3.9984	918.604	464.321	-.0090	.0030	-.0045	.9991	229.5268
.0054	-.0163	.9959	.0160	.4448	-.0082	4.0041	670.506	1291.829	-.0041	.0040	-.0020	1.0005	167.5359
.0077	.0305	1.0076	.0300	.3623	.0153	4.0136	1060.515	2856.794	.0076	.0075	.0038	1.0028	269.9828
.0089	.0775	1.0194	.0440	.3391	.0387	4.0270	1451.353	4258.565	.0194	.0110	.0097	1.0052	362.6422
.0100	.1269	1.0320	.0640	.3571	.0635	4.0278	1798.985	3212.855	.0317	.0160	.0159	1.0064	449.5031
.0135	.1836	1.0465	.0840	.3561	.0918	4.0361	1742.452	1757.319	.0459	.0210	.0229	1.0085	435.3776
.0161	.2329	1.0594	.1080	.3787	.1164	4.0368	1772.169	3272.025	.0582	.0270	.0291	1.0086	442.8028
.0184	.3390	1.0875	.1540	.3936	.1695	4.0438	2127.446	3326.423	.0847	.0385	.0423	1.0104	531.5741
.0207	.3858	1.0999	.1680	.3835	.1929	4.0532	2117.559	2441.195	.0964	.0420	.0482	1.0128	529.1037
.0255	.5238	1.1380	.2320	.4027	.2619	4.0582	2255.569	2340.494	.1309	.0580	.0654	1.0140	563.5874
.0304	.6130	1.1631	.2700	.4058	.3065	4.0648	2188.748	2090.575	.1532	.0675	.0766	1.0157	546.8914
.0340	.6968	1.1878	.3180	.4245	.3484	4.0587	2205.100	2034.480	.1741	.0795	.0871	1.0141	550.9770
.0388	.7805	1.2124	.3540	.4251	.3903	4.0646	2145.072	1695.072	.1950	.0885	.0975	1.0156	535.9781
.0473	.9209	1.2561	.4320	.4439	.4604	4.0568	2059.486	1481.343	.2301	.1079	.1150	1.0136	514.5931
.0567	1.0435	1.2954	.4960	.4526	.5217	4.0541	1932.474	1152.088	.2607	.1239	.1304	1.0130	482.8573
.0674	1.1515	1.3322	.5620	.4668	.5757	4.0421	1785.201	993.991	.2877	.1404	.1439	1.0100	446.0591
.0782	1.2568	1.3683	.6160	.4706	.6284	4.0407	1674.851	891.397	.3140	.1539	.1570	1.0096	418.4866
.0891	1.3448	1.4002	.6680	.4781	.6724	4.0327	1567.255	743.720	.3360	.1669	.1680	1.0076	391.6020
.0999	1.4184	1.4269	.7060	.4800	.7092	4.0315	1472.580	647.865	.3544	.1764	.1772	1.0073	367.9460
.1106	1.4838	1.4526	.7500	.4882	.7419	4.0202	1388.898	578.203	.3707	.1874	.1854	1.0045	347.0368
.1213	1.5424	1.4754	.7840	.4916	.7712	4.0156	1314.416	484.913	.3854	.1959	.1927	1.0033	328.4265
.1333	1.5932	1.4963	.8180	.4971	.7966	4.0070	1234.180	437.379	.3981	.2044	.1990	1.0012	308.3782
.1548	1.6901	1.5355	.8720	.5004	.8451	4.0014	1125.686	405.638	.4223	.2179	.2111	.9998	281.2695
.1775	1.7719	1.5700	.9200	.5043	.8860	3.9943	1027.609	350.724	.4427	.2299	.2214	.9980	256.7633
.1992	1.8461	1.6016	.9600	.5057	.9230	3.9914	952.857	340.609	.4613	.2399	.2306	.9973	238.0854
.2220	1.9233	1.6338	.9940	.5031	.9616	3.9960	890.046	300.998	.4806	.2484	.2403	.9985	222.3912
.2554	2.0111	1.6734	1.0420	.5050	1.0055	3.9919	807.828	268.431	.5025	.2604	.2512	.9974	201.8478
.2876	2.0994	1.7116	1.0780	.5010	1.0497	4.0001	748.141	234.676	.5246	.2694	.2623	.9995	186.9341
.3223	2.1671	1.7451	1.1200	.5046	1.0836	3.9919	688.522	236.827	.5415	.2798	.2707	.9974	172.0376
.3548	2.2575	1.7827	1.1440	.4952	1.1288	4.0132	651.055	248.534	.5641	.2858	.2820	1.0027	162.6757
.4013	2.3590	1.8270	1.1760	.4877	1.1795	4.0319	600.924	220.754	.5894	.2938	.2947	1.0074	150.1498
.4444	2.4554	1.8712	1.2100	.4825	1.2277	4.0461	564.234	217.811	.6135	.3023	.3068	1.0110	140.9824
.4886	2.5492	1.9136	1.2380	.4758	1.2746	4.0651	532.421	195.666	.6370	.3093	.3185	1.0157	133.0333
.5354	2.6328	1.9462	1.2460	.4640	1.3164	4.0989	501.554	186.882	.6579	.3113	.3289	1.0242	125.3207
.5808	2.7214	1.9909	1.2820	.4621	1.3607	4.1072	477.549	183.905	.6800	.3203	.3400	1.0262	119.3227
.6263	2.8001	2.0203	1.2840	.4501	1.4000	4.1445	455.435	183.715	.6996	.3208	.3498	1.0356	113.7973
.6838	2.9118	2.0719	1.3120	.4426	1.4559	4.1724	433.504	189.844	.7276	.3278	.3638	1.0425	108.3174
.7425	3.0206	2.1161	1.3220	.4301	1.5103	4.2168	413.857	179.358	.7548	.3303	.3774	1.0536	103.4084
.8010	3.1221	2.1621	1.3420	.4227	1.5611	4.2476	396.308	179.173	.7801	.3353	.3901	1.0613	99.0234
.8572	3.2260	2.2053	1.3520	.4123	1.6130	4.2895	382.444	189.137	.8061	.3378	.4030	1.0718	95.5593
.9147	3.3372	2.2459	1.3500	.3982	1.6686	4.3472	370.569	188.882	.8338	.3373	.4169	1.0862	92.5922
.9709	3.4407	2.2903	1.3620	.3898	1.7204	4.3870	359.789	182.213	.8597	.3403	.4299	1.0961	89.8985
1.0296	3.5466	2.3320	1.3660	.3795	1.7733	4.4359	349.537	181.728	.8862	.3413	.4431	1.1084	87.3370
1.0871	3.6519	2.3654	1.3540	.3654	1.8260	4.5006	340.751	188.379	.9125	.3383	.4562	1.1245	85.1416
1.1456	3.7651	2.4045	1.3480	.3530	1.8825	4.5632	333.228	179.969	.9408	.3368	.4704	1.1402	83.2620
1.2030	3.8608	2.4402	1.3480	.3444	1.9304	4.6110	325.264	176.813	.9647	.3368	.4823	1.1521	81.2721
1.3180	4.0758	2.5103	1.3300	.3221	2.0379	4.7366	313.215	196.884	1.0184	.3323	.5092	1.1805	78.2615
1.4304	4.3081	2.5928	1.3240	.3036	2.1540	4.8588	304.843	211.769	1.0764	.3308	.5382	1.2140	76.1697
1.5430	4.5524	2.6610	1.2980	.2796	2.2762	5.0169	298.422	217.413	1.1375	.3218	.5687	1.2536	74.5651
1.6590	4.8051	2.7342	1.2580	.2589	2.4025	5.1733	292.797	218.932	1.2006	.3143	.6003	1.2926	73.1596
1.7726	5.0551	2.7984	1.2180	.2384	2.5275	5.3384	288.123	220.179	1.2631	.3043	.6315	1.3339	71.9919
2.0061	5.5697	2.9187	1.1260	.2002	2.7848	5.6877	280.247	226.947	1.3917	.2813	.6958	1.4212	70.0240
2.2347	6.1034	3.0150	1.0000	.1623	3.0517	6.0807	275.460	228.749	1.5250	.2499	.7625	1.5193	68.8278
2.4692	6.6287	3.0825	.8460	.1265	3.3144	6.4971	270.578	216.079	1.6563	.2114	.8281	1.6235	67.6079
2.7049	7.1193	3.1257	.6800	.0947	3.5597	6.9068	265.133	194.467	1.7789	.1699	.8894	1.7263	66.2475
2.9442	7.5521	3.1496	.5160	.0677	3.7760	7.2893	258.280	163.474	1.8870	.1289	.9435	1.8213	64.5351
3.1787	7.8947	3.1341	.3300	.0414	3.9474	7.6467	250.007	129.483	1.9726	.0825	.9863	1.9106	62.4679
3.4050	[illegible]	[illegible]	[illegible]	[illegible]	4.0750	7.9444	240.891	112.151	2.0364	.0400	1.0182	1.9850	60.1901

90

2.2347	6.1634	3.0150	1.0000	.1623	3.0517	6.0807	275.460	229.749	1.5250	.2499	.7625	1.5193	68.8278		
2.4692	6.6287	3.0825	.8460	.1265	3.3144	6.4974	270.578	216.079	1.6563	.2114	.8281	1.6235	67.6079		
2.7049	7.1193	3.1257	.6800	.0947	3.5597	6.9088	265.133	194.467	1.7789	.1699	.8894	1.7263	66.2475		
2.9442	7.5521	3.1496	.5160	.0677	3.7760	7.2893	258.280	163.474	1.8870	.1289	.9435	1.8213	64.5351		
3.1787	7.8947	3.1341	.3300	.0414	3.9474	7.6467	250.007	129.483	1.9726	.0825	.9863	1.9106	62.4679		
3.4050	8.1501	3.1063	.1600	.0194	.0750	7.9444	240.891	112.151	2.0364	.0400	1.0182	1.9850	60.1901		
3.6444	8.4168	3.0867	-.0040	-.0606	4.2084	8.2419	232.391	74.492	2.1031	-.0010	1.0515	2.0594	58.0663		
3.9039	8.5142	3.0207	-.1840	-.0216	4.2571	8.4707	219.437	-23.321	2.1274	-.0460	1.0637	2.1165	54.8296		
4.1577	8.3005	2.9057	-.3260	-.0392	4.1503	8.5059	200.898	-86.182	2.0740	-.0815	1.0370	2.1253	50.1973		
4.4185	8.0705	2.8178	-.4100	-.0507	4.0353	8.4750	183.835	-79.916	2.0165	-.1024	1.0083	2.1176	45.9339		
4.6709	7.8897	2.7564	-.4620	-.0584	3.9449	8.4368	170.033	-59.012	1.9714	-.1154	.9857	2.1080	42.4852		
4.9163	7.7759	2.7165	-.5000	-.0641	3.8879	8.4179	159.227	-39.140	1.9429	-.1249	.9715	2.1033	39.7853		
5.1508	7.7011	2.6903	-.5260	-.0681	3.8506	8.4066	150.527	-28.722	1.9242	-.1314	.9621	2.1005	37.6115		
5.3782	7.6430	2.6680	-.5520	-.0720	3.8215	8.4037	143 085	-23.893	1.9097	-.1379	.9549	2.0998	35.7518		
5.6032	7.5930	2.6491	-.5740	-.0753	3.7965	8.4008	136.445	-22.199	1.8972	-.1434	.9486	2.0991	34.0929		
5.8318	7.5423	2.6324	-.5900	-.0780	3.7712	8.3915	130.228	-14.539	1.8846	-.1474	.9423	2.0968	32.5394		
6.0675	7.5260	2.6232	-.6060	-.0803	3.7630	8.3995	124.899	-10.544	1.8805	-.1514	.9402	2.0987	31.2080		
6.2864	7.4950	2.6130	-.6160	-.0819	3.7475	8.3941	120.057	-3.552	1.8727	-.1539	.9364	2.0974	29.9980		
6.5150	7.5112	2.6116	-.6300	-.0836	3.7556	8.4163	116.092	4.129	1.8768	-.1574	.9384	2.1029	29.0074		
6.7388	7.5138	2.6066	-.6460	-.0857	3.7569	8.4337	112.277	1.039	1.8774	-.1614	.9387	2.1073	28.0541		
6.9674	7.5158	2.5995	-.6680	-.0886	3.7579	8.4568	108.622	2.368	1.8779	-.1669	.9390	2.1131	27.1409		
7.1970	7.5247	2.5952	-.6860	-.0909	3.7623	8.4794	105.279	1.213	1.8802	-.1714	.9401	2.1187	26.3056		
7.4305	7.5214	2.5871	-.7080	-.0939	3.7607	8.4998	101.927	.530	1.9793	-.1769	.9397	2.1238	25.4680		
7.6626	7.5271	2.5789	-.7360	-.0975	3.7636	8.5308	98.914	4.922	1.8808	-.1839	.9404	2.1315	24.7151		
7.8948	7.5442	2.5772	-.7520	-.0994	3.7721	8.5555	96.221	11.961	1.8850	-.1879	.9425	2.1377	24.0424		
8.1198	7.5815	2.5783	-.7720	-.1015	3.7907	8.5942	94.014	14.854	1.8943	-.1929	.9472	2.1474	23.4907		
8.3395	7.6104	2.5790	-.7880	-.1033	3.8052	8.6248	91.884	8.354	1.9016	-.1969	.9508	2.1550	22.9585		
8.5796	7.6189	2.5697	-.8220	-.1076	3.8095	8.6632	89.412	5.134	1.9037	-.2054	.9518	2.1646	22.3409		
8.8146	7.6347	2.5658	-.8440	-.1103	3.8173	8.6932	87.207	4.912	1.9076	-.2109	.9538	2.1721	21.7900		
9.0445	7.6418	2.5589	-.8700	-.1136	3.8209	8.7229	85.070	9.064	1.9094	-.2174	.9547	2.1795	21.2560		
9.2692	7.6756	2.5581	-.8940	-.1162	3.8378	8.7639	83.371	12.407	1.9179	-.2234	.9589	2.1898	20.8315		
9.4966	7.6979	2.5544	-.9200	-.1192	3.8489	8.8012	81.610	8.997	1.9234	-.2299	.9617	2.1991	20.3915		
9.7290	7.7169	2.5495	-.9480	-.1225	3.8585	8.8388	79.856	9.721	1.9282	-.2369	.9641	2.2085	19.9532		
9.9589	7.7428	2.5465	-.9740	-.1255	3.8714	8.8779	78.272	9.479	1.9346	-.2434	.9673	2.2183	19.5575		
10.1836	7.7601	2.5432	-.9960	-.1280	3.8800	8.9087	76.715	3.761	1.9390	-.2489	.9695	2.2260	19.1684		
10.4084	7.7597	2.5339	-1.0260	-.1319	3.8798	8.9386	75.054	7.398	1.9389	-.2564	.9694	2.2334	18.7534		
10.6281	7.7926	2.5313	-1.0560	-.1352	3.8963	8.9852	73.813	20.355	1.9471	-.2639	.9735	2.2451	18.4432		
10.8580	7.8517	2.5332	-1.0880	-.1383	3.9259	9.0469	72.795	22.699	1.9619	-.2719	.9809	2.2605	18.1889		
11.0827	7.8959	2.5334	-1.1160	-.1410	3.9480	9.0972	71.717	19.579	1.9729	-.2788	.9865	2.2731	17.9196		
11.3075	7.9397	2.5324	-1.1480	-.1443	3.9699	9.1512	70.679	17.047	1.9839	-.2868	.9919	2.2866	17.6602		
11.5246	7.9715	2.5284	-1.1820	-.1480	3.9857	9.2012	69.623	13.048	1.9918	-.2953	.9959	2.2991	17.3963		
11.7494	7.9973	2.5240	-1.2140	-.1515	3.9986	9.2463	68.511	8.881	1.9982	-.3033	.9991	2.3103	17.1184		
11.9793	8.0117	2.5169	-1.2480	-.1554	4.0058	9.2876	67.316	7.146	2.0018	-.3118	1.0009	2.3207	16.8200		
12.2091	8.0301	2.5100	-1.2840	-.1596	4.0151	9.3330	66.200	2.449	2.0064	-.3208	1.0032	2.3320	16.5410		
12.4365	8.0230	2.4991	-1.3180	-.1639	4.0115	9.3636	64.933	.587	2.0047	-.3293	1.0023	2.3396	16.2244		
12.6638	8.0328	2.4936	-1.3440	-.1670	4.0164	9.3946	63.844	10.927	2.0071	-.3358	1.0036	2.3474	15.9524		
12.8886	8.0723	2.4909	-1.3800	-.1706	4.0361	9.4505	63.037	13.322	2.0170	-.3448	1.0085	2.3614	15.7507		
13.1108	8.0925	2.4842	-1.4180	-.1749	4.0462	9.4988	62.123	2.396	2.0220	-.3543	1.0110	2.3734	15.5222		
13.3381	8.0827	2.4742	-1.4480	-.1788	4.0414	9.5241	60.991	4.168	2.0196	-.3618	1.0098	2.3797	15.2394		
13.5527	8.1098	2.4695	-1.4840	-.1826	4.0549	9.5738	60.225	6.773	2.0264	-.3708	1.0132	2.3921	15.0481		
13.7800	8.1119	2.4598	-1.5220	-.1872	4.0559	9.6130	59.247	7.795	2.0269	-.3803	1.0134	2.4019	14.8037		
14.0073	8.1452	2.4547	-1.5640	-.1916	4.0726	9.6718	58.523	10.218	2.0352	-.3908	1.0176	2.4166	14.6229		
14.2295	8.1581	2.4487	-1.5960	-.1952	4.0790	9.7104	57.699	6.423	2.0384	-.3988	1.0192	2.4263	14.4170		
14.4568	8.1741	2.4418	-1.6340	-.1995	4.0871	9.7566	56.903	11.251	2.0424	-.4083	1.0212	2.4378	14.2182		
14.6893	8.2100	2.4384	-1.6720	-.2033	4.1050	9.8127	56.247	6.716	2.0514	-.4178	1.0257	2.4519	14.0541		
14.9294	8.2052	2.4255	-1.7200	-.2092	4.1026	9.8585	55.310	-.381	2.0502	-.4298	1.0251	2.4633	13.8201		
15.1746	8.2082	2.4152	-1.7640	-.2145	4.1041	9.9042	54.437	-9.786	2.0509	-.4408	1.0255	2.4747	13.6018		
15.4121	8.1588	2.3979	-1.8000	-.2202	4.0794	9.9157	53.277	-7.916	2.0386	-.4498	1.0193	2.4776	13.3120		
15.6369	8.1700	2.3912	-1.8360	-.2243	4.0850	9.9575	52.582	10.586	2.0414	-.4588	1.0207	2.4890	13.1385		
15.8719	8.2081	2.3887	-1.8740	-.2279	4.1040	10.0147	52.044	17.364	2.0509	-.4682	1.0255	2.5023	13.0039		
16.1069	8.2516	2.3885	-1.9060	-.2306	4.1256	10.0687	51.555	10.695	2.0618	-.4762	1.0309	2.5158	12.8918		
16.3419	8.2583	2.3807	-1.9440	-.2350	4.1292	10.1102	50.855	1.643	2.0635	-.4857	1.0317	2.5262	12.7068		
16.5743	8.2593	2.3726	-1.9800	-.2393	4.1296	10.1469	50.147	7.677	2.0637	-.4947	1.0319	2.5354	12.5301		
16.8144	8.2952	2.3699	-2.0180	-.2428	4.1476	10.2030	49.645	9.021	2.0727	-.5042	1.0363	2.5494	12.4045		
17.0545	8.3026	2.3612	-2.0620	-.2479	4.1513	10.2510	48.990	-3.512	2.0745	-.5152	1.0373	2.5614	12.2408		
17.2971	8.2780	2.3487	-2.1000	-.2532	4.1390	10.2769	48.160	-10.421	2.0684	-.5247	1.0342	2.5678	12.0335		
17.3891	8.2682	2.3444	-2.1120	-.2550	4.1341	10.2841	47.849	10.557	2.0659	-.5277	1.0330	2.5696	11.9557		
17.5219	8.3105	2.3460	-2.1360	-.2566	4.1552	10.3293	47.727	30.706	2.0765	-.5337	1.0382	2.5809	11.9254		
17.7492	8.3277	2.3419	-2.1680	-.2584	4.1889	10.3952	47.495	14.144	2.0933	-.5417	1.0466	2.5974	11.8673		

