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Physical Property Data on Coal Waste Embankment Materials

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PREFACE

On February 26, 1972, a coal waste embankment failed near Saunders, W. Va. The resulting flooding of the Buffalo Creek Valley took the lives of 125 persons and destroyed over 500 homes in addition to extensive damage to other properties in the valley.

Immediately after this disaster, a special U.S. Department of the Interior Task Force was established to study the coal waste hazards problem, with Technical Support, Health and Safety, Bureau of Mines, assigned the lead role to carry out the Task Force responsibilities. As its short-term objectives, the Task Force was to analyze the Saunders embankment failure and to identify other potentially hazardous sites. The long-term objectives were to determine the modes of failure of these embankments and to develop means for the safe disposal of coal waste materials.

In fiscal year 1973, a special appropriation of $1,000,000 was authorized by Congress to the Bureau of Mines to deal with the coal waste hazards problem. In addition to completing the engineering study of the Saunders embankment failure and the analysis of 139 embankment sites investigated on an emergency basis during June 1972, a program of in-house and contract studies was developed as an initial step towards meeting the long-term objectives assigned to the Task Force. The major aspects of this program, supplementing the Bureau's ongoing efforts of providing technical support to inspection and training to inspection personnel, include the development of state-of-the-art studies, engineering and design manual, classification system, recommendations on standards and regulations, and inspection manual; engineering consulation for the imporovement of existing embankments and the design of new structures; and the development of physical property data on coal waste materials.

The program is aimed at identifying and presenting in a readily available format pertinent aspects of engineering geology and earth dam design and construction that can be applied to the coal waste embankment area. This special study on the physical properties of coal waste materials, as part of the overall program, is basic and important towards a better understanding of the behavior of coal waste embankments and further improvement of the design, construction, and maintenance of these structures.

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PHYSICAL PROPERTY DATA ON COAL WASTE EMBANKMENT MATERIALS

by

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and Lynn A. Atkins[3]

ABSTRACT

Inadequate engineering design criteria for coal refuse embankments has allowed hazardous impoundment structures in coal mining areas to be created. A necessary first step to develop adequate design criteria is the determination of basic, respresentative physical property data on the materials that constitute typical refuse embankments. An extensive field and laboratory program was undertaken by the Federal Bureau of Mines. Much physical property data was generated. Additonal petrographic analysis and large-scale triaxial compression testing was performed by others. The data presented here should aid in establishing design parameters for coal refuse embankments.

INTRODUCTION

A 2-week sampling program was initiated in West Virginia on a limited number of coal refuse embankments. Approximately 3 1/2 tons of waste material was gathered at eight sites. In situ density tests were performed at these sites, and shelby tube samples of undisturbed fines were obtained where feasible. Maps of the sites were procured, and stationing, embankment measurements, and sampling locations were noted. Flowsheets of preparation plants were obtained where possible.

The field program was a team effort by personnel of the Federal Bureau of Mines, Spokane Mining Research Center (SMRC); Federal Bureau of Mines, Health and Safety; and the cooperation of Island Creek Coal Co., Westmoreland Coal Co., Pocahontas Fuel Co., United Pocahontas Coal Co., Bethlehem Mines Corp., and Eastern Associated Coal Corp. Health and Safety personnel contacted the mining companies for schedule times when SMRC personnel could conduct the sampling of select refuse piles and also made four-wheel-drive transportation available to the more inaccessible areas. In most cases, mining personnel accompanied Bureau of Mines personnel during testing. At most of the sites, bull dozers were made available for excavation of the test pits. The interest

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and enthusiasm shown by the mining companies provided a good working atmosphere for all involved.

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The completion of this project was significantly advanced by the help and cooperation of others. The authors are particularly indebted to Westmoreland Coal Co., Philadelphia, Pa.; Island Creek Coal Co., Lexington, Ky.; Eastern Associated Coal Corp., Pittsburgh, Pa.; Bethlehem Mines Corp., Bethlehem, Pa.; Pocahontas Fuel Co., Div. of Consolidated Coal Co., Pocahontas, Va.; and United Pocahontas Coal Co., Algoma, W. Va., for their cooperation in giving access to the sites and supplying bulldozers, maps, and preparation plant flowsheets; to F. C. Kresse, W. A. Wahler and Associates, Palo Alto, Calif., for his help in selecting sites and supplying aerial photos and site information; to Federal Bureau of Mines, Coal Mine Health and Safety, District No. 4, Mt. Hope, W. Va., for making the necessary arrangements, supplying four-wheel-drive transportation and guides; to the Bureau of Reclamation, Engineering and Research Center, Denver, Colo., for the triaxial test data; and to Robert Carnes, engineering technician, SMRC, Spokane, Wash., for his dedicated laboratory assistance. Special recognition should be accorded C. Dan Kealy, SMRC, Spokane, Wash., for his helpful suggestions and administrative direction in the performance of this study.

PREPARATION PLANTS

Preparation plants for raw coal vary widely, ranging from simply crushing and loading to complex heavy and fine media circuits in which much more sophisticated separation devices are utilized. The preparation plants that feed the refuse piles of the sites noted in this paper range over the entire spectrum from being relatively simple to extremely complex. Examples of various circuitry are shown in figure 1. Table 1 lists the sites and the equipment used in each preparation plant. A more detailed description of plant operation is included in appendix B to demonstrate the basic flow scheme.

TABLE 1. - Preparation plant comparison

	Site 155 Bethlehem	Site at Herndon Eastern Association Coal Keystone No. 5	Site 233 Island Creek Coal Gauley Eagle	Site R-11 Island Creek Coal Guyan No. 5	Site 230 United Pocahontas Algoma	Site 138 Westmoreland Hampton No. 3	Site R-15 Westmoreland Hampton No. 4
Crusher(s).....	X	X	X	X	X	X	X
Screen(s).....	X	X	X	X	X	X	X
Sieve(s).....	X	X	X	X	X	X	X
Sump(s).....	X	X	X	X	X	X	X
Magnetic separator(s).....		X	X		X		
Cyclone(s).....	X	X	X	X	X	X	X
Centrifuge(s).....	X	X	X	X	X	X	
Dryer(s).....	X	X	X	X	X	X	X
Filter(s).....		X	X		X	X	X
Heavy media vessel(s).....		X	X		X		
Flotation cell(s).....		X	X			X	
Froth cell(s).....			X		X		
Cone(s).....	X		X	X		X	
Static thickener(s).....		X	X		X	X	X
Jig(s).....				X			X
Settling tank(s).....				X			
Deister table(s).....	X				X	X	X
Waste disposal: Truck.....	X	X	X		X	X	X
Railroad.....		X					
Aerial tram.....				X			

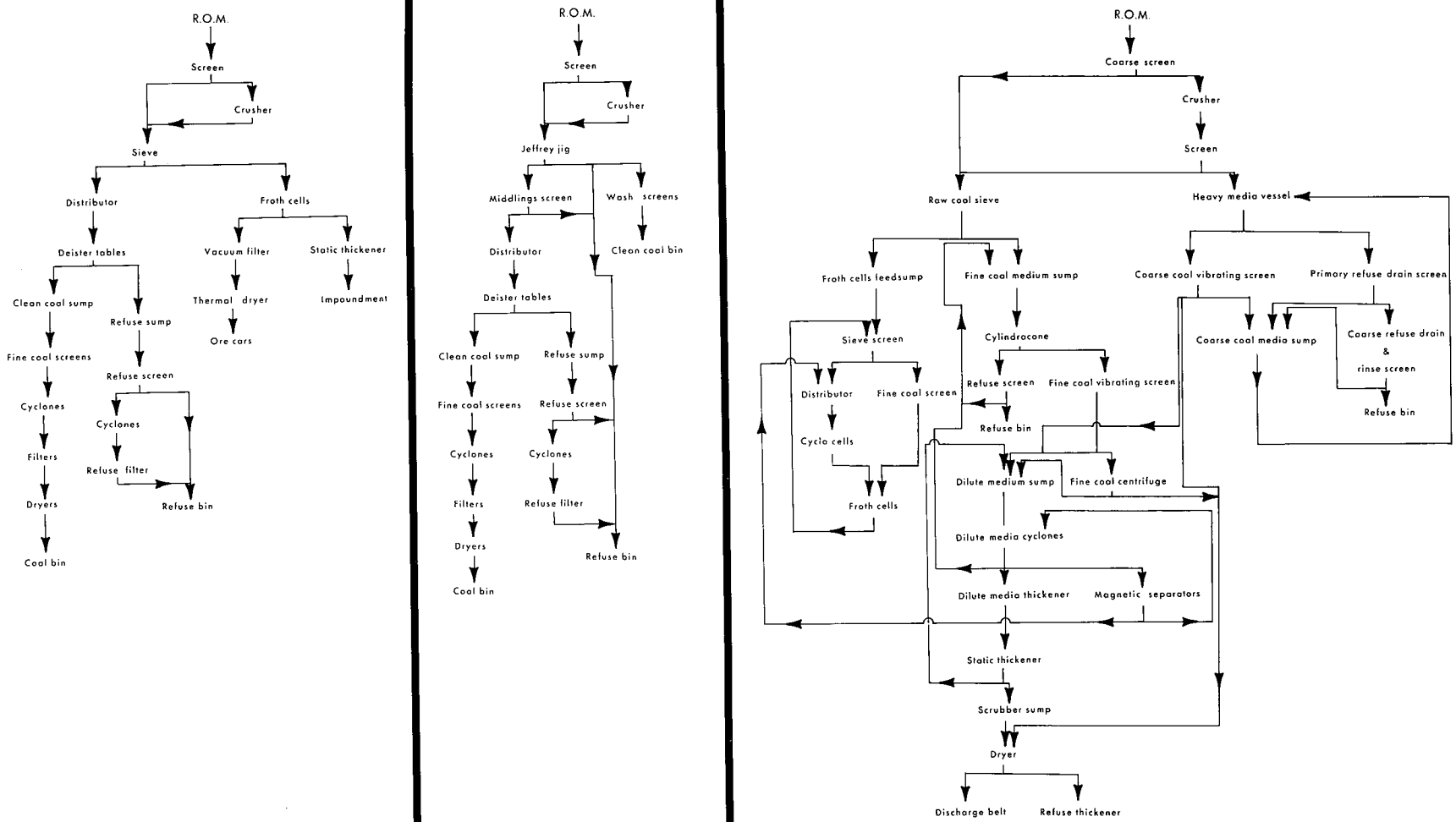

FIGURE 1. - Typical flow diagrams of coal preparation plants.

SITES SELECTION

Sites were selected from the Interior report entitled, "Emergency Investigations of Coal Mine Waste Embankments," which was conducted by the U.S. Department of Interior Task Force to study coal waste hazards. In selecting sites, District 4 was chosen because of its concentration of waste dumps. Sites selected were Nos. 233, 138, 229, 230, R-11, and 155. Site 155 has been abandoned for a number of years. At the suggestion of Health and Safety personnel, two additional sites were chosen for sampling. These were sites R-15 (Hampton No. 4, owned by Westmoreland) and a site that we call site A (Keystone No. 2 mine at Herndon, owned by Eastern Associated Coal). See figure 2 for location of sites.

FIGURE 2. - Map of West Virginia showing sample sites.

Maps and Photos

Site maps were provided by the mining companies except for sites 155 and 229 (figures 3B and 4B, respectively). Maps of sites 155 and 229 were drawn from field measurements and should only be considered accurate in areas of test locations. Maps supplied by companies have been modified in an attempt to depict conditions at the time of sampling and to obtain consistency from one to another. Aerial photos may not be completely accurate because extensive work has been done on some of the sites to obtain compliance with the law so they can remain in operation.

Locations of Tests

In selecting the site for field testing and sampling, care was taken to select the most representative locations. Primary consideration was given to locations that would not interfere with normal operations. Heavily traveled areas were avoided and attempts were made to sample both new and older deposits. Figures 3-10 show both aerial photos (where available) and plan maps of the areas of interest. The maps show the baseline and stationing that was chosen, the shelby tube location, and the density locations for each site.

SAMPLING

Weather Aspects

Initially, it was thought that the time of year, January, would hinder the sampling program, but as work progressed, it was learned that the somewhat frozen surface enabled the sampling of slime zones that would not have been possible under normal summer conditions.

A

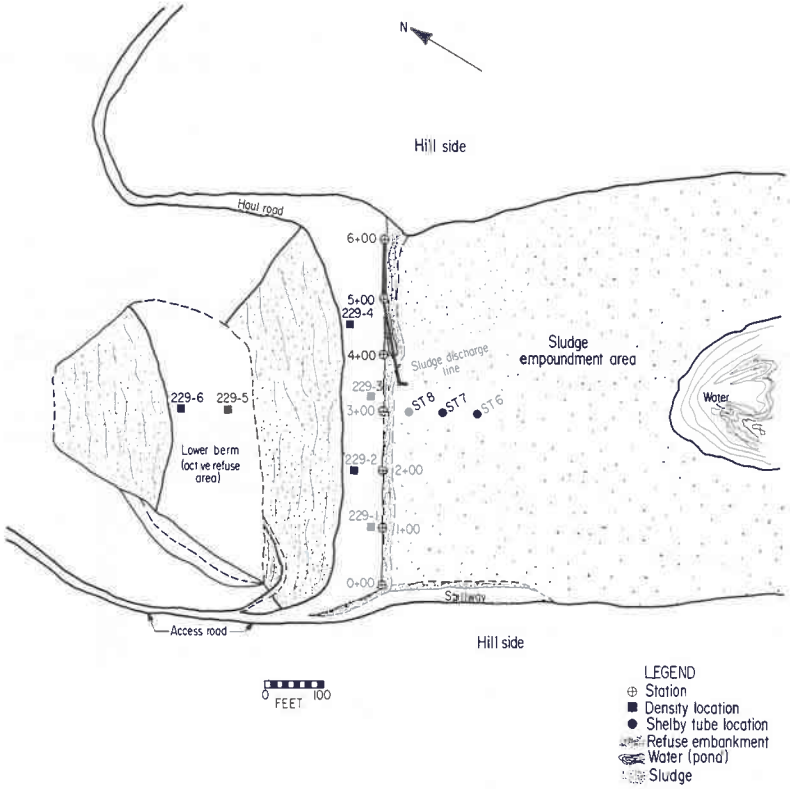

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FIGURE 3. - Site 229, Jenkin Jones, Pocahontas Fuel Co. *A*, Aerial photo; *B*, scale drawing.
(Photo courtesy of Interior Task Force.)

A

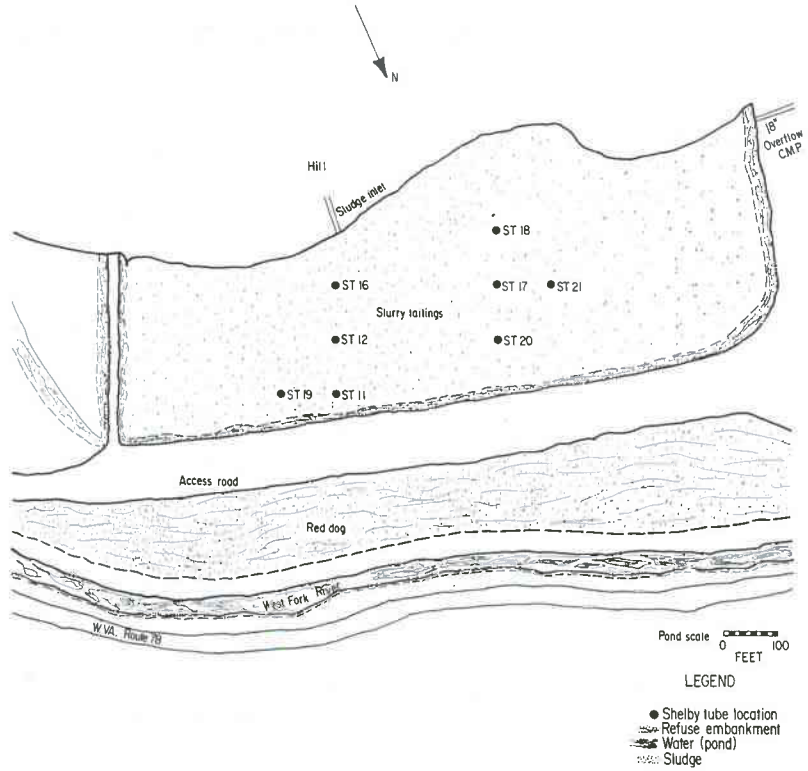

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FIGURE 4. - Site 155, Bethlehem mines. *A*, Aerial photo; *B*, scale drawing.
(Photo courtesy of Interior Task Force.)

A

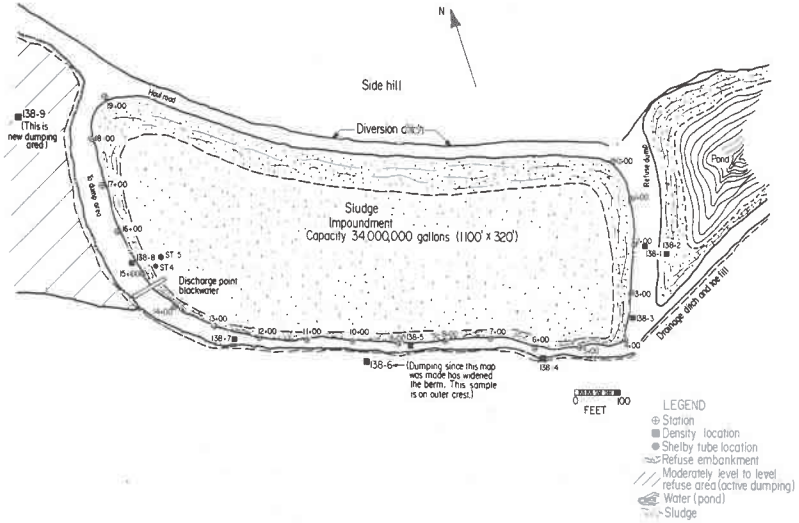

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FIGURE 5. - Site 138, Hampton No. 3, Westmoreland Coal Co. *A*, Aerial photo; *B*, scale drawing.
(Photo courtesy of Interior Task Force.)

A

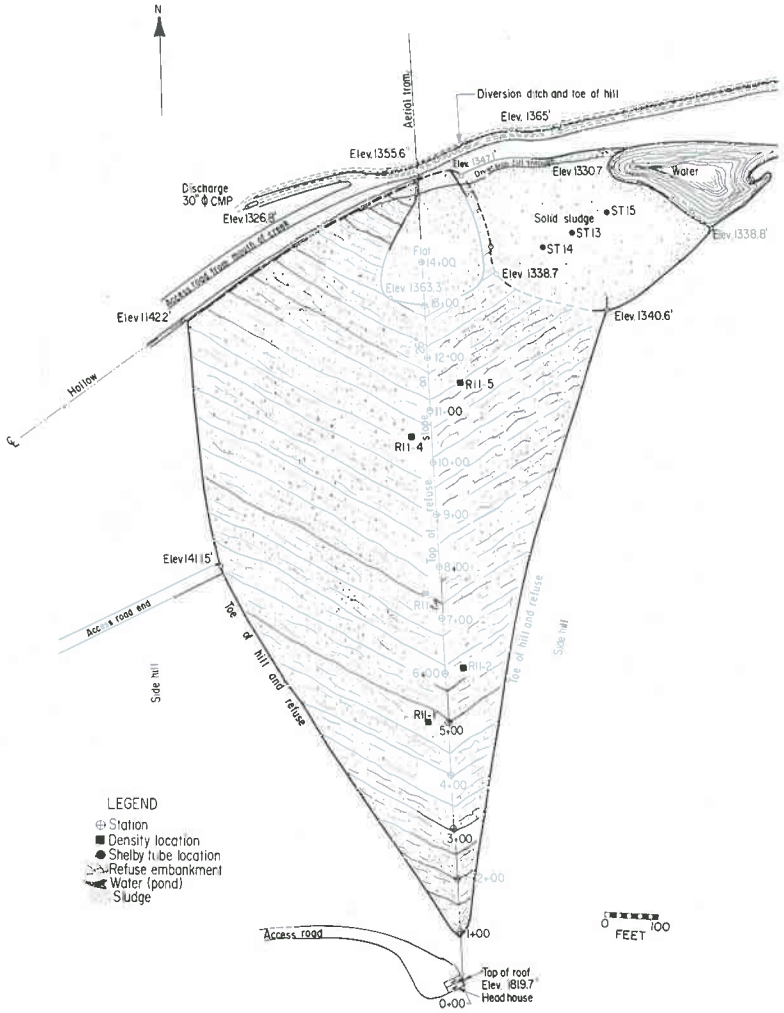

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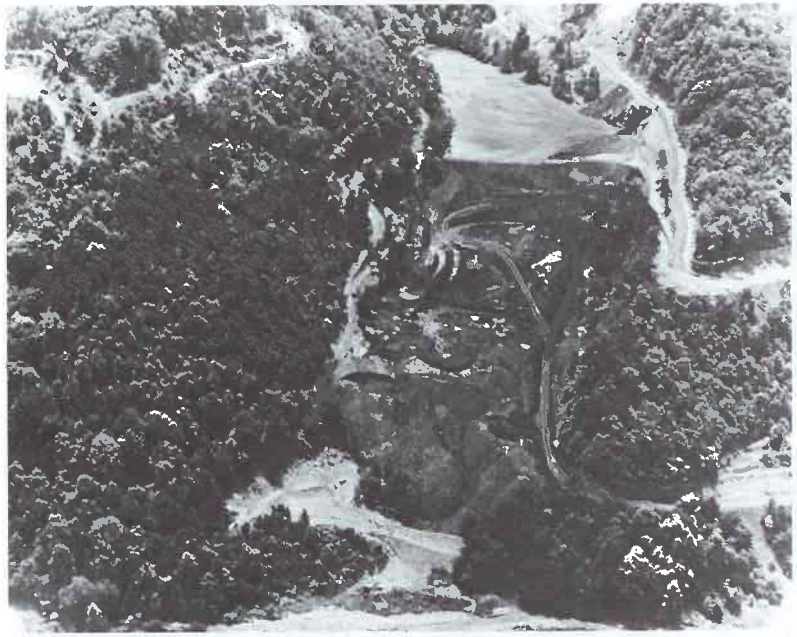
FIGURE 6. - Site R-11, Guyan No. 5, Island Creek Coal Co. *A*, Aerial photo; *B*, scale drawing.
(Photo courtesy of Interior Task Force.)



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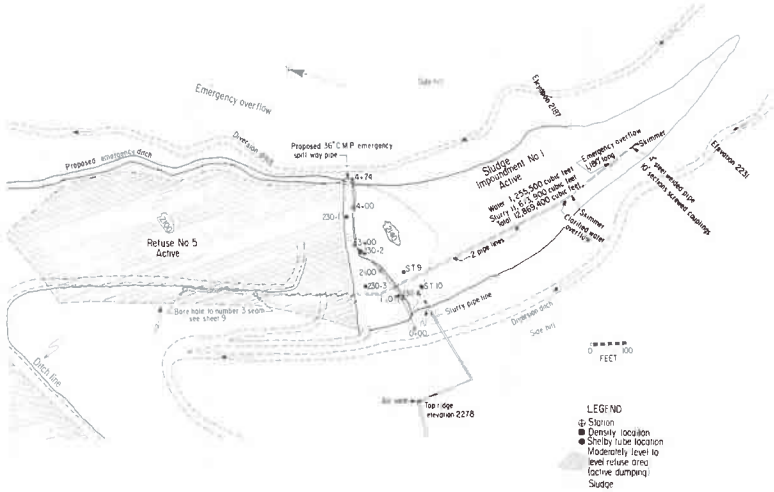

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FIGURE 7. - Site 230, United Pocahontas Coal Co. at Algoma. *A*, Aerial photo; *B*, scale drawing.
(Photo courtesy of Interior Task Force.)

A

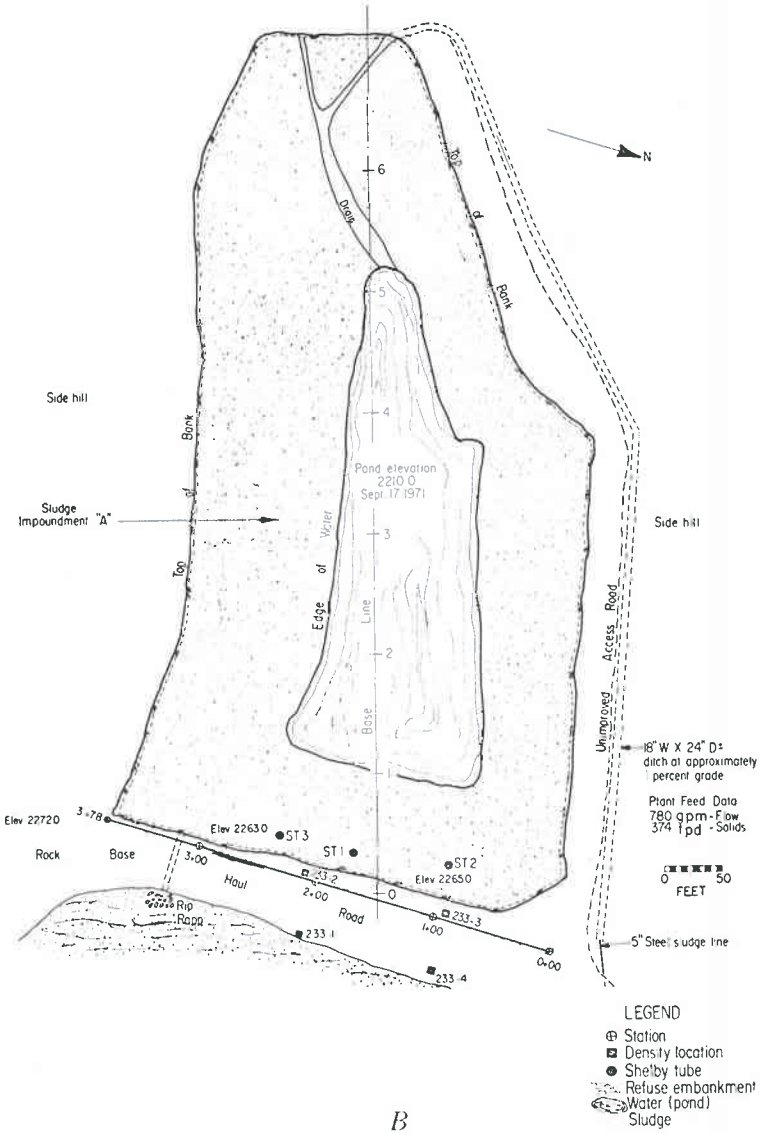

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FIGURE 8. - Site 233, Gauley Eagle No. 4, Island Creek Coal Co. *A*, Aerial photo; *B*, scale drawing.
(Photo courtesy of Interior Task Force.)

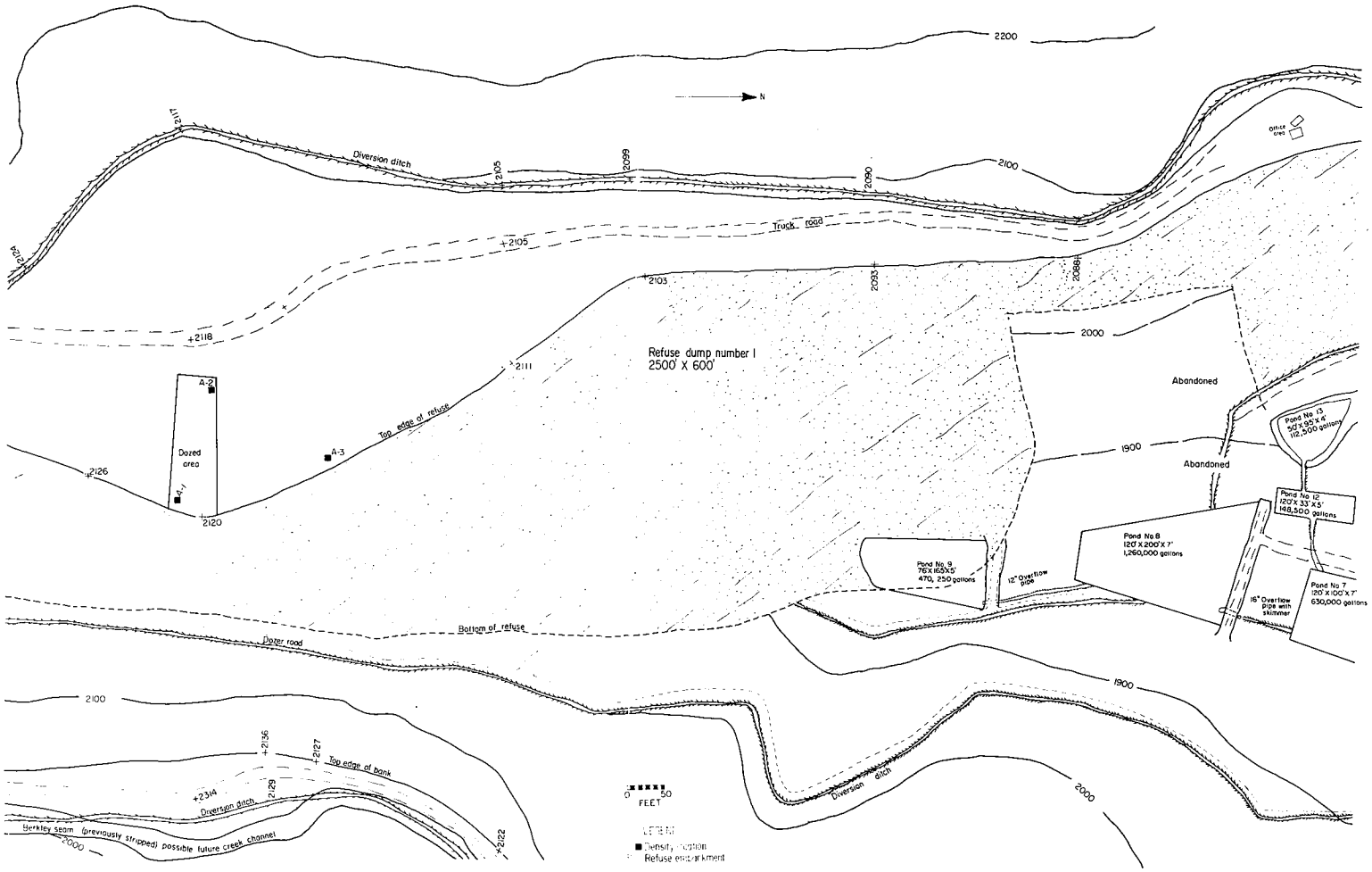

FIGURE 9. - Scale drawing of site A, Keystone No. 2 mine at Herndon, Eastern Associated Coal Co.

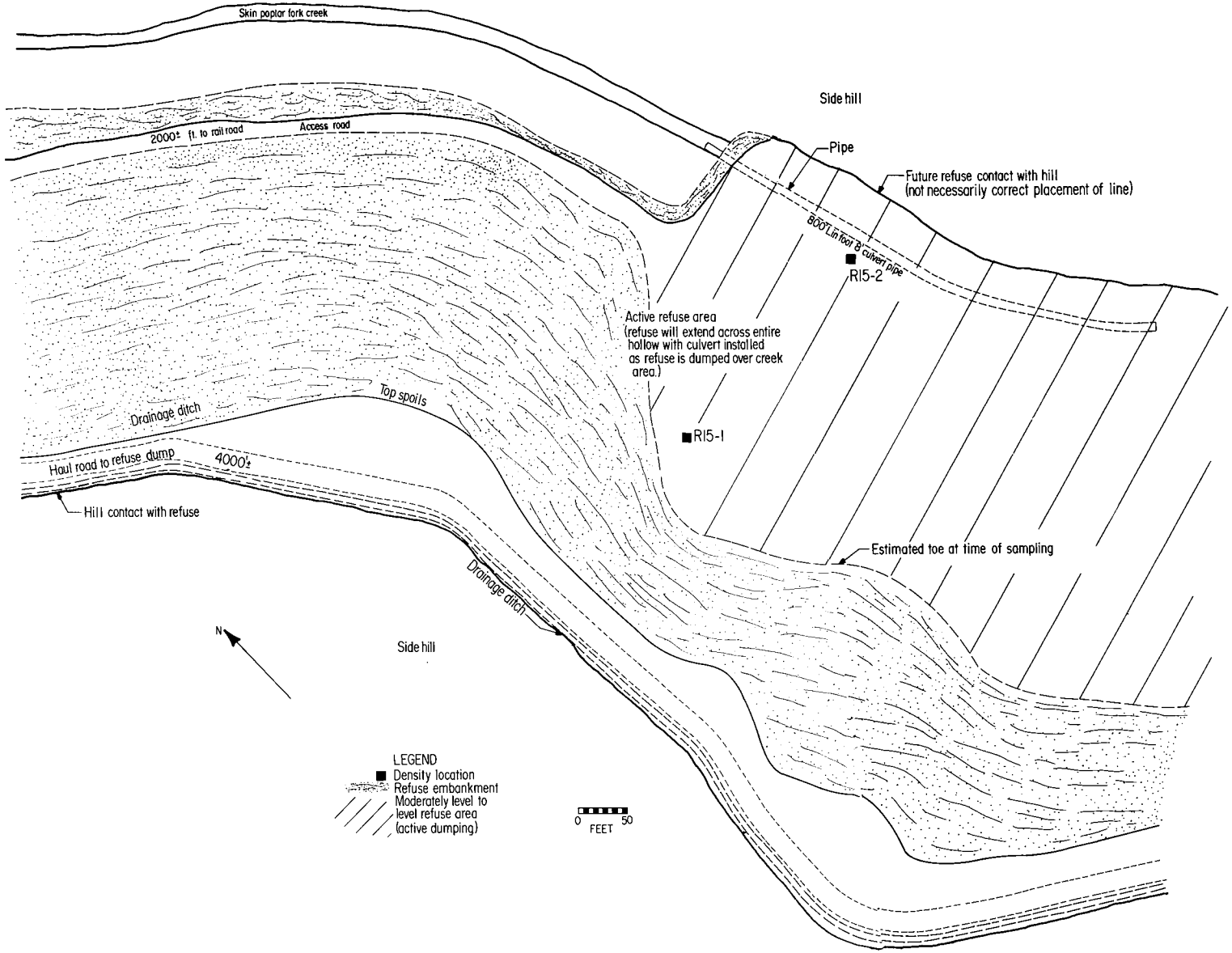

FIGURE 10. - Scale drawing of site R-15, Hampton No. 4, Westmoreland Coal Co.

To minimize the effects of frost, each density site was bulldozed to a depth of approximately one bulldozer-blade deep (2 to 3 feet) and from 10 to 15 feet in length. Once this preliminary pit was excavated, preparation for density tests was completed by digging and leveling by hand about a 4-foot-diameter circle to a depth of 6 to 12 inches (fig. 11). The frozen slime area was removed before shelby tube sludge samples were obtained.

FIGURE 11. - Preparing an in-place density location.

FIGURE 12. - Obtaining grab samples at density location.

FIGURE 13. - Inserting shelby tube into sludge area.

Sample Size

Approximately 150-lb samples (fig. 12) were obtained at each density location in order to run laboratory tests to correlate with each in-place density test. These grab samples were taken from the unfrozen and umcompacted material that was excavated in preparing each test pit. An additional 150-lb sample was obtained from material that was currently being dumped at the site. Where burning of the waste pile was evident, a sample of the burned material, "red dog," was also taken.

Where conditions permitted, shelby tube samples of the top 2 feet were taken in the sludge areas (fig. 13). The pattern of these sample locations was dicated by the surface condition of sludge deposit and varied from spot peripheral sampling to straight-line (across-the-pond) locations (figs. 14-15).

FIGURE 14. - Retrieving shelby tube sample near sludge inlet.

FIGURE 15. - Shelby tube locations on site 155, Bethlehem mines.

LABORATORY TESTS

Consideration of the goals of the project, the materials, and the sampling program dictated a rather definite laboratory testing procedure. The two main problems in establishing design criteria for coal waste disposal are stability and water control. The primary materials involved are the relatively coarse coal shale and the sludge, which is fine-grained coal, shale, and native minerals. Field samples that were collected in conjunction with the field testing program resulted in 21 undisturbed shelby tube samples and 32 disturbed (grab) samples from eight properties.

Having established the field densities and moisture conditions by densometer tests on the coarse fraction and by calculating these values from the shelby tubes on the fines, the values for the laboratory tests could be based on these field conditions. Permeability tests were run on the shelby tube samples (table 2). Direct shear tests were performed on saturated, undisturbed samples taken from three of the shelby tubes. Corresponding grain size, specific gravity, and Proctor compaction tests were also performed on these samples (table 3).

TABLE 2. - Shelby tube samples

Sample	In-place moisture, percent	In-place dry density, pcf	Permeability, cm/sec
[1]ST-1	48.8	44.6	6.81×10^{-3}
[1]ST-2	25.8	57.5	1.63×10^{-4}
[1]ST-3	51.6	47.6	1.41×10^{-5}
[2]ST-4	15.3	77.9	1.08×10^{-4}
[2]ST-5	30.8	68.9	2.11×10^{-5}
[3]ST-6	32.5	50.6	1.64×10^{-4}
[3]ST-7	28.5	53.3	2.13×10^{-5}
[3]ST-8	29.5	54.5	9.55×10^{-6}
[4]ST-9	38.9	51.8	4.30×10^{-5}
[4]ST-10	37.9	66.6	Impervious
[6]ST-11	28.9	54.4	1.10×10^{-3}
[6]ST-12	22.8	60.7	1.66×10^{-3}
[5]ST-13	21.7	47.7	1.21×10^{-4}
[5]ST-14	40.7	50.0	3.85×10^{-5}
[5]ST-15	22.3	51.3	5.40×10^{-5}
[6]ST-16	19.3	57.1	1.94×10^{-3}
[6]ST-17	41.8	48.9	5.02×10^{-5}
[6]ST-18	36.8	51.4	1.70×10^{-4}
[6]ST-19	30.1	52.9	3.55×10^{-5}
[6]ST-20	48.3	49.7	1.26×10^{-5}
[6]ST-21	47.0	49.9	2.05×10^{-5}

[1] Island Creek Coal Co., Gauley Eagle No. 4. See figure 8B for test locations.
[2] Westmoreland Hampton No. 3 mine. See figure 5B for test locations.
[3] Pocahontas Fuel Co., Jenkin Jones. See figure 3B for test locations.
[4] United Pocahontas Coal Co., Algoma. See figure 7B for test locations.
[5] Island Creek Coal Co., Guyan No. 5. See figure 6B for test locations.
[6] Bethlehem Mines Corp., Bandytown, W. Va. See figure 4B for test locations.

TABLE 3. - Shear strength and moisture-density of sludge

Sample	Specific gravity	Effective size, mm	Coefficient of uniformity	Direct shear undisturbed and saturated		Moisture-density	
				ϕ, deg	C, psi	Optimum moisture content, percent	Maximum dry density, pcf
ST 3....	1.50	0.015	15	32	2.0		
ST 8....	1.64	.0059	42	35	.4	[1]17.3	74.6
ST 11...	1.56	.01	45	34	1.1		
[2]ST 12 and 17.	1.68	.01	39			19.0	76.0

[1] Composite sample of shelby tubes 3, 8, and 11.
[2] Composite sample of shelby tubes 12 and 17.

Maximum and minimum laboratory densities, grain size gradation, and specific gravities were determined for the grab samples (table 4). Because it was felt that the grab samples from one site represented a cross section of the materials in the dump, all of the coarse samples from a site were composited and tested as a representative sample. These composites were tested for maximum and minimum densities, grain size, specific gravity, and permeability (table 5) as well as shear strength (table 6). Five of these composites were tested in a one-dimensional compression chamber to determine their at-rest (K_o) value (table 7). In addition, four samples of composites were sent to the Bureau of Reclamation soils lab in Denver, Colo., for large-scale triaxial shear tests (table 6). One sample from each site and one shelby tube was sent to the University of Idaho, College of Mines, Moscow, Idaho, for petrographic and chemical analysis (tables 8-10).

TABLE 4. - Physical properties

Site and excavation	Lab sample	Specific gravity		Gradation		Laboratory		In situ		
		Plus No. 4 mesh particle size	Minus No. 4 mesh particle size	Effective size, mm	Coefficient of uniformity	Maximum density, pcf	Minimum density, pcf	Moisture, percent	Dry density, pcf	Percent of relative
WESTMORELAND, HAMPTON NO. 3 MINE[1]										
138-1	1-J-1	2.13	1.76	0.51	12	94.5	72.9	8.8	85.1	63
138-2	1-J-2	2.06	1.81	.34	25	99.7	76.4	7.0	86.6	50
138-3	1-J-3	1.98	1.82	.35	29	99.6	71.6	5.6	82.1	46
138-4	1-J-4	2.14	2.18	.35	29	109.7	79.3	4.8	104.5	87
138-5	1-J-5	2.10	1.73	.40	23	96.8	71.9	5.8	86.6	66
138-6	1-J-6	1.70	1.72	.41	24	88.1	67.8	5.6	80.6	69
138-7	1-J-7	2.17	1.84	.50	20	101.3	78.6	5.7	91.9	65
138-8	1-J-8	2.00	1.83	.23	44	98.8	74.3	7.3	104.6	117
138-9	1-J-8	1.62	1.72	.25	28	87.9	67.4	4.7	93.5	120
UNITED POCAHONTAS COAL CO., ALGOMA[2]										
230-1	1-K-1	1.97	2.14	.41	20	107.9	81.2	2.9	110.9	108
230-2	1-K-2	2.24	2.24	.38	18	100.1	76.3	4.6	100.2	100
230-3	1-K-3	1.72	2.32	1.10	9	120.2	86.6	4.6	98.8	44
POCAHONTAS FUEL CO., JENKIN JONES[3]										
229-1	1-L-1	2.20	2.26	.48	16	109.0	82.5	5.7	94.7	53
229-2	1-L-2	2.20	2.08	.34	25	111.5	81.1	3.8	119.3	117
229-3	1-L-3	2.19	2.02	.38	16	103.3	80.4	5.2	87.8	38
229-4	1-L-4	2.27	2.12	.36	25	109.4	81.9	4.2	97.8	60
229-5	1-L-5	2.09	1.56	.16	41	88.3	67.0	6.8	80.8	71
229-6	1-L-6	2.16	1.63	.13	46	92.9	67.6	7.5	72.9	27
ISLAND CREEK COAL CO., GAULEY EAGLE NO. 4[4]										
233-1	1-M-1	2.03	2.16	.017	165	100.2	79.0	11.7	107.5	125
233-2	1-M-2	1.85	2.05	.18	58	101.0	76.3	5.7	91.5	68
233-3	1-M-3	1.93	2.00	.027	348	97.5	74.9	8.1	106.8	129
233-4	1-M-4	1.76	2.06	.12	92	106.7	72.6	6.8	96.3	77
ISLAND CREEK COAL CO., GUYAN NO. 5[5]										
R-11-1	1-N-1	1.70	1.80	.013	462	80.5	60.8	8.0	94.0	144
R-11-2	1-N-2	1.74	1.82	.30	32	95.3	68.9	8.3	87.9	78
R-11-3	1-N-3	1.88	1.71	.15	47	93.2	70.4	5.8	74.2	21
R-11-4	1-N-4	2.11	1.82	.17	44	97.7	69.4	7.0	90.1	79
R-11-5	1-N-5	1.97	1.89	.16	56	103.5	72.1	6.8	96.6	84
WESTMORELAND, HAMPTON NO. 4 MINE[6]										
R-15-1	1-O-1	1.79	1.77	.36	17	89.1	64.0	8.3	77.7	63
R-15-2	1-O-2	1.71	1.80	.02	330	89.0	62.6	9.9	80.6	75
EASTERN ASSOCIATED COAL CORP., HERNDON, W. VA., CEMETERY BRANCH HOLLOW[7]										
A-1	1-P-1	2.14	1.93	.22	46	110.5	78.6	16.8	85.5	28
A-2	1-P-2	2.25	1.93	.014	414	99.1	76.4	5.2	118.0	154
A-3	1-P-3	2.28	1.69	.028	271	94.4	74.2	13.1	88.3	75

[1] See figure 5B for test locations.
[2] See figure 7B for test locations.
[3] See figure 7B for test locations.
[4] See figure 3B for test locations
[5] See figure 6B for test locations.
[6] See figure 10B for test locations.
[7] See figure 9 for test locations.

TABLE 5. - Composite samples

Sample	Density determination				Gradation		Specific gravity		Permeability			
	Avg in-place dry density, pcf	Maximum density, pcf	Minimum density, pcf	Percent of relative	Effective size, mm	Coefficient of uniformity	Plus No. 4 mesh particle size	Minus No. 4 mesh particle size	Placement dry density, pcf	Load, psi	Consolidated density, pcf	Km cm/sec
[1] 1-J-13*	90.6	97.4	73.8	76	0.5	14	1.98	1.80	90.6	55	92.3	2.63×10^{-4}
[2] 1-K-8*	103.3	107.8	82.6	86	.52	18	2.27	2.21	103.3	55	104.9	2.61×10^{-4}
[3] 1-L-10*	92.2	105.6	84.1	43	.27	22	2.19	1.94	92.2	55	95.8	3.32×10^{-4}
[4] 1-M-10*	100.5	101.4	75.9	97	.03	213	1.84	2.10	100.5	55	104.4	9.80×10^{-7}
[5] 1-N-10*	88.6	94.0	72.0	80	.11	64	1.87	1.83	88.6	55	90.9	3.28×10^{-5}
[6] 1-O-3*	79.2	89.2	66.9	62	.09	63	1.73	1.81	79.2	55	83.5	5.93×10^{-5}
[7] 1-P-4*	97.3	101.2	78.3	86	.03	250	2.19	1.87	97.3	55	103.3	7.82×10^{-7}

[1] Composite sample of 1-J-1 through 1-J-9.
[2] Composite sample of 1-K-8 through 1-K-3
[3] Composite sample of 1-L-1 through 1-L-6.
[4] Composite sample of 1-M-1 through 1-M-4.
[5] Composite sample of 1-N-1 through 1-N-5.
[6] Composite sample of 1-O-1 through 1-O-2.
[7] Composite sample of 1-P-1 through 1-P-3.

NOTE.--Asterisks indicate composite samples.

TABLE 6. - Shear strength composite samples

Sample	Test conditions	Direct shear drained (3/4-inch minus fraction)						Direct shear saturated (3/4-inch minus fraction)				Triaxial shear unconsolidated undrained (total sample)			
		Placement moisture, percent	Placement density, pcf	Consolidated density, pcf	Degree of saturation, percent	ϕ, deg	Cohesion, psi	Consolidated density, pcf	Degree of saturation, percent	ϕ, deg	Cohesion, psi	Placement density, pcf	Degree of saturation, percent	ϕ, deg	Cohesion, psi
1-J-13*	Average field conditions.	6.1	85.7	88.9	34.1	35	0.8	89.0	95.9	34	0.4	-	-	-	-
1-J-13*	95 percent of lab maximum.	6.1	91.4	93.8	46.8	33	2.3	94.9	100.0	31	3.4	92.8	39.9	31.0	8.3
1-K-8*	Average field conditions.	4.0	100.1	103.2	22.6	35	3.5	100.7	87.4	36	2.4	-	-	-	-
1-L-10*	Average field conditions.	5.5	86.9	87.3	26.2	33	1.6	87.1	75.0	36	0.0	-	-	-	-
1-L-10*	95 percent of lab maximum.	5.5	97.0	99.5	40.7	30	6.6	100.5	96.1	31	3.3	98.2	36.8	32.6	12.6
1-M-10*	Average field conditions.	8.1	96.5	98.6	55.1	32	6.3	99.8	89.6	33	.9	-	-	-	-
1-N-10*	Average field conditions.	7.2	84.9	87.2	37.1	34	3.2	90.8	84.3	35	.6	88.7	45.1	31.8	10.8
1-O-3*	Average field conditions.	9.1	76.4	83.1	35.2	33	1.5	84.2	69.1	31	2.1	-	-	-	-
1-O-3*	95 percent of lab maximum.	9.1	83.4	86.0	48.0	31	3.7	87.5	86.9	35	0.0	-	-	-	-
1-P-4*	Average field conditions.	9.3	90.0	94.1	48.8	32	4.5	97.5	81.8	35	.7	98.6	69.1	36.9	.2

NOTE.--Asterisks indicate composite samples, the compositions of which are given in table 5.

TABLE 7. - One-dimensional compression tests

Sample	Density		Vertical applied stress,[1] psi	Vertical deformation,[2] in/in	Constrained modulus,[3] psi	Lateral horizontal stress,[4] psi	Earth pressure at rest[5]	Poisson's ratio[6]	Young's modulus,[7] psi
	Placement, pcf	Percent relative							
1-J-13*-1	88.4	73	90	0.07457	1,207	28.5	0.316	0.24	1,024
1-J-13*-2	92.3	87	100	.02310	4,329	26.8	.267	.21	3,846
1-L-10*	94.4	54	100	.04077	2,453	37.6	.376	.27	1,963
1-N-10*	89.0	82	70	.3577	1,957	28.0	.399	.29	1,493
1-P-4*	87.9	81	100	.07809	1,281	39.3	.393	.28	1,002

[1] σ_v = vertical applied stress.
[2] ε_v = vertical deformation.
[3] M = constrained modulus = σ_v/ε_v.
[4] σ_h = lateral horizontal stress.
[5] K_o = earth pressure at rest = σ_h/σ_v.
[6] ν = Poisson's ratio = $K_o/(1 + K_o)$.
[7] E = Young's modulus = $M(1 - \nu - 2\nu^2)/(1 - \nu)$.

NOTE.--Asterisks indicate composite samples, the compositions of which are given in table 5.

TABLE 8. - Visual description

Sample	Description
1-J-13*	Quartz ~ 20 percent; clays and micas ~ 80 percent (high carbon).
1-K-8*	Pyrite ~ 5 percent; quartz grains ~ 5 to 10 percent; limonite-hematite stains; clays and micas ~ 80 to 90 percent (low in carbonaceous material).
1-L-10*	Quartz > 20 percent; minor limonite and hematite stains; clays and micas ~ 80 percent (moderately high in carbonaceous material).
1-M-10*	Hematite < 1 percent; quartz grains ~ 1 percent; clays and carbonaceous materials ~ 98 percent.
1-N-10*	Pyrite ~ 5 percent; clays, micas, and carbonaceous ~ 95 percent (moderately high in carbonaceous material).
1-O-3*	Quartz grains ~ 1 percent; clays, micas, and carbonaceous material ~ 99 percent.
1-P-4*	Clays, micas, and carbonaceous material = 100 percent (low in carbonaceous material).
ST 10	Clays, and micas ~ 100 percent (little or no carbonaceous material).

NOTE.--Asterisks indicate composite samples, the compositions of which are given in table 5.

TABLE 9. - X-ray diffraction identification

Sample	Quartz	Musco-vite	Chlorite	Kaolin-ite	Illite	Illite (degraded)	Pyrite	pH	C.E.C.[1] mg/100g
1-J-13*	X	X	X					7.10	5.50
1-K-8*	X	X	X				X	5.10	8.75
1-L-10*	X		X		X			7.45	4.76
1-M-10*	X		X	X		X		6.10	7.00
1-N-10*	X	X		X			X	3.60	4.56
1-O-3*	X		X	X		X		7.00	5.88
1-P-4*	X	X	X					8.10	4.25
ST 10*	X		X			X		6.40	17.50

[1] Cation exchange capacity.

NOTE.--Asterisks indicate composite samples, the compositions of which are given in table 5.

TABLE 10. - AAS analysis,[1] ppm

Sample	Mn	Cu	Ca	Mg	Zn	K	Na	Pb	Cd	Fe
1-J-13*	75	25	50	1,500	50	1,000	375	35	0.65	13,750
1-K-8*	1,250	50	50	2,200	85	1,125	325	150	1.00	41,250
1-L-10*	125	35	175	2,200	65	1,000	250	100	.75	10,000
1-M-10*	85	18	75	500	30	500	150	20	.65	7,500
1-N-10*	65	18	125	1,000	30	875	200	30	.75	16,250
1-O-3*	200	30	200	1,750	40	875	325	35	.50	10,000
1-P-4*	100	25	1,875	1,750	60	875	350	60	.75	10,000
ST 10	85	12	50	8,000	35	625	250	20	.25	8,750
Error	±7.5	±3	±50	±140	±7	±125	±50	±7.5	±.07	±1,250

[1] 2.0 g of minus 100 mesh, 25 ml con. HNO_3 to dryness, 25 ml of 20 percent HNO_3 filtered and diluted to 50 ml with deionized H_2O (25 = dilution factor). AAS standard operating parameters.

NOTE.--Asterisks indicate composite samples, the compositions of which are given in table 5.

PROCEDURES

The laboratory tests performed in the SMRC laboratory were done using the following procedures:

1. Maximum and minimum densities were performed according to ASTM Standard No. D-2049-69, Part 2 (fig. 16).

2. Permeability of the composite samples were performed according to the U.S. Bureau of Reclamation Earth Manual, first edition, Designation E-14 (fig. 17).

3. Permeability of the undisturbed shelby tube samples were performed by an SMRC-developed method using a constant head (fig. 18).

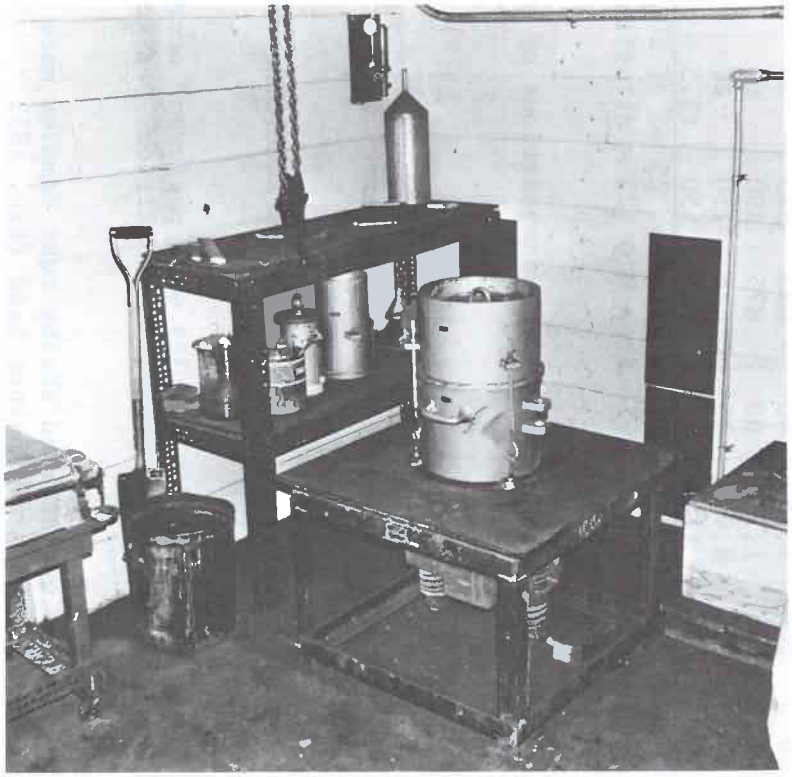

FIGURE 16. - Vibrating table for compaction of density samples.

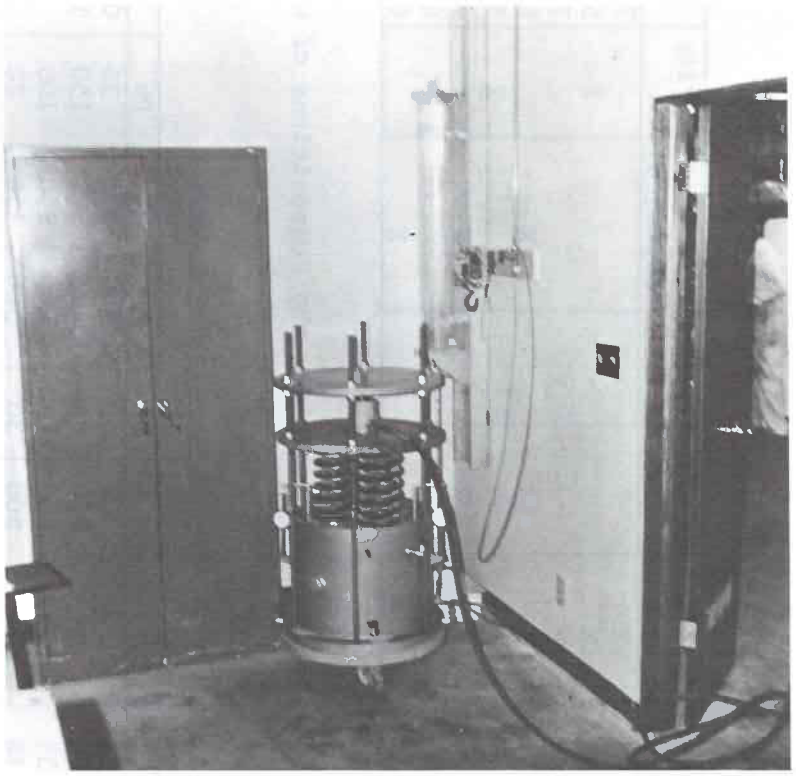

FIGURE 17. - Permeability testing apparatus.

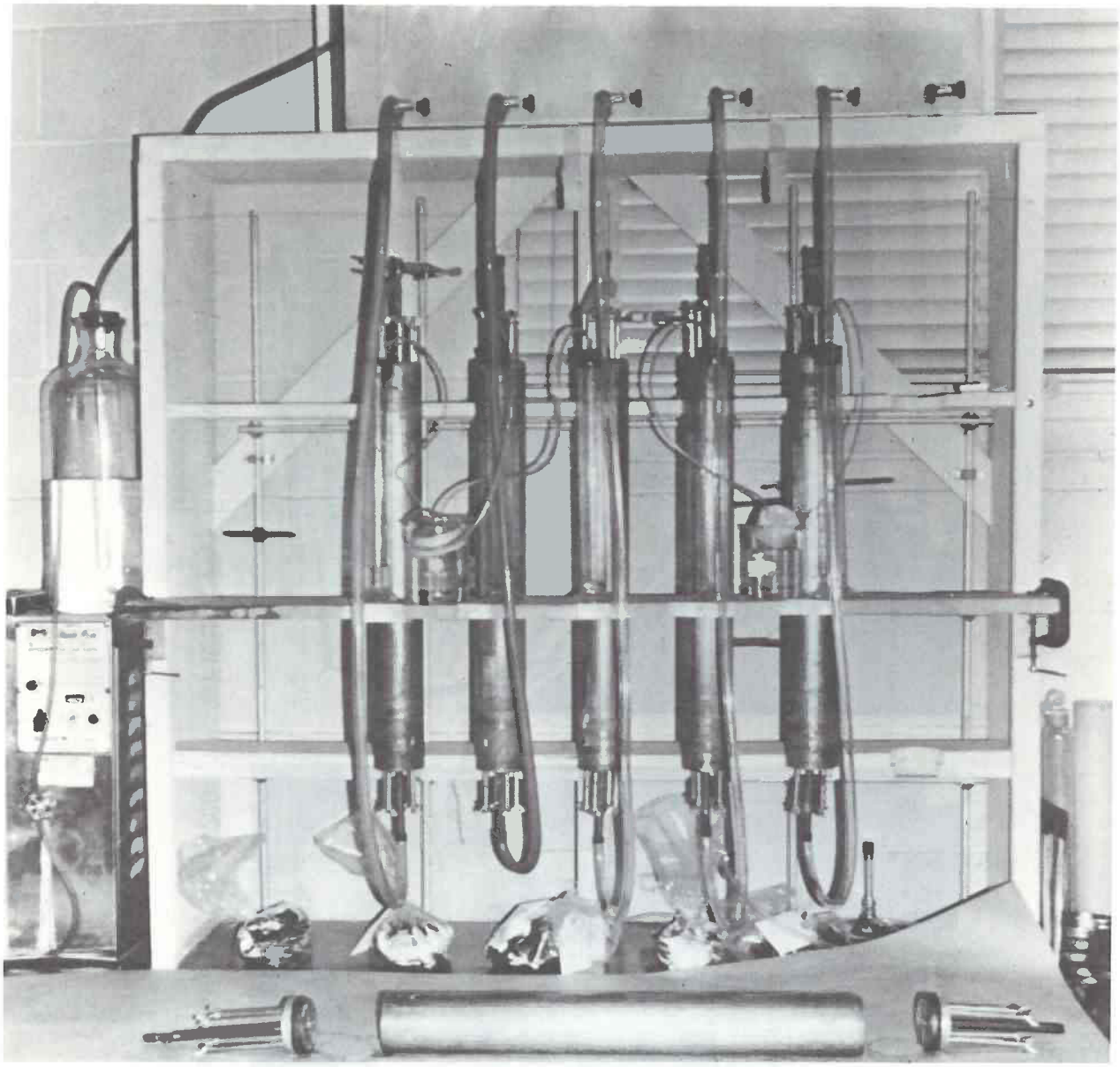

FIGURE 18. - Shelby tubes set up for determining permeability.

4. Grain size gradation for the coarse fraction was performed according to ASTM Standard D-422-63, Part 2. The minus 200-mesh portion was tested with a Sedigraph 5000[4] particle size analyzer. The Sedigraph operates on the principal of Stokes law utilizing X-ray absorption (fig. 19).

5. The specific gravity of the plus No. 4 material was tested according to ASTM Standard C-127-68, Part 10. The minus No. 4 fraction was tested according to ASTM Standard D-854-58, Part 2.

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[4]Reference to specific makes or models of equipment is made to facilitate understanding and does not imply endorsement by the Bureau of Mines.

FIGURE 19. - Sedigraph 5000 for determining minus 200-mesh particle size.

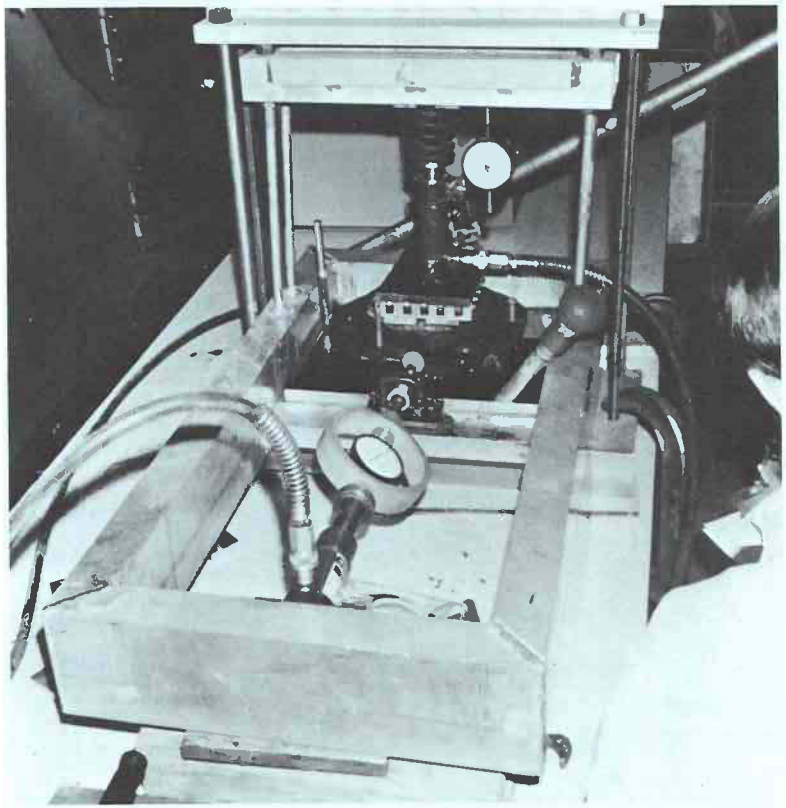

FIGURE 20. - Field direct shear apparatus modified for laboratory use.

