DOE-DC

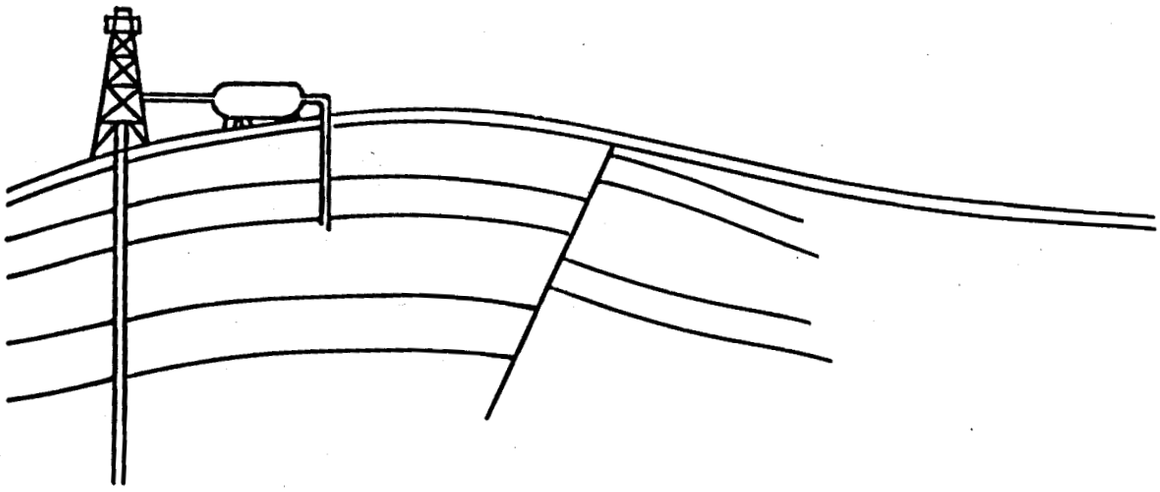
THE DOW CHEMICAL COMPANY — UNITED STATES DEPARTMENT OF ENERGY

PARCPERDUE

GEOPRESSURE—GEOTHERMAL PROJECT

DOW

DOW — DOE No. 1 L.R. Sweezy



APPENDIX E: ROCK MECHANICS—TERRATEK REPORTS

PART I: Mechanical and Geological Characteristics of Rock Samples from Sweezy No. 1 well at Parcperdue Geopressured/Geothermal Site.

PART II: Hydrostatic Compression and Uniaxial Strain tests performed in support of the Parcperdue Geothermal Project.

SUBMITTED TO

UNITED STATES DEPARTMENT OF ENERGY

UNDER CONTRACT DE—AC08-79ET27255

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Final Report

MECHANICAL AND GEOLOGICAL CHARACTERISTICS OF ROCK SAMPLES FROM SWEEZY NO. 1 WELL AT PARCPERDUE GEOPRESSURED/GEOTHERMAL SITE

by

K. P. Sinha
M. T. Holland
T. F. Borschel
J. F. Schatz

Submitted to:

Dow Chemical Company
Oil & Gas Division
400 West Belt South
Houston, Texas 77042

Attn: J. R. Hamilton (Bin 3C8)

JR 81-107
November, 1981

terratek

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ABSTRACT

The mechanical and transport properties and characteristics of rock samples obtained from DOW-DOE L.R. SWEEZY NO. 1 TEST WELL at the Parcperdue Geopressure/Geothermal Site have been investigated in the laboratory. Elastic moduli, compressibility, uniaxial compaction coefficient, strength, creep parameters, permeability, acoustic velocities (all at reservoir conditions) and changes in these quantities induced by simulated reservoir production have been obtained from tests on several sandstone and shale samples from different depths. Most important results are that the compaction coefficients are approximately an order of magnitude lower than those generally accepted for the reservoir sand in the Gulf Coast area and that the creep behavior is significant.

Geologic characterization includes lithological description, SEM micrographs and mercury intrusion tests to obtain pore distributions. Petrographic analysis shows that approximately half of the total sand interval has excellent reservoir potential and that most of the effective porosity in the Cib Jeff Sand is formed by secondary porosity development.

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I. INTRODUCTION

The Division of Geothermal Energy of the U.S. Department of Energy (DOE/DGE) is evaluating the technological and commercial feasibility of exploiting the geopressured/geothermal resource in the U.S. Gulf Coast area. An extensive program to design, drill and test wells in this area is being conducted to aid the evaluation process. It is recognized that physical and mechanical properties such as porosity, permeability, compressibility, etc., and changes in these properties during production play an important role in evaluating the production potential of a subsurface reservoir. The program therefore includes a systematic investigation of rock properties in the laboratory. This report describes laboratory tests on core samples obtained from DOW-DOE L.R. SWEEZY NO. 1 TEST WELL at the Parcperdue Site (near Lafayette, Louisiana) in the Gulf Coast Area.