17.0545	8.3026	2.3512	-2.0620	-.2479	4.1513	10.2510	48.990	-3.512	2.0745	-.5152	1.0373	2.5614	12.2408	
17.2971	8.2780	2.3487	-2.1000	-.2532	4.1390	10.2769	48.160	-10.421	2.0684	-.5247	1.0342	2.5678	12.0335	
17.3891	8.2682	2.3444	-2.1120	-.2550	4.1341	10.2841	47.849	10.557	2.0659	-.5277	1.0330	2.5696	11.9557	
17.5219	8.3105	2.3460	-2.1360	-.2566	4.1552	10.3293	47.727	30.706	2.0765	-.5337	1.0382	2.5809	11.9254	
17.7492	8.3777	2.3499	-2.1680	-.2584	4.1889	10.3952	47.495	14.144	2.0933	-.5417	1.0466	2.5974	11.8673	
17.9868	8.3746	2.3407	-2.2080	-.2632	4.1873	10.4338	46.851	-6.738	2.0925	-.5517	1.0463	2.6070	11.7063	
18.2192	8.3463	2.3280	-2.2460	-.2687	4.1732	10.4579	46.098	-9.234	2.0855	-.5612	1.0427	2.6131	11.5182	
18.4542	8.3315	2.3181	-2.2820	-.2735	4.1658	10.4867	45.430	-5.723	2.0818	-.5702	1.0409	2.6203	11.3515	
18.6764	8.3201	2.3108	-2.3080	-.2770	4.1600	10.5072	44.829	-2.701	2.0789	-.5767	1.0394	2.6254	11.2011	
18.9063	8.3195	2.3025	-2.3480	-.2818	4.1598	10.5471	44.281	-2.708	2.0788	-.5867	1.0394	2.6354	11.0642	
19.1745	8.3057	2.2922	-2.3880	-.2871	4.1528	10.5805	43.589	-3.689	2.0753	-.5967	1.0376	2.6437	10.8913	
19.4197	8.3002	2.2829	-2.4300	-.2923	4.1501	10.6200	43.011	-2.368	2.0739	-.6072	1.0370	2.6536	10.7468	
19.6572	8.2942	2.2741	-2.4700	-.2973	4.1471	10.6572	42.460	-8.268	2.0724	-.6172	1.0362	2.6629	10.6093	
19.8999	8.2802	2.2637	-2.4960	-.3017	4.1301	10.6665	41.772	-15.103	2.0639	-.6237	1.0320	2.6652	10.4373	
20.0250	8.2409	2.2564	-2.5180	-.3051	4.1200	10.6785	41.409	134.385	2.0589	-.6292	1.0294	2.6682	10.3468	STOP

A.BASIC RESPRT

CDOS 16K BASIC, VERSION 5.4

TRIAXIAL TEST (Set Up / Take Down)

112

WCC 2-202 (1/80)

Proj. No. 81C4055-F3 Proj. Eng. [illegible] Cell No. 4-7 Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test CTC-C File No. T-322

Loading conditions:	☐ Dynamic ☒ Static	☒ Undrained ☐ Drained	☒ Compression ☐ Extension	☒ Constant cell pressure ☐ Variable cell pressure
Type of Consolidation:	☒ Isotropic ☐ Anisotropic	☐ K_o stress path ☐ 45° Stress path	Piston Screwed in: ☐ Yes; ☒ No	

☒ Undisturbed ☐ Reconstituted ☐ Impact ☐ Constant Effort

Boring No. COE 14 Composite No. ____ ☐ Static ____ layers; ____ lb {Hammer Tamp.

Sample No. S-28 Specimen No. D ☐ Kneading ____ Blows-Tamps/layer

Depth (ft) 60.1 Remarks ____ ☐ Tamping ☐ Undercompaction

☐ End capped with Castone; ☐ Geomarine Sample ☐ Other ____ layers; ____ Uni (%)

Water Content				Final
Location	T	B	N	Ave
Container No.	CA116	C-34	/	1.514
Wgt. Container + Wet Soil (gm)	52.85	82.70	/	2.6320
Wgt. Container + Dry Soil (gm)	49.71	74.15	/	2.4388
Wgt. Container (gm)	34.40	32.88		1.4952
Wgt. Dry Soil (gm)	15.31	41.27		0.9436
WATER CONTENT (%)	20.51	20.72	20.61	20.96

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (etc): ____ gm

Stone (etc): ____ gm

Wet Initial: 430.10 gm

Wet Final: 430.75 gm

Excess Ovendry - Dish No. ____

Wgt. Dish + Dry Soil ____ gm

Wgt. Dish ____ gm

Wgt. Excess Dry Soil ____ gm

Dimensions of Specimen — Diameter (in) or ____

	Height (in) Initial (L_o)	Height (in) Final (L_f)	Diameter (in) Initial	Diameter (in) Final	$D_{ave}^2 = (D_T + 2D_M + D_B)/4$
1	3.939	3.223	1-T 2.015	2.275	
2	3.9415	3.227	2-M 1.996	2.340	
3	3.940	3.373	3-B 2.007	2.270	
4	3.9421	3.228	1'-T 2.011		
5	3.940	3.285	2'-M 1.996		
Ave	3.9405	3.2472	3-B 2.004		
			Ave 2.0048	2.30625	

ΔL_c = ____ in

ΔL_p = ____ in

$\Sigma \Delta L$ = ____ in

$L_o - L_f$ = ____ in

$A_o = \pi D^2/4 = 3.1567$ in²

$V_o = 16.8 \cdot 16.887 = 203.838$ cm³

$A_{cm} = \frac{1}{5}(5.542)(D^2) = 29.0097$ 10^{-3} m²

Membrane { Thickness = 0.01033 in; Circumference (C_m) = 5.70975 in; Diam = C_m/π = 1.8175 in

Filter Paper: Top + bottom: ☐ Yes; ☒ No

Filter Strips: ☒ Yes; ☐ No

12 Vertical at ¼" - Whatman #54 or ____

____ Spiral at ¼" - Whatman #1 or ____

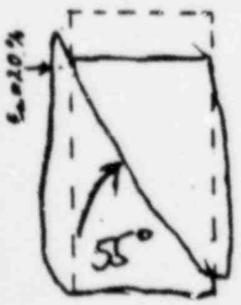
Wgt top cap: ____ gm, 0.255 10^{-2} kgs

Wgt (cap, dial + piston) = ____ gm, ____ 10^{-2} kgs

Preliminary

γ_{co} = 131.73 lb/ft³ γ_{do} = 109.22 lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo Taken.

Other Remarks: 8 KSF

Preliminary Cal. by [illegible] Reviewed by [illegible]

☒ Trimmed ☐ Reconstituted by [illegible] Date 10/6/81

Setup by [illegible] Date 10/8/81

Taken down by [illegible] Date 10/14/81

See back for Summary Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS T-322

Type Test: CIU-C ☒ Undisturbed; ☐ Reconstituted - Specimen 113

☐ Dynamic f/Hz or ____ ☐ sinusoidal or ____ ☒ Static ε = .695 %/hr.

Consolidation History Units: tsf or KSF	Max Induced Pore Pressure Uncorr.	Corr. #	☒ Preshear/post ☐ Pre cy-loading Uncorr.	Corr. #	Preshear after cy-loading Uncorr.	Corr. #
σ_{cell}			22.4064			
u			14.4000			
$\bar{\sigma}_v$						
$\bar{\sigma}_h$			8.0064			
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v/\bar{\sigma}_h$			1.00			
OCR						
Consol. Time	☐ Overnight ____ days ____ hours		☐ Overnight 2 days ____ hours		☐ Overnight ____ days ____ hours	

Corrected for effects of membrane, filter strips, etc.

H_o = 3.9405 in
A_o = 3.1567 in²
V_o = 203.838 cm³
Dso/Dom = ____
G_s = 2.766 ☒ Assumed ☐ Measured
B_{eff} = .960 %
Area Corr. Factors: C
Undrained = 1.378
$C = \frac{1}{\varepsilon_f}\left(1 - \frac{A_c}{A_{sm}}\right)$
Drained = ____
$C = \frac{1}{\varepsilon_f}\left[1 - \frac{A_c(1+\varepsilon_v f)}{A_{sm}}\right]$

γ_w @ 20°C (Stand) = 62.32 lb/ft³ • 0.9982 gm/cm³ (Batt) = 64.2 (lb/ft³)

Calculate Wgt. of Dry Soil	By Initial Water Content	By Final Water Content	By Total Oven-dried Specimen
W_1 (%)			
W_2 (%)			
W_{ave} (%)	20.61	20.26	
Wgt. Wet Soil, W_T (gm)	430.10	430.75	
Partial Wgt Dry Soil (gm)	ΔV_T (cm³) during test		
Wgt Excess Overdry Soil	Corr. Wet wgt. $W_c = W_T + \Delta V_T$		
Total Wgt Oven Dry Soil, W_s (gm)	356.60	358.18	

W_s used: 358.18 $W_{s\,final}$ = 358.18 gm

Variations in Height and Volume During Consolidation	During Initial Consol. with out back-pressure	During Back-Pressuring ΔV_b = 1.36 vol in	After Backpressuring $\bar{\sigma}_h$ (psi) From 13.9 To 27.8	$\bar{\sigma}_h$ (psi) From 13.9 To 55.6	$\bar{\sigma}_h$ (psi) From ____ To ____
Sign Convention: (-) ΔV in, (+) ΔV out (-) ΔL up, (+) ΔL down					
ΔL (in)	0.008	0.0025	0.0115	0.0305	
ΔV_m (cm³)	1.49 / -2.99	-1.36	1.54	3.94	
$-\Delta V_a = 3V_o(\Delta H/H_o)$	1.24	0.39	1.78		
$R = \Delta V_m/\Delta V_a$	Reset = 0.87	0.87			
corrected $\Delta V_c = R \cdot \Delta V_a$	1.08	0.34			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in $\Delta V_{rebound} = \sigma_{max}$ to σ_{test} = ____ cm³

ΔV_T (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures	ΔV_c by Wgt Change $= W_o - W_s - (\Delta V_b + \Delta V_T)$	ΔV_c by recorded/calculated volume changes = Σ selected ΔV
	$\Delta W_{gt.} = -0.65$ gm	$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V$
	$\Sigma(\Delta V_b + \Delta V_T) = -1.36$ cm³	$= 1.08 + 0.34 + 3.94$
	$\therefore \Delta V_c = 0.71$ cm³	$= 5.36$ cm³

ΔV_c assuming S = 100% $V_F = (W_f/G_s + w_i/G_w)W_s/\gamma_w$

Undrained: $\Delta V_c = V_o - V_F$

Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$

w_f = 20.26 % V_F = 202.427 cm³

$V_F + \Delta V_T$ = ____ cm³

$\therefore \Delta V_c$ = 1.41 cm³

Conclusions

ΔV_c used (ave of values) = 2.493 cm³ $\therefore V_c$ = 201.345 cm³; ΔL_c = 0.041 in; $\therefore L_c$ = 3.8995 in

$A_c = V_c/L_c$ (cm³/in)/16.387 = 3.1509 in² • 0.144 = 21.8810 $\times 10^{-3}$ ft²

ε_{ac} = 1.04 %; ε_v 1.22 %; $1-\varepsilon_v$ = ____ ε_f = .1783; ε_{vf} = ____ # not in percent.

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (in² cm² ft² x10⁻²)	Volume (cm³)	Water Content (%)	Total / Dry Density (lb/ft³)	Saturation (%)		
Initial	3.9405	21.9215	203.838	20.08	131.73 / 109.70	97.2		
After Consol.	3.8995	21.8810	201.345	20.26	133.56 / 111.06	101.5		

$S = wG_s \cdot \gamma_d/(G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_d/(G_s \cdot \gamma_w(1+w) - \gamma_d)$

G_s for S = 100% = 2.789

Calculated by IB Reviewed by RL

Psi x 0.0072 = tsf

w for S = 100% = $G_s \cdot \gamma_w - \gamma_d/G_s \cdot \gamma_d = G_s \cdot \gamma_w - \gamma_c/G_s \cdot \gamma_c$

1	DATA FILE IDENT. NO.	T-322
2	PROJECT NO.	81C405ST3
3	BORING NO.	CDE-14
4	SAMPLE NO.	S-28
5	SPECIMEN NO.	D
6	DEPTH	60.1
7	TEST NO.	ID-123
8	FILE # FOR LOAD CELL OR PROVING RING	2000
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	3.9405
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.0048
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	203.84
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.255
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	1.015
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	0.0
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.01033
25	MEMBRANE DIAMETER IN INCHES	1.8175
26	FILTER STRIP CORRECTION CONSTANT	1.596
27	RIGHT CYLINDER DISTORTION FACTOR	1.378
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	11.2032
35	BACK PRESSURE IN TSF	7.200
36	AXIAL DEFORMATION IN INCHES	0.041
37	VOLUME CHANGE IN CU. CM.	2.493
38	PISTON DRAG CORRECTION IN TONS*10**-3	14.68
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.01710.	29.36.	7.217
.01719.	29.957.	7.223
.01733.	31.042.	7.231
.01742.	32.77.	7.245
.01751.	35.38.	7.268
.01760.	37.60.	7.287
.01765.	39.29.	7.302
.01774.	41.02.	7.319
.01783.	42.92.	7.335
.01788.	44.33.	7.349
.01801.	47.10.	7.376
.01815.	50.09.	7.408
.01820.	51.93.	7.429
.01829.	53.34.	7.443

.01774.	41.02.	7.317
.01783.	42.92.	7.335
.01788.	44.33.	7.349
.01801.	47.10.	7.376
.01815.	50.09.	7.408
.01820.	51.93.	7.429
.01829.	53.34.	7.443
.01839.	55.51.	7.466
.01856.	57.58.	7.489
.01870.	59.96.	7.515
.01884.	61.97.	7.540
.01911.	65.82.	7.587
.01944.	69.35.	7.632
.01980.	72.88.	7.680
.02012.	76.03.	7.719
.02054.	78.90.	7.759
.02090.	81.24.	7.795
.02132.	83.68.	7.828
.02173.	85.74.	7.859
.02209.	87.80.	7.888
.02292.	91.66.	7.941
.02375.	94.70.	7.989
.02457.	97.63.	8.033
.02535.	100.39.	8.072
.02663.	104.14.	8.122
.02796.	107.61.	8.170
.02920.	110.60.	8.213
.03044.	113.80.	8.250
.03209.	117.33.	8.293
.03374.	120.96.	8.333
.03544.	124.38.	8.368
.03718.	127.58.	8.400
.03892.	131.06.	8.429
.04076.	134.26.	8.456
.04300.	138.22.	8.485
.04525.	141.86.	8.511
.04745.	145.28.	8.533
.04965.	148.97.	8.553
.05185.	152.55.	8.570
.05410.	156.13.	8.584
.05634.	159.60.	8.595
.05864.	163.18.	8.603
.06084.	166.44.	8.611
.06304.	169.59.	8.618
.06749.	176.26.	8.625
.07198.	183.26.	8.625
.07638.	189.94.	8.621
.08087.	196.78.	8.612
.08541.	203.56.	8.598
.09454.	216.59.	8.561
.10362.	229.45.	8.509
.11288.	240.79.	8.448
.12223.	250.99.	8.374
.13145.	259.46.	8.305
.14062.	265.05.	8.234
.14979.	267.44.	8.167
.15914.	266.30.	8.112
.16946.	263.69.	8.058
.17959.	260.87.	8.019
.18981.	258.10.	7.992
.19976.	255.88.	7.968
.20907.	253.98.	7.946
.21833.	252.73.	7.928
.22755.	251.16.	7.907
.23658.	250.18.	7.894
.24557.	250.13.	7.881
.25474.	250.29.	7.870
.26372.	250.61.	7.859

.23658.	250.18.	7.894
.24557.	250.13.	7.881
.25474.	250.29.	7.870
.26372.	250.61.	7.859
.27253.	251.10.	7.845
.28167.	252.02.	7.837
.29064.	252.68.	7.824
.29958.	253.27.	7.812
.30870.	254.25.	7.799
.31774.	255.01.	7.783
.32709.	255.82.	7.768
0.3359.	257.02.	7.756
0.3447.	257.51.	7.741
0.3536.	258.10.	7.725
0.3626.	258.65.	7.710
0.3715.	259.41.	7.695
0.3803.	260.27.	7.680
0.3891.	260.93.	7.665
0.3979.	262.17.	7.652
0.4068.	262.88.	7.639
0.4154.	263.69.	7.624
0.4242.	264.34.	7.610
0.4330.	265.38.	7.595
0.4417.	256.37.	7.563
0.4507.	258.16.	7.559
0.4594.	259.89.	7.553
0.4681.	261.52.	7.543
0.4769.	263.15.	7.532
0.4857.	265.10.	7.520
0.4945.	266.68.	7.511
0.5034.	267.98.	7.496
0.5124.	269.39.	7.482
0.5212.	270.69.	7.470
0.5298.	271.56.	7.459
0.5384.	272.48.	7.444
0.5472.	271.62.	7.426
0.5558.	272.00.	7.417
0.5646.	272.81.	7.404
0.5734.	273.41.	7.392
0.5821.	273.68.	7.380
0.5913.	273.79.	7.368
0.6004.	274.17.	7.356
0.6098.	273.95.	7.341
0.6190.	274.28.	7.331
0.6280.	274.06.	7.321
0.6373.	275.36.	7.309
0.6464.	275.80.	7.303
0.6557.	277.42.	7.295
0.6647.	278.67.	7.286
0.6739.	279.76.	7.277
0.6832.	281.28.	7.265
0.6926.	282.04.	7.259
0.6962.	282.47.	7.257
0.7016.	283.23.	7.251
0.7105.	284.04.	7.245
0.7199.	284.42.	7.241
0.7288.	284.53.	7.238
0.7380.	284.86.	7.234
0.7472.	285.62.	7.229
0.7562.	286.97.	7.226
0.7662.	288.11.	7.220
0.7755.	289.15.	7.214
0.7847.	290.29.	7.208
0.7941.	290.88.	7.205
0.7988.	291.05.	7.200