6. The one-dimensional compression tests were performed in an SMRC-developed chamber by a method developed in this laboratory by Nicholson and Busch.[5]

7. Compaction tests on the sludge samples were performed according to ASTM D-698-70.

8. The direct shear test on saturated, undisturbed samples extruded from the shelby tubes was performed on a Karol-Warner direct shear device by the method outlined by Lambe.[6]

9. Direct shear tests were performed on the minus 3/4-inch portion of the coarse fraction in an SMRC-developed field shear device that was modified for laboratory use[7] (fig. 20). The unit accommodates a 6-inch-diameter by 4-inch-thick specimen. Normal loads of 15, 30, and 60 psi were used.

Two series of shear tests were performed on the 3/4-inch minus material of each composite sample. One series was run at field moisture and density and the other at field density but saturated. The field density on the 3/4-inch minus material was computed by the volume method. A third series of shear tests was performed on three of the samples the average field density of which was considerably lower than the maximum. These tests were run at 95 percent of the maximum density.

DISCUSSION OF RESULTS

One of the important factors that must be considered in the stability of slopes as well as the control of water in a waste dump is the permeability. Table 2, which shows the permeability of undisturbed samples of sludge, indicates that in the natural, relatively loose state, the values are quite uniform and lie in the low to very low permeability range. The composites of the grab samples that were compacted to average field density also show a very low permeability (table 5). The reason these composites, which are much coarser, have about the same permeability as the fines could be attributed to the rather large uniformity coefficients indicating well-graded materials. They are also compacted to a much higher density ratio.

The grain size gradation curves (appendix A) for the various samples indicate that the materials are mostly well graded, although there is a considerable difference in the range of sizes. The variety of preparation plants would account for this discrepancy.

The variance in the specific gravity values obtained from the many samples indicates that it would be unwise to use a fixed value for a specific

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[5] Nicholson, D. E., and R. A. Busch. Earth Pressure at Rest and One-Dimensional Compression in Mine Hydraulic Backfills. BuMines RI 7198, 1968, 40 pp.

[6] Lambe, W. T. Soil Testing for Engineers. John Wiley & Sons, Inc., New York, 1967, 88 pp.

[7] Klinedinst, G. L. Development and Testing of a Portable In Situ Direct Shear Device. M.S. Thesis, Univ. Idaho, Dept. of Civil Eng., Moscow, Idaho, 119 pp.

gravity (table 4). The actual value would have to be established for each material and each site. This condition probably exists because of the variation in coal content at the various dumps.

Table 4 also indicates a rather wide difference in field densities. The test locations at a particular site were chosen as randomly as possible, and the only surprising results are the very high densities recorded in some of the sampling locations. The geology of the deposit as well as the efficienty of the separation plant would affect these values to some degree. Undoubtedly, some of the high-density locations were in the proximity of haul roads that were subjected to some compaction. The in-place densities of the sludge (table 2) are considerably lower than their laboratory maximums, and their moisture content is much higher than optimum (table 3). These values reflect the current methods of deposition in the field and the resulting unsafe deposits. A sudden, or shock, loading may develop high neutral stresses and cause shear failure.

Much time and effort was expended to establish reliable shear strength values because this criteria is of utmost importance in proper design. The direct shear results, as indicated in table 6 and tabulated in appendix D, are based upon composites of the samples taken from the sites. The angle of internal friction, ϕ, was determined using peak stress. It should be noted that the values of ϕ and cohesion do not change appreciably from the samples tested in the field condition to the saturated condition. Both tests were run slow enough to prevent neutral stress buildup. Although the value of the ϕ angle shows a decrease with increased placement density, a corresponding increase in cohesion results in higher shear strengths at most normal loading conditions.

Four samples were sent to Bureau of Reclamation, Engineering and Research Center, Denver, Colo., for triaxial shear tests. These were 3-inch minus materials as compared with the 3/4-inch minus material used for the direct shear tests (fig. 21-22). The results of the triaxial shear tests are shown in appendix C. The shear stress-normal stress plots are shown as vector plots. These vector points represent the point of tangency of the Mohr's envelope to a circle representing each reading. Since these vectors are dependent on both the deviator stress and the effective stress (applied lateral minus pore pressure), the shape of the curve gives a good indication of the specimen behavior. Where the vector points rise to the right, as most of these specimens do, it indicates that the pore pressure is not changing significantly relative to the deviator stress. This indicates that the specimen is not consolidating in order to carry the load, but rather that the load is being carried on the soil particles. The only exception to that behavior was specimen No. 3 of sample No. 1-P-4. The pore pressure on this material rose enough to cause the vector curve to deflect to the left. This indicates that this material is more compressible than the other materials. This material was obtained from a waste embankment where the closed system of slurry disposal is used. This results in a wetter material and one that does not compact as well on the refuse dump. The placement water content of this sample was reduced from the field water content because it was very wet in-place.

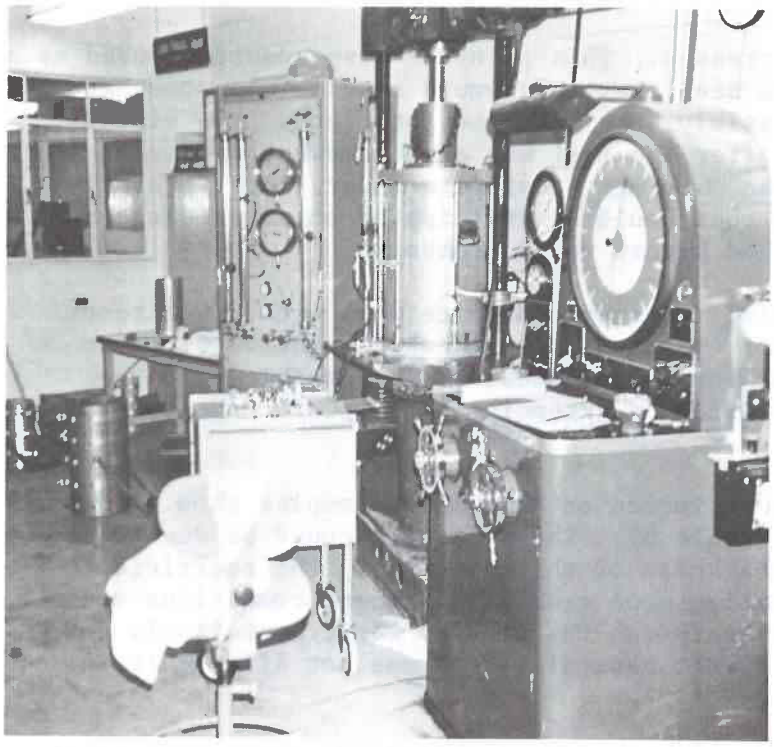

FIGURE 21. - Large-scale triaxial shear apparatus.

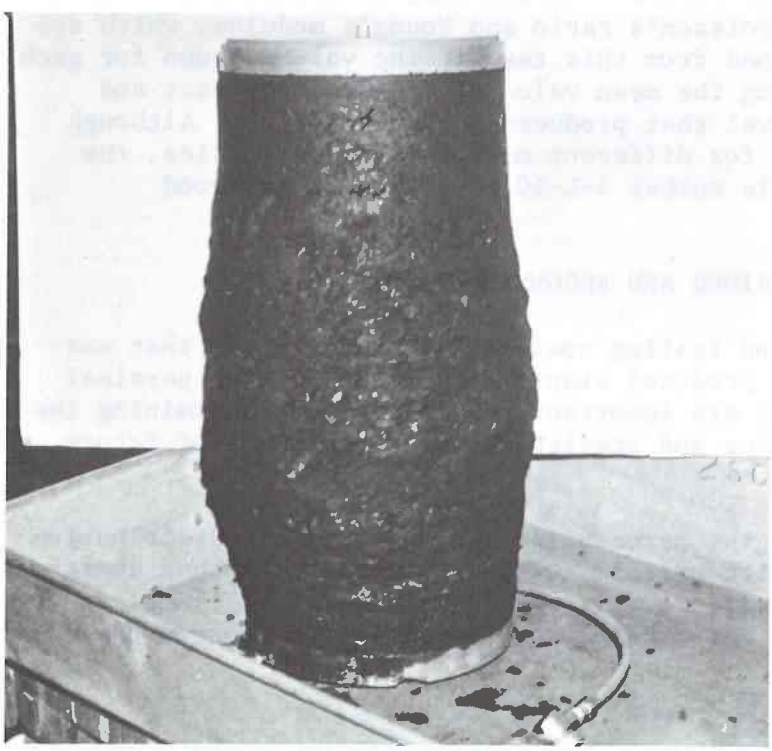

FIGURE 22. - Large-scale triaxial shear specimen at failure.

The failure criteria used in determining the shear strength parameters was the first maximum stress ratio. That is, the first time that the ratio of deviator stress to effective lateral stress decreased, the previous point was selected as the failure condition. These points are indicated on the stress-strain plots by the arrow symbol. A review of the stress-strain curves in appendix C indicates that this failure criteria also picks the point near the maximum deviator stress in many cases. On samples Nos. 1-J-13 and 1-N-10, the specimens tested at 80 psi lateral pressure indicate that a shear plane was developing at the point where the first maximum stress ratio occurred. Although the general trend of the stress-strain curve is still upward, the stress level decreases and then builds up again as the shear plane partially heals under the lateral pressure. Inspection of the specimens at the completion of the tests showed a very definite shear plane on all the specimens.

Sample No. 1-P-4, which contained the mixed coarse refuse and filtered sludge showed stress-strain characteristics somewhat different (fig. 6) from those of the other samples. These specimens showed a rather rapid buildup of deviator stress, and then the stress continues to increase at a slower rate. At about this same point, the pore

pressure reaches a level or decreases. This point is also sometimes used as a failure criteria, and it can be seen that this would result in a somewhat lower angle of friction and possibly some cohesion intercept. The visual appearance of these specimens after the test was also somewhat different in that they had barreled more than forming a definite shear plane. This is in accordance with the results that would be anticipated on materials that contained finer fractions and had higher water contents.

The ϕ angles on the triaxial tests agreed quite well with the direct shear values, but the values for cohesion were somewhat higher. Since no tests were run at low normal or confining loads, it is possible that the cohesion values, which were obtained by extending the rupture envelope to the ordinate, are too high.

The shear tests that were performed on the sludge samples show a surprisingly high ϕ and low cohesion (table 3). These results could be due to the coarseness of the sludge and the shape of the particles. The coefficient of uniformity is also high, indicating good gradation. These conditions would increase the strength values even though the density was comparatively low and the moisture high as long as the neutral stress was not allowed to build up.

The one-dimensional compression test results yielded earth-pressure-at-rest values (K_o) that are fairly consistent (table 7). The two runs on sample 1-J-13 at different placement densities indicate that K_o values are inversely proportional to density. The Poisson's ratio and Young's modulus, which are valuable numbers, can be obtained from this test.[8] The values shown for each sample were obtained by choosing the mean value of K_o from each test and matching it with the stress level that produced a similar value. Although these values may vary somewhat for different materials and densities, the tabular values listed for sample number 1-L-10 would seem to be good guidelines.

CONCLUSIONS AND RECOMMENDATIONS

The program of sampling and testing coal-mine waste products that was undertaken in this project has produced significant results. The physical property values herein reported are important parameters for determining the stability of existing waste piles and predicting the performance of future dumps.

The values of shear strength, permeability, and grain size distribution for the various samples are quite uniform. This would indicate that average values could be utilized. Specific gravity and densities of the samples varied considerably, and it is recommended that local information on these characteristics be obtained.

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[8] Nicholson, D. E. Gravity Flow of Powder in a Lunar Environment (in Two Parts). 1. Property Determination of Simulated Lunar Soil. BuMines RI 7543, 1971, 34 pp.

Some of the field density tests indicated a high degree of compaction, but others were extremely low. Based upon the laboratory maximum density, it would appear that a concerted effort of density control in the field could produce a waste pile that would have uniform high density, corresponding improved stability, and low permeability. The rather limited tests obtained on the sludge areas show very low densities in the field. The present method used in depositing this material would preclude the use of field compaction, but consideration should be given to methods that would improve the field density.

The strength of the soils, as indicated by the angle of internal friction, is not materially affected by moisture content. However, the stability of the saturated soils could be seriously affected by moisture if sudden loads were applied causing a "quick" condition. This is particularly true of the saturated sludge.

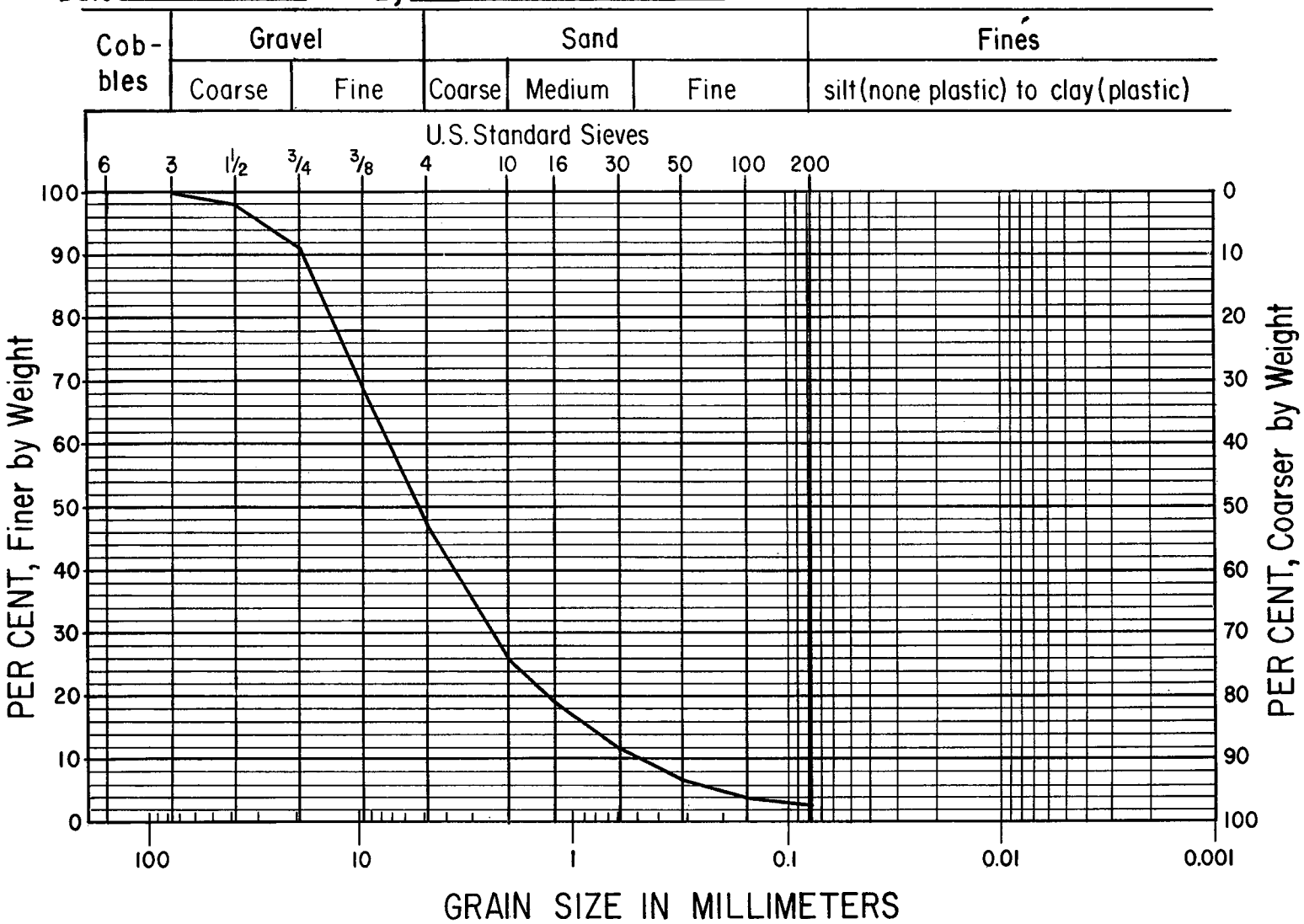
Five different types of piezometers and a biaxial inclinometer system have been purchased. A testing program is now being conducted to evaluate this monitoring equipment to determine the most suitable type for installation in coal waste piles.

It should be emphasized that this was a very limited sampling and testing program. Much more data should be obtained to achieve conclusive results. More extensive drilling and deep sampling should be done, especially in the lower, or decant, areas of the sludge deposits. It is also recommended that the time and weathering effects on coal shale be investigated.

APPENDIX A.--GRAIN SIZE GRADATION CURVES

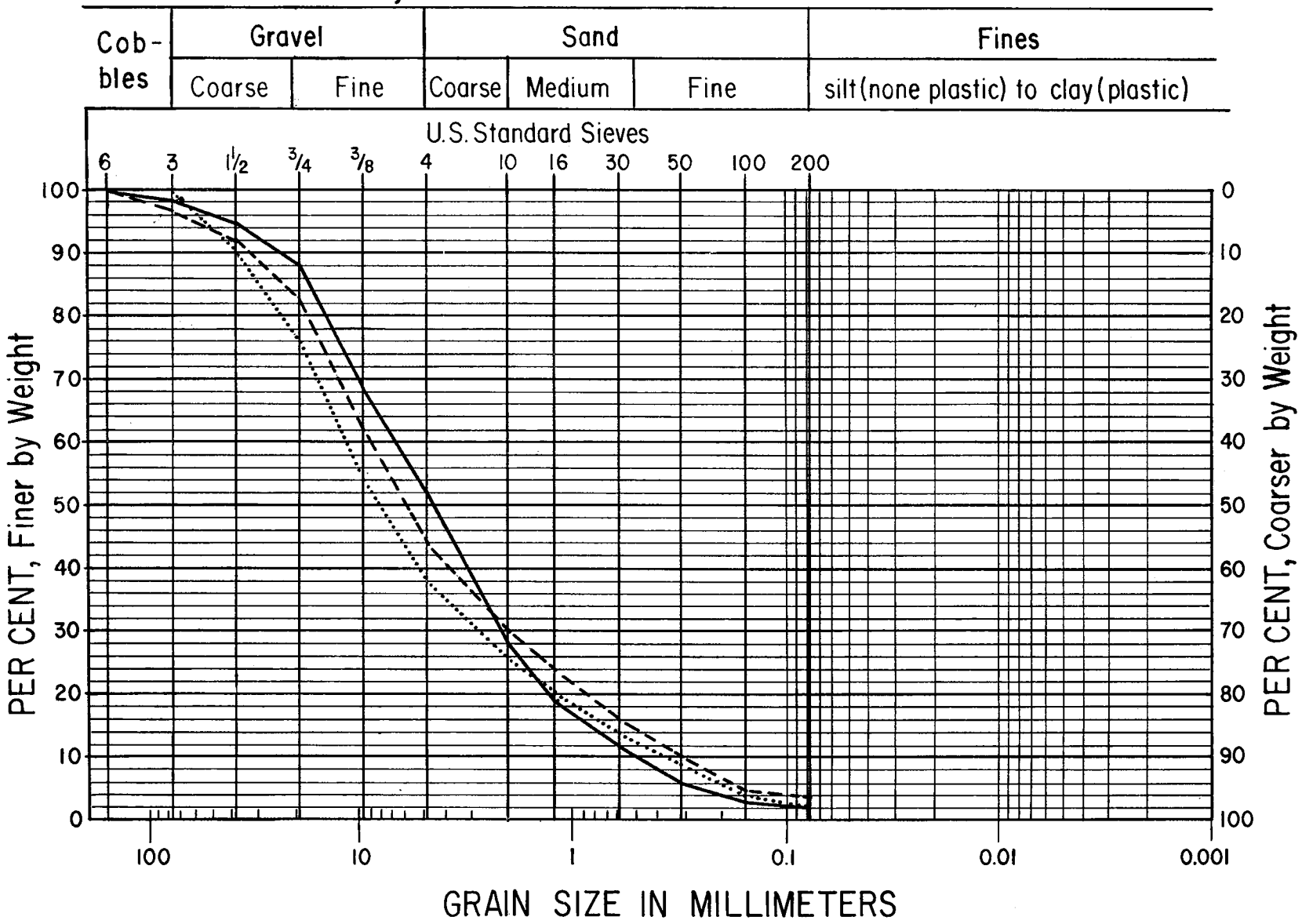
Type Coal Refuse Location Westmoreland Coal Co.,Hampton #3 Sample No. 1-J-13*

Date 6-06-73 By LAA



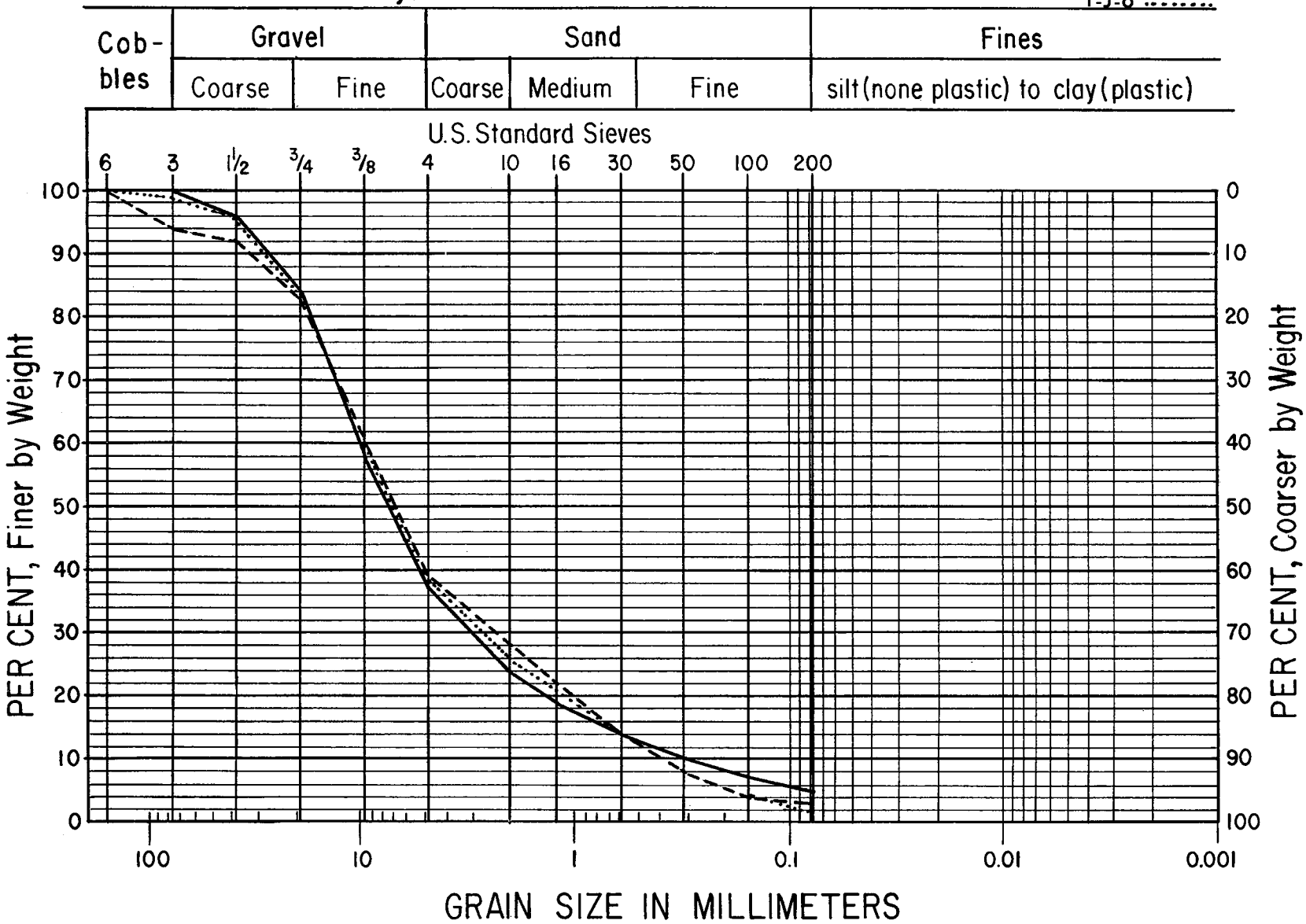
Type Coal Refuse Location Westmoreland Coal Co.,Hampton #3 Sample No. 1-J-1 ——— 1-J-2 – – – – 1-J-3 .....

Date 6-06-73 By LAA



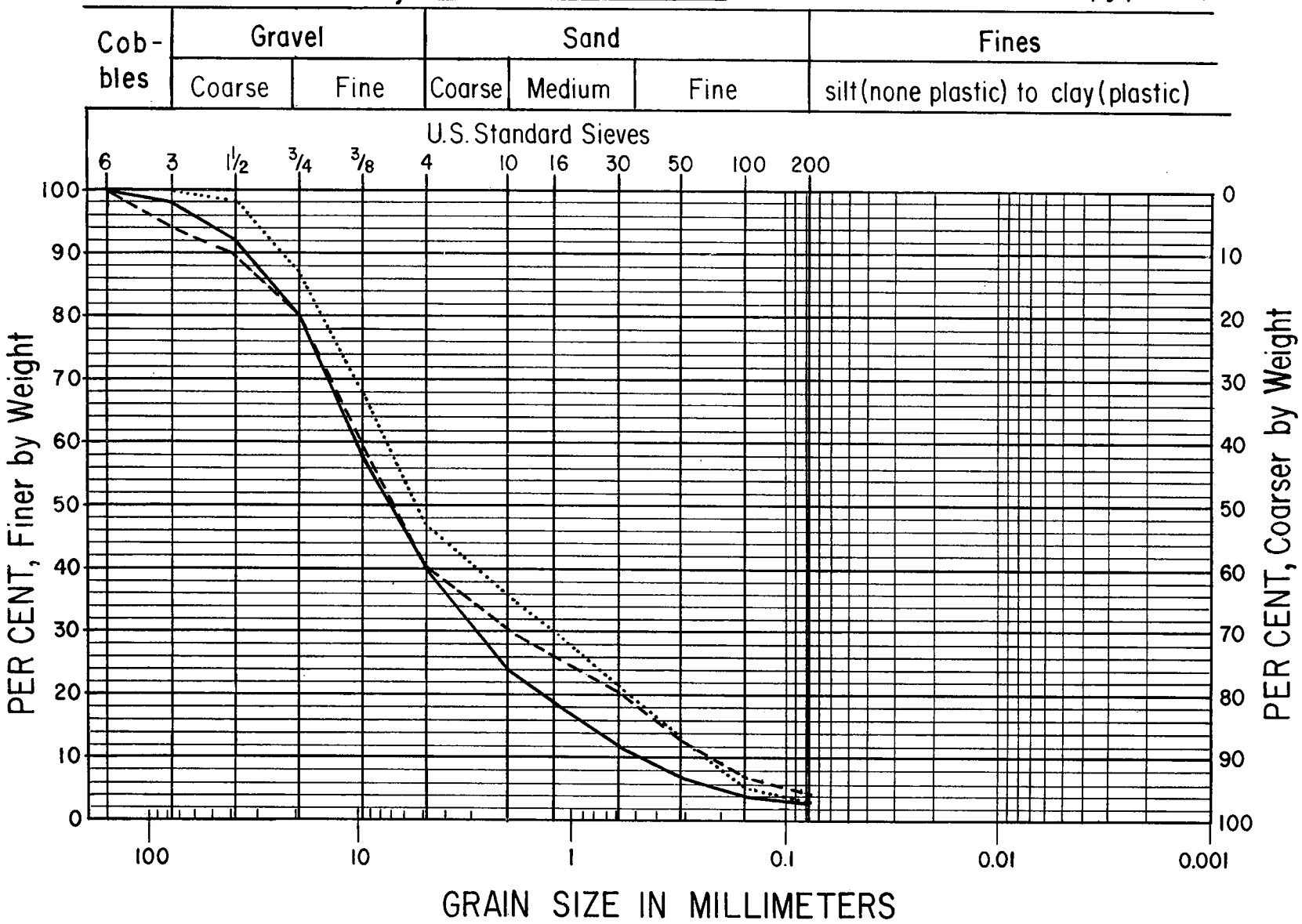
Type Coal Refuse Location Westmoreland Coal Co.,Hampton #3 Sample No. 1-J-4 ——
1-J-5 – – – –
1-J-6 .....

Date 6-06-73 By LAA



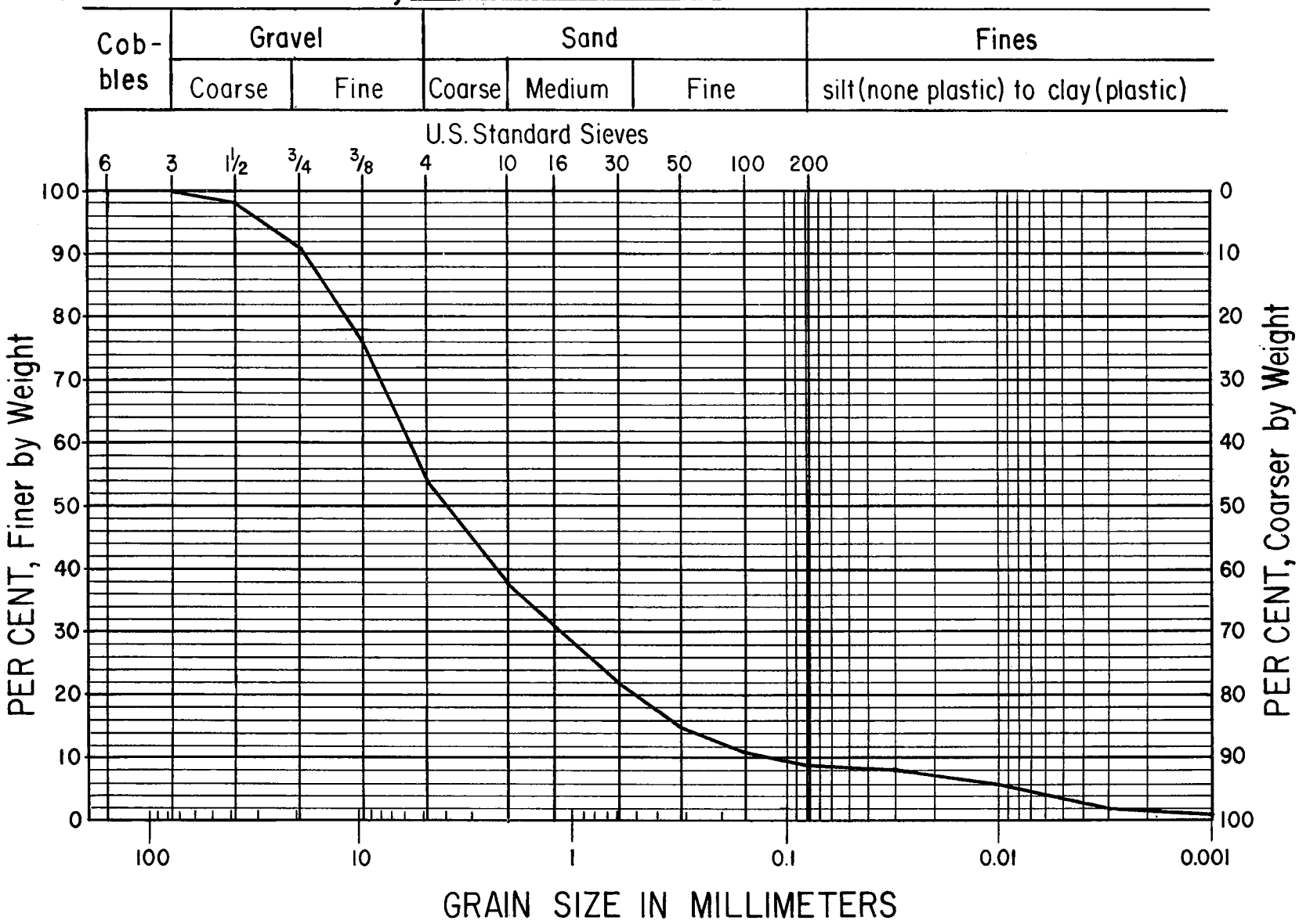
Type Coal Refuse Location Westmoreland Coal Co.,Hampton #3 Sample No. 1-J-7 ——— 1-J-8 - - - - - 1-J-9 .....

Date 6-06-73 By LAA



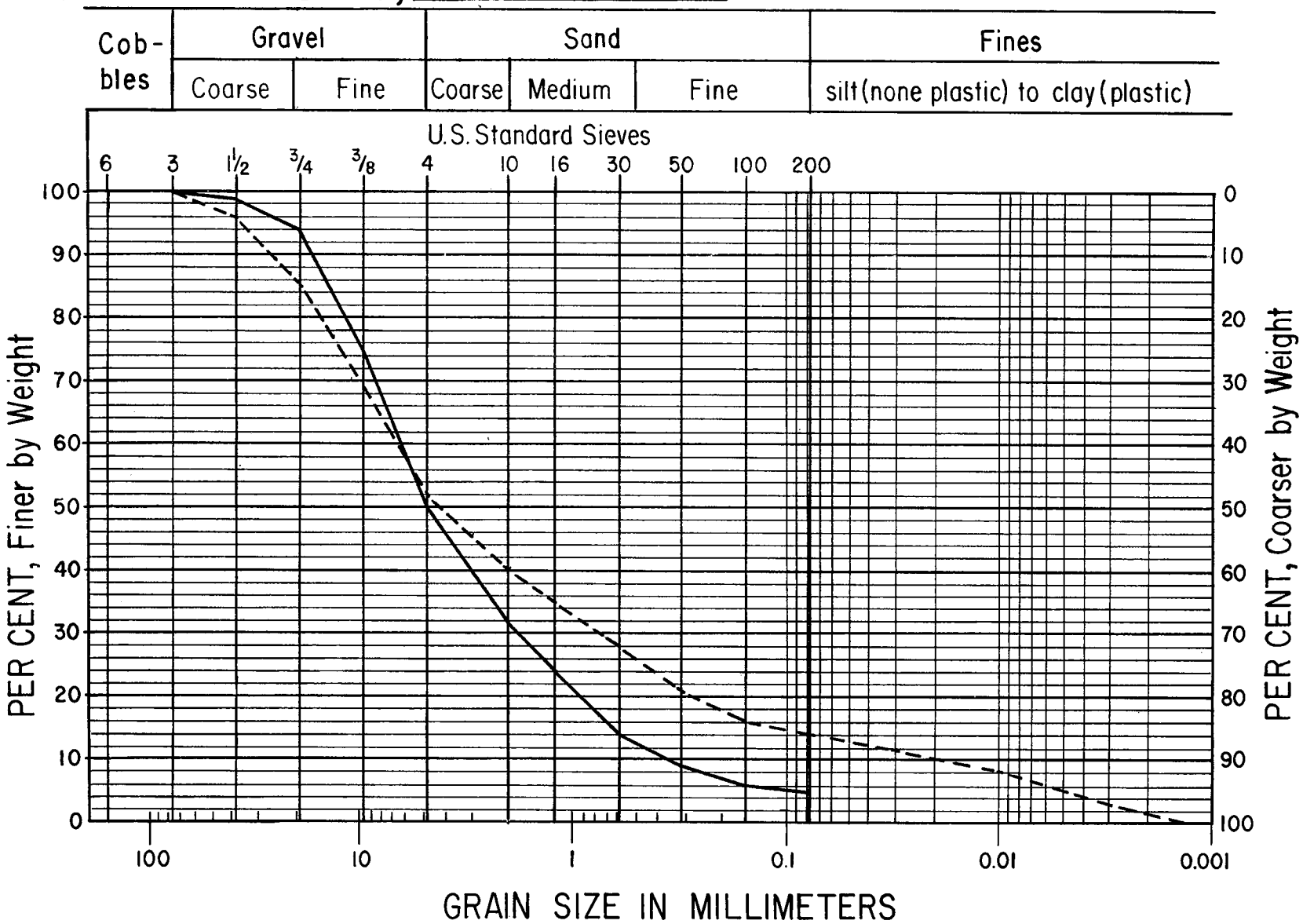
Type Coal Refuse Location Westmoreland Coal Co.,Hampton #4 Sample No. 1-O-3*

Date 6-06-73 By LAA



Type Coal Refuse Location Westmoreland Coal Co.,Hampton #4 Sample No. 1-O-1 ——— 1-O-2 - - - -

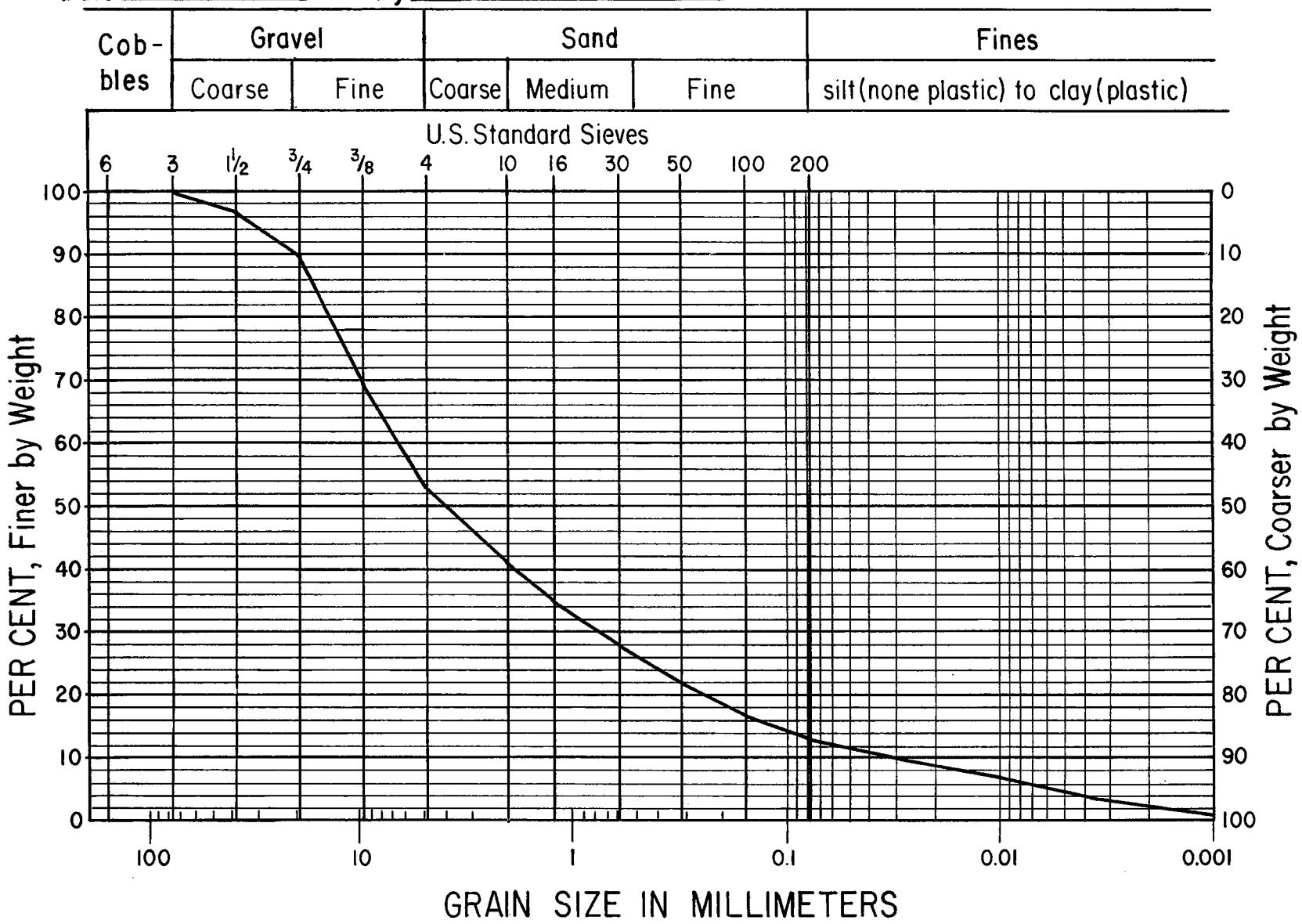
Date 6-06-73 By LAA



Island Creek Coal Co.

Type Coal Refuse Location Gauley Eagle #4 Sample No. 1-M-10*

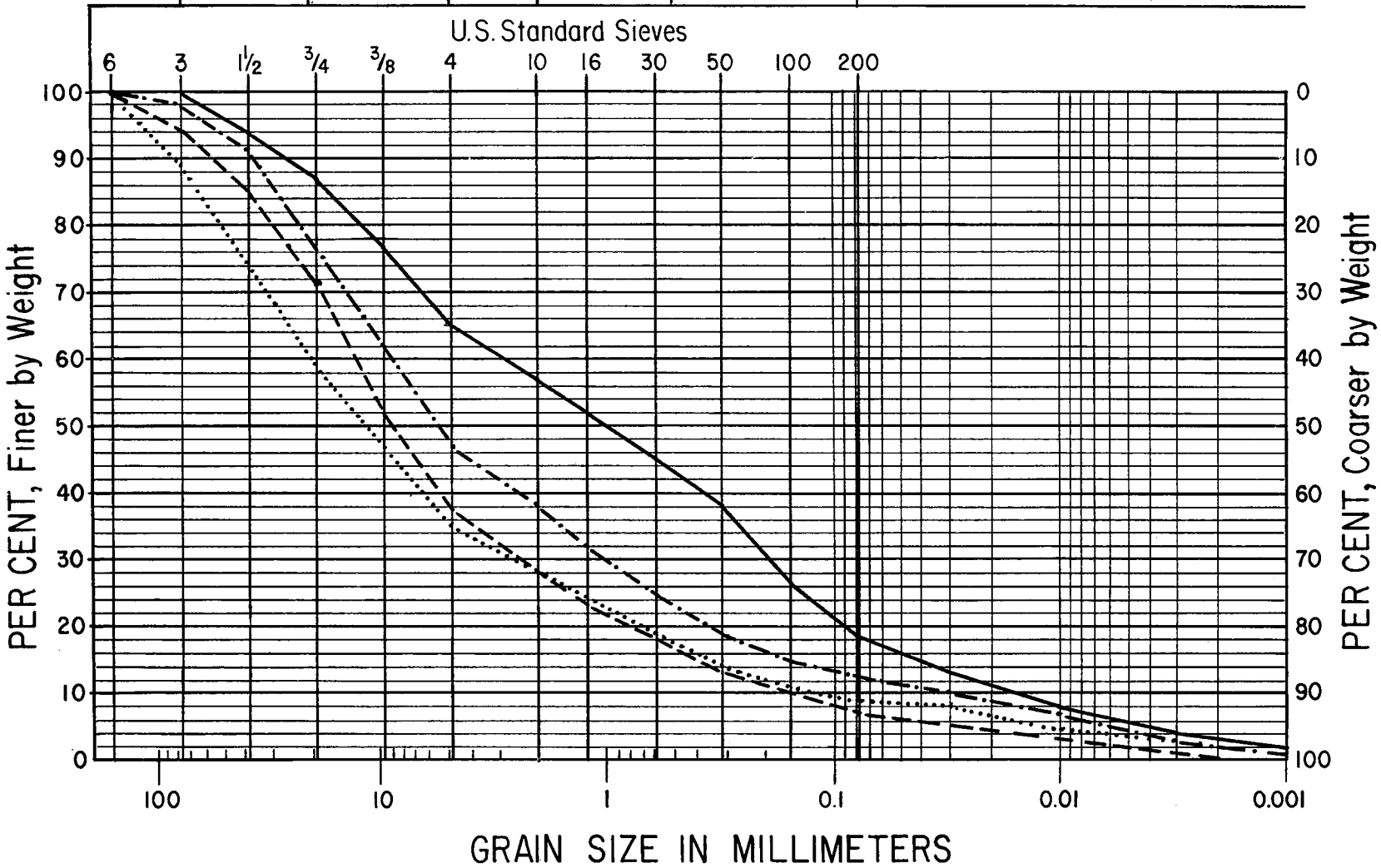
Date 5-31-73 By LAA



Island Creek Coal Co.

Type Coal Refuse Location Gauley Eagle #4 Sample No. 1-M-1 ——— 1-M-2 – – – – 1-M-3 —·—·— 1-M-4 ·····

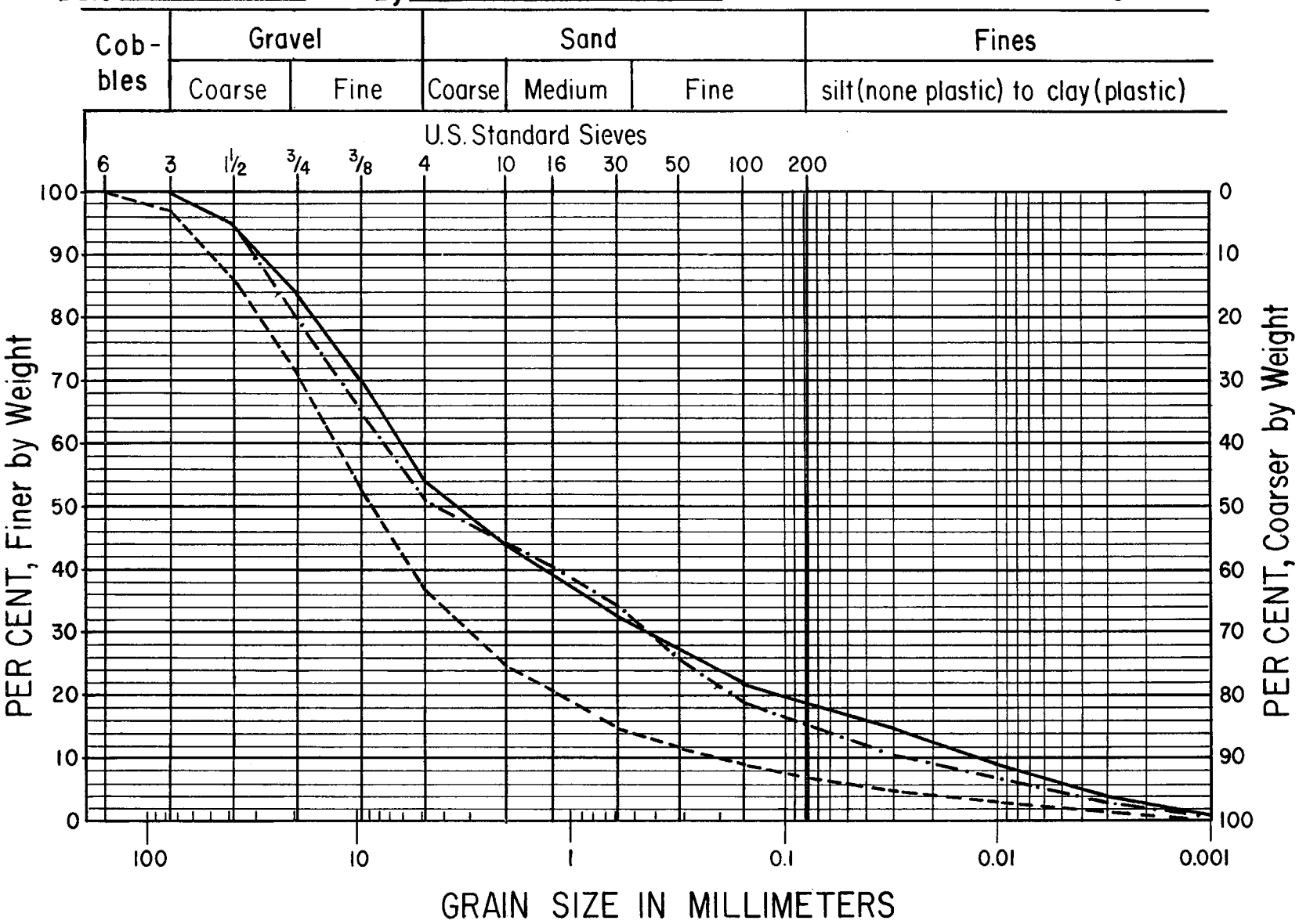
Date 5-31-73 By LAA



Eastern Assoc. Coal Corp.

Type Coal Refuse Location Herndon, W. Va. Sample No. 1-P-1 – – – –, 1-P-2 ———, 1-P-3 —·—·—

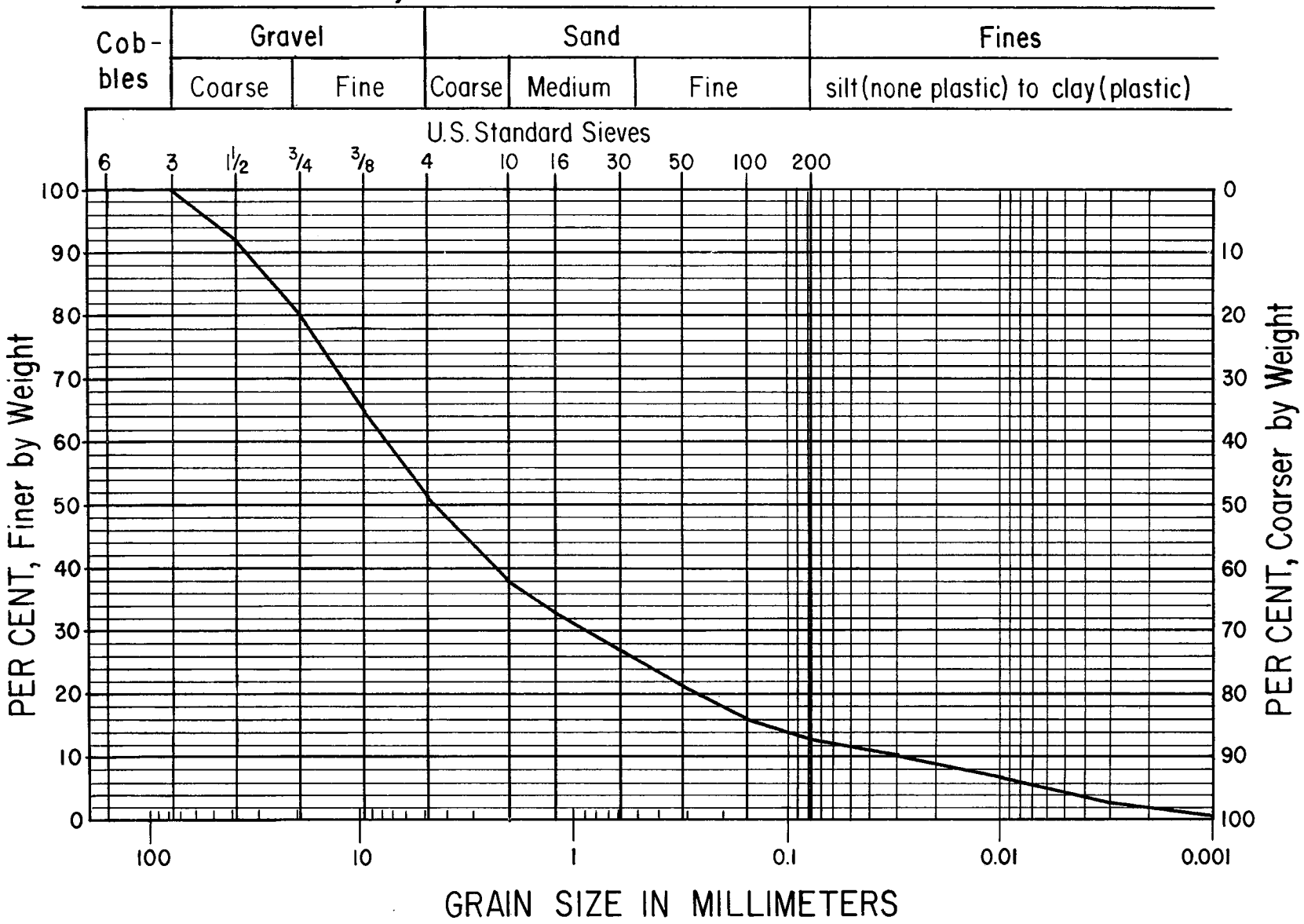
Date 5-31-73 By LAA



Eastern Assoc. Coal Corp.

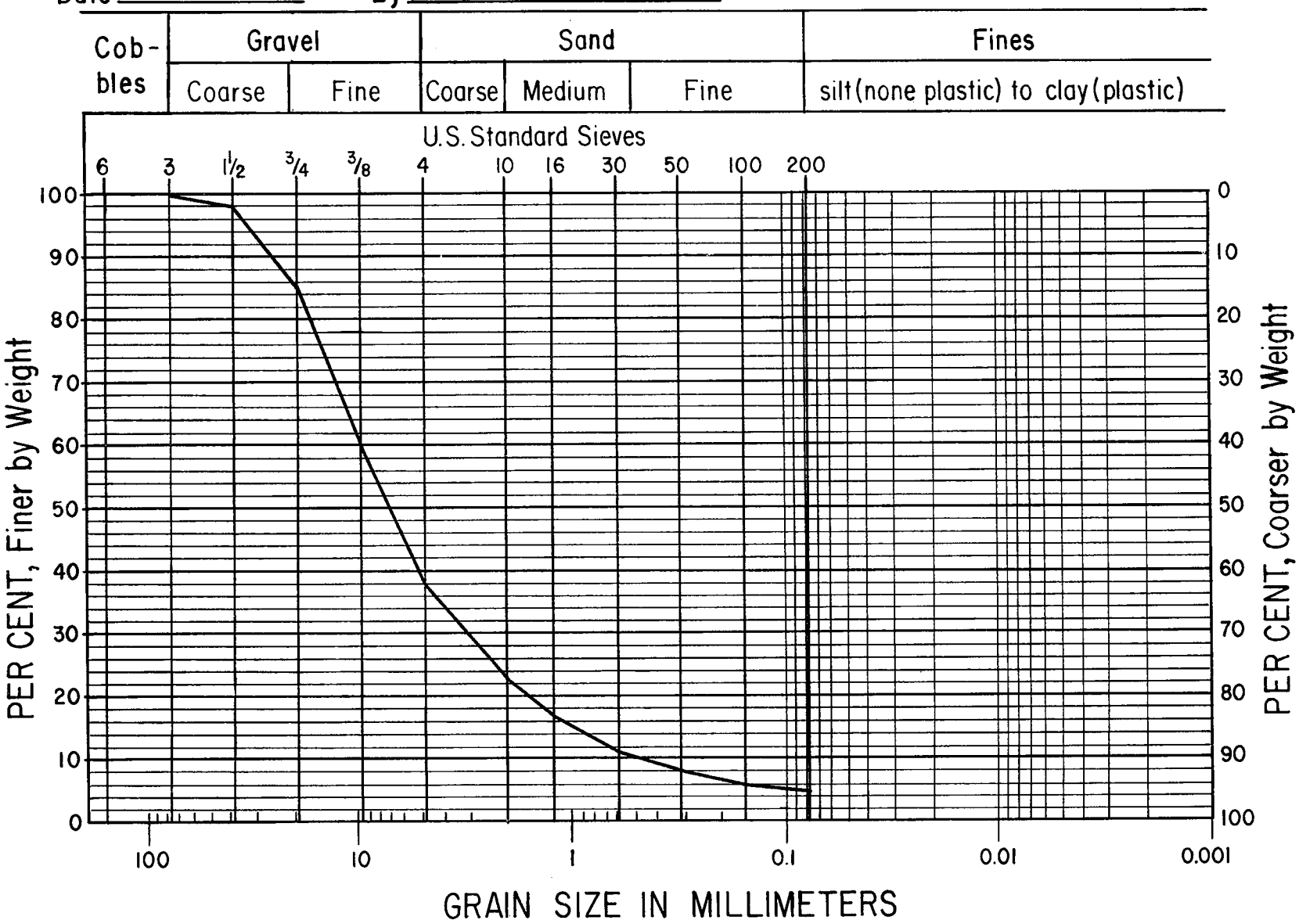
Type Coal Refuse Location Herndon, W. Va. Sample No. 1-P-4*

Date 5-31-73 By LAA



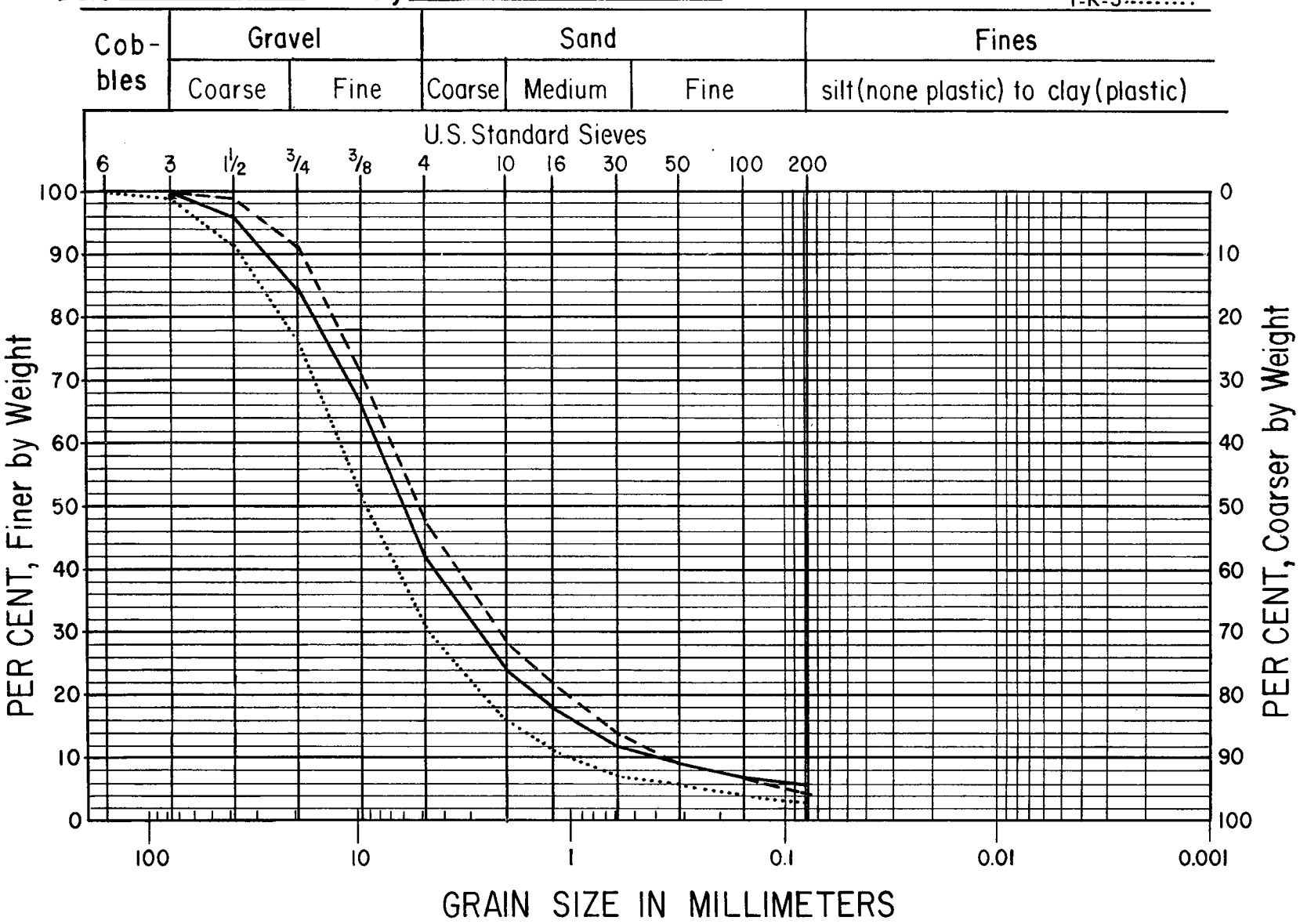
Type Coal Refuse Location United Pocahontas Coal Co., Algoma Sample No. 1-K-8*

Date 6-05-73 By LAA



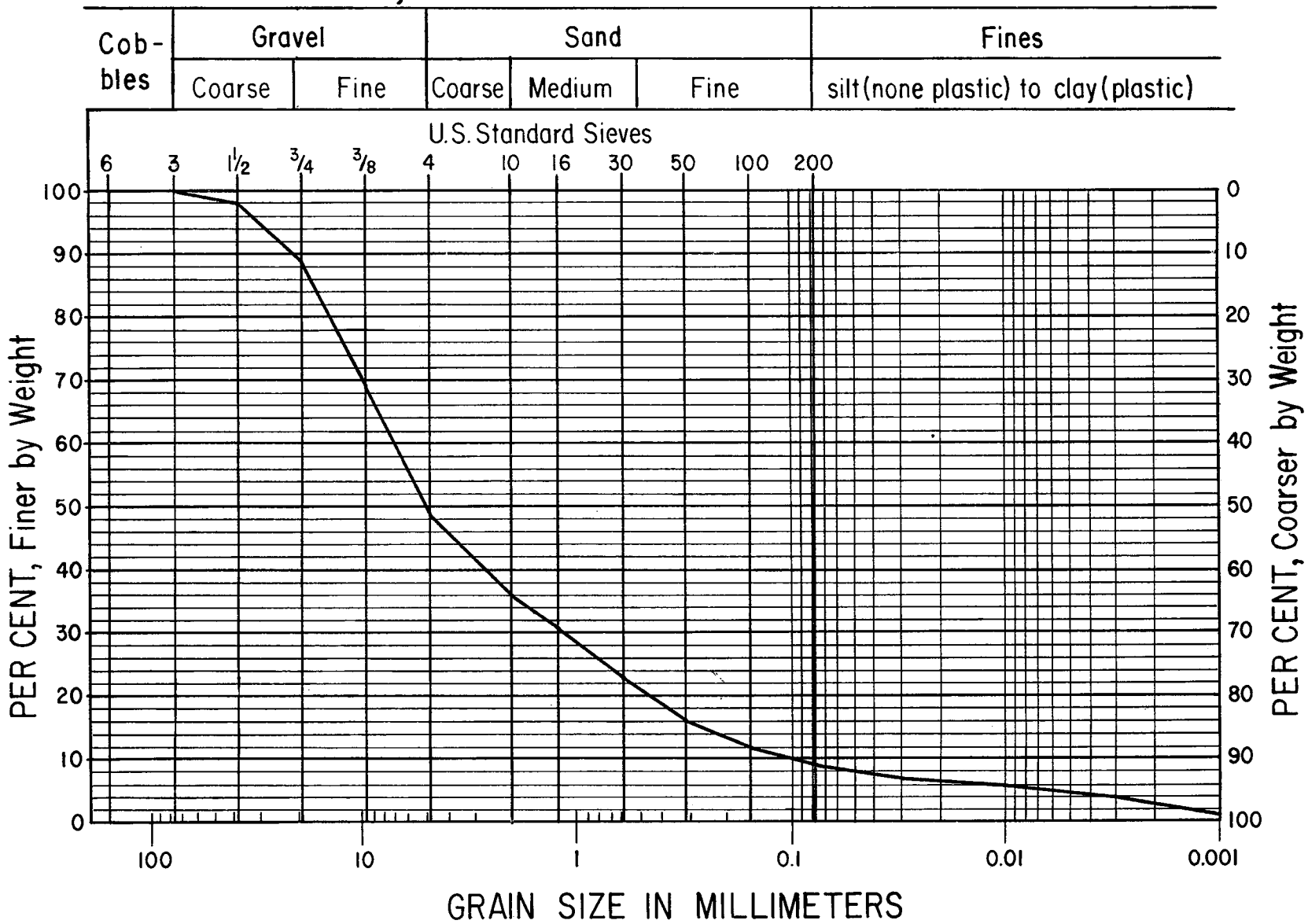
Type Coal Refuse Location United Pocahontas Coal Co., Algoma Sample No. 1-K-1 ——— 1-K-2 – – – – 1-K-3 .....