The test conditions and the procedures are designed to produce results that are useful for:

- identifying and anticipating problems associated with changes in porosity, strength, and deformation and fluid flow characteristics that are related to fluid production;
- providing correlation with the reservoir properties assessed from well testing and geophysical logging such as sonic velocity and electrical resistivity logs;
- providing values or ranges of values for the input parameters such as compaction and permeability coefficients, bulk and shear moduli, etc., to the computer based models for predicting long-term production performance and subsidence profiles.

In addition to the description of core tests and the results, the report includes a detailed geological description of the Frio Cibb Jeff Sand and some general comments on its reservoir aspects. The report has been structured such that the core testing and the geological sections are essentially independent.

II. CORE TESTING

II.1 GENERAL LITHOLOGY AND CORE DESCRIPTION

The proposed DOW-DOE L.R. Sweezy #1 well in Parcperdue field near Lafayette, Louisiana has been drilled to a total depth of 13,618 feet. The target sand interval was a small geopressured water sand, called the Cibb Jeff sand, which occurs within the upper Oligocene Frio Sand complex. The reservoir of Cibb Jeff sand in the Parcperdue field has been determined to consist of a small fault block. Remarkably good well control and the general lithology suggest that the reservoir is effectively isolated from adjacent fault blocks by a thick shale sequence above and below the sand. Reservoir acreage is approximately 940 acres and for an average sand thickness of 50 feet the reservoir volume equals 0.015 cubic miles (Hamilton and Wilson, 1980).

Two cores of 60 feet length and 4 inch diameter each were recovered from the Sweezy #1 well across the proposed reservoir interval between 13,340 to 13,460 feet levels. Core recovery was excellent considering the unconsolidated nature of portions of the reservoir sand. Two feet of shale were recovered from above the sand, and approximately 48 feet of siltstone and shale were recovered from below. Total sand recovery was approximately 70 feet, approximately half of which represented potential reservoir sand. Figure II-1 shows a vertical profile characterizing the entire cored interval.

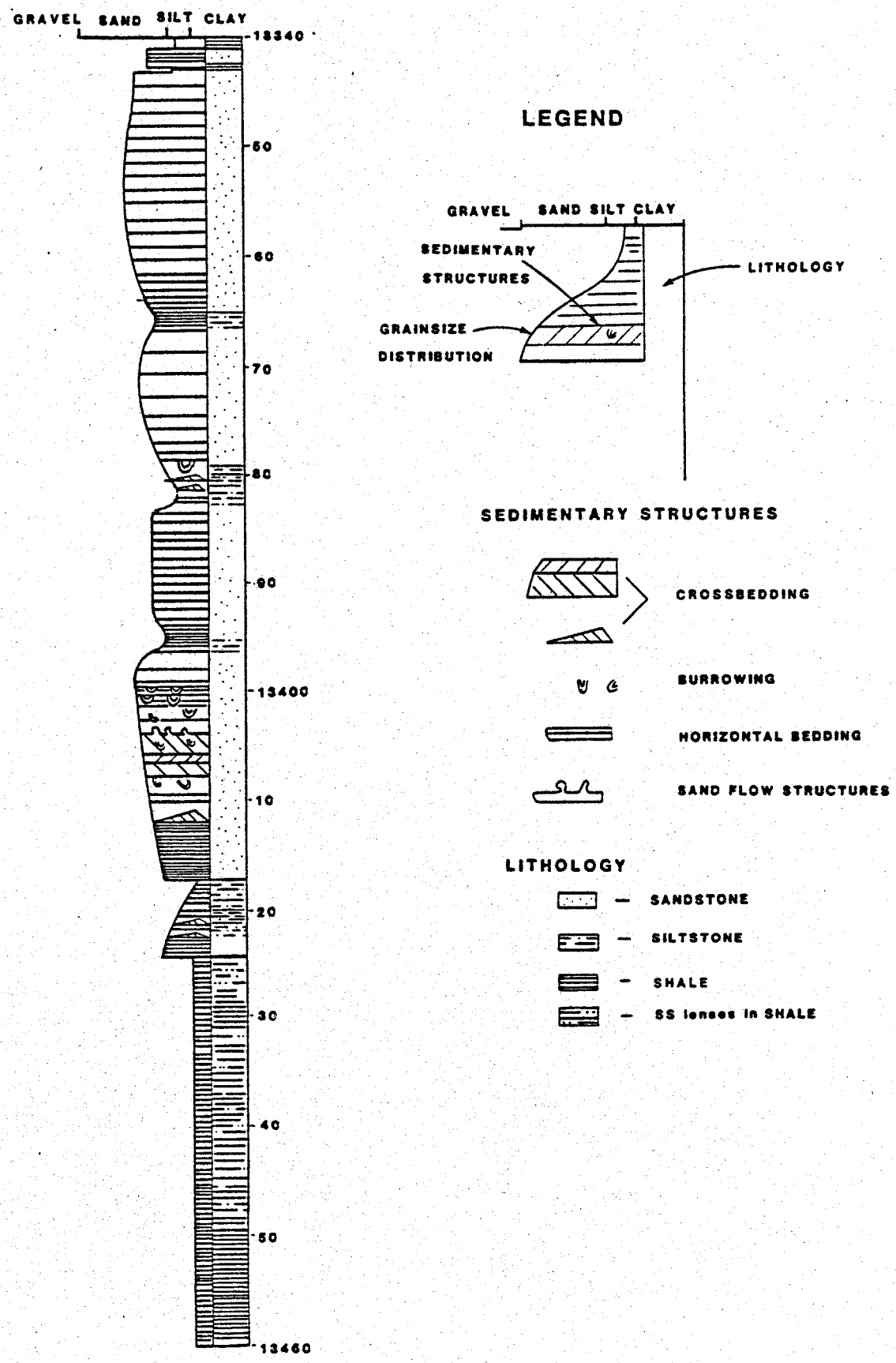


Figure II-1. Vertical Profile of Cored Interval for Sweezy No. 1 Test Well.