-999.,0.0.0.0

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-322

PROJ. NO.	81C4055I3	REVIEWED BY: JWS
BORING NO.	COE-14	DATE: 22 Oct
SAMPLE NO.	S-28	INPUT DATA CHECKED BY: [illegible]
SPECIMEN NO.	D	
DEPTH(FT.)	60.1	TEST NO. ID-123

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
3.9405	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.0048	INITIAL DIAMETER OF SPECIMEN IN INCHES
203.84	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.2550	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
1.0150	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
0.0000	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0103	MEMBRANE THICKNESS IN INCHES
1.8175	MEMBRANE DIAMETER IN INCHES
1.5960	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.3780	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

11.2032	CELL PRESSURE IN TSF
7.2000	BACK PRESSURE IN TSF
.0410	AXIAL DEFORMATION DURING CONSOL. IN INCHES
2.49	VOLUME CHANGE DURING CONSOL. IN CU. CM.
14.6800	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	7.9468 KSF
LATERAL	=	8.0307 KSF
MEAN	=	8.0027 KSF
PBAR	=	7.9887 KSF
LATERAL/AXIAL	=	1.0106
AXIAL/LATERAL	=	.9895
OCR	=	1.000

14.6800	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NORMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 7.9887 KSF

AXIAL	DEVIATOR	OBLIQUITY	DELTA U	A-FACTOR	Q	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM

NONE FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 7.9887 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	σ KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	σ NORM	P-BAR NORM	SECANT NORM
0.0000	-.0839	.9895	0.0000	0.0000	-.0420	7.9887	0.000	0.000	-.0105	0.0000	-.0053	1.0000	0.0000
.0023	-.0568	.9929	.0120	.4427	-.0284	7.9903	1174.423	1273.897	-.0071	.0015	-.0036	1.0002	147.0102
.0059	-.0075	.9991	.0280	.3664	-.0038	7.9989	1295.522	2393.488	-.0009	.0035	-.0005	1.0013	162.1690
.0082	.0713	1.0089	.0560	.3608	.0356	8.0103	1891.230	4286.538	.0089	.0070	.0045	1.0027	236.7376
.0105	.1903	1.0240	.1020	.3719	.0952	8.0239	2608.658	4773.297	.0238	.0128	.0119	1.0044	326.5428
.0128	.2916	1.0370	.1400	.3703	.1458	8.0365	2928.780	5200.649	.0365	.0175	.0183	1.0060	366.6145
.0141	.3687	1.0469	.1700	.3756	.1844	8.0450	3209.275	4715.418	.0462	.0213	.0231	1.0071	401.7259
.0164	.4476	1.0572	.2040	.3838	.2238	8.0505	3238.439	3584.755	.0560	.0255	.0280	1.0077	405.3765
.0187	.5342	1.0685	.2360	.3818	.2671	8.0618	3301.859	4384.301	.0669	.0295	.0334	1.0091	413.3152
.0200	.5985	1.0771	.2640	.3868	.2993	8.0659	3411.726	4401.610	.0749	.0330	.0375	1.0097	427.0680
.0233	.7248	1.0940	.3180	.3932	.3624	8.0751	3465.403	3791.727	.0907	.0398	.0454	1.0108	433.7870
.0269	.8611	1.1126	.3820	.4042	.4305	8.0792	3509.481	5171.273	.1078	.0478	.0539	1.0113	439.3046
.0282	.9450	1.1242	.4240	.4121	.4725	8.0792	3647.532	4664.182	.1183	.0531	.0591	1.0113	456.5854
.0305	1.0092	1.1332	.4520	.4135	.5046	8.0833	3582.058	3533.806	.1263	.0566	.0632	1.0118	448.3895
.0328	1.1081	1.1471	.4980	.4178	.5541	8.0867	3631.540	3162.465	.1387	.0623	.0694	1.0123	454.5835
.0374	1.2022	1.1676	.5440	.4230	.6011	8.0878	3435.214	2528.804	.1505	.0681	.0752	1.0124	430.0081
.0410	1.3106	1.1763	.5960	.4274	.6553	8.0900	3398.750	2782.974	.1641	.0746	.0820	1.0127	425.4437
.0446	1.4021	1.1899	.6460	.4347	.7010	9.0857	3330.256	2538.585	.1755	.0809	.0878	1.0121	416.8698
.0515	1.5772	1.2163	.7400	.4455	.7886	8.0793	3222.719	2212.278	.1974	.0926	.0987	1.0113	403.4088
.0600	1.7376	1.2413	.8300	.4557	.8688	8.0695	3035.455	1815.263	.2175	.1039	.1088	1.0101	379.9677
.0692	1.8978	1.2671	.9260	.4673	.9489	8.0536	2862.151	1738.861	.2376	.1159	.1188	1.0081	358.2741
.0774	2.0408	1.2904	1.0040	.4725	1.0204	8.0471	2743.465	1473.893	.2555	.1257	.1277	1.0073	343.4174
.0882	2.1706	1.3125	1.0840	.4808	1.0853	8.0320	2555.719	1175.926	.2717	.1357	.1359	1.0054	319.9160
.0974	2.2764	1.3311	1.1560	.4897	1.1382	8.0129	2422.178	1084.504	.2850	.1447	.1425	1.0030	303.1998
.1092	2.3866	1.3505	1.2220	.4946	1.1933	8.0020	2282.912	952.912	.2987	.1530	.1494	1.0017	285.7670
.1187	2.4794	1.3675	1.2840	.5009	1.2397	7.9864	2158.940	944.875	.3104	.1607	.1552	.9997	270.2486
.1280	2.5724	1.3846	1.3420	.5052	1.2862	7.9749	2075.821	911.315	.3220	.1680	.1610	.9983	259.8441
.1492	2.7460	1.4172	1.4480	.5117	1.3730	7.9557	1896.129	727.743	.3437	.1813	.1719	.9959	237.3508
.1705	2.8822	1.4443	1.5440	.5205	1.4411	7.9278	1739.308	631.534	.3608	.1933	.1804	.9924	217.7206
.1916	3.0133	1.4709	1.6320	.5269	1.5066	7.9054	1616.811	620.135	.3772	.2043	.1886	.9896	202.3868
.2116	3.1367	1.4963	1.7100	.5309	1.5683	7.8891	1522.272	562.586	.3926	.2141	.1963	.9875	190.5527
.2444	3.3035	1.5310	1.8100	.5343	1.6518	7.8725	1386.062	479.592	.4135	.2266	.2068	.9855	173.5049
.2785	3.4573	1.5645	1.9060	.5382	1.7287	7.8534	1271.551	433.138	.4328	.2386	.2164	.9831	159.1684
.3103	3.5894	1.5944	1.9920	.5423	1.7947	7.8335	1183.812	430.223	.4493	.2494	.2247	.9806	148.1854
.3421	3.7309	1.6255	2.0660	.5415	1.8655	7.8302	1115.142	405.718	.4670	.2586	.2335	.9802	139.5897
.3844	3.8859	1.6610	2.1520	.5421	1.9430	7.8218	1032.723	371.525	.4864	.2694	.2432	.9791	129.2727
.4267	4.0453	1.6976	2.2320	.5405	2.0227	7.8215	967.670	359.784	.5064	.2794	.2532	.9791	121.1296
.4703	4.1948	1.7322	2.3020	.5380	2.0974	7.8262	909.757	327.402	.5251	.2882	.2625	.9797	113.8802
.5149	4.3340	1.7651	2.3660	.5355	2.1670	7.8318	857.952	325.941	.5425	.2962	.2713	.9804	107.3955
.5596	4.4857	1.8000	2.4240	.5304	2.2428	7.8497	816.646	316.698	.5615	.3034	.2808	.9826	102.2249
.6067	4.6241	1.8328	2.4780	.5263	2.3121	7.8649	775.956	295.748	.5788	.3102	.2894	.9845	97.1315
.6642	4.7954	1.8727	2.5360	.5197	2.3977	7.8926	734.625	284.581	.6003	.3174	.3001	.9880	91.9578
.7219	4.9518	1.9098	2.5880	.5139	2.4759	7.9188	697.576	265.302	.6198	.3240	.3099	.9912	87.3201
.7783	5.0982	1.9443	2.6320	.5079	2.5491	7.9480	665.822	270.107	.6382	.3295	.3191	.9949	83.3452
.8347	5.2566	1.9809	2.6720	.5003	2.6283	7.9872	639.792	276.077	.6580	.3345	.3290	.9998	80.0870
.8911	5.4097	2.0159	2.7060	.4925	2.7049	8.0298	616.473	268.050	.6772	.3387	.3386	1.0051	77.1679
.9488	5.5624	2.0501	2.7340	.4842	2.7812	8.0782	595.078	263.011	.6963	.3422	.3481	1.0112	74.4898
1.0063	5.7125	2.0830	2.7560	.4754	2.8563	8.1313	576.029	263.088	.7151	.3450	.3575	1.0178	72.1052
1.0653	5.8687	2.1159	2.7720	.4656	2.9344	8.1934	558.797	258.031	.7346	.3470	.3673	1.0256	69.9482
1.1217	6.0105	2.1464	2.7880	.4574	3.0052	8.2483	543.328	246.670	.7524	.3490	.3762	1.0325	68.0119
1.1781	6.1471	2.1756	2.8020	.4496	3.0735	8.3026	528.902	247.651	.7695	.3507	.3847	1.0393	66.2061
1.2922	6.4360	2.2341	2.8160	.4318	3.2180	8.4331	504.556	258.053	.8056	.3525	.4028	1.0556	63.1586
1.4074	6.7387	2.2922	2.8160	.4127	3.3694	8.5845	484.784	258.887	.8435	.3525	.4218	1.0746	60.6836
1.5202	7.0263	2.3452	2.8080	.3949	3.5132	8.7363	467.720	254.916	.8795	.3515	.4398	1.0936	58.5476
1.6353	7.3199	2.3966	2.7900	.3768	3.6599	8.9011	452.739	251.904	.9163	.3492	.4581	1.1142	56.6723
1.7518	7.6096	2.4442	2.7620	.3589	3.8048	9.0740	439.189	242.479	.9525	.3457	.4763	1.1359	54.9761
1.9859	8.1624	2.5276	2.6880	.3259	4.0812	9.4245	415.245	234.340	1.0217	.3365	.5109	1.1797	51.9789
2.2187	8.7040	2.5978	2.5840	.2940	4.3520	9.7994	396.075	215.264	1.0895	.3235	.5448	1.2266	49.5793
2.4562	9.1740	2.6472	2.4620	.2659	4.5870	10.1565	376.920	185.754	1.1484	.3082	.5742	1.2714	47.1815
2.6960	9.5681	2.6740	2.3140	.2391	4.7951	10.5126	358.834	158.199	1.2005	.2897	.6002	1.3159	44.9176

1.6353	7.3199	2.3966	2.7900	.3768	3.6599	8.9011	452.739	251.904	.9163	.3492	.4581	1.1142	56.6723				
1.7518	7.6096	2.4442	2.7620	.3589	3.8048	9.0740	439.189	242.479	.9525	.3457	.4763	1.1059	54.9761				
1.9859	8.1624	2.5276	2.6880	.3259	4.0812	9.4245	415.245	234.340	1.0217	.3365	.5109	1.1397	51.9789				
2.2187	8.7040	2.5978	2.5840	.2940	4.3520	9.7994	396.075	215.264	1.0895	.3235	.5448	1.2266	49.5793				
2.4562	9.1740	2.6472	2.4620	.2659	4.5870	10.1565	376.920	185.754	1.1484	.3082	.5742	1.2714	47.1815				
2.6960	9.5902	2.6773	2.3140	.2391	4.7951	10.5125	358.834	158.199	1.2005	.2897	.6002	1.3159	44.9176				
2.9324	9.9279	2.6954	2.1760	.2172	4.9639	10.8196	341.418	115.963	1.2427	.2724	.6214	1.3544	42.7375				
3.1676	10.1374	2.6902	2.0340	.1989	5.0607	11.0664	322.685	59.105	1.2690	.2546	.6345	1.3853	40.3926				
3.4027	10.2059	2.6644	1.9000	.1845	5.1029	11.2347	302.397	-3.412	1.2775	.2378	.6388	1.4063	37.8530				
3.6425	10.1197	2.6213	1.7900	.1753	5.0598	11.3017	280.126	-46.909	1.2667	.2241	.6334	1.4147	35.0652				
3.9072	9.9665	2.5695	1.6820	.1672	4.9833	11.3333	257.231	-59.853	1.2476	.2105	.6238	1.4187	32.1993				
4.1669	9.8059	2.5255	1.6040	.1620	4.9030	11.3310	237.340	-61.037	1.2275	.2008	.6137	1.4184	29.7094				
4.4290	9.6480	2.4884	1.5500	.1591	4.8240	11.3062	219.731	-56.077	1.2077	.1940	.6039	1.4153	27.5052				
4.6842	9.5156	2.4571	1.5020	.1563	4.7578	11.2881	204.934	-50.195	1.1911	.1880	.5956	1.4130	25.6529				
4.9229	9.3998	2.4298	1.4580	.1536	4.6999	11.2743	192.644	-42.640	1.1766	.1825	.5883	1.4113	24.1145				
5.1604	9.3124	2.4087	1.4220	.1511	4.6562	11.2667	182.086	-39.634	1.1657	.1780	.5828	1.4103	22.7929				
5.3968	9.2120	2.3847	1.3800	.1482	4.6060	11.2586	172.248	-37.293	1.1531	.1727	.5766	1.4093	21.5614				
5.6284	9.1376	2.3682	1.3540	.1466	4.5688	11.2475	163.840	-23.623	1.1438	.1695	.5719	1.4079	20.5089				
5.8590	9.1028	2.3576	1.3280	.1443	4.5514	11.2562	156.797	-13.246	1.1395	.1662	.5697	1.4090	19.6274				
6.0941	9.0760	2.3492	1.3060	.1423	4.5380	11.2650	150.308	-9.896	1.1361	.1635	.5681	1.4101	18.8151				
6.3244	9.0566	2.3419	1.2840	.1402	4.5283	11.2774	144.529	-6.827	1.1337	.1607	.5668	1.4117	18.0916				
6.5503	9.0448	2.3346	1.2560	.1373	4.5224	11.2996	139.	-1.566	1.1322	.1572	.5661	1.4144	17.4450				
6.7832	9.0497	2.3323	1.2400	.1355	4.5249	11.3181	13	-.236	1.1328	.1552	.5664	1.4168	16.8552				
7.0147	9.0438	2.3262	1.2140	.1327	4.5219	11.3413	130.121	-3.176	1.1321	.1520	.5660	1.4197	16.2882				
7.2440	9.0351	2.3202	1.1900	.1302	4.5175	11.3610	125.883	-.511	1.1310	.1490	.5655	1.4221	15.7577				
7.4779	9.0415	2.3158	1.1620	.1270	4.5208	11.3924	122.033	.841	1.1318	.1455	.5659	1.4261	15.2757				
7.7097	9.0390	2.3097	1.1320	.1237	4.5195	11.4212	118.331	-.928	1.1315	.1417	.5657	1.4297	14.8123				
7.9495	9.0372	2.3037	1.1020	.1205	4.5186	11.4504	114.738	3.097	1.1312	.1379	.5656	1.4333	14.3626				
8.1754	9.0529	2.3015	1.0780	.1176	4.5265	11.4824	111.760	.547	1.1332	.1349	.5666	1.4373	13.9898				
8.4011	9.0397	2.2940	1.0480	.1145	4.5198	11.5059	108.600	-5.071	1.1316	.1312	.5658	1.4403	13.5942				
8.6293	9.0299	2.2866	1.0160	.1111	4.5150	11.5332	105.615	-4.712	1.1303	.1272	.5652	1.4437	13.2205				
8.8601	9.0180	2.2795	.9860	.1079	4.5090	11.5574	102.730	-3.296	1.1288	.1234	.5644	1.4467	12.8593				
9.0883	9.0147	2.2735	.954	.1047	4.5074	11.5858	100.114	-.528	1.1284	.1197	.5642	1.4503	12.5319				
9.3140	9.0156	2.2683	.97	.1013	4.5078	11.6164	97.697	-1.430	1.1285	.1159	.5643	1.4541	12.2294				
9.5397	9.0083	2.2619	.89	.0981	4.5041	11.6429	95.309	1.798	1.1276	.1122	.5638	1.4574	11.9305				
9.7654	9.0237	2.2594	.8700	.0951	4.5119	11.6767	93.265	2.063	1.1296	.1089	.5648	1.4617	11.6746				
9.9936	9.0175	2.2540	.8440	.0923	4.5088	11.6998	91.073	-1.653	1.1288	.1056	.5644	1.4645	11.4002				
10.2141	9.0162	2.2486	.8140	.0890	4.5081	11.7292	89.094	-2.196	1.1286	.1019	.5643	1.4682	11.1524				
10.4398	9.0077	2.2426	.7860	.0859	4.5038	11.7531	87.086	-.470	1.1275	.0984	.5638	1.4712	10.9011				
10.6655	9.0141	2.2383	.7560	.0826	4.5071	11.7865	85.304	-84.593	1.1284	.0946	.5642	1.4754	10.6780				
10.8886	8.6303	2.1752	.6920	.0789	4.3151	11.6587	80.031	-78.319	1.0803	.0866	.5402	1.4594	10.0180				
11.1194	8.6658	2.1788	.6840	.0776	4.3329	11.6846	78.689	15.294	1.0848	.0856	.5424	1.4626	9.8500				
11.3425	8.6997	2.1814	.6720	.0759	4.3498	11.7137	77.440	14.210	1.0890	.0841	.5445	1.4663	9.6937				
11.5656	8.7292	2.1822	.6520	.0734	4.3646	11.7486	76.202	12.977	1.0927	.0816	.5463	1.4706	9.5386				
11.7913	8.7579	2.1825	.6300	.0706	4.3790	11.7851	74.987	15.317	1.0963	.0789	.5481	1.4752	9.3865				
12.0169	8.7984	2.1841	.6060	.0676	4.3992	11.8295	73.915	14.680	1.1013	.0759	.5507	1.4808	9.2524				
12.2426	8.8242	2.1847	.5880	.0654	4.4121	11.8605	72.763	8.872	1.1046	.0736	.5523	1.4847	9.1082				
12.4708	8.8386	2.1818	.5580	.0619	4.4193	11.8979	71.547	6.999	1.1064	.0698	.5532	1.4893	8.9560				
12.7016	8.8563	2.1798	.5300	.0586	4.4282	11.9349	70.387	6.953	1.1086	.0663	.5543	1.4940	8.8108				
12.9273	8.8703	2.1779	.5060	.0558	4.4352	11.9661	69.266	2.732	1.1104	.0633	.5552	1.4979	8.6705				
13.1478	8.8687	2.1742	.4840	.0533	4.4343	11.9874	68.092	-.379	1.1102	.0606	.5551	1.5005	8.5235				
13.3684	8.8687	2.1695	.4540	.0500	4.4343	12.0176	66.968	-14.893	1.1101	.0568	.5551	1.5043	8.3829				
13.5941	8.8015	2.1551	.4180	.0463	4.4007	12.0201	65.362	-10.483	1.1017	.0523	.5509	1.5046	8.1818				
13.8146	8.7812	2.1497	.4000	.0443	4.3906	12.0282	64.172	-5.776	1.0992	.0501	.5496	1.5056	8.0329				
14.0403	8.7759	2.1451	.3740	.0414	4.3879	12.0517	63.103	-4.120	1.0985	.0468	.5493	1.5086	7.8990				
14.2659	8.7626	2.1398	.3500	.0387	4.3813	12.0692	62.012	-8.567	1.0969	.0438	.5484	1.5108	7.7624				
14.4890	8.7375	2.1330	.3260	.0361	4.3688	12.0808	60.883	-12.625	1.0937	.0408	.5469	1.5122	7.6212				
14.7250	8.7045	2.1252	.3020	.0335	4.3522	12.0885	59.684	-11.897	1.0896	.0378	.5448	1.5132	7.4710				
14.9583	8.6816	2.1187	.2780	.0308	4.3408	12.1013	58.600	-14.411	1.0867	.0348	.5434	1.5148	7.3353				
15.1994	8.6358	2.1085	.2480	.0275	4.3179	12.1085	57.369	-14.853	1.0810	.0310	.5405	1.5157	7.1812				
15.4353	8.6106	2.1024	.2280	.0253	4.3053	12.1161	56.329	-14.915	1.0778	.0285	.5389	1.5167	7.0510				
15.6661	8.5664	2.0939	.2080	.0231	4.2832	12.1142	55.217	-7.710	1.0723	.0260	.5362	1.5164	6.9118				
15.9046	8.5753	2.0917	.1840	.0203	4.2876	12.1428	54.445	-2.686	1.0734	.0230	.5367	1.5200	6.8152				
16.1380	8.5540	2.0873	.1720	.0189	4.2770	12.1444	53.526	-.447	1.0708	.0215	.5354	1.5202	6.7001				
16.3765	8.5736	2.0875	.1560	.0170	4.2868	12.1704	52.866	5.682	1.0732	.0195	.5366	1.5234	6.6175				
16.6073	8.5809	2.0859	.1380	.0149	4.2904	12.1922	52.175	1.679	1.0741	.0173	.5371	1.5262	6.5311				
16.8432	8.5813	2.0835	.1200	.0128	4.2907	12.2107	51.447	3.197	1.0742	.0150	.5371	1.5285	6.4399				
17.0817	8.5961	2.0821	.0960	.0100	4.2981	12.2423	50.815	.493	1.0760	.0120	.5380	1.5324	6.3608				
					4.2919	12.2482	50.035	-2.625	1.0745	.0105	.5372	1.5332	6.2633				