Date 6-05-73 By LAA



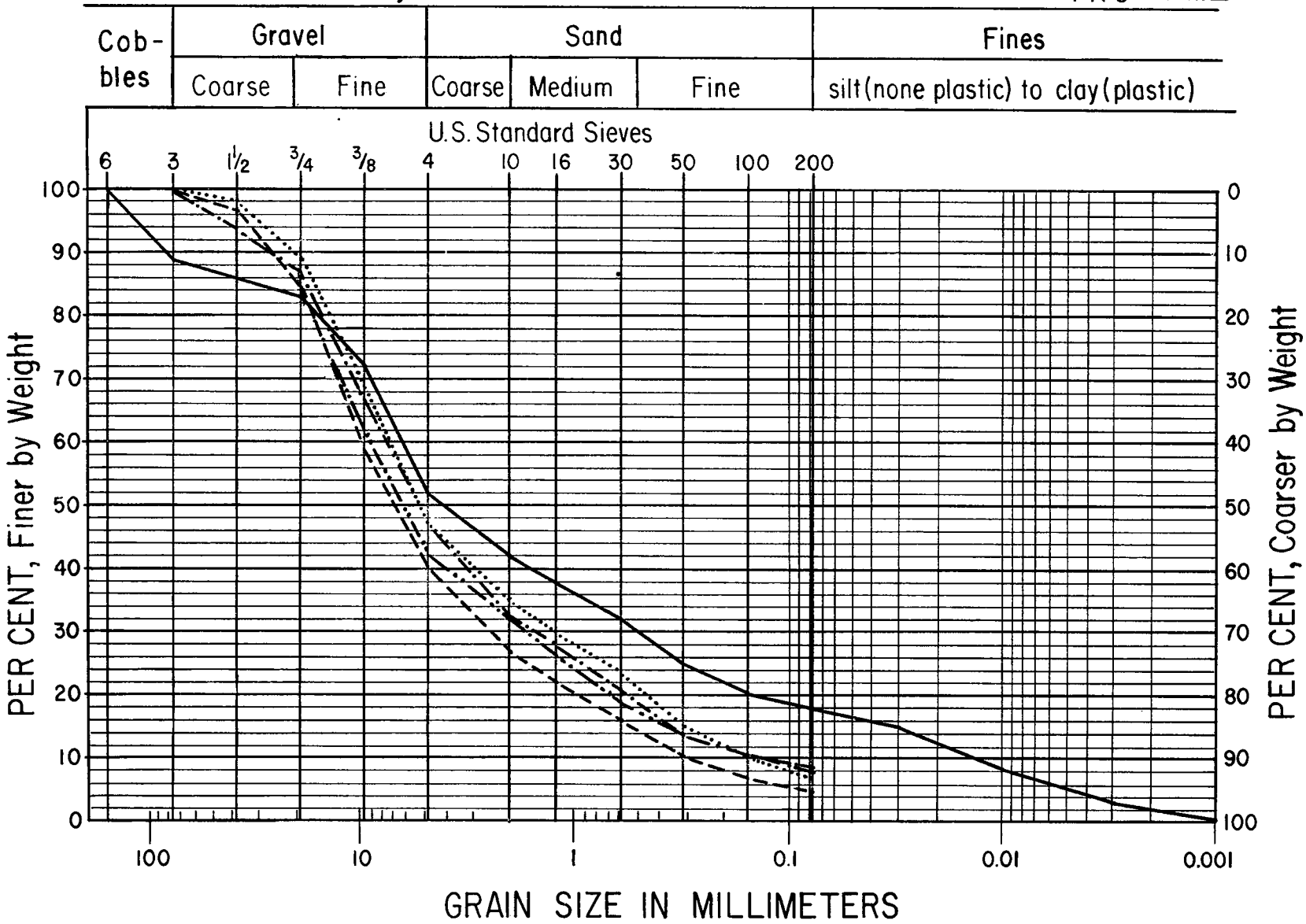
Type Coal Refuse Location Island Creek Coal Co., Guyan #5 Sample No. 1-N-10*

Date 6-05-73 By LAA



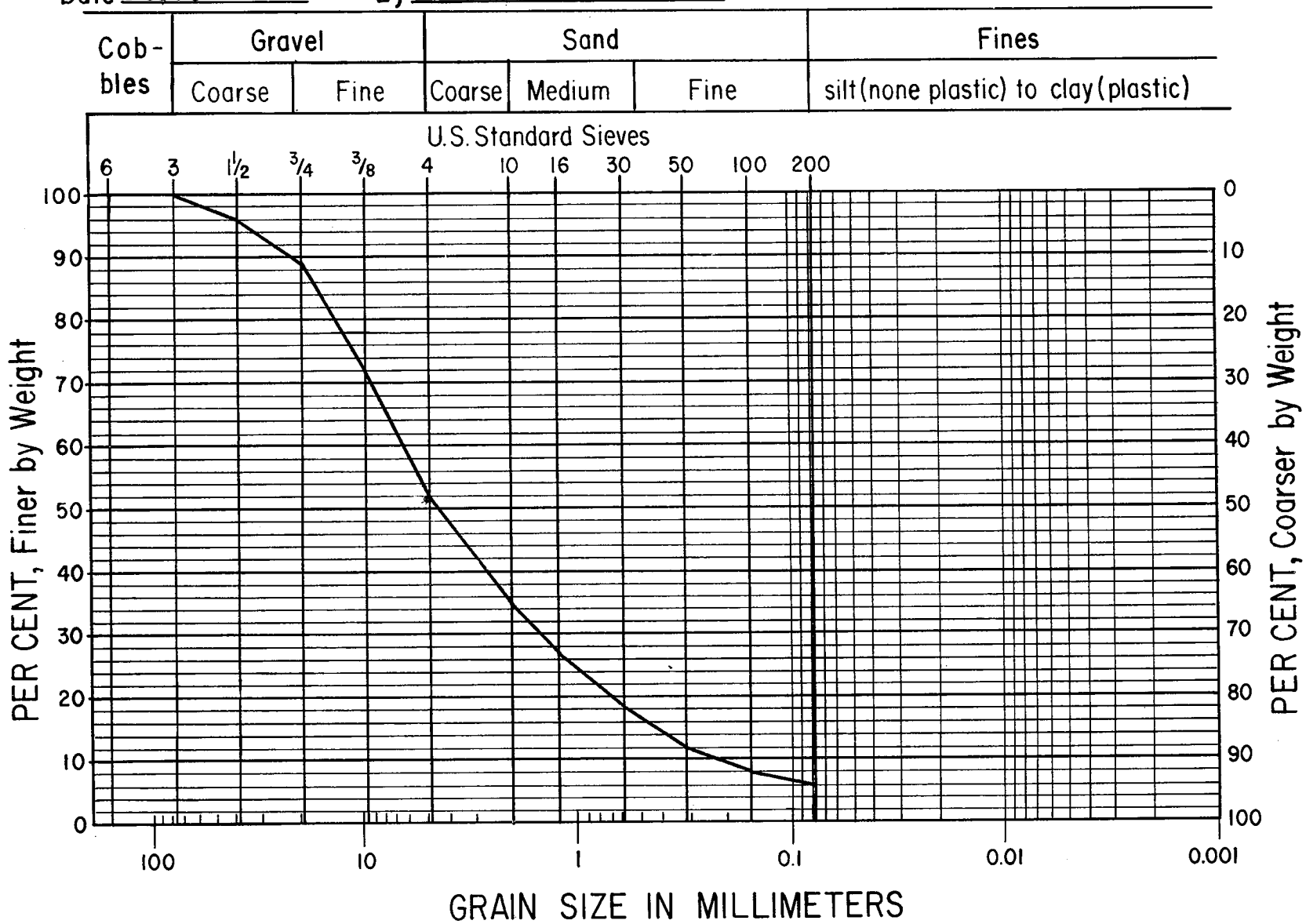
Type Coal Refuse Location Island Creek Coal Co.,Guyan #5 Sample No. 1-N-1 ——— 1-N-2 – – – –
1-N-3 ····· 1-N-4 —·—·— 1-N-5 —··—··—

Date 6-05-73 By LAA



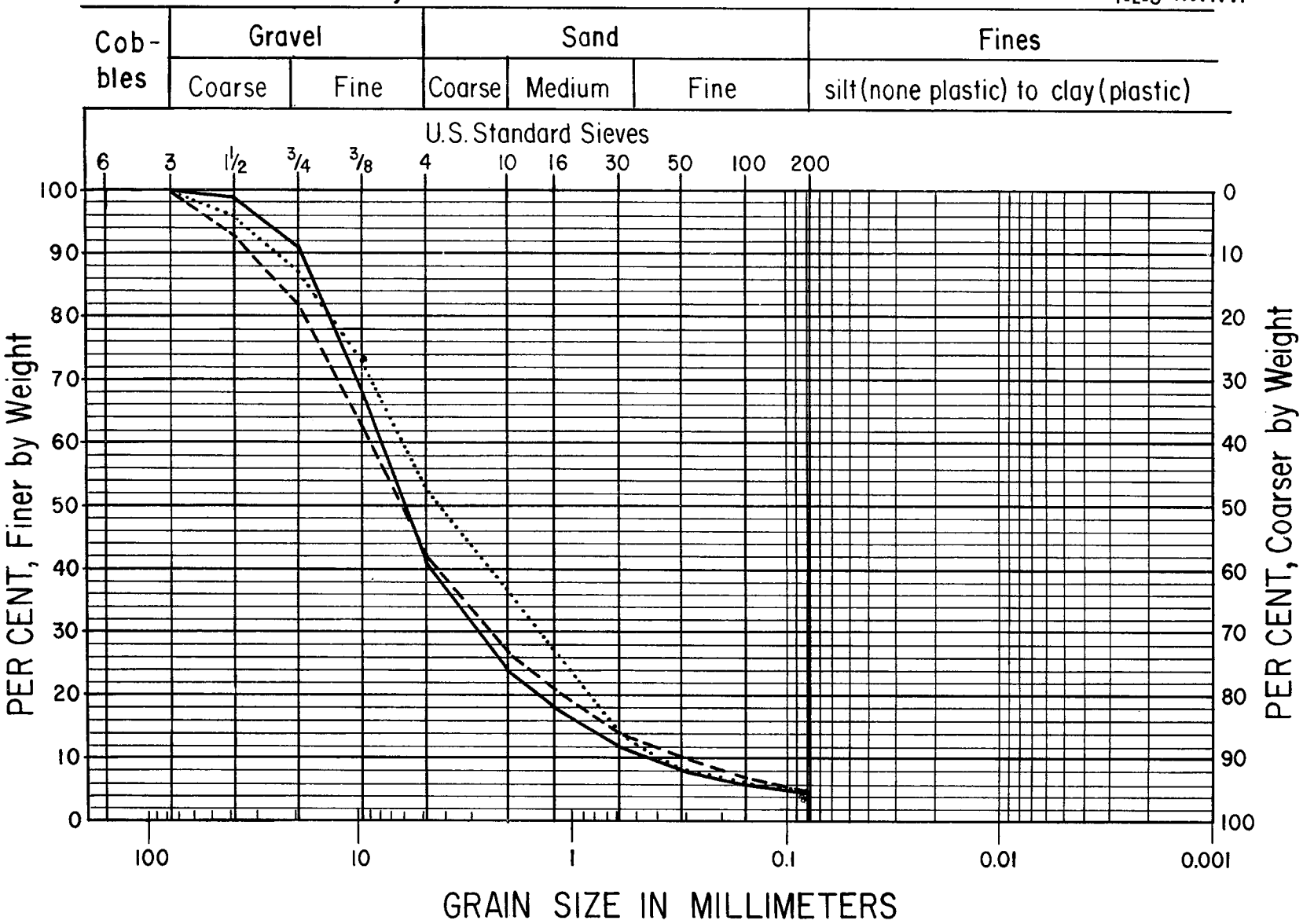
Type Coal Refuse Location Pocahontas Fuel Co., Jenkinjones Sample No. 1-L-10*

Date 6-05-73 By LAA



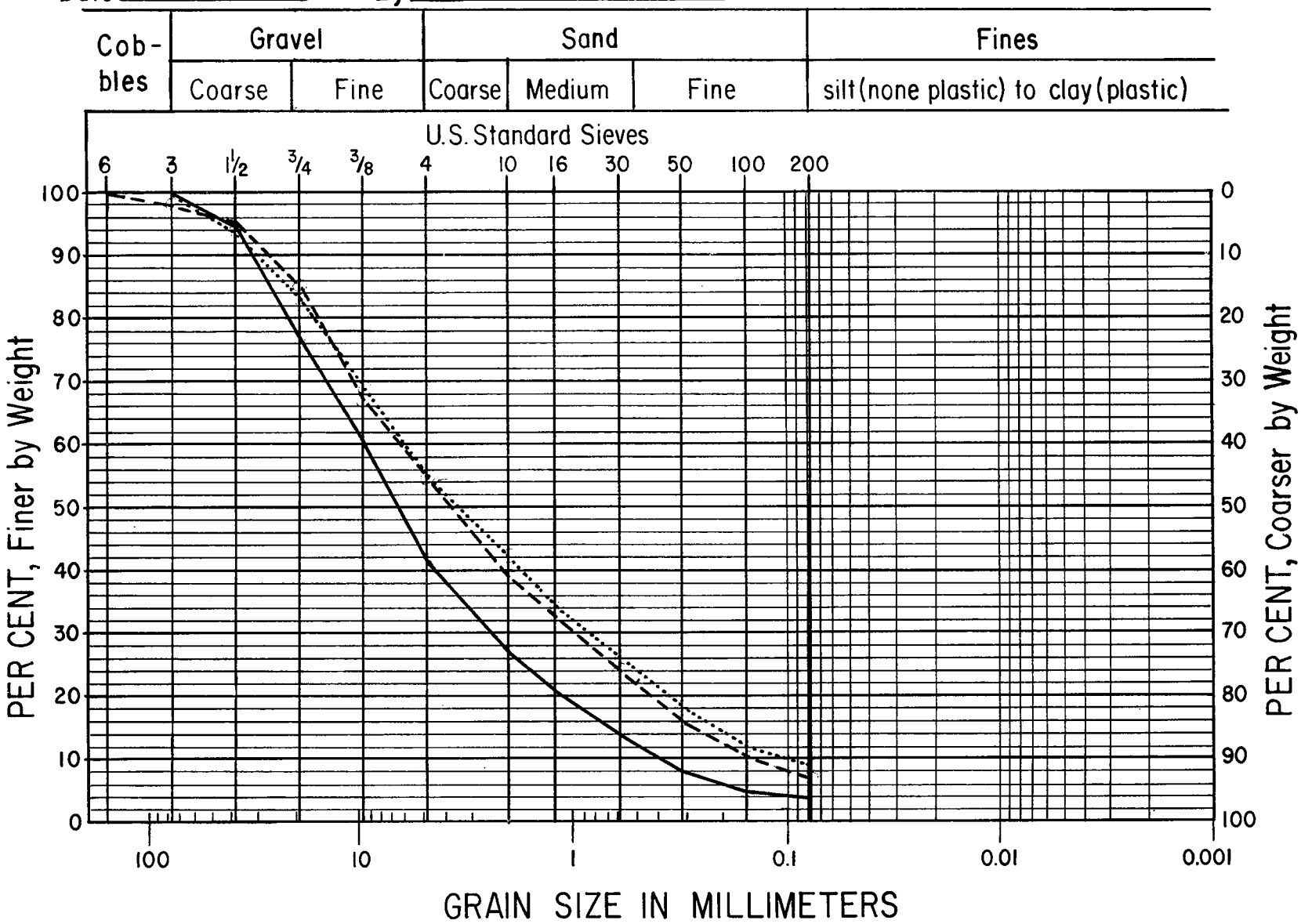
Type Coal Refuse Location Pocahontas Fuel Co., Jenkinjones Sample No. 1-L-1 ——— 1-L-2 – – – – 1-L-3 .....

Date 6-05-73 By LAA



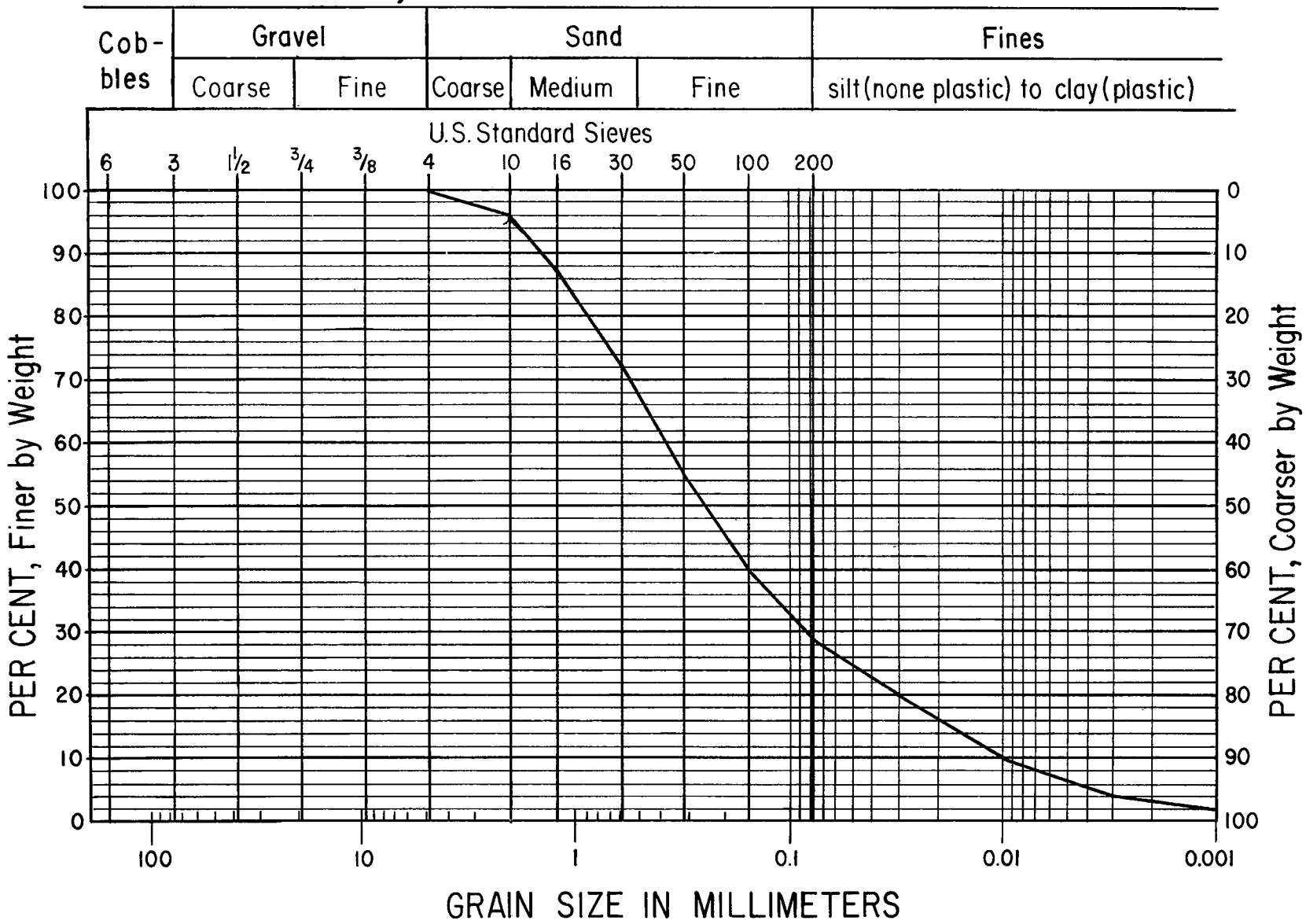
Type Coal Refuse Location Pocahontas Fuel Co., Jenkinjones Sample No. 1-L-4 ——— 1-L-5 – – – – 1-L-6 .....

Date 6-05-73 By LAA



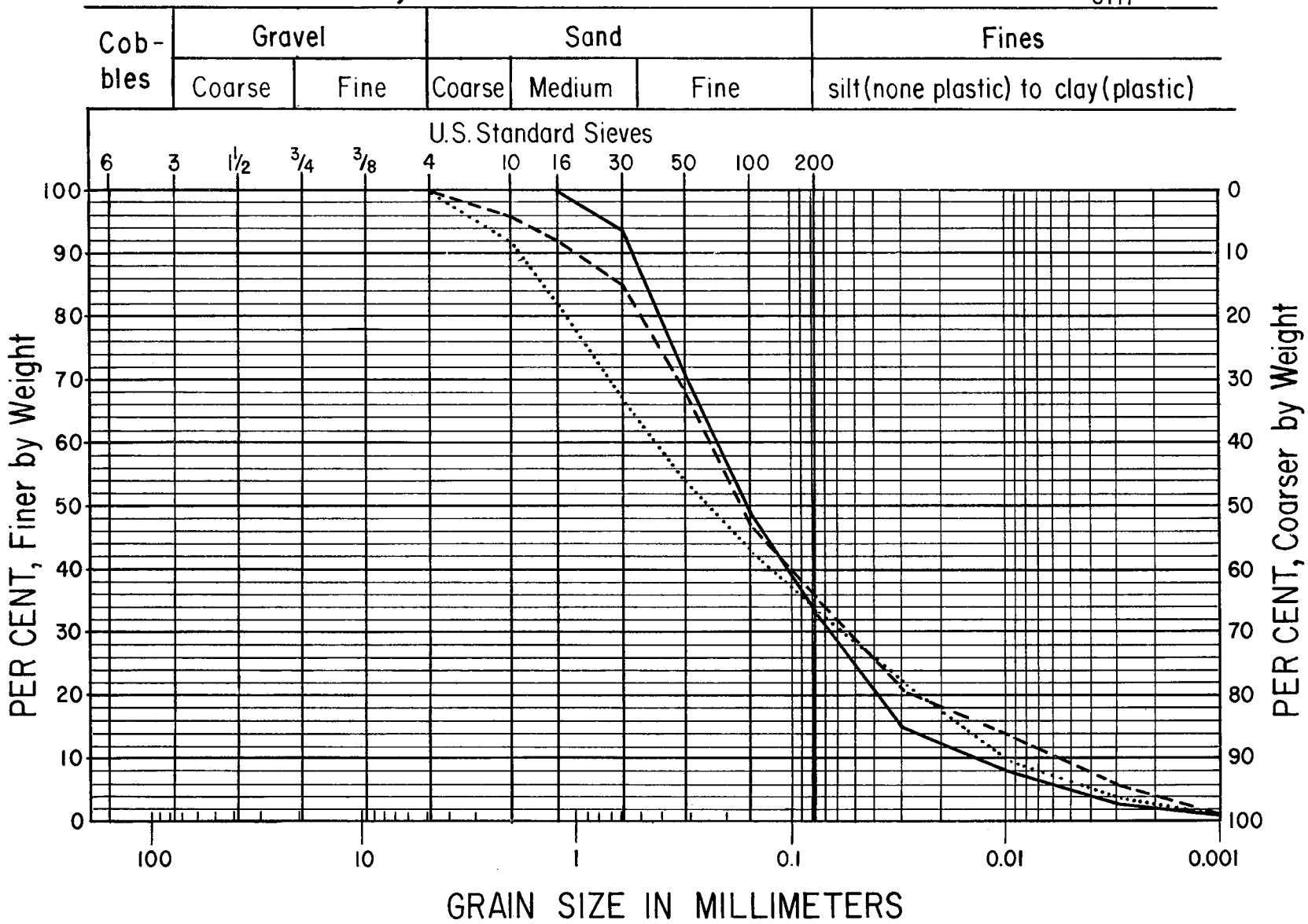
Type Coal Refuse-Sludge Location _____ Sample No. ST12,17

Date 6-12-73 By LAA



Type Coal Refuse-Sludge Location _____ Sample No. ST3 ——— ST8 - - - - ST11 ·····

Date 6-12-73 By LAA



APPENDIX B.--PREPARATION PLANT PROCESS SUMMARIES

Bethelhem Mines Corp. Mine 131

The material passes over a grizzly with oversize being crushed and passed on to a vibrator and the undersize passed over a screen. The finer material from both the vibrator and screen is passed to a sluice, a distributor, and Deister tables. The coarser fraction from the vibrator and screen passes to a Chance cone, where it is split with coal going to a clean coal screen and the other going to a slate bin. The finer waste material gathered at the clean coal screen goes through a sand sump (where sand is returned to the Chance cone), a silt sump (where finer material cycles up to the Deister tables), a slurry sump, and finally is pumped to the pond. The coal gathered at the clean coal screen is loaded directly into railroad cars. The material from the Deister tables is split, with coal going through a clean coal sump, a sieve, cyclones, a centrifuge dryer, and finally loaded on railroad cars. The waste portion passes over a refuse screen, with coarse passing into a refuse tank and truck, and fines going through a plant bleed sump, a slurry sump, and finally, pumped to the pond.

Eastern Associated Coal Corp.--Keystone No. 2 Plant

The coal is crushed and separated at a rotary breaker with refuse passing into a refuse bin for disposal. The coal passes into a bin and is fed over a screen where the oversize gets to a heavy media vessel and the undersize is pumped to a distributor and a desliming sieve. At the heavy media vessel, the reject material goes to a refuse bin with the other fraction going to classifying cyclones with thickening and separation of the magnetite. The material then is pumped to the distributor and desliming sieve where the finer fraction goes to flotation cells and the coarse fraction goes to a primary heavy media mixing and distributing circuit. From the flotation cells, the coal is filtered, mixed, binned, dried, and goes to a loading or storage bin. The refuse is thickened, filtered, and goes to a refuse bin. The material in the heavy media circuit passes through a cyclone with clean coal passing through a centrifuge, dryer, and into a loading bin. The waste from the cyclone goes through a reject sieve and a secondary pulping tank and pump where the refuse goes through a screen, a centrifuge, and into a bin with the coal passing through a secondary fuel screen, centrifuge, and into the furnace of the dryer or into the secondary fuel bin for loading.

Island Creek Coal Co.--Gauley Eagle No. 4

The raw coal passes from the storage silos to a screen system where the coarse and fine coal circuits begin. The fine fraction from the screen system passes over a desliming screen system where the very fine part goes to the froth cells feed sump and the remainder passes to fine coal medium sumps. From the fine coal medium sumps, the coal is pumped to a heavy media cyclone system from which the waste goes to a refuse screen and the remainder goes to fine coal vibrating screens. The refuse screen material goes to the refuse bin. The refuse screen underflow is recycled to the medium sumps. The coal from the fine coal vibrating screens goes to a fine coal centrifuge and the

underflow goes to the medium sumps. Coal from the fine coal centrifuges goes to a thermal dryer. The material from the dilute medium sump passes to magnetic separators where magnetite is reclaimed and reused. The very fine material from the desliming screens is pumped to froth flotation cells. Coal from these cells is thermally dried with the centrifuge coal noted previously. Refuse from the froth flotation cells passes to the static thickener. The dense media vessel outputs material to coarse coal vibrating screens and to refuse drain screens. Underflow from the coarse coal vibrating screens and the refuse screen goes to the media sumps. The coarse coal is crushed after being mechanically dried, and joins the thermally dried fine coal for loading into railroad cars. After mechanical drying, the coarse and fine refuse are hauled to the refuse dump by truck.

Island Creek Coal Co.--Guyan No. 5

The raw coal is delivered by both truck and conveyor and crushed and fed to raw coal storage silos. From the silos, the coal is fed to vibrating screens. Oversize from the vibrating screens goes directly to McNally jigs from which the refuse goes to a bin and subsequently an aerial tram. The remainder passes over a screen system where various sizes can be separated and loaded into railroad cars. Underflow from the screen system passes to a settling tank. Coal sludge from the settling tank is centrifuged and recovered. Coal in the effluent is recovered in a cyclone and sludge screen system. Overflow from the sludge tank is reused in the McNally jig circuit or pumped to discharge.

United Pocahontas Coal Co.--Algoma

The raw coal is fed from coal storage bins to a screen where the oversize is passed over a screen, washed, and sent to a heavy media vessel. The undersize goes (along with the undersize gathered at screening and washing prior to heavy media vessel) to a raw coal sump, is passed over sieves, and is separated with one portion going to froth cells and the other portion passing through a distributor to go to Deister tables. After passing through the froth cells, the waste is thickened and sent to an impoundment, and the coal is filtered, dried, and sent to ore cars. The refuse from the Deister tables passes over a screen where the coarser fraction goes to a refuse bin and the finer fraction passes into a thickener feed sump, a static thickener, and finally impoundment. The clean coal from the Deister table passes over a sieve, with one portion being centrifuged, dried, and loaded into ore cars. The refuse from the Deister tables passes over a screen where one portion goes into a refuse bin and the other portion passes into a thickener feed sump, a static thickener, and finally, impoundment. The clean coal from the Deister table passes over a sieve, with one portion being centrifuged, dried, and loaded into ore cars. The water from this operation is recirculated to the froth cells and Deister tables. The other portion from the Deister tables passes through a cyclone sump, filter, and finally, to a thermal dryer, and then to the ore cars. The refuse immediately gathered from the heavy media vessel passes over a refuse drain and rinse screen and then goes to a refuse bin. The clean coal from the heavy media vessel passes over a sieve and a drain and rinse screen with the clean coal screened and oversize passed to a

bin, with the undersize passed to a sump and pumped to a sieve and distributed to the froth cells and Deister tables. The waste gathered at the clean coal drain and rinse screen passes into a sump, a magnetic separator, a heavy media sump, a splitter, a refuse drain and rinse screen, and finally into the refuse bin. The refuse is trucked to piles, and some effluent water and impoundment material is returned to the worked-out mine.

Westmoreland Coal Co.--Hampton Mines

Raw coal is crushed and conveyed to a scalping shaker screen. The coarser fraction goes directly to a Chance cone with the finer going to surge bins and vibrating screens where the oversize goes to the Chance cone and the undersize goes to a raw coal sump and, subsequently, cyclones. The refuse from the Chance cone goes to a refuse dewatering screen, and the coal goes to a clean coal dewatering screen. The material from the refuse dewatering screen goes directly to a refuse bin, and the coal from the clean coal dewatering screen goes directly to railroad loading. The fines from the refuse dewatering screen goes to a main sand sump where the finer material from the clean coal dewatering screen is also gathered. Following the main sand sump is a silt sump where waste material goes back to the Chance cone and the coal fraction goes to a cyclone, a distributor, and Deister tables. At the Deister tables, waste goes directly to a refuse sump, and the coal goes to a clean coal sump and vibrating screen where undersize goes to cyclones and the oversize goes to a centrifuge. The coal from the centrifuge is dried and loaded on railroad cars. The material from the cyclones passes through cyclo-cell rougher units where waste goes to a static thickener and coal goes to cyclo-cell cleaners and then filters. The material from the filter is then dried and loaded on railroad cars. From the static thickener the material goes to a thickener underflow sludge pump and to either a waste sump or refuse vacuum filter. If the material goes to a waste sump, it then goes to an emergency bleed pond; if it goes to a vacuum filter, it then goes to a refuse bin to be hauled away.

Westmoreland Coal Co.--Hampton No. 4

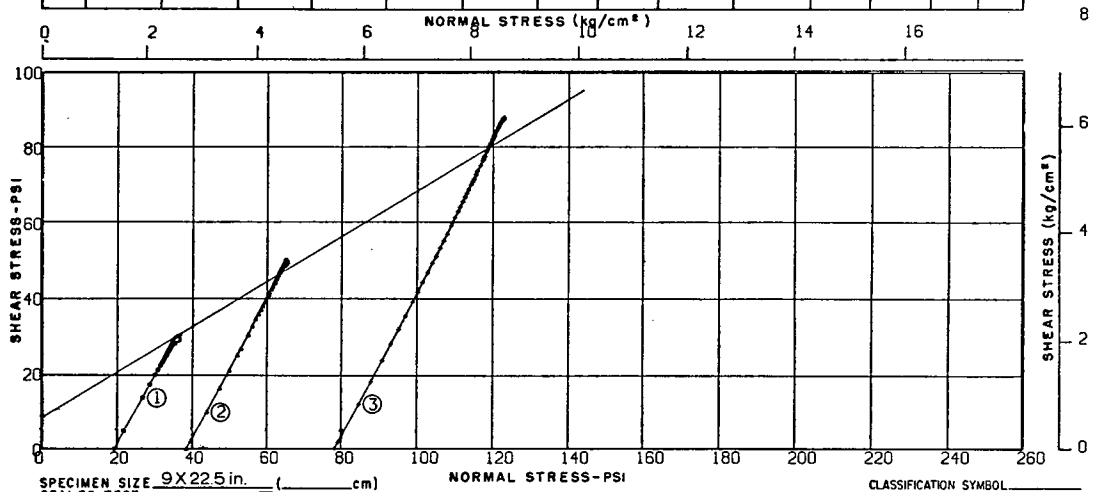
The raw coal is fed from bins to a Jeffrey jig where it is split into four fractions. One of the fractions goes directly to a refuse bin, and another goes directly to a clean coal bin after being passed over wash screens. The third fraction passes to a refuse sump and over a refuse screen where coarse waste goes to a refuse bin and the finer waste goes through cyclones, is filtered, and then goes to a refuse bin. The fourth fraction from the Jeffrey jig is the middlings, which first are screened with the coarser waste going to a refuse bin; the remainder passes over Deister tables where there is a clean coal and a refuse separation. The clean coal circuit consists of a sump, a fine coal screen, cyclones, filters, dryers, and finally, a clean coal bin. The refuse passes into a refuse sump and over a refuse screen where part of the refuse is channeled directly into a refuse bin and the other is cycloned and passed over filters and into the refuse bin. The filtered material also consists of material from the static thickener that has collected and thickened waste from wash water and water collected at various cyclones and sieves.

APPENDIX C.--TRIAXIAL SHEAR TEST DATA AND CURVES

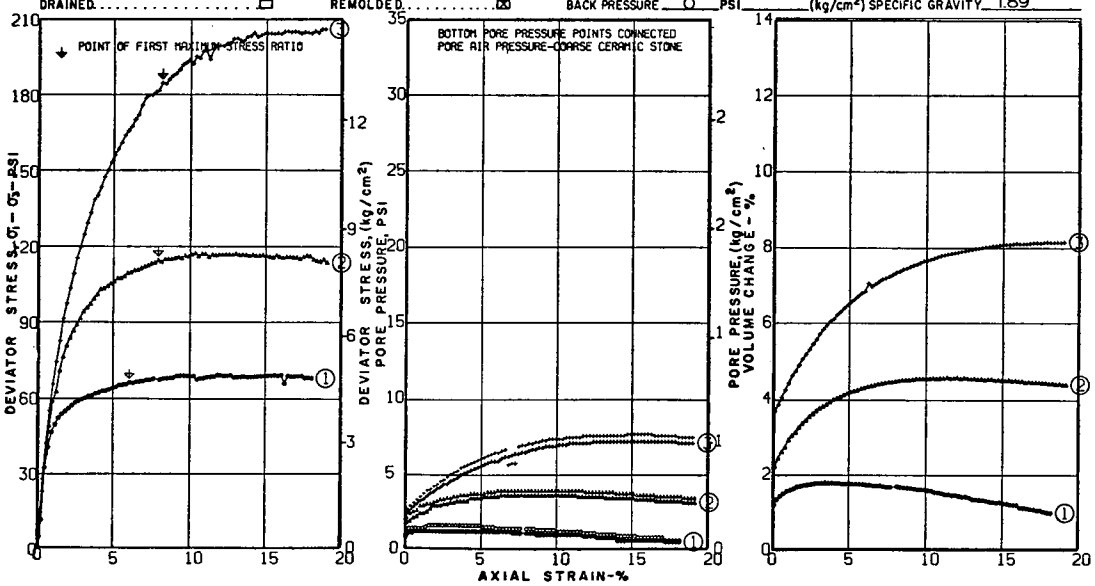
EL-558 (8-70)
Bureau of Reclamation

TRIAXIAL SHEAR

SPECIMEN NO.	PLACEMENT: DRY DENSITY PCF (kg/cm²)	PLACEMENT: WATER CONTENT %	PLACEMENT: DEGREE SATURATION %	VOID RATIO: PLACEMENT	VOID RATIO: CONSOLIDATED	VOID RATIO: FAILURE	TEST VALUES AT FAILURE: APPLIED LATERAL PRESSURE PSI (kg/cm²)	PORE PRESSURE PSI (kg/cm²)	EFFECTIVE LATERAL PRESSURE PSI (kg/cm²)	VOLUME CHANGE (% OF INITIAL)	AXIAL STRAIN %	DEVIATOR STRESS PSI (kg/cm²)	SHEAR VALUES CORRECTED FOR PORE PRESSURE: TAN φ'	C' PSI (kg/cm²)
FAILURE AT MAXIMUM STRESS RATIO														
1	92.4	6.4	43.8	0.2770	0.2623	0.2556	20.0	1.1	18.9	1.67	5.98	65.3		
2	94.0	4.9	36.2	0.2551	0.2282	0.1999	40.0	3.5	36.5	4.40	7.85	113.7	0.60	8.3
3	91.9	5.9	39.6	0.2834	0.2373	0.1899	80.0	6.4	73.6	7.28	8.10	183.6		



SPECIMEN SIZE 9X22.5 in. (_____cm)
SEALED TEST ☐
CONSOLIDATED UNDRAINED ☒
DRAINED ☐
UNDISTURBED ☐
REMOLDED ☒
BACK PRESSURE 0 PSI _____ (kg/cm²)
CLASSIFICATION SYMBOL _____
LIQUID LIMIT _____ %
PLASTICITY INDEX _____ %
SPECIFIC GRAVITY 1.89



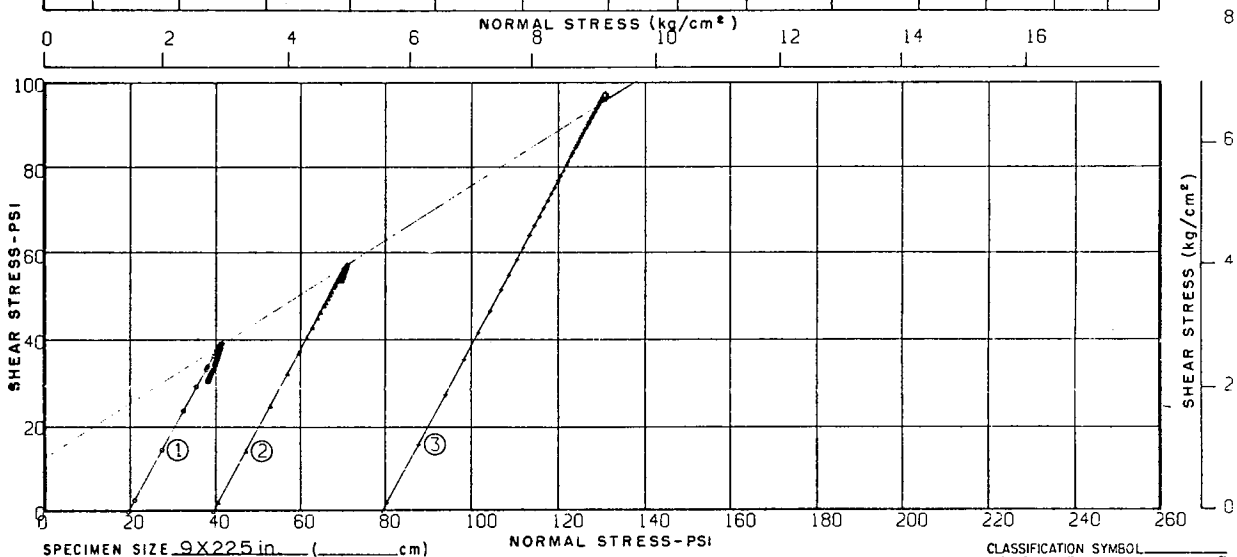
Location Westmoreland #3 (1-J-13)

SAMPLE NO. 54T-1 HOLE NO. _____ DEPTH _____ ft. (_____m)

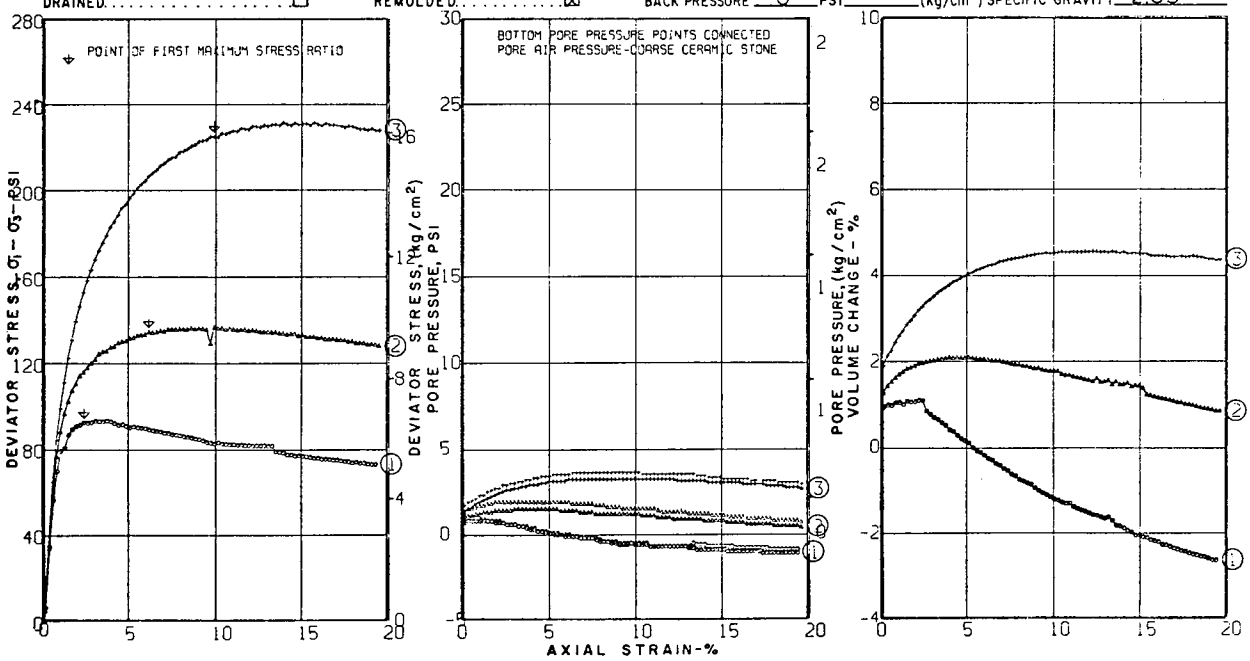
EL-558 (8-70)
Bureau of Reclamation

TRIAXIAL SHEAR

SPECIMEN NO.	PLACEMENT: DRY DENSITY PCF (kg/cm²)	PLACEMENT: WATER CONTENT %	PLACEMENT: DEGREE SATURATION %	VOID RATIO: PLACEMENT	VOID RATIO: CONSOLIDATED	VOID RATIO: FAILURE	TEST VALUES AT FAILURE: APPLIED LATERAL PRESSURE PSI (kg/cm²)	TEST VALUES AT FAILURE: PORE PRESSURE PSI (kg/cm²)	TEST VALUES AT FAILURE: EFFECTIVE LATERAL PRESSURE PSI (kg/cm²)	TEST VALUES AT FAILURE: VOLUME CHANGE (% OF INITIAL)	TEST VALUES AT FAILURE: AXIAL STRAIN %	TEST VALUES AT FAILURE: DEVIATOR STRESS PSI (kg/cm²)	SHEAR VALUES CORRECTED FOR PORE PRESSURE: TAN φ'	SHEAR VALUES CORRECTED FOR PORE PRESSURE: C' PSI (kg/cm²)
					FAILURE AT MAXIMUM STRESS RATIO									
1	98.9	5.5	38.1	0.2941	0.2830	0.2809	20.0	0.6	19.4	1.02	2.30	91.8		
2	98.4	5.4	36.6	0.3003	0.2847	0.2744	40.0	1.3	38.7	1.99	6.05	134.0	0.64	12.6
3	97.3	5.5	35.8	0.3147	0.2907	0.2564	80.0	3.1	76.9	4.44	9.85	224.2		



SPECIMEN SIZE 9X225 in. (_____ cm)
SEALED TEST ☐
CONSOLIDATED UNDRAINED ☒
DRAINED ☐
UNDISTURBED ☐
REMOLDED ☒
BACK PRESSURE 0 PSI _____ (kg/cm²)
CLASSIFICATION SYMBOL _____
LIQUID LIMIT _____ %
PLASTICITY INDEX _____ %
SPECIFIC GRAVITY 2.05



Location Pacahontas Fuel Co.-Jenkins Jones (1-L-10)

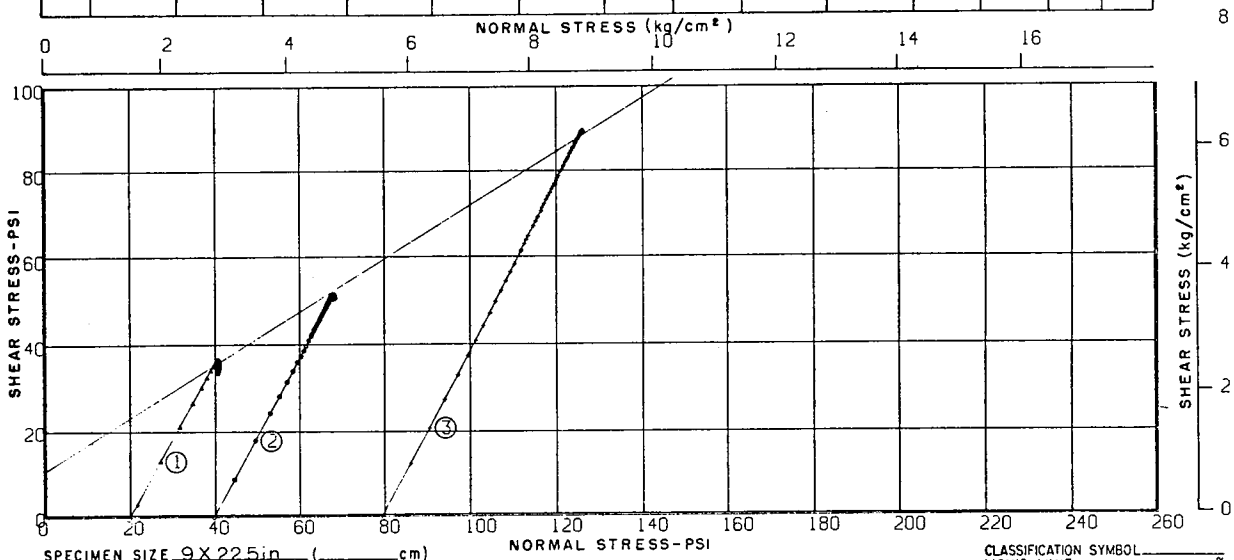
SAMPLE NO. 54T-2 HOLE NO. _____ DEPTH _____ ft. (_____ m)

FIGURE

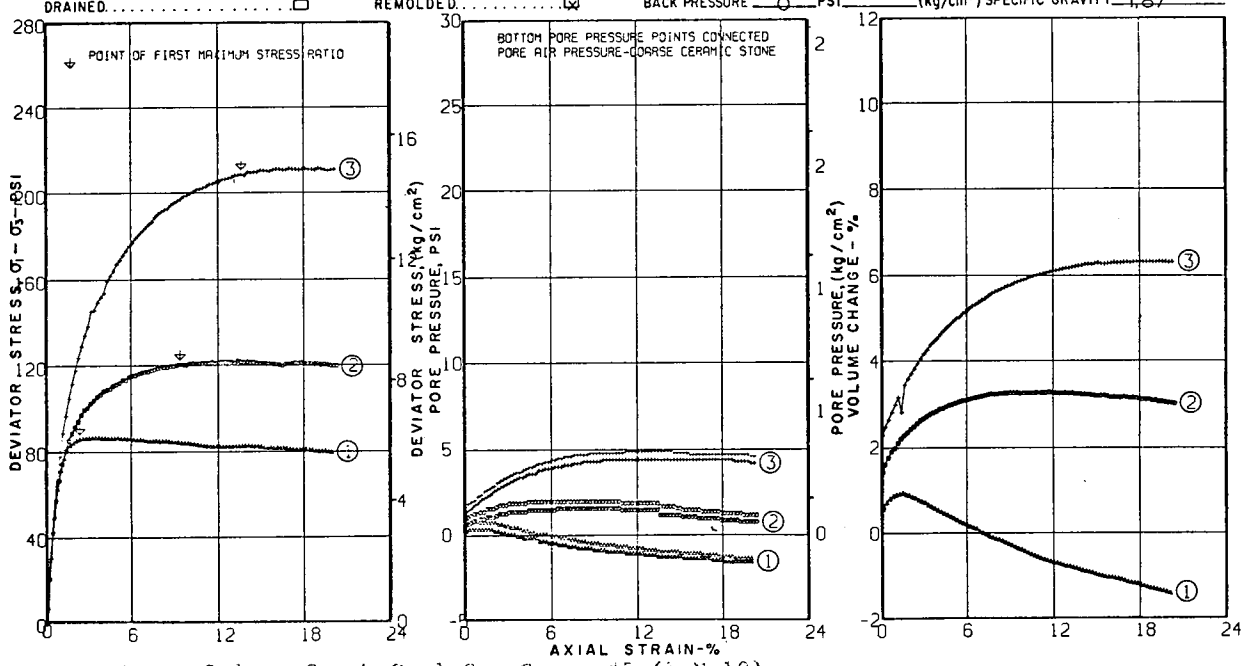
56 EL-558 (8-70) Bureau of Reclamation

TRIAXIAL SHEAR

SPECIMEN NO.	PLACEMENT: DRY DENSITY PCF (kg/cm²)	PLACEMENT: WATER CONTENT %	PLACEMENT: DEGREE SATURATION %	VOID RATIO: PLACEMENT	VOID RATIO: CONSOLIDATED	VOID RATIO: FAILURE	TEST VALUES AT FAILURE: APPLIED LATERAL PRESSURE PSI (kg/cm²)	PORE PRESSURE PSI (kg/cm²)	EFFECTIVE LATERAL PRESSURE PSI (kg/cm²)	VOLUME CHANGE (% OF INITIAL)	AXIAL STRAIN %	DEVIATOR STRESS PSI (kg/cm²)	SHEAR VALUES CORRECTED FOR PORE PRESSURE: TAN φ'	C' PSI (kg/cm²)
					FAILURE AT MAXIMUM STRESS RATIO									
2	87.5	8.7	48.7	0.3342	0.3156	0.2911	40.0	1.5	38.5	3.23	9.30	120.0		
1	89.0	7.0	42.2	0.3113	0.3043	0.3008	20.0	0.2	19.8	0.80	2.28	85.5	0.62	10.8
3	89.5	7.2	44.5	0.3039	0.2746	0.2233	80.0	4.3	75.7	6.18	13.59	208.2		



SPECIMEN SIZE 9X2.25in (_____cm)
SEALED TEST.....☐
CONSOLIDATED UNDRAINED.....☒
DRAINED.....☐
UNDISTURBED.....☐
REMOLDED.....☒
BACK PRESSURE 0 PSI _____ (kg/cm²)
CLASSIFICATION SYMBOL _____
LIQUID LIMIT _____ %
PLASTICITY INDEX _____ %
SPECIFIC GRAVITY 1.87



Location Island Creek Coal Co. Guyan #5 (1-N-10)

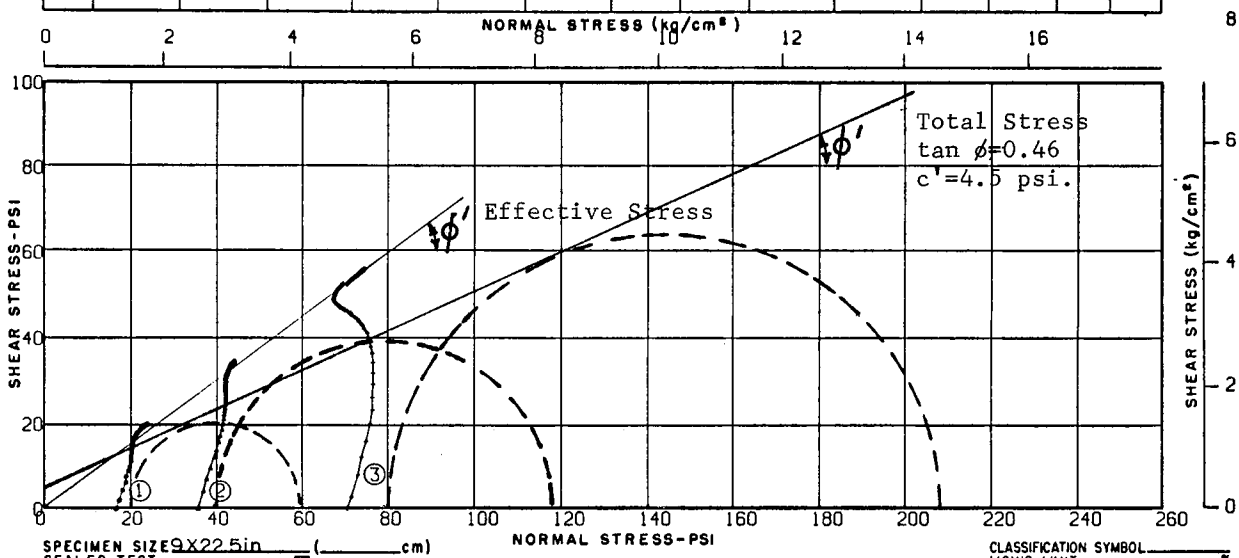
SAMPLE NO. 54T-3 HOLE NO. _____ DEPTH _____ ft. (_____m)

FIGURE

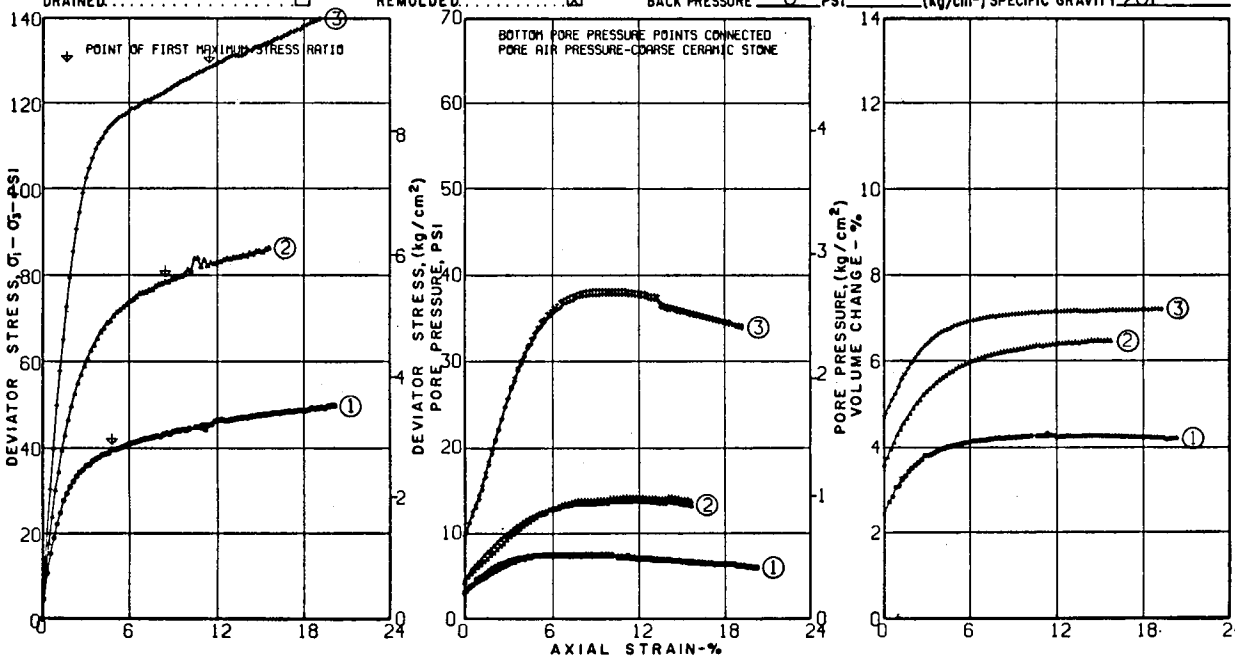
EL-550 (8-70)
Bureau of Reclamation

TRIAXIAL SHEAR

SPECIMEN NO.	PLACEMENT: DRY DENSITY PCF (kg/cm²)	PLACEMENT: WATER CONTENT %	PLACEMENT: DEGREE SATURATION %	VOID RATIO: PLACEMENT	VOID RATIO: CONSOLIDATED	VOID RATIO: FAILURE	TEST VALUES AT FAILURE: APPLIED LATERAL PRESSURE PSI (kg/cm²)	PORE PRESSURE PSI (kg/cm²)	EFFECTIVE LATERAL PRESSURE PSI (kg/cm²)	VOLUME CHANGE (% OF INITIAL)	AXIAL STRAIN %	DEVIATOR STRESS PSI (kg/cm²)	SHEAR VALUES CORRECTED FOR PORE PRESSURE: TAN φ'	c' PSI (kg/cm²)
					FAILURE AT MAXIMUM STRESS RATIO									
1	98.7	9.5	70.5	0.2719	0.2414	0.2210	20.0	7.3	12.7	4.00	4.82	39.3		
2	98.4	9.3	67.6	0.2758	0.2306	0.1967	40.0	13.3	26.7	6.20	8.50	78.2	0.75	0.2
3	98.6	9.4	69.2	0.2721	0.2124	0.1817	80.0	37.5	42.5	7.11	11.53	127.7		



SPECIMEN SIZE 9X22.5in (_____cm)
SEALED TEST ☐
CONSOLIDATED UNDRAINED ☒
DRAINED ☐
UNDISTURBED ☐
REMOLDED ☒
BACK PRESSURE 0 PSI (kg/cm²)
CLASSIFICATION SYMBOL
LIQUID LIMIT %
PLASTICITY INDEX %
SPECIFIC GRAVITY 2.01



Location Eastern Assoc. Coal Co. Herndon, W.V. Cemetary Branch Hollow (1-P-4)

SAMPLE NO. 54T-4 HOLE NO. _____ DEPTH _____ ft. (_____m)

FIGURE

APPENDIX D.--DIRECT SHEAR TEST DATA AND CURVES

TEST NO.	DATE TESTED	TESTED BY
1-J-13#-DS-1	2-20-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.586 LBS. DRY DENSITY = 85.346 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.927 LBS. WET DENSITY = 90.553 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 6.100 PER CENT

INITIAL CONSOLIDATION = .070 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 86.867 LBS./CU.FT.

INITIAL POROSITY = 24.467 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .324 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 34.08 PER CENT

INITIAL MOISTURE CONTENT = 6.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.441	.070	0	5.3684	.0127	.1899	.3008	23.1220
	.020	.020	.441	0	.0044	117.8428	.2779	4.1856	.3008	23.1220
	.040	.020	.438	-0.003	.0057	151.0738	.3562	5.3889	.2998	23.0632
	.060	.020	.437	-0.001	.0067	176.6362	.4165	6.3279	.2994	23.0436
	.080	.020	.435	-0.002	.0075	197.0860	.4647	7.0910	.2988	23.0044
	.100	.020	.434	-0.001	.0081	212.4234	.5009	7.6759	.2984	22.9848
	.120	.020	.432	-0.002	.0086	225.2046	.5310	8.1732	.2978	22.9455
	.140	.020	.431	-0.001	.0090	235.4296	.5551	8.5816	.2975	22.9258
	.160	.020	.430	-0.001	.0093	243.0983	.5732	8.9001	.2971	22.9062
	.180	.020	.429	-0.001	.0096	250.7670	.5913	9.2214	.2968	22.8865
	.200	.020	.428	-0.001	.0098	255.8794	.6033	9.4510	.2965	22.8668
	.220	.020	.425	-0.003	.0107	278.8855	.6576	10.3466	.2955	22.8077
	.240	.020	.423	-0.002	.0109	283.9980	.6696	10.5834	.2948	22.7682
	.260	.020	.422	-0.001	.0112	291.6667	.6877	10.9179	.2945	22.7485
	.280	.020	.421	-0.001	.0114	296.7792	.6998	11.1594	.2941	22.7287
	.300	.020	.420	-0.001	.0117	304.4479	.7179	11.4996	.2938	22.7090
	.320	.020	.419	-0.001	.0118	307.0041	.7239	11.6488	.2935	22.6892
	.340	.020	.419	0	.0119	309.5604	.7299	11.7995	.2935	22.6892
	.360	.020	.418	-0.001	.0119	309.5604	.7299	11.8536	.2931	22.6694
	.380	.020	.418	0	.0120	312.1166	.7359	12.0065	.2931	22.6694
	.400	.020	.417	-0.001	.0121	314.6728	.7420	12.1609	.2928	22.6496
	.420	.020	.417	0	.0122	317.2291	.7480	12.3167	.2928	22.6496
	.440	.020	.416	-0.001	.0123	319.7853	.7540	12.4739	.2925	22.6298
	.460	.020	.416	0	.0125	324.8978	.7661	12.7327	.2925	22.6298
	.480	.020	.416	0	.0124	322.3415	.7600	12.6921	.2925	22.6298
	.500	.020	.416	0	.0124	322.3415	.7600	12.7521	.2925	22.6298
07/27	.520	.020	.415	-0.001	.0124	322.3415	.7600	12.8127	.2922	22.6100

PEAK STRESS = 11.4910 PSI PEAK SATURATION = 37.75 PERCENT

ULTIMATE STRESS = 11.4006 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13*-DS-2	2-20-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.586 LBS. DRY DENSITY = 85.346 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.927 LBS. WET DENSITY = 90.553 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 6.100 PER CENT

INITIAL CONSOLIDATION = .183 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 89.438 LBS./CU.FT.

INITIAL POROSITY = 24.467 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .324 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 34.08 PER CENT

INITIAL MOISTURE CONTENT = 6.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.286	.183	0	5.3684	.0063	.1899	.2634	20.8460
	.020	.020	.285	-0.001	.0070	184.3049	.2173	6.5463	.2630	20.8253
	.040	.020	.282	-0.003	.0094	245.6545	.2896	8.7627	.2620	20.7630
	.060	.020	.279	-0.003	.0107	278.8855	.3288	9.9909	.2610	20.7006
	.080	.020	.276	-0.003	.0122	317.2291	.3740	11.4136	.2601	20.6381
	.100	.020	.274	-0.002	.0134	347.9039	.4102	12.5715	.2594	20.5964
	.120	.020	.272	-0.002	.0137	355.5726	.4192	12.9045	.2587	20.5546
	.140	.020	.271	-0.001	.0148	383.6912	.4523	13.9859	.2584	20.5337
	.160	.020	.266	-0.005	.0155	401.5848	.4734	14.7025	.2567	20.4291
	.180	.020	.264	-0.002	.0162	419.4785	.4945	15.4253	.2561	20.3872
	.200	.020	.262	-0.002	.0170	439.9283	.5186	16.2490	.2554	20.3452
	.220	.020	.259	-0.003	.0177	457.8220	.5397	16.9851	.2544	20.2821
	.240	.020	.258	-0.001	.0182	470.6032	.5548	17.5373	.2541	20.2611
	.260	.020	.256	-0.002	.0187	483.3843	.5699	18.0945	.2534	20.2190
	.280	.020	.254	-0.002	.0191	493.6093	.5819	18.5605	.2528	20.1768
	.300	.020	.252	-0.002	.0196	506.3904	.5970	19.1273	.2521	20.1346
	.320	.020	.250	-0.002	.0199	514.0591	.6060	19.5052	.2514	20.0924
	.340	.020	.249	-0.001	.0200	516.6154	.6091	19.6918	.2511	20.0712
	.360	.020	.247	-0.002	.0203	524.2841	.6181	20.0757	.2505	20.0289
	.380	.020	.246	-0.001	.0207	534.5090	.6302	20.5616	.2501	20.0078
	.400	.020	.244	-0.002	.0210	542.1777	.6392	20.9531	.2495	19.9654
	.420	.020	.242	-0.002	.0211	544.7340	.6422	21.1497	.2488	19.9230
	.440	.020	.241	-0.001	.0213	549.8464	.6482	21.4479	.2485	19.9017
	.460	.020	.239	-0.002	.0211	544.7340	.6422	21.3481	.2478	19.8592
	.480	.020	.238	-0.001	.0213	549.8464	.6482	21.6500	.2475	19.8380
	.500	.020	.237	-0.001	.0216	557.5151	.6573	22.0558	.2471	19.8167
	.520	.020	.235	-0.002	.0216	557.5151	.6573	22.1606	.2465	19.7741
	.540	.020	.234	-0.001	.0216	557.5151	.6573	22.2664	.2461	19.7528
	.560	.020	.232	-0.002	.0217	560.0714	.6603	22.4758	.2455	19.7102
	.580	.020	.231	-0.001	.0217	560.0714	.6603	22.5840	.2452	19.6888
	.600	.020	.230	-0.001	.0217	560.0714	.6603	22.6933	.2448	19.6675
11/05	.620	.020	.229	-0.001	.0216	557.5151	.6573	22.6995	.2445	19.6461

PEAK STRESS = 19.8087 PSI PEAK SATURATION = 44.98 PERCENT

ULTIMATE STRESS = 19.7183 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13*-DS-3	2-20-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.586 LBS. DRY DENSITY = 85.346 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.927 LBS. WET DENSITY = 90.553 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 6.100 PER CENT

INITIAL CONSOLIDATION = .177 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 89.298 LBS./CU.FT.