II.2 LABORATORY TESTS

II.2.1 Specimen Preparation, Characterization and Storage

II.2.1.1 Specimen Preparation

Cylindrical test specimens, each 2 inches in diameter and 4 inches in length were obtained from the whole core samples. In addition to test specimens, a one inch diameter satellite core was obtained from each of the whole core samples for density, porosity and a limited number of ultrasonic velocity measurements. Initially test specimens were cored and edges were ground at room temperature using 110,000 ppm brine as a lubricant. Extremely friable sand samples were frozen and cored dry to obtain satisfactory test specimens. Most of the shale samples fractured along the bedding planes during coring. Some others were damaged during the griding operation to make the edges flat and parallel. A single shale specimen was obtained by casting the core in hydrostone prior to cutting and grinding operations. All the test specimens were ground for flat and parallel ends to a tolerance of 0.005 inches.

II.2.1.2 Porosity Measurements

Porosity measurements were done on samples from each of the whole core pieces used for test specimen preparation. The dual chamber helium-gas Boyle's Law method was used to determine volume of solids, V_s, for each specimen. The chamber volumes are optimized for the sample size to give near maximum resolution for porosity determination. The apparatus was calibrated with known volumes. Porosity (ϕ), was then determined by:

$$\phi = 1 - \frac{V_s}{V_t}$$

where V_t is the total sample volume as determined by immersion and displaced fluid volume measurement. Resolution is estimated to be approximately ±0.5% porosity.

II.2.1.3 Pressure Resaturation

A special pressure saturation vessel is used to saturate the test specimen. The test specimen is placed in the pressure vessel and the pore lines connected to the sample are evacuated and backfilled with deaerated 111,000 ppm NaCl brine. The vessel and the pore lines are pressurized simultaneously, in steps, up to 1000 psi such that at no time any effective stress is created within the sample. A slight differential pressure is then created between the top and the bottom of specimen and the pore fluid is allowed to flow through for approximately 3 to 4 hours. The system is then depressurized slowly and the specimen is stored in brine until it is ready to be jacketed for a test.

II.2.1.4 Jacketing and Test Stack Preparation

A test stack consisting of the cylindrical rock specimen, ceramic spacers and titanium end caps with pore fluid connections is assembled. The ceramic spacers act as insulators and isolate the electronics of the transducers at the two ends from the high temperature zone in the test vessel. The titanium end caps resist the corrosive effect of the brine used as the pore fluid.

Any extreme core surface irregularities are filled with epoxy. Four metal stand-offs to allow transverse strain measurements are cemented directly to the rock at its lateral center at opposing diameters. The end cap to sample contact circumferences are coated with a bead of epoxy followed by a band of sheet teflon. The entire assembly (except ends) is then coated with approximately 0.1 inch of uncured silicon rubber. Immediately, a tube of 0.020-inch thick teflon heat-shrinkable material is slipped onto the sample and shrunk onto the uncured rubber with a hot air gun. Finally, the jacket is additionally secured near its edges with stainless steel lock wire and allowed to cure at room temperature for at least 24 hours. A completed test stack is shown in Figure II-2.