15.6661	8.5664	2.0939	.2080	.0231	4.2832	12.1142	55.217	-7.710	1.0723	.0260	.5362	1.5164	6.9118	
15.9046	8.5753	2.0917	.1840	.0203	4.2876	12.1428	54.445	-2.686	1.0734	.0230	.5367	1.5200	6.8152	
16.1380	8.5540	2.0873	.1720	.0189	4.2770	12.1444	53.526	-.447	1.0708	.0215	.5354	1.5202	6.7001	
16.3765	8.5736	2.0875	.1560	.0170	4.2868	12.1704	52.866	5.682	1.0732	.0195	.5366	1.5234	6.6175	
16.6073	8.5809	2.0859	.1380	.0149	4.2904	12.1922	52.175	1.679	1.0741	.0173	.5371	1.5262	6.5311	
16.8432	8.5813	2.0835	.1200	.0128	4.2907	12.2107	51.447	3.197	1.0742	.0150	.5371	1.5285	6.4399	
17.0817	8.5961	2.0821	.0960	.0100	4.2981	12.2423	50.815	.492	1.0760	.0120	.5380	1.5324	6.3608	
17.3227	8.5836	2.0788	.0840	.0086	4.2918	12.2482	50.035	-2.625	1.0745	.0105	.5372	1.5332	6.2633	
17.4151	8.5835	2.0783	.0800	.0081	4.2918	12.2523	49.770	1.360	1.0745	.0100	.5372	1.5337	6.2300	
17.5535	8.5874	2.0771	.0680	.0067	4.2937	12.2663	49.399	-.644	1.0749	.0085	.5375	1.5355	6.1836	
17.7818	8.5781	2.0743	.0560	.0053	4.2891	12.2739	48.713	-7.493	1.0738	.0070	.5369	1.5364	6.0977	
18.0228	8.5517	2.0699	.0480	.0044	4.2759	12.2690	47.915	-12.829	1.0705	.0060	.5352	1.5358	5.9979	
18.2511	8.5181	2.0649	.0420	.0036	4.2591	12.2584	47.132	-13.170	1.0663	.0053	.5331	1.5345	5.8998	
18.4870	8.4907	2.0603	.0340	.0027	4.2454	12.2529	46.392	-8.547	1.0628	.0043	.5314	1.5338	5.8060	
18.7229	8.4778	2.0574	.0240	.0015	4.2389	12.2566	45.729	-1.088	1.0612	.0030	.5306	1.5342	5.7242	
18.9537	8.4854	2.0575	.0180	.0008	4.2427	12.2667	45.212	.853	1.0622	.0023	.5311	1.5355	5.6595	
19.2102	8.4813	2.0554	.0060	-.0006	4.2407	12.2769	44.587	-1.807	1.0617	.0008	.5308	1.5368	5.5813	
19.4486	8.4765	2.0532	-.0060	-.0021	4.2383	12.2867	44.016	-1.298	1.0611	-.0008	.5305	1.5380	5.5097	
19.6846	8.4752	2.0514	-.0180	-.0035	4.2376	12.2983	43.481	-4.603	1.0609	-.0023	.5304	1.5395	5.4428	
19.9256	8.4544	2.0480	-.0240	-.0042	4.2272	12.2941	42.851	-10.371	1.0583	-.0030	.5291	1.5389	.3639	
20.0462	8.4398	2.0449	-.0340	-.0054	4.2199	12.2969	42.520	144.575	1.0565	-.0043	.5282	1.5393	5.3225	STOP

A.BASIC RESPRT

CDOS I&K BASIC, VERSION 5.4

TRIAXIAL TEST (Set Up / Take Down)

121

WCC 4-202 (1180)

Proj. No. 81C 4055-T-3 Proj. Eng. RSL Cell No. H-6 Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test CIU-C File No T-323

Loading conditions:							
☐ Dynamic	☒ Undrained	☒ Compression	☒ Constant cell pressure
☒ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Type of Consolidation:			Piston Screwed in:
☒ Isotropic	☐ Ko stress path		☐ Yes; ☒ No
☐ Anisotropic	☐ 45° Stress path		

☒ Undisturbed	☐ Reconstituted	☐ Impact	☐ Constant Effort
Boring No. COE-15A	Composite No.	☐ Static	____ layers; ____ lb {Hammer Tamp.
Sample No. 5-19	Specimen No. B	☐ Kneading	____ Blows-Tamps/layer
Depth (ft) 40.5	Remarks	☐ Tamping	☐ Undercompaction
☐ Ends capped with Castone; ☐ Geomarine Sample		☐ Other	____ layers; ____ Uni (%)

Water Content				Final
Location	Top	Bot		Ave
Container No	LB-24	LA-208		501
Wgt Container + Wet Soil (gm)	85.62	112.48		459.27
Wgt Container + Dry Soil (gm)	81.40	108.30		438.10
Wgt. Container (gm)	33.54	33.62		204.52
Wgt Dry Soil (gm)	47.86	72.68		233.58
WATER CONTENT (%)	8.82	8.50	8.66	9.06

☐ See attached dat. sheet(s) for additional water contents

Specimen Weight

Wet + Stone(etc):	____ gm
Stone(etc):	____ gm
Wet Initial:	1458.0 gm
Wet Final:	1462.6 gm
Excess Ovendry · Dish No.	____
Wgt Dish + Dry Soil	____ gm
Wgt. Dish	____ gm
Wgt. Excess Dry Soil	____ gm

Dimensions of Specimen — Height (in) or Diameter (in) or ____

	Height Initial (Lo)	Height Final (Lf)	Diameter Initial	Diameter Final	
1	5.949	4.803	1-T 2.822	2.883	
2	5.949	4.900	2-M 2.838	3.447	*
3	5.950	4.826	3-B 2.836	3.149	
4	5.950	4.703	1'-T 2.858		
5	5.949	4.773	2'-M 2.848		*
Ave	5.9494	4.795	3-B 2.847		
			Ave 2.8415	3.229	

Dave = (D1+2D2+D3)/4

ΔLc = ____ in

ΔLt = ____ in

ΣΔL = ____ in

Lo − Lf = ____ in

Ao = πD²/4 = 6.3414 in²

Vo = 1h³ · 16.3871 = 618.245 cm³

Atom ½ 54542(D²) = 56.8679 10⁻³ in²

Membrane { Thickness = 0.0266T in; Circumference (Cm) = 8.7002 in; Diam · Cm/π = 2.7694 in }

Filter Paper: Top + Bottom: ☐ Yes; ☒ No

Filter Strips: ☒ Yes; ☐ No

16 Vertical at ¼" - Whatman #54 or ____

____ Spiral at ¼" - Whatman #1 or ____

Wgt top cap · ____ gm, 0.81 10⁻³ tons

Wgt (cap, dial + piston) = ____ gm, ____ 10⁻³ tons

Preliminary

Yco = 147.23 lb/ft³ Ydo = 135.49 lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo Taken.

Other Remarks: 2 ksf = p + z

Preliminary Cal. by IL Reviewed by RL

☐ Trimmed by ____ Setup by ____ Taken down by ____

☐ Reconstituted Date ____ Date 10/8/81 Date 10/14/81

See back for Summary; Calculations

TRIAXIAL TEST SUMMARY CALCULATIONS

122
T323

Type Test: CIU - C ☒ Undisturbed; ☐ Reconstituted - Specimen
☐ Dynamic / H_z or ____ ☐ Sinusoidal or ____ ☒ Static .796 %/hr.

Consolidation History Units: tsf or KSF	Max Induced Pore Pressure Uncorr.	Corr. #	☒ Preshear/post ☐ Pre-cy loading Uncorr.	Corr. #	Preshear after Cy-loading Uncorr.	Corr. #
$\bar{\sigma}_{cell}$		—	16.4016	—		—
$u_{..}$		—	16.4144	—		—
$\bar{\sigma}_v$			—			
$\bar{\sigma}_h$			1.9872			
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$			—			
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$			1.00			
OCR						
Consol. Time	☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours	

Corrected for effects of membrane, filter strips, etc.

H_o = 5.9494 in
A_o = 6.3414 in²
V_o = 618.245 cm³
Dea/Dom = ____
G_s = 2.735 ☐ Assumed ☒ Measured
B_s = 98.9 %
Area Corr. Factors: C
Undrained = 1.218
$C = \frac{1}{\varepsilon_1}\left(1 - \frac{A_c}{A_{sm}}\right)$
Drained = ____
$C = \frac{1}{\varepsilon_1}\left[1 - \frac{A_c(1+\varepsilon_v)}{A_{sm}}\right]$

Calculate Wgt. of Dry Soil	By Initial Water Content	By Final Water Content	By Total Oven-dried Specimen
W_1 (%)			
W_2 (%)			
W_{ave} (%)	8.66	9.06	
Wgt. Wet Soil, W_T (gm)	1458.0	1462.6	
Partial Wgt. Dry Soil (gm)	ΔV_T (cm³) during test		
Wgt Excess Overdry Soil	Corr. Wet Wgt. $W_c = W_T + \Delta V_T$		
Total Wgt. Oven Dry Soil, W_s (gm)	1341.80	1341.10	
W_s used:	W_s final = 1341.10 gm		

Variations in Height and Volume During Consolidation	During Initial Consol. without back-pressure	During Back-pressuring ΔV_b = 2.60 vol in	After Backpressuring $\bar{\sigma}_h$ (psi) From 7 To 13.8	$\bar{\sigma}_h$ (psi) From ____ To ____	$\bar{\sigma}_h$ (psi) From ____ To ____
	Sign Convention: (-) ΔV in, (+) ΔV out (-) ΔL^{up}, (+) ΔL^{down}				
ΔL (in)	0.003	0.001	0.0055		
ΔV_m (cm³)	~~-8.20~~ -10	~~-2.60~~ -3.16	2.31		
$-\Delta V_a = 3V_o(\Delta H/H_o)$	.94	.31	1.11		
$R = \Delta V_m / \Delta V_a$	Reset = 1.35	1.35			
Corrected $\Delta V_a = R \cdot \Delta V_a$	1.27	.42			
Circle Selected Value	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in $|\Delta V_{rebound} = \bar{\sigma}_{max}$ to $\bar{\sigma}_{test}$ = ____ cm³
$|\Delta V_T$ (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures	ΔV_c by Wgt. Change $= W_o - W_s - (\Delta V_b + \Delta V_T)$	ΔV_c by recorded/calculated volume changes = Σ selected ΔV
	$\Delta W_{gt.}$ = −4.6 gm	$\Delta V_c = \overset{\Delta V_1}{1.27} + \overset{\Delta V_2}{0.42} + \overset{\Delta V_3}{2.31}$
	$\Sigma(\Delta V_b + \Delta V_T)$ = −10.8 cm³	= 4.00 cm³
	∴ ΔV_c = 6.80 cm³	

ΔV_c assuming S = 100%: $V_F = (\frac{1}{G_s \gamma_w} + w_i) W_s / \gamma_w$

Undrained	Drained
$\Delta V_c = V_o - V_F$	$\Delta V_c = V_o - (V_F + \Delta V_T)$
w_i = 9.06 %	V_F = 612.954 cm³
	$V_F + \Delta V_T$ = ____ cm³
	∴ ΔV_c = 5.29 cm³

Conclusions:
ΔV_c used (ave ✓ values) = 5.163 cm³ ∴ V_c = 613.082 cm³; ΔL_c = 0.0095 in; ∴ L_c = 5.9399 in
$A_c = V_c / L_c$ (cm³/in) / 16.3871 = 6.2985 in² / 0.144 = 43.7397 $\times 10^{-3}$ ft²
ε_{ac} = 0.16 %; ε_v 0.84 %; 1-ε_v = ____ $E_f^{\#}$ = .1895; $\varepsilon_{vc}^{\#}$ = ____ # not in percent.
At max. induced pore pressure: $\Delta V_{b-u} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (in² cm² ft² $\times 10^{-3}$)	Volume (cm³)	Water Content (%)	Total/Dry Density (lb/ft³)	Saturation (%)		
Initial	5.9494	44.0375	618.245	8.72	147.23 135.42	92.2		
After Consol.	5.9399	43.7397	613.082	9.06	148.94 136.56	99.9		

$S = wG_s\gamma_d/(G_s\gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_d / (G_s \cdot \gamma_w (1+w) - \gamma_d)$

Psi x .0072 = tsf
w for S = 100% = $G_s \cdot \gamma_w - \gamma_d / G_s \cdot \gamma_d$ = $G_s \cdot \gamma_w / (G_s \gamma_w (1+w) - \gamma_d)$
γ_w @ 20° (steel) = 62.32 lb/ft³ = 0.9982 gm/cm³ (62.4 lb/ft³ = 8.32 lb/gal)

Calculated by TB Reviewed by RC

1	DATA FILE IDENT. NO.	T-323
2	PROJECT NO.	81C4055T3
3	BORING NO.	COE-15A
4	SAMPLE NO.	S-19
5	SPECIMEN NO.	B
6	DEPTH	40.5
7	TEST NO.	ID-252
8	FILE # FOR LOAD CELL OR PROVING RING	.200
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	5.9494
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.8415
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	618.24
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.51
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	0.0
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	0.0
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.0267
25	MEMBRANE DIAMETER IN INCHES	2.7694
26	FILTER STRIP CORRECTION CONSTANT	2.128
27	RIGHT CYLINDER DISTORTION FACTOR	1.218
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	8.2008
35	BACK PRESSURE IN TSF	7.2072
36	AXIAL DEFORMATION IN INCHES	0.0095
37	VOLUME CHANGE IN CU. CM.	5.163
38	PISTON DRAG CORRECTION IN TONS*10**-3	11.00
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.0155.	22.0.	7.278
.01556.	23.068.	7.279
.01601.	27.515.	7.286
.01632.	32.79.	7.298
.01672.	39.46.	7.314
.01712.	43.63.	7.334
.01743.	47.24.	7.349
.01774.	49.47.	7.363
.01801.	51.69.	7.374
.01837.	54.19.	7.386
.01863.	56.14.	7.397
.01899.	58.08.	7.410
.01917.	59.47.	7.420
.01943.	60.03.	7.428

.01801.	51.69.	7.374
.01837.	54.19.	7.386
.01863.	56.14.	7.397
.01899.	58.08.	7.410
.01917.	59.47.	7.420
.01943.	60.03.	7.428
.01961.	62.25.	7.434
.01988.	61.97.	7.442
.02006.	63.36.	7.448
.02028.	63.92.	7.454
.02041.	65.03.	7.458
.02063.	65.86.	7.463
.02090.	65.86.	7.471
.02099.	66.98.	7.475
.02117.	67.53.	7.479
.02135.	68.37.	7.485
.02175.	68.64.	7.492
.02215.	69.48.	7.502
.02250.	70.59.	7.510
.02295.	71.42.	7.517
.02366.	73.92.	7.533
.02441.	74.48.	7.544
.02526.	75.31.	7.557
.02602.	77.26.	7.568
.02682.	78.65.	7.578
.02753.	79.76.	7.587
.02833.	80.59.	7.595
.02908.	81.15.	7.602
.02989.	83.10.	7.610
.03140.	83.93.	7.622
.03309.	85.32.	7.634
.03456.	86.99.	7.643
.03616.	87.27.	7.652
.03851.	90.60.	7.663
.04092.	92.55.	7.673
.04323.	93.66.	7.680
.04568.	95.88.	7.687
.04879.	98.38.	7.696
.05190.	99.77.	7.702
.05519.	102.27.	7.708
.05831.	104.77.	7.712
.06147.	105.61.	7.716
.06476.	109.22.	7.720
.06863.	112.00.	7.722
.07254.	114.50.	7.725
.07650.	117.00.	7.727
.08033.	120.34.	7.728
.08420.	123.67.	7.728
.08820.	127.29.	7.727
.09194.	130.07.	7.726
.09594.	133.68.	7.725
.09999.	137.85.	7.721
.10386.	140.91.	7.720
.11173.	148.41.	7.713
.11951.	157.58.	7.703
.12739.	165.64.	7.692
.13521.	175.65.	7.678
.14309.	185.93.	7.663
.15892.	207.89.	7.624
.17458.	231.51.	7.577
.19028.	254.58.	7.519
.20554.	277.93.	7.455
.22044.	300.72.	7.384
.23556.	321.56.	7.308
.25104.	341.2.	7.228
.26647.	359.9.	7.145
.28213.	377.7.	7.060