INITIAL POROSITY = 24.467 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .324 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 34.08 PER CENT

INITIAL MOISTURE CONTENT = 6.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	.020	0	.346	.177	0	5.3684	.0063	.1899	.2653	20.9703
	.040	.020	.344	-0.002	.0060	158.7425	.1871	5.6384	.2647	20.9289
	.060	.020	.342	-0.002	.0087	227.7608	.2685	8.1244	.2640	20.8875
	.080	.020	.339	-0.003	.0107	278.8855	.3288	9.9909	.2630	20.8253
	.100	.020	.334	-0.005	.0132	342.7914	.4041	12.3333	.2614	20.7214
	.120	.020	.331	-0.003	.0142	368.3538	.4343	13.3104	.2604	20.6590
	.140	.020	.328	-0.003	.0153	396.4723	.4674	14.3889	.2594	20.5964
	.160	.020	.326	-0.002	.0162	419.4785	.4945	15.2904	.2587	20.5546
	.180	.020	.324	-0.002	.0168	434.8159	.5126	15.9191	.2581	20.5128
	.200	.020	.322	-0.002	.0179	462.9345	.5458	17.0233	.2574	20.4710
	.220	.020	.320	-0.002	.0188	485.9406	.5729	17.9485	.2567	20.4291
	.240	.020	.318	-0.002	.0193	498.7217	.5880	18.5025	.2561	20.3872
	.260	.020	.317	-0.001	.0199	514.0591	.6060	19.1567	.2557	20.3662
	.280	.020	.315	-0.002	.0206	531.9528	.6271	19.9125	.2551	20.3242
	.300	.020	.314	-0.001	.0210	542.1777	.6392	20.3867	.2548	20.3032
	.320	.020	.312	-0.002	.0216	557.5151	.6573	21.0584	.2541	20.2611
	.340	.020	.311	-0.001	.0219	565.1838	.6663	21.4451	.2538	20.2401
	.360	.020	.310	-0.001	.0224	577.9650	.6814	22.0302	.2534	20.2190
	.380	.020	.309	-0.001	.0230	593.3024	.6995	22.7186	.2531	20.1979
	.400	.020	.308	-0.001	.0233	600.9711	.7085	23.1182	.2528	20.1768
	.420	.020	.308	0	.0238	613.7523	.7236	23.7192	.2528	20.1768
	.440	.020	.307	-0.001	.0241	621.4210	.7326	24.1272	.2524	20.1557
	.460	.020	.307	0	.0244	629.0897	.7417	24.5389	.2524	20.1557
	.480	.020	.306	-0.001	.0247	636.7584	.7507	24.9546	.2521	20.1346
	.500	.020	.307	.001	.0249	641.8709	.7567	25.2734	.2524	20.1557
	.520	.020	.306	-0.001	.0253	652.0958	.7688	25.7975	.2521	20.1346
	.540	.020	.306	0	.0255	657.2083	.7748	26.1233	.2521	20.1346
	.560	.020	.307	.001	.0257	662.3208	.7808	26.4522	.2524	20.1557
	.580	.020	.307	0	.0259	667.4332	.7869	26.7842	.2524	20.1557
	.600	.020	.307	0	.0262	675.1019	.7959	27.2225	.2524	20.1557
	.620	.020	.308	.001	.0262	675.1019	.7959	27.3542	.2528	20.1768
	.640	.020	.308	0	.0262	675.1019	.7959	27.4871	.2528	20.1768
	.660	.020	.308	0	.0264	680.2144	.8019	27.8305	.2528	20.1768
	.680	.020	.309	.001	.0264	680.2144	.8019	27.9670	.2531	20.1979
	.700	.020	.310	.001	.0263	677.6582	.7989	27.9992	.2534	20.2190

PEAK STRESS = 24.0579 PSI PEAK SATURATION = 43.68 PERCENT

ULTIMATE STRESS = 23.9675 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13*-DS-4	2-20-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.586 LBS. DRY DENSITY = 85.346 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.927 LBS. WET DENSITY = 90.553 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 6.100 PER CENT

INITIAL CONSOLIDATION = .227 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 90.481 LBS./CU.FT.

INITIAL POROSITY = 24.467 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .324 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 34.08 PER CENT

INITIAL MOISTURE CONTENT = 6.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. */LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.261	.227	0	0	0	0	.2488	19.9230
	.020	.020	.261	0	.0050	315.0000	.1857	11.1885	.2488	19.9230
	.040	.020	.257	-0.004	.0068	428.4000	.2525	15.2814	.2475	19.8380
	.060	.020	.258	.001	.0078	491.4000	.2897	17.6041	.2478	19.8592
	.080	.020	.253	-0.005	.0088	554.4000	.3268	19.9467	.2461	19.7528
	.100	.020	.251	-0.002	.0095	598.5000	.3528	21.6268	.2455	19.7102
	.120	.020	.247	-0.004	.0100	630.0000	.3714	22.8642	.2442	19.6247
	.140	.020	.243	-0.004	.0110	693.0000	.4085	25.2606	.2428	19.5391
	.160	.020	.242	-0.001	.0116	730.8000	.4308	26.7554	.2425	19.5177
	.180	.020	.237	-0.005	.0124	781.2000	.4605	28.7267	.2409	19.4103
	.200	.020	.234	-0.003	.0131	825.3000	.4865	30.4829	.2399	19.3458
	.220	.020	.231	-0.003	.0138	869.4000	.5125	32.2546	.2389	19.2811
	.240	.020	.228	-0.003	.0142	894.6000	.5273	33.3378	.2379	19.2164
	.260	.020	.225	-0.003	.0148	932.4000	.5496	34.9024	.2369	19.1515
	.280	.020	.224	-0.001	.0152	957.6000	.5645	36.0073	.2366	19.1299
	.300	.020	.221	-0.003	.0157	989.1000	.5830	37.3601	.2356	19.0649
	.320	.020	.218	-0.003	.0163	026.900*	.6053	38.9643	.2346	18.9998
	.340	.020	.217	-0.001	.0166	045.800*	.6165	39.8626	.2342	18.9781
	.360	.020	.215	-0.002	.0170	071.000*	.6313	41.0104	.2336	18.9346
	.380	.020	.213	-0.002	.0174	096.200*	.6462	42.1688	.2329	18.8911
	.400	.020	.211	-0.002	.0178	121.400*	.6610	43.3378	.2322	18.8475
	.420	.020	.210	-0.001	.0180	134.000*	.6685	44.0285	.2319	18.8257
	.440	.020	.209	-0.001	.0182	146.600*	.6759	44.7255	.2316	18.8039
	.460	.020	.208	-0.001	.0184	159.200*	.6833	45.4290	.2313	18.7821
	.480	.020	.207	-0.001	.0187	178.100*	.6945	46.3872	.2309	18.7602
	.500	.020	.205	-0.002	.0188	184.400*	.6982	46.8559	.2303	18.7165
	.520	.020	.204	-0.001	.0192	209.600*	.7130	48.0803	.2299	18.6946
	.540	.020	.204	0	.0192	209.600*	.7130	48.3098	.2299	18.6946
	.560	.020	.202	-0.002	.0194	222.200*	.7204	49.0471	.2293	18.6509
	.580	.020	.202	0	.0193	215.900*	.7167	49.0293	.2293	18.6509
	.600	.020	.200	-0.002	.0192	209.600*	.7130	49.0113	.2286	18.6070
	.620	.020	.200	0	.0193	215.900*	.7167	49.5060	.2286	18.6070
11/49	.640	.020	.200	0	.0191	203.300*	.7093	49.2322	.2286	18.6070

PEAK STRESS = 43.2270 PSI PEAK SATURATION = 48.16 PERCENT

ULTIMATE STRESS = 42.5585 PSI (ELIMINATED FROM GRAPH)

A FTNO 0062 PAUSE 00001

TEST NO.	DATE TESTED	TESTED BY
1-J-13*-DS-1S	2-21-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.471 LBS. DRY DENSITY = 83.586 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.428 LBS. WET DENSITY = 98.213 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 17.500 PER CENT

INITIAL CONSOLIDATION = .089 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 85.488 LBS./CU.FT.

INITIAL POROSITY = 26.026 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .352 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 96.72 PER CENT

INITIAL MOISTURE CONTENT = 18.80 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.483	.089	0	5.3684	.0127	.1899	.3217	24.3422
	.020	.020	.480	-0.003	.0041	110.1740	.2598	3.9133	.3207	24.2841
	.040	.020	.477	-0.003	.0057	151.0738	.3562	5.3889	.3197	24.2260
	.060	.020	.475	-0.002	.0064	168.9674	.3984	6.0531	.3190	24.1872
	.080	.020	.475	0	.0067	176.6362	.4165	6.3552	.3190	24.1872
	.100	.020	.474	-0.001	.0077	202.1985	.4768	7.3064	.3187	24.1677
	.120	.020	.473	-0.001	.0085	222.6484	.5250	8.0804	.3184	24.1483
	.140	.020	.472	-0.001	.0088	230.3171	.5431	8.3953	.3180	24.1288
	.160	.020	.469	-0.003	.0089	232.8733	.5491	8.5257	.3170	24.0704
	.180	.020	.467	-0.002	.0093	243.0983	.5732	8.9394	.3163	24.0314
	.200	.020	.466	-0.001	.0097	253.3232	.5973	9.3566	.3160	24.0119
	.220	.020	.464	-0.002	.0099	258.4357	.6094	9.5879	.3153	23.9729
	.240	.020	.463	-0.001	.0103	268.6606	.6335	10.0118	.3150	23.9533
	.260	.020	.462	-0.001	.0104	271.2168	.6395	10.1524	.3146	23.9338
	.280	.020	.461	-0.001	.0103	268.6606	.6335	10.1021	.3143	23.9142
	.300	.020	.459	-0.002	.0104	271.2168	.6395	10.2444	.3136	23.8751
	.320	.020	.458	-0.001	.0105	273.7731	.6455	10.3879	.3133	23.8555
	.340	.020	.457	-0.001	.0106	276.3293	.6516	10.5328	.3130	23.8359
	.360	.020	.456	-0.001	.0105	273.7731	.6455	10.4832	.3126	23.8163
	.380	.020	.455	-0.001	.0107	278.8855	.6576	10.7282	.3123	23.7967
	.400	.020	.454	-0.001	.0109	283.9980	.6696	10.9754	.3119	23.7770
	.420	.020	.453	-0.001	.0110	286.5542	.6757	11.1257	.3116	23.7574
	.440	.020	.452	-0.001	.0110	286.5542	.6757	11.1776	.3113	23.7377
	.460	.020	.451	-0.001	.0109	283.9980	.6696	11.1299	.3109	23.7181
	.480	.020	.449	-0.002	.0108	281.4418	.6636	11.0817	.3103	23.6787
	.500	.020	.448	-0.001	.0109	283.9980	.6696	11.2352	.3099	23.6590
07/39	.520	.020	.447	-0.001	.0108	281.4418	.6636	11.1870	.3096	23.6393

PEAK STRESS = 10.1349 PSI PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 9.9541 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13**-DS-2S	2-21-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.496 LBS. DRY DENSITY = 83.968 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.380 LBS. WET DENSITY = 97.487 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 16.100 PER CENT

INITIAL CONSOLIDATION = .278 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 90.240 LBS./CU.FT.

INITIAL POROSITY = 25.687 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .346 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 100.00 PER CENT

INITIAL MOISTURE CONTENT = 20.00 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.137	.278	0	5.3684	.0063	.1899	.2521	20.1365
	.020	.020	.135	-0.002	.0051	135.7364	.1600	4.8212	.2515	20.0936
	.040	.020	.133	-0.002	.0074	194.5298	.2293	6.9391	.2508	20.0506
	.060	.020	.130	-0.003	.0084	220.0921	.2595	7.8846	.2498	19.9861
	.080	.020	.126	-0.004	.0093	243.0983	.2866	8.7464	.2484	19.8998
	.100	.020	.124	-0.002	.0101	263.5481	.3107	9.5233	.2478	19.8566
	.120	.020	.120	-0.004	.0110	286.5542	.3378	10.3997	.2464	19.7701
	.140	.020	.119	-0.001	.0113	294.2230	.3469	10.7247	.2461	19.7484
	.160	.020	.117	-0.002	.0122	317.2291	.3740	11.6141	.2454	19.7051
	.180	.020	.115	-0.002	.0127	330.0102	.3891	12.1353	.2447	19.6617
	.200	.020	.112	-0.003	.0132	342.7914	.4041	12.6612	.2437	19.5965
	.220	.020	.110	-0.002	.0138	358.1288	.4222	13.2865	.2431	19.5530
	.240	.020	.107	-0.003	.0146	378.5787	.4463	14.1080	.2420	19.4876
	.260	.020	.105	-0.002	.0152	393.9161	.4644	14.7454	.2414	19.4440
	.280	.020	.102	-0.003	.0159	411.8098	.4855	15.4847	.2404	19.3784
	.300	.020	.101	-0.001	.0163	422.0347	.4976	15.9410	.2400	19.3565
	.320	.020	.099	-0.002	.0168	434.8159	.5126	16.4985	.2394	19.3128
	.340	.020	.097	-0.002	.0172	445.0408	.5247	16.9636	.2387	19.2689
	.360	.020	.095	-0.002	.0178	460.3782	.5428	17.6287	.2380	19.2251
	.380	.020	.093	-0.002	.0182	470.6032	.5548	18.1032	.2373	19.1811
	.400	.020	.092	-0.001	.0185	478.2719	.5639	18.4834	.2370	19.1592
	.420	.020	.090	-0.002	.0188	485.9406	.5729	18.8670	.2363	19.1152
	.440	.020	.089	-0.001	.0192	496.1655	.5849	19.3540	.2360	19.0931
	.460	.020	.088	-0.001	.0197	508.9467	.6000	19.9456	.2357	19.0711
	.480	.020	.086	-0.002	.0199	514.0591	.6060	20.2409	.2350	19.0270
	.500	.020	.085	-0.001	.0202	521.7279	.6151	20.6400	.2346	19.0050
	.520	.020	.085	0	.0203	524.2841	.6181	20.8397	.2346	19.0050
	.540	.020	.083	-0.002	.0206	531.9528	.6271	21.2455	.2340	18.9608
	.560	.020	.082	-0.001	.0207	534.5090	.6302	21.4499	.2336	18.9387
	.580	.020	.082	0	.0209	539.6215	.6362	21.7594	.2336	18.9387
	.600	.020	.080	-0.002	.0211	544.7340	.6422	22.0719	.2330	18.8945
	.620	.020	.080	0	.0214	552.4027	.6512	22.4914	.2330	18.8945
	.640	.020	.079	-0.001	.0212	547.2902	.6452	22.3920	.2326	18.8723
	.660	.020	.078	-0.001	.0210	542.1777	.6392	22.2916	.2323	18.8502
	.680	.020	.077	-0.001	.0211	544.7340	.6422	22.5071	.2320	18.8280
	.700	.020	.076	-0.001	.0212	547.2902	.6452	22.7246	.2316	18.8058
11/31	.720	.020	.076	0	.0210	542.1777	.6392	22.6243	.2316	18.8058

PEAK STRESS = 19.5375 PSI PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 19.1758 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13*DS-3S	2-21-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.484 LBS. DRY DENSITY = 83.787 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.323 LBS. WET DENSITY = 96.606 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 15.300 PER CENT

INITIAL CONSOLIDATION = .324 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 91.172 LBS./CU.FT.

INITIAL POROSITY = 25.847 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .349 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 90.87 PER CENT

INITIAL MOISTURE CONTENT = 17.50 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.222	.324	0	0	0	0	.2393	19.3117
	.020	.020	.220	-0.002	.0037	233.1000	.1374	8.2795	.2387	19.2678
	.040	.020	.217	-0.003	.0053	333.9000	.1968	11.9105	.2377	19.2018
	.060	.020	.213	-0.004	.0066	415.8000	.2451	14.8957	.2363	19.1136
	.080	.020	.209	-0.004	.0074	466.2000	.2748	16.7734	.2350	19.0253
	.100	.020	.206	-0.003	.0082	516.6000	.3045	18.6673	.2339	18.9589
	.120	.020	.203	-0.003	.0086	541.8000	.3194	19.6632	.2329	18.8925
	.140	.020	.202	-0.001	.0090	567.0000	.3342	20.6677	.2326	18.8703
	.160	.020	.200	-0.002	.0096	604.8000	.3565	22.1424	.2319	18.8259
	.180	.020	.197	-0.003	.0101	636.3000	.3751	23.3984	.2309	18.7592
	.200	.020	.194	-0.003	.0109	686.7000	.4048	25.3636	.2299	18.6924
	.220	.020	.191	-0.003	.0116	730.8000	.4308	27.1126	.2289	18.6254
	.240	.020	.190	-0.001	.0121	762.3000	.4494	28.4076	.2285	18.6031
	.260	.020	.185	-0.005	.0128	806.4000	.4753	30.1859	.2269	18.4913
	.280	.020	.182	-0.003	.0132	831.6000	.4902	31.2695	.2259	18.4240
	.300	.020	.179	-0.003	.0138	869.4000	.5125	32.8388	.2248	18.3567
	.320	.020	.177	-0.002	.0144	907.2000	.5348	34.4224	.2242	18.3117
	.340	.020	.175	-0.002	.0148	932.4000	.5496	35.5402	.2235	18.2667
	.360	.020	.172	-0.003	.0151	951.3000	.5608	36.4269	.2225	18.1990
	.380	.020	.171	-0.001	.0155	976.5000	.5756	37.5641	.2221	18.1765
	.400	.020	.168	-0.003	.0159	001.700*	.5905	38.7119	.2211	18.1087
	.420	.020	.166	-0.002	.0163	026.900*	.6053	39.8702	.2205	18.0635
	.440	.020	.164	-0.002	.0166	045.800*	.6165	40.7936	.2198	18.0182
	.460	.020	.163	-0.001	.0168	058.400*	.6239	41.4787	.2194	17.9955
	.480	.020	.161	-0.002	.0170	071.000*	.6313	42.1702	.2188	17.9501
	.500	.020	.160	-0.001	.0173	089.900*	.6425	43.1174	.2184	17.9274
	.520	.020	.158	-0.002	.0176	108.800*	.6536	44.0736	.2178	17.8820
	.540	.020	.157	-0.001	.0176	108.800*	.6536	44.2840	.2174	17.8592
	.560	.020	.154	-0.003	.0178	121.400*	.6610	45.0020	.2164	17.7909
	.580	.020	.154	0	.0180	134.000*	.6685	45.7268	.2164	17.7909
	.600	.020	.152	-0.002	.0182	146.600*	.6759	46.4586	.2157	17.7453
	.620	.020	.152	0	.0182	146.600*	.6759	46.6844	.2157	17.7453
	.640	.020	.150	-0.002	.0182	146.600*	.6759	46.9124	.2151	17.6997
	.660	.020	.149	-0.001	.0183	152.900*	.6796	47.4015	.2147	17.6769
	.680	.020	.149	0	.0182	146.600*	.6759	47.3747	.2147	17.6769
13/23	.700	.020	.148	-0.001	.0182	146.600*	.6759	47.6092	.2144	17.6540

PEAK STRESS = 40.7760 PSI PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 40.5532 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13*M-DS-1	2-26-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.983 LBS. DRY DENSITY = 91.413 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.348 LBS. WET DENSITY = 96.990 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 6.100 PER CENT

INITIAL CONSOLIDATION = .032 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 92.151 LBS./CU.FT.

INITIAL POROSITY = 19.098 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .236 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 46.77 PER CENT

INITIAL MOISTURE CONTENT = 6.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.519	.032	0	5.3684	.0127	.1899	.2262	18.4455
	.020	.020	.521	.002	.0059	156.1863	.3683	5.5476	.2268	18.4866
	.040	.020	.522	.001	.0073	191.9736	.4527	6.8479	.2271	18.5072
	.060	.020	.522	0	.0082	214.9797	.5069	7.7015	.2271	18.5072
	.080	.020	.522	0	.0095	248.2107	.5853	8.9304	.2271	18.5072
	.100	.020	.522	0	.0104	271.2168	.6395	9.8004	.2271	18.5072
	.120	.020	.523	.001	.0113	294.2230	.6937	10.6780	.2274	18.5277
	.140	.020	.523	0	.0119	309.5604	.7299	11.2838	.2274	18.5277
	.160	.020	.523	0	.0122	317.2291	.7480	11.6141	.2274	18.5277
	.180	.020	.524	.001	.0127	330.0102	.7781	12.1353	.2277	18.5482
	.200	.020	.525	.001	.0131	340.2352	.8022	12.5668	.2280	18.5687
	.220	.020	.525	0	.0132	342.7914	.8083	12.7175	.2280	18.5687
	.240	.020	.526	.001	.0133	345.3476	.8143	12.8696	.2283	18.5892
	.260	.020	.527	.001	.0134	347.9039	.8203	13.0230	.2286	18.6096
	.280	.020	.528	.001	.0135	350.4601	.8263	13.1779	.2290	18.6301
	.300	.020	.528	0	.0135	350.4601	.8263	13.2375	.2290	18.6301
	.320	.020	.529	.001	.0137	355.5726	.8384	13.4917	.2293	18.6506
	.340	.020	.529	0	.0136	353.0164	.8324	13.4559	.2293	18.6506
	.360	.020	.529	0	.0137	355.5726	.8384	13.6155	.2293	18.6506
	.380	.020	.529	0	.0136	353.0164	.8324	13.5799	.2293	18.6506
	.400	.020	.530	.001	.0136	353.0164	.8324	13.6427	.2296	18.6710
	.420	.020	.530	0	.0135	350.4601	.8263	13.6069	.2296	18.6710
	.440	.020	.530	0	.0133	345.3476	.8143	13.4710	.2296	18.6710
	.460	.020	.531	.001	.0132	342.7914	.8083	13.4340	.2299	18.6914
	.480	.020	.531	0	.0133	345.3476	.8143	13.5979	.2299	18.6914
08/29	.500	.020	.531	0	.0132	342.7914	.8083	13.5611	.2299	18.6914

PEAK STRESS = 12.5760 PSI PEAK SATURATION = 48.16 PERCENT

ULTIMATE STRESS = 12.1239 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13*M-DS-2	2-26-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.983 LBS. DRY DENSITY = 91.413 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.348 LBS. WET DENSITY = 96.990 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 6.100 PER CENT

INITIAL CONSOLIDATION = .125 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 94.362 LBS./CU.FT.

INITIAL POROSITY = 19.098 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .236 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 46.77 PER CENT

INITIAL MOISTURE CONTENT = 6.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.368	.125	0	5.3684	.0063	.1899	.1974	16.4882
	.020	.020	.368	0	.0075	197.0860	.2324	7.0003	.1974	16.4882
	.040	.020	.368	0	.0113	294.2230	.3469	10.4952	.1974	16.4882
	.060	.020	.367	-0.001	.0120	312.1166	.3680	11.1814	.1971	16.4667
	.080	.020	.367	0	.0148	383.6912	.4523	13.8048	.1971	16.4667
	.100	.020	.367	0	.0162	419.4785	.4945	15.1578	.1971	16.4667
	.120	.020	.367	0	.0179	462.9345	.5458	16.8010	.1971	16.4667
	.140	.020	.367	0	.0190	491.0530	.5789	17.8994	.1971	16.4667
	.160	.020	.366	-0.001	.0199	514.0591	.6060	18.8203	.1968	16.4451
	.180	.020	.366	0	.0208	537.0653	.6332	19.7493	.1968	16.4451
	.200	.020	.366	0	.0213	549.8464	.6482	20.3088	.1968	16.4451
	.220	.020	.366	0	.0217	560.0714	.6603	20.7786	.1968	16.4451
	.240	.020	.365	-0.001	.0222	572.8525	.6754	21.3477	.1965	16.4235
	.260	.020	.365	0	.0225	580.5213	.6844	21.7306	.1965	16.4235
	.280	.020	.365	0	.0227	585.6337	.6904	22.0208	.1965	16.4235
	.300	.020	.364	-0.001	.0231	595.8587	.7025	22.5067	.1962	16.4019
	.320	.020	.364	0	.0233	600.9711	.7085	22.8030	.1962	16.4019
	.340	.020	.363	-0.001	.0230	593.3024	.6995	22.6148	.1959	16.3803
	.360	.020	.363	0	.0231	595.8587	.7025	22.8165	.1959	16.3803
	.380	.020	.363	0	.0231	595.8587	.7025	22.9216	.1959	16.3803
	.400	.020	.363	0	.0235	606.0836	.7145	23.4228	.1959	16.3803
	.420	.020	.362	-0.001	.0234	603.5274	.7115	23.4324	.1956	16.3587
	.440	.020	.362	0	.0232	598.4149	.7055	23.3424	.1956	16.3587
	.460	.020	.362	0	.0232	598.4149	.7055	23.4519	.1956	16.3587
	.480	.020	.361	-0.001	.0232	598.4149	.7055	23.5623	.1953	16.3371
08/38	.500	.020	.361	0	.0232	598.4149	.7055	23.6738	.1953	16.3371

PEAK STRESS = 21.4361 PSI PEAK SATURATION = 56.36 PERCENT

ULTIMATE STRESS = 21.1648 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13*M-DS-3	2-26-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.983 LBS. DRY DENSITY = 91.413 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.348 LBS. WET DENSITY = 96.990 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 6.100 PER CENT

INITIAL CONSOLIDATION = .149 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 94.950 LBS./CU.FT.

INITIAL POROSITY = 19.098 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .236 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 46.77 PER CENT

INITIAL MOISTURE CONTENT = 6.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.371	.149	0	0	0	0	.1900	15.9678
	.020	.020	.372	.001	.0043	270.9000	.1597	9.6221	.1903	15.9896
	.040	.020	.370	-0.002	.0068	428.4000	.2525	15.2814	.1897	15.9459
	.060	.020	.367	-0.003	.0088	554.4000	.3268	19.8610	.1888	15.8804
	.080	.020	.365	-0.002	.0098	617.4000	.3639	22.2134	.1882	15.8366
	.100	.020	.364	-0.001	.0101	636.3000	.3751	22.9927	.1879	15.8147
	.120	.020	.362	-0.002	.0115	724.5000	.4271	26.2938	.1872	15.7709
	.140	.020	.360	-0.002	.0125	787.5000	.4642	28.7052	.1866	15.7271
	.160	.020	.358	-0.002	.0135	850.5000	.5013	31.1377	.1860	15.6831
	.180	.020	.356	-0.002	.0142	894.6000	.5273	32.8968	.1854	15.6392
	.200	.020	.355	-0.001	.0149	938.7000	.5533	34.6713	.1851	15.6172
	.220	.020	.352	-0.003	.0154	970.2000	.5719	35.9943	.1841	15.5511
	.240	.020	.351	-0.001	.0161	014.300	.5979	37.7985	.1838	15.5291
	.260	.020	.350	-0.001	.0164	033.200	.6090	38.6756	.1835	15.5070
	.280	.020	.348	-0.002	.0167	052.100	.6202	39.5606	.1829	15.4629
	.300	.020	.347	-0.001	.0171	077.300	.6350	40.6916	.1826	15.4408
	.320	.020	.346	-0.001	.0173	089.900	.6425	41.3547	.1823	15.4187
	.340	.020	.345	-0.001	.0175	102.500	.6499	42.0238	.1820	15.3966
	.360	.020	.344	-0.001	.0177	115.100	.6573	42.6991	.1817	15.3744
	.380	.020	.343	-0.001	.0180	134.000	.6685	43.6229	.1814	15.3523
	.400	.020	.342	-0.001	.0181	140.300	.6722	44.0682	.1811	15.3302
	.420	.020	.341	-0.001	.0183	152.900	.6796	44.7623	.1807	15.3080
	.440	.020	.340	-0.001	.0184	159.200	.6833	45.2170	.1804	15.2858
	.460	.020	.339	-0.001	.0184	159.200	.6833	45.4290	.1801	15.2637
	.480	.020	.338	-0.001	.0185	165.500	.6870	45.8911	.1798	15.2415
	.500	.020	.338	0	.0187	178.100	.6945	46.6067	.1798	15.2415
	.520	.020	.337	-0.001	.0188	184.400	.6982	47.0786	.1795	15.2193
	.540	.020	.336	-0.001	.0186	171.800	.6907	46.8001	.1792	15.1970
	.560	.020	.335	-0.001	.0186	171.800	.6907	47.0245	.1789	15.1748
	.580	.020	.334	-0.001	.0188	184.400	.6982	47.7591	.1786	15.1526
	.600	.020	.333	-0.001	.0187	178.100	.6945	47.7350	.1783	15.1303
	.620	.020	.333	0	.0187	178.100	.6945	47.9670	.1783	15.1303
	.640	.020	.332	-0.001	.0187	178.100	.6945	48.2012	.1780	15.1081
	.660	.020	.331	-0.001	.0186	171.800	.6907	48.1786	.1777	15.0858
11/10	.680	.020	.330	-0.001	.0185	165.500	.6870	48.1556	.1773	15.0635

PEAK STRESS = 41.8901 PSI PEAK SATURATION = 61.51 PERCENT

ULTIMATE STRESS = 41.2216 PSI (ELIMINATED FROM GRAPH)

TEST NO. 1-J-13*M-DS-1S

DATE TESTED 2-23-73

TESTED BY L ATKINS, R CARNES

CROSS SECT. AREA = 28.274 IN.

DRY WT. = 5.983 LBS.

DRY DENSITY = 91.413 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN.

WET WT. = 6.838 LBS.

WET DENSITY = 104.486 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT.

SPEC. GRAV. = 1.810

MOISTURE CONTENT = 14.300 PER CENT

INITIAL CONSOLIDATION = .088 IN.

PROVING RING NO. 116

CONSOLIDATED DRY DENSITY = 93.470 LBS./CU.FT.

INITIAL POROSITY = 19.098 PER CENT

CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .236

APPLIED LOAD = 424.110 LBS.

INITIAL SATURATION = 100.00 PER CENT

INITIAL MOISTURE CONTENT = 14.30 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.492	.088	0	5.3684	.0127	.1899	.2089	17.2781
	.020	.020	.491	-0.001	.0064	168.9674	.3984	6.0015	.2086	17.2569
	.040	.020	.490	-0.001	.0084	220.0921	.5190	7.8509	.2083	17.2358
	.060	.020	.489	-0.001	.0099	258.4357	.6094	9.2583	.2079	17.2146
	.080	.020	.488	-0.001	.0106	276.3293	.6516	9.9420	.2076	17.1934
	.100	.020	.487	-0.001	.0116	301.8917	.7118	10.9088	.2073	17.1722
	.120	.020	.486	-0.001	.0119	309.5604	.7299	11.2347	.2070	17.1510
	.140	.020	.485	-0.001	.0124	322.3415	.7600	11.7497	.2067	17.1298
	.160	.020	.485	0	.0127	330.0102	.7781	12.0820	.2067	17.1298
	.180	.020	.484	-0.001	.0129	335.1227	.7902	12.3233	.2064	17.1086
	.200	.020	.484	0	.0132	342.7914	.8083	12.6612	.2064	17.1086
	.220	.020	.483	-0.001	.0132	342.7914	.8083	12.7175	.2061	17.0873
	.240	.020	.484	.001	.0132	342.7914	.8083	12.7743	.2064	17.1086
	.260	.020	.484	0	.0132	342.7914	.8083	12.8317	.2064	17.1086
	.280	.020	.483	-0.001	.0132	342.7914	.8083	12.8895	.2061	17.0873
	.300	.020	.483	0	.0132	342.7914	.8083	12.9479	.2061	17.0873
	.320	.020	.483	0	.0131	340.2352	.8022	12.9097	.2061	17.0873
	.340	.020	.484	.001	.0130	337.6789	.7962	12.8713	.2064	17.1086
	.360	.020	.484	0	.0129	335.1227	.7902	12.8324	.2064	17.1086
	.380	.020	.484	0	.0127	330.0102	.7781	12.6949	.2064	17.1086
06/09	.400	.020	.484	0	.0128	332.5665	.7842	12.8524	.2064	17.1086

PEAK STRESS = 12.1239 PSI

PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 11.7623 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13*M-DS-2S	2-23-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.983 LBS. DRY DENSITY = 91.413 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.844 LBS. WET DENSITY = 104.577 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 14.400 PER CENT

INITIAL CONSOLIDATION = .157 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 95.148 LBS./CU.FT.

INITIAL POROSITY = 19.098 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .236 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 100.00 PER CENT

INITIAL MOISTURE CONTENT = 14.40 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.344	.157	0	5.3684	.0063	.1899	.1875	15.7928
	.020	.020	.343	-0.001	.0080	209.8672	.2474	7.4543	.1872	15.7709
	.040	.020	.342	-0.001	.0093	243.0983	.2866	8.6715	.1869	15.7490
	.060	.020	.341	-0.001	.0103	268.6606	.3167	9.6246	.1866	15.7270
	.080	.020	.342	.001	.0126	327.4540	.3860	11.7815	.1869	15.7490
	.100	.020	.341	-0.001	.0148	383.6912	.4523	13.8647	.1866	15.7270
	.120	.020	.341	0	.0163	422.0347	.4976	15.3166	.1866	15.7270
	.140	.020	.342	.001	.0181	468.0469	.5518	17.0608	.1869	15.7490
	.160	.020	.341	-0.001	.0195	503.8342	.5940	18.4459	.1866	15.7270
	.180	.020	.340	-0.001	.0202	521.7279	.6151	19.1853	.1863	15.7051
	.200	.020	.340	0	.0212	547.2902	.6452	20.2144	.1863	15.7051
	.220	.020	.340	0	.0218	562.6276	.6633	20.8734	.1863	15.7051
	.240	.020	.340	0	.0223	575.4088	.6784	21.4430	.1863	15.7051
	.260	.020	.339	-0.001	.0229	590.7462	.6965	22.1133	.1860	15.6831
	.280	.020	.339	0	.0231	595.8587	.7025	22.4052	.1860	15.6831
	.300	.020	.339	0	.0235	606.0836	.7145	22.8929	.1860	15.6831
	.320	.020	.339	0	.0237	611.1961	.7206	23.1910	.1860	15.6831
	.340	.020	.339	0	.0238	613.7523	.7236	23.3943	.1860	15.6831
	.360	.020	.339	0	.0240	618.8648	.7296	23.6974	.1860	15.6831
	.380	.020	.338	-0.001	.0242	623.9772	.7356	24.0032	.1857	15.6611
	.400	.020	.338	0	.0241	621.4210	.7326	24.0155	.1857	15.6611
	.420	.020	.338	0	.0241	621.4210	.7326	24.1272	.1857	15.6611
	.440	.020	.338	0	.0240	618.8648	.7296	24.1401	.1857	15.6611
	.460	.020	.337	-0.001	.0241	621.4210	.7326	24.3535	.1854	15.6392
	.480	.020	.337	0	.0240	618.8648	.7296	24.3675	.1854	15.6392
	.500	.020	.337	0	.0241	621.4210	.7326	24.5840	.1854	15.6392
08/38	.520	.020	.337	0	.0240	618.8648	.7296	24.5992	.1854	15.6392

PEAK STRESS = 22.0689 PSI PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 21.8881 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-J-13*M-DS-3S	2-23-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.983 LBS. DRY DENSITY = 91.413 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.821 LBS. WET DENSITY = 104.211 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.810 MOISTURE CONTENT = 14.000 PER CENT

INITIAL CONSOLIDATION = .200 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 96.225 LBS./CU.FT.

INITIAL POROSITY = 19.098 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .236 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 100.00 PER CENT

INITIAL MOISTURE CONTENT = 14.00 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.336	.200	0	0	0	0	.1743	14.8400
	.020	.020	.335	-0.001	.0045	283.5000	.1671	10.0696	.1740	14.8176
	.040	.020	.333	-0.002	.0065	409.5000	.2414	14.6073	.1733	14.7727
	.060	.020	.330	-0.003	.0085	535.5000	.3157	19.1839	.1724	14.7053
	.080	.020	.328	-0.002	.0098	617.4000	.3639	22.2134	.1718	14.6603
	.100	.020	.324	-0.004	.0106	667.8000	.3936	24.1309	.1706	14.5702
	.120	.020	.322	-0.002	.0114	718.2000	.4234	26.0651	.1699	14.5251
	.140	.020	.320	-0.002	.0115	724.5000	.4271	26.4088	.1693	14.4799
	.160	.020	.319	-0.001	.0124	781.2000	.4605	28.6006	.1690	14.4573
	.180	.020	.317	-0.002	.0130	819.0000	.4828	30.1168	.1684	14.4121
	.200	.020	.315	-0.002	.0137	863.1000	.5088	31.8790	.1678	14.3668
	.220	.020	.313	-0.002	.0143	900.9000	.5311	33.4232	.1672	14.3214
	.240	.020	.311	-0.002	.0149	938.7000	.5533	34.9812	.1665	14.2760
	.260	.020	.310	-0.001	.0151	951.3000	.5608	35.6099	.1662	14.2533
	.280	.020	.308	-0.002	.0157	989.1000	.5830	37.1917	.1656	14.2079
	.300	.020	.307	-0.001	.0159	001.700*	.5905	37.8360	.1653	14.1851
	.320	.020	.306	-0.001	.0162	020.600*	.6016	38.7252	.1650	14.1623
	.340	.020	.305	-0.001	.0164	033.200*	.6090	39.3823	.1647	14.1396
	.360	.020	.304	-0.001	.0168	058.400*	.6239	40.5280	.1644	14.1168
	.380	.020	.302	-0.002	.0168	058.400*	.6239	40.7147	.1638	14.0712
	.400	.020	.301	-0.001	.0171	077.300*	.6350	41.6335	.1634	14.0483
	.420	.020	.300	-0.001	.0172	083.600*	.6387	42.0716	.1631	14.0255
	.440	.020	.298	-0.002	.0173	089.900*	.6425	42.5138	.1625	13.9798
	.460	.020	.297	-0.001	.0175	102.500*	.6499	43.2070	.1622	13.9569
	.480	.020	.295	-0.002	.0175	102.500*	.6499	43.4105	.1616	13.9112
	.500	.020	.295	0	.0176	108.800*	.6536	43.8651	.1616	13.9112
	.520	.020	.294	-0.001	.0175	102.500*	.6499	43.8232	.1613	13.8882
	.540	.020	.292	-0.002	.0177	115.100*	.6573	44.5356	.1607	13.8424
	.560	.020	.291	-0.001	.0174	096.200*	.6462	43.9907	.1604	13.8194
	.580	.020	.290	-0.001	.0175	102.500*	.6499	44.4566	.1600	13.7965
12/28	.600	.020	.289	-0.001	.0173	089.900*	.6425	44.1612	.1597	13.7735

PEAK STRESS = 39.4391 PSI PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 38.5478 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-K-8*-DS-1	04-2-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.533 LBS. DRY DENSITY = 99.816 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.794 LBS. WET DENSITY = 103.809 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.230 MOISTURE CONTENT = 4.000 PER CENT

INITIAL CONSOLIDATION = .077 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 101.775 LBS./CU.FT.

INITIAL POROSITY = 28.299 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .395 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 22.60 PER CENT

INITIAL MOISTURE CONTENT = 4.00 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.387	.077	0	5.3684	.0127	.1899	.3678	26.8918
	.020	.020	.389	.002	.0042	112.7303	.2658	4.0041	.3685	26.9291
	.040	.020	.388	-0.001	.0050	133.1802	.3140	4.7507	.3682	26.9104
	.060	.020	.389	.001	.0061	161.2987	.3803	5.7784	.3685	26.9291
	.080	.020	.389	0	.0077	202.1985	.4768	7.2749	.3685	26.9291
	.100	.020	.388	-0.001	.0093	243.0983	.5732	8.7843	.3682	26.9104
	.120	.020	.388	0	.0103	268.6606	.6335	9.7503	.3682	26.9104
	.140	.020	.388	0	.0114	296.7792	.6998	10.8179	.3682	26.9104
	.160	.020	.389	.001	.0120	312.1166	.7359	11.4269	.3685	26.9291
	.180	.020	.389	0	.0126	327.4540	.7721	12.0413	.3685	26.9291
	.200	.020	.389	0	.0131	340.2352	.8022	12.5668	.3685	26.9291
	.220	.020	.390	.001	.0134	347.9039	.8203	12.9072	.3689	26.9477
	.240	.020	.390	0	.0139	360.6851	.8505	13.4411	.3689	26.9477
	.260	.020	.391	.001	.0142	368.3538	.8685	13.7885	.3692	26.9663
	.280	.020	.392	.001	.0143	370.9100	.8746	13.9468	.3696	26.9849
	.300	.020	.393	.001	.0144	373.4662	.8806	14.1065	.3699	27.0034
	.320	.020	.394	.001	.0145	376.0225	.8866	14.2676	.3703	27.0220
	.340	.020	.395	.001	.0148	383.6912	.9047	14.6251	.3706	27.0406
	.360	.020	.396	.001	.0148	383.6912	.9047	14.6922	.3710	27.0591
	.380	.020	.398	.002	.0149	386.2474	.9107	14.8582	.3717	27.0962
	.400	.020	.398	0	.0147	381.1349	.8987	14.7294	.3717	27.0962
	.420	.020	.399	.001	.0148	383.6912	.9047	14.8971	.3720	27.1148
	.440	.020	.401	.002	.0148	383.6912	.9047	14.9667	.3727	27.1518
	.460	.020	.401	0	.0148	383.6912	.9047	15.0369	.3727	27.1518
	.480	.020	.402	.001	.0148	383.6912	.9047	15.1077	.3731	27.1703
08/49	.500	.020	.403	.001	.0147	381.1349	.8987	15.0780	.3734	27.1888

PEAK STRESS = 13.6609 PSI PEAK SATURATION = 24.00 PERCENT

ULTIMATE STRESS = 13.4801 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-K-8*-DS-2	04-2-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.533 LBS. DRY DENSITY = 99.816 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.794 LBS. WET DENSITY = 103.809 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.230 MOISTURE CONTENT = 4.000 PER CENT

INITIAL CONSOLIDATION = .110 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 102.639 LBS./CU.FT.

INITIAL POROSITY = 28.299 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .395 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 22.60 PER CENT

INITIAL MOISTURE CONTENT = 4.00 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.357	.110	0	5.3684	.0063	.1899	.3563	26.2716
	.020	.020	.357	0	.0067	176.6362	.2082	6.2739	.3563	26.2716
	.040	.020	.356	-0.001	.0098	255.8794	.3017	9.1275	.3560	26.2526
	.060	.020	.356	0	.0111	289.1105	.3408	10.3572	.3560	26.2526
	.080	.020	.354	-0.002	.0131	340.2352	.4011	12.2413	.3553	26.2147
	.100	.020	.354	0	.0140	363.2413	.4282	13.1257	.3553	26.2147
	.120	.020	.353	-0.001	.0148	383.6912	.4523	13.9250	.3549	26.1957
	.140	.020	.352	-0.001	.0163	422.0347	.4976	15.3836	.3546	26.1767
	.160	.020	.351	-0.001	.0173	447.5970	.5277	16.3870	.3542	26.1577
	.180	.020	.350	-0.001	.0183	473.1594	.5578	17.3993	.3539	26.1387
	.200	.020	.349	-0.001	.0196	506.3904	.5970	18.7038	.3535	26.1197
	.220	.020	.348	-0.001	.0208	537.0653	.6332	19.9250	.3532	26.1006
	.240	.020	.347	-0.001	.0218	562.6276	.6633	20.9667	.3528	26.0816
	.260	.020	.347	0	.0223	575.4088	.6784	21.5392	.3528	26.0816
	.280	.020	.347	0	.0228	588.1900	.6934	22.1169	.3528	26.0816
	.300	.020	.347	0	.0238	613.7523	.7236	23.1825	.3528	26.0816
	.320	.020	.347	0	.0243	626.5335	.7386	23.7729	.3528	26.0816
	.340	.020	.347	0	.0248	639.3147	.7537	24.3687	.3528	26.0816
	.360	.020	.346	-0.001	.0254	654.6521	.7718	25.0678	.3525	26.0625
	.380	.020	.347	.001	.0259	667.4332	.7869	25.6749	.3528	26.0816
	.400	.020	.347	0	.0262	675.1019	.7959	26.0901	.3528	26.0816
	.420	.020	.349	.002	.0266	685.3269	.8080	26.6084	.3535	26.1197
	.440	.020	.349	0	.0267	687.8831	.8110	26.8323	.3535	26.1197
	.460	.020	.349	0	.0270	695.5518	.8200	27.2587	.3535	26.1197
	.480	.020	.349	0	.0270	695.5518	.8200	27.3871	.3535	26.1197
	.500	.020	.350	.001	.0273	703.2205	.8291	27.8200	.3539	26.1387
	.520	.020	.350	0	.0275	708.3330	.8351	28.1555	.3539	26.1387
	.540	.020	.350	0	.0275	708.3330	.8351	28.2899	.3539	26.1387
	.560	.020	.351	.001	.0277	713.4455	.8411	28.6307	.3542	26.1577
	.580	.020	.351	0	.0278	716.0017	.8441	28.8717	.3542	26.1577
	.600	.020	.351	0	.0278	716.0017	.8441	29.0114	.3542	26.1577
	.620	.020	.351	0	.0275	708.3330	.8351	28.8402	.3542	26.1577
	.640	.020	.351	0	.0275	708.3330	.8351	28.9810	.3542	26.1577
	.660	.020	.352	.001	.0273	703.2205	.8291	28.9129	.3546	26.1767
	.680	.020	.352	0	.0270	695.5518	.8200	28.7385	.3546	26.1767
12/44	.700	.020	.353	.001	.0272	700.6643	.8260	29.0930	.3549	26.1957

PEAK STRESS = 25.3237 PSI PEAK SATURATION = 25.18 PERCENT

ULTIMATE STRESS = 24.7812 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-K-8*-DS-3	04-2-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.533 LBS. DRY DENSITY = 99.816 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.794 LBS. WET DENSITY = 103.809 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.230 MOISTURE CONTENT = 4.000 PER CENT

INITIAL CONSOLIDATION = .207 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 105.264 LBS./CU.FT.

INITIAL POROSITY = 28.299 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .395 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 22.60 PER CENT

INITIAL MOISTURE CONTENT = 4.00 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.244	.207	0	0	0	0	.3225	24.3861
	.020	.020	.246	.002	.0034	214.2000	.1263	7.6082	.3232	24.4260
	.040	.020	.245	-0.001	.0051	321.3000	.1894	11.4611	.3229	24.4060
	.060	.020	.242	-0.003	.0064	403.2000	.2377	14.4444	.3218	24.3462
	.080	.020	.240	-0.002	.0073	459.9000	.2711	16.5467	.3211	24.3063
	.100	.020	.238	-0.002	.0082	516.6000	.3045	18.6673	.3204	24.2663
	.120	.020	.235	-0.003	.0082	516.6000	.3045	18.7486	.3194	24.2063
	.140	.020	.233	-0.002	.0094	592.2000	.3491	21.5863	.3187	24.1662
	.160	.020	.231	-0.002	.0105	661.5000	.3899	24.2182	.3180	24.1261
	.180	.020	.229	-0.002	.0114	718.2000	.4234	26.4101	.3173	24.0859
	.200	.020	.227	-0.002	.0121	762.3000	.4494	28.1559	.3166	24.0457
	.220	.020	.224	-0.003	.0130	819.0000	.4828	30.3848	.3155	23.9853
	.240	.020	.222	-0.002	.0136	856.8000	.5051	31.9292	.3148	23.9450
	.260	.020	.220	-0.002	.0142	894.6000	.5273	33.4874	.3141	23.9046
	.280	.020	.218	-0.002	.0150	945.0000	.5570	35.5335	.3134	23.8642
	.300	.020	.217	-0.001	.0154	970.2000	.5719	36.6462	.3131	23.8440
	.320	.020	.216	-0.001	.0161	014.300*	.5979	38.4862	.3127	23.8238
	.340	.020	.214	-0.002	.0166	045.800*	.6165	39.8626	.3120	23.7833
	.360	.020	.213	-0.001	.0170	071.000*	.6313	41.0104	.3117	23.7630
	.380	.020	.212	-0.001	.0174	096.200*	.6462	42.1688	.3114	23.7428
	.400	.020	.212	0	.0177	115.100*	.6573	43.0943	.3114	23.7428
	.420	.020	.211	-0.001	.0182	146.600*	.6759	44.5177	.3110	23.7225
	.440	.020	.210	-0.001	.0186	171.800*	.6907	45.7085	.3107	23.7022
	.460	.020	.210	0	.0188	184.400*	.6982	46.4166	.3107	23.7022
	.480	.020	.209	-0.001	.0189	190.700*	.7019	46.8833	.3103	23.6819
	.500	.020	.208	-0.001	.0194	222.200*	.7204	48.3513	.3100	23.6616
	.520	.020	.208	0	.0195	228.500*	.7242	48.8315	.3100	23.6616
	.540	.020	.208	0	.0197	241.100*	.7316	49.5679	.3100	23.6616
	.560	.020	.208	0	.0199	253.700*	.7390	50.3112	.3100	23.6616
	.580	.020	.208	0	.0201	266.300*	.7464	51.0616	.3100	23.6616
	.600	.020	.208	0	.0202	272.600*	.7502	51.5640	.3100	23.6616
	.620	.020	.208	0	.0203	278.900*	.7539	52.0711	.3100	23.6616
	.640	.020	.207	-0.001	.0204	285.200*	.7576	52.5831	.3096	23.6413
	.660	.020	.207	0	.0205	291.500*	.7613	53.1000	.3096	23.6413
	.680	.020	.208	.001	.0204	285.200*	.7576	53.1014	.3100	23.6616
	.700	.020	.208	0	.0205	291.500*	.7613	53.6258	.3100	23.6616
	.720	.020	.208	0	.0205	291.500*	.7613	53.8924	.3100	23.6616
	.740	.020	.208	0	.0204	285.200*	.7576	53.8974	.3100	23.6616
	.760	.020	.208	0	.0204	285.200*	.7576	54.1679	.3100	23.6616
	.780	.020	.208	0	.0204	285.200*	.7576	54.4409	.3100	23.6616
16/00	.800	.020	.208	0	.0204	285.200*	.7576	54.7166	.3100	23.6616

PEAK STRESS = 45.6780 PSI PEAK SATURATION = 28.81 PERCENT

ULTIMATE STRESS = 45.4552 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-K-8*-DS-1S	04-02-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.533 LBS. DRY DENSITY = 99.816 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 7.408 LBS. WET DENSITY = 113.192 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.230 MOISTURE CONTENT = 13.400 PER CENT

INITIAL CONSOLIDATION = .107 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 102.560 LBS./CU.FT.

INITIAL POROSITY = 28.299 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .395 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 89.27 PER CENT

INITIAL MOISTURE CONTENT = 15.80 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.409	.107	0	5.3684	.0127	.1899	.3574	26.3285
	.020	.020	.407	-0.002	.0043	115.2865	.2718	4.0949	.3567	26.2906
	.040	.020	.404	-0.003	.0064	168.9674	.3984	6.0272	.3556	26.2337
	.060	.020	.402	-0.002	.0074	194.5298	.4587	6.9689	.3549	26.1958
	.080	.020	.401	-0.001	.0080	209.8672	.4948	7.5508	.3546	26.1768
	.100	.020	.400	-0.001	.0086	225.2046	.5310	8.1378	.3542	26.1578
	.120	.020	.398	-0.002	.0094	245.6545	.5792	8.9154	.3535	26.1197
	.140	.020	.397	-0.001	.0098	255.8794	.6033	9.3271	.3532	26.1007
	.160	.020	.397	0	.0105	273.7731	.6455	10.0231	.3532	26.1007
	.180	.020	.397	0	.0108	281.4419	.6636	10.3493	.3532	26.1007
	.200	.020	.397	0	.0114	296.7792	.6998	10.9617	.3532	26.1007
	.220	.020	.396	-0.001	.0117	304.4479	.7179	11.2950	.3528	26.0816
	.240	.020	.395	-0.001	.0120	312.1166	.7359	11.6312	.3525	26.0626
	.260	.020	.395	0	.0121	314.6728	.7420	11.7791	.3525	26.0626
	.280	.020	.395	0	.0124	322.3415	.7600	12.1206	.3525	26.0626
	.300	.020	.395	0	.0128	332.5665	.7842	12.5616	.3525	26.0626
	.320	.020	.395	0	.0129	335.1227	.7902	12.7158	.3525	26.0626
	.340	.020	.395	0	.0132	342.7914	.8083	13.0661	.3525	26.0626
	.360	.020	.395	0	.0135	350.4601	.8263	13.4197	.3525	26.0626
	.380	.020	.395	0	.0136	353.0164	.8324	13.5799	.3525	26.0626
	.400	.020	.396	.001	.0138	358.1288	.8444	13.8403	.3528	26.0816
	.420	.020	.396	0	.0138	358.1288	.8444	13.9046	.3528	26.0816
	.440	.020	.396	0	.0140	363.2413	.8565	14.1690	.3528	26.0816
	.460	.020	.397	.001	.0141	365.7975	.8625	14.3356	.3532	26.1007
	.480	.020	.397	0	.0142	368.3538	.8685	14.5038	.3532	26.1007
	.500	.020	.397	0	.0141	365.7975	.8625	14.4713	.3532	26.1007
	.520	.020	.398	.001	.0141	365.7975	.8625	14.5401	.3535	26.1197
	.540	.020	.398	0	.0141	365.7975	.8625	14.6095	.3535	26.1197
	.560	.020	.397	-0.001	.0141	365.7975	.8625	14.6795	.3532	26.1007
	.580	.020	.397	0	.0138	358.1288	.8444	14.4410	.3532	26.1007
11/12	.600	.020	.397	0	.0137	355.5726	.8384	14.4073	.3532	26.1007

PEAK STRESS = 13.0280 PSI PEAK SATURATION = 84.61 PERCENT

ULTIMATE STRESS = 12.5760 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-K-8*-DS-2S	03-30-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.533 LBS. DRY DENSITY = 99.816 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 7.265 LBS. WET DENSITY = 110.996 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.230 MOISTURE CONTENT = 11.200 PER CENT

INITIAL CONSOLIDATION = 0 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 99.816 LBS./CU.FT.

INITIAL POROSITY = 28.299 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .395 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 86.45 PER CENT

INITIAL MOISTURE CONTENT = 15.30 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.673	0	0	5.3684	.0063	.1899	.3947	28.2992
	.020	.020	.672	-0.001	.0044	117.8428	.1389	4.1856	.3943	28.2813
	.040	.020	.670	-0.002	.0084	220.0921	.2595	7.8509	.3936	28.2454
	.060	.020	.668	-0.002	.0106	276.3293	.3258	9.8993	.3929	28.2095
	.080	.020	.665	-0.003	.0119	309.5604	.3650	11.1377	.3919	28.1555
	.100	.020	.662	-0.003	.0131	340.2352	.4011	12.2944	.3908	28.1015
	.120	.020	.661	-0.001	.0136	353.0164	.4162	12.8118	.3905	28.0835
	.140	.020	.660	-0.001	.0141	365.7975	.4313	13.3337	.3902	28.0654
	.160	.020	.658	-0.002	.0154	399.0286	.4704	14.6089	.3895	28.0293
	.180	.020	.655	-0.003	.0162	419.4785	.4945	15.4253	.3884	27.9751
	.200	.020	.654	-0.001	.0173	447.5970	.5277	16.5322	.3881	27.9570
	.220	.020	.652	-0.002	.0179	462.9345	.5458	17.1748	.3874	27.9208
	.240	.020	.650	-0.002	.0186	480.8281	.5669	17.9184	.3867	27.8845
	.260	.020	.649	-0.001	.0195	503.8342	.5940	18.8600	.3863	27.8664
	.280	.020	.647	-0.002	.0202	521.7279	.6151	19.6178	.3856	27.8301
	.300	.020	.645	-0.002	.0208	537.0653	.6332	20.2859	.3849	27.7938
	.320	.020	.644	-0.001	.0215	554.9589	.6543	21.0571	.3846	27.7756
	.340	.020	.643	-0.001	.0218	562.6276	.6633	21.4456	.3842	27.7574
	.360	.020	.641	-0.002	.0226	583.0775	.6874	22.3270	.3835	27.7210
	.380	.020	.641	0	.0231	595.8587	.7025	22.9216	.3835	27.7210
	.400	.020	.640	-0.001	.0237	611.1961	.7206	23.6204	.3832	27.7028
	.420	.020	.638	-0.002	.0243	626.5335	.7386	24.3257	.3825	27.6663
	.440	.020	.638	0	.0245	631.6459	.7447	24.6387	.3825	27.6663
	.460	.020	.637	-0.001	.0248	639.3147	.7537	25.0547	.3821	27.6480
	.480	.020	.636	-0.001	.0252	649.5396	.7658	25.5754	.3818	27.6298
	.500	.020	.635	-0.001	.0254	654.6521	.7718	25.8986	.3814	27.6115
	.520	.020	.634	-0.001	.0258	664.8770	.7838	26.4281	.3811	27.5932
	.540	.020	.634	0	.0261	672.5457	.7929	26.8606	.3811	27.5932
	.560	.020	.634	0	.0263	677.6582	.7989	27.1945	.3811	27.5932
	.580	.020	.633	-0.001	.0267	687.8831	.8110	27.7378	.3807	27.5750
	.600	.020	.633	0	.0266	685.3269	.8080	27.7685	.3807	27.5750
	.620	.020	.632	-0.001	.0268	690.4393	.8140	28.1116	.3804	27.5567
	.640	.020	.632	0	.0269	692.9956	.8170	28.3534	.3804	27.5567
	.660	.020	.631	-0.001	.0270	695.5518	.8200	28.5976	.3800	27.5384
	.680	.020	.631	0	.0268	690.4393	.8140	28.5273	.3800	27.5384
	.700	.020	.631	0	.0268	690.4393	.8140	28.6685	.3800	27.5384
	.720	.020	.630	-0.001	.0268	690.4393	.8140	28.8110	.3797	27.5200
	.740	.020	.630	0	.0269	692.9956	.8170	29.0621	.3797	27.5200
	.760	.020	.630	0	.0270	695.5518	.8200	29.3157	.3797	27.5200
	.780	.020	.629	-0.001	.0270	695.5518	.8200	29.4635	.3793	27.5017
15/17	.800	.020	.629	0	.0269	692.9956	.8170	29.5039	.3793	27.5017

PEAK STRESS = 24.6004 PSI PEAK SATURATION = 65.72 PERCENT

ULTIMATE STRESS = 24.5100 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-K-R*-DS-3S	04-02-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.533 LBS. DRY DENSITY = 99.816 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 7.251 LBS. WET DENSITY = 110.796 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.230 MOISTURE CONTENT = 11.000 PER CENT

INITIAL CONSOLIDATION = 0 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 99.816 LBS./CU.FT.

INITIAL POROSITY = 28.299 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .395 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 86.45 PER CENT

INITIAL MOISTURE CONTENT = 15.30 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.536	0	0	0	0	0	.3947	28.2992
	.020	.020	.536	0	.0040	252.0000	.1485	8.9508	.3947	28.2992
	.040	.020	.536	0	.0052	327.6000	.1931	11.6858	.3947	28.2992
	.060	.020	.535	-0.001	.0065	409.5000	.2414	14.6701	.3943	28.2813
	.080	.020	.532	-0.003	.0069	434.7000	.2562	15.6401	.3933	28.2275
	.100	.020	.529	-0.003	.0073	459.9000	.2711	16.6185	.3922	28.1735
	.120	.020	.527	-0.002	.0081	510.3000	.3008	18.5200	.3915	28.1375
	.140	.020	.525	-0.002	.0089	560.7000	.3305	20.4381	.3908	28.1015
	.160	.020	.523	-0.002	.0096	604.8000	.3565	22.1424	.3902	28.0654
	.180	.020	.521	-0.002	.0105	661.5000	.3899	24.3251	.3895	28.0293
	.200	.020	.519	-0.002	.0113	711.9000	.4196	26.2944	.3888	27.9932
	.220	.020	.516	-0.003	.0119	749.7000	.4419	27.8137	.3877	27.9389
	.240	.020	.514	-0.002	.0126	793.8000	.4679	29.5814	.3870	27.9027
	.260	.020	.513	-0.001	.0133	837.9000	.4939	31.3650	.3867	27.8846
	.280	.020	.509	-0.004	.0138	869.4000	.5125	32.6908	.3853	27.8120
	.300	.020	.505	-0.004	.0144	907.2000	.5348	34.2666	.3839	27.7392
	.320	.020	.503	-0.002	.0149	938.7000	.5533	35.6176	.3832	27.7028
	.340	.020	.501	-0.002	.0153	963.9000	.5682	36.7408	.3825	27.6663
	.360	.020	.500	-0.001	.0156	982.8000	.5793	37.6331	.3821	27.6481
	.380	.020	.498	-0.002	.0162	020.600*	.6016	39.2606	.3814	27.6115
	.400	.020	.497	-0.001	.0166	045.800*	.6165	40.4162	.3811	27.5933
	.420	.020	.495	-0.002	.0171	077.300*	.6350	41.8270	.3804	27.5567
	.440	.020	.495	0	.0175	102.500*	.6499	43.0053	.3804	27.5567
	.460	.020	.493	-0.002	.0179	127.700*	.6647	44.1945	.3797	27.5201
	.480	.020	.493	0	.0183	152.900*	.6796	45.3950	.3797	27.5201
	.500	.020	.492	-0.001	.0187	178.100*	.6945	46.6067	.3793	27.5017
	.520	.020	.492	0	.0191	203.300*	.7093	47.8299	.3793	27.5017
	.540	.020	.491	-0.001	.0194	222.200*	.7204	48.8130	.3790	27.4834
	.560	.020	.491	0	.0194	222.200*	.7204	49.0471	.3790	27.4834
	.580	.020	.491	0	.0196	234.800*	.7279	49.7914	.3790	27.4834
	.600	.020	.491	0	.0199	253.700*	.7390	50.7982	.3790	27.4834
	.620	.020	.490	-0.001	.0201	266.300*	.7464	51.5581	.3786	27.4651
	.640	.020	.490	0	.0202	272.600*	.7502	52.0676	.3786	27.4651
	.660	.020	.490	0	.0204	285.200*	.7576	52.8410	.3786	27.4651
	.680	.020	.490	0	.0205	291.500*	.7613	53.3617	.3786	27.4651
	.700	.020	.490	0	.0206	297.800*	.7650	53.8874	.3786	27.4651
	.720	.020	.490	0	.0206	297.800*	.7650	54.1553	.3786	27.4651
	.740	.020	.490	0	.0205	291.500*	.7613	54.1616	.3786	27.4651
	.760	.020	.490	0	.0204	285.200*	.7576	54.1679	.3786	27.4651
	.780	.020	.490	0	.0205	291.500*	.7613	54.7078	.3786	27.4651
19/32	.800	.020	.490	0	.0204	285.200*	.7576	54.7166	.3786	27.4651

PEAK STRESS = 45.9008 PSI PEAK SATURATION = 64.78 PERCENT

ULTIMATE STRESS = 45.4552 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*-DS-1	3-1-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.673 LBS. DRY DENSITY = 86.671 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.985 LBS. WET DENSITY = 91.438 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 5.500 PER CENT

INITIAL CONSOLIDATION = .089 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 88.643 LBS./CU.FT.