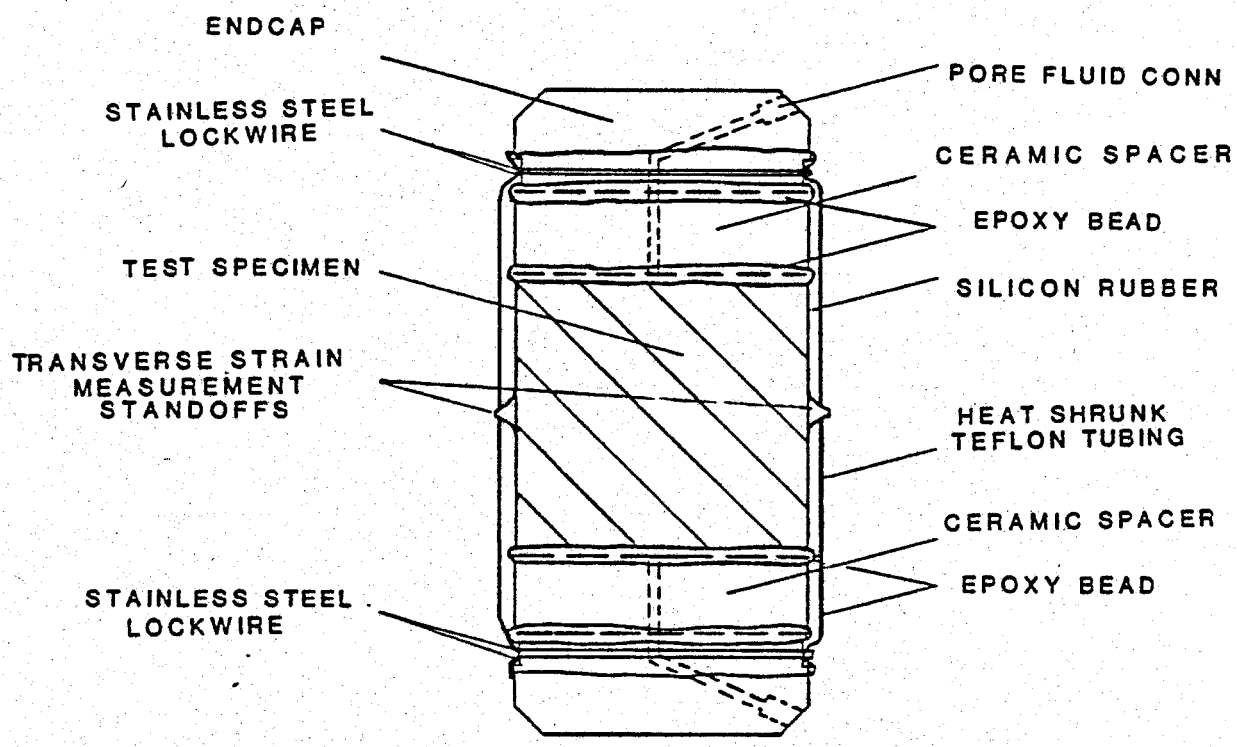


Figure II-2. Completed Test Stack for Core Testing at Reservoir Conditions.

II.2.2 Test Equipment

All tests are performed using a system designed and built at Terra Tek for high-temperature creep measurements (Figure II-3). The system uses gas-backed, thermally stabilized hydraulic accumulators for applying the axial, confining and pore pressures. The gas-backed accumulators are designed to maintain constant confining pressure and axial load over long periods if desired. Figure II-4a shows a schematic of the axial load, confining pressure and pore pressure units. The pore pressure unit is also used for flow (permeability) and ejected fluid volume (pore volume changes) measurements. The axial and transverse strain measurements are made using, respectively, linear variable differential transformers (LVDTs) and strain-gaged cantilever fixtures. The strain gages have some drift over prolonged measurement durations, especially at elevated temperature. The LVDTs, on the other hand, are extremely stable and have high sensitivity for prolonged measurements on most rocks. The specimen is heated internally within the cell by convection of the hot cell fluid within a ceramic shroud. Temperatures are measured by thermocouples attached to the test specimen and placed in the cell fluid at several positions. Figure II-4b shows a view of the entire test stack assembly.

The system is electronically linked with a PDP-11 computer system with the pressure, temperature, stress and strain transducer outputs being acquired in real time.

II.2.3 Test Procedures

Tests consisting of several hydrostatic, triaxial and uniaxial loading and unloading cycles and pore pressure reduction were designed to provide measurements for calculating several mechanical and transport properties. A schematic description of these tests is given in Figure II-5 and the details are described below.