.23556.	321.56.	7.308
.25104.	341.2.	7.228
.26647.	359.9.	7.145
.28213.	377.7.	7.060
.29783.	394.3.	6.978
.31367.	410.5.	6.896
0.3293.	424.6.	6.814
0.3451.	439.9.	6.737
0.3606.	453.0.	6.660
0.3763.	466.0.	6.586
0.3923.	478.0.	6.516
0.4079.	490.2.	6.449
0.4237.	501.3.	6.385
0.4397.	512.2.	6.323
0.4552.	523.3.	6.264
0.4706.	532.7.	6.209
0.4864.	542.5.	6.157
0.5020.	551.9.	6.106
0.5178.	560.8.	6.061
0.5334.	569.2.	6.015
0.5494.	578.0.	5.974
0.5653.	585.8.	5.934
0.5811.	593.1.	5.898
0.5969.	600.3.	5.861
0.6126.	609.5.	5.826
0.6289.	616.1.	5.793
0.6443.	623.6.	5.762
0.6601.	632.5.	5.730
0.6762.	639.7.	5.703
0.6914.	646.7.	5.676
0.7072.	653.9.	5.650
0.7229.	660.3.	5.623
0.7386.	666.4.	5.597
0.7544.	672.3.	5.573
0.7701.	677.8.	5.550
0.7861.	685.3.	5.526
0.8020.	691.4.	5.502
0.8177.	697.8.	5.480
0.8335.	704.5.	5.457
0.8492.	709.5.	5.436
0.8652.	716.2.	5.414
0.8811.	723.1.	5.393
0.8969.	729.8.	5.371
0.9124.	735.6.	5.353
0.9286.	741.7.	5.332
0.9442.	749.0.	5.311
0.9596.	755.6.	5.293
0.9757.	761.2.	5.274
0.9911.	766.8.	5.255
1.0072.	772.6.	5.235
1.0241.	777.9.	5.218
1.0397.	782.9.	5.201
1.0560.	789.0.	5.185
1.0722.	794.3.	5.168
1.0878.	804.0.	5.152
1.1044.	807.3.	5.134
1.1199.	813.5.	5.120
1.1367.	819.6.	5.104
1.1526.	824.6.	5.089
1.1684.	830.7.	5.074
1.1842.	836.8.	5.058
1.2000.	842.1.	5.044
1.2066.	843.7.	5.038

-999.,0.,0.0

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-[illegible]

PROJ. NO.	81C4055T3	REVIEWED BY: JWS
BORING NO.	COE-15A	DATE: 2004
SAMPLE NO.	S-19	INPUT DATA CHECKED BY: JWS, [illegible]
SPECIMEN NO.	B	
DEPTH(FT.)	40.5	TEST NO. ID-252

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
5.9694	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.8415	INITIAL DIAMETER OF SPECIMEN IN INCHES
618.24	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.5100	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
0.0000	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
0.0000	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0267	MEMBRANE THICKNESS IN INCHES
2.7694	MEMBRANE DIAMETER IN INCHES
2.1280	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.2180	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

8.2008	CELL PRESSURE IN TSF
7.2072	BACK PRESSURE IN TSF
.0095	AXIAL DEFORMATION DURING CONSOL. IN INCHES
5.16	VOLUME CHANGE DURING CONSOL. IN CU. CM.
11.0000	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	1.9985 KSF
LATERAL	=	1.9970 KSF
MEAN	=	1.9975 KSF
PBAR	=	1.9977 KSF
LATERAL/AXIAL	=	.9992
AXIAL/LATERAL	=	1.0008
OCR	=	1.000

11.0000	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NORMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 1.9977 KSF

AXIAL STRAIN	DEVIATOR STRESS	OBLIQUITY	DELTA-U	A-FACTOR	Q	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM
					KSF	KSF	KSF	KSF					

126

NONE
YES
FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 1.9977 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	Q KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM
0.0000	.0016	1.0008	0.0000	0.0000	.0008	1.9977	0.000	0.000	.0008	0.0000	.0004	1.0000	0.0000
.0010	.0259	1.0130	.0020	.0821	.0130	2.0079	2411.457	1873.753	.0130	.0010	.0065	1.0051	1207.0958
.0086	.1271	1.0642	.0160	.1274	.0636	2.0445	1462.568	1820.248	.0636	.0080	.0318	1.0234	732.1130
.0138	.2474	1.1264	.0400	.1627	.1237	2.0807	1780.840	2281.131	.1238	.0200	.0619	1.0415	891.4296
.0205	.3995	1.2075	.0720	.1810	.1997	2.1247	1937.225	1833.402	.2000	.0360	.1000	1.0635	969.7108
.0273	.4943	1.2623	.1120	.2273	.2472	2.1321	1806.797	1491.674	.2474	.0561	.1237	1.0673	904.4229
.0325	.5765	1.3108	.1420	.2470	.2883	2.1432	1769.462	1272.152	.2886	.0711	.1443	1.0728	885.7341
.0377	.6271	1.3433	.1700	.2718	.3136	2.1405	1658.815	1039.698	.3139	.0851	.1570	1.0715	830.3478
.0423	.6776	1.3754	.1920	.2840	.3388	2.1437	1599.720	1022.662	.3392	.0961	.1696	1.0731	800.7668
.0483	.7343	1.4123	.2160	.2948	.3671	2.1481	1516.450	973.516	.3676	.1081	.1838	1.0753	759.0847
.0527	.7785	1.4426	.2380	.3063	.3893	2.1482	1474.477	867.837	.3897	.1191	.1949	1.0753	738.0743
.0588	.8224	1.4746	.2640	.3216	.4112	2.1442	1397.117	882.820	.4117	.1321	.2058	1.0733	699.3505
.0618	.8540	1.4986	.2840	.3332	.4270	2.1400	1379.657	663.247	.4275	.1422	.2137	1.0712	690.6106
.0662	.8665	1.5106	.3000	.3468	.4332	2.1302	1307.261	976.028	.4337	.1502	.2169	1.0663	654.3716
.0692	.9170	1.5442	.3120	.3408	.4585	2.1435	1323.002	759.513	.4590	.1562	.2295	1.0729	662.2512
.0737	.9103	1.5454	.3280	.3609	.4551	2.1241	1232.345	446.542	.4557	.1642	.2278	1.0633	616.8712
.0768	.9418	1.5684	.3400	.3616	.4709	2.1279	1224.782	689.567	.4714	.1702	.2357	1.0651	613.0853
.0805	.9544	1.5802	.3520	.3694	.4772	2.1221	1183.985	744.950	.4777	.1762	.2389	1.0623	592.6640
.0827	.9796	1.5984	.3600	.3681	.4898	2.1267	1183.126	828.144	.4903	.1802	.2452	1.0646	592.2336
.0864	.9983	1.6136	.3700	.3712	.4991	2.1261	1154.035	248.864	.4997	.1852	.2498	1.0642	577.6716
.0909	.9979	1.6195	.3860	.3874	.4990	2.1099	1095.980	837.002	.4995	.1932	.2498	1.0562	548.6116
.0924	1.0234	1.6384	.3940	.3856	.5117	2.1147	1105.572	1044.237	.5123	.1972	.2561	1.0585	553.4127
.0955	1.0357	1.6494	.4020	.3887	.5179	2.1128	1083.408	516.654	.5185	.2012	.2592	1.0576	542.3184
.0985	1.0547	1.6663	.4140	.3931	.5274	2.1103	1069.330	355.160	.5280	.2072	.2640	1.0564	535.2715
.1052	1.0604	1.6759	.4280	.4042	.5302	2.0992	1006.297	181.073	.5308	.2142	.2654	1.0508	503.7191
.1120	1.0791	1.6967	.4480	.4158	.5396	2.0885	962.472	350.328	.5402	.2243	.2701	1.0454	481.7819
.1178	1.1040	1.7202	.4640	.4209	.5520	2.0850	935.496	332.937	.5526	.2323	.2763	1.0437	468.2784
.1254	1.1224	1.7389	.4780	.4264	.5612	2.0802	893.663	356.567	.5618	.2393	.2809	1.0413	447.3383
.1374	1.1786	1.7926	.5100	.4333	.5893	2.0763	856.818	282.082	.5900	.2553	.2950	1.0393	428.8949
.1500	1.1905	1.8126	.5320	.4474	.5952	2.0602	792.604	109.511	.5959	.2663	.2980	1.0313	396.7516
.1643	1.2084	1.8398	.5580	.4624	.6042	2.0432	734.468	232.742	.6049	.2793	.3024	1.0227	367.6505
.1771	1.2519	1.8835	.5800	.4638	.6260	2.0429	706.001	284.248	.6267	.2903	.3133	1.0226	353.4008
.1906	1.2827	1.9182	.6000	.4683	.6413	2.0383	672.225	216.235	.6421	.3003	.3210	1.0203	336.4937
.2025	1.3071	1.9479	.6180	.4734	.6535	2.0325	644.814	168.757	.6543	.3094	.3271	1.0174	322.6726
.2160	1.3250	1.9722	.6340	.4790	.6625	2.0255	612.721	113.412	.6633	.3174	.3316	1.0139	306.7078
.2286	1.3369	1.9910	.6480	.4853	.6684	2.0174	584.056	206.114	.6692	.3244	.3346	1.0098	292.3593
.2423	1.3803	2.0355	.6640	.4816	.6901	2.0231	569.110	192.718	.6909	.3324	.3455	1.0127	284.8775
.2677	1.3973	2.0675	.6880	.4929	.6987	2.0076	521.417	85.343	.6994	.3444	.3497	1.0050	261.0040
.2961	1.4268	2.1104	.7120	.4995	.7134	1.9984	481.291	124.955	.7142	.3564	.3571	1.0003	240.9183
.3209	1.4630	2.1547	.7300	.4995	.7315	1.9985	455.442	81.101	.7323	.3654	.3662	1.0004	227.9792
.3478	1.4673	2.1748	.7480	.5103	.7337	1.9827	421.415	100.002	.7345	.3744	.3672	.9925	210.9463
.3874	1.5401	2.2552	.7700	.5004	.7700	1.9970	397.161	142.782	.7709	.3854	.3855	.9997	198.8059
.4280	1.5813	2.3101	.7900	.5000	.7907	1.9977	369.143	79.387	.7916	.3954	.3958	1.0000	184.7805
.4668	1.6035	2.3441	.8040	.5018	.8018	1.9948	343.152	85.843	.8027	.4025	.4013	.9985	171.7707
.5081	1.6508	2.4001	.8180	.4960	.8254	2.0044	324.594	107.571	.8263	.4095	.4132	1.0033	162.4808
.5604	1.7035	2.4672	.8360	.4912	.8517	2.0128	303.668	76.485	.8527	.4185	.4263	1.0075	152.0061
.6128	1.7309	2.5064	.8480	.4903	.8654	2.0145	282.197	73.404	.8664	.4245	.4332	1.0084	141.2585
.6682	1.7832	2.5683	.8600	.4827	.8916	2.0286	266.633	97.164	.8926	.4305	.4463	1.0155	133.4678
.7207	1.8357	2.6258	.8680	.4732	.9178	2.0469	254.481	63.805	.9189	.4345	.4594	1.0246	127.3848
.7739	1.8504	2.6506	.8760	.4738	.9252	2.0463	238.893	83.587	.9263	.4385	.4631	1.0243	119.5821
.8293	1.9276	2.7318	.8840	.4589	.9638	2.0769	232.252	113.898	.9649	.4425	.4825	1.0396	116.2576
.8945	1.9852	2.7900	.8880	.4476	.9926	2.1017	221.770	82.970	.9937	.4445	.4969	1.0520	111.0105
.9603	2.0363	2.8460	.8940	.4393	1.0181	2.1212	211.887	76.990	1.0193	.4475	.5096	1.0618	106.0635
1.0270	2.0872	2.8990	.8980	.4305	1.0436	2.1427	203.090	92.450	1.0448	.4495	.5224	1.0726	101.6602
1.0914	2.1572	2.9662	.9000	.4174	1.0786	2.1757	197.503	107.649	1.0798	.4505	.5399	1.0891	98.8634
1.1566	2.2267	3.0296	.9000	.4048	1.1134	2.2105	192.392	109.668	1.1146	.4505	.5573	1.1065	96.3053
1.2239	2.3025	3.0949	.8980	.3902	1.1513	2.2504	188.000	101.656	1.1526	.4495	.5763	1.1265	94.1064
1.2869	2.3597	3.1429	.8960	.3799	1.1798	2.2810	183.242	101.312	1.1812	.4485	.5906	1.1418	91.7248
1.3542	2.4350	3.2073	.8940	.3673	1.2175	2.3207	179.693	120.253	1.2189	.4475	.6094	1.1616	89.9482
1.4224	2.5027	3.2703	.8940	.3513	1.2614	2.3725	177.245	112.598	1.2628	.4435	.6314	1.1876	88.7232
						2.4060	173.711	107.237	1.2943	.4425	.6471	1.2044	86.9542