INITIAL POROSITY = 29.165 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .412 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 26.18 PER CENT

INITIAL MOISTURE CONTENT = 5.50 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.445	.089	0	5.3684	.0127	.1899	.3803	27.5534
	.020	.020	.443	-0.002	.0038	102.5053	.2417	3.6409	.3796	27.5163
	.040	.020	.440	-0.003	.0052	138.2926	.3261	4.9330	.3786	27.4606
	.060	.020	.437	-0.003	.0062	163.8550	.3864	5.8700	.3775	27.4049
	.080	.020	.434	-0.003	.0070	184.3049	.4346	6.6311	.3764	27.3490
	.100	.020	.432	-0.002	.0074	194.5298	.4587	7.0293	.3757	27.3118
	.120	.020	.429	-0.003	.0080	209.8672	.4948	7.6166	.3747	27.2558
	.140	.020	.427	-0.002	.0083	217.5359	.5129	7.9294	.3740	27.2184
	.160	.020	.424	-0.003	.0089	232.8733	.5491	8.5257	.3729	27.1623
	.180	.020	.421	-0.003	.0091	237.9858	.5611	8.7514	.3719	27.1061
	.200	.020	.419	-0.002	.0094	245.6545	.5792	9.0734	.3712	27.0685
	.220	.020	.416	-0.003	.0097	253.3232	.5973	9.3982	.3701	27.0122
	.240	.020	.414	-0.002	.0099	258.4357	.6094	9.6308	.3694	26.9745
	.260	.020	.412	-0.002	.0102	266.1044	.6274	9.9610	.3687	26.9369
	.280	.020	.410	-0.002	.0104	271.2168	.6395	10.1982	.3680	26.8992
	.300	.020	.408	-0.002	.0106	276.3293	.6516	10.4375	.3673	26.8614
	.320	.020	.406	-0.002	.0107	278.8855	.6576	10.5819	.3666	26.8237
	.340	.020	.404	-0.002	.0110	286.5542	.6757	10.9226	.3659	26.7858
	.360	.020	.403	-0.001	.0111	289.1105	.6817	11.0705	.3655	26.7669
	.380	.020	.401	-0.002	.0112	291.6667	.6877	11.2199	.3648	26.7290
	.400	.020	.398	-0.003	.0113	294.2230	.6937	11.3706	.3637	26.6722
	.420	.020	.398	0	.0113	294.2230	.6937	11.4234	.3637	26.6722
	.440	.020	.396	-0.002	.0115	299.3354	.7058	11.6762	.3630	26.6342
	.460	.020	.394	-0.002	.0117	304.4479	.7179	11.9313	.3623	26.5962
	.480	.020	.394	0	.0117	304.4479	.7179	11.9875	.3623	26.5962
	.500	.020	.392	-0.002	.0119	309.5604	.7299	12.2465	.3616	26.5581
	.520	.020	.390	-0.002	.0118	307.0041	.7239	12.2031	.3609	26.5200
	.540	.020	.390	0	.0119	309.5604	.7299	12.3634	.3609	26.5200
	.560	.020	.386	-0.004	.0122	317.2291	.7480	12.7305	.3595	26.4437
	.580	.020	.386	0	.0122	317.2291	.7480	12.7918	.3595	26.4437
	.600	.020	.385	-0.001	.0121	314.6728	.7420	12.7501	.3592	26.4246
	.620	.020	.384	-0.001	.0120	312.1166	.7359	12.7080	.3588	26.4055
	.640	.020	.383	-0.001	.0120	312.1166	.7359	12.7700	.3584	26.3864
11/46	.660	.020	.382	-0.001	.0120	312.1166	.7359	12.8327	.3581	26.3673

PEAK STRESS = 11.2198 PSI PEAK SATURATION = 29.99 PERCENT

ULTIMATE STRESS = 11.0390 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*-DS-2	3-2-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.673 LBS. DRY DENSITY = 86.671 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.985 LBS. WET DENSITY = 91.438 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 5.500 PER CENT

INITIAL CONSOLIDATION = 0 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 86.671 LBS./CU.FT.

INITIAL POROSITY = 29.165 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .412 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 26.18 PER CENT

INITIAL MOISTURE CONTENT = 5.50 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.659	0	0	5.3684	.0063	.1899	.4117	29.1653
	.020	.020	.657	-0.002	.0067	176.6362	.2082	6.2739	.4110	29.1299
	.040	.020	.654	-0.003	.0093	243.0983	.2866	8.6715	.4100	29.0767
	.060	.020	.650	-0.004	.0111	289.1105	.3408	10.3572	.4086	29.0056
	.080	.020	.647	-0.003	.0121	314.6728	.3710	11.3216	.4075	28.9522
	.100	.020	.644	-0.003	.0127	330.0102	.3891	11.9249	.4064	28.8987
	.120	.020	.641	-0.003	.0138	358.1288	.4222	12.9973	.4054	28.8451
	.140	.020	.638	-0.003	.0149	386.2474	.4554	14.0791	.4043	28.7915
	.160	.020	.635	-0.003	.0155	401.5848	.4734	14.7025	.4033	28.7377
	.180	.020	.633	-0.002	.0163	422.0347	.4976	15.5193	.4026	28.7019
	.200	.020	.631	-0.002	.0169	437.3721	.5156	16.1546	.4019	28.6660
	.220	.020	.629	-0.002	.0178	460.3782	.5428	17.0800	.4011	28.6300
	.240	.020	.626	-0.003	.0185	478.2719	.5639	17.8231	.4001	28.5761
	.260	.020	.625	-0.001	.0192	496.1655	.5849	18.5729	.3997	28.5580
	.280	.020	.623	-0.002	.0199	514.0591	.6060	19.3294	.3990	28.5220
	.300	.020	.622	-0.001	.0204	526.8403	.6211	19.8997	.3987	28.5040
	.320	.020	.621	-0.001	.0209	539.6215	.6362	20.4752	.3983	28.4859
	.340	.020	.620	-0.001	.0212	547.2902	.6452	20.8610	.3980	28.4679
	.360	.020	.619	-0.001	.0218	562.6276	.6633	21.5440	.3976	28.4498
	.380	.020	.618	-0.001	.0222	572.8525	.6754	22.0366	.3973	28.4317
	.400	.020	.617	-0.001	.0224	577.9650	.6814	22.3361	.3969	28.4136
	.420	.020	.616	-0.001	.0229	590.7462	.6965	22.9362	.3966	28.3956
	.440	.020	.616	0	.0230	593.3024	.6995	23.1430	.3966	28.3956
	.460	.020	.615	-0.001	.0233	600.9711	.7085	23.5521	.3962	28.3775
	.480	.020	.615	0	.0233	600.9711	.7085	23.6630	.3962	28.3775
	.500	.020	.614	-0.001	.0233	600.9711	.7085	23.7750	.3959	28.3593
	.520	.020	.614	0	.0233	600.9711	.7085	23.8879	.3959	28.3593
	.540	.020	.614	0	.0231	595.8587	.7025	23.7978	.3959	28.3593
	.560	.020	.613	-0.001	.0233	600.9711	.7085	24.1171	.3955	28.3412
	.580	.020	.614	.001	.0233	600.9711	.7085	24.2332	.3959	28.3593
	.600	.020	.613	-0.001	.0233	600.9711	.7085	24.3505	.3955	28.3412
	.620	.020	.613	0	.0233	600.9711	.7085	24.4689	.3955	28.3412
	.640	.020	.613	0	.0233	600.9711	.7085	24.5883	.3955	28.3412

PEAK STRESS = 21.2553 PSI PEAK SATURATION = 27.21 PERCENT

ULTIMATE STRESS = 21.2553 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*-DS-3	3-5-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.673 LBS. DRY DENSITY = 86.671 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.985 LBS. WET DENSITY = 91.438 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 5.500 PER CENT

INITIAL CONSOLIDATION = 0 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 86.671 LBS./CU.FT.

INITIAL POROSITY = 29.165 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .412 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 26.18 PER CENT

INITIAL MOISTURE CONTENT = 5.50 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.552	0	0	0	0	0	.4117	29.1653
	.020	.020	.552	0	.0038	239.4000	.1411	8.5032	.4117	29.1653
	.040	.020	.549	-0.003	.0052	327.6000	.1931	11.6858	.4107	29.1121
	.060	.020	.546	-0.003	.0066	415.8000	.2451	14.8957	.4096	29.0589
	.080	.020	.542	-0.004	.0075	472.5000	.2785	17.0001	.4082	28.9878
	.100	.020	.537	-0.005	.0085	535.5000	.3157	19.3503	.4064	28.8987
	.120	.020	.533	-0.004	.0093	585.9000	.3454	21.2637	.4050	28.8272
	.140	.020	.529	-0.004	.0100	630.0000	.3714	22.9641	.4036	28.7557
	.160	.020	.526	-0.003	.0104	655.2000	.3862	23.9876	.4026	28.7019
	.180	.020	.522	-0.004	.0112	705.6000	.4159	25.9467	.4011	28.6300
	.200	.020	.519	-0.003	.0117	737.1000	.4345	27.2252	.4001	28.5761
	.220	.020	.517	-0.002	.0122	768.6000	.4531	28.5149	.3994	28.5400
	.240	.020	.514	-0.003	.0127	800.1000	.4716	29.8162	.3983	28.4859
	.260	.020	.511	-0.003	.0132	831.6000	.4902	31.1292	.3973	28.4317
	.280	.020	.508	-0.003	.0136	856.8000	.5051	32.2170	.3962	28.3775
	.300	.020	.505	-0.003	.0143	900.9000	.5311	34.0286	.3951	28.3231
	.320	.020	.503	-0.002	.0147	926.1000	.5459	35.1395	.3944	28.2868
	.340	.020	.500	-0.003	.0151	951.3000	.5608	36.2606	.3934	28.2323
	.360	.020	.498	-0.002	.0155	976.5000	.5756	37.3919	.3927	28.1960
	.380	.020	.495	-0.003	.0158	995.4000	.5868	38.2912	.3916	28.1413
	.400	.020	.493	-0.002	.0163	026.900*	.6053	39.6857	.3909	28.1049
	.420	.020	.491	-0.002	.0165	039.500*	.6128	40.3594	.3902	28.0683
	.440	.020	.489	-0.002	.0167	052.100*	.6202	41.0393	.3895	28.0318
	.460	.020	.487	-0.002	.0170	071.000*	.6313	41.9725	.3888	27.9952
	.480	.020	.486	-0.001	.0171	077.300*	.6350	42.4182	.3884	27.9769
	.500	.020	.484	-0.002	.0174	096.200*	.6462	43.3666	.3877	27.9403
	.520	.020	.482	-0.002	.0177	115.100*	.6573	44.3240	.3870	27.9036
	.540	.020	.481	-0.001	.0177	115.100*	.6573	44.5356	.3867	27.8853
	.560	.020	.479	-0.002	.0179	127.700*	.6647	45.2548	.3860	27.8485
	.580	.020	.478	-0.001	.0180	134.000*	.6685	45.7268	.3856	27.8302
	.600	.020	.477	-0.001	.0180	134.000*	.6685	45.9481	.3853	27.8118
	.620	.020	.476	-0.001	.0182	146.600*	.6759	46.6844	.3849	27.7934
	.640	.020	.475	-0.001	.0181	140.300*	.6722	46.6546	.3846	27.7750
	.660	.020	.473	-0.002	.0181	140.300*	.6722	46.8834	.3839	27.7381
	.680	.020	.473	0	.0180	134.000*	.6685	46.8541	.3839	27.7381
13/42	.700	.020	.472	-0.001	.0180	134.000*	.6685	47.0860	.3835	27.7197

PEAK STRESS = 40.5532 PSI PEAK SATURATION = 28.01 PERCENT

ULTIMATE STRESS = 40.1075 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*-DS-1S	3-1-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.673 LBS. DRY DENSITY = 86.671 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.416 LBS. WET DENSITY = 98.025 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 13.100 PER CENT

INITIAL CONSOLIDATION = .053 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 87.835 LBS./CU.FT.

INITIAL POROSITY = 29.165 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .412 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 73.31 PER CENT

INITIAL MOISTURE CONTENT = 15.40 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. */LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.471	.053	0	5.3684	.0127	.1899	.3930	28.2142
	.020	.020	.467	-0.004	.0027	74.3868	.1754	2.6421	.3916	28.1413
	.040	.020	.463	-0.004	.0037	99.9491	.2357	3.5653	.3902	28.0684
	.060	.020	.456	-0.007	.0046	122.9552	.2899	4.4048	.3877	27.9403
	.080	.020	.451	-0.005	.0053	140.8489	.3321	5.0676	.3860	27.8486
	.100	.020	.446	-0.005	.0059	156.1863	.3683	5.6438	.3842	27.7566
	.120	.020	.444	-0.002	.0059	156.1863	.3683	5.6684	.3835	27.7197
	.140	.020	.442	-0.002	.0066	174.0799	.4105	6.3454	.3828	27.6828
	.160	.020	.439	-0.003	.0070	184.3049	.4346	6.7476	.3817	27.6274
	.180	.020	.435	-0.004	.0074	194.5298	.4587	7.1534	.3803	27.5534
	.200	.020	.431	-0.004	.0080	209.8672	.4948	7.7515	.3789	27.4792
	.220	.020	.428	-0.003	.0083	217.5359	.5129	8.0705	.3779	27.4235
	.240	.020	.424	-0.004	.0087	227.7608	.5370	8.4876	.3764	27.3490
	.260	.020	.421	-0.003	.0091	237.9858	.5611	8.9085	.3754	27.2931
	.280	.020	.419	-0.002	.0089	232.8733	.5491	8.7564	.3747	27.2558
	.300	.020	.416	-0.003	.0095	248.2107	.5853	9.3754	.3736	27.1997
	.320	.020	.414	-0.002	.0098	255.8794	.6033	9.7090	.3729	27.1623
	.340	.020	.411	-0.003	.0101	263.5481	.6214	10.0456	.3719	27.1061
	.360	.020	.409	-0.002	.0103	268.6606	.6335	10.2875	.3712	27.0685
	.380	.020	.407	-0.002	.0105	273.7731	.6455	10.5315	.3704	27.0310
	.400	.020	.405	-0.002	.0106	276.3293	.6516	10.6791	.3697	26.9934
	.420	.020	.403	-0.002	.0109	283.9986	.6696	11.0264	.3690	26.9557
	.440	.020	.402	-0.001	.0110	286.5542	.6757	11.1776	.3687	26.9369
	.460	.020	.400	-0.002	.0112	291.6667	.6877	11.4304	.3680	26.8992
	.480	.020	.399	-0.001	.0112	291.6667	.6877	11.4843	.3676	26.8803
	.500	.020	.397	-0.002	.0114	296.7792	.6998	11.7408	.3669	26.8426
	.520	.020	.395	-0.002	.0117	304.4479	.7179	12.1015	.3662	26.8048
	.540	.020	.394	-0.001	.0117	304.4479	.7179	12.1592	.3659	26.7859
	.560	.020	.392	-0.002	.0119	309.5604	.7299	12.4227	.3652	26.7480
	.580	.020	.392	0	.0121	314.6728	.7420	12.6887	.3652	26.7480
	.600	.020	.391	-0.001	.0121	314.6728	.7420	12.7501	.3648	26.7291
	.620	.020	.390	-0.001	.0121	314.6728	.7420	12.8121	.3644	26.7101
	.640	.020	.389	-0.001	.0121	314.6728	.7420	12.8746	.3641	26.6911
	.660	.020	.388	-0.001	.0122	317.2291	.7480	13.0429	.3637	26.6722
	.680	.020	.387	-0.001	.0122	317.2291	.7480	13.1071	.3634	26.6532
	.700	.020	.387	0	.0122	317.2291	.7480	13.1720	.3634	26.6532
	.720	.020	.386	-0.001	.0122	317.2291	.7480	13.2375	.3630	26.6342
	.740	.020	.385	-0.001	.0122	317.2291	.7480	13.3036	.3627	26.6152
	.760	.020	.384	-0.001	.0121	314.6728	.7420	13.2626	.3623	26.5962
	.780	.020	.384	0	.0121	314.6728	.7420	13.3295	.3623	26.5962
13/00	.800	.020	.383	-0.001	.0121	314.6728	.7420	13.3970	.3620	26.5772

PEAK STRESS = 11.2198 PSI PEAK SATURATION = 70.59 PERCENT

ULTIMATE STRESS = 11.1294 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*-DS-1S	3-1-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.672 LBS. DRY DENSITY = 86.670 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.331 LBS. WET DENSITY = 96.724 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 11.600 PER CENT

INITIAL CONSOLIDATION = 0 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 86.670 LBS./CU.FT.

INITIAL POROSITY = 29.166 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .412 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 74.73 PER CENT

INITIAL MOISTURE CONTENT = 15.70 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. */LOAD RATIO*	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.431	0	0	5.3684	.0063	.1899	.4117	29.1659
	.020	.020	.430	-0.001	.0048	128.0677	.1510	4.5488	.4114	29.1482
	.040	.020	.428	-0.002	.0066	174.0799	.2052	6.2096	.4107	29.1127
	.060	.020	.425	-0.003	.0084	220.0921	.2595	7.8846	.4096	29.0595
	.080	.020	.422	-0.003	.0095	248.2107	.2926	8.9304	.4086	29.0062
	.100	.020	.418	-0.004	.0101	263.5481	.3107	9.5233	.4072	28.9349
	.120	.020	.414	-0.004	.0112	291.6667	.3439	10.5853	.4057	28.8636
	.140	.020	.411	-0.003	.0117	304.4479	.3589	11.0974	.4047	28.8099
	.160	.020	.407	-0.004	.0125	324.8978	.3830	11.8949	.4033	28.7383
	.180	.020	.404	-0.003	.0134	347.9039	.4102	12.7933	.4022	28.6845
	.200	.020	.400	-0.004	.0140	363.2413	.4282	13.4165	.4008	28.6126
	.220	.020	.396	-0.004	.0148	383.6912	.4523	14.2349	.3994	28.5406
	.240	.020	.393	-0.003	.0154	399.0286	.4704	14.8700	.3983	28.4865
	.260	.020	.390	-0.003	.0161	416.9222	.4915	15.6066	.3973	28.4323
	.280	.020	.388	-0.002	.0168	434.8159	.5126	16.3498	.3966	28.3962
	.300	.020	.385	-0.003	.0171	442.4846	.5217	16.7134	.3955	28.3418
	.320	.020	.382	-0.003	.0176	455.2657	.5367	17.2744	.3945	28.2874
	.340	.020	.380	-0.002	.0182	470.6032	.5548	17.9379	.3937	28.2511
	.360	.020	.377	-0.003	.0186	480.8281	.5669	18.4117	.3927	28.1966
	.380	.020	.375	-0.002	.0189	488.4968	.5759	18.7916	.3920	28.1601
	.400	.020	.373	-0.002	.0193	498.7217	.5880	19.2737	.3913	28.1237
	.420	.020	.371	-0.002	.0197	508.9467	.6000	19.7603	.3906	28.0872
	.440	.020	.369	-0.002	.0198	511.5029	.6030	19.9522	.3899	28.0507
	.460	.020	.367	-0.002	.0200	516.6154	.6091	20.2462	.3892	28.0141
	.480	.020	.365	-0.002	.0204	526.8403	.6211	20.7441	.3885	27.9775
	.500	.020	.364	-0.001	.0203	524.2841	.6181	20.7411	.3881	27.9592
	.520	.020	.362	-0.002	.0208	537.0653	.6332	21.3478	.3874	27.9226
	.540	.020	.360	-0.002	.0211	544.7340	.6422	21.7559	.3867	27.8859
	.560	.020	.358	-0.002	.0209	539.6215	.6362	21.6551	.3860	27.8491
	.580	.020	.357	-0.001	.0212	547.2902	.6452	22.0686	.3856	27.8308
	.600	.020	.356	-0.001	.0212	547.2902	.6452	22.1754	.3853	27.8124
	.620	.020	.354	-0.002	.0213	549.8464	.6482	22.3873	.3846	27.7756
	.640	.020	.353	-0.001	.0213	549.8464	.6482	22.4966	.3842	27.7572
	.660	.020	.351	-0.002	.0213	549.8464	.6482	22.6069	.3835	27.7203
	.680	.020	.350	-0.001	.0215	554.9589	.6543	22.9296	.3832	27.7019
	.700	.020	.349	-0.001	.0215	554.9589	.6543	23.0430	.3828	27.6834
	.720	.020	.347	-0.002	.0216	557.5151	.6573	23.2643	.3821	27.6465
	.740	.020	.346	-0.001	.0216	557.5151	.6573	23.3805	.3817	27.6280
	.760	.020	.345	-0.001	.0215	554.9589	.6543	23.3901	.3814	27.6095
	.780	.020	.344	-0.001	.0215	554.9589	.6543	23.5080	.3810	27.5910
13/45	.800	.020	.343	-0.001	.0215	554.9589	.6543	23.6270	.3807	27.5725

PEAK STRESS = 19.7183 PSI PEAK SATURATION = 59.50 PERCENT

ULTIMATE STRESS = 19.6279 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*-DS-3S	3-2-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.673 LBS. DRY DENSITY = 86.671 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.342 LBS. WET DENSITY = 96.898 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 11.800 PER CENT

INITIAL CONSOLIDATION = 0 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 86.671 LBS./CU.FT.

INITIAL POROSITY = 29.165 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .412 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 70.45 PER CENT

INITIAL MOISTURE CONTENT = 14.80 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.542	0	0	5.3684	.0063	.1899	.4117	29.1653
	.020	.020	.541	-0.001	.0060	158.7425	.1871	5.6384	.4114	29.1476
	.040	.020	.538	-0.003	.0078	204.7547	.2414	7.3038	.4103	29.0944
	.060	.020	.534	-0.004	.0099	258.4357	.3047	9.2583	.4089	29.0234
	.080	.020	.531	-0.003	.0108	281.4418	.3318	10.1260	.4079	28.9700
	.100	.020	.529	-0.002	.0112	291.6667	.3439	10.5394	.4071	28.9344
	.120	.020	.526	-0.003	.0122	317.2291	.3740	11.5130	.4061	28.8809
	.140	.020	.523	-0.003	.0132	342.7914	.4041	12.4951	.4050	28.8273
	.160	.020	.520	-0.003	.0143	370.9100	.4373	13.5794	.4040	28.7736
	.180	.020	.517	-0.003	.0151	391.3599	.4614	14.3913	.4029	28.7198
	.200	.020	.514	-0.003	.0159	411.8098	.4855	15.2104	.4019	28.6660
	.220	.020	.512	-0.002	.0167	432.2596	.5096	16.0368	.4011	28.6301
	.240	.020	.510	-0.002	.0173	447.5970	.5277	16.6800	.4004	28.5941
	.260	.020	.507	-0.003	.0183	473.1594	.5578	17.7117	.3994	28.5401
	.280	.020	.506	-0.001	.0187	483.3843	.5699	18.1760	.3990	28.5220
	.300	.020	.504	-0.002	.0191	493.6093	.5819	18.6445	.3983	28.4859
	.320	.020	.502	-0.002	.0198	511.5029	.6030	19.4083	.3976	28.4498
	.340	.020	.500	-0.002	.0202	521.7279	.6151	19.8866	.3969	28.4137
	.360	.020	.499	-0.001	.0206	531.9528	.6271	20.3694	.3966	28.3956
	.380	.020	.497	-0.002	.0211	544.7340	.6422	20.9549	.3959	28.3594
	.400	.020	.497	0	.0214	552.4027	.6512	21.3482	.3959	28.3594
	.420	.020	.495	-0.002	.0217	560.0714	.6603	21.7452	.3952	28.3231
	.440	.020	.494	-0.001	.0219	565.1838	.6663	22.0462	.3948	28.3050
	.460	.020	.493	-0.001	.0223	575.4088	.6784	22.5503	.3944	28.2868
	.480	.020	.492	-0.001	.0226	583.0775	.6874	22.9584	.3941	28.2687
	.500	.020	.492	0	.0228	588.1900	.6934	23.2693	.3941	28.2687
	.520	.020	.491	-0.001	.0230	593.3024	.6995	23.5831	.3937	28.2505
	.540	.020	.491	0	.0232	598.4149	.7055	23.8999	.3937	28.2505
	.560	.020	.490	-0.001	.0231	595.8587	.7025	23.9119	.3934	28.2323
	.580	.020	.489	-0.001	.0234	603.5274	.7115	24.3363	.3930	28.2142
	.600	.020	.489	0	.0234	603.5274	.7115	24.4541	.3930	28.2142
	.620	.020	.489	0	.0236	608.6398	.7175	24.7811	.3930	28.2142
	.640	.020	.488	-0.001	.0233	600.9711	.7085	24.5883	.3927	28.1960
	.660	.020	.488	0	.0236	608.6398	.7175	25.0242	.3927	28.1960
	.680	.020	.488	0	.0236	608.6398	.7175	25.1475	.3927	28.1960
14/52	.700	.020	.488	0	.0235	606.0836	.7145	25.1659	.3927	28.1960

PEAK STRESS = 21.5265 PSI PEAK SATURATION = 58.85 PERCENT

ULTIMATE STRESS = 21.4361 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10**-DS-4	3-1-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.673 LBS. DRY DENSITY = 86.671 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.257 LBS. WET DENSITY = 95.598 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 10.300 PER CENT

INITIAL CONSOLIDATION = 0 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 86.671 LBS./CU.FT.

INITIAL POROSITY = 29.165 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .412 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 79.02 PER CENT

INITIAL MOISTURE CONTENT = 16.60 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. */LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.484	0	0	0	0	0	.4117	29.1654
	.020	.020	.485	.001	.0032	201.6000	.1188	7.1606	.4121	29.1831
	.040	.020	.483	-0.002	.0042	264.6000	.1560	9.4385	.4114	29.1477
	.060	.020	.480	-0.003	.0052	327.6000	.1931	11.7360	.4103	29.0945
	.080	.020	.478	-0.002	.0057	359.1000	.2117	12.9200	.4096	29.0590
	.100	.020	.475	-0.003	.0066	415.8000	.2451	15.0249	.4086	29.0057
	.120	.020	.472	-0.003	.0073	459.9000	.2711	16.6908	.4075	28.9523
	.140	.020	.469	-0.003	.0078	491.4000	.2897	17.9120	.4064	28.8988
	.160	.020	.467	-0.002	.0082	516.6000	.3045	18.9133	.4057	28.8631
	.180	.020	.464	-0.003	.0087	548.1000	.3231	20.1551	.4047	28.8095
	.200	.020	.462	-0.002	.0091	573.3000	.3379	21.1751	.4040	28.7737
	.220	.020	.460	-0.002	.0096	604.8000	.3565	22.4380	.4033	28.7378
	.240	.020	.457	-0.003	.0102	642.6000	.3788	23.9469	.4022	28.6840
	.260	.020	.454	-0.003	.0109	686.7000	.4048	25.7051	.4012	28.6301
	.280	.020	.452	-0.002	.0112	705.6000	.4159	26.5317	.4004	28.5942
	.300	.020	.449	-0.003	.0118	743.4000	.4382	28.0796	.3994	28.5401
	.320	.020	.447	-0.002	.0122	768.6000	.4531	29.1634	.3987	28.5041
	.340	.020	.444	-0.003	.0128	806.4000	.4753	30.7374	.3976	28.4499
	.360	.020	.441	-0.003	.0135	850.5000	.5013	32.5671	.3966	28.3957
	.380	.020	.438	-0.003	.0141	888.3000	.5236	34.1712	.3955	28.3413
	.400	.020	.435	-0.003	.0145	913.5000	.5385	35.3033	.3944	28.2869
	.420	.020	.432	-0.003	.0151	951.3000	.5608	36.9350	.3934	28.2324
	.440	.020	.430	-0.002	.0156	982.8000	.5793	38.3361	.3927	28.1961
	.460	.020	.428	-0.002	.0159	001.700*	.5905	39.2566	.3920	28.1597
	.480	.020	.425	-0.003	.0164	033.200*	.6090	40.6818	.3909	28.1050
	.500	.020	.423	-0.002	.0167	052.100*	.6202	41.6220	.3902	28.0685
	.520	.020	.422	-0.001	.0171	077.300*	.6350	42.8215	.3899	28.0502
	.540	.020	.420	-0.002	.0172	083.600*	.6387	43.2775	.3892	28.0136
	.560	.020	.418	-0.002	.0178	121.400*	.6610	45.0020	.3884	27.9770
	.580	.020	.416	-0.002	.0179	127.700*	.6647	45.4728	.3877	27.9404
	.600	.020	.414	-0.002	.0182	146.600*	.6759	46.4586	.3870	27.9037
	.620	.020	.414	0	.0183	152.900*	.6796	46.9409	.3870	27.9037
	.640	.020	.412	-0.002	.0187	178.100*	.6945	48.2012	.3863	27.8670
	.660	.020	.410	-0.002	.0188	184.400*	.6982	48.6966	.3856	27.8303
	.680	.020	.409	-0.001	.0190	197.000*	.7056	49.4571	.3853	27.8119
	.700	.020	.409	0	.0189	190.700*	.7019	49.4403	.3853	27.8119
	.720	.020	.408	-0.001	.0192	209.600*	.7130	50.4748	.3849	27.7935
	.740	.020	.407	-0.001	.0192	209.600*	.7130	50.7270	.3846	27.7751
	.760	.020	.406	-0.001	.0194	222.200*	.7204	51.5126	.3842	27.7567
	.780	.020	.405	-0.001	.0193	215.900*	.7167	51.5054	.3839	27.7382
	.800	.020	.404	-0.001	.0194	222.200*	.7204	52.0344	.3835	27.7198
	.820	.020	.404	0	.0193	215.900*	.7167	52.0296	.3835	27.7198
	.840	.020	.403	-0.001	.0192	209.600*	.7130	52.0246	.3832	27.7014
17/25	.860	.020	.402	-0.001	.0193	215.900*	.7167	52.5641	.3828	27.6829

PEAK STRESS = 43.2270 PSI PEAK SATURATION = 52.54 PERCENT

ULTIMATE STRESS = 43.0042 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*M-DS-1	3-6-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.331 LBS. DRY DENSITY = 96.725 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.679 LBS. WET DENSITY = 102.045 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 5.500 PER CENT

INITIAL CONSOLIDATION = .076 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 98.599 LBS./CU.FT.

INITIAL POROSITY = 20.948 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .265 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 40.68 PER CENT

INITIAL MOISTURE CONTENT = 5.50 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.354	.076	0	5.3684	.0127	.1899	.2410	19.4171
	.020	.020	.356	.002	.0051	135.7364	.3200	4.8212	.2416	19.4581
	.040	.020	.357	.001	.0066	174.0799	.4105	6.2096	.2419	19.4786
	.060	.020	.357	0	.0078	204.7547	.4828	7.3352	.2419	19.4786
	.080	.020	.357	0	.0101	263.5481	.6214	9.4822	.2419	19.4786
	.100	.020	.359	.002	.0127	330.0102	.7781	11.9249	.2425	19.5196
	.120	.020	.362	.003	.0147	381.1349	.8987	13.8323	.2435	19.5810
	.140	.020	.364	.002	.0158	409.2535	.9650	14.9177	.2441	19.6219
	.160	.020	.367	.003	.0164	424.5909	1.0011	15.5447	.2451	19.6832
	.180	.020	.368	.001	.0168	434.8159	1.0252	15.9893	.2454	19.7036
	.200	.020	.369	.001	.0169	437.3721	1.0313	16.1546	.2457	19.7240
	.220	.020	.370	.001	.0168	434.8159	1.0252	16.1316	.2460	19.7443
	.240	.020	.371	.001	.0167	432.2596	1.0192	16.1084	.2463	19.7647
	.260	.020	.372	.001	.0167	432.2596	1.0192	16.1807	.2467	19.7850
	.280	.020	.372	0	.0165	427.1472	1.0072	16.0614	.2467	19.7850
	.300	.020	.372	0	.0162	419.4785	.9891	15.8445	.2467	19.7850
	.320	.020	.372	0	.0159	411.8098	.9710	15.6255	.2467	19.7850
	.340	.020	.372	0	.0159	411.8098	.9710	15.6969	.2467	19.7850
	.360	.020	.372	0	.0156	404.1410	.9529	15.4753	.2467	19.7850
	.380	.020	.372	0	.0153	396.4723	.9348	15.2516	.2467	19.7850
07/51	.400	.020	.372	0	.0153	396.4723	.9348	15.3221	.2467	19.7850

PEAK STRESS = 15.4691 PSI PEAK SATURATION = 43.87 PERCENT

ULTIMATE STRESS = 14.0225 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*M-DS-2	3-6-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.331 LBS. DRY DENSITY = 96.725 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.679 LBS. WET DENSITY = 102.045 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 5.500 PER CENT

INITIAL CONSOLIDATION = .100 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 99.205 LBS./CU.FT.

INITIAL POROSITY = 20.948 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .265 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 40.68 PER CENT

INITIAL MOISTURE CONTENT = 5.50 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.312	.100	0	5.3684	.0063	.1899	.2334	18.9212
	.020	.020	.314	.002	.0086	225.2046	.2655	7.9990	.2340	18.9628
	.040	.020	.314	0	.0094	245.6545	.2896	8.7627	.2340	18.9628
	.060	.020	.314	0	.0121	314.6728	.3710	11.2729	.2340	18.9628
	.080	.020	.313	-0.001	.0141	365.7975	.4313	13.1610	.2337	18.9420
	.100	.020	.313	0	.0167	432.2596	.5096	15.6197	.2337	18.9420
	.120	.020	.313	0	.0191	493.6093	.5819	17.9142	.2337	18.9420
	.140	.020	.313	0	.0203	524.2841	.6181	19.1107	.2337	18.9420
	.160	.020	.312	-0.001	.0213	549.8464	.6482	20.1305	.2334	18.9212
	.180	.020	.312	0	.0220	567.7401	.6693	20.8773	.2334	18.9212
	.200	.020	.311	-0.001	.0230	593.3024	.6995	21.9139	.2331	18.9004
	.220	.020	.310	-0.001	.0237	611.1961	.7206	22.6753	.2327	18.8796
	.240	.020	.309	-0.001	.0239	616.3085	.7266	22.9671	.2324	18.8588
	.260	.020	.309	0	.0240	618.8648	.7296	23.1659	.2324	18.8588
	.280	.020	.308	-0.001	.0244	629.0897	.7417	23.6548	.2321	18.8380
	.300	.020	.308	0	.0248	639.3147	.7537	24.1481	.2321	18.8380
	.320	.020	.308	0	.0248	639.3147	.7537	24.2579	.2321	18.8380
	.340	.020	.307	-0.001	.0250	644.4271	.7597	24.5635	.2318	18.8171
	.360	.020	.306	-0.001	.0252	649.5396	.7658	24.8720	.2315	18.7963
	.380	.020	.306	0	.0253	652.0958	.7688	25.0849	.2315	18.7963
	.400	.020	.306	0	.0253	652.0958	.7688	25.2010	.2315	18.7963
	.420	.020	.305	-0.001	.0252	649.5396	.7658	25.2189	.2312	18.7754
	.440	.020	.305	0	.0250	644.4271	.7597	25.1372	.2312	18.7754
	.460	.020	.304	-0.001	.0250	644.4271	.7597	25.2551	.2308	18.7545
	.480	.020	.304	0	.0251	646.9834	.7628	25.4747	.2308	18.7545
10/28	.500	.020	.304	0	.0250	644.4271	.7597	25.4941	.2308	18.7545

PEAK STRESS = 23.0634 PSI PEAK SATURATION = 46.57 PERCENT

ULTIMATE STRESS = 22.7922 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*M-DS-3	3-5-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.331 LBS. DRY DENSITY = 96.725 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.679 LBS. WET DENSITY = 102.045 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 5.500 PER CENT

INITIAL CONSOLIDATION = .160 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 100.755 LBS./CU.FT.

INITIAL POROSITY = 20.948 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .265 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 40.68 PER CENT

INITIAL MOISTURE CONTENT = 5.50 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ. IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.251	.160	0	0	0	0	.2144	17.6543
	.020	.020	.253	.002	.0043	270.9000	.1597	9.6221	.2150	17.6972
	.040	.020	.252	-0.001	.0069	434.7000	.2562	15.5062	.2147	17.6758
	.060	.020	.252	0	.0079	497.7000	.2934	17.8298	.2147	17.6758
	.080	.020	.252	0	.0089	560.7000	.3305	20.1734	.2147	17.6758
	.100	.020	.251	-0.001	.0103	648.9000	.3825	23.4480	.2144	17.6543
	.120	.020	.249	-0.002	.0118	743.4000	.4382	26.9797	.2138	17.6114
	.140	.020	.247	-0.002	.0132	831.6000	.4902	30.3127	.2131	17.5685
	.160	.020	.245	-0.002	.0141	888.3000	.5236	32.5216	.2125	17.5255
	.180	.020	.243	-0.002	.0150	945.0000	.5570	34.7501	.2119	17.4824
	.200	.020	.242	-0.001	.0158	995.4000	.5868	36.7656	.2115	17.4609
	.220	.020	.240	-0.002	.0161	014.300*	.5979	37.6304	.2109	17.4178
	.240	.020	.238	-0.002	.0167	052.100*	.6202	39.2071	.2103	17.3746
	.260	.020	.237	-0.001	.0171	077.300*	.6350	40.3264	.2100	17.3530
	.280	.020	.235	-0.002	.0175	102.500*	.6499	41.4558	.2093	17.3098
	.300	.020	.234	-0.001	.0177	115.100*	.6573	42.1194	.2090	17.2882
	.320	.020	.233	-0.001	.0179	127.700*	.6647	42.7890	.2087	17.2665
	.340	.020	.232	-0.001	.0180	134.000*	.6685	43.2245	.2084	17.2449
	.360	.020	.230	-0.002	.0183	152.900*	.6796	44.1465	.2078	17.2015
	.380	.020	.230	0	.0182	146.600*	.6759	44.1076	.2078	17.2015
	.400	.020	.228	-0.002	.0183	152.900*	.6796	44.5552	.2071	17.1582
	.420	.020	.227	-0.001	.0182	146.600*	.6759	44.5177	.2068	17.1364
	.440	.020	.226	-0.001	.0182	146.600*	.6759	44.7255	.2065	17.1147
	.460	.020	.225	-0.001	.0182	146.600*	.6759	44.9352	.2062	17.0930
	.480	.020	.224	-0.001	.0181	140.300*	.6722	44.8988	.2059	17.0712
10/11	.500	.020	.223	-0.001	.0181	140.300*	.6722	45.1113	.2055	17.0495

PEAK STRESS = 40.7760 PSI PEAK SATURATION = 51.89 PERCENT

ULTIMATE STRESS = 40.3303 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*M-DS-1S	3-7-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.331 LBS. DRY DENSITY = 96.725 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 7.135 LBS. WET DENSITY = 109.010 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 12.700 PER CENT

INITIAL CONSOLIDATION = .103 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 99.282 LBS./CU.FT.

INITIAL POROSITY = 20.948 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .265 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 93.94 PER CENT

INITIAL MOISTURE CONTENT = 12.70 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.332	.103	0	5.3684	.0127	.1899	.2324	18.8586
	.020	.020	.331	-0.001	.0046	122.9552	.2899	4.3672	.2321	18.8378
	.040	.020	.331	0	.0059	156.1863	.3683	5.5713	.2321	18.8378
	.060	.020	.330	-0.001	.0069	181.7486	.4285	6.5110	.2318	18.8169
	.080	.020	.330	0	.0094	245.6545	.5792	8.8384	.2318	18.8169
	.100	.020	.329	-0.001	.0110	286.5542	.6757	10.3546	.2315	18.7961
	.120	.020	.327	-0.002	.0120	312.1166	.7359	11.3274	.2308	18.7544
	.140	.020	.327	0	.0126	327.4540	.7721	11.9360	.2308	18.7544
	.160	.020	.326	-0.001	.0128	332.5665	.7842	12.1756	.2305	18.7335
	.180	.020	.326	0	.0130	337.6789	.7962	12.4173	.2305	18.7335
	.200	.020	.326	0	.0131	340.2352	.8022	12.5668	.2305	18.7335
	.220	.020	.326	0	.0132	342.7914	.8083	12.7175	.2305	18.7335
	.240	.020	.326	0	.0133	345.3476	.8143	12.8696	.2305	18.7335
	.260	.020	.326	0	.0133	345.3476	.8143	12.9273	.2305	18.7335
	.280	.020	.326	0	.0132	342.7914	.8083	12.8895	.2305	18.7335
	.300	.020	.326	0	.0132	342.7914	.8083	12.9479	.2305	18.7335
	.320	.020	.326	0	.0132	342.7914	.8083	13.0067	.2305	18.7335
	.340	.020	.325	-0.001	.0132	342.7914	.8083	13.0661	.2302	18.7126
	.360	.020	.325	0	.0131	340.2352	.8022	13.0282	.2302	18.7126
	.380	.020	.325	0	.0131	340.2352	.8022	13.0882	.2302	18.7126
08/37	.400	.020	.324	-0.001	.0131	340.2352	.8022	13.1488	.2299	18.6917

PEAK STRESS = 12.2143 PSI PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 12.0335 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*M-DS-2S	3-7-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.331 LBS. DRY DENSITY = 96.725 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 7.078 LBS. WET DENSITY = 108.139 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 11.800 PER CENT

INITIAL CONSOLIDATION = .149 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 100.468 LBS./CU.FT.

INITIAL POROSITY = 20.948 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .265 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 96.89 PER CENT

INITIAL MOISTURE CONTENT = 13.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.303	.149	0	5.3684	.0063	.1899	.2179	17.8894
	.020	.020	.303	0	.0067	176.6362	.2082	6.2739	.2179	17.8894
	.040	.020	.302	-0.001	.0085	222.6484	.2625	7.9421	.2176	17.8681
	.060	.020	.301	-0.001	.0100	260.9919	.3077	9.3499	.2172	17.8468
	.080	.020	.300	-0.001	.0123	319.7853	.3770	11.5055	.2169	17.8254
	.100	.020	.298	-0.002	.0140	363.2413	.4282	13.1257	.2163	17.7827
	.120	.020	.297	-0.001	.0156	404.1410	.4765	14.6672	.2160	17.7613
	.140	.020	.295	-0.002	.0165	427.1472	.5036	15.5699	.2153	17.7185
	.160	.020	.294	-0.001	.0173	447.5970	.5277	16.3870	.2150	17.6971
	.180	.020	.292	-0.002	.0185	478.2719	.5639	17.5873	.2144	17.6542
	.200	.020	.291	-0.001	.0193	498.7217	.5880	18.4205	.2141	17.6328
	.220	.020	.289	-0.002	.0198	511.5029	.6030	18.9767	.2134	17.5898
	.240	.020	.288	-0.001	.0204	526.8403	.6211	19.6330	.2131	17.5683
	.260	.020	.287	-0.001	.0210	542.1777	.6392	20.2953	.2128	17.5468
	.280	.020	.286	-0.001	.0216	557.5151	.6573	20.9635	.2125	17.5253
	.300	.020	.285	-0.001	.0219	565.1838	.6663	21.3480	.2122	17.5038
	.320	.020	.284	-0.001	.0224	577.9650	.6814	21.9301	.2119	17.4823
	.340	.020	.283	-0.001	.0227	585.6337	.6904	22.3225	.2115	17.4608
	.360	.020	.282	-0.001	.0229	590.7462	.6965	22.6207	.2112	17.4392
	.380	.020	.281	-0.001	.0228	588.1900	.6934	22.6266	.2109	17.4176
	.400	.020	.281	0	.0229	590.7462	.6965	22.8301	.2109	17.4176
	.420	.020	.280	-0.001	.0231	595.8587	.7025	23.1347	.2106	17.3961
	.440	.020	.279	-0.001	.0232	598.4149	.7055	23.3424	.2103	17.3745
	.460	.020	.278	-0.001	.0230	593.3024	.6995	23.2515	.2100	17.3529
	.480	.020	.277	-0.001	.0230	593.3024	.6995	23.3610	.2096	17.3313
12/02	.500	.020	.277	0	.0230	593.3024	.6995	23.4716	.2096	17.3313

PEAK STRESS = 21.1648 PSI PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 20.9840 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-L-10*M-DS-3S	3-7-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.331 LBS. DRY DENSITY = 96.725 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 7.052 LBS. WET DENSITY = 107.752 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.960 MOISTURE CONTENT = 11.400 PER CENT

INITIAL CONSOLIDATION = .200 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 101.816 LBS./CU.FT.

INITIAL POROSITY = 20.948 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .265 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 97.63 PER CENT

INITIAL MOISTURE CONTENT = 13.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.229	.200	0	0	0	0	.2017	16.7874
	.020	.020	.230	.001	.0038	239.4000	.1411	8.5032	.2021	16.8093
	.040	.020	.228	-0.002	.0055	346.5000	.2043	12.3600	.2014	16.7655
	.060	.020	.227	-0.001	.0068	428.4000	.2525	15.3471	.2011	16.7436
	.080	.020	.224	-0.003	.0081	510.3000	.3008	18.3601	.2002	16.6778
	.100	.020	.221	-0.003	.0095	598.5000	.3528	21.6268	.1992	16.6118
	.120	.020	.217	-0.004	.0107	674.1000	.3974	24.4646	.1979	16.5238
	.140	.020	.214	-0.003	.0116	730.8000	.4308	26.6384	.1970	16.4576
	.160	.020	.211	-0.003	.0123	774.9000	.4568	28.3699	.1960	16.3914
	.180	.020	.207	-0.004	.0132	831.6000	.4902	30.5801	.1948	16.3028
	.200	.020	.205	-0.002	.0138	869.4000	.5125	32.1117	.1942	16.2585
	.220	.020	.202	-0.003	.0143	900.9000	.5311	33.4232	.1932	16.1919
	.240	.020	.199	-0.003	.0147	926.1000	.5459	34.5117	.1923	16.1252
	.260	.020	.197	-0.002	.0152	957.6000	.5645	35.8457	.1916	16.0807
	.280	.020	.195	-0.002	.0156	982.8000	.5793	36.9548	.1910	16.0361
	.300	.020	.193	-0.002	.0159	001.700*	.5905	37.8360	.1904	15.9915
	.320	.020	.191	-0.002	.0162	020.600*	.6016	38.7252	.1897	15.9469
	.340	.020	.188	-0.003	.0164	033.200*	.6090	39.3823	.1888	15.8798
	.360	.020	.186	-0.002	.0166	045.800*	.6165	40.0455	.1881	15.8350
	.380	.020	.185	-0.001	.0167	052.100*	.6202	40.4723	.1878	15.8126
	.400	.020	.182	-0.003	.0169	064.700*	.6276	41.1466	.1869	15.7453
	.420	.020	.181	-0.001	.0169	064.700*	.6276	41.3378	.1866	15.7228
	.440	.020	.179	-0.002	.0169	064.700*	.6276	41.5308	.1859	15.6779
	.460	.020	.177	-0.002	.0172	083.600*	.6387	42.4663	.1853	15.6329
	.480	.020	.176	-0.001	.0172	083.600*	.6387	42.6663	.1850	15.6104
	.500	.020	.174	-0.002	.0175	102.500*	.6499	43.6159	.1843	15.5653
	.520	.020	.172	-0.002	.0172	083.600*	.6387	43.0719	.1837	15.5202
	.540	.020	.170	-0.002	.0173	089.900*	.6425	43.5291	.1831	15.4750
	.560	.020	.168	-0.002	.0173	089.900*	.6425	43.7379	.1824	15.4298
	.580	.020	.167	-0.001	.0173	089.900*	.6425	43.9486	.1821	15.4072
13/21	.600	.020	.166	-0.001	.0173	089.900*	.6425	44.1612	.1818	15.3846

PEAK STRESS = 38.9934 PSI PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 38.5478 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-M-10*-DS-1	05-17-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.315 LBS. DRY DENSITY = 96.488 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.827 LBS. WET DENSITY = 104.304 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.000 MOISTURE CONTENT = 8.100 PER CENT

INITIAL CONSOLIDATION = .055 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 97.834 LBS./CU.FT.

INITIAL POROSITY = 22.719 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .294 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 55.11 PER CENT

INITIAL MOISTURE CONTENT = 8.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.394	.055	0	5.3684	.0127	.1899	.2762	21.6414
	.020	.020	.396	.002	.0053	140.8489	.3321	5.0028	.2768	21.6812
	.040	.020	.396	0	.0074	194.5298	.4587	6.9391	.2768	21.6812
	.060	.020	.398	.002	.0101	263.5481	.6214	9.4414	.2775	21.7208
	.080	.020	.399	.001	.0130	337.6789	.7962	12.1493	.2778	21.7406
	.100	.020	.400	.001	.0148	383.6912	.9047	13.8647	.2781	21.7604
	.120	.020	.402	.002	.0160	414.3660	.9770	15.0383	.2788	21.8000
	.140	.020	.403	.001	.0167	432.2596	1.0192	15.7563	.2791	21.8198
	.160	.020	.405	.002	.0171	442.4846	1.0433	16.1998	.2797	21.8593
	.180	.020	.406	.001	.0175	452.7095	1.0674	16.6473	.2801	21.8791
	.200	.020	.407	.001	.0176	455.2657	1.0735	16.8155	.2804	21.8988
	.220	.020	.408	.001	.0176	455.2657	1.0735	16.8903	.2807	21.9185
	.240	.020	.408	0	.0176	455.2657	1.0735	16.9658	.2807	21.9185
	.260	.020	.408	0	.0177	457.8220	1.0795	17.1376	.2807	21.9185
	.280	.020	.409	.001	.0174	450.1533	1.0614	16.9265	.2810	21.9383
	.300	.020	.409	0	.0175	452.7095	1.0674	17.0997	.2810	21.9383
	.320	.020	.410	.001	.0174	450.1533	1.0614	17.0804	.2814	21.9580
	.340	.020	.410	0	.0173	447.5970	1.0554	17.0610	.2814	21.9580
	.360	.020	.410	0	.0172	445.0408	1.0494	17.0414	.2814	21.9580
	.380	.020	.410	0	.0171	442.4846	1.0433	17.0216	.2814	21.9580
06/33	.400	.020	.410	0	.0170	439.9283	1.0373	17.0015	.2814	21.9580

PEAK STRESS = 16.1923 PSI PEAK SATURATION = 57.71 PERCENT

ULTIMATE STRESS = 15.5595 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-M-10*-DS-2	05-17-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.315 LBS. DRY DENSITY = 96.488 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.827 LBS. WET DENSITY = 104.304 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.000 MOISTURE CONTENT = 8.100 PER CENT

INITIAL CONSOLIDATION = .085 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 98.583 LBS./CU.FT.

INITIAL POROSITY = 22.719 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .294 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 55.11 PER CENT

INITIAL MOISTURE CONTENT = 8.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.357	.085	0	5.3684	.0063	.1899	.2665	21.0410
	.020	.020	.359	.002	.0083	217.5359	.2565	7.7266	.2671	21.0813
	.040	.020	.359	0	.0114	296.7792	.3499	10.5864	.2671	21.0813
	.060	.020	.358	-0.001	.0125	324.8978	.3830	11.6392	.2668	21.0612
	.080	.020	.358	0	.0147	381.1349	.4493	13.7128	.2668	21.0612
	.100	.020	.358	0	.0180	465.4907	.5488	16.8205	.2668	21.0612
	.120	.020	.358	0	.0206	531.9528	.6271	19.3058	.2668	21.0612
	.140	.020	.357	-0.001	.0222	572.8525	.6754	20.8811	.2665	21.0410
	.160	.020	.357	0	.0234	603.5274	.7115	22.0958	.2665	21.0410
	.180	.020	.359	.002	.0242	623.9772	.7356	22.9453	.2671	21.0813
	.200	.020	.360	.001	.0248	639.3147	.7537	23.6134	.2675	21.1015
	.220	.020	.361	.001	.0254	654.6521	.7718	24.2875	.2678	21.1216
	.240	.020	.361	0	.0258	664.8770	.7838	24.7770	.2678	21.1216
	.260	.020	.362	.001	.0257	662.3208	.7808	24.7926	.2681	21.1417
	.280	.020	.363	.001	.0259	667.4332	.7869	25.0966	.2684	21.1618
	.300	.020	.364	.001	.0259	667.4332	.7869	25.2102	.2687	21.1819
	.320	.020	.364	0	.0259	667.4332	.7869	25.3248	.2687	21.1819
	.340	.020	.365	.001	.0260	669.9895	.7899	25.5379	.2691	21.2020
	.360	.020	.367	.002	.0258	664.8770	.7838	25.4593	.2697	21.2422
	.380	.020	.367	0	.0257	662.3208	.7808	25.4782	.2697	21.2422
	.400	.020	.368	.001	.0258	664.8770	.7838	25.6949	.2700	21.2622
	.420	.020	.369	.001	-0	5.3684	.0063	.2084	.2704	21.2823
	.440	.020	.370	.001	-0	5.3684	.0063	.2094	.2707	21.3023
	.460	.020	.371	.001	-0	5.3684	.0063	.2104	.2710	21.3223
	.480	.020	.373	.002	-0	5.3684	.0063	.2114	.2717	21.3624
11/08	.500	.020	.374	.001	-0	5.3684	.0063	.2124	.2720	21.3824

PEAK STRESS = 23.6963 PSI PEAK SATURATION = 60.21 PERCENT

ULTIMATE STRESS = .1899 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-M-10*-DS-3	05-17-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.315 LBS. DRY DENSITY = 96.488 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.827 LBS. WET DENSITY = 104.304 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.000 MOISTURE CONTENT = 8.100 PER CENT

INITIAL CONSOLIDATION = .118 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 99.421 LBS./CU.FT.

INITIAL POROSITY = 22.719 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .294 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 55.11 PER CENT

INITIAL MOISTURE CONTENT = 8.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.329	.118	0	0	0	0	.2558	20.3698
	.020	.020	.329	0	.0040	252.0000	.1485	8.9508	.2558	20.3698
	.040	.020	.330	.001	.0058	365.4000	.2154	13.0342	.2561	20.3903
	.060	.020	.330	0	.0073	459.9000	.2711	16.4756	.2561	20.3903
	.080	.020	.330	0	.0087	548.1000	.3231	19.7201	.2561	20.3903
	.100	.020	.329	-0.001	.0103	648.9000	.3825	23.4480	.2558	20.3698
	.120	.020	.329	0	.0118	743.4000	.4382	26.9797	.2558	20.3698
	.140	.020	.329	0	.0131	825.3000	.4865	30.0830	.2558	20.3698
	.160	.020	.327	-0.002	.0143	900.9000	.5311	32.9829	.2552	20.3287
	.180	.020	.326	-0.001	.0152	957.6000	.5645	35.2134	.2548	20.3082
	.200	.020	.325	-0.001	.0161	014.3000	.5979	37.4637	.2545	20.2877
	.220	.020	.323	-0.002	.0169	064.7000	.6276	39.5002	.2539	20.2465
	.240	.020	.323	0	.0171	077.3000	.6350	40.1462	.2539	20.2465
	.260	.020	.321	-0.002	.0178	121.4000	.6610	41.9772	.2532	20.2053
	.280	.020	.320	-0.001	.0181	140.3000	.6722	42.8771	.2529	20.1847
	.300	.020	.319	-0.001	.0185	165.5000	.6870	44.0231	.2526	20.1641
	.320	.020	.319	0	.0188	184.4000	.6982	44.9404	.2526	20.1641
	.340	.020	.318	-0.001	.0193	215.9000	.7167	46.3463	.2522	20.1435
	.360	.020	.318	0	.0194	222.2000	.7204	46.8001	.2522	20.1435
	.380	.020	.317	-0.001	.0193	215.9000	.7167	46.7734	.2519	20.1229
	.400	.020	.317	0	.0194	222.2000	.7204	47.2333	.2519	20.1229
	.420	.020	.317	0	.0195	228.5000	.7242	47.6975	.2519	20.1229
	.440	.020	.316	-0.001	.0195	228.5000	.7242	47.9202	.2516	20.1022
	.460	.020	.316	0	.0195	228.5000	.7242	48.1449	.2516	20.1022
	.480	.020	.316	0	.0195	228.5000	.7242	48.3717	.2516	20.1022
12/06	.500	.020	.316	0	.0195	228.5000	.7242	48.6005	.2516	20.1022

PEAK STRESS = 43.4498 PSI PEAK SATURATION = 64.31 PERCENT

ULTIMATE STRESS = 43.4498 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-M-10*-DS-15	05-18-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.315 LBS. DRY DENSITY = 96.489 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 7.067 LBS. WET DENSITY = 107.971 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.000 MOISTURE CONTENT = 11.900 PER CENT

INITIAL CONSOLIDATION = .056 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 97.859 LBS./CU.FT.

INITIAL POROSITY = 22.719 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .294 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 92.53 PER CENT

INITIAL MOISTURE CONTENT = 13.60 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.426	.056	0	5.3684	.0127	.1899	.2759	21.6213
	.020	.020	.426	0	.0046	122.9552	.2899	4.3672	.2759	21.6213
	.040	.020	.425	-0.001	.0067	176.6362	.4165	6.3008	.2755	21.6014
	.060	.020	.424	-0.001	.0083	217.5359	.5129	7.7931	.2752	21.5815
	.080	.020	.422	-0.002	.0091	237.9858	.5611	8.5625	.2746	21.5417
	.100	.020	.420	-0.002	.0098	255.8794	.6033	9.2462	.2739	21.5019
	.120	.020	.418	-0.002	.0101	263.5481	.6214	9.5648	.2733	21.4620
	.140	.020	.415	-0.003	.0105	273.7731	.6455	9.9793	.2723	21.4021
	.160	.020	.414	-0.001	.0106	276.3293	.6516	10.1167	.2720	21.3821
	.180	.020	.412	-0.002	.0109	283.9980	.6696	10.4433	.2713	21.3421
	.200	.020	.410	-0.002	.0109	283.9980	.6696	10.4896	.2707	21.3020
	.220	.020	.409	-0.001	.0109	283.9980	.6696	10.5363	.2704	21.2820
	.240	.020	.407	-0.002	.0110	286.5542	.6757	10.6786	.2697	21.2419
	.260	.020	.405	-0.002	.0110	286.5542	.6757	10.7265	.2691	21.2017
	.280	.020	.404	-0.001	.0111	289.1105	.6817	10.8710	.2687	21.1816
	.300	.020	.402	-0.002	.0110	286.5542	.6757	10.8237	.2681	21.1414
	.320	.020	.401	-0.001	.0110	286.5542	.6757	10.8729	.2678	21.1213
	.340	.020	.400	-0.001	.0110	286.5542	.6757	10.9226	.2674	21.1012
	.360	.020	.398	-0.002	.0111	289.1105	.6817	11.0705	.2668	21.0609
	.380	.020	.396	-0.002	.0110	286.5542	.6757	11.0232	.2662	21.0205
07/15	.400	.020	.397	.001	.0110	286.5542	.6757	11.0742	.2665	21.0407

PEAK STRESS = 10.2253 PSI PEAK SATURATION = 88.56 PERCENT

ULTIMATE STRESS = 10.1349 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-M-10*-DS-25	05-18-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.315 LBS. DRY DENSITY = 96.489 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 7.016 LBS. WET DENSITY = 107.199 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.000 MOISTURE CONTENT = 11.100 PER CENT

INITIAL CONSOLIDATION = .142 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 100.040 LBS./CU.FT.

INITIAL POROSITY = 22.719 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .294 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 86.40 PER CENT

INITIAL MOISTURE CONTENT = 12.70 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.220	.142	0	5.3684	.0063	.1899	.2480	19.8743
	.020	.020	.220	0	.0071	186.8611	.2203	6.6371	.2480	19.8743
	.040	.020	.218	-0.002	.0100	260.9919	.3077	9.3098	.2474	19.8327
	.060	.020	.217	-0.001	.0125	324.8978	.3830	11.6392	.2471	19.8119
	.080	.020	.214	-0.003	.0143	370.9100	.4373	13.3450	.2461	19.7495
	.100	.020	.211	-0.003	.0158	409.2535	.4825	14.7884	.2451	19.6869
	.120	.020	.209	-0.002	.0163	422.0347	.4976	15.3166	.2445	19.6452
	.140	.020	.206	-0.003	.0177	457.8220	.5397	16.6881	.2435	19.5825
	.160	.020	.204	-0.002	.0183	473.1594	.5578	17.3229	.2429	19.5406
	.180	.020	.202	-0.002	.0190	491.0530	.5789	18.0573	.2422	19.4987
	.200	.020	.199	-0.003	.0196	506.3904	.5970	18.7038	.2412	19.4358
	.220	.020	.197	-0.002	.0202	521.7279	.6151	19.3560	.2406	19.3937
	.240	.020	.195	-0.002	.0206	531.9528	.6271	19.8235	.2400	19.3517
	.260	.020	.193	-0.002	.0211	544.7340	.6422	20.3909	.2393	19.3096
	.280	.020	.191	-0.002	.0213	549.8464	.6482	20.6751	.2387	19.2674
	.300	.020	.189	-0.002	.0216	557.5151	.6573	21.0584	.2380	19.2252
	.320	.020	.188	-0.001	.0215	554.9589	.6543	21.0571	.2377	19.2041
	.340	.020	.186	-0.002	.0219	565.1838	.6663	21.5430	.2370	19.1619
	.360	.020	.184	-0.002	.0219	565.1838	.6663	21.6419	.2364	19.1196
	.380	.020	.183	-0.001	.0221	570.2963	.6723	21.9382	.2361	19.0984
	.400	.020	.182	-0.001	.0222	572.8525	.6754	22.1386	.2357	19.0772
	.420	.020	.181	-0.001	.0223	575.4088	.6784	22.3407	.2354	19.0560
	.440	.020	.180	-0.001	.0225	580.5213	.6844	22.6444	.2351	19.0348
	.460	.020	.179	-0.001	.0221	570.2963	.6723	22.3499	.2348	19.0136
	.480	.020	.177	-0.002	.0221	570.2963	.6723	22.4552	.2341	18.9712
	.500	.020	.176	-0.001	.0222	572.8525	.6754	22.6626	.2338	18.9499
09/52	.520	.020	.176	0	.0222	572.8525	.6754	22.7703	.2338	18.9499

PEAK STRESS = 20.5320 PSI PEAK SATURATION = 94.43 PERCENT

ULTIMATE STRESS = 20.2608 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-M-10*-DS-3S	05-18-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 6.315 LBS. DRY DENSITY = 96.489 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.966 LBS. WET DENSITY = 106.427 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 2.000 MOISTURE CONTENT = 10.300 PER CENT

INITIAL CONSOLIDATION = .196 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 101.460 LBS./CU.FT.