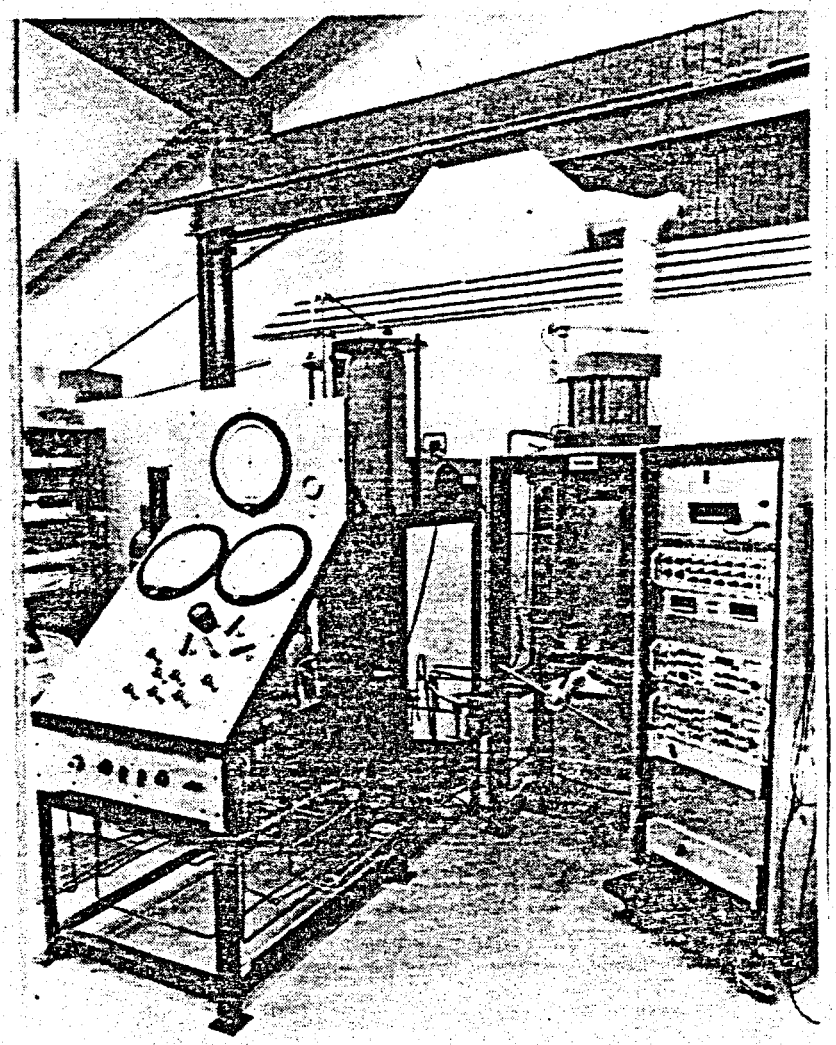
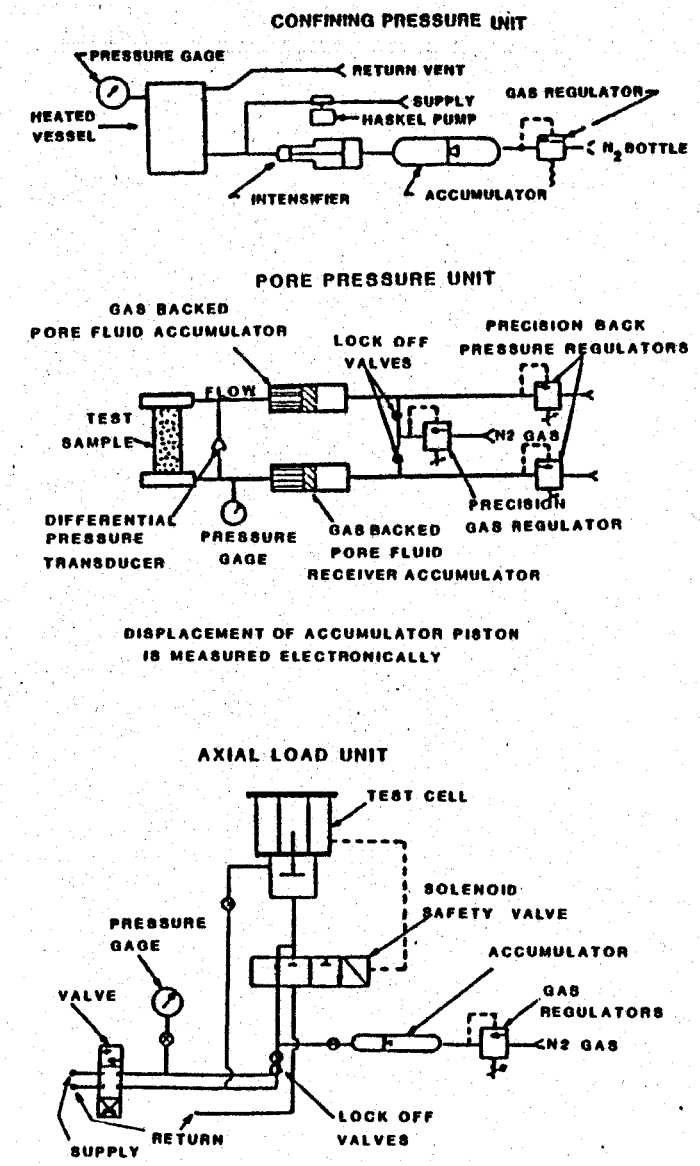