1.1566	2.2267	3.0296	.9000	.4044	1.1134	2.2105	192.392	109.668	1.1146	.4505	.557	1.1045	96.3053
1.2239	2.3025	3.0949	.8980	.3902	1.1513	2.2504	188.000	101.656	1.1526	.4495	.5763	1.1265	94.1064
1.2869	2.3597	3.1429	.8960	.3799	1.1798	2.2810	183.242	101.312	1.1812	.4485	.5906	1.1418	91.7248
1.3542	2.4350	3.2073	.8940	.3673	1.2175	2.3207	179.693	120.253	1.2189	.4475	.6094	1.1616	89.9482
1.4224	2.5227	3.2703	.8860	.3513	1.2614	2.3725	177.245	112.598	1.2628	.4435	.6314	1.1876	88.7232
1.4876	2.5856	3.3228	.8840	.3420	1.2928	2.4060	173.711	107.237	1.2943	.4425	.6471	1.2044	86.9542
1.6201	2.7419	3.4325	.8700	.3174	1.3709	2.4981	169.148	132.713	1.3725	.4355	.3862	1.2505	84.6700
1.7510	2.9351	3.5584	.8500	.2897	1.4675	2.6148	167.530	137.647	1.4692	.4255	.7346	1.3089	83.8598
1.8837	3.1046	3.6532	.8280	.2667	1.5523	2.7216	164.730	146.248	1.5541	.4145	.7770	1.3623	82.4586
2.0154	3.3214	3.7741	.8000	.2409	1.6607	2.8580	164.729	166.054	1.6626	.4005	.8313	1.4306	82.4581
2.1480	3.5435	3.8872	.7700	.2173	1.7718	2.9991	164.894	172.413	1.7738	.3854	.8869	1.5012	82.5405
2.4145	4.0164	4.0768	.6920	.1723	2.0082	3.3136	166.278	184.775	2.0105	.3464	1.0052	1.6587	83.2332
2.6782	4.5229	4.2319	.5980	.1322	2.2614	3.6609	168.822	188.915	2.2640	.2993	1.1320	1.8325	84.5065
2.9425	5.0137	4.3083	.4820	.0961	2.5069	4.0224	170.339	189.040	2.5097	.2413	1.2549	2.0135	85.2660
3.1994	5.5079	4.3512	.3540	.0642	2.7540	4.3976	172.108	191.686	2.7571	.1772	1.3785	2.2013	86.1514
3.4502	5.9871	4.3529	.2120	.0353	2.9935	4.7792	173.482	180.560	2.9969	.1061	1.4985	2.3923	86.8391
3.7048	6.4201	4.3132	.0600	.0092	3.2101	5.1478	173.250	162.447	3.2137	.0300	1.6068	2.5768	86.7234
3.9654	6.8235	4.2527	-.1000	-.0148	3.4117	5.5096	172.026	150.575	3.4156	-.0501	1.7078	2.7579	86.1157
4.2252	7.2037	4.1820	-.2660	-.0371	3.6018	5.8657	170.458	141.014	3.6059	-.1332	1.8030	2.9362	85.3258
4.4888	7.5613	4.1066	-.4360	-.0578	3.7807	6.2147	168.414	130.086	3.7850	-.2182	1.8925	3.1109	84.3027
4.7531	7.8905	4.0370	-.6000	-.0762	3.9452	6.5433	165.973	121.846	3.9497	-.3003	1.9749	3.2754	83.0807
5.0198	8.2083	3.9717	-.7640	-.0932	4.1041	6.8663	163.487	111.064	4.1088	-.3824	2.0544	3.4371	81.8362
5.2829	8.4792	3.8976	-.9280	-.1096	4.2396	7.1659	160.472	106.752	4.2444	-.4645	2.1222	3.5870	80.3270
5.5489	8.7732	3.8481	-1.0820	-.1235	4.3866	7.4670	158.079	102.357	4.3916	-.5416	2.1958	3.7377	79.1291
5.8099	9.0189	3.7884	-1.2360	-.1372	4.5095	7.7440	155.208	92.717	4.5146	-.6187	2.2573	3.8764	77.6921
6.0742	9.2602	3.7376	-1.3840	-.1497	4.6301	8.0127	152.426	86.018	4.6353	-.6928	2.3177	4.0109	76.2994
6.3435	9.4777	3.6904	-1.5240	-.1610	4.7389	8.2616	149.383	82.435	4.7442	-.7629	2.3721	4.1355	74.7762
6.6062	9.6986	3.6522	-1.6580	-.1712	4.8493	8.5062	146.788	78.817	4.8548	-.8299	2.4274	4.2579	73.4772
6.8722	9.8942	3.6141	-1.7860	-.1807	4.9471	8.7321	143.952	71.897	4.9527	-.8940	2.4764	4.3710	72.0578
7.1415	10.0835	3.5795	-1.9100	-.1897	5.0417	8.9509	141.173	72.123	5.0475	-.9561	2.5237	4.4805	70.6666
7.4025	10.2765	3.5517	-2.0280	-.1976	5.1383	9.1655	138.804	67.162	5.1441	-1.0151	2.5720	4.5880	69.4809
7.6617	10.4330	3.5216	-2.1380	-.2052	5.2165	9.3539	136.149	60.683	5.2224	-1.0702	2.6112	4.6822	68.1519
7.9277	10.5953	3.4980	-2.2420	-.2119	5.2977	9.5392	133.629	59.671	5.3037	-1.1223	2.6518	4.7750	66.8901
8.1904	10.7485	3.4745	-2.3440	-.2184	5.3742	9.7179	131.214	55.663	5.3803	-1.1733	2.6902	4.8645	65.6813
8.4564	10.8895	3.4560	-2.4340	-.2238	5.4447	9.8786	128.754	51.253	5.4509	-1.2184	2.7255	4.9449	64.4499
8.7190	11.0195	3.4347	-2.5260	-.2295	5.5097	10.0357	126.366	49.962	5.5160	-1.2644	2.7580	5.0236	63.2549
8.9884	11.1553	3.4208	-2.6080	-.2341	5.5776	10.1858	124.091	46.598	5.5840	-1.3055	2.7920	5.0987	62.1157
9.2560	11.2698	3.4038	-2.6880	-.2388	5.6449	10.3232	121.739	40.843	5.6413	-1.3455	2.8206	5.1675	60.9385
9.5220	11.3733	3.3891	-2.7600	-.2430	5.6866	10.4471	119.425	38.331	5.6931	-1.3816	2.8465	5.2295	59.7803
9.7880	11.4737	3.3732	-2.8340	-.2474	5.7369	10.5715	117.206	45.313	5.7434	-1.4186	2.8717	5.2918	58.6692
10.0524	11.6135	3.3678	-2.9040	-.2504	5.8067	10.7116	115.514	41.867	5.8133	-1.4536	2.9067	5.3619	57.8226
10.3268	11.6981	3.3533	-2.9700	-.2543	5.8491	10.8201	113.265	35.534	5.8557	-1.4867	2.9279	5.4162	56.6965
10.5860	11.8024	3.3449	-3.0320	-.2573	5.9012	10.9344	111.475	44.496	5.9079	-1.5177	2.9539	5.4734	55.8009
10.8520	11.9321	3.3408	-3.0960	-.2599	5.9661	11.0635	109.939	41.714	5.9728	-1.5498	2.9864	5.5380	55.0316
11.1231	12.0261	3.3344	-3.1500	-.2624	6.0130	11.1646	108.104	35.233	6.0198	-1.5768	3.0099	5.5887	54.1133
11.3790	12.1177	3.3277	-3.2040	-.2648	6.0589	11.2647	106.478	35.338	6.0657	-1.6038	3.0329	5.6387	53.2995
11.6450	12.2104	3.3223	-3.2560	-.2671	6.1052	11.3632	104.842	31.868	6.1121	-1.6298	3.0561	5.6881	52.4806
11.9093	12.2868	3.3129	-3.3100	-.2699	6.1434	11.4556	103.156	27.595	6.1503	-1.6569	3.0752	5.7343	51.6367
12.1736	12.3563	3.3034	-3.3620	-.2726	6.1782	11.5426	101.488	25.270	6.1852	-1.6829	3.0926	5.7778	50.8015
12.4396	12.4208	3.2948	-3.4100	-.2750	6.2104	11.6230	99.836	22.739	6.2174	-1.7069	3.1087	5.8181	49.9746
12.7039	12.4769	3.2856	-3.4560	-.2775	6.2385	11.6973	98.201	27.866	6.2455	-1.7300	3.1228	5.8553	49.1561
12.9733	12.5698	3.2825	-3.5040	-.2793	6.2849	11.7920	96.878	29.428	6.2920	-1.7540	3.1460	5.9027	48.4939
13.2410	12.6351	3.2744	-3.5520	-.2817	6.3175	11.8729	95.412	25.565	6.3247	-1.7780	3.1623	5.9432	47.7602
13.5053	12.7058	3.2691	-3.5960	-.2836	6.3529	11.9525	94.068	27.506	6.3601	-1.8000	3.1800	5.9830	47.0876
13.7713	12.7809	3.2638	-3.6420	-.2855	6.3905	12.0363	92.797	22.126	6.3977	-1.8231	3.1989	6.0250	46.4512
14.0356	12.8232	3.2544	-3.6840	-.2879	6.4116	12.0997	91.351	21.478	6.4189	-1.8441	3.2094	6.0567	45.7273
14.3050	12.8958	3.2497	-3.7280	-.2897	6.4479	12.1803	90.138	27.624	6.4552	-1.8661	3.2276	6.0970	45.1203
14.5726	12.9716	3.2463	-3.7700	-.2913	6.4858	12.2604	89.002	27.544	6.4931	-1.8871	3.2466	6.1371	44.5516
14.8386	13.0428	3.2415	-3.8140	-.2931	6.5214	12.3403	87.887	23.854	6.5288	-1.9092	3.2644	6.1771	43.9935
15.0996	13.0974	3.2369	-3.8500	-.2946	6.5487	12.4038	86.730	20.871	6.5561	-1.9272	3.2781	6.2090	43.4141
15.3723	13.1542	3.2305	-3.8920	-.2966	6.5771	12.4745	85.561	25.693	6.5846	-1.9482	3.2923	6.2443	42.8289
15.6349	13.2345	3.2281	-3.9340	-.2980	6.6172	12.5569	84.637	28.194	6.6247	-1.9692	3.3124	6.2856	42.3663
15.8942	13.3014	3.2258	-3.9700	-.2992	6.6507	12.6267	83.678	21.244	6.6583	-1.9873	3.3291	6.3205	41.8862
16.1653	13.3466	3.2192	-4.0080	-.3010	6.6733	12.6876	82.554	17.359	6.6809	-2.0063	3.3404	6.3510	41.3237
16.4245	13.3934	3.2129	-4.0460	-.3028	6.6967	12.7493	81.536	17.722	6.7043	-2.0253	3.3522	6.3819	40.8141
16.6956	13.4405	3.2059	-4.0860	-.3048	6.7203	12.8131	80.494	14.703	6.7279	-2.0453	3.3639	6.4138	40.2927
16.9801	13.4747	3.1992	-4.1200	-.3066	6.7374	12.8646	79.347	12.253	6.7450	-2.0623	3.3725	6.4396	39.7184
17.2427	13.5075	3.1922	-4.1540	-.3083	6.7538	12.9153	78.328	15.209	6.7614	-2.0794	3.3807	6.4650	39.2086
17.5171	[illegible]	[illegible]	-4.1960	-.3096	6.7784	12.9722	77.382	15.263	6.7861	-2.0954	3.3930	6.4935	38.7351

120

14.0354	12.8232	3.2544	-3.6840	-.2879	6.4116	12.0997	91.351	21.478	6.4189	-1.8441	3.2094	6.0567	45.7273
14.3050	12.8958	3.2497	-3.7280	-.2897	6.4479	12.1803	90.138	27.624	6.4552	-1.8661	3.2276	6.0970	45.1203
14.5726	12.9716	3.2463	-3.7700	-.2913	6.4858	12.2604	89.002	25.544	6.4931	-1.8871	3.2466	6.1371	44.5516
14.8386	13.0428	3.2415	-3.8140	-.2931	6.5214	12.3403	87.887	23.854	6.5288	-1.9092	3.2644	6.1771	43.9935
15.0996	13.0974	3.2369	-3.8500	-.2946	6.5487	12.4038	86.730	20.871	6.5561	-1.9272	3.2781	6.2090	43.4141
15.3723	13.1542	3.2305	-3.8920	-.2966	6.5771	12.4745	85.561	25.693	6.5846	-1.9482	3.2923	6.2443	42.8289
15.6349	13.2345	3.2281	-3.9340	-.2980	6.6172	12.5569	84.637	28.194	6.6247	-1.9692	3.3124	6.2856	42.3663
15.8942	13.3014	3.2258	-3.9700	-.2992	6.6507	12.6267	83.678	21.244	6.6583	-1.9873	3.3291	6.3205	41.8862
16.1653	13.3466	3.2192	-4.0080	-.3010	6.6733	12.6876	82.554	17.359	6.6809	-2.0063	3.3404	6.3510	41.3237
16.4245	13.3934	3.2129	-4.0460	-.3028	6.6967	12.7493	81.536	17.722	6.7043	-2.0253	3.3522	6.3819	40.8141
16.6956	13.4405	3.2059	-4.0860	-.3048	6.7203	12.8131	80.494	14.703	6.7279	-2.0453	3.3639	6.4138	40.2927
16.9801	13.4747	3.1992	-4.1200	-.3066	6.7374	12.8646	79.347	12.253	6.7450	-2.0623	3.3725	6.4396	39.7184
17.2427	13.5075	3.1922	-4.1540	-.3083	6.7538	12.9153	78.328	15.209	6.7614	-2.0794	3.3807	6.4650	39.2086
17.5171	13.5567	3.1887	-4.1860	-.3096	6.7784	12.9722	77.382	15.263	6.7861	-2.0954	3.3930	6.4935	38.7351
17.7899	13.5911	3.1822	-4.2200	-.3114	6.7955	13.0237	76.389	28.051	6.8032	-2.1124	3.4016	6.5192	38.2378
18.0525	13.7054	3.1892	-4.2520	-.3111	6.8527	13.1132	75.911	20.926	6.8604	-2.1284	3.4302	6.5640	37.9984
18.3320	13.7007	3.1758	-4.2880	-.3139	6.8504	13.1472	74.728	8.818	6.8581	-2.1464	3.4291	6.5811	37.4065
18.59_9	13.7511	3.1740	-4.3160	-.3148	6.8755	13.2007	73.950	17.187	6.8833	-2.1604	3.4417	6.6078	37.0170
18.8757	13.7937	3.1697	-4.3480	-.3162	6.896[illegible]	13.2544	73.068	12.380	6.9047	-2.1765	3.4523	6.6347	36.5755
19.1434	13.8196	3.1634	-4.3780	-.3178	6.9098	13.2977	72.182	13.257	6.9177	-2.1915	3.4588	6.6564	36.1318
19.4094	13.8644	3.1601	-4.4080	-.3189	6.9322	13.3505	71.423	16.661	6.9401	-2.2065	3.4700	6.6828	35.7521
19.6754	13.9083	3.1561	-4.4400	-.3203	6.9541	13.4048	70.681	13.718	6.9620	-2.2225	3.4810	6.7100	35.3804
19.9414	13.9374	3.1512	-4.4680	-.3216	6.9687	13.4477	69.884	6.068	6.9766	-2.2365	3.4883	6.7315	34.9815
20.0525	13.9387	3.1473	-4.4800	-.3225	6.9694	13.4605	69.503	415.350	6.9773	-2.2425	3.4886	6.7379	34.7910 STOP

prob deviator

A.BASIC RESPRT

CDOS 16K BASIC. VERSION 5.4

WCC 4-202 (1/90) 130

TRIAXIAL TEST (Set Up / Take Down)

Proj. No. 87C405.1 Proj. Eng. RSL Cell No. H-4 Piston dia.: ☐ 3/8"; ☒ 1/2"

Type Test CIU-C File No T-324

Loading Conditions:							
☐ Dynamic	☒ Undrained	☒ Compression	☒ Constant cell pressure
☒ Static	☐ Drained	☐ Extension	☐ Variable cell pressure

Consolidation:			Piston Screwed in: ☐ Yes; ☒ No
Type ... ☒ Isotropic	☐ Ko stress path		
☐ Anisotropic	☐ 45° Stress path		

☒ Undisturbed ☐ Reconstituted

Boring No COE-15A Composite No ____

Sample No S-20 Specimen No B

Depth (ft) 43.2 Remarks ____

☐ Ends capped with Carbone; ☐ Geomarine Sample

☐ Impact ☐ Constant Effort

☐ Static ____ layers; ____ lb {Hammer Tamp.

☐ Kneading ____ Blows - Tamps / layer

☐ Tamping ☐ Undercompaction

☐ Other ____ layers; ____ Unif (%)

Water Content				First Ave
Location	T.P	Bot		
Container No	LB-28	A-10		551
Wgt Container + Wet Soil (gm)	105.58	148.50		723.70
Wgt Container + Dry Soil (gm)	100.01	139.90		682.00
Wgt. Container (gm)	33.48	33.06		147.98
Wgt Dry Soil (gm)	66.53	106.84		534.02
WATER CONTENT (%)	8.37	8.05	8.21	7.81

☐ See attached data sheet(s) for additional water contents

Specimen Weight

Wet + Stone (std): ____ gm

Stone (std): ____ gm

Wet Initial: 449.44 gm

Wet Final: 464.9 gm

Excess Ovendry - Dish No ____

Wgt Dish + Dry Soil ____ gm

Wgt. Dish ____ gm

Wgt. Excess + Dry Soil ____ gm

Dimensions of Specimen

Height (in) / Diameter (in) or ____

	Initial (Lo)	Final (Lf)	Initial	Final	$D_o^2 = (D_1 + 2D_2 + D_3)/4$
1	5.956	4.832	1-T 2.874	2.905	
2	5.953	4.801	2-M 2.864	3.412	
3	5.953	4.773	3-B 2.869	3.240	
4	5.955	4.743	1'-T 2.872		
5	5.956	4.780	2'-M 2.845		
Av	5.9546	4.7858	3-B 2.863		
			Ave 2.8662	3.23475	

Membrane { Thickness = 0.0275 in; Circumference (C_m) = 8.697 in; Diam = C_m/π = 2.7683 in

Filter Paper: Top + bottom: ☐ Yes; ☒ No

Filter Strips: ☒ Yes; ☐ No

16 Vertical at ¼" - Whatman #54 or ____

____ Spiral at ¼" - Whatman #1 or ____

Wgt top cap: ____ gm, 0.51 10^{-2} tons

Wgt (cap, dial + piston) = ____ gm, ____ 10^{-2} tons

ΔL_c = ____ in

ΔL_f = ____ in

$\Sigma \Delta L$ = ____ in

$L_o - L_f$ = ____ in

$A_o = \pi D^2/4$ = 6.4521 in^2

V_o = 1h² · 16.8871 = 629.590 cm^3

From $\frac{1}{5.5542}(D^2)^2$ = 57.0706 10^{-2} ft^2

Preliminary

γ_{co} = 148.58 lb/ft³ γ_{do} = 137.31 lb/ft³

Failure Sketch



Final Visual Classification: ☐ See more detailed sketch on attached sheet; ☐ Photo Taken.

Other Remarks: $\bar{\sigma}_A$ = 8 ksf = Yc est

Preliminary Cal. by IB Reviewed by RA

☐ Trimmed by ____ Set up by ____ Taken down by ____

☐ Reconstituted Date ____ Date 10/8/91 Date 10/16/91

See back for Summary; Calculations

9.692 8.692

.032 .030 .029

TRIAXIAL TEST SUMMARY CALCULATIONS

131

Type Test: CIU-C ☒ Undisturbed; ☐ Reconstituted - Specimen T324

☐ Dynamic f/Hz or ____ ; ☐ sinusoidal or ____ ☒ Static .786 %/hr.

Consolidation History Units: ~~tsf~~ or KSF	Max. Induced Pore Pressure Uncorr.	Corr.*	☒ Preshear/post-cy ☐ Pre cy-loading Uncorr.	Corr.*	Preshear after Cy-loading Uncorr.	Corr.*
σ_{cell}			92.4064			
u			14.4000			
$\bar{\sigma}_v$						
$\bar{\sigma}_h$			8.0064			
$\bar{\sigma}_p = (\bar{\sigma}_v + \bar{\sigma}_h)/2$						
$K_c = \bar{\sigma}_v / \bar{\sigma}_h$			1.00			
OCR						
Consol. Time	☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours		☐ Overnight ____ days ____ hours	

* Corrected for effects of membrane, filter strips, etc.

H_o = 5.9546 in
A_o = 6.4521 in²
V_o = 629.590 cm³
Dso/Dom = ____
G_s = 2.735 ☒ Assumed ☐ Measured
B_s = 95.7 %
Area Corr. Factors: C Use 1.25
Undrained = 1.697
$C = \frac{1}{\varepsilon_1}\left(1 - \frac{A_c}{A_{sm}}\right)$
Drained = ____
$C = \frac{1}{\varepsilon_1}\left[1 - \frac{A_c(1+\varepsilon_v)}{A_{sm}}\right]$

Calculate Wgt. of Dry Soil	By Initial Water Content	By Final Water Content	By Total Oven-dried Specimen
W_i (%)			
W_s (%)			
W_{ave} (%)	8.21	7.81	
Wgt. Wet Soil, W_T (gm)	1498.4	1484.9	
Partial Wgt Dry Soil (gm)	ΔW_T (cm³) during test	(-) Sw; (+) Swt =	
Wgt Excess Overdry Soil	Corr. Wet Wgt. W_o: $W_T + \Delta W_T$		
Total Wgt. Oven Dry Soil, W_s (gm)	1384.71	1377.33	
W_s used:		W_s final = 1377.33 gm	

γ_w @ 20°C (tsmf) = 62.32 lb/ft³ • 0.9982 gm/cm³/(6.4516 • 64.2 (lb/ft³)

Variations in Height and Volume During Consolidation	During Initial Consol. with out back-pressure	During Back-Pressuring ΔV_o = 280 vol. in	After Backpressuring $\bar{\sigma}_h$ (psi) From 7.0 To 13.9	$\bar{\sigma}_h$ (psi) From 7.0 To 55.6	$\bar{\sigma}_h$ (psi) From ____ To ____
	Sign Convention: (-) ΔV in, (+) ΔV out; (-) ΔL up, (+) ΔL down				
ΔL (in)	.005	.004	.0045	.026	
ΔV_m (cm³)	2.65 / 3.63	-2.80 / 0.05	1.86	7.46	
$-\Delta V_a = 3V_o(\Delta H/H_o)$	1.59	1.27	1.43		
$R = \Delta V_m / \Delta V_a$	Rused = 1.3		1.3		
Corrected $\Delta V_c = R \cdot \Delta V_a$	2.07	1.65			
Circle Selected Value.	ΔV_1	ΔV_2	ΔV_3	ΔV_4	ΔV_5

ΔL_{cy} = ____ in; $|\Delta V_{rebound} = \bar{\sigma}_{max}$ to $\bar{\sigma}_{test}$ = ____ cm³; $|\Delta V_T$ (during drained loading) = ____ cm³

Calculation of ΔV_c During Consolidation by Different Procedures	ΔV_c by W_T change $= W_o - W_s - (\Delta V_o + \Delta V_T)$	ΔV_c by recorded/calculated volume changes = Σ selected ΔV	ΔV_c assuming S = 100% $V_F = (W_f - W_i)\rho_s V_o / \rho_w$
			Undrained: $\Delta V_c = V_o - V_F$
	ΔW_T = 13.5 gm	$\Delta V_c = \Delta V_1 + \Delta V_2 + \Delta V$	w_f = 7.81 % V_F = 612.266 cm³
	$\Sigma(\Delta V_o + \Delta V_T)$ = -6.35 cm³	= 2.07 + 1.65 + 7.46	Drained: $\Delta V_c = V_o - (V_F + \Delta V_T)$
	$\therefore \Delta V_c$ = 19.85 cm³	= 11.18 cm³	$V_F + \Delta V_T$ = ____ cm³
			$\therefore \Delta V_c$ = 17.32 cm³

Corrections

ΔV_c used (ave / value) = 17.32 cm³ $\therefore V_c$ = 612.27 cm³; ΔL_c = .035 in; $\therefore L_c$ = 5.9196 in

$A_c = V_c/L_c$ (cm³/in)/16.3871 = 6.317 in²/0.144 = 43.8316 $\times 10^{-3}$ ft²

ε_{ac} = 0.59 %; ε_v 2.83 %; $1-\varepsilon_v$ = ____ ε_f* = .1367; ε_{ve}* = ____ * not in percent.