INITIAL POROSITY = 22.719 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .294 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 89.80 PER CENT

INITIAL MOISTURE CONTENT = 13.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.278	.196	0	0	0	0	.2306	18.7368
	.020	.020	.278	0	.0033	207.9000	.1226	7.3844	.2306	18.7368
	.040	.020	.277	-0.001	.0047	296.1000	.1745	10.5622	.2302	18.7154
	.060	.020	.276	-0.001	.0060	378.0000	.2228	13.5416	.2299	18.6940
	.080	.020	.274	-0.002	.0075	472.5000	.2785	17.0001	.2293	18.6512
	.100	.020	.270	-0.004	.0083	522.9000	.3082	18.8950	.2280	18.5655
	.120	.020	.267	-0.003	.0094	592.2000	.3491	21.4923	.2270	18.5011
	.140	.020	.265	-0.002	.0102	642.6000	.3788	23.4234	.2264	18.4581
	.160	.020	.262	-0.003	.0111	699.3000	.4122	25.6021	.2254	18.3935
	.180	.020	.259	-0.003	.0117	737.1000	.4345	27.1051	.2244	18.3288
	.200	.020	.256	-0.003	.0123	774.9000	.4568	28.6213	.2235	18.2640
	.220	.020	.253	-0.003	.0130	819.0000	.4828	30.3848	.2225	18.1992
	.240	.020	.250	-0.003	.0135	850.5000	.5013	31.6944	.2215	18.1342
	.260	.020	.247	-0.003	.0140	882.0000	.5199	33.0158	.2205	18.0691
	.280	.020	.245	-0.002	.0143	900.9000	.5311	33.8753	.2199	18.0256
	.300	.020	.242	-0.003	.0149	938.7000	.5533	35.4564	.2189	17.9604
	.320	.020	.240	-0.002	.0152	957.6000	.5645	36.3348	.2183	17.9168
	.340	.020	.238	-0.002	.0154	970.2000	.5719	36.9810	.2176	17.8732
	.360	.020	.236	-0.002	.0159	001.700*	.5905	38.3568	.2170	17.8295
	.380	.020	.234	-0.002	.0161	014.300*	.5979	39.0182	.2163	17.7858
	.400	.020	.232	-0.002	.0164	033.200*	.6090	39.9292	.2157	17.7420
	.420	.020	.232	0	.0165	039.500*	.6128	40.3594	.2157	17.7420
	.440	.020	.229	-0.003	.0167	052.100*	.6202	41.0393	.2147	17.6763
	.460	.020	.227	-0.002	.0169	064.700*	.6276	41.7256	.2141	17.6325
	.480	.020	.226	-0.001	.0171	077.300*	.6350	42.4182	.2137	17.6105
	.500	.020	.224	-0.002	.0175	102.500*	.6499	43.6159	.2131	17.5666
	.520	.020	.222	-0.002	.0147	926.1000	.5459	36.8115	.2125	17.5226
	.540	.020	.221	-0.001	.0176	108.800*	.6536	44.2840	.2121	17.5006
	.560	.020	.219	-0.002	.0174	096.200*	.6462	43.9907	.2115	17.4565
	.580	.020	.218	-0.001	.0175	102.500*	.6499	44.4566	.2112	17.4345
	.600	.020	.218	0	.0175	102.500*	.6499	44.6717	.2112	17.4345
11/07	.620	.020	.217	-0.001	.0175	102.500*	.6499	44.8889	.2108	17.4124

PEAK STRESS = 39.2162 PSI PEAK SATURATION = 97.11 PERCENT

ULTIMATE STRESS = 38.9934 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-N-10*-DS-1	03-28-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.540 LBS. DRY DENSITY = 84.648 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.939 LBS. WET DENSITY = 90.743 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.840 MOISTURE CONTENT = 7.200 PER CENT

INITIAL CONSOLIDATION = .074 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 86.244 LBS./CU.FT.

INITIAL POROSITY = 26.307 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .357 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 37.11 PER CENT

INITIAL MOISTURE CONTENT = 7.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.404	.074	0	5.3684	.0127	.1899	.3319	24.9177
	.020	.020	.406	.002	.0050	133.1802	.3140	4.7304	.3326	24.9560
	.040	.020	.406	0	.0052	138.2926	.3261	4.9330	.3326	24.9560
	.060	.020	.407	.001	.0066	174.0799	.4105	6.2363	.3329	24.9751
	.080	.020	.408	.001	.0077	202.1985	.4768	7.2749	.3332	24.9941
	.100	.020	.408	0	.0091	237.9858	.5611	8.5996	.3332	24.9941
	.120	.020	.408	0	.0103	268.6606	.6335	9.7503	.3332	24.9941
	.140	.020	.408	0	.0112	291.6667	.6877	10.6315	.3332	24.9941
	.160	.020	.407	-0.001	.0119	309.5604	.7299	11.3333	.3329	24.9751
	.180	.020	.408	.001	.0123	319.7853	.7540	11.7593	.3332	24.9941
	.200	.020	.407	-0.001	.0128	332.5665	.7842	12.2835	.3329	24.9751
	.220	.020	.407	0	.0131	340.2352	.8022	12.6227	.3329	24.9751
	.240	.020	.407	0	.0135	350.4601	.8263	13.0601	.3329	24.9751
	.260	.020	.407	0	.0137	355.5726	.8384	13.3101	.3329	24.9751
	.280	.020	.407	0	.0139	360.6851	.8505	13.5623	.3329	24.9751
	.300	.020	.407	0	.0140	363.2413	.8565	13.7203	.3329	24.9751
	.320	.020	.407	0	.0142	368.3538	.8685	13.9767	.3329	24.9751
	.340	.020	.407	0	.0143	370.9100	.8746	14.1379	.3329	24.9751
	.360	.020	.406	-0.001	.0144	373.4662	.8806	14.3007	.3326	24.9560
	.380	.020	.406	0	.0144	373.4662	.8806	14.3666	.3326	24.9560
	.400	.020	.407	.001	.0142	368.3538	.8685	14.2355	.3329	24.9751
	.420	.020	.407	0	.0140	363.2413	.8565	14.1031	.3329	24.9751
	.440	.020	.406	-0.001	.0141	365.7975	.8625	14.2687	.3326	24.9560
	.460	.020	.405	-0.001	.0140	363.2413	.8565	14.2354	.3322	24.9368
	.480	.020	.405	0	.0139	360.6851	.8505	14.2018	.3322	24.9368
09/59	.500	.020	.405	0	.0138	358.1288	.8444	14.1679	.3322	24.9368

PEAK STRESS = 13.2088 PSI PEAK SATURATION = 39.84 PERCENT

ULTIMATE STRESS = 12.6664 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-N-10*-DS-1A	04-2-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.540 LBS. DRY DENSITY = 84.648 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.939 LBS. WET DENSITY = 90.743 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.840 MOISTURE CONTENT = 7.200 PER CENT

INITIAL CONSOLIDATION = .067 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 86.090 LBS./CU.FT.

INITIAL POROSITY = 26.307 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .357 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 37.11 PER CENT

INITIAL MOISTURE CONTENT = 7.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.401	.067	0	5.3684	.0127	.1899	.3342	25.0514
	.020	.020	.404	.003	.0045	120.3990	.2839	4.2764	.3353	25.1085
	.040	.020	.404	0	.0058	153.6300	.3622	5.4801	.3353	25.1085
	.060	.020	.405	.001	.0069	181.7486	.4285	6.5110	.3356	25.1275
	.080	.020	.406	.001	.0083	217.5359	.5129	7.8267	.3359	25.1465
	.100	.020	.406	0	.0099	258.4357	.6094	9.3386	.3359	25.1465
	.120	.020	.406	0	.0112	291.6667	.6877	10.5853	.3359	25.1465
	.140	.020	.406	0	.0122	317.2291	.7480	11.5633	.3359	25.1465
	.160	.020	.406	0	.0124	322.3415	.7600	11.8013	.3359	25.1465
	.180	.020	.407	.001	.0131	340.2352	.8022	12.5113	.3363	25.1655
	.200	.020	.407	0	.0134	347.9039	.8203	12.8500	.3363	25.1655
	.220	.020	.407	0	.0136	353.0164	.8324	13.0968	.3363	25.1655
	.240	.020	.407	0	.0139	360.6851	.8505	13.4411	.3363	25.1655
	.260	.020	.408	.001	.0142	368.3538	.8685	13.7885	.3366	25.1845
	.280	.020	.408	0	.0144	373.4662	.8806	14.0429	.3366	25.1845
	.300	.020	.409	.001	.0145	376.0225	.8866	14.2031	.3370	25.2035
	.320	.020	.410	.001	.0146	378.5787	.8926	14.3646	.3373	25.2225
	.340	.020	.410	0	.0148	383.6912	.9047	14.6251	.3373	25.2225
	.360	.020	.411	.001	.0147	381.1349	.8987	14.5943	.3376	25.2414
	.380	.020	.411	0	.0147	381.1349	.8987	14.6616	.3376	25.2414
	.400	.020	.411	0	.0147	381.1349	.8987	14.7294	.3376	25.2414
	.420	.020	.412	.001	.0145	376.0225	.8866	14.5994	.3380	25.2604
	.440	.020	.412	0	.0147	381.1349	.8987	14.8670	.3380	25.2604
	.460	.020	.412	0	.0145	376.0225	.8866	14.7363	.3380	25.2604
	.480	.020	.412	0	.0145	376.0225	.8866	14.8057	.3380	25.2604
09/55	.500	.020	.412	0	.0143	370.9100	.8746	14.6735	.3380	25.2604

PEAK STRESS = 13.5705 PSI PEAK SATURATION = 39.28 PERCENT

ULTIMATE STRESS = 13.1184 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-N-10*-DS-2	03-28-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.540 LBS. DRY DENSITY = 84.648 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.939 LBS. WET DENSITY = 90.743 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.840 MOISTURE CONTENT = 7.200 PER CENT

INITIAL CONSOLIDATION = .104 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 86.908 LBS./CU.FT.

INITIAL POROSITY = 26.307 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .357 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 37.11 PER CENT

INITIAL MOISTURE CONTENT = 7.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.363	.104	0	5.3684	.0063	.1899	.3217	24.3396
	.020	.020	.363	0	.0082	214.9797	.2534	7.6358	.3217	24.3396
	.040	.020	.362	-0.001	.0104	271.2168	.3197	9.6746	.3214	24.3202
	.060	.020	.361	-0.001	.0124	322.3415	.3800	11.5477	.3210	24.3007
	.080	.020	.360	-0.001	.0126	327.4540	.3860	11.7815	.3207	24.2813
	.100	.020	.360	0	.0137	355.5726	.4192	12.8486	.3207	24.2813
	.120	.020	.359	-0.001	.0151	391.3599	.4614	14.2034	.3203	24.2618
	.140	.020	.358	-0.001	.0163	422.0347	.4976	15.3836	.3200	24.2424
	.160	.020	.356	-0.002	.0174	450.1533	.5307	16.4806	.3193	24.2034
	.180	.020	.354	-0.002	.0179	462.9345	.5458	17.0233	.3186	24.1644
	.200	.020	.353	-0.001	.0187	483.3843	.5699	17.8540	.3183	24.1449
	.220	.020	.351	-0.002	.0199	514.0591	.6060	19.0715	.3176	24.1058
	.240	.020	.350	-0.001	.0206	531.9528	.6271	19.8235	.3173	24.0863
	.260	.020	.349	-0.001	.0211	544.7340	.6422	20.3909	.3169	24.0667
	.280	.020	.348	-0.001	.0216	557.5151	.6573	20.9635	.3166	24.0472
	.300	.020	.347	-0.001	.0219	565.1838	.6663	21.3480	.3163	24.0276
	.320	.020	.346	-0.001	.0222	572.8525	.6754	21.7361	.3159	24.0080
	.340	.020	.345	-0.001	.0226	583.0775	.6874	22.2251	.3156	23.9884
	.360	.020	.344	-0.001	.0230	593.3024	.6995	22.7186	.3152	23.9688
	.380	.020	.343	-0.001	.0228	588.1900	.6934	22.6266	.3149	23.9492
	.400	.020	.342	-0.001	.0228	588.1900	.6934	22.7313	.3146	23.9295
	.420	.020	.341	-0.001	.0232	598.4149	.7055	23.2339	.3142	23.9099
	.440	.020	.340	-0.001	.0233	600.9711	.7085	23.4421	.3139	23.8903
	.460	.020	.339	-0.001	.0234	603.5274	.7115	23.6522	.3136	23.8706
	.480	.020	.338	-0.001	.0236	608.6398	.7175	23.9649	.3132	23.8509
	.500	.020	.338	0	.0238	613.7523	.7236	24.2806	.3132	23.8509
	.520	.020	.336	-0.002	.0241	621.4210	.7326	24.7008	.3125	23.8116
	.540	.020	.335	-0.001	.0242	623.9772	.7356	24.9208	.3122	23.7919
	.560	.020	.335	0	.0240	618.8648	.7296	24.8352	.3122	23.7919
	.580	.020	.334	-0.001	.0241	621.4210	.7326	25.0579	.3119	23.7722
13/40	.600	.020	.334	0	.0241	621.4210	.7326	25.1791	.3119	23.7722

PEAK STRESS = 22.0689 PSI PEAK SATURATION = 42.43 PERCENT

ULTIMATE STRESS = 21.9785 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-N-10*-DS-3	03-29-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.540 LBS. DRY DENSITY = 84.648 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.939 LBS. WET DENSITY = 90.743 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.840 MOISTURE CONTENT = 7.200 PER CENT

INITIAL CONSOLIDATION = .106 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 86.952 LBS./CU.FT.

INITIAL POROSITY = 26.307 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .357 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 37.11 PER CENT

INITIAL MOISTURE CONTENT = 7.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.356	.106	0	5.3684	.0063	.1899	.3210	24.3007
	.020	.020	.355	-0.001	.0079	207.3110	.2444	7.3635	.3207	24.2813
	.040	.020	.354	-0.001	.0092	240.5420	.2836	8.5804	.3203	24.2618
	.060	.020	.354	0	.0108	281.4418	.3318	10.0825	.3203	24.2618
	.080	.020	.353	-0.001	.0126	327.4540	.3860	11.7815	.3200	24.2424
	.100	.020	.351	-0.002	.0141	365.7975	.4313	13.2181	.3193	24.2034
	.120	.020	.349	-0.002	.0157	406.6973	.4795	14.7600	.3186	24.1644
	.140	.020	.346	-0.003	.0166	429.7034	.5066	15.6631	.3176	24.1058
	.160	.020	.344	-0.002	.0178	460.3782	.5428	16.8550	.3169	24.0667
	.180	.020	.343	-0.001	.0186	480.8281	.5669	17.6813	.3166	24.0472
	.200	.020	.341	-0.002	.0191	493.6093	.5819	18.2317	.3159	24.0080
	.220	.020	.340	-0.001	.0200	516.6154	.6091	19.1663	.3156	23.9884
	.240	.020	.338	-0.002	.0206	531.9528	.6271	19.8235	.3149	23.9492
	.260	.020	.336	-0.002	.0213	549.8464	.6482	20.5823	.3142	23.9099
	.280	.020	.335	-0.001	.0218	562.6276	.6633	21.1557	.3139	23.8903
	.300	.020	.334	-0.001	.0223	575.4088	.6784	21.7342	.3136	23.8706
	.320	.020	.333	-0.001	.0223	575.4088	.6784	21.8331	.3132	23.8509
	.340	.020	.332	-0.001	.0228	588.1900	.6934	22.4200	.3129	23.8313
	.360	.020	.330	-0.002	.0230	593.3024	.6995	22.7186	.3122	23.7919
	.380	.020	.329	-0.001	.0234	603.5274	.7115	23.2166	.3119	23.7722
	.400	.020	.327	-0.002	.0236	608.6398	.7175	23.5216	.3112	23.7327
	.420	.020	.325	-0.002	.0239	616.3085	.7266	23.9287	.3105	23.6932
	.440	.020	.325	0	.0241	621.4210	.7326	24.2398	.3105	23.6932
	.460	.020	.323	-0.002	.0243	626.5335	.7386	24.5538	.3098	23.6537
	.480	.020	.322	-0.001	.0244	629.0897	.7417	24.7701	.3095	23.6339
	.500	.020	.321	-0.001	.0246	634.2022	.7477	25.0896	.3091	23.6141
	.520	.020	.320	-0.001	.0246	634.2022	.7477	25.2088	.3088	23.5943
	.540	.020	.319	-0.001	.0248	639.3147	.7537	25.5334	.3085	23.5745
	.560	.020	.317	-0.002	.0250	644.4271	.7597	25.8610	.3078	23.5349
	.580	.020	.316	-0.001	.0250	644.4271	.7597	25.9855	.3074	23.5150
	.600	.020	.315	-0.001	.0253	652.0958	.7688	26.4220	.3071	23.4952
	.620	.020	.314	-0.001	.0252	649.5396	.7658	26.4464	.3068	23.4753
	.640	.020	.313	-0.001	.0252	649.5396	.7658	26.5755	.3064	23.4555
	.660	.020	.313	0	.0253	652.0958	.7688	26.8109	.3064	23.4555
	.680	.020	.312	-0.001	.0253	652.0958	.7688	26.9430	.3061	23.4356
13/38	.700	.020	.311	-0.001	.0252	649.5396	.7658	26.9702	.3058	23.4157

PEAK STRESS = 23.0634 PSI PEAK SATURATION = 43.14 PERCENT

ULTIMATE STRESS = 22.9730 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-N-10*-DS-4	03-29-73	L ATKINS R CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.540 LBS. DRY DENSITY = 84.648 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.939 LBS. WET DENSITY = 90.743 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.840 MOISTURE CONTENT = 7.200 PER CENT

INITIAL CONSOLIDATION = .184 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 88.730 LBS./CU.FT.

INITIAL POROSITY = 26.307 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .357 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 37.11 PER CENT

INITIAL MOISTURE CONTENT = 7.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.301	.184	0	0	0	0	.2946	22.7534
	.020	.020	.302	.001	.0037	233.1000	.1374	8.2795	.2949	22.7736
	.040	.020	.301	-0.001	.0060	378.0000	.2228	13.4836	.2946	22.7534
	.060	.020	.299	-0.002	.0075	472.5000	.2785	16.9270	.2939	22.7129
	.080	.020	.297	-0.002	.0086	541.8000	.3194	19.4934	.2932	22.6724
	.100	.020	.294	-0.003	.0096	604.8000	.3565	21.8544	.2922	22.6114
	.120	.020	.292	-0.002	.0105	661.5000	.3899	24.0074	.2915	22.5708
	.140	.020	.290	-0.002	.0108	680.4000	.4011	24.8013	.2908	22.5301
	.160	.020	.289	-0.001	.0117	737.1000	.4345	26.9860	.2905	22.5097
	.180	.020	.287	-0.002	.0124	781.2000	.4605	28.7267	.2898	22.4690
	.200	.020	.285	-0.002	.0131	825.3000	.4865	30.4829	.2891	22.4282
	.220	.020	.283	-0.002	.0138	869.4000	.5125	32.2546	.2884	22.3873
	.240	.020	.281	-0.002	.0143	900.9000	.5311	33.5726	.2878	22.3464
	.260	.020	.280	-0.001	.0147	926.1000	.5459	34.6666	.2874	22.3260
	.280	.020	.277	-0.003	.0152	957.6000	.5645	36.0073	.2864	22.2645
	.300	.020	.275	-0.002	.0157	989.1000	.5830	37.3601	.2857	22.2235
	.320	.020	.274	-0.001	.0161	014.300*	.5979	38.4862	.2854	22.2030
	.340	.020	.272	-0.002	.0165	039.500*	.6128	39.6225	.2847	22.1619
	.360	.020	.271	-0.001	.0168	058.400*	.6239	40.5280	.2844	22.1413
	.380	.020	.270	-0.001	.0171	077.300*	.6350	41.4417	.2840	22.1207
	.400	.020	.269	-0.001	.0174	096.200*	.6462	42.3639	.2837	22.1002
	.420	.020	.268	-0.001	.0177	115.100*	.6573	43.2946	.2834	22.0796
	.440	.020	.267	-0.001	.0181	140.300*	.6722	44.4798	.2830	22.0590
	.460	.020	.266	-0.001	.0182	146.600*	.6759	44.9352	.2827	22.0384
	.480	.020	.265	-0.001	.0183	152.900*	.6796	45.3950	.2823	22.0177
	.500	.020	.264	-0.001	.0185	165.500*	.6870	46.1082	.2820	21.9971
	.520	.020	.263	-0.001	.0188	184.400*	.6982	47.0786	.2817	21.9764
	.540	.020	.262	-0.001	.0189	190.700*	.7019	47.5550	.2813	21.9558
	.560	.020	.262	0	.0189	190.700*	.7019	47.7830	.2813	21.9558
	.580	.020	.261	-0.001	.0190	197.000*	.7056	48.2672	.2810	21.9351
	.600	.020	.260	-0.001	.0191	203.300*	.7093	48.7560	.2806	21.9144
	.620	.020	.259	-0.001	.0191	203.300*	.7093	48.9930	.2803	21.8937
	.640	.020	.259	0	.0193	215.900*	.7167	49.7477	.2803	21.8937
	.660	.020	.257	-0.002	.0192	209.600*	.7130	49.7327	.2796	21.8523
	.680	.020	.256	-0.001	.0192	209.600*	.7130	49.9777	.2793	21.8316
15/52	.700	.020	.256	0	.0192	209.600*	.7130	50.2251	.2793	21.8316

PEAK STRESS = 43.0042 PSI PEAK SATURATION = 47.26 PERCENT

ULTIMATE STRESS = 42.7814 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-N-10*-DS-5	03-29-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.540 LBS. DRY DENSITY = 84.648 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.939 LBS. WET DENSITY = 90.743 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.840 MOISTURE CONTENT = 7.200 PER CENT

INITIAL CONSOLIDATION = .166 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 88.313 LBS./CU.FT.

INITIAL POROSITY = 26.307 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .357 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 37.11 PER CENT

INITIAL MOISTURE CONTENT = 7.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.291	.166	0	0	0	0	.3007	23.1161
	.020	.020	.291	0	.0037	233.1000	.1374	8.2795	.3007	23.1161
	.040	.020	.290	-0.001	.0052	327.6000	.1931	11.6858	.3003	23.0960
	.060	.020	.288	-0.002	.0068	428.4000	.2525	15.3471	.2996	23.0559
	.080	.020	.286	-0.002	.0077	485.1000	.2860	17.4534	.2990	23.0157
	.100	.020	.284	-0.002	.0083	522.9000	.3082	18.8950	.2983	22.9754
	.120	.020	.282	-0.002	.0094	592.2000	.3491	21.4923	.2976	22.9352
	.140	.020	.279	-0.003	.0101	636.3000	.3751	23.1938	.2966	22.8747
	.160	.020	.277	-0.002	.0110	693.0000	.4085	25.3715	.2959	22.8343
	.180	.020	.274	-0.003	.0118	743.4000	.4382	27.3367	.2949	22.7736
	.200	.020	.271	-0.003	.0127	800.1000	.4716	29.5521	.2939	22.7129
	.220	.020	.268	-0.003	.0135	850.5000	.5013	31.5534	.2929	22.6521
	.240	.020	.266	-0.002	.0140	882.0000	.5199	32.8683	.2922	22.6114
	.260	.020	.264	-0.002	.0145	913.5000	.5385	34.1949	.2915	22.5708
	.280	.020	.261	-0.003	.0152	957.6000	.5645	36.0073	.2905	22.5097
	.300	.020	.260	-0.001	.0156	982.8000	.5793	37.1221	.2901	22.4894
	.320	.020	.258	-0.002	.0161	014.300*	.5979	38.4862	.2895	22.4486
	.340	.020	.256	-0.002	.0166	045.800*	.6165	39.8626	.2888	22.4077
	.360	.020	.254	-0.002	.0171	077.300*	.6350	41.2517	.2881	22.3669
	.380	.020	.253	-0.001	.0173	089.900*	.6425	41.9264	.2878	22.3464
	.400	.020	.252	-0.001	.0176	108.800*	.6536	42.8509	.2874	22.3260
	.420	.020	.251	-0.001	.0179	127.700*	.6647	43.7838	.2871	22.3055
	.440	.020	.250	-0.001	.0181	140.300*	.6722	44.4798	.2868	22.2850
	.460	.020	.249	-0.001	.0184	159.200*	.6833	45.4290	.2864	22.2645
	.480	.020	.247	-0.002	.0186	171.800*	.6907	46.1391	.2857	22.2235
	.500	.020	.247	0	.0187	178.100*	.6945	46.6067	.2857	22.2235
	.520	.020	.246	-0.001	.0189	190.700*	.7019	47.3290	.2854	22.2030
	.540	.020	.245	-0.001	.0191	203.300*	.7093	48.0582	.2851	22.1824
	.560	.020	.244	-0.001	.0191	203.300*	.7093	48.2886	.2847	22.1619
	.580	.020	.243	-0.001	.0191	203.300*	.7093	48.5212	.2844	22.1413
	.600	.020	.243	0	.0193	215.900*	.7167	49.2666	.2844	22.1413
	.620	.020	.242	-0.001	.0192	209.600*	.7130	49.2495	.2840	22.1207
	.640	.020	.241	-0.001	.0190	197.000*	.7056	48.9745	.2837	22.1002
	.660	.020	.240	-0.001	.0190	197.000*	.7056	49.2147	.2834	22.0796
	.680	.020	.239	-0.001	.0191	203.300*	.7093	49.7174	.2830	22.0590
13/57	.700	.020	.239	0	.0190	197.000*	.7056	49.7019	.2830	22.0590

PEAK STRESS = 43.0042 PSI PEAK SATURATION = 46.59 PERCENT

ULTIMATE STRESS = 42.3357 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-N-10*-DS-1S	03-28-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.540 LBS. DRY DENSITY = 84.648 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.316 LBS. WET DENSITY = 96.499 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.840 MOISTURE CONTENT = 14.000 PER CENT

INITIAL CONSOLIDATION = .111 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 87.064 LBS./CU.FT.

INITIAL POROSITY = 26.307 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .357 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 87.11 PER CENT

INITIAL MOISTURE CONTENT = 16.90 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.402	.111	0	5.3684	.0127	.1899	.3193	24.2037
	.020	.020	.402	0	.0033	89.7242	.2116	3.1869	.3193	24.2037
	.040	.020	.400	-0.002	.0043	115.2865	.2718	4.1124	.3186	24.1647
	.060	.020	.398	-0.002	.0052	138.2926	.3261	4.9542	.3180	24.1256
	.080	.020	.396	-0.002	.0059	156.1863	.3683	5.6194	.3173	24.0866
	.100	.020	.395	-0.001	.0062	163.8550	.3864	5.9209	.3170	24.0670
	.120	.020	.392	-0.003	.0070	184.3049	.4346	6.6888	.3159	24.0083
	.140	.020	.390	-0.002	.0075	197.0860	.4647	7.1840	.3153	23.9691
	.160	.020	.387	-0.003	.0079	207.3110	.4888	7.5899	.3142	23.9102
	.180	.020	.385	-0.002	.0083	217.5359	.5129	7.9994	.3136	23.8709
	.200	.020	.383	-0.002	.0089	232.8733	.5491	8.6013	.3129	23.8316
	.220	.020	.381	-0.002	.0093	243.0983	.5732	9.0189	.3122	23.7922
	.240	.020	.379	-0.002	.0098	255.8794	.6033	9.5355	.3115	23.7527
	.260	.020	.377	-0.002	.0100	260.9919	.6154	9.7697	.3108	23.7133
	.280	.020	.376	-0.001	.0103	268.6606	.6335	10.1021	.3105	23.6935
	.300	.020	.375	-0.001	.0106	276.3293	.6516	10.4375	.3102	23.6738
	.320	.020	.374	-0.001	.0110	286.5542	.6757	10.8729	.3098	23.6540
	.340	.020	.373	-0.001	.0111	289.1105	.6817	11.0200	.3095	23.6342
	.360	.020	.372	-0.001	.0113	294.2230	.6937	11.2663	.3091	23.6144
	.380	.020	.370	-0.002	.0115	299.3354	.7058	11.5149	.3085	23.5748
	.400	.020	.369	-0.001	.0117	304.4479	.7179	11.7657	.3081	23.5550
	.420	.020	.368	-0.001	.0117	304.4479	.7179	11.8204	.3078	23.5352
	.440	.020	.367	-0.001	.0120	312.1166	.7359	12.1748	.3075	23.5153
	.460	.020	.366	-0.001	.0121	314.6728	.7420	12.3320	.3071	23.4955
	.480	.020	.366	0	.0122	317.2291	.7480	12.4908	.3071	23.4955
	.500	.020	.365	-0.001	.0123	319.7853	.7540	12.6510	.3068	23.4756
	.520	.020	.364	-0.001	.0125	324.8978	.7661	12.9143	.3064	23.4558
	.540	.020	.364	0	.0125	324.8978	.7661	12.9760	.3064	23.4558
	.560	.020	.363	-0.001	.0125	324.8978	.7661	13.0382	.3061	23.4359
	.580	.020	.363	0	.0125	324.8978	.7661	13.1010	.3061	23.4359
	.600	.020	.363	0	.0125	324.8978	.7661	13.1644	.3061	23.4359
12/05	.620	.020	.363	0	.0123	319.7853	.7540	13.0202	.3061	23.4359

PEAK STRESS = 11.4910 PSI PEAK SATURATION = 84.06 PERCENT

ULTIMATE STRESS = 11.3102 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-N-10*-DS-2S	03-28-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.540 LBS. DRY DENSITY = 84.648 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.255 LBS. WET DENSITY = 95.567 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.840 MOISTURE CONTENT = 12.900 PER CENT

INITIAL CONSOLIDATION = .227 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 89.741 LBS./CU.FT.

INITIAL POROSITY = 26.307 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .357 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 82.47 PER CENT

INITIAL MOISTURE CONTENT = 16.00 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. */LOAD RATIO*	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.123	.227	0	5.3684	.0063	.1899	.2800	21.8733
	.020	.020	.121	-0.002	.0052	138.2926	.1630	4.9120	.2793	21.8319
	.040	.020	.118	-0.003	.0069	181.7486	.2143	6.4831	.2783	21.7697
	.060	.020	.114	-0.004	.0080	209.8672	.2474	7.5183	.2769	21.6865
	.080	.020	.110	-0.004	.0085	222.6484	.2625	8.0107	.2756	21.6032
	.100	.020	.108	-0.002	.0094	245.6545	.2896	8.8767	.2749	21.5615
	.120	.020	.104	-0.004	.0104	271.2168	.3197	9.8431	.2735	21.4779
	.140	.020	.100	-0.004	.0116	301.8917	.3559	11.0043	.2722	21.3941
	.160	.020	.097	-0.003	.0124	322.3415	.3800	11.8013	.2712	21.3312
	.180	.020	.094	-0.003	.0135	350.4601	.4132	12.8873	.2701	21.2682
	.200	.020	.090	-0.004	.0146	378.5787	.4463	13.9830	.2688	21.1840
	.220	.020	.087	-0.003	.0155	401.5848	.4734	14.8987	.2678	21.1207
	.240	.020	.085	-0.002	.0162	419.4785	.4945	15.6321	.2671	21.0785
	.260	.020	.082	-0.003	.0172	445.0408	.5247	16.6591	.2661	21.0150
	.280	.020	.080	-0.002	.0178	460.3782	.5428	17.3110	.2654	20.9727
	.300	.020	.078	-0.002	.0185	478.2719	.5639	18.0652	.2647	20.9303
	.320	.020	.076	-0.002	.0189	488.4968	.5759	18.5353	.2640	20.8878
	.340	.020	.073	-0.003	.0196	506.3904	.5970	19.3020	.2630	20.8241
	.360	.020	.072	-0.001	.0199	514.0591	.6060	19.6842	.2627	20.8028
	.380	.020	.071	-0.001	.0203	524.2841	.6181	20.1682	.2623	20.7815
	.400	.020	.069	-0.002	.0208	537.0653	.6332	20.7555	.2617	20.7389
	.420	.020	.068	-0.001	.0211	544.7340	.6422	21.1497	.2613	20.7176
	.440	.020	.066	-0.002	.0214	552.4027	.6512	21.5476	.2606	20.6749
	.460	.020	.065	-0.001	.0217	560.0714	.6603	21.9492	.2603	20.6536
	.480	.020	.064	-0.001	.0220	567.7401	.6693	22.3545	.2600	20.6322
	.500	.020	.062	-0.002	.0222	572.8525	.6754	22.6626	.2593	20.5895
	.520	.020	.062	0	.0226	583.0775	.6874	23.1767	.2593	20.5895
	.540	.020	.061	-0.001	.0226	583.0775	.6874	23.2873	.2589	20.5681
	.560	.020	.061	0	.0228	588.1900	.6934	23.6042	.2589	20.5681
	.580	.020	.060	-0.001	.0231	595.8587	.7025	24.0271	.2586	20.5466
	.600	.020	.059	-0.001	.0232	598.4149	.7055	24.2469	.2583	20.5252
	.620	.020	.058	-0.001	.0232	598.4149	.7055	24.3648	.2579	20.5038
	.640	.020	.057	-0.001	.0233	600.9711	.7085	24.5883	.2576	20.4823
	.660	.020	.057	0	.0232	598.4149	.7055	24.6038	.2576	20.4823
	.680	.020	.056	-0.001	.0234	603.5274	.7115	24.9363	.2572	20.4609
	.700	.020	.056	0	.0234	603.5274	.7115	25.0597	.2572	20.4609
	.720	.020	.055	-0.001	.0235	606.0836	.7145	25.2910	.2569	20.4394
	.740	.020	.055	0	.0234	603.5274	.7115	25.3101	.2569	20.4394
	.760	.020	.054	-0.001	.0234	603.5274	.7115	25.4371	.2566	20.4179
	.780	.020	.054	0	.0233	600.9711	.7085	25.4571	.2566	20.4179
16/38	.800	.020	.053	-0.001	.0232	598.4149	.7055	25.4772	.2562	20.3964

PEAK STRESS = 21.4361 PSI PEAK SATURATION = 92.39 PERCENT

ULTIMATE STRESS = 21.1648 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-N-10*-DS-3S	03-28-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.540 LBS. DRY DENSITY = 84.648 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.199 LBS. WET DENSITY = 94.721 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.840 MOISTURE CONTENT = 11.900 PER CENT

INITIAL CONSOLIDATION = .464 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 95.756 LBS./CU.FT.

INITIAL POROSITY = 26.307 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .357 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 83.50 PER CENT

INITIAL MOISTURE CONTENT = 16.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.535	.464	0	0	0	0	.1996	16.6368
	.020	.020	.536	.001	.0034	214.2000	.1263	7.6082	.1999	16.6604
	.040	.020	.534	-0.002	.0046	289.8000	.1708	10.3374	.1992	16.6132
	.060	.020	.533	-0.001	.0057	359.1000	.2117	12.8645	.1989	16.5896
	.080	.020	.531	-0.002	.0064	403.2000	.2377	14.5067	.1982	16.5424
	.100	.020	.529	-0.002	.0072	453.6000	.2674	16.3908	.1975	16.4951
	.120	.020	.526	-0.003	.0079	497.7000	.2934	18.0627	.1965	16.4241
	.140	.020	.523	-0.003	.0085	535.5000	.3157	19.5195	.1955	16.3529
	.160	.020	.521	-0.002	.0086	541.8000	.3194	19.8359	.1948	16.3054
	.180	.020	.519	-0.002	.0085	535.5000	.3157	19.6917	.1941	16.2579
	.200	.020	.519	0	.0088	554.4000	.3268	20.4770	.1941	16.2579
	.220	.020	.518	-0.001	.0097	611.1000	.3602	22.6717	.1938	16.2341
	.240	.020	.515	-0.003	.0104	655.2000	.3862	24.4164	.1928	16.1626
	.260	.020	.513	-0.002	.0111	699.3000	.4122	26.1768	.1921	16.1149
	.280	.020	.510	-0.003	.0116	730.8000	.4308	27.4792	.1911	16.0432
	.300	.020	.508	-0.002	.0122	768.6000	.4531	29.0314	.1904	15.9954
	.320	.020	.506	-0.002	.0128	806.4000	.4753	30.5977	.1897	15.9475
	.340	.020	.504	-0.002	.0133	837.9000	.4939	31.9381	.1891	15.8995
	.360	.020	.501	-0.003	.0137	863.1000	.5088	33.0496	.1880	15.8275
	.380	.020	.499	-0.002	.0143	900.9000	.5311	34.6559	.1874	15.7794
	.400	.020	.497	-0.002	.0147	926.1000	.5459	35.7902	.1867	15.7312
	.420	.020	.495	-0.002	.0151	951.3000	.5608	36.9350	.1860	15.6830
	.440	.020	.494	-0.001	.0154	970.2000	.5719	37.8447	.1857	15.6589
	.460	.020	.492	-0.002	.0160	008.000*	.5942	39.5035	.1850	15.6106
	.480	.020	.490	-0.002	.0164	033.200*	.6090	40.6818	.1843	15.5622
	.500	.020	.489	-0.001	.0167	052.100*	.6202	41.6220	.1840	15.5380
	.520	.020	.487	-0.002	.0170	071.000*	.6313	42.5711	.1833	15.4896
	.540	.020	.486	-0.001	.0174	096.200*	.6462	43.7808	.1829	15.4654
	.560	.020	.484	-0.002	.0177	115.100*	.6573	44.7492	.1823	15.4169
	.580	.020	.483	-0.001	.0179	127.700*	.6647	45.4728	.1819	15.3926
	.600	.020	.482	-0.001	.0183	152.900*	.6796	46.7139	.1816	15.3683
	.620	.020	.481	-0.001	.0185	165.500*	.6870	47.4540	.1813	15.3440
	.640	.020	.481	0	.0188	184.400*	.6982	48.4589	.1813	15.3440
	.660	.020	.479	-0.002	.0189	190.700*	.7019	48.9556	.1806	15.2953
	.680	.020	.478	-0.001	.0190	197.000*	.7056	49.4571	.1802	15.2710
	.700	.020	.478	0	.0191	203.300*	.7093	49.9635	.1802	15.2710
	.720	.020	.477	-0.001	.0192	209.600*	.7130	50.4748	.1799	15.2466
	.740	.020	.476	-0.001	.0194	222.200*	.7204	51.2554	.1796	15.2223
	.760	.020	.474	-0.002	.0193	215.900*	.7167	51.2470	.1789	15.1735
	.780	.020	.474	0	.0194	222.200*	.7204	51.7723	.1789	15.1735
	.800	.020	.474	0	.0193	215.900*	.7167	51.7662	.1789	15.1735
	.820	.020	.473	-0.001	.0192	209.600*	.7130	51.7600	.1785	15.1490
16/27	.840	.020	.472	-0.001	.0192	209.600*	.7130	52.0246	.1782	15.1246

PEAK STRESS = 43.2270 PSI PEAK SATURATION =100.00 PERCENT

ULTIMATE STRESS = 42.7814 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-0-3*-DS-1	04-09-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.001 LBS. DRY DENSITY = 76.410 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.456 LBS. WET DENSITY = 83.363 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 9.100 PER CENT

INITIAL CONSOLIDATION = .121 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 78.793 LBS./CU.FT.

INITIAL POROSITY = 31.621 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .462 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 35.22 PER CENT

INITIAL MOISTURE CONTENT = 9.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. */LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.398	.121	0	5.3684	.0127	.1899	.4182	29.4880
	.020	.020	.397	-0.001	.0036	97.3929	.2296	3.4593	.4178	29.4698
	.040	.020	.395	-0.002	.0046	122.9552	.2899	4.3859	.4171	29.4334
	.060	.020	.392	-0.003	.0053	140.8489	.3321	5.0458	.4160	29.3787
	.080	.020	.389	-0.003	.0061	161.2987	.3803	5.8034	.4149	29.3240
	.100	.020	.385	-0.004	.0063	166.4112	.3924	6.0133	.4134	29.2509
	.120	.020	.384	-0.001	.0070	184.3049	.4346	6.6888	.4131	29.2326
	.140	.020	.381	-0.003	.0075	197.0860	.4647	7.1840	.4120	29.1776
	.160	.020	.378	-0.003	.0080	209.8672	.4948	7.6835	.4109	29.1225
	.180	.020	.376	-0.002	.0083	217.5359	.5129	7.9994	.4102	29.0858
	.200	.020	.374	-0.002	.0087	227.7608	.5370	8.4125	.4094	29.0490
	.220	.020	.371	-0.003	.0090	235.4296	.5551	8.7344	.4083	28.9937
	.240	.020	.368	-0.003	.0092	240.5420	.5672	8.9639	.4072	28.9384
	.260	.020	.367	-0.001	.0096	250.7670	.5913	9.3869	.4069	28.9199
	.280	.020	.365	-0.002	.0097	253.3232	.5973	9.5254	.4061	28.8830
	.300	.020	.363	-0.002	.0101	263.5481	.6214	9.9547	.4054	28.8460
	.320	.020	.361	-0.002	.0103	268.6606	.6335	10.1939	.4047	28.8089
	.340	.020	.359	-0.002	.0106	276.3293	.6516	10.5328	.4039	28.7718
	.360	.020	.358	-0.001	.0107	278.8855	.6576	10.6790	.4036	28.7533
	.380	.020	.357	-0.001	.0110	286.5542	.6757	11.0232	.4032	28.7347
	.400	.020	.355	-0.002	.0111	289.1105	.6817	11.1730	.4025	28.6976
	.420	.020	.354	-0.001	.0113	294.2230	.6937	11.4234	.4021	28.6790
	.440	.020	.353	-0.001	.0114	296.7792	.6998	11.5765	.4017	28.6604
	.460	.020	.352	-0.001	.0115	299.3354	.7058	11.7310	.4014	28.6418
	.480	.020	.351	-0.001	.0115	299.3354	.7058	11.7862	.4010	28.6231
	.500	.020	.350	-0.001	.0117	304.4479	.7179	12.0442	.4006	28.6045
	.520	.020	.349	-0.001	.0118	307.0041	.7239	12.2031	.4003	28.5859
	.540	.020	.348	-0.001	.0118	307.0041	.7239	12.2613	.3999	28.5672
	.560	.020	.347	-0.001	.0118	307.0041	.7239	12.3201	.3996	28.5486
	.580	.020	.346	-0.001	.0119	309.5604	.7299	12.4826	.3992	28.5299
	.600	.020	.346	0	.0120	312.1166	.7359	12.6465	.3992	28.5299
	.620	.020	.345	-0.001	.0120	312.1166	.7359	12.7080	.3988	28.5112
	.640	.020	.344	-0.001	.0122	317.2291	.7480	12.9792	.3985	28.4925
	.660	.020	.344	0	.0121	314.6728	.7420	12.9378	.3985	28.4925
	.680	.020	.343	-0.001	.0120	312.1166	.7359	12.8959	.3981	28.4738
13/51	.700	.020	.343	0	.0120	312.1166	.7359	12.9597	.3981	28.4738

PEAK STRESS = 11.2198 PSI PEAK SATURATION = 40.88 PERCENT

ULTIMATE STRESS = 11.0390 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-0-3*-DS-2	04-09-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.001 LBS. DRY DENSITY = 76.410 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.456 LBS. WET DENSITY = 83.363 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 9.100 PER CENT

INITIAL CONSOLIDATION = .357 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 83.897 LBS./CU.FT.

INITIAL POROSITY = 31.621 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .462 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 35.22 PER CENT

INITIAL MOISTURE CONTENT = 9.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.643	.357	0	5.3684	.0063	.1899	.3319	24.9201
	.020	.020	.643	0	.0053	140.8489	.1661	5.0028	.3319	24.9201
	.040	.020	.641	-0.002	.0077	202.1985	.2384	7.2126	.3312	24.8788
	.060	.020	.638	-0.003	.0092	240.5420	.2836	8.6173	.3301	24.8169
	.080	.020	.634	-0.004	.0104	271.2168	.3197	9.7581	.3286	24.7341
	.100	.020	.631	-0.003	.0118	307.0041	.3619	11.0936	.3275	24.6720
	.120	.020	.629	-0.002	.0125	324.8978	.3830	11.7913	.3268	24.6304
	.140	.020	.626	-0.003	.0134	347.9039	.4102	12.6814	.3257	24.5681
	.160	.020	.623	-0.003	.0144	373.4662	.4403	13.6730	.3246	24.5056
	.180	.020	.620	-0.003	.0152	393.9161	.4644	14.4853	.3235	24.4431
	.200	.020	.617	-0.003	.0160	414.3660	.4885	15.3048	.3224	24.3804
	.220	.020	.615	-0.002	.0167	432.2594	.5096	16.0368	.3217	24.3385
	.240	.020	.612	-0.003	.0171	442.4846	.5217	16.4895	.3206	24.2757
	.260	.020	.609	-0.003	.0178	460.3782	.5428	17.2333	.3195	24.2128
	.280	.020	.606	-0.003	.0184	475.7156	.5608	17.8877	.3184	24.1497
	.300	.020	.605	-0.001	.0188	485.9406	.5729	18.3549	.3180	24.1287
	.320	.020	.603	-0.002	.0194	501.2780	.5910	19.0203	.3173	24.0866
	.340	.020	.602	-0.001	.0199	514.0591	.6060	19.5943	.3169	24.0655
	.360	.020	.600	-0.002	.0202	521.7279	.6151	19.9779	.3162	24.0233
	.380	.020	.598	-0.002	.0207	534.5090	.6302	20.5616	.3155	23.9811
	.400	.020	.597	-0.001	.0210	542.1777	.6392	20.9531	.3151	23.9599
	.420	.020	.596	-0.001	.0214	552.4027	.6512	21.4475	.3147	23.9388
	.440	.020	.595	-0.001	.0218	562.6276	.6633	21.9465	.3144	23.9176
	.460	.020	.593	-0.002	.0222	572.8525	.6754	22.4501	.3136	23.8753
	.480	.020	.592	-0.001	.0224	577.9650	.6814	22.7571	.3133	23.8541
	.500	.020	.591	-0.001	.0226	583.0775	.6874	23.0671	.3129	23.8329
	.520	.020	.591	0	.0226	583.0775	.6874	23.1767	.3129	23.8329
	.540	.020	.589	-0.002	.0228	588.1900	.6934	23.4915	.3122	23.7904
	.560	.020	.589	0	.0229	590.7462	.6965	23.7067	.3122	23.7904
	.580	.020	.588	-0.001	.0232	598.4149	.7055	24.1302	.3118	23.7692
	.600	.020	.587	-0.001	.0232	598.4149	.7055	24.2469	.3114	23.7479
	.620	.020	.587	0	.0233	600.9711	.7085	24.4689	.3114	23.7479
	.640	.020	.586	-0.001	.0233	600.9711	.7085	24.5883	.3111	23.7267
	.660	.020	.586	0	.0235	606.0836	.7145	24.9191	.3111	23.7267
	.680	.020	.585	-0.001	.0236	608.6398	.7175	25.1475	.3107	23.7054
	.700	.020	.585	0	.0236	608.6398	.7175	25.2720	.3107	23.7054
	.720	.020	.584	-0.001	.0235	606.0836	.7145	25.2910	.3103	23.6841
	.740	.020	.583	-0.001	.0235	606.0836	.7145	25.4173	.3100	23.6628
	.760	.020	.582	-0.001	.0235	606.0836	.7145	25.5449	.3096	23.6415
	.780	.020	.581	-0.001	.0235	606.0836	.7145	25.6736	.3092	23.6202
17/47	.800	.020	.580	-0.001	.0233	600.9711	.7085	25.5860	.3089	23.5988

PEAK STRESS = 21.5265 PSI PEAK SATURATION = 52.43 PERCENT

ULTIMATE STRESS = 21.2553 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-0-3*-DS-3	04-10-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.001 LBS. DRY DENSITY = 76.410 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.456 LBS. WET DENSITY = 83.363 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 9.100 PER CENT

INITIAL CONSOLIDATION = .466 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 86.485 LBS./CU.FT.

INITIAL POROSITY = 31.621 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .462 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 35.22 PER CENT

INITIAL MOISTURE CONTENT = 9.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. */LOAD RATIO*	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.534	.466	0	0	0	0	.2921	22.6044
	.020	.020	.534	0	.0033	207.9000	.1226	7.3844	.2921	22.6044
	.040	.020	.532	-0.002	.0046	289.8000	.1708	10.3374	.2913	22.5605
	.060	.020	.529	-0.003	.0058	365.4000	.2154	13.0902	.2902	22.4947
	.080	.020	.526	-0.003	.0066	415.8000	.2451	14.9601	.2891	22.4288
	.100	.020	.523	-0.003	.0074	466.2000	.2748	16.8461	.2880	22.3627
	.120	.020	.519	-0.004	.0081	510.3000	.3008	18.5200	.2866	22.2745
	.140	.020	.515	-0.004	.0088	554.4000	.3268	20.2084	.2851	22.1860
	.160	.020	.511	-0.004	.0096	604.8000	.3565	22.1424	.2837	22.0974
	.180	.020	.508	-0.003	.0103	648.9000	.3825	23.8617	.2826	22.0307
	.200	.020	.505	-0.003	.0108	680.4000	.4011	25.1309	.2815	21.9640
	.220	.020	.502	-0.003	.0112	705.6000	.4159	26.1776	.2804	21.8972
	.240	.020	.498	-0.004	.0118	743.4000	.4382	27.7033	.2789	21.8078
	.260	.020	.494	-0.004	.0124	781.2000	.4605	29.2425	.2774	21.7183
	.280	.020	.491	-0.003	.0129	812.7000	.4791	30.5588	.2763	21.6511
	.300	.020	.489	-0.002	.0134	844.2000	.4976	31.8870	.2756	21.6061
	.320	.020	.485	-0.004	.0139	875.7000	.5162	33.2272	.2741	21.5162
	.340	.020	.482	-0.003	.0143	900.9000	.5311	34.3395	.2731	21.4485
	.360	.020	.479	-0.003	.0147	926.1000	.5459	35.4620	.2720	21.3808
	.380	.020	.476	-0.003	.0151	951.3000	.5608	36.5947	.2709	21.3130
	.400	.020	.474	-0.002	.0155	976.5000	.5756	37.7380	.2701	21.2677
	.420	.020	.472	-0.002	.0158	995.4000	.5868	38.6472	.2694	21.2223
	.440	.020	.470	-0.002	.0160	008.000*	.5942	39.3191	.2687	21.1769
	.460	.020	.468	-0.002	.0165	039.500*	.6128	40.7380	.2679	21.1314
	.480	.020	.466	-0.002	.0167	052.100*	.6202	41.4260	.2672	21.0859
	.500	.020	.464	-0.002	.0171	077.300*	.6350	42.6189	.2665	21.0404
	.520	.020	.463	-0.001	.0171	077.300*	.6350	42.8215	.2661	21.0176
	.540	.020	.461	-0.002	.0174	096.200*	.6462	43.7808	.2654	20.9719
	.560	.020	.459	-0.002	.0175	102.500*	.6499	44.2435	.2646	20.9262
	.580	.020	.458	-0.001	.0177	115.100*	.6573	44.9647	.2643	20.9034
	.600	.020	.456	-0.002	.0177	115.100*	.6573	45.1823	.2635	20.8576
	.620	.020	.455	-0.001	.0178	121.400*	.6610	45.6584	.2632	20.8347
	.640	.020	.454	-0.001	.0180	134.000*	.6685	46.3968	.2628	20.8118
	.660	.020	.452	-0.002	.0180	134.000*	.6685	46.6244	.2621	20.7659
	.680	.020	.451	-0.001	.0181	140.300*	.6722	47.1144	.2617	20.7429
	.700	.020	.451	0	.0181	140.300*	.6722	47.3476	.2617	20.7429
	.720	.020	.449	-0.002	.0184	159.200*	.6833	48.3717	.2610	20.6970
	.740	.020	.448	-0.001	.0184	159.200*	.6833	48.6133	.2606	20.6740
	.760	.020	.448	0	.0184	159.200*	.6833	48.8573	.2606	20.6740
	.780	.020	.447	-0.001	.0184	159.200*	.6833	49.1036	.2603	20.6510
16/20	.800	.020	.447	0	.0184	159.200*	.6833	49.3523	.2603	20.6510

PEAK STRESS = 40.9988 PSI PEAK SATURATION = 62.41 PERCENT

ULTIMATE STRESS = 40.9988 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-0-3*-DS-1S	04-05-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.001 LBS. DRY DENSITY = 76.410 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.776 LBS. WET DENSITY = 88.253 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 15.500 PER CENT

INITIAL CONSOLIDATION = .156 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 79.510 LBS./CU.FT.

INITIAL POROSITY = 31.621 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .462 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 70.06 PER CENT

INITIAL MOISTURE CONTENT = 18.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.352	.156	0	5.3684	.0127	.1899	.4054	28.8460
	.020	.020	.350	-0.002	.0033	89.7242	.2116	3.1869	.4047	28.8090
	.040	.020	.346	-0.004	.0044	117.8428	.2779	4.2036	.4032	28.7348
	.060	.020	.340	-0.006	.0052	138.2926	.3261	4.9542	.4010	28.6232
	.080	.020	.336	-0.004	.0054	143.4051	.3381	5.1596	.3996	28.5486
	.100	.020	.334	-0.002	.0055	145.9613	.3442	5.2743	.3988	28.5112
	.120	.020	.331	-0.003	.0060	158.7425	.3743	5.7611	.3977	28.4551
	.140	.020	.328	-0.003	.0064	168.9674	.3984	6.1590	.3966	28.3990
	.160	.020	.325	-0.003	.0068	179.1924	.4225	6.5604	.3955	28.3427
	.180	.020	.322	-0.003	.0071	186.8611	.4406	6.8714	.3944	28.2863
	.200	.020	.319	-0.003	.0076	199.6423	.4707	7.3739	.3933	28.2299
	.220	.020	.316	-0.003	.0078	204.7547	.4828	7.5964	.3922	28.1733
	.240	.020	.313	-0.003	.0082	214.9797	.5069	8.0113	.3911	28.1167
	.260	.020	.310	-0.003	.0084	220.0921	.5190	8.2387	.3900	28.0600
	.280	.020	.308	-0.002	.0087	227.7608	.5370	8.5642	.3893	28.0221
	.300	.020	.305	-0.003	.0091	237.9858	.5611	8.9892	.3882	27.9652
	.320	.020	.303	-0.002	.0092	240.5420	.5672	9.1270	.3875	27.9273
	.340	.020	.300	-0.003	.0096	250.7670	.5913	9.5585	.3864	27.8703
	.360	.020	.298	-0.002	.0097	253.3232	.5973	9.7002	.3857	27.8322
	.380	.020	.297	-0.001	.0100	260.9919	.6154	10.0399	.3853	27.8132
	.400	.020	.295	-0.002	.0102	266.1044	.6274	10.2839	.3846	27.7750
	.420	.020	.294	-0.001	.0103	268.6606	.6335	10.4310	.3842	27.7560
	.440	.020	.292	-0.002	.0104	271.2168	.6395	10.5794	.3835	27.7178
	.460	.020	.290	-0.002	.0107	278.8855	.6576	10.9295	.3827	27.6795
	.480	.020	.289	-0.001	.0108	281.4418	.6636	11.0817	.3824	27.6604
	.500	.020	.288	-0.001	.0109	283.9980	.6696	11.2352	.3820	27.6413
	.520	.020	.286	-0.002	.0108	281.4418	.6636	11.1870	.3813	27.6030
	.540	.020	.285	-0.001	.0109	283.9980	.6696	11.3425	.3809	27.5838
	.560	.020	.284	-0.001	.0111	289.1105	.6817	11.6021	.3805	27.5646
	.580	.020	.283	-0.001	.0112	291.6667	.6877	11.7610	.3802	27.5454
	.600	.020	.282	-0.001	.0112	291.6667	.6877	11.8179	.3798	27.5262
	.620	.020	.281	-0.001	.0112	291.6667	.6877	11.8754	.3794	27.5070
	.640	.020	.281	0	.0113	294.2230	.6937	12.0379	.3794	27.5070
	.660	.020	.280	-0.001	.0113	294.2230	.6937	12.0970	.3791	27.4878
	.680	.020	.279	-0.001	.0114	296.7792	.6998	12.2622	.3787	27.4686
	.700	.020	.278	-0.001	.0116	301.8917	.7118	12.5352	.3783	27.4493
	.720	.020	.277	-0.001	.0113	294.2230	.6937	12.2775	.3780	27.4301
	.740	.020	.276	-0.001	.0114	296.7792	.6998	12.4460	.3776	27.4108
	.760	.020	.276	0	.0113	294.2230	.6937	12.4007	.3776	27.4108
	.780	.020	.274	-0.002	.0112	291.6667	.6877	12.3550	.3769	27.3723
16/15	.800	.020	.274	0	.0112	291.6667	.6877	12.4175	.3769	27.3723

PEAK STRESS = 10.6774 PSI PEAK SATURATION = 73.33 PERCENT

ULTIMATE STRESS = 10.3157 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-0-3*-DS-2S	04-05-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.001 LBS. DRY DENSITY = 76.409 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.691 LBS. WET DENSITY = 86.954 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 13.800 PER CENT

INITIAL CONSOLIDATION = .405 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 85.017 LBS./CU.FT.

INITIAL POROSITY = 31.621 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .462 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 66.96 PER CENT

INITIAL MOISTURE CONTENT = 17.30 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.595	.405	0	5.3684	.0063	.1899	.3144	23.9179
	.020	.020	.594	-0.001	.0048	128.0677	.1510	4.5488	.3140	23.8967
	.040	.020	.592	-0.002	.0064	168.9674	.1992	6.0272	.3133	23.8543
	.060	.020	.589	-0.003	.0078	204.7547	.2414	7.3352	.3122	23.7907
	.080	.020	.587	-0.002	.0089	232.8733	.2745	8.3785	.3114	23.7482
	.100	.020	.585	-0.002	.0104	271.2168	.3197	9.8004	.3107	23.7056
	.120	.020	.581	-0.004	.0110	286.5542	.3378	10.3997	.3093	23.6204
	.140	.020	.579	-0.002	.0120	312.1166	.3680	11.3770	.3085	23.5777
	.160	.020	.576	-0.003	.0130	337.6789	.3981	12.3628	.3074	23.5136
	.180	.020	.573	-0.003	.0139	360.6851	.4252	13.2633	.3063	23.4494
	.200	.020	.571	-0.002	.0150	388.8036	.4584	14.3607	.3056	23.4065
	.220	.020	.568	-0.003	.0156	404.1410	.4765	14.9936	.3045	23.3421
	.240	.020	.565	-0.003	.0165	427.1472	.5036	15.9179	.3034	23.2776
	.260	.020	.562	-0.003	.0170	439.9283	.5186	16.4678	.3023	23.2130
	.280	.020	.560	-0.002	.0177	457.8220	.5397	17.2148	.3016	23.1699
	.300	.020	.557	-0.003	.0181	468.0469	.5518	17.6790	.3005	23.1051
	.320	.020	.555	-0.002	.0188	485.9406	.5729	18.4383	.2997	23.0618
	.340	.020	.554	-0.001	.0193	498.7217	.5880	19.0097	.2994	23.0402
	.360	.020	.552	-0.002	.0196	506.3904	.5970	19.3906	.2986	22.9968
	.380	.020	.551	-0.001	.0202	521.7279	.6151	20.0699	.2983	22.9751
	.400	.020	.549	-0.002	.0206	531.9528	.6271	20.5579	.2976	22.9317
	.420	.020	.547	-0.002	.0212	547.2902	.6452	21.2490	.2968	22.8883
	.440	.020	.546	-0.001	.0215	554.9589	.6543	21.6473	.2965	22.8665
	.460	.020	.545	-0.001	.0218	562.6276	.6633	22.0494	.2961	22.8448
	.480	.020	.544	-0.001	.0223	575.4088	.6784	22.6565	.2957	22.8230
	.500	.020	.543	-0.001	.0222	572.8525	.6754	22.6626	.2954	22.8012
	.520	.020	.542	-0.001	.0226	583.0775	.6874	23.1767	.2950	22.7794
	.540	.020	.541	-0.001	.0227	585.6337	.6904	23.3894	.2946	22.7576
	.560	.020	.540	-0.001	.0228	588.1900	.6934	23.6042	.2943	22.7358
	.580	.020	.539	-0.001	.0228	588.1900	.6934	23.7179	.2939	22.7140
	.600	.020	.538	-0.001	.0226	583.0775	.6874	23.6255	.2935	22.6921
	.620	.020	.537	-0.001	.0226	583.0775	.6874	23.7403	.2932	22.6703
	.640	.020	.536	-0.001	.0226	583.0775	.6874	23.8562	.2928	22.6484
	.660	.020	.535	-0.001	.0226	583.0775	.6874	23.9732	.2924	22.6265
	.680	.020	.535	0	.0226	583.0775	.6874	24.0914	.2924	22.6265
15/16	.700	.020	.534	-0.001	.0226	583.0775	.6874	24.2106	.2921	22.6046

PEAK STRESS = 20.8032 PSI PEAK SATURATION = 83.95 PERCENT

ULTIMATE STRESS = 20.6224 PSI (ELIMINATED FROM GRAPH)

TEST NO. 1-0-3*-DS-3S

DATE TESTED 04-05-73

TESTED BY L ATKINS, B CARNES

CROSS SECT. AREA = 28.274 IN.

DRY WT. = 5.001 LBS.

DRY DENSITY = 76.409 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN.

WET WT. = 5.556 LBS.

WET DENSITY = 84.891 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT.

SPEC. GRAV. = 1.790

MOISTURE CONTENT = 11.100 PER CENT

INITIAL CONSOLIDATION = .532 IN.

PROVING RING NO. 53

CONSOLIDATED DRY DENSITY = 88.131 LBS./CU.FT.

INITIAL POROSITY = 31.621 PER CENT

CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .462

APPLIED LOAD = 1696.440 LBS.

INITIAL SATURATION = 70.06 PER CENT

INITIAL MOISTURE CONTENT = 18.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.468	.532	0	0	0	0	.2679	21.1315
	.020	.020	.468	0	.0034	214.2000	.1263	7.6082	.2679	21.1315
	.040	.020	.467	-0.001	.0046	289.8000	.1708	10.3374	.2676	21.1088
	.060	.020	.464	-0.003	.0056	352.8000	.2080	12.6388	.2665	21.0405
	.080	.020	.461	-0.003	.0066	415.8000	.2451	14.9601	.2654	20.9720
	.100	.020	.459	-0.002	.0073	459.9000	.2711	16.6185	.2646	20.9263
	.120	.020	.456	-0.003	.0080	504.0000	.2971	18.2913	.2635	20.8577
	.140	.020	.453	-0.003	.0087	548.1000	.3231	19.9788	.2624	20.7889
	.160	.020	.450	-0.003	.0096	604.8000	.3565	22.1424	.2614	20.7201
	.180	.020	.447	-0.003	.0103	648.9000	.3825	23.8617	.2603	20.6511
	.200	.020	.447	0	.0109	686.7000	.4048	25.3636	.2603	20.6511
	.220	.020	.441	-0.006	.0113	711.9000	.4196	26.4114	.2581	20.5127
	.240	.020	.439	-0.002	.0117	737.1000	.4345	27.4685	.2573	20.4665
	.260	.020	.437	-0.002	.0121	762.3000	.4494	28.5351	.2566	20.4202
	.280	.020	.435	-0.002	.0125	787.5000	.4642	29.6113	.2559	20.3739
	.300	.020	.433	-0.002	.0129	812.7000	.4791	30.6972	.2551	20.3275
	.320	.020	.432	-0.001	.0131	825.3000	.4865	31.3148	.2548	20.3042
	.340	.020	.430	-0.002	.0133	837.9000	.4939	31.9381	.2540	20.2578
	.360	.020	.429	-0.001	.0135	850.5000	.5013	32.5671	.2537	20.2345
	.380	.020	.428	-0.001	.0138	869.4000	.5125	33.4442	.2533	20.2113
	.400	.020	.427	-0.001	.0140	882.0000	.5199	34.0859	.2529	20.1880
	.420	.020	.426	-0.001	.0143	900.9000	.5311	34.9782	.2526	20.1647
	.440	.020	.424	-0.002	.0145	913.5000	.5385	35.6330	.2518	20.1180
	.460	.020	.422	-0.002	.0147	926.1000	.5459	36.2938	.2511	20.0714
	.480	.020	.421	-0.001	.0148	932.4000	.5496	36.7129	.2508	20.0480
	.500	.020	.420	-0.001	.0150	945.0000	.5570	37.3850	.2504	20.0246
	.520	.020	.418	-0.002	.0154	970.2000	.5719	38.5644	.2497	19.9778
	.540	.020	.416	-0.002	.0154	970.2000	.5719	38.7485	.2489	19.9310
	.560	.020	.413	-0.003	.0156	982.8000	.5793	39.4399	.2478	19.8606
	.580	.020	.411	-0.002	.0157	989.1000	.5830	39.8840	.2471	19.8136
	.600	.020	.410	-0.001	.0158	995.4000	.5868	40.3322	.2467	19.7901
	.620	.020	.408	-0.002	.0161	014.300*	.5979	41.2978	.2460	19.7430
	.640	.020	.406	-0.002	.0163	026.900*	.6053	42.0149	.2453	19.6959
	.660	.020	.403	-0.003	.0164	033.200*	.6090	42.4800	.2442	19.6251
	.680	.020	.401	-0.002	.0166	045.800*	.6165	43.2099	.2434	19.5778
	.700	.020	.400	-0.001	.0166	045.800*	.6165	43.4238	.2431	19.5542
	.720	.020	.399	-0.001	.0168	058.400*	.6239	44.1655	.2427	19.5305
	.740	.020	.398	-0.001	.0170	071.000*	.6313	44.9145	.2423	19.5068
	.760	.020	.395	-0.003	.0169	064.700*	.6276	44.8744	.2412	19.4357
	.780	.020	.395	0	.0169	064.700*	.6276	45.1006	.2412	19.4357
19/07	.800	.020	.393	-0.002	.0169	064.700*	.6276	45.3290	.2405	19.3882

PEAK STRESS = 37.8793 PSI

PEAK SATURATION = 81.99 PERCENT

ULTIMATE STRESS = 37.6565 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-03*M-DS-1	04-12-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.462 LBS. DRY DENSITY = 83.448 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.959 LBS. WET DENSITY = 91.041 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 9.100 PER CENT

INITIAL CONSOLIDATION = .063 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 84.783 LBS./CU.FT.