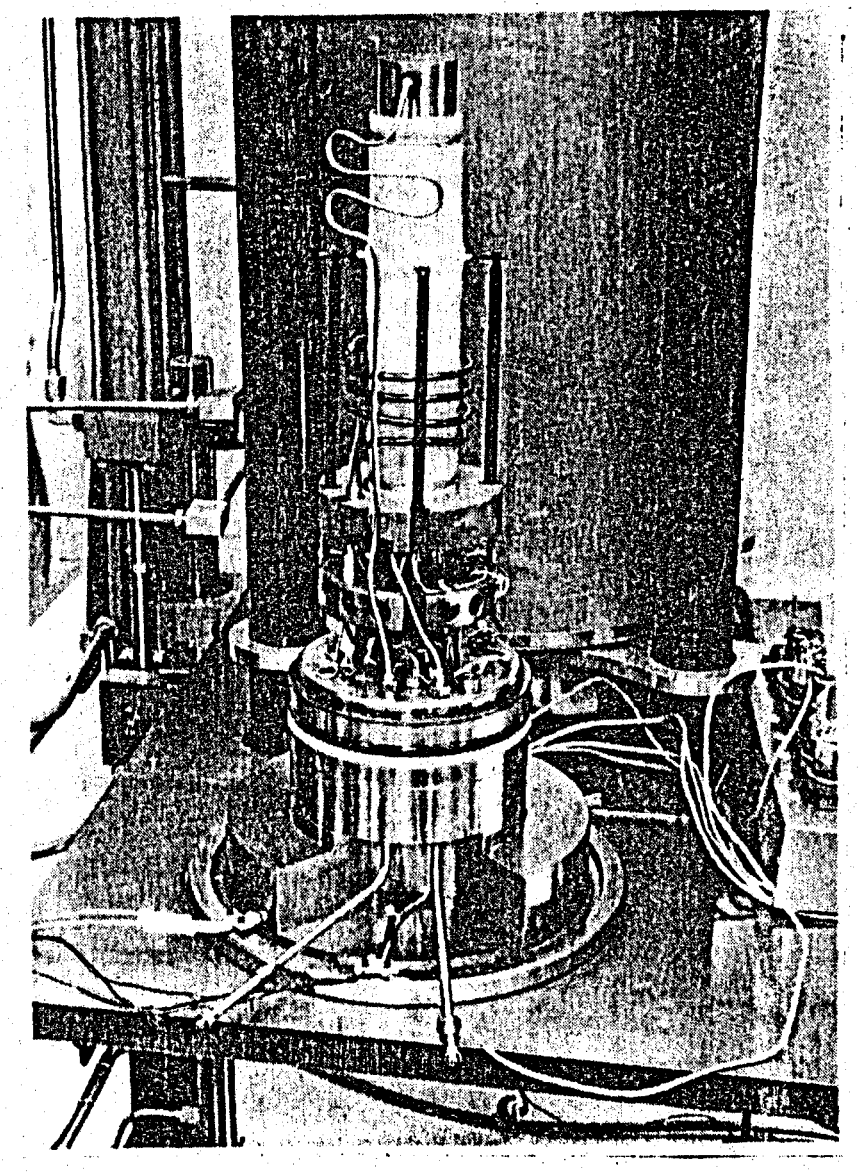