At max. induced pore pressure: $\Delta V_{max} = \Delta V_c - \Delta V_{rebound}$ = ____ cm³; ΔL_{max} = ____ in

Summary	Height (in)	Area (in² or cm² (ft² x 10⁻³))	Volume (cm³)	Water Content (%)	Total / Dry Density (lb/ft³)	Saturation (%)		
Initial	5.9546	44.8065	629.590	8.79	148.58 / 136.58	96.9		
After Consol.	5.9196	43.8316	612.27	7.81	151.41 / 140.46	100.0		

$S = W G_s \cdot \gamma_d / (G_s \cdot \gamma_w - \gamma_d) = w \cdot G_s \cdot \gamma_w / (G_s \cdot \gamma_w (1+w) - \gamma_t)$

Psi x 0.0072 = tsf

Calculated by TB Reviewed by RC

1	DATA FILE IDENT. NO.	T-324
2	PROJECT NO.	81C4055T3
3	BORING NO.	COE-15A
4	SAMPLE NO.	S-20
5	SPECIMEN NO.	B
6	DEPTH	43.3
7	TEST NO.	ID-253
8	FILE # FOR LOAD CELL OR PROVING RING	2000
9	FILE # FOR PORE PRESSURE CONST.	1000
10	FILE # FOR CELL PRESSURE CONST	2000
11	FILE # FOR PISTON FRICTION CORRECTION	NONE
12	TYPE OF CONSOLIDATION	I
13	DRAINAGE CONDITIONS DURING LOADING	U
14	MODE OF LOADING	C
15	CELL PRESSURE DURING LOADING	C
16	INITIAL HEIGHT OF SPECIMEN IN INCHES	5.9546
17	INITIAL DIAMETER OF SPECIMEN IN INCHES	2.8662
18	INITIAL VOLUME OF SPECIMEN IN CU. CM.	629.59
19	PISTON DIAMETER IN INCHES	0.5
20	WEIGHT OF TOP CAP ONLY IN TONS*10**-3	0.51
21	WEIGHT OF TOP CAP + PISTON +DIAL IN TONS*10**-3	0.0
22	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3	0.0
23	WAS PISTON INTACT DURING CONSOL	NO
24	MEMBRANE THICKNESS IN INCHES	0.0275
25	MEMBRANE DIAMETER IN INCHES	2.7683
26	FILTER STRIP CORRECTION CONSTANT	2.128
27	RIGHT CYLINDER DISTORTION FACTOR	1.25
28	DOES SPECIMEN HAVE AN INDUCED OCR	NO
29	CELL PRESSURE IN TSF	0.0
30	BACK PRESSURE IN TSF	0.0
31	AXIAL DEFORMATION DURING CONSOL. IN INCHES	0.0
32	VOLUME CHANGE DURING CONSOL. IN CU. CM.	0.0
33	APPLIED AXIAL LOAD IN TONS*10**-3	0.0
34	PRE SHEAR CONDITION - CELL PRESSURE IN TSF	11.2032
35	BACK PRESSURE IN TSF	7.2000
36	AXIAL DEFORMATION IN INCHES	0.0350
37	VOLUME CHANGE IN CU. CM.	17.32
38	PISTON DRAG CORRECTION IN TONS*10**-3	15.45
39	SPECIMEN CYCLICLY LOADED BEFORE SHEARING	NO
40	SPECIMEN RECONSOLIDATED DURING CYCLIC LOADING	NO
41	SUM OF VOLUME CHANGES DURING RECONSOLIDATION IN CU. CM.	0.0
42	PORE PRESSURE IN TSF	0.0
43	TOTAL CHANGE IN HT DURING CYCLIC LOADING IN INCHES	0.0
44	OUTPUT UNITS REQUIRED	KSF
45	DATA NORMALIZATION SELECTION	2.0
46	RESULT FILE DESIRED	0.0

DIS (in.)	LOAD (lbs)	PORE PRESSURE (tsf)
0.00705.	30.9.	7.272
.00805.	40.29.	7.289
.00827.	49.47.	7.319
.00845.	58.92.	7.351
.00862.	66.70.	7.387
.00880.	76.43.	7.421
.00902.	83.10.	7.455
.00916.	88.65.	7.484
.00929.	95.32.	7.514
.00942.	100.05.	7.539
.00956.	104.50.	7.563
.00969.	108.39.	7.591
.00978.	113.11.	7.619
.01005.	122.01.	7.673

.00916.	88.85.	7.484
.00929.	95.32.	7.514
.00942.	100.05.	7.539
.00956.	104.50.	7.563
.00969.	108.39.	7.591
.00978.	113.11.	7.619
.01005.	122.01.	7.673
.01045.	130.90.	7.730
.01071.	137.85.	7.778
.01103.	145.35.	7.830
.01134.	152.86.	7.879
.01160.	158.97.	7.927
.01196.	165.64.	7.973
.01223.	171.20.	8.019
.01263.	176.48.	8.062
.01294.	182.60.	8.104
.01369.	192.04.	8.184
.01432.	201.49.	8.256
.01507.	209.55.	8.325
.01579.	218.45.	8.390
.01645.	225.95.	8.449
.01721.	232.34.	8.503
.01796.	239.29.	8.554
.01863.	245.41.	8.602
.02019.	257.91.	8.688
.02157.	269.03.	8.762
.02308.	280.15.	8.825
.02455.	291.27.	8.882
.02593.	300.44.	8.931
.02744.	310.44.	8.974
.02966.	325.17.	9.029
.03189.	339.0.	9.073
.03402.	352.6.	9.109
.03625.	366.5.	9.137
03918.	384.3.	9.165
.04198.	400.2.	9.180
.04452.	417.1.	9.190
.04728.	433.5.	9.196
.05004.	451.0.	9.195
.05288.	468.5.	9.188
.05640.	490.5.	9.174
.06000.	512.5.	9.153
.06369.	533.6.	9.126
.06734.	555.5.	9.095
.07103.	577.2.	9.059
.07494.	598.3.	9.018
.07864.	618.6.	8.976
.08242.	639.7.	8.930
.08606.	660.6.	8.882
.08980.	680.3.	8.830
.09363.	699.8.	8.778
.09750.	718.4.	8.725
.10488.	757.0.	8.612
.11240.	794.3.	8.497
.12005.	831.5.	8.380
.12752.	865.1.	8.260
.13504.	899.6.	8.139
.14255.	934.1.	8.020
.15777.	998.8.	7.780
.17307.	1060.5.	7.543
.18855.	1121.4.	7.310
.20380.	1179.8.	7.081
.21910.	1234.8.	6.860
.23423.	1289.0.	6.644
.24953.	1341.5.	6.434
.26487.	1391.5.	6.229
.28004.	1439.3.	6.032
.29499.	1488.0.	5.840
.31047.	1534.1.	[illegible]

```
.24953, 1341.5, 6.434
.26487, 1391.5, 6.229
.28004, 1439.3, 6.032
.29499, 1488.0, 5.840
.31042, 1534.1, 5.653
.32608, 1578.9, 5.474
0.3415, 1622.8, 5.299
0.3569, 1665.3, 5.129
0.3724, 1707.3, 4.967
0.3876, 1748.1, 4.809
0.4032, 1786.8, 4.657
0.4187, 1825.1, 4.510
0.4341, 1863.2, 4.362
0.4497, 1898.8, 4.224
0.4654, 1934.3, 4.089
0.4806, 1969.9, 3.959
0.4959, 2003.8, 3.834
0.5114, 2037.5, 3.712
0.5267, 2069.4, 3.594
0.5418, 2099.4, 3.482
0.5578, 2131.1, 3.367
0.5738, 2161.7, 3.2607
0.5896, 2189.5, 3.1607
0.6050, 2218.9, 3.0570
0.6205, 2243.7, 2.9594
0.6362, 2269.5, 2.8666
0.6514, 2294.3, 2.7739
0.6675, 2316.5, 2.6871
0.6831, 2338.7, 2.5979
0.6986, 2358.2, 2.5184
0.7145, 2374.9, 2.4461
0.7300, 2391.8, 2.3774
0.7457, 2408.5, 2.3111
0.7617, 2423.2, 2.2497
0.7771, 2437.1, 2.1882
0.7935, 2445.7, 2.1364
0.8091, 2450.7, 2.0942
0.8251, 2454.9, 2.0641
0.8416, 2464.6, 2.0424
0.8573, 2480.2, 2.0123
0.8726, 2492.7, 1.9786
0.8885, 2505.8, 1.9472
0.9038, 2518.0, 1.9159
0.9196, 2531.3, 1.8834
0.9352, 2542.2, 1.8557
0.9513, 2557.2, 1.8316
0.9671, 2570.5, 1.8087
0.9830, 2582.2, 1.7846
0.9993, 2596.6, 1.7593
1.0151, 2609.7, 1.7376
1.0317, 2622.2, 1.7135
1.0471, 2635.8, 1.6833
1.0632, 2642.2, 1.6568
1.0796, 2652.2, 1.6303
1.0952, 2664.2, 1.6038
1.1110, 2675.3, 1.5773
1.1273, 2688.9, 1.5472
1.1430, 2703.4, 1.5183
1.1593, 2716.2, 1.4869
1.1748, 2732.8, 1.4544
1.1902, 2745.1, 1.4255
1.1939, 2746.7, 1.4194
-999..0.0.0.0
```

A.TRIAX

THIS IS A CIU TEST. IT HAS BEEN
CALCULATED BY COMPUTER PROGRAM NO. C-T-1R.6 USING FILE NO. T-324

PROJ. NO.	R1C4055T3	REVIEWED BY: JWS
BORING NO.	COE-15A	DATE: 20 Oct
SAMPLE NO.	S-20	INPUT DATA CHECKED BY: JWS 19 Oct 81
SPECIMEN NO.	B	
DEPTH(FT.)	43.3	TEST NO. ID-253

ISOTROPIC	TYPE OF CONSOLIDATION
UNDRAINED	DRAINAGE CONDITIONS DURING LOADING
COMPRESSION	MODE OF LOADING
CONSTANT	CELL PRESSURE DURING LOADING
5.9546	INITIAL HEIGHT OF SPECIMEN IN INCHES
2.8662	INITIAL DIAMETER OF SPECIMEN IN INCHES
629.59	INITIAL VOLUME OF SPECIMEN IN CU.CM.
.5000	PISTON DIAMETER IN INCHES
.5100	WEIGHT OF TOP CAP ONLY IN TONS*10**-3
0.0000	WEIGHT OF TOP CAP + PISTON + DIAL IN TONS*10**-3
0.0000	WEIGHT OF TOP CAP + PISTON + DIAL + LVDT IN TONS*10**-3
NO	WAS PISTON IN CONTACT WITH SPECIMEN DURING CONSOLIDATION?
.0275	MEMBRANE THICKNESS IN INCHES
2.7683	MEMBRANE DIAMETER IN INCHES
2.1280	FILTER STRIP CORRECTION CONSTANT AT 2% AXIAL STRAIN IN TONS ** 10-3
1.2500	RIGHT CYLINDER DISTORTION FACTOR

PRE-SHEAR CONDITIONS:

11.2032	CELL PRESSURE IN TSF
7.2000	BACK PRESSURE IN TSF
.0350	AXIAL DEFORMATION DURING CONSOL. IN INCHES
17.32	VOLUME CHANGE DURING CONSOL. IN CU. CM.
15.4500	MEASURED AXIAL LOAD PRIOR TO STATIC LOADING FROM FIRST LINE OF LOADING DATA IN TONS*10**-3

EFFECTIVE STRESSES CORRECTED FOR MEMBRANE AND FILTER STRIPS, ETC:

AXIAL	=	7.9860	KSF
LATERAL	=	8.0146	KSF
MEAN	=	8.0050	KSF
PBAR	=	8.0003	KSF
LATERAL/AXIAL	=	1.0036	
AXIAL/LATERAL	=	.9964	
OCR	=	1.000	

15.4500	PISTON DRAG CORRECTION IN TONS *10**-3
2000	FILE NUMBER FOR LOAD CELL OR PROVING RING
1000	FILE NUMBER FOR PORE PRESSURE CONVERSION CONSTANT
2000	FILE NUMBER FOR CELL PRESSURE CONVERSION CONSTANT
NONE	FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
YES	IS DATA NORMALIZATION REQUIRED?
	DATA NORMALIZED TO PRESHEAR STRESSES WITH NORM = P-BAR OF 8.0003 KSF

AXIAL	DEVIATOR OR INEQUITY	DELTA-U	A-FACTOR	0	P-BAR	SECANT MODULUS	TANGENT MODULUS	DEVIATOR NORM	DELTA-U NORM	0 NORM	P-BAR NORM	SECANT NORM

NONE
YES

FILE NUMBER FOR PISTON FRICTION CORRECTION CONSTANT
IS DATA NORMALIZATION REQUIRED?
DATA NORMALIZED TO PRESHEAR STRESSES
WITH NORM = P-BAR OF 8.0003 KSF

AXIAL STRAIN %	DEVIATOR STRESS KSF	OBLIQUITY	DELTA-U KSF	A-FACTOR	Q KSF	P-BAR KSF	SECANT MODULUS KSF	TANGENT MODULUS KSF	DEVIATOR NORM	DELTA-U NORM	Q NORM	P-BAR NORM	SECANT NORM
0.0000	-.0286	.9964	0.0000	0.0000	-.0143	8.0003	0.000	0.000	-.0036	0.0000	-.0018	1.0000	0.0000
.0034	.1855	1.0232	.0340	.1589	.0927	8.0733	6334.651	5981.751	.0232	.0042	.0116	1.0091	791.8045
.0071	.3947	1.0498	.0940	.2221	.1973	8.1179	5964.946	6355.995	.0493	.0117	.0247	1.0147	745.5930
.0101	.6100	1.0776	.1580	.2474	.3050	8.1616	6300.404	6628.079	.0763	.0197	.0381	1.0202	787.5237
.0130	.7873	1.1011	.2300	.2819	.3937	8.1782	6272.279	6732.580	.0984	.0287	.0492	1.0222	784.0082
.0160	1.0090	1.1308	.2980	.2972	.5045	8.2211	6465.516	5689.313	.1261	.0372	.0631	1.0276	808.1620
.0198	1.1609	1.1518	.3660	.3077	.5805	8.2290	6018.177	4715.796	.1451	.0457	.0726	1.0286	752.2466
.0221	1.2873	1.1696	.4240	.3222	.6437	8.2342	5946.246	6132.374	.1609	.0530	.0805	1.0292	743.2555
.0243	1.4393	1.1911	.4840	.3297	.7196	8.2502	6034.122	5912.175	.1799	.0605	.0900	1.0312	754.2396
.0265	1.5470	1.2068	.5340	.3389	.7735	8.2541	5940.604	4594.086	.1934	.0667	.0967	1.0317	742.5503
.0289	1.6483	1.2218	.5820	.3471	.8242	8.2567	5804.932	4157.613	.2060	.0727	.1030	1.0321	725.5918
.0311	1.7369	1.2355	.6380	.3614	.8684	8.2450	5679.654	5551.820	.2171	.0797	.1085	1.0306	709.9326
.0326	1.8444	1.2519	.6940	.3705	.9222	8.2427	5744.576	5756.724	.2305	.0867	.1153	1.0303	718.0476
.0372	2.0470	1.2838	.8020	.3864	1.0235	8.2360	5584.662	3716.554	.2559	.1002	.1279	1.0295	698.0590
.0439	2.2491	1.3168	.9160	.4022	1.1246	8.2231	5185.719	3295.381	.2811	.1145	.1406	1.0279	648.1929
.0483	2.4072	1.3438	1.0120	.4155	1.2036	8.2062	5041.493	3376.791	.3009	.1265	.1504	1.0257	630.1652
.0537	2.5777	1.3737	1.1160	.4282	1.2889	8.1874	4851.593	3207.342	.3222	.1395	.1611	1.0234	606.4285
.0590	2.7484	1.4041	1.2140	.4372	1.3742	8.1748	4710.248	3211.148	.3435	.1517	.1718	1.0218	588.7610
.0633	2.8873	1.4307	1.3100	.4493	1.4437	8.1482	4602.900	2826.307	.3609	.1637	.1805	1.0185	575.3430
.0694	3.0388	1.4595	1.4020	.4571	1.5194	8.1320	4417.886	2629.773	.3798	.1752	.1899	1.0165	552.2170
.0740	3.1651	1.4854	1.4940	.4670	1.5825	8.1031	4316.235	2270.012	.3956	.1867	.1978	1.0129	539.5111
.0807	3.2848	1.5105	1.5800	.4769	1.6424	8.0769	4103.256	2212.279	.4106	.1975	.2053	1.0096	512.8896
.0860	3.4237	1.5391	1.6640	.4820	1.7119	8.0624	4014.956	2170.548	.4280	.2080	.2140	1.0078	501.8525
.0987	3.6375	1.5876	1.8240	.4975	1.8188	8.0093	3716.074	1850.169	.4547	.2280	.2273	1.0011	464.4935
.1093	3.8517	1.6370	1.9680	.5072	1.9259	7.9724	3550.210	1725.595	.4815	.2460	.2407	.9965	443.7612
.1220	4.0340	1.6827	2.1060	.5184	2.0170	7.9256	3330.851	1547.119	.5042	.2632	.2521	.9907	416.3423
.1341	4.2354	1.7329	2.2360	.5244	2.1177	7.8963	3178.950	1588.258	.5294	.2795	.2647	.9870	397.3553
.1453	4.4049	1.7782	2.3540	.5310	2.2025	7.8630	3051.696	1321.370	.5506	.2942	.2753	.9828	381.4491
.1581	4.5490	1.8193	2.4620	.5378	2.2745	7.8271	2895.008	1179.621	.5686	.3077	.2843	.9784	361.8637
.1708	4.7057	1.8633	2.5640	.5416	2.3529	7.8035	2772.032	1228.206	.5882	.3205	.2941	.9754	346.4922
.1821	4.8437	1.9046	2.6600	.5459	2.4219	7.7764	2675.515	1143.283	.6054	.3325	.3027	.9720	334.4280
.2085	5.1250	1.9889	2.8320	.5495	2.5625	7.7451	2472.227	1070.159	.6406	.3540	.3203	.9681	309.0178
.2318	5.3752	2.0676	2.9800	.5515	2.6876	7.7222	2331.475	1025.842	.6719	.3725	.3359	.9652	291.4244
.2573	5.6248	2.1459	3.1060	.5494	2.8124	7.7210	2197.363	991.988	.7031	.3882	.3515	.9651	274.6611
.2821	5.8744	2.2252	3.2200	.5455	2.9372	7.7318	2092.421	942.984	.7343	.4025	.3671	.9664	261.5437
.3054	6.0798	2.2945	3.3180	.5432	3.0399	7.7365	1999.941	879.031	.7599	.4147	.3800	.9670	249.9842
.3309	6.3036	2.3672	3.4040	.5376	3.1518	7.7624	1913.405	877.753	.7879	.4255	.3940	.9703	239.1674
.3684	6.6329	2.4738	3.5140	.5275	3.3165	7.8171	1808.039	848.719	.8291	.4392	.4145	.9771	225.9971
.4061	6.9415	2.5731	3.6020	.5168	3.4708	7.8834	1716.310	831.106	.8677	.4502	.4338	.9854	214.5315
.4421	7.2449	2.6691	3.6740	.5051	3.6224	7.9631	1645.233	832.441	.9056	.4592	.4528	.9953	205.6472
.4798	7.5545	2.7632	3.7300	.4919	3.7772	8.0619	1580.581	810.791	.9443	.4662	.4721	1.0077	197.5659
.5293	7.9503	2.8801	3.7860	.4745	3.9752	8.2038	1507.555	772.658	.9938	.4732	.4969	1.0254	188.4379
.5766	8.3030	2.9775	3.8160	.4580	4.1515	8.3501	1445.044	810.481	1.0378	.4770	.5189	1.0437	180.6243
.6195	8.6786	3.0769	3.8360	.4405	4.3393	8.5180	1405.584	827.229	1.0848	.4795	.5424	1.0647	175.6921
.6661	9.0418	3.1700	3.8480	.4242	4.5209	8.6876	1361.731	805.290	1.1302	.4810	.5651	1.0859	170.2106
.7127	9.4295	3.2620	3.8460	.4066	4.7148	8.8834	1327.044	819.049	1.1786	.4807	.5893	1.1104	165.8749
.7607	9.8165	3.3469	3.8320	.3892	4.9082	9.0909	1294.220	811.931	1.2270	.4790	.6135	1.1363	161.7720
.8202	10.3025	3.4467	3.8040	.3682	5.1512	9.3619	1259.639	807.352	1.2878	.4755	.6439	1.1702	157.4496
.8810	10.7874	3.5366	3.7620	.3478	5.3937	9.6464	1227.733	770.588	1.3484	.4702	.6742	1.2058	153.4614
.9433	11.2510	3.6124	3.7080	.3287	5.6255	9.9322	1195.750	761.932	1.4063	.4635	.7032	1.2415	149.4636
1.0050	11.7321	3.6855	3.6460	.3100	5.8660	10.2348	1170.250	771.564	1.4665	.4557	.7332	1.2793	146.2762
1.0673	12.2077	3.7490	3.5740	.2921	6.1038	10.5446	1146.464	730.119	1.5259	.4467	.7630	1.3180	143.3031
1.1334	12.6682	3.8010	3.4920	.2750	6.3341	10.8569	1120.283	702.653	1.5835	.4365	.7917	1.3571	140.0307
1.1959	13.1108	3.8460	3.4080	.2594	6.5554	11.1622	1098.738	713.829	1.6388	.4260	.8194	1.3952	137.3075
1.2597	13.5703	3.8800	3.3160	.2438	6.7851	11.4839	1079.519	729.618	1.6962	.4145	.8481	1.4354	134.9353
1.3212	14.0251	3.9251	3.2200	.2291	7.0125	11.8073	1063.700	707.563	1.7531	.4025	.8765	1.4759	132.9580
1.3844	14.4519	3.9501	3.1160	.2152	7.2259	12.1247	1045.983	664.293	1.8064	.3895	.9032	1.5155	130.7435
1.4491	14.8744	3.9732	3.0120	.2021	7.4372	12.4400	1028.441	634.977	1.8592	.3765	.9296	1.5550	128.5508
1.5145	15.2777	3.9904	2.9060	.1898	7.6388	12.7477	1010.674	664.137	1.9096	.3632	.9548	1.5934	126.3300
1.5791	15.7149	4.0095	2.7800	.1660	8.0574	13.3923	984.871	652.463	2.0143	.3350	1.0071	1.6740	123.1046
						14.0247	959.598	626.014	2.1149	.3062	1.0574	1.7530	119.9457