INITIAL POROSITY = 25.323 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .339 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 48.04 PER CENT

INITIAL MOISTURE CONTENT = 9.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. */LOAD RATIO*	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.400	.063	0	5.3684	.0127	.1899	.3180	24.1277
	.020	.020	.400	0	.0041	110.1740	.2598	3.9133	.3180	24.1277
	.040	.020	.400	0	.0058	153.6300	.3622	5.4801	.3180	24.1277
	.060	.020	.400	0	.0064	168.9674	.3984	6.0531	.3180	24.1277
	.080	.020	.400	0	.0075	197.0860	.4647	7.0910	.3180	24.1277
	.100	.020	.399	-0.001	.0086	225.2046	.5310	8.1378	.3177	24.1084
	.120	.020	.399	0	.0096	250.7670	.5913	9.1009	.3177	24.1084
	.140	.020	.399	0	.0103	268.6606	.6335	9.7930	.3177	24.1084
	.160	.020	.399	0	.0108	281.4418	.6636	10.3039	.3177	24.1084
	.180	.020	.398	-0.001	.0112	291.6667	.6877	10.7253	.3173	24.0891
	.200	.020	.398	0	.0115	299.3354	.7058	11.0561	.3173	24.0891
	.220	.020	.398	0	.0118	307.0041	.7239	11.3898	.3173	24.0891
	.240	.020	.398	0	.0120	312.1166	.7359	11.6312	.3173	24.0891
	.260	.020	.398	0	.0124	322.3415	.7600	12.0662	.3173	24.0891
	.280	.020	.398	0	.0126	327.4540	.7721	12.3128	.3173	24.0891
	.300	.020	.398	0	.0127	330.0102	.7781	12.4651	.3173	24.0891
	.320	.020	.398	0	.0128	332.5665	.7842	12.6188	.3173	24.0891
	.340	.020	.397	-0.001	.0130	337.6789	.7962	12.8713	.3170	24.0698
	.360	.020	.397	0	.0132	342.7914	.8083	13.1261	.3170	24.0698
	.380	.020	.397	0	.0132	342.7914	.8083	13.1865	.3170	24.0698
	.400	.020	.397	0	.0134	347.9039	.8203	13.4451	.3170	24.0698
	.420	.020	.397	0	.0135	350.4601	.8263	13.6069	.3170	24.0698
	.440	.020	.397	0	.0135	350.4601	.8263	13.6704	.3170	24.0698
	.460	.020	.397	0	.0135	350.4601	.8263	13.7345	.3170	24.0698
	.480	.020	.397	0	.0135	350.4601	.8263	13.7992	.3170	24.0698
10/12	.500	.020	.397	0	.0135	350.4601	.8263	13.8645	.3170	24.0698

PEAK STRESS = 12.3951 PSI PEAK SATURATION = 51.38 PERCENT

ULTIMATE STRESS = 12.3951 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-0-3*M-DS-2	04-12-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.462 LBS. DRY DENSITY = 83.448 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.959 LBS. WET DENSITY = 91.041 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 9.100 PER CENT

INITIAL CONSOLIDATION = .118 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 85.984 LBS./CU.FT.

INITIAL POROSITY = 25.323 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .339 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 48.04 PER CENT

INITIAL MOISTURE CONTENT = 9.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.409	.118	0	5.3684	.0063	.1899	.2996	23.0527
	.020	.020	.409	0	.0071	186.8611	.2203	6.6371	.2996	23.0527
	.040	.020	.409	0	.0102	266.1044	.3137	9.4922	.2996	23.0527
	.060	.020	.408	-0.001	.0119	309.5604	.3650	11.0898	.2993	23.0329
	.080	.020	.407	-0.001	.0127	330.0102	.3891	11.8734	.2989	23.0131
	.100	.020	.407	0	.0141	365.7975	.4313	13.2181	.2989	23.0131
	.120	.020	.407	0	.0157	406.6973	.4795	14.7600	.2989	23.0131
	.140	.020	.406	-0.001	.0171	442.4846	.5217	16.1290	.2986	22.9932
	.160	.020	.405	-0.001	.0187	483.3843	.5699	17.6972	.2983	22.9734
	.180	.020	.405	0	.0196	506.3904	.5970	18.6213	.2983	22.9734
	.200	.020	.404	-0.001	.0207	534.5090	.6302	19.7424	.2979	22.9535
	.220	.020	.404	0	.0215	554.9589	.6543	20.5889	.2979	22.9535
	.240	.020	.403	-0.001	.0218	562.6276	.6633	20.9667	.2976	22.9336
	.260	.020	.403	0	.0226	583.0775	.6874	21.8263	.2976	22.9336
	.280	.020	.402	-0.001	.0230	593.3024	.6995	22.3091	.2972	22.9137
	.300	.020	.402	0	.0233	600.9711	.7085	22.6998	.2972	22.9137
	.320	.020	.401	-0.001	.0239	616.3085	.7266	23.3850	.2969	22.8938
	.340	.020	.400	-0.001	.0243	626.5335	.7386	23.8815	.2966	22.8739
	.360	.020	.400	0	.0243	626.5335	.7386	23.9910	.2966	22.8739
	.380	.020	.400	0	.0244	629.0897	.7417	24.1999	.2966	22.8739
	.400	.020	.399	-0.001	.0246	634.2022	.7477	24.5095	.2962	22.8540
	.420	.020	.399	0	.0246	634.2022	.7477	24.6234	.2962	22.8540
	.440	.020	.399	0	.0248	639.3147	.7537	24.9378	.2962	22.8540
	.460	.020	.398	-0.001	.0250	644.4271	.7597	25.2551	.2959	22.8341
	.480	.020	.398	0	.0250	644.4271	.7597	25.3741	.2959	22.8341
	.500	.020	.397	-0.001	.0250	644.4271	.7597	25.4941	.2956	22.8141
	.520	.020	.396	-0.001	.0250	644.4271	.7597	25.6153	.2952	22.7942
	.540	.020	.396	0	.0250	644.4271	.7597	25.7376	.2952	22.7942
	.560	.020	.395	-0.001	.0248	639.3147	.7537	25.6558	.2949	22.7742
	.580	.020	.394	-0.001	.0245	631.6459	.7447	25.4702	.2946	22.7543
12/26	.600	.020	.394	0	.0243	626.5335	.7386	25.3863	.2946	22.7543

PEAK STRESS = 22.7922 PSI PEAK SATURATION = 55.05 PERCENT

ULTIMATE STRESS = 22.1594 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-0-3*M-DS-3	04-12-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.462 LBS. DRY DENSITY = 83.448 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 5.959 LBS. WET DENSITY = 91.041 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 9.100 PER CENT

INITIAL CONSOLIDATION = .170 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 87.151 LBS./CU.FT.

INITIAL POROSITY = 25.323 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .339 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 48.04 PER CENT

INITIAL MOISTURE CONTENT = 9.10 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.305	.170	0	0	0	0	.2822	22.0080
	.020	.020	.306	.001	.0033	207.9000	.1226	7.3844	.2825	22.0284
	.040	.020	.304	-0.002	.0047	296.1000	.1745	10.5622	.2818	21.9876
	.060	.020	.302	-0.002	.0063	396.9000	.2340	14.2187	.2812	21.9469
	.080	.020	.299	-0.003	.0074	466.2000	.2748	16.7734	.2802	21.8856
	.100	.020	.296	-0.003	.0083	522.9000	.3082	18.8950	.2792	21.8243
	.120	.020	.293	-0.003	.0093	585.9000	.3454	21.2637	.2782	21.7629
	.140	.020	.291	-0.002	.0099	623.7000	.3677	22.7345	.2775	21.7219
	.160	.020	.288	-0.003	.0106	667.8000	.3936	24.4489	.2765	21.6603
	.180	.020	.285	-0.003	.0111	699.3000	.4122	25.7151	.2755	21.5986
	.200	.020	.282	-0.003	.0118	743.4000	.4382	27.4578	.2745	21.5369
	.220	.020	.279	-0.003	.0123	774.9000	.4568	28.7487	.2735	21.4749
	.240	.020	.276	-0.003	.0130	819.0000	.4828	30.5205	.2725	21.4130
	.260	.020	.273	-0.003	.0135	850.5000	.5013	31.8366	.2715	21.3509
	.280	.020	.271	-0.002	.0137	863.1000	.5088	32.4539	.2708	21.3095
	.300	.020	.268	-0.003	.0143	900.9000	.5311	34.0286	.2698	21.2472
	.320	.020	.267	-0.001	.0145	913.5000	.5385	34.6615	.2695	21.2264
	.340	.020	.265	-0.002	.0147	926.1000	.5459	35.3000	.2688	21.1849
	.360	.020	.263	-0.002	.0152	957.6000	.5645	36.6681	.2681	21.1433
	.380	.020	.261	-0.002	.0155	976.5000	.5756	37.5641	.2675	21.1016
	.400	.020	.259	-0.002	.0158	995.4000	.5868	38.4684	.2668	21.0599
	.420	.020	.257	-0.002	.0161	014.300*	.5979	39.3810	.2661	21.0182
	.440	.020	.255	-0.002	.0163	026.900*	.6053	40.0564	.2654	20.9764
	.460	.020	.253	-0.002	.0167	052.100*	.6202	41.2318	.2648	20.9345
	.480	.020	.252	-0.001	.0168	058.400*	.6239	41.6741	.2644	20.9136
	.500	.020	.250	-0.002	.0171	077.300*	.6350	42.6189	.2638	20.8717
	.520	.020	.249	-0.001	.0172	083.600*	.6387	43.0719	.2634	20.8507
	.540	.020	.247	-0.002	.0173	089.900*	.6425	43.5291	.2628	20.8088
	.560	.020	.246	-0.001	.0175	102.500*	.6499	44.2435	.2624	20.7878
	.580	.020	.245	-0.001	.0176	108.800*	.6536	44.7107	.2621	20.7668
	.600	.020	.243	-0.002	.0177	115.100*	.6573	45.1823	.2614	20.7247
	.620	.020	.241	-0.002	.0177	115.100*	.6573	45.4019	.2608	20.6826
	.640	.020	.241	0	.0176	108.800*	.6536	45.3658	.2608	20.6826
	.660	.020	.240	-0.001	.0180	134.000*	.6685	46.6244	.2604	20.6615
	.680	.020	.239	-0.001	.0176	108.800*	.6536	45.8129	.2601	20.6405
	.700	.020	.238	-0.001	.0177	115.100*	.6573	46.3013	.2598	20.6194
13/46	.720	.020	.238	0	.0177	115.100*	.6573	46.5315	.2598	20.6194

PEAK STRESS = 40.1075 PSI PEAK SATURATION = 62.55 PERCENT

ULTIMATE STRESS = 39.4391 PSI (ELIMINATED FROM GRAPH)

TEST NO. 1-0-3*M-DS-1S

DATE TESTED 04-09-73

TESTED BY L ATKINS, B CARNES

CROSS SECT. AREA = 28.274 IN.

SAMPLE THICKNESS = 4.000 IN.

SAMPLE VOLUME = .0654 CU.FT.

DRY WT. = 5.462 LBS.

WET WT. = 6.215 LBS.

SPEC. GRAV. = 1.790

DRY DENSITY = 83.448 LBS./CU.FT.

WET DENSITY = 94.963 LBS./CU.FT.

MOISTURE CONTENT = 13.800 PER CENT

INITIAL CONSOLIDATION = .076 IN.

PROVING RING NO. 116

CONSOLIDATED DRY DENSITY = 85.064 LBS./CU.FT.

INITIAL POROSITY = 25.323 PER CENT

CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .339

APPLIED LOAD = 424.110 LBS.

INITIAL SATURATION = 85.52 PER CENT

INITIAL MOISTURE CONTENT = 16.20 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.447	.076	0	5.3684	.0127	.1899	.3137	23.8763
	.020	.020	.447	0	.0030	82.0555	.1935	2.9145	.3137	23.8763
	.040	.020	.446	-0.001	.0061	161.2987	.3803	5.7537	.3133	23.8569
	.060	.020	.446	0	.0070	184.3049	.4346	6.6026	.3133	23.8569
	.080	.020	.445	-0.001	.0083	217.5359	.5129	7.8267	.3130	23.8375
	.100	.020	.445	0	.0092	240.5420	.5672	8.6920	.3130	23.8375
	.120	.020	.444	-0.001	.0100	260.9919	.6154	9.4720	.3126	23.8180
	.140	.020	.443	-0.001	.0105	273.7731	.6455	9.9793	.3123	23.7986
	.160	.020	.443	0	.0111	289.1105	.6817	10.5847	.3123	23.7986
	.180	.020	.442	-0.001	.0113	294.2230	.6937	10.8193	.3120	23.7792
	.200	.020	.442	0	.0117	304.4479	.7179	11.2449	.3120	23.7792
	.220	.020	.441	-0.001	.0117	304.4479	.7179	11.2950	.3116	23.7597
	.240	.020	.440	-0.001	.0121	314.6728	.7420	11.7265	.3113	23.7403
	.260	.020	.439	-0.001	.0121	314.6728	.7420	11.7791	.3110	23.7208
	.280	.020	.438	-0.001	.0122	317.2291	.7480	11.9283	.3106	23.7013
	.300	.020	.438	0	.0122	317.2291	.7480	11.9823	.3106	23.7013
	.320	.020	.437	-0.001	.0122	317.2291	.7480	12.0368	.3103	23.6818
	.340	.020	.436	-0.001	.0123	319.7853	.7540	12.1892	.3100	23.6623
	.360	.020	.435	-0.001	.0124	322.3415	.7600	12.3430	.3096	23.6428
	.380	.020	.435	0	.0124	322.3415	.7600	12.3999	.3096	23.6428
	.400	.020	.434	-0.001	.0122	317.2291	.7480	12.2597	.3093	23.6233
	.420	.020	.434	0	.0122	317.2291	.7480	12.3167	.3093	23.6233
	.440	.020	.433	-0.001	.0120	312.1166	.7359	12.1748	.3090	23.6037
	.460	.020	.432	-0.001	.0121	314.6728	.7420	12.3320	.3086	23.5842
	.480	.020	.431	-0.001	.0120	312.1166	.7359	12.2895	.3083	23.5646
08/15	.500	.020	.431	0	.0120	312.1166	.7359	12.3476	.3083	23.5646

PEAK STRESS = 11.4006 PSI

PEAK SATURATION = 79.78 PERCENT

ULTIMATE STRESS = 11.0390 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-0-3*M-DS-2S	04-09-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.462 LBS. DRY DENSITY = 83.448 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.221 LBS. WET DENSITY = 95.047 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 13.900 PER CENT

INITIAL CONSOLIDATION = .132 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 86.295 LBS./CU.FT.

INITIAL POROSITY = 25.323 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .339 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 88.68 PER CENT

INITIAL MOISTURE CONTENT = 16.80 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.307	.132	0	5.3684	.0063	.1899	.2949	22.7743
	.020	.020	.306	-0.001	.0066	174.0799	.2052	6.1831	.2946	22.7543
	.040	.020	.304	-0.002	.0081	212.4234	.2504	7.5773	.2939	22.7143
	.060	.020	.302	-0.002	.0093	243.0983	.2866	8.7088	.2932	22.6743
	.080	.020	.300	-0.002	.0107	278.8855	.3288	10.0340	.2926	22.6343
	.100	.020	.298	-0.002	.0123	319.7853	.3770	11.5554	.2919	22.5942
	.120	.020	.296	-0.002	.0135	350.4601	.4132	12.7190	.2912	22.5540
	.140	.020	.293	-0.003	.0146	378.5787	.4463	13.7996	.2902	22.4937
	.160	.020	.291	-0.002	.0157	406.6973	.4795	14.8896	.2895	22.4535
	.180	.020	.288	-0.003	.0167	432.2596	.5096	15.8953	.2885	22.3930
	.200	.020	.287	-0.001	.0172	445.0408	.5247	16.4378	.2882	22.3729
	.220	.020	.284	-0.003	.0181	468.0469	.5518	17.3645	.2872	22.3123
	.240	.020	.282	-0.002	.0187	483.3843	.5699	18.0136	.2865	22.2719
	.260	.020	.280	-0.002	.0192	496.1655	.5849	18.5729	.2859	22.2314
	.280	.020	.279	-0.001	.0194	501.2780	.5910	18.8488	.2855	22.2112
	.300	.020	.277	-0.002	.0200	516.6154	.6091	19.5135	.2849	22.1706
	.320	.020	.275	-0.002	.0203	524.2841	.6181	19.8932	.2842	22.1300
	.340	.020	.273	-0.002	.0206	531.9528	.6271	20.2764	.2835	22.0894
	.360	.020	.272	-0.001	.0209	539.6215	.6362	20.6630	.2832	22.0691
	.380	.020	.270	-0.002	.0213	549.8464	.6482	21.1516	.2825	22.0284
	.400	.020	.269	-0.001	.0214	552.4027	.6512	21.3482	.2822	22.0081
	.420	.020	.268	-0.001	.0216	557.5151	.6573	21.6460	.2818	21.9877
	.440	.020	.266	-0.002	.0217	560.0714	.6603	21.8467	.2812	21.9469
	.460	.020	.265	-0.001	.0218	562.6276	.6633	22.0494	.2808	21.9265
	.480	.020	.264	-0.001	.0219	565.1838	.6663	22.2539	.2805	21.9061
	.500	.020	.262	-0.002	.0218	562.6276	.6633	22.2580	.2798	21.8652
	.520	.020	.261	-0.001	.0220	567.7401	.6693	22.5670	.2795	21.8448
	.540	.020	.260	-0.001	.0220	567.7401	.6693	22.6748	.2792	21.8243
	.560	.020	.259	-0.001	.0220	567.7401	.6693	22.7835	.2788	21.8039
	.580	.020	.258	-0.001	.0219	565.1838	.6663	22.7902	.2785	21.7834
	.600	.020	.257	-0.001	.0220	567.7401	.6693	23.0040	.2782	21.7629
	.620	.020	.256	-0.001	.0218	562.6276	.6633	22.9077	.2778	21.7424
	.640	.020	.254	-0.002	.0217	560.0714	.6603	22.9149	.2772	21.7014
	.660	.020	.253	-0.001	.0215	554.9589	.6543	22.8171	.2768	21.6809
	.680	.020	.252	-0.001	.0216	557.5151	.6573	23.0352	.2765	21.6603
13/36	.700	.020	.251	-0.001	.0215	554.9589	.6543	23.0430	.2762	21.6398

PEAK STRESS = 20.0799 PSI PEAK SATURATION = 89.02 PERCENT

ULTIMATE STRESS = 19.6279 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-0-3*M-DS-3S	04-09-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.462 LBS. DRY DENSITY = 83.447 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.117 LBS. WET DENSITY = 93.461 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.790 MOISTURE CONTENT = 12.000 PER CENT

INITIAL CONSOLIDATION = 0 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 83.447 LBS./CU.FT.

INITIAL POROSITY = 25.323 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .339 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 86.57 PER CENT

INITIAL MOISTURE CONTENT = 16.40 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.653	0	0	0	0	0	.3391	25.3228
	.020	.020	.654	.001	.0029	182.7000	.1077	6.4893	.3394	25.3414
	.040	.020	.653	-0.001	.0046	289.8000	.1708	10.3374	.3391	25.3228
	.060	.020	.651	-0.002	.0059	371.7000	.2191	13.3159	.3384	25.2854
	.080	.020	.649	-0.002	.0075	472.5000	.2785	17.0001	.3378	25.2480
	.100	.020	.646	-0.003	.0086	541.8000	.3194	19.5779	.3368	25.1918
	.120	.020	.644	-0.002	.0097	611.1000	.3602	22.1782	.3361	25.1544
	.140	.020	.641	-0.003	.0105	661.5000	.3899	24.1123	.3351	25.0981
	.160	.020	.639	-0.002	.0112	705.6000	.4159	25.8328	.3344	25.0605
	.180	.020	.637	-0.002	.0123	774.9000	.4568	28.4951	.3337	25.0229
	.200	.020	.634	-0.003	.0129	812.7000	.4791	30.0175	.3327	24.9664
	.220	.020	.632	-0.002	.0135	850.5000	.5013	31.5534	.3321	24.9286
	.240	.020	.630	-0.002	.0141	888.3000	.5236	33.1030	.3314	24.8909
	.260	.020	.628	-0.002	.0145	913.5000	.5385	34.1949	.3307	24.8531
	.280	.020	.626	-0.002	.0152	957.6000	.5645	36.0073	.3301	24.8153
	.300	.020	.624	-0.002	.0157	989.1000	.5830	37.3601	.3294	24.7774
	.320	.020	.623	-0.001	.0163	026.900*	.6053	38.9643	.3291	24.7585
	.340	.020	.622	-0.001	.0165	039.500*	.6128	39.6225	.3287	24.7395
	.360	.020	.620	-0.002	.0170	071.000*	.6313	41.0104	.3280	24.7016
	.380	.020	.619	-0.001	.0174	096.200*	.6462	42.1688	.3277	24.6826
	.400	.020	.618	-0.001	.0177	115.100*	.6573	43.0943	.3274	24.6636
	.420	.020	.617	-0.001	.0180	134.000*	.6685	44.0285	.3270	24.6446
	.440	.020	.616	-0.001	.0183	152.900*	.6796	44.9712	.3267	24.6255
	.460	.020	.614	-0.002	.0184	159.200*	.6833	45.4290	.3260	24.5875
	.480	.020	.614	0	.0186	171.800*	.6907	46.1391	.3260	24.5875
	.500	.020	.613	-0.001	.0188	184.400*	.6982	46.8559	.3257	24.5684
	.520	.020	.611	-0.002	.0189	190.700*	.7019	47.3290	.3250	24.5303
	.540	.020	.611	0	.0190	197.000*	.7056	47.8066	.3250	24.5303
	.560	.020	.610	-0.001	.0191	203.300*	.7093	48.2886	.3247	24.5113
	.580	.020	.609	-0.001	.0192	209.600*	.7130	48.7753	.3244	24.4922
	.600	.020	.608	-0.001	.0193	215.900*	.7167	49.2666	.3240	24.4731
	.620	.020	.606	-0.002	.0192	209.600*	.7130	49.2495	.3234	24.4349
	.640	.020	.606	0	.0192	209.600*	.7130	49.4900	.3234	24.4349
	.660	.020	.605	-0.001	.0191	203.300*	.7093	49.4737	.3230	24.4158
	.680	.020	.605	0	.0191	203.300*	.7093	49.7174	.3230	24.4158
14/25	.700	.020	.605	0	.0190	197.000*	.7056	49.7019	.3230	24.4158

PEAK STRESS = 43.0042 PSI PEAK SATURATION = 66.29 PERCENT

ULTIMATE STRESS = 42.3357 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-P-4*-DS-1	05-15-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.893 LBS. DRY DENSITY = 90.045 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.441 LBS. WET DENSITY = 98.420 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.990 MOISTURE CONTENT = 9.300 PER CENT

INITIAL CONSOLIDATION = .073 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 91.719 LBS./CU.FT.

INITIAL POROSITY = 27.517 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .380 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 48.75 PER CENT

INITIAL MOISTURE CONTENT = 9.30 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. */LOAD RATIO*	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
	0	0	.420	.073	0	5.3684	.0127	.1899	.3545	26.1696
	.020	.020	.420	0	.0036	97.3929	.2296	3.4593	.3545	26.1696
	.040	.020	.419	-0.001	.0050	133.1802	.3140	4.7507	.3541	26.1508
	.060	.020	.418	-0.001	.0063	166.4112	.3924	5.9616	.3538	26.1320
	.080	.020	.417	-0.001	.0070	184.3049	.4346	6.6311	.3534	26.1131
	.100	.020	.416	-0.001	.0072	189.4173	.4466	6.8446	.3531	26.0943
	.120	.020	.415	-0.001	.0080	209.8672	.4948	7.6166	.3527	26.0755
	.140	.020	.413	-0.002	.0088	230.3171	.5431	8.3953	.3520	26.0377
	.160	.020	.412	-0.001	.0096	250.7670	.5913	9.1809	.3517	26.0189
	.180	.020	.410	-0.002	.0103	268.6606	.6335	9.8793	.3510	25.9811
	.200	.020	.408	-0.002	.0109	283.9980	.6696	10.4896	.3503	25.9433
	.220	.020	.406	-0.002	.0113	294.2230	.6937	10.9156	.3496	25.9054
	.240	.020	.405	-0.001	.0116	301.8917	.7118	11.2502	.3493	25.8865
	.260	.020	.404	-0.001	.0119	309.5604	.7299	11.5877	.3489	25.8675
	.280	.020	.402	-0.002	.0125	324.8978	.7661	12.2167	.3482	25.8296
	.300	.020	.402	0	.0128	332.5665	.7842	12.5616	.3482	25.8296
	.320	.020	.401	-0.001	.0131	340.2352	.8022	12.9097	.3479	25.8106
	.340	.020	.400	-0.001	.0133	345.3476	.8143	13.1636	.3476	25.7916
	.360	.020	.399	-0.001	.0135	350.4601	.8263	13.4197	.3472	25.7726
	.380	.020	.398	-0.001	.0138	358.1288	.8444	13.7765	.3469	25.7536
	.400	.020	.397	-0.001	.0139	360.6851	.8505	13.9391	.3465	25.7346
	.420	.020	.396	-0.001	.0142	368.3538	.8685	14.3016	.3462	25.7156
	.440	.020	.396	0	.0144	373.4662	.8806	14.5678	.3462	25.7156
	.460	.020	.395	-0.001	.0146	378.5787	.8926	14.8365	.3458	25.6965
	.480	.020	.394	-0.001	.0146	378.5787	.8926	14.9064	.3455	25.6775
	.500	.020	.394	0	.0148	383.6912	.9047	15.1792	.3455	25.6775
	.520	.020	.394	0	.0150	388.8036	.9168	15.4545	.3455	25.6775
	.540	.020	.394	0	.0150	388.8036	.9168	15.5283	.3455	25.6775
	.560	.020	.393	-0.001	.0152	393.9161	.9288	15.8079	.3451	25.6584
	.580	.020	.393	0	.0152	393.9161	.9288	15.8841	.3451	25.6584
	.600	.020	.393	0	.0152	393.9161	.9288	15.9609	.3451	25.6584
	.620	.020	.392	-0.001	.0154	399.0286	.9409	16.2467	.3448	25.6394
	.640	.020	.392	0	.0154	399.0286	.9409	16.3260	.3448	25.6394
	.660	.020	.391	-0.001	.0153	396.4723	.9348	16.3010	.3445	25.6203
	.680	.020	.391	0	.0153	396.4723	.9348	16.3813	.3445	25.6203
10/23	.700	.020	.390	-0.001	.0153	396.4723	.9348	16.4624	.3441	25.6012

PEAK STRESS = 14.1129 PSI PEAK SATURATION = 53.67 PERCENT

ULTIMATE STRESS = 14.0225 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-P-4*-DS-2	05-15-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.893 LBS. DRY DENSITY = 90.045 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.441 LBS. WET DENSITY = 98.420 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.990 MOISTURE CONTENT = 9.300 PER CENT

INITIAL CONSOLIDATION = .113 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 92.663 LBS./CU.FT.

INITIAL POROSITY = 27.517 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .380 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 48.75 PER CENT

INITIAL MOISTURE CONTENT = 9.30 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.355	.113	0	5.3684	.0063	.1899	.3407	25.4098
	.020	.020	.354	-0.001	.0058	153.6300	.1811	5.4568	.3403	25.3906
	.040	.020	.352	-0.002	.0075	197.0860	.2324	7.0302	.3396	25.3522
	.060	.020	.350	-0.002	.0104	271.2168	.3197	9.7162	.3389	25.3137
	.080	.020	.348	-0.002	.0122	317.2291	.3740	11.4136	.3382	25.2752
	.100	.020	.346	-0.002	.0136	353.0164	.4162	12.7562	.3376	25.2367
	.120	.020	.344	-0.002	.0137	355.5726	.4192	12.9045	.3369	25.1981
	.140	.020	.344	0	.0138	358.1288	.4222	13.0542	.3369	25.1981
	.160	.020	.342	-0.002	.0158	409.2535	.4825	14.9832	.3362	25.1595
	.180	.020	.339	-0.003	.0167	432.2596	.5096	15.8953	.3351	25.1015
	.200	.020	.338	-0.001	.0165	427.1472	.5036	15.7769	.3348	25.0822
	.220	.020	.337	-0.001	.0184	475.7156	.5608	17.6490	.3345	25.0628
	.240	.020	.335	-0.002	.0194	501.2780	.5910	18.6804	.3338	25.0240
	.260	.020	.332	-0.003	.0205	529.3966	.6241	19.8168	.3327	24.9658
	.280	.020	.331	-0.001	.0209	539.6215	.6362	20.2906	.3324	24.9464
	.300	.020	.330	-0.001	.0213	549.8464	.6482	20.7687	.3320	24.9270
	.320	.020	.328	-0.002	.0218	562.6276	.6633	21.3481	.3313	24.8881
	.340	.020	.327	-0.001	.0222	572.8525	.6754	21.8353	.3310	24.8686
	.360	.020	.326	-0.001	.0226	583.0775	.6874	22.3270	.3307	24.8491
	.380	.020	.325	-0.001	.0230	593.3024	.6995	22.8232	.3303	24.8296
	.400	.020	.324	-0.001	.0234	603.5274	.7115	23.3240	.3300	24.8101
	.420	.020	.322	-0.002	.0237	611.1961	.7206	23.7302	.3293	24.7711
	.440	.020	.321	-0.001	.0239	616.3085	.7266	24.0404	.3289	24.7516
	.460	.020	.320	-0.001	.0240	618.8648	.7296	24.2533	.3286	24.7321
	.480	.020	.320	0	.0241	621.4210	.7326	24.4682	.3286	24.7321
	.500	.020	.319	-0.001	.0242	623.9772	.7356	24.6851	.3282	24.7125
	.520	.020	.318	-0.001	.0245	631.6459	.7447	25.1072	.3279	24.6930
	.540	.020	.317	-0.001	.0245	631.6459	.7447	25.2271	.3276	24.6734
	.560	.020	.316	-0.001	.0246	634.2022	.7477	25.4506	.3272	24.6538
	.580	.020	.316	0	.0246	634.2022	.7477	25.5732	.3272	24.6538
	.600	.020	.315	-0.001	.0249	641.8709	.7567	26.0077	.3269	24.6342
	.620	.020	.315	0	.0248	639.3147	.7537	26.0300	.3269	24.6342
	.640	.020	.314	-0.001	.0248	639.3147	.7537	26.1571	.3265	24.6146
	.660	.020	.313	-0.001	.0248	639.3147	.7537	26.2854	.3262	24.5950
	.680	.020	.313	0	.0249	641.8709	.7567	26.5206	.3262	24.5950
12/39	.700	.020	.312	-0.001	.0248	639.3147	.7537	26.5457	.3258	24.5754

PEAK STRESS = 22.7018 PSI PEAK SATURATION = 56.62 PERCENT

ULTIMATE STRESS = 22.6114 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-P-4*-DS-3	05-16-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.893 LBS. DRY DENSITY = 90.045 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.441 LBS. WET DENSITY = 98.420 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.990 MOISTURE CONTENT = 9.300 PER CENT

INITIAL CONSOLIDATION = .321 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 97.902 LBS./CU.FT.

INITIAL POROSITY = 27.517 PER CENT CAPACITY = 2500 LBS.

INITIAL VOID RATIO = .380 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 48.75 PER CENT

INITIAL MOISTURE CONTENT = 9.30 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.579	.321	0	0	0	0	.2689	21.1927
	.020	.020	.580	.001	.0039	245.7000	.1448	8.7270	.2693	21.2141
	.040	.020	.578	-0.002	.0052	327.6000	.1931	11.6858	.2686	21.1713
	.060	.020	.576	-0.002	.0067	422.1000	.2488	15.1214	.2679	21.1284
	.080	.020	.573	-0.003	.0080	504.0000	.2971	18.1334	.2668	21.0640
	.100	.020	.571	-0.002	.0089	560.7000	.3305	20.2609	.2662	21.0210
	.120	.020	.568	-0.003	.0100	630.0000	.3714	22.8642	.2651	20.9564
	.140	.020	.564	-0.004	.0101	636.3000	.3751	23.1938	.2637	20.8701
	.160	.020	.561	-0.003	.0109	686.7000	.4048	25.1408	.2627	20.8052
	.180	.020	.558	-0.003	.0117	737.1000	.4345	27.1051	.2617	20.7403
	.200	.020	.556	-0.002	.0125	787.5000	.4642	29.0867	.2610	20.6969
	.220	.020	.553	-0.003	.0131	825.3000	.4865	30.6185	.2600	20.6318
	.240	.020	.550	-0.003	.0137	863.1000	.5088	32.1639	.2589	20.5666
	.260	.020	.548	-0.002	.0143	900.9000	.5311	33.7233	.2582	20.5230
	.280	.020	.545	-0.003	.0151	951.3000	.5608	35.7704	.2572	20.4576
	.300	.020	.543	-0.002	.0156	982.8000	.5793	37.1221	.2565	20.4139
	.320	.020	.541	-0.002	.0160	008.000*	.5942	38.2471	.2558	20.3702
	.340	.020	.539	-0.002	.0164	033.200*	.6090	39.3823	.2551	20.3264
	.360	.020	.537	-0.002	.0168	058.400*	.6239	40.5280	.2544	20.2826
	.380	.020	.536	-0.001	.0171	077.300*	.6350	41.4417	.2541	20.2607
	.400	.020	.534	-0.002	.0175	102.500*	.6499	42.6074	.2534	20.2168
	.420	.020	.533	-0.001	.0178	121.400*	.6610	43.5392	.2531	20.1949
	.440	.020	.531	-0.002	.0180	134.000*	.6685	44.2340	.2524	20.1509
	.460	.020	.529	-0.002	.0181	140.300*	.6722	44.6883	.2517	20.1069
	.480	.020	.527	-0.002	.0184	159.200*	.6833	45.6430	.2510	20.0628
	.500	.020	.526	-0.001	.0185	165.500*	.6870	46.1082	.2506	20.0408
	.520	.020	.525	-0.001	.0184	159.200*	.6833	46.0769	.2503	20.0187
	.540	.020	.524	-0.001	.0185	165.500*	.6870	46.5485	.2499	19.9967
	.560	.020	.523	-0.001	.0186	171.800*	.6907	47.0245	.2496	19.9746
	.580	.020	.522	-0.001	.0188	184.400*	.6982	47.7591	.2493	19.9525
	.600	.020	.521	-0.001	.0188	184.400*	.6982	47.9902	.2489	19.9304
	.620	.020	.520	-0.001	.0188	184.400*	.6982	48.2235	.2486	19.9083
11/49	.640	.020	.519	-0.001	.0188	184.400*	.6982	48.4589	.2482	19.8861

PEAK STRESS = 41.8901 PSI PEAK SATURATION = 74.25 PERCENT

ULTIMATE STRESS = 41.8901 PSI (ELIMINATED FROM GRAPH)

I SYS 400 ET=00/03/45 ID=DIRSHEAR

TEST NO.	DATE TESTED	TESTED BY
1-P-4*-DS-1S	05-16-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.893 LBS. DRY DENSITY = 90.045 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.636 LBS. WET DENSITY = 101.391 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.990 MOISTURE CONTENT = 12.600 PER CENT

INITIAL CONSOLIDATION = .097 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 92.283 LBS./CU.FT.

INITIAL POROSITY = 27.517 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .380 APPLIED LOAD = 424.110 LBS. INITIAL SATURATION = 81.77 PER CENT

INITIAL MOISTURE CONTENT = 15.60 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.412	.097	0	5.3684	.0127	.1899	.3462	25.7156
	.020	.020	.410	-0.002	.0027	74.3868	.1754	2.6421	.3455	25.6775
	.040	.020	.405	-0.005	.0044	117.8428	.2779	4.2036	.3438	25.5821
	.060	.020	.401	-0.004	.0055	145.9613	.3442	5.2290	.3424	25.5057
	.080	.020	.397	-0.004	.0058	153.6300	.3622	5.5275	.3410	25.4290
	.100	.020	.394	-0.003	.0060	158.7425	.3743	5.7362	.3400	25.3714
	.120	.020	.392	-0.002	.0062	163.8550	.3864	5.9467	.3393	25.3330
	.140	.020	.386	-0.006	.0073	191.9736	.4527	6.9976	.3372	25.2174
	.160	.020	.384	-0.002	.0076	199.6423	.4707	7.3091	.3365	25.1788
	.180	.020	.381	-0.003	.0079	207.3110	.4888	7.6234	.3355	25.1209
	.200	.020	.378	-0.003	.0083	217.5359	.5129	8.0348	.3345	25.0628
	.220	.020	.375	-0.003	.0087	227.7608	.5370	8.4499	.3334	25.0047
	.240	.020	.373	-0.002	.0090	235.4296	.5551	8.7734	.3327	24.9658
	.260	.020	.370	-0.003	.0094	245.6545	.5792	9.1955	.3317	24.9075
	.280	.020	.367	-0.003	.0096	250.7670	.5913	9.4292	.3307	24.8491
	.300	.020	.365	-0.002	.0099	258.4357	.6094	9.7616	.3300	24.8102
	.320	.020	.363	-0.002	.0101	263.5481	.6214	10.0000	.3293	24.7711
	.340	.020	.361	-0.002	.0103	268.6606	.6335	10.2405	.3286	24.7321
	.360	.020	.359	-0.002	.0105	273.7731	.6455	10.4832	.3279	24.6930
	.380	.020	.358	-0.001	.0106	276.3293	.6516	10.6299	.3276	24.6734
	.400	.020	.356	-0.002	.0107	278.8855	.6576	10.7779	.3269	24.6343
	.420	.020	.355	-0.001	.0108	281.4418	.6636	10.9272	.3265	24.6147
	.440	.020	.354	-0.001	.0108	281.4418	.6636	10.9782	.3262	24.5951
	.460	.020	.353	-0.001	.0110	286.5542	.6757	11.2301	.3258	24.5754
	.480	.020	.352	-0.001	.0111	289.1105	.6817	11.3836	.3255	24.5558
	.500	.020	.350	-0.002	.0112	291.6667	.6877	11.5386	.3248	24.5165
	.520	.020	.349	-0.001	.0113	294.2230	.6937	11.6950	.3244	24.4969
	.540	.020	.348	-0.001	.0113	294.2230	.6937	11.7509	.3241	24.4772
	.560	.020	.348	0	.0115	299.3354	.7058	12.0124	.3241	24.4772
	.580	.020	.347	-0.001	.0115	299.3354	.7058	12.0702	.3238	24.4575
	.600	.020	.346	-0.001	.0114	296.7792	.6998	12.0251	.3234	24.4378
	.620	.020	.345	-0.001	.0115	299.3354	.7058	12.1876	.3231	24.4181
	.640	.020	.344	-0.001	.0114	296.7792	.6998	12.1425	.3227	24.3984
11/41	.660	.020	.344	0	.0115	299.3354	.7058	12.3072	.3227	24.3984

PEAK STRESS = 10.5869 PSI PEAK SATURATION = 77.36 PERCENT

ULTIMATE STRESS = 10.5869 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-P-4*-DS-2S	05-16-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.893 LBS. DRY DENSITY = 90.045 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.542 LBS. WET DENSITY = 99.950 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.990 MOISTURE CONTENT = 11.000 PER CENT

INITIAL CONSOLIDATION = .318 IN. PROVING RING NO. 116 CONSOLIDATED DRY DENSITY = 97.822 LBS./CU.FT.

INITIAL POROSITY = 27.517 PER CENT CAPACITY = 1000 LBS.

INITIAL VOID RATIO = .380 APPLIED LOAD = 848.220 LBS. INITIAL SATURATION = 81.77 PER CENT

INITIAL MOISTURE CONTENT = 15.60 PERCENT

TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR./LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.582	.318	0	5.3684	.0063	.1899	.2700	21.2569
	.020	.020	.581	-0.001	.0048	128.0677	.1510	4.5488	.2696	21.2355
	.040	.020	.579	-0.002	.0070	184.3049	.2173	6.5743	.2689	21.1927
	.060	.020	.577	-0.002	.0088	230.3171	.2715	8.2509	.2682	21.1498
	.080	.020	.574	-0.003	.0108	281.4418	.3318	10.1260	.2672	21.0854
	.100	.020	.571	-0.003	.0119	309.5604	.3650	11.1860	.2662	21.0210
	.120	.020	.567	-0.004	.0134	347.9039	.4102	12.6262	.2648	20.9348
	.140	.020	.564	-0.003	.0146	378.5787	.4463	13.7996	.2637	20.8701
	.160	.020	.562	-0.002	.0153	396.4723	.4674	14.5153	.2631	20.8268
	.180	.020	.560	-0.002	.0163	422.0347	.4976	15.5193	.2624	20.7836
	.200	.020	.558	-0.002	.0174	450.1533	.5307	16.6266	.2617	20.7403
	.220	.020	.555	-0.003	.0179	462.9345	.5458	17.1748	.2606	20.6752
	.240	.020	.553	-0.002	.0188	485.9406	.5729	18.1089	.2600	20.6318
	.260	.020	.551	-0.002	.0196	506.3904	.5970	18.9556	.2593	20.5883
	.280	.020	.550	-0.001	.0204	526.8403	.6211	19.8100	.2589	20.5666
	.300	.020	.548	-0.002	.0210	542.1777	.6392	20.4790	.2582	20.5230
	.320	.020	.546	-0.002	.0217	560.0714	.6603	21.2511	.2575	20.4794
	.340	.020	.545	-0.001	.0223	575.4088	.6784	21.9328	.2572	20.4576
	.360	.020	.544	-0.001	.0223	575.4088	.6784	22.0334	.2568	20.4358
	.380	.020	.542	-0.002	.0227	585.6337	.6904	22.5282	.2562	20.3921
	.400	.020	.541	-0.001	.0231	595.8587	.7025	23.0276	.2558	20.3702
	.420	.020	.540	-0.001	.0231	595.8587	.7025	23.1347	.2555	20.3483
	.440	.020	.539	-0.001	.0236	608.6398	.7175	23.7413	.2551	20.3264
	.460	.020	.537	-0.002	.0239	616.3085	.7266	24.1531	.2544	20.2826
	.480	.020	.537	0	.0242	623.9772	.7356	24.5688	.2544	20.2826
	.500	.020	.536	-0.001	.0243	626.5335	.7386	24.7862	.2541	20.2607
	.520	.020	.536	0	.0244	629.0897	.7417	25.0056	.2541	20.2607
	.540	.020	.534	-0.002	.0247	636.7584	.7507	25.4313	.2534	20.2168
	.560	.020	.534	0	.0247	636.7584	.7507	25.5532	.2534	20.2168
	.580	.020	.533	-0.001	.0246	634.2022	.7477	25.5732	.2531	20.1949
	.600	.020	.532	-0.001	.0247	636.7584	.7507	25.8006	.2527	20.1729
	.620	.020	.531	-0.001	.0247	636.7584	.7507	25.9260	.2524	20.1509
11/52	.640	.020	.531	0	.0247	636.7584	.7507	26.0525	.2524	20.1509

PEAK STRESS = 22.5210 PSI PEAK SATURATION = 86.39 PERCENT

ULTIMATE STRESS = 22.5210 PSI (ELIMINATED FROM GRAPH)

TEST NO.	DATE TESTED	TESTED BY
1-P-4*-DS-3S	05-16-73	L ATKINS B CARNES

CROSS SECT. AREA = 28.274 IN. DRY WT. = 5.893 LBS. DRY DENSITY = 90.045 LBS./CU.FT.

SAMPLE THICKNESS = 4.000 IN. WET WT. = 6.500 LBS. WET DENSITY = 99.320 LBS./CU.FT.

SAMPLE VOLUME = .0654 CU.FT. SPEC. GRAV. = 1.990 MOISTURE CONTENT = 10.300 PER CENT

INITIAL CONSOLIDATION = .486 IN. PROVING RING NO. 53 CONSOLIDATED DRY DENSITY = 102.499 LBS./CU.FT.

INITIAL POROSITY = 27.517 PER CENT CAPACITY = 2500 LBS.

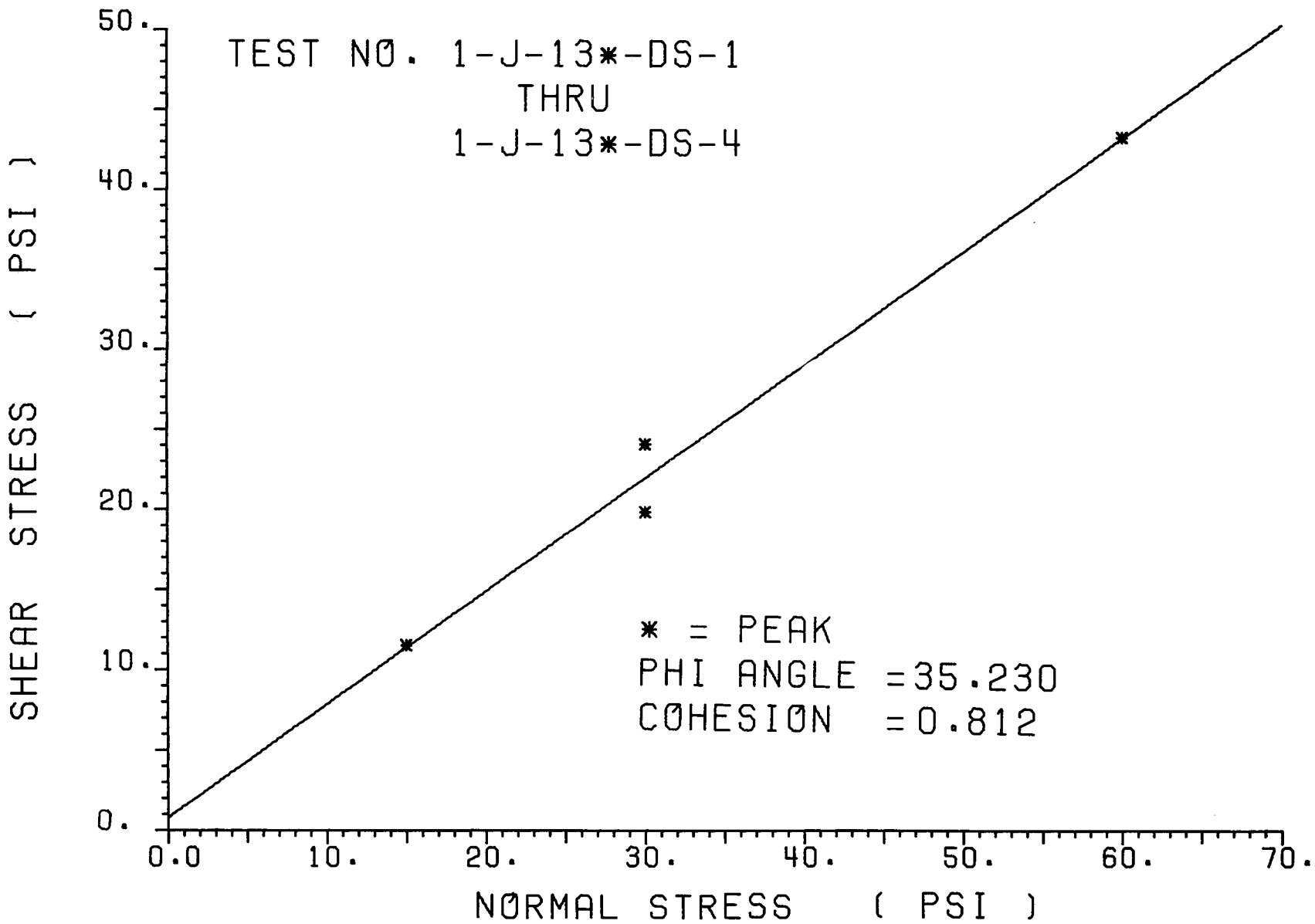
INITIAL VOID RATIO = .380 APPLIED LOAD = 1696.440 LBS. INITIAL SATURATION = 81.77 PER CENT

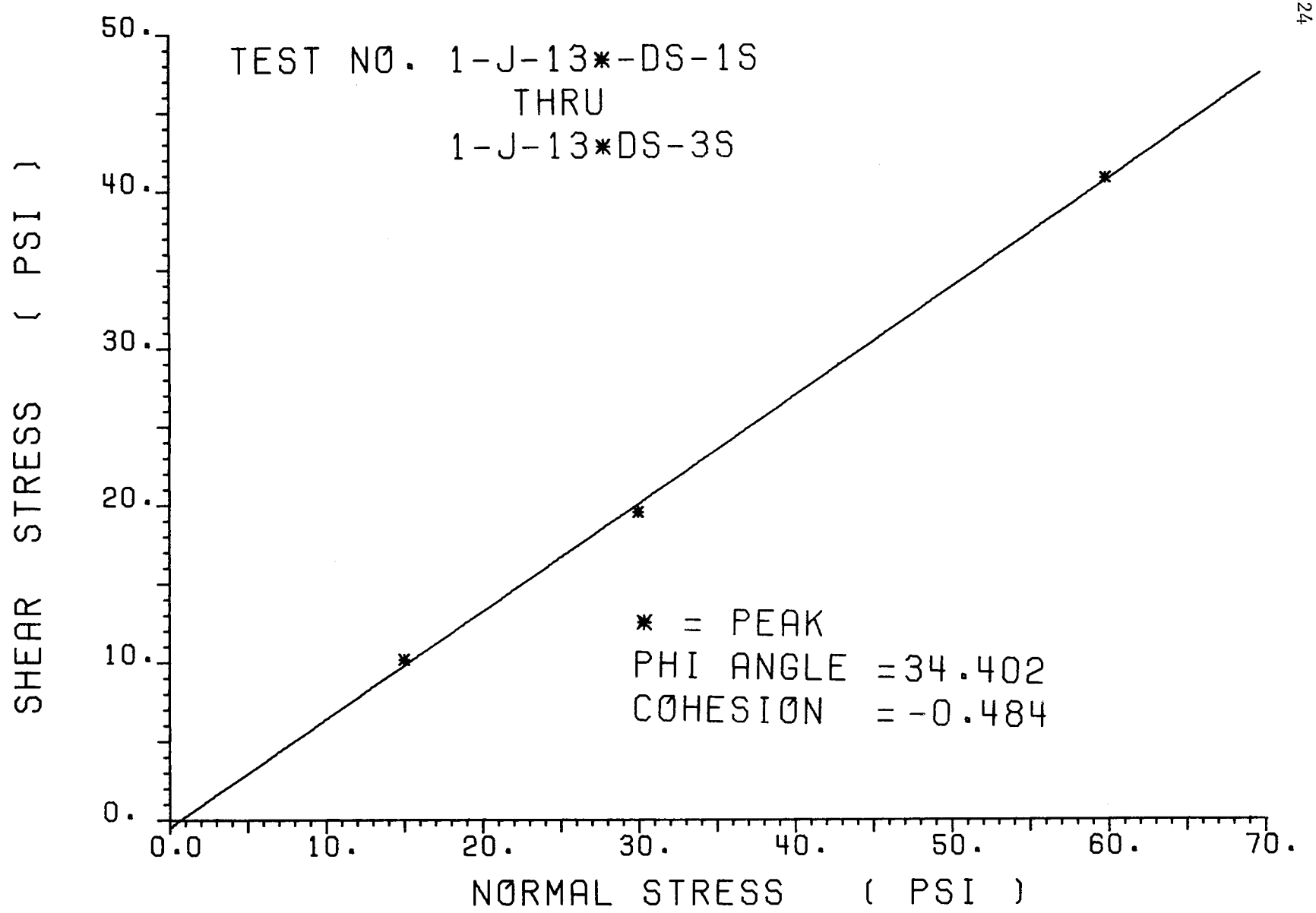
INITIAL MOISTURE CONTENT = 15.60 PERCENT

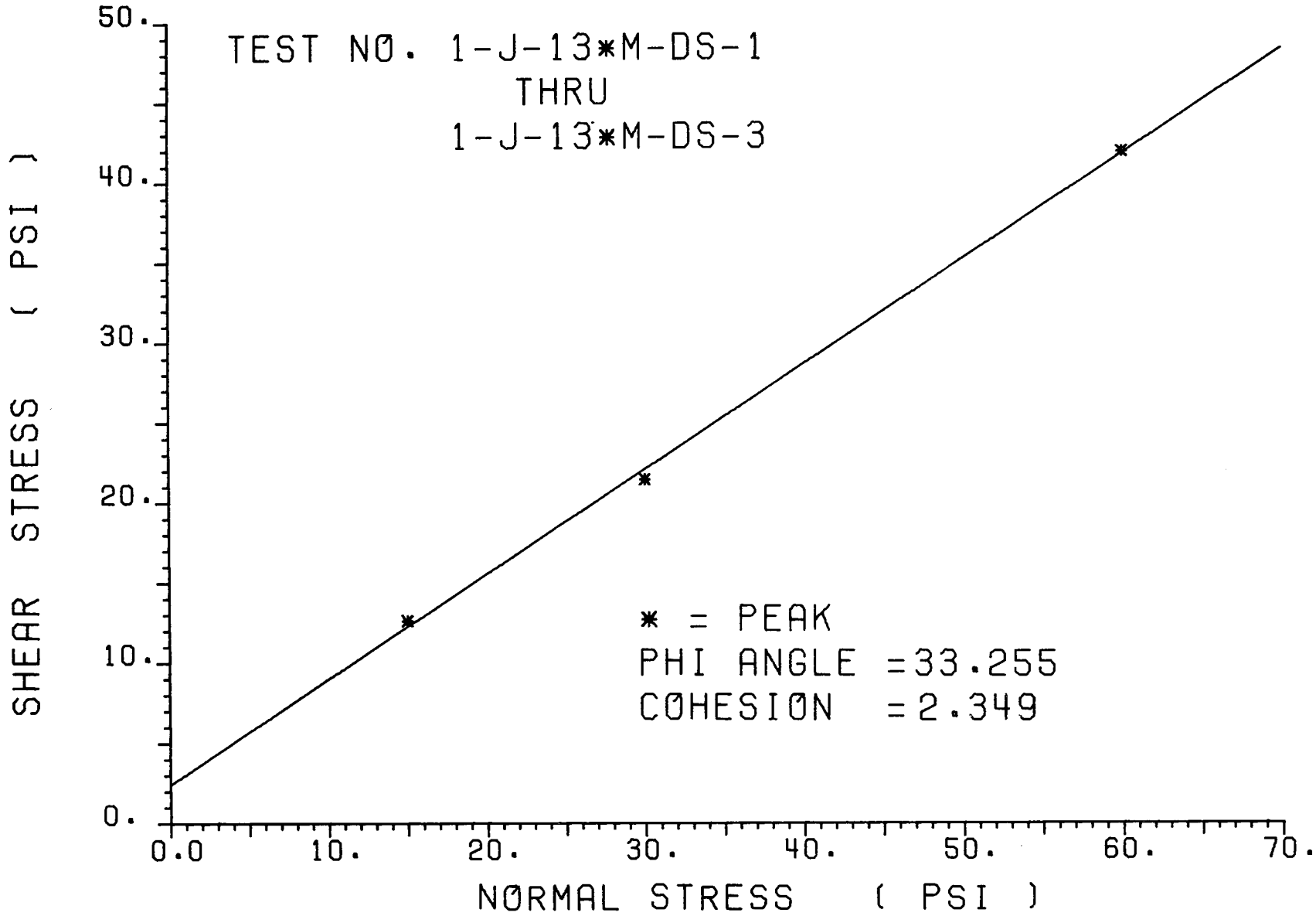
TOT. TIME (MIN/SEC)	SHEAR DIAL (IN.)	SHEAR DISP. (IN.)	NORM. DIAL (IN.)	NORM. DISP. (IN.)	PROV. RING DIAL (IN.)	STRESS FOR. (LBS.)	STRESS FOR. /LOAD RATIO	SHEAR FORCE (LBS/SQ IN)	VOID RATIO	POROSITY (PER CENT)
00/00	0	0	.414	.486	0	0	0	0	.2120	17.4922
	.020	.020	.413	-0.001	.0034	214.2000	.1263	7.6082	.2117	17.4688
	.040	.020	.413	0	.0044	277.2000	.1634	9.8880	.2117	17.4688
	.060	.020	.410	-0.003	.0057	359.1000	.2117	12.8645	.2106	17.3982
	.080	.020	.408	-0.002	.0068	428.4000	.2525	15.4134	.2099	17.3511
	.100	.020	.405	-0.003	.0079	497.7000	.2934	17.9844	.2089	17.2804
	.120	.020	.402	-0.003	.0091	573.3000	.3379	20.8064	.2079	17.2095
	.140	.020	.399	-0.003	.0097	611.1000	.3602	22.2752	.2068	17.1385
	.160	.020	.396	-0.003	.0107	674.1000	.3974	24.6795	.2058	17.0674
	.180	.020	.393	-0.003	.0113	711.9000	.4196	26.1784	.2048	16.9962
	.200	.020	.391	-0.002	.0120	756.0000	.4456	27.9232	.2041	16.9487
	.220	.020	.388	-0.003	.0127	800.1000	.4716	29.6836	.2030	16.8772
	.240	.020	.386	-0.002	.0133	837.9000	.4939	31.2249	.2023	16.8295
	.260	.020	.384	-0.002	.0139	875.7000	.5162	32.7800	.2017	16.7818
	.280	.020	.381	-0.003	.0144	907.2000	.5348	34.1122	.2006	16.7101
	.300	.020	.379	-0.002	.0149	938.7000	.5533	35.4564	.1999	16.6622
	.320	.020	.377	-0.002	.0153	963.9000	.5682	36.5738	.1992	16.6142
	.340	.020	.375	-0.002	.0158	995.4000	.5868	37.9415	.1986	16.5663
	.360	.020	.373	-0.002	.0162	020.600*	.6016	39.0805	.1979	16.5182
	.380	.020	.372	-0.001	.0166	045.800*	.6165	40.2300	.1975	16.4942
	.400	.020	.370	-0.002	.0171	077.300*	.6350	41.6335	.1968	16.4460
	.420	.020	.369	-0.001	.0174	096.200*	.6462	42.5608	.1965	16.4219
	.440	.020	.369	0	.0175	102.500*	.6499	43.0053	.1965	16.4219
	.460	.020	.367	-0.002	.0180	134.000*	.6685	44.4414	.1958	16.3737
	.480	.020	.366	-0.001	.0181	140.300*	.6722	44.8988	.1955	16.3496
	.500	.020	.366	0	.0183	152.900*	.6796	45.6097	.1955	16.3496
	.520	.020	.365	-0.001	.0185	165.500*	.6870	46.3273	.1951	16.3255
	.540	.020	.365	0	.0185	165.500*	.6870	46.5485	.1951	16.3255
	.560	.020	.364	-0.001	.0186	171.800*	.6907	47.0245	.1948	16.3013
	.580	.020	.362	-0.002	.0190	197.000*	.7056	48.2672	.1941	16.2530
	.600	.020	.362	0	.0188	184.400*	.6982	47.9902	.1941	16.2530
	.620	.020	.361	-0.001	.0188	184.400*	.6982	48.2235	.1937	16.2288
13/56	.640	.020	.361	0	.0188	184.400*	.6982	48.4589	.1937	16.2288

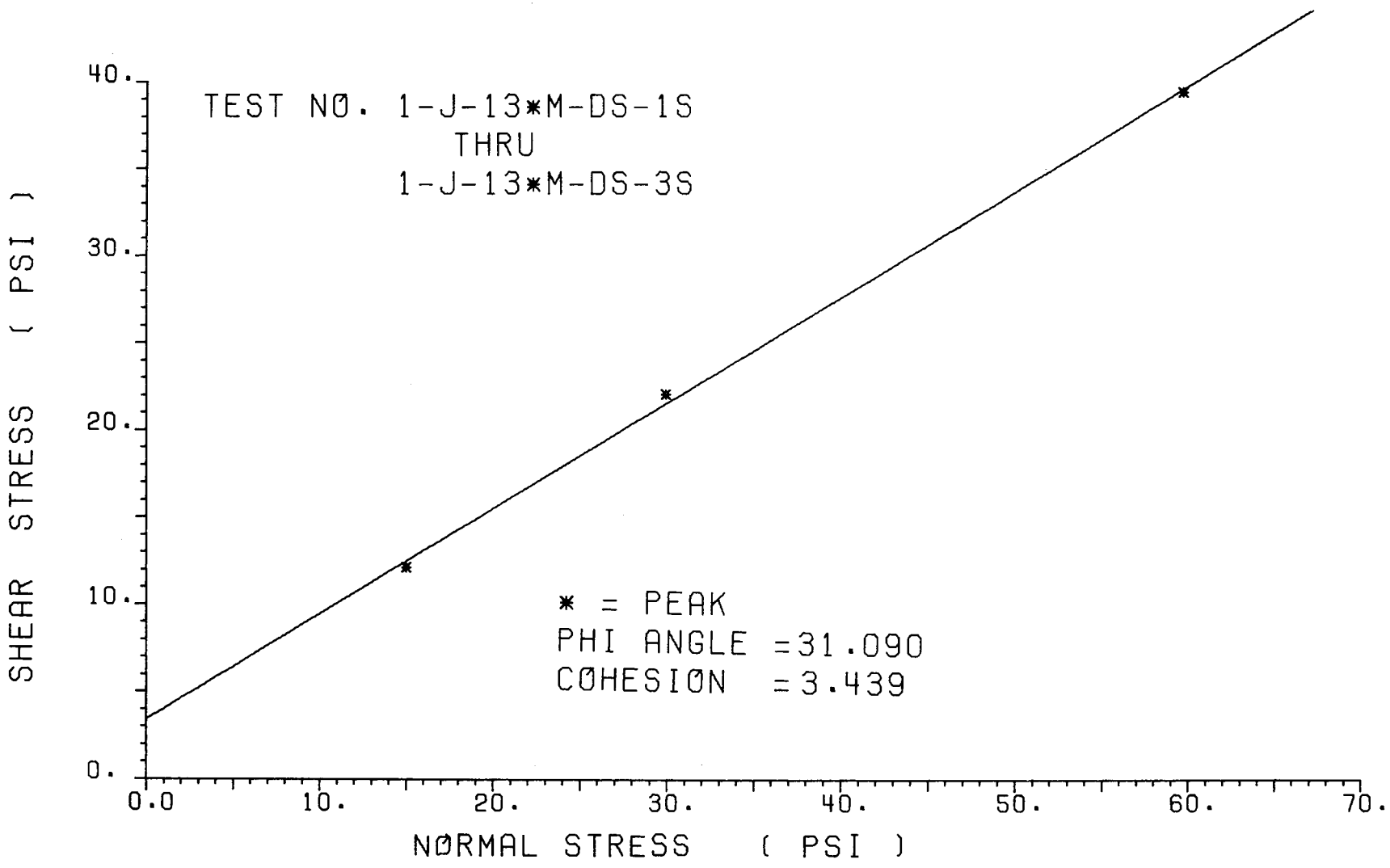
PEAK STRESS = 42.3357 PSI PEAK SATURATION =100.00 PERCENT