Figure II-3. Terra Tek High Temperature Creep Testing System.



a) Loading Units



b) Test Stack Assembly

Figure II-4. Details of the Testing System Components.

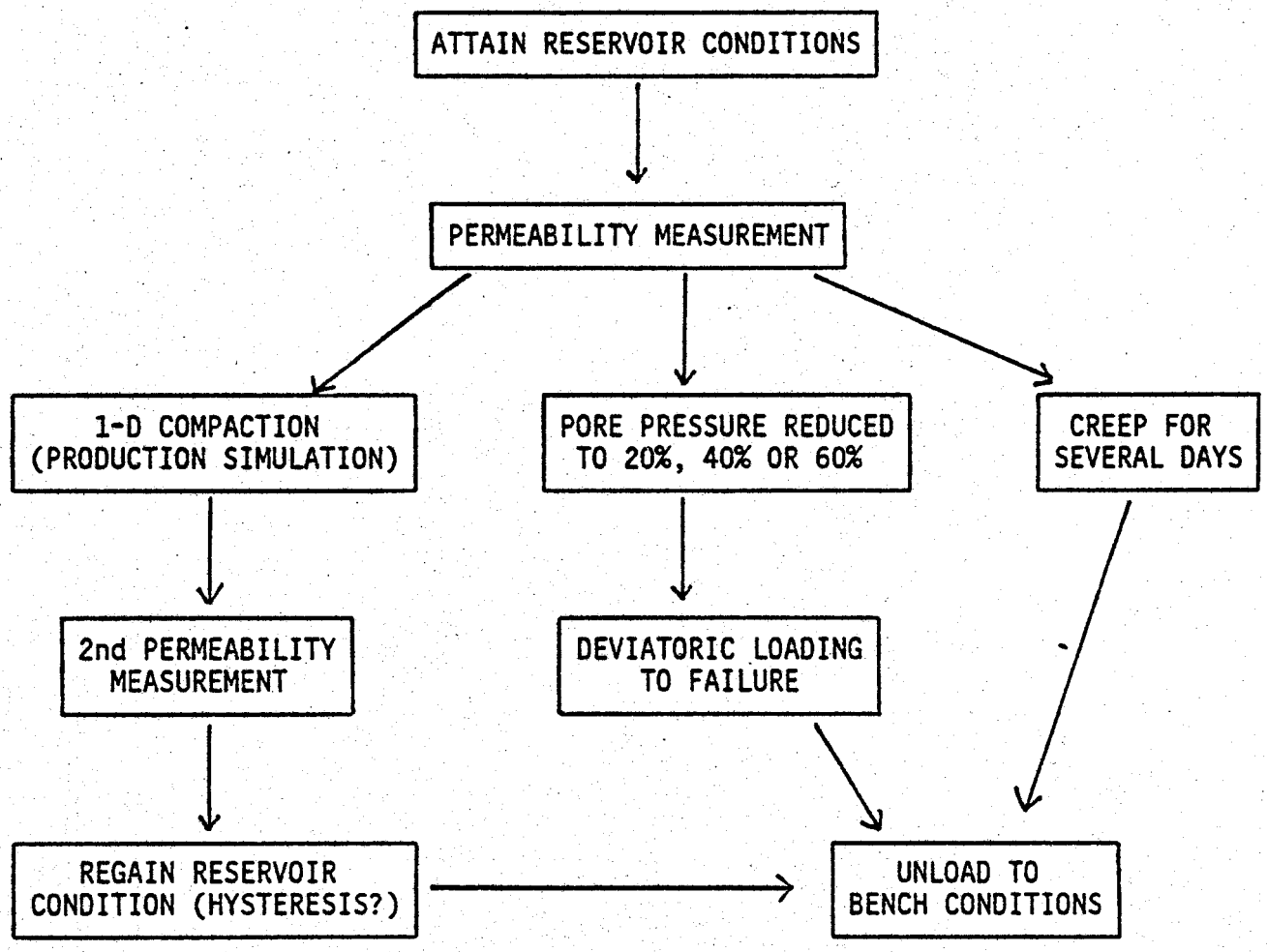


Figure II-5. Schematic Description of Tests to Obtain Mechanical and Transport Properties.

II.2.3.1 Tests for Obtaining Deformational Characteristics

The test specimen, inside the pressure vessel, is heated and loaded to simulate the estimated reservoir conditions at the depth from which the specimen originated. The approximate reservoir conditions simulated in each case are: temperature 107°C, confining pressure 13,000 psi; total overburden stress 13,500 psi and pore pressure 12,000 psi. The confining pressure and the pore pressure are increased simultaneously (maintaining a constant differential of approximately 50 psi to prevent a jacket failure). After the pore pressure reaches its maximum value, the confining pressure is increased to the reservoir level, followed by deviatoric stress application. Once reservoir conditions have been attained, the test procedure varies for different test types:

1. In the compaction tests, the pore pressure is lowered to approximately 60% of its maximum value while constantly adjusting the confining pressure and the deviatoric stress values to obtain a uniaxial compaction (no lateral strain change) and maintain a constant total axial stress (representing the overburden).

2. In the triaxial tests to failure, conducted on three sand samples from generally the same level, the pore pressure is reduced to approximately 20%, 40% and 60%, respectively, of their maximum values (representing the reservoir condition). The deviatoric stress is then increased until the specimen fails while maintaining the pore pressure and the confining pressure constant.

3. In the creep tests, the pore pressure is lowered to approximately 7000 psi while maintaining a constant total axial stress and uniaxial compaction. The specimen is allowed to creep for several days under constant stress conditions.

II.2.3.2 Permeability Measurements

In all these tests, except the test on the shale specimen, permeability measurements are made after attaining the reservoir condition. A second permeability measurement is made after the 1-D compaction phase in the type 1 tests to assess the influence of fluid production on the porosity and permeability of the reservoir rock.

The steady-state determination of permeability has been found unsatisfactory in the microdarcy and lower permeability range. Therefore the transient pulse technique which is especially suited for low porosity, low permeability range was used to measure permeability for a single shale specimen. In the transient technique, the two ends of a test specimen are kept open to fixed volumes of permeating fluid and a differential pressure pulse of the magnitude approximately 1% of confining pressure is applied across the specimen. The pressure pulse results in fluid flow across the specimen and the equilibrium is reestablished. The pressure differential decay with time is monitored and the results in conjunction with the properties of permeating fluid, specimen geometry and the system volumes enable the permeability calculation. Figure II-6 shows a schematic of the test setup.

Since the setup permits only a hydrostatic loading of the specimen, the confining pressure was kept somewhat higher than that corresponding to overburden in order to compensate for the in situ deviatoric stress.