1.2597	13.9703	3.9680	3.9160	.2438	7.0001	11.7603	1063.700	707.563	1.7531	.4025	.8765	1.4759	132.9580	
1.3212	14.0251	3.9251	3.2200	.2291	7.0125	11.8073	1063.700	707.563	1.7531	.4025	.8765	1.4759	132.9580	
1.3844	14.4519	3.9501	3.1160	.2152	7.2259	12.1247	1045.983	664.293	1.8064	.3895	.9032	1.5155	130.7435	
1.4491	14.8744	3.9732	3.0120	.2021	7.4372	12.4400	1028.441	634.977	1.8592	.3765	.9296	1.5550	128.5508	
1.5145	15.2777	3.9904	2.9060	.1898	7.6388	12.7477	1010.674	644.137	1.9096	.3632	.9548	1.5934	126.3300	
1.6391	16.1148	4.0206	2.6800	.1660	8.0574	13.3923	984.871	652.463	2.0143	.3350	1.0071	1.6740	123.1046	
1.7662	16.9195	4.0404	2.4500	.1445	8.4598	14.0247	959.598	626.014	2.1149	.3062	1.0574	1.7530	119.9457	
1.8954	17.7189	4.0555	2.2160	.1248	8.8594	14.6584	936.343	593.464	2.2148	.2770	1.1074	1.8322	117.0389	
2.0216	18.4361	4.0529	1.9760	.1070	9.2181	15.2570	913.376	573.346	2.3044	.2470	1.1522	1.9071	114.1681	
2.1486	19.1708	4.0522	1.7340	.0903	9.5854	15.8664	893.564	577.701	2.3963	.2167	1.1981	1.9832	111.6917	
2.2755	19.9029	4.0530	1.4960	.0750	9.9515	16.4705	875.921	553.210	2.4878	.1870	1.2439	2.0587	109.4864	
2.5326	21.2639	4.0381	1.0160	.0477	10.6319	17.6310	840.732	513.224	2.6579	.1270	1.3289	2.2038	105.0879	
2.7911	22.5488	4.0173	.5420	.0240	11.2744	18.7476	808.914	488.973	2.8185	.0677	1.4093	2.3434	101.1109	
3.0526	23.8061	3.9965	.0760	.0032	11.9030	19.8423	780.806	472.306	2.9757	.0095	1.4878	2.4802	97.5974	
3.3102	25.0009	3.9772	-.3820	-.0153	12.5005	20.8978	756.135	446.999	3.1250	-.0477	1.5625	2.6121	94.5137	
3.5687	26.1128	3.9541	-.8240	-.0316	13.0564	21.8959	732.528	427.825	3.2640	-.1030	1.6320	2.7369	91.5629	
3.8242	27.2003	3.9337	-1.2560	-.0462	13.6001	22.8717	712.006	414.237	3.3999	-.1570	1.7000	2.8589	88.9977	
4.0827	28.2419	3.9141	-1.6760	-.0593	14.1210	23.8126	692.444	390.533	3.5301	-.2095	1.7651	2.9765	86.5526	
4.3418	29.2216	3.8927	-2.0860	-.0714	14.6108	24.7125	673.680	369.732	3.6526	-.2607	1.8263	3.0890	84.2071	
4.5981	30.1478	3.8724	-2.4800	-.0822	15.0739	25.5697	656.276	366.815	3.7683	-.3100	1.8842	3.1961	82.0318	
4.8507	31.0678	3.8571	-2.8640	-.0921	15.5439	26.4238	641.487	353.752	3.8858	-.3580	1.9429	3.3029	80.1831	
5.1113	31.9618	3.8400	-3.2380	-.1013	15.9809	27.2349	625.872	325.968	3.9951	-.4047	1.9975	3.4043	78.2313	
5.3759	32.7995	3.8246	-3.5960	-.1096	16.3997	28.0119	610.655	314.515	4.0998	-.4495	2.0499	3.5014	76.3293	
5.6364	33.6132	3.8099	-3.9460	-.1173	16.8066	28.7689	596.870	305.671	4.2015	-.4932	2.1008	3.5960	74.6062	
5.8965	34.3909	3.7955	-4.2860	-.1246	17.1955	29.4979	583.726	294.628	4.2987	-.5357	2.1494	3.6871	72.9633	
6.1584	35.1510	3.7839	-4.6100	-.1311	17.5755	30.2021	571.250	287.524	4.3937	-.5762	2.1969	3.7751	71.4038	
6.4151	35.8822	3.7724	-4.9260	-.1372	17.9411	30.8838	559.783	270.987	4.4851	-.6157	2.2426	3.8603	69.9705	
6.6787	36.5601	3.7599	-5.2300	-.1430	18.2800	31.5268	547.844	255.512	4.5699	-.6537	2.2849	3.9407	68.4782	
6.9405	37.2246	3.7490	-5.5240	-.1483	18.6123	32.1533	536.751	252.907	4.6529	-.6905	2.3265	4.0190	67.0916	
7.2007	37.8802	3.7376	-5.8260	-.1536	18.9401	32.7772	526.463	239.160	4.7349	-.7275	2.3674	4.0970	65.8057	
7.4642	38.4767	3.7263	-6.0960	-.1584	19.2383	33.3516	515.866	224.017	4.8094	-.7620	2.4047	4.1688	64.4811	
7.7294	39.0647	3.7160	-6.3660	-.1629	19.5324	33.9157	505.773	225.648	4.8829	-.7957	2.4415	4.2393	63.2195	
7.9862	39.6542	3.7080	-6.6260	-.1670	19.8271	34.4706	496.893	220.899	4.9566	-.8282	2.4783	4.3087	62.1095	
8.2446	40.2027	3.6993	-6.8760	-.1710	20.1014	34.9951	487.969	208.745	5.0252	-.8595	2.5126	4.3742	60.9940	
8.5065	40.7402	3.6913	-7.1200	-.1747	20.3701	35.5080	479.267	198.948	5.0924	-.8900	2.5462	4.4383	59.9063	
8.7650	41.2381	3.6823	-7.3560	-.1783	20.6190	35.9931	470.814	185.841	5.1546	-.9195	2.5773	4.4990	58.8498	
9.0200	41.6949	3.6731	-7.5800	-.1818	20.8474	36.4456	462.563	177.844	5.2117	-.9475	2.6058	4.5555	57.8184	
9.2903	42.1722	3.6643	-7.8100	-.1852	21.0861	36.9145	454.245	171.642	5.2713	-.9762	2.6357	4.6142	56.7786	
9.5606	42.6227	3.6571	-8.0226	-.1882	21.3113	37.3525	446.114	156.718	5.3277	-1.0028	2.6638	4.6689	55.7623	
9.8275	43.0144	3.6484	-8.2226	-.1911	21.5072	37.7486	437.984	154.834	5.3766	-1.0278	2.6883	4.7184	54.7462	
10.0877	43.4382	3.6408	-8.4300	-.1940	21.7191	38.1681	430.890	143.868	5.4296	-1.0537	2.7148	4.7708	53.8594	
10.3495	43.7651	3.6294	-8.6252	-.1971	21.8826	38.5269	423.147	126.681	5.4705	-1.0781	2.7352	4.8157	52.8916	
10.6147	44.1059	3.6206	-8.8108	-.1997	22.0530	38.8831	415.785	127.097	5.5131	-1.1013	2.7565	4.8602	51.9714	
10.8715	44.4287	3.6110	-8.9962	-.2025	22.2143	39.2301	408.933	110.271	5.5534	-1.1245	2.7767	4.9036	51.1149	
11.1435	44.6866	3.5996	-9.1698	-.2052	22.3433	39.5329	401.268	96.793	5.5856	-1.1462	2.7928	4.9414	50.1567	
11.4070	44.9468	3.5879	-9.3482	-.2080	22.4734	39.8416	394.278	88.581	5.6182	-1.1685	2.8091	4.9800	49.2831	
11.6689	45.1522	3.5761	-9.5072	-.2106	22.5761	40.1035	387.191	65.931	5.6438	-1.1884	2.8219	5.0128	48.3972	
11.9375	45.2957	3.5631	-9.6518	-.2131	22.6479	40.3201	379.681	55.254	5.6618	-1.2064	2.8309	5.0398	47.4585	
12.1993	45.4452	3.5517	-9.7892	-.2154	22.7226	40.5325	372.757	55.069	5.6805	-1.2236	2.8402	5.0664	46.5930	
12.4645	45.5859	3.5406	-9.9218	-.2177	22.7930	40.7357	365.954	44.355	5.6980	-1.2402	2.8490	5.0918	45.7427	
12.7348	45.6823	3.5287	-10.0446	-.2199	22.8411	40.9069	358.944	34.322	5.7101	-1.2555	2.8550	5.1132	44.8664	
12.9950	45.7681	3.5162	-10.1676	-.2222	22.8840	41.0731	352.418	11.284	5.7208	-1.2709	2.8604	5.1340	44.0508	
13.2720	45.7392	3.5004	-10.2712	-.2246	22.8696	41.1625	344.844	-22.105	5.7172	-1.2839	2.8586	5.1451	43.1041	
13.5355	45.6502	3.4840	-10.3556	-.2269	22.8251	41.2026	337.473	-37.166	5.7061	-1.2944	2.8530	5.1502	42.1826	
13.8058	45.5406	3.4699	-10.4158	-.2287	22.7703	41.2083	330.072	-22.569	5.6924	-1.3019	2.8462	5.1509	41.2576	
14.0846	45.5278	3.4634	-10.4592	-.2298	22.7639	41.2456	323.449	17.625	5.6908	-1.3074	2.8454	5.1555	40.4297	
14.3498	45.6334	3.4611	-10.5194	-.2306	22.8167	41.3589	318.207	29.648	5.7040	-1.3149	2.8520	5.1697	39.7745	
14.6083	45.6837	3.4548	-10.5868	-.2318	22.8419	41.4517	312.921	19.478	5.7103	-1.3233	2.8551	5.1813	39.1138	
14.8768	45.7361	3.4493	-10.6496	-.2329	22.8681	41.5410	307.623	17.678	5.7168	-1.3312	2.8584	5.1924	38.4516	
15.1353	45.7771	3.4433	-10.7122	-.2341	22.8885	41.6244	302.641	17.924	5.7219	-1.3390	2.8610	5.2029	37.8288	
15.4022	45.8305	3.4376	-10.7772	-.2352	22.9152	41.7163	297.743	11.845	5.7286	-1.3471	2.8643	5.2144	37.2166	
15.6658	45.8402	3.4310	-10.8326	-.2364	22.9201	41.7769	292.796	15.982	5.7298	-1.3540	2.8649	5.2219	36.5983	
15.9377	45.9171	3.4288	-10.8808	-.2370	22.9585	41.8638	288.282	22.999	5.7394	-1.3601	2.8697	5.2328	36.0340	
16.2046	45.9644	3.4254	-10.9266	-.2378	22.9822	41.9336	283.826	11.672	5.7454	-1.3659	2.8727	5.2415	35.4770	
16.4732	45.9795	3.4200	-10.9748	-.2388	22.9897	41.9897	279.290	13.154	5.7472	-1.3718	2.8736	5.2485	34.9100	
16.7486	46.0365	3.4165	-11.0254	-.2396	23.0182	42.0691	275.038	17.404	5.7544	-1.3781	2.8772	5.2585	34.3786	
17.0155	46.0741	3.4129	-11.0688	-.2403	23.0371	42.1317	270.945	9.701	5.7591	-1.3836	2.8795	5.2663	33.8670	
17.2959	46.0899	3.4076	-11.1170	-.2413	23.0445	42.1877	266.638	11.805	5.7609	-1.3896	2.8805	5.2733	33.3286	
17.5561	46.1364	3.4025	-11.1774	-.2424	23.0683	42.2722	262.958	-7.565	5.7669	-1.3971	2.8834	5.2838	32.8687	
					23.0228	42.2801	258.437	-22.540	5.7555	-1.4038	2.8778	5.2848	32.3035	

15.6658	45.8402	3.4310	-10.8326	-.2364	22.9201	41.7769	292.796	15.982	5.7299	-1.3540	2.8649	5.2219	36.5983
15.9377	45.9171	3.4288	-10.8808	-.2370	22.9585	41.8638	288.282	22.999	5.7394	-1.3601	2.8697	5.2328	36.0340
16.2046	45.9644	3.4254	-10.9266	-.2378	22.9822	41.9336	283.826	11.672	5.7454	-1.3658	2.8727	5.2415	35.4770
16.4732	45.9795	3.4200	-10.9748	-.2388	22.9897	41.9897	279.290	13.154	5.7472	-1.3718	2.8736	5.2485	34.9100
16.7486	46.0365	3.4165	-11.0256	-.2396	23.0182	42.0691	275.038	17.404	5.7544	-1.3781	2.8772	5.2585	34.3786
17.0155	46.0741	3.4129	-11.0688	-.2403	23.0371	42.1317	270.945	9.701	5.7591	-1.3836	2.8795	5.2663	33.8670
17.2959	46.0890	3.4076	-11.1170	-.2413	23.0445	42.1877	266.638	11.805	5.7609	-1.3896	2.8805	5.2733	33.3286
17.5561	46.1366	3.4025	-11.1774	-.2424	23.0683	42.2722	262.958	-7.565	5.7669	-1.3971	2.8834	5.2838	32.8687
17.8281	46.0457	3.3911	-11.2304	-.2440	23.0228	42.2801	258.437	-22.540	5.7555	-1.4038	2.8778	5.2848	32.3035
18.1051	46.0134	3.3828	-11.2834	-.2453	23.0067	42.3173	254.304	-3.616	5.7515	-1.4104	2.8757	5.2895	31.7869
18.3686	46.0250	3.3768	-11.3364	-.2464	23.0125	42.3765	250.719	.602	5.7529	-1.4170	2.8765	5.2969	31.3388
18.6355	46.0165	3.3699	-11.3894	-.2476	23.0082	42.4256	247.082	3.279	5.7519	-1.4236	2.8759	5.3030	30.8842
18.9109	46.0434	3.3639	-11.4496	-.2488	23.0217	42.4996	243.626	13.954	5.7552	-1.4312	2.8776	5.3123	30.4522
19.1761	46.0915	3.3593	-11.5074	-.2498	23.0458	42.5819	240.508	10.664	5.7612	-1.4384	2.8806	5.3226	30.0624
19.4515	46.1002	3.3521	-11.5702	-.2511	23.0501	42.6494	237.148	17.357	5.7623	-1.4462	2.8812	5.3310	29.6425
19.7133	46.1828	3.3485	-11.6352	-.2521	23.0914	42.7561	234.417	17.272	5.7727	-1.4544	2.8863	5.3443	29.3011
19.9735	46.1906	3.3420	-11.6930	-.2533	23.0953	42.8182	231.403	-15.755	5.7736	-1.4616	2.8868	5.3521	28.9244
20.0360	46.1691	3.3394	-11.7052	-.2537	23.0845	42.8197	230.573	1358.100	5.7709	-1.4631	2.8855	5.3523	28.8207 STOP

A.BASIC RESPRT

CDOS 16K BASIC. VERSION 5.4