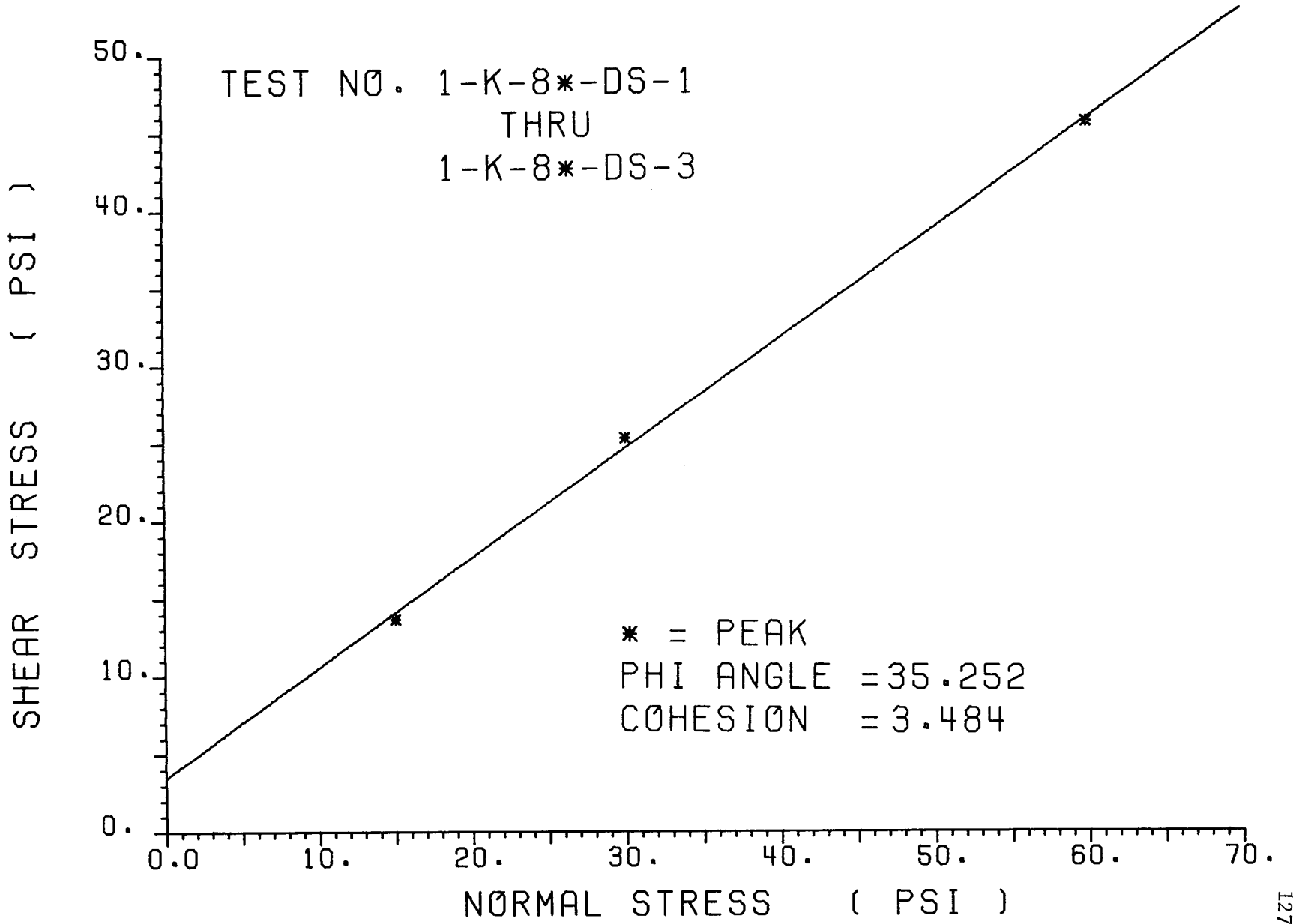
ULTIMATE STRESS = 41.8901 PSI (ELIMINATED FROM GRAPH)

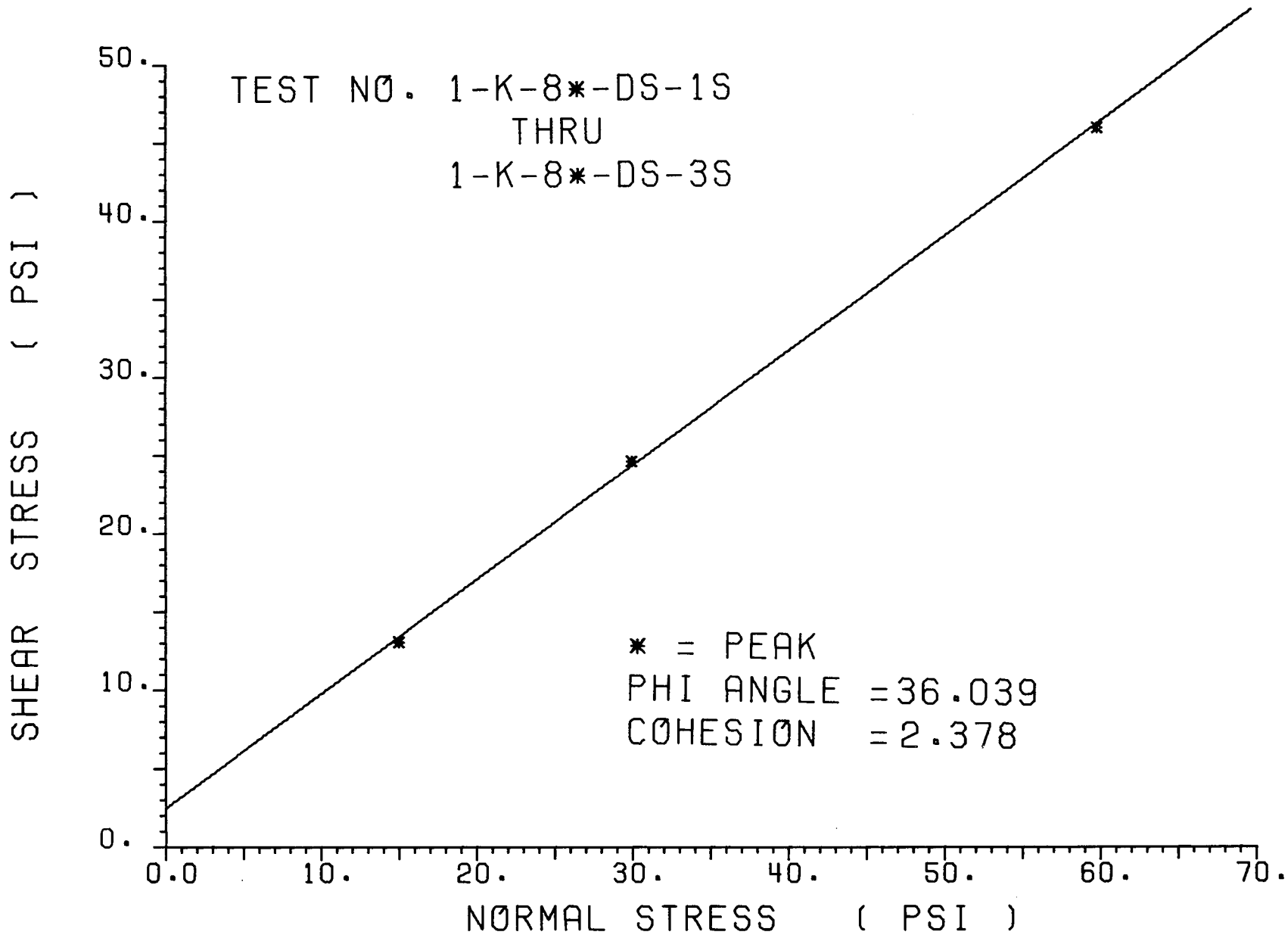

TEST NO. 1-J-13*-DS-1
THRU
1-J-13*-DS-4
* = PEAK
PHI ANGLE =35.230
COHESION =0.812
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

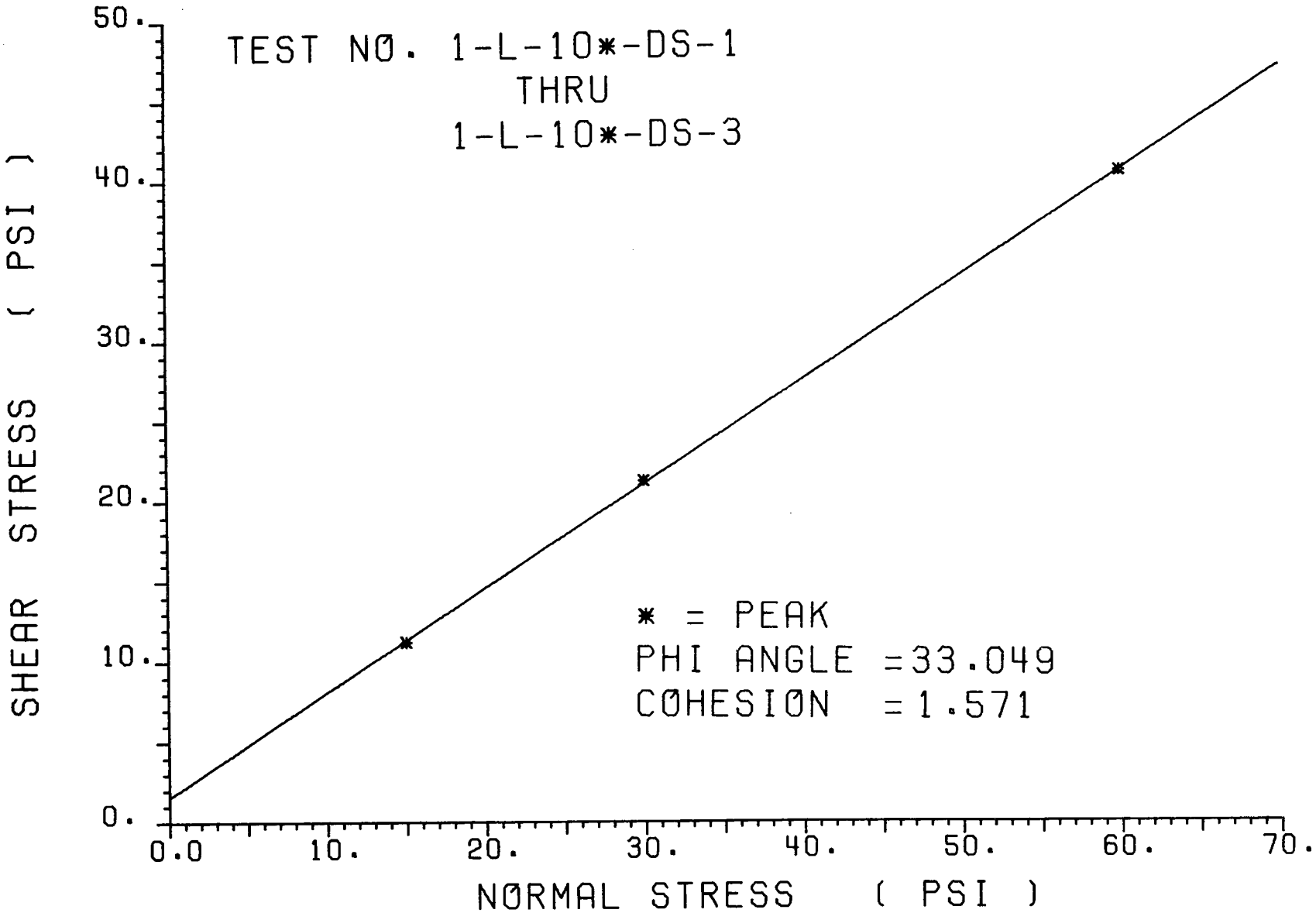

TEST NO. 1-J-13*-DS-1S
THRU
1-J-13*DS-3S
* = PEAK
PHI ANGLE =34.402
COHESION =-0.484
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

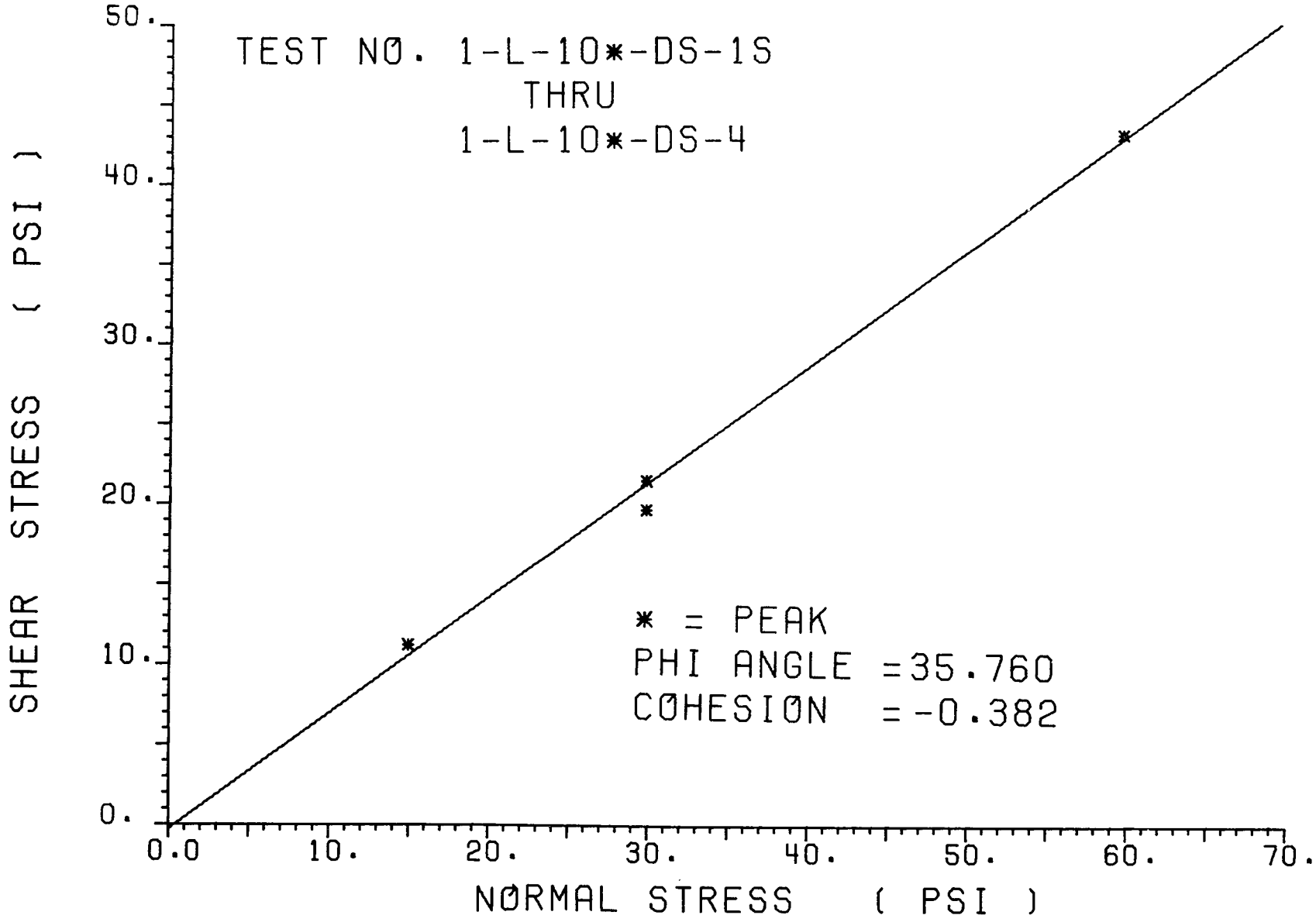

TEST NO. 1-J-13*M-DS-1
THRU
1-J-13*M-DS-3
* = PEAK
PHI ANGLE =33.255
COHESION =2.349
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

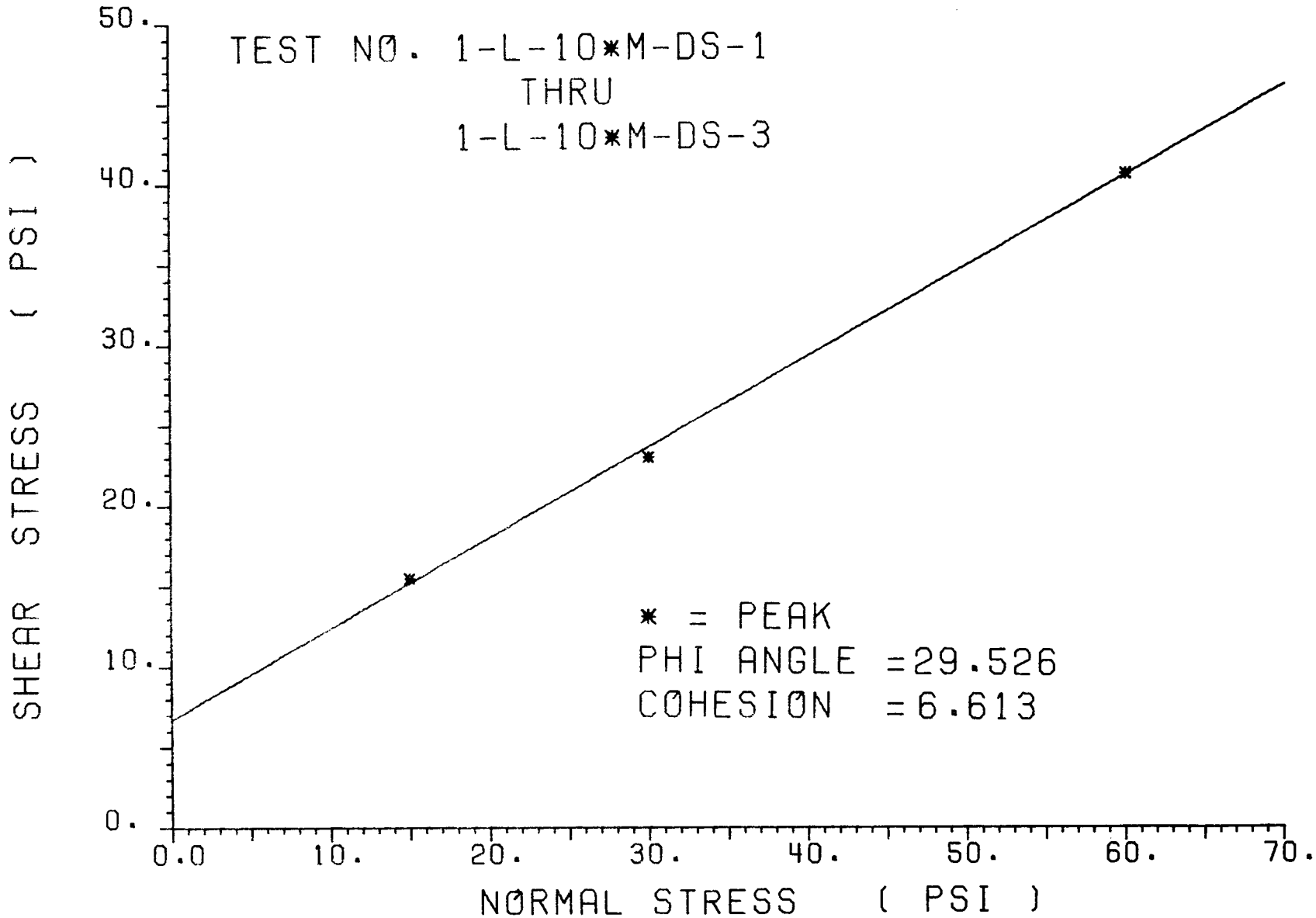

TEST NØ. 1-J-13*M-DS-1S
THRU
1-J-13*M-DS-3S
* = PEAK
PHI ANGLE =31.090
CØHESIØN =3.439
SHEAR STRESS (PSI)
NØRMAL STRESS (PSI)
0.
10.
20.
30.
40.
0.0
10.
20.
30.
40.
50.
60.
70.

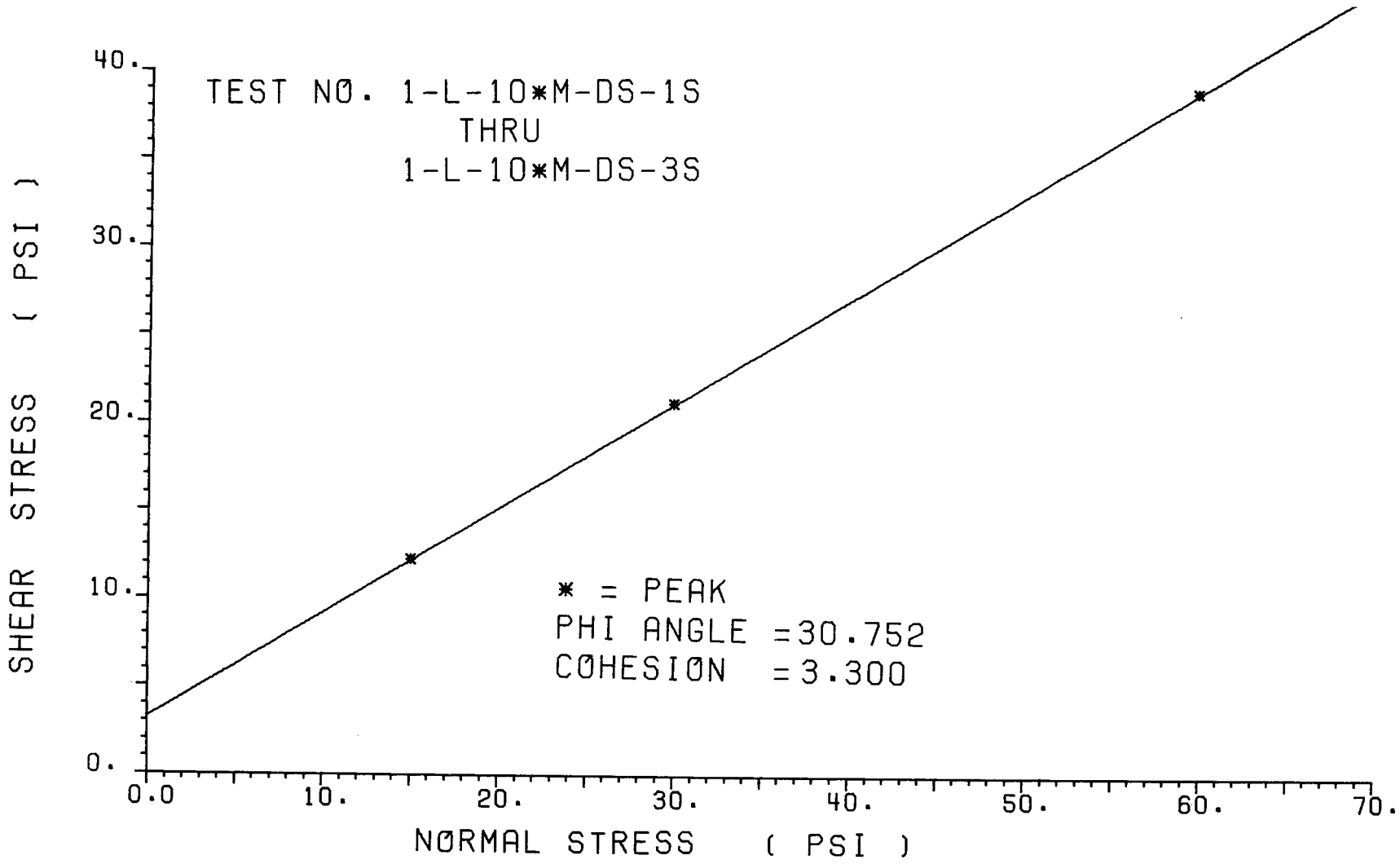

TEST NO. 1-K-8*-DS-1
THRU
1-K-8*-DS-3
* = PEAK
PHI ANGLE =35.252
COHESION =3.484
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

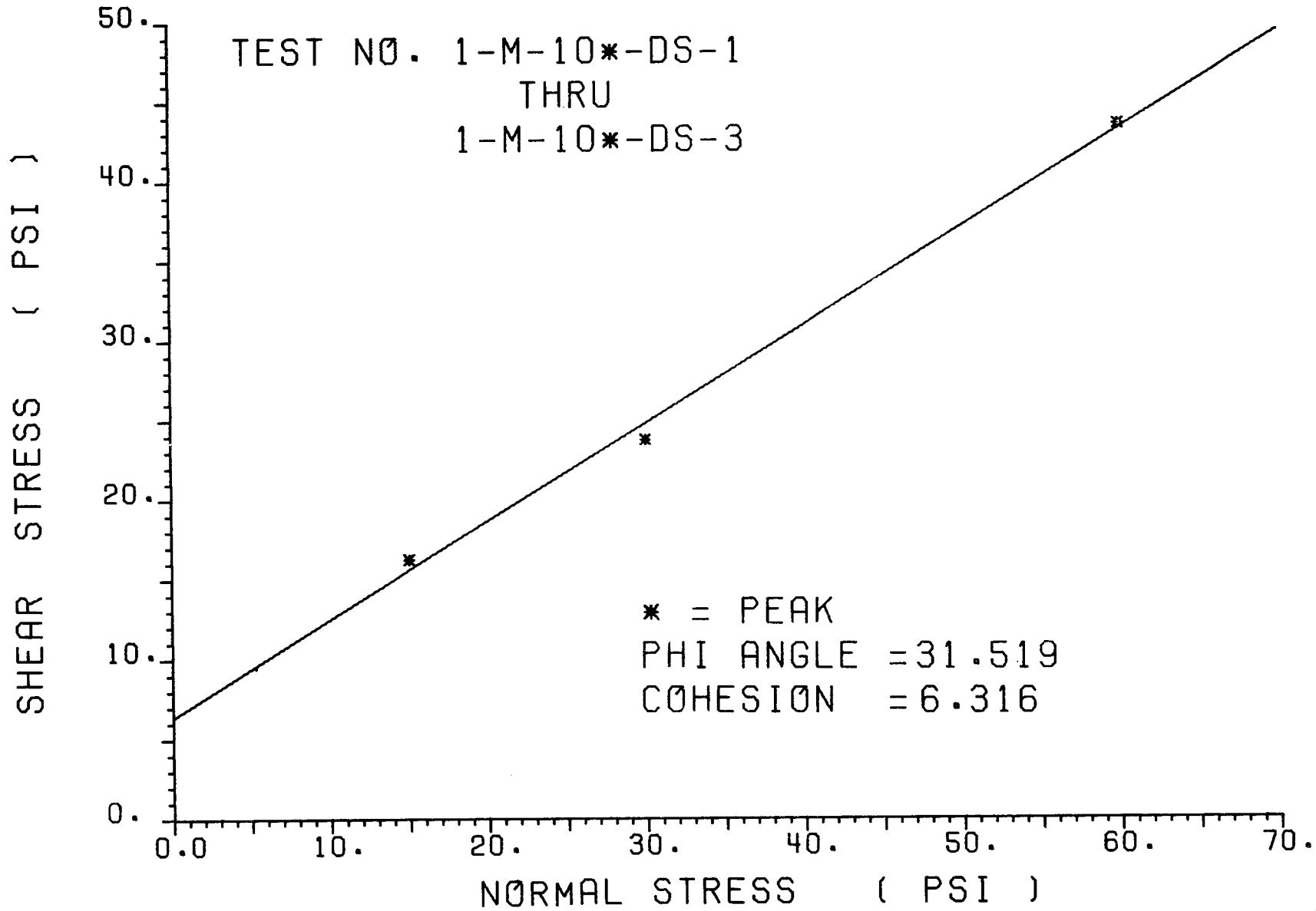

TEST NØ. 1-K-8*-DS-1S
THRU
1-K-8*-DS-3S
* = PEAK
PHI ANGLE =36.039
CØHESIØN =2.378
SHEAR STRESS (PSI)
NØRMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

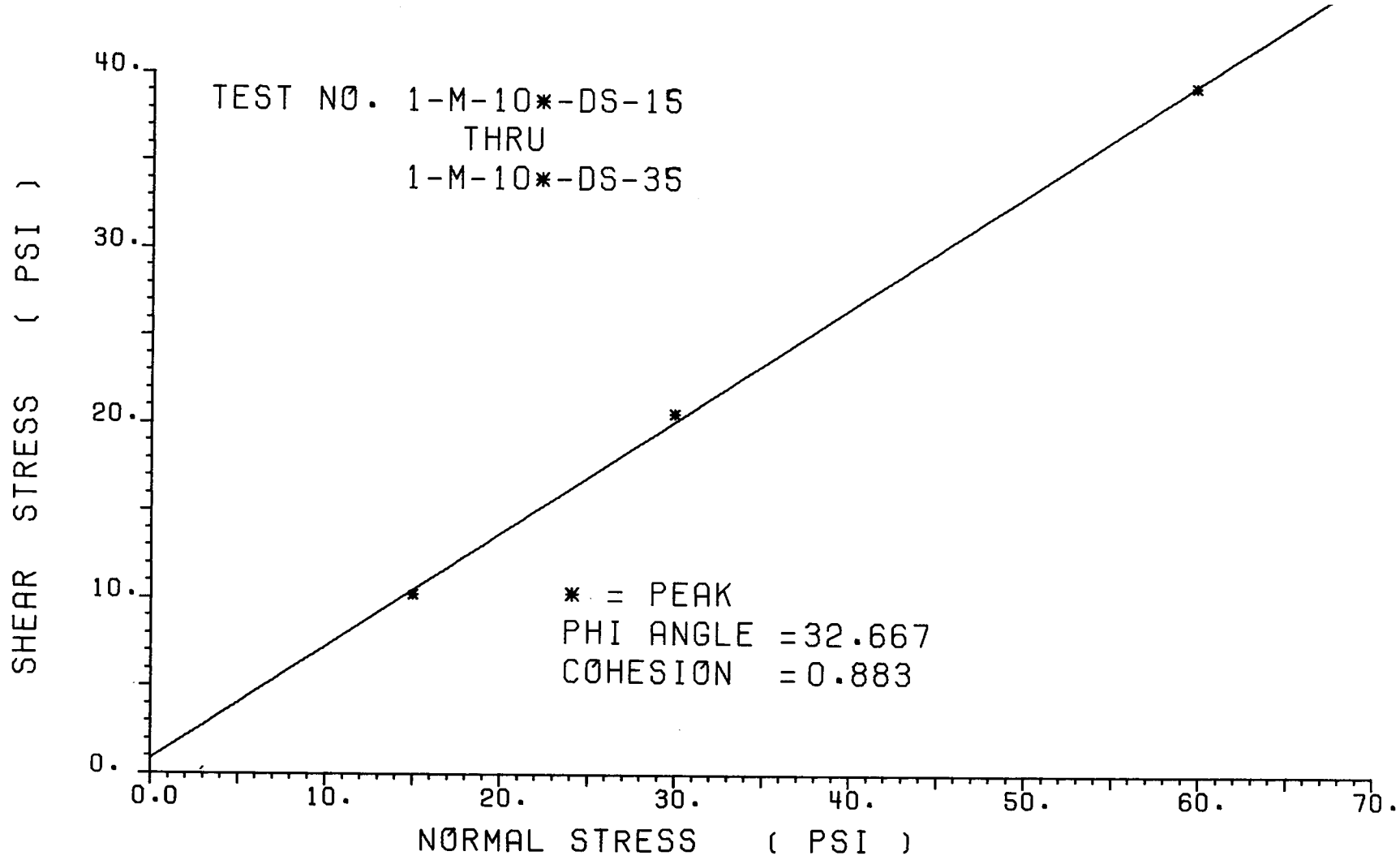

TEST NO. 1-L-10*-DS-1
THRU
1-L-10*-DS-3
* = PEAK
PHI ANGLE =33.049
COHESION =1.571
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

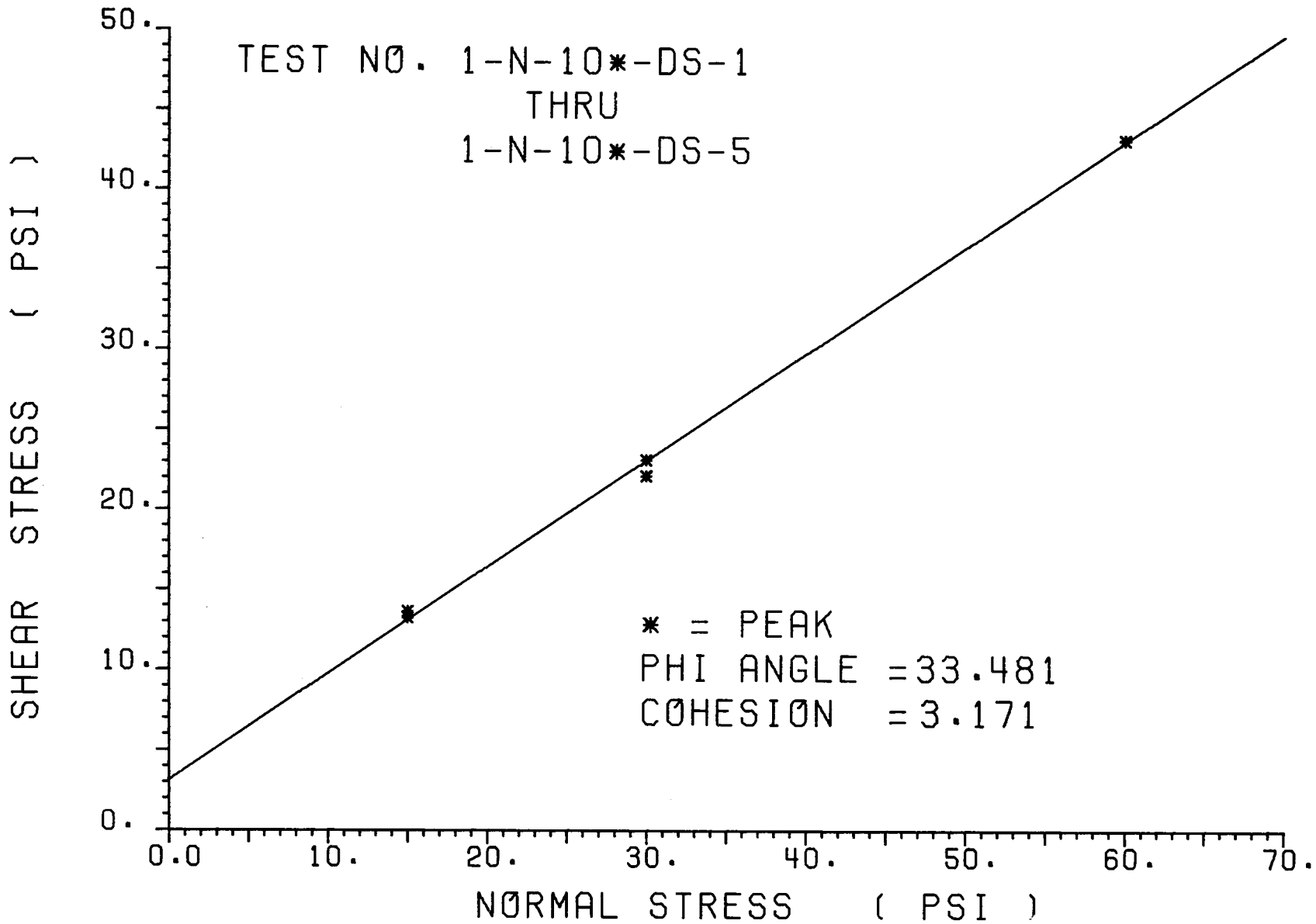

TEST NO. 1-L-10*-DS-1S
THRU
1-L-10*-DS-4
* = PEAK
PHI ANGLE =35.760
COHESION =-0.382
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

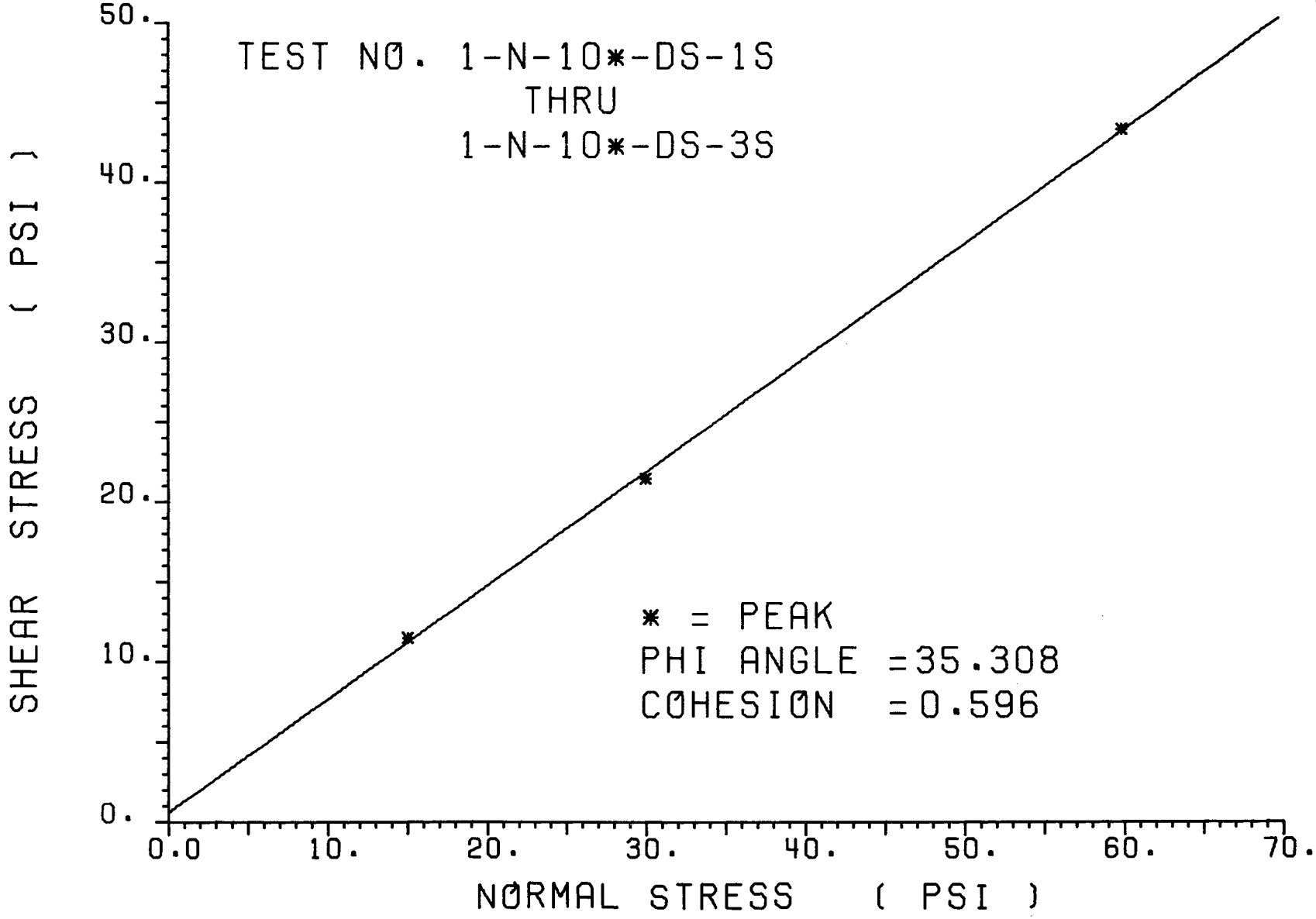

TEST NO. 1-L-10*M-DS-1
THRU
1-L-10*M-DS-3
* = PEAK
PHI ANGLE =29.526
COHESION =6.613
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

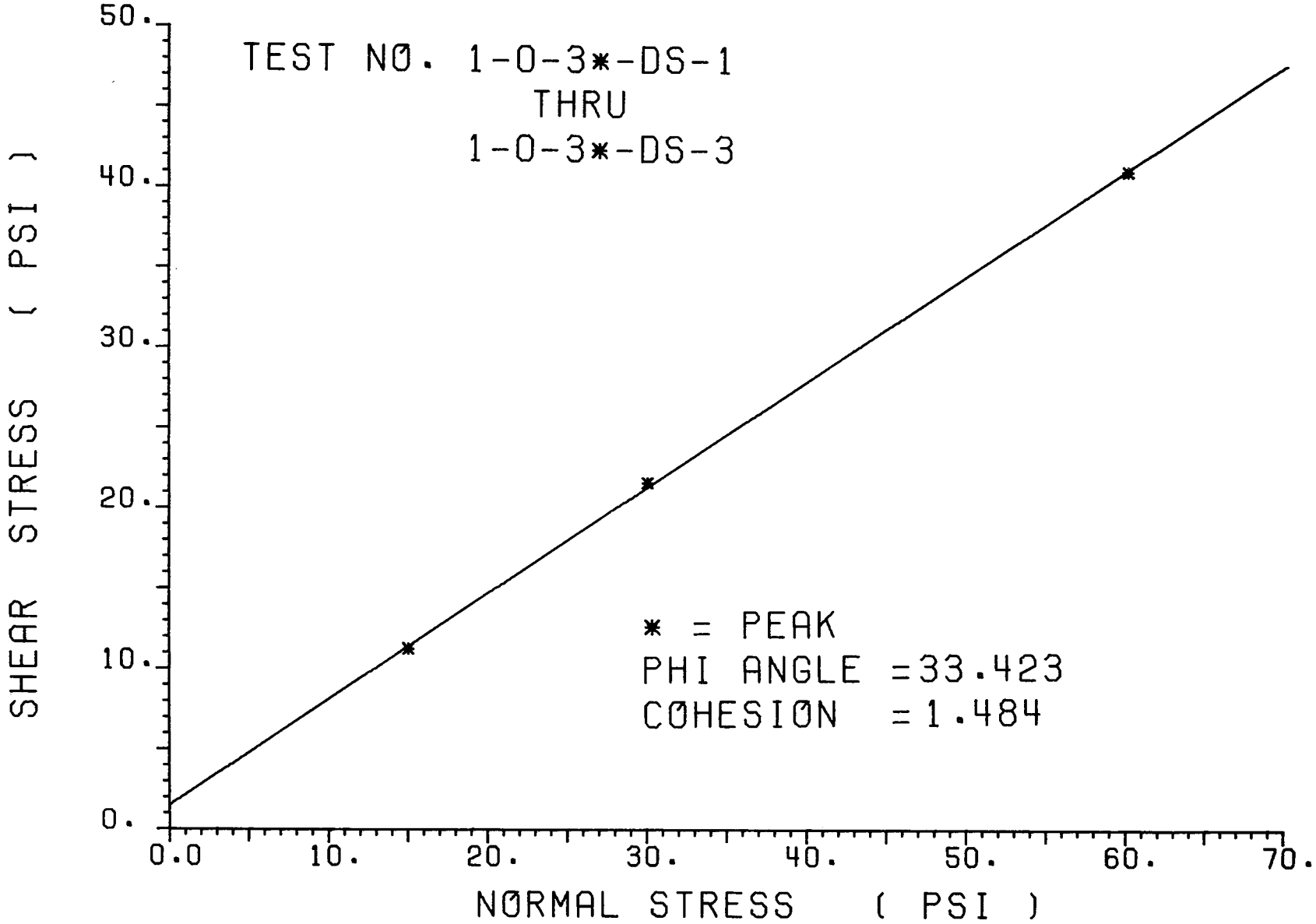

TEST NØ. 1-L-10*M-DS-1S
THRU
1-L-10*M-DS-3S
* = PEAK
PHI ANGLE =30.752
CØHESIØN =3.300
SHEAR STRESS (PSI)
NØRMAL STRESS (PSI)
0.
10.
20.
30.
40.
0.0
10.
20.
30.
40.
50.
60.
70.

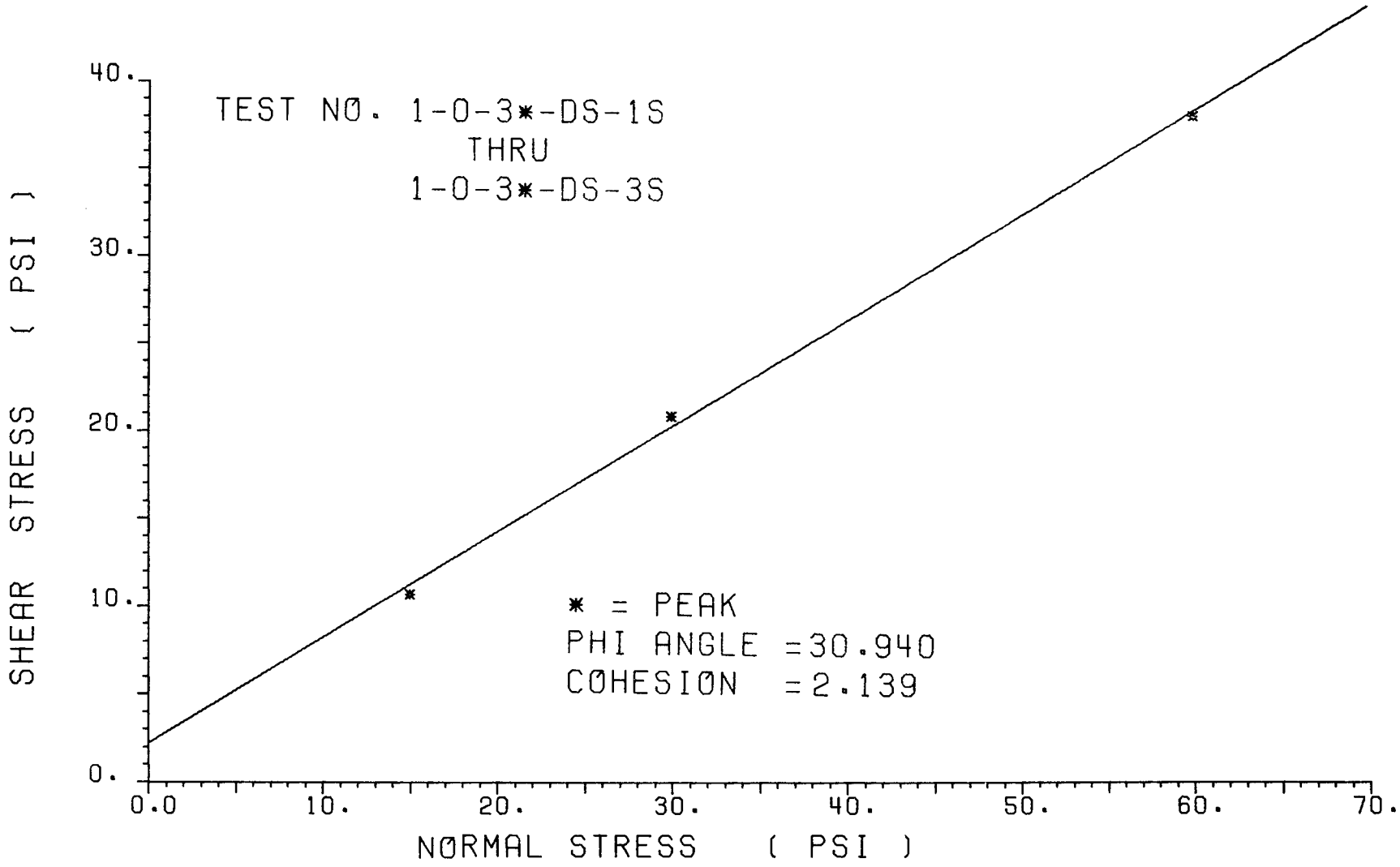

TEST NO. 1-M-10*-DS-1
THRU
1-M-10*-DS-3
* = PEAK
PHI ANGLE =31.519
COHESION =6.316
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

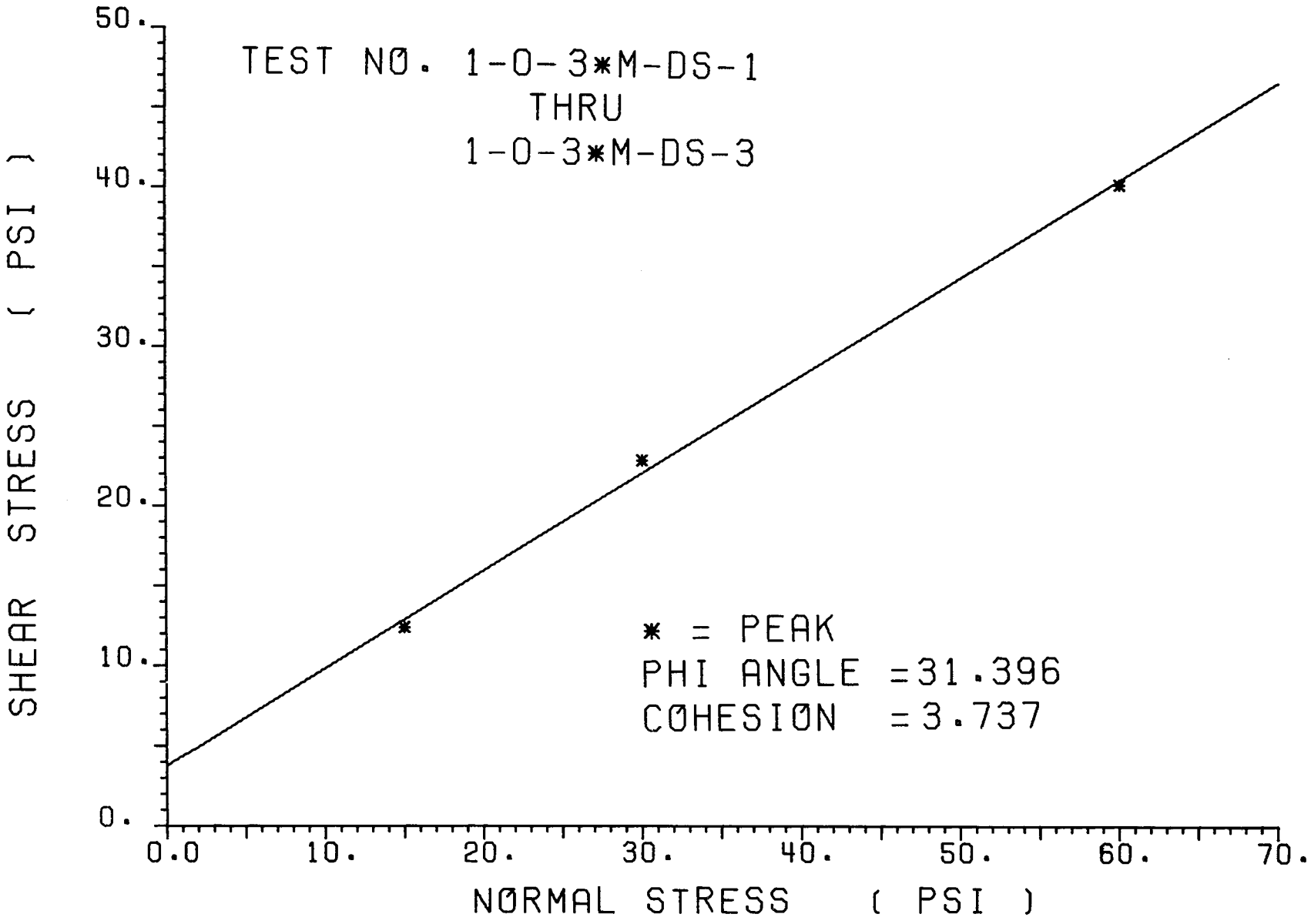

TEST NO. 1-M-10*-DS-15
THRU
1-M-10*-DS-35
* = PEAK
PHI ANGLE =32.667
COHESION =0.883
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
0.0
10.
20.
30.
40.
50.
60.
70.

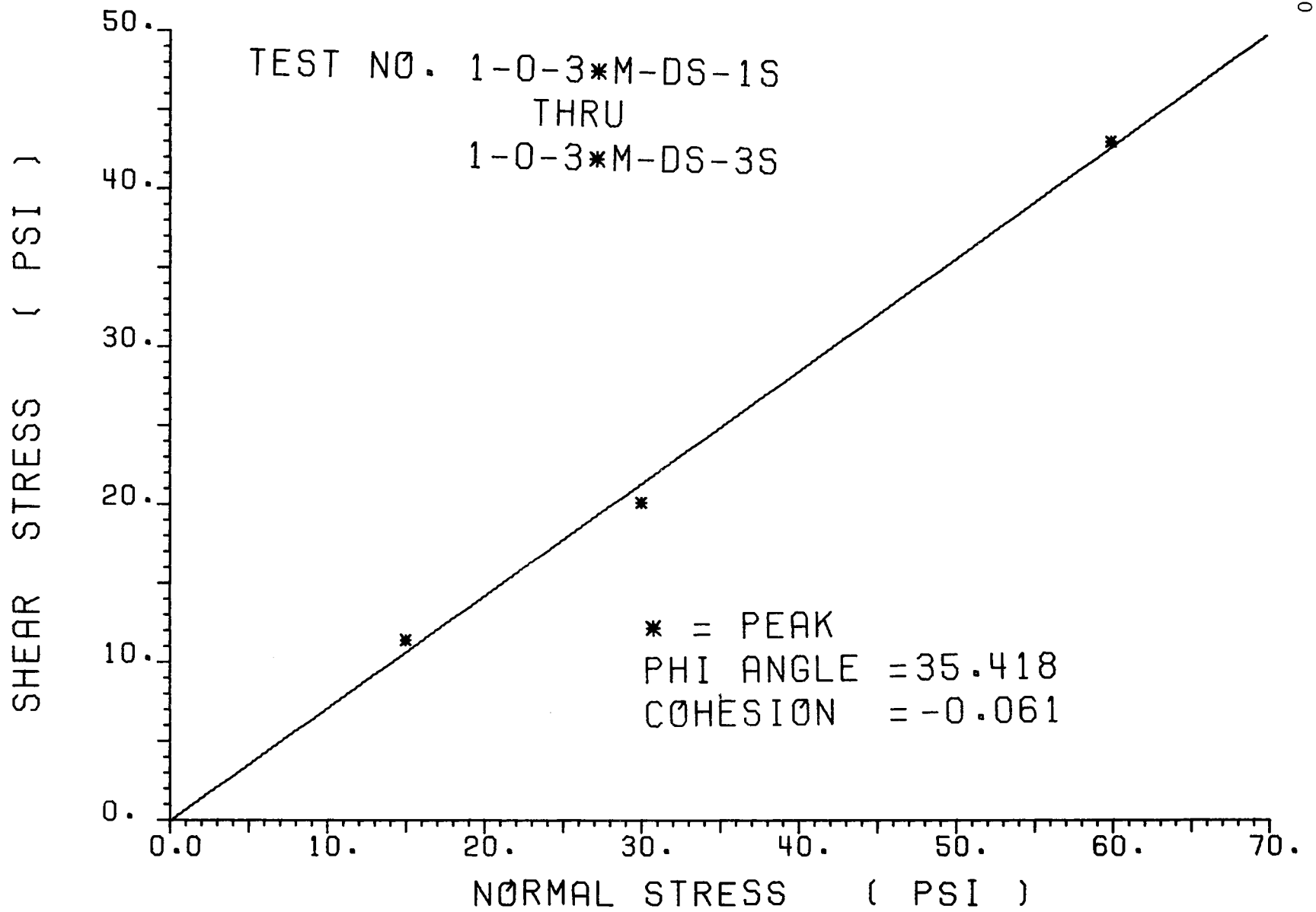

TEST NØ. 1-N-10*-DS-1
THRU
1-N-10*-DS-5
* = PEAK
PHI ANGLE =33.481
CØHESIØN =3.171
SHEAR STRESS (PSI)
NØRMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

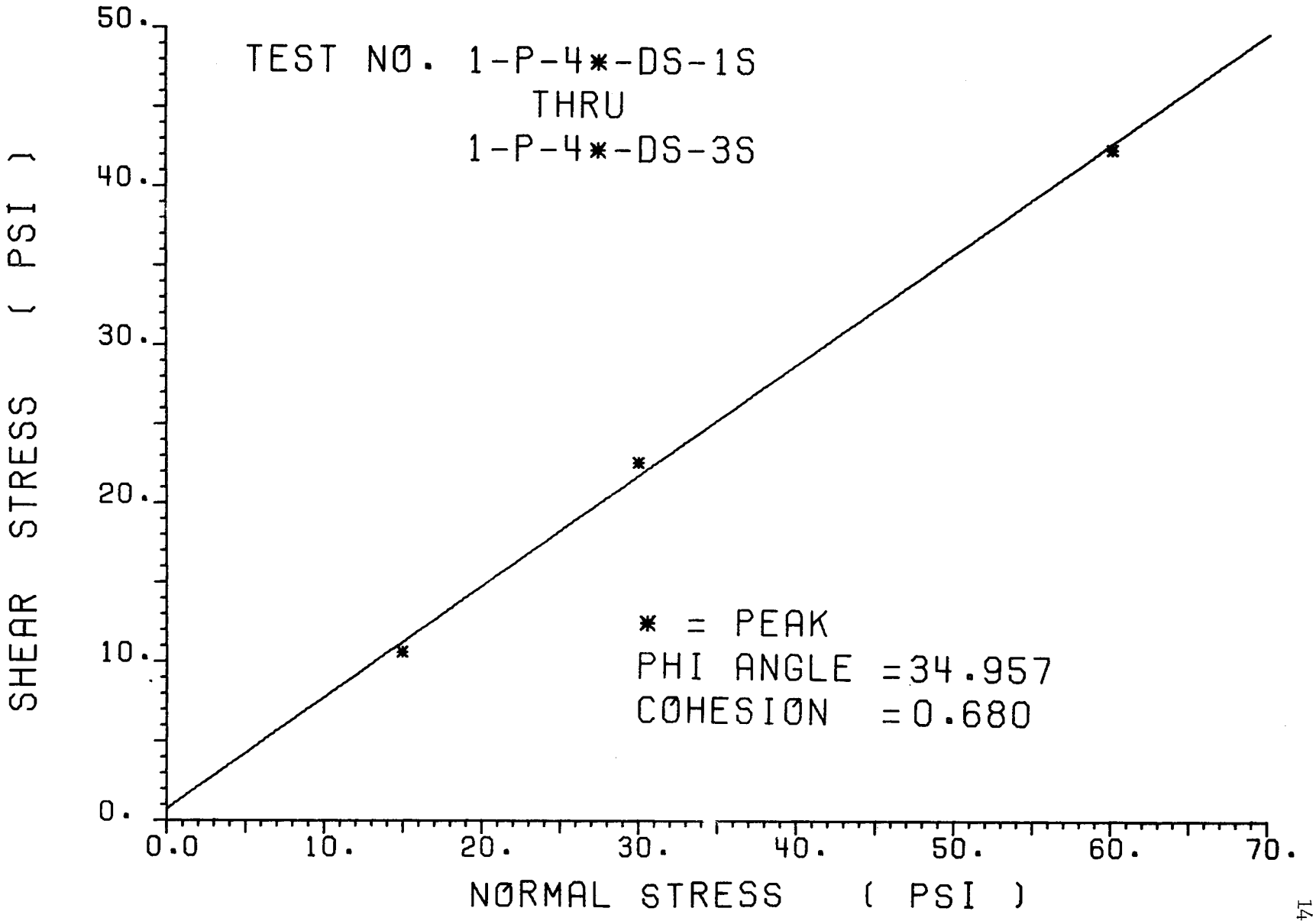

TEST NO. 1-N-10*-DS-1S
THRU
1-N-10*-DS-3S
* = PEAK
PHI ANGLE =35.308
COHESION =0.596
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.

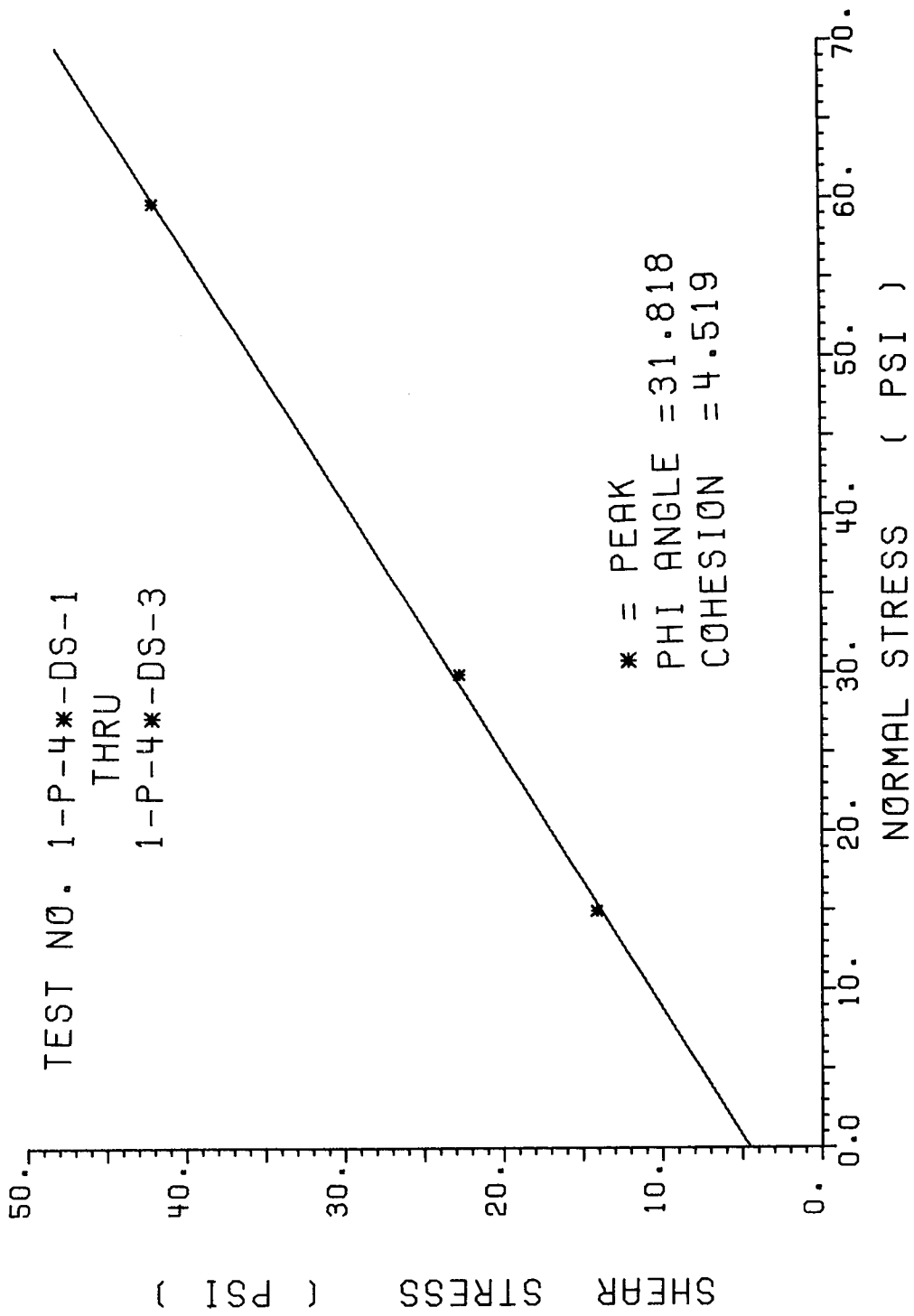

TEST NO. 1-0-3*-DS-1
THRU
1-0-3*-DS-3
* = PEAK
PHI ANGLE =33.423
COHESION =1.484
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.


TEST NO. 1-0-3*-DS-1S
THRU
1-0-3*-DS-3S
* = PEAK
PHI ANGLE =30.940
COHESION =2.139
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
0.0
10.
20.
30.
40.
50.
60.
70.


TEST NO. 1-0-3*M-DS-1
THRU
1-0-3*M-DS-3
* = PEAK
PHI ANGLE =31.396
COHESION =3.737
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.


TEST NO. 1-0-3*M-DS-1S
THRU
1-0-3*M-DS-3S
* = PEAK
PHI ANGLE =35.418
COHESION =-0.061
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.


TEST NO. 1-P-4*-DS-1S
THRU
1-P-4*-DS-3S
* = PEAK
PHI ANGLE =34.957
COHESION =0.680
SHEAR STRESS (PSI)
NORMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.


TEST NØ. 1-P-4*-DS-1
THRU
1-P-4*-DS-3
* = PEAK
PHI ANGLE =31.818
CØHESIØN =4.519
SHEAR STRESS (PSI)
NØRMAL STRESS (PSI)
0.
10.
20.
30.
40.
50.
0.0
10.
20.
30.
40.
50.
60.
70.