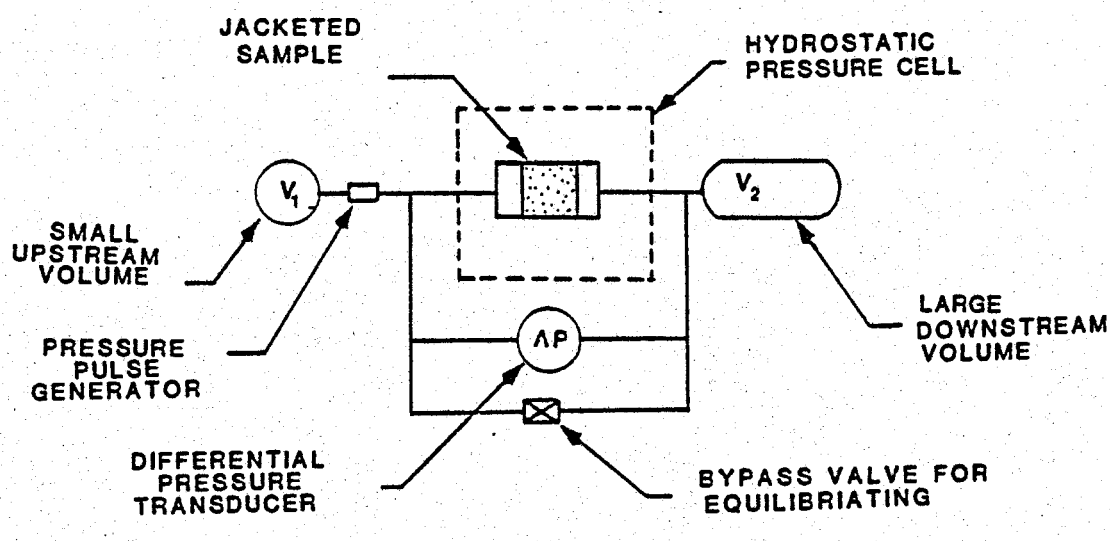
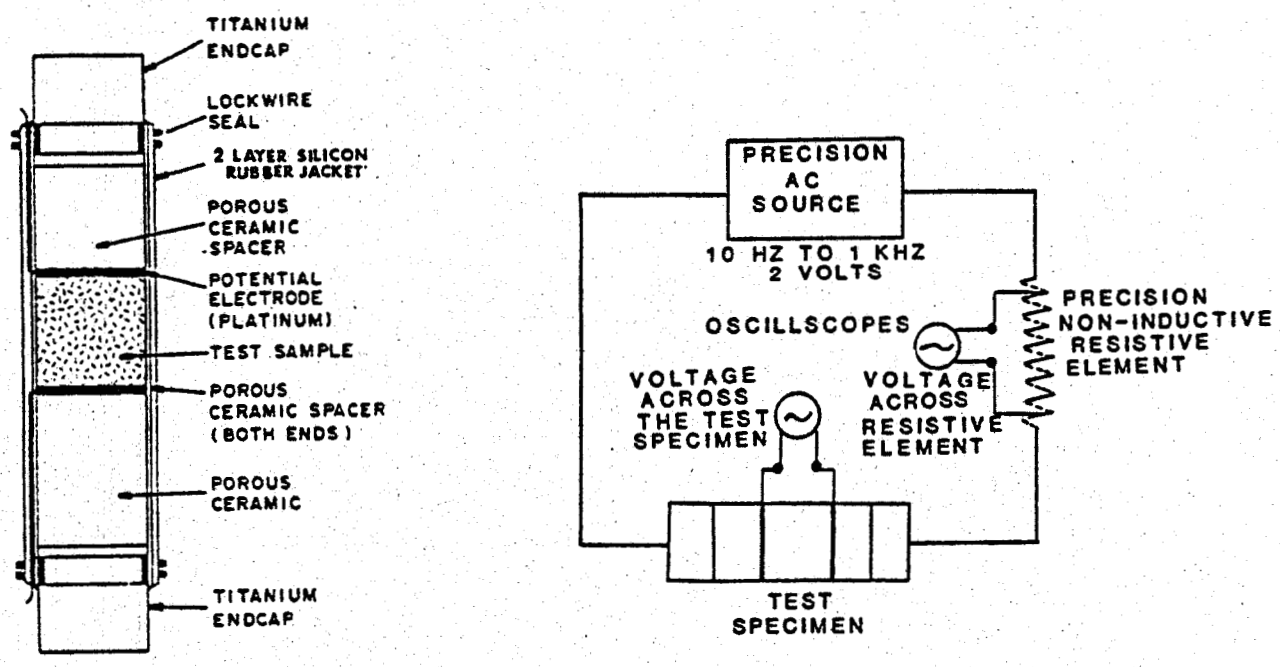


Figure II-6. Schematic of the Test Set-Up for Transient Technique of Permeability Measurement.

II.2.3.3 Electrical Resistivity Tests

Electrical resistivity was measured on a single sand specimen. The specimen was saturated under water for 24 hours and then jacketed along with platinum electrode plates, ceramic spacers and titanium end caps. Figure II-7 shows the test stack assembly and a schematic of the test setup. After jacketing, the test stack and the connected pore lines were evacuated and backfilled with NaCl brine. The confining and the pore pressures were increased in steps to attain an effective stress of 980 psi on the specimen. As in the pulse technique permeability measurements, the test setup in this case permits only a hydrostatic loading of specimens. The maximum capacity of pressure vessel being 2000 psi, the reservoir condition was simulated in terms of effective stress only and not the total stresses.



a) Test Stack b) Schematic of Test Set-Up

Figure II-7. Test Stack and Schematic of Test Set-Up for Electrical Resistivity Test.

After the fluid pressures stabilized (approximately two hours duration) an electrical resistivity measurement was made using a four pole AC resistivity device to verify proper functioning of measurement devices. The temperature was then raised to 106°C and after a thermal stabilization was attained (approximately 45 minutes duration) the final resistivity measurement was made.

II.2.3.4 Ultrasonic Wave Velocity Measurements

The ultrasonic velocities in three sand samples were measured using a "Through Transmission Technique" (Mattaboni, 1967). In this technique, the travel time of an ultrasonic signal through a core sample is derived from the frequency of a very stable and accurate (stability ±1 part in 10^7/month; accuracy ±0.001%) variable frequency synthesizer (VFS), thus avoiding the errors involved in direct measurements of time. The VFS triggers a pulse generator transmitting pulses through the core sample at a rate which is a definite submultiple of the VFS frequency. The pulse shapes are adjusted so that the initial pulse, the singal received through the specimen and the VFS output itself (comparison wave) match exactly in shape. The VFS frequency is varied so that an exact number of comparison wave cycles are included between the time that initial pulse is transmitted and the specimen signal is received. The travel time is determined by VFS frequency. The sample set-up for these measurements is shown in Figure II-8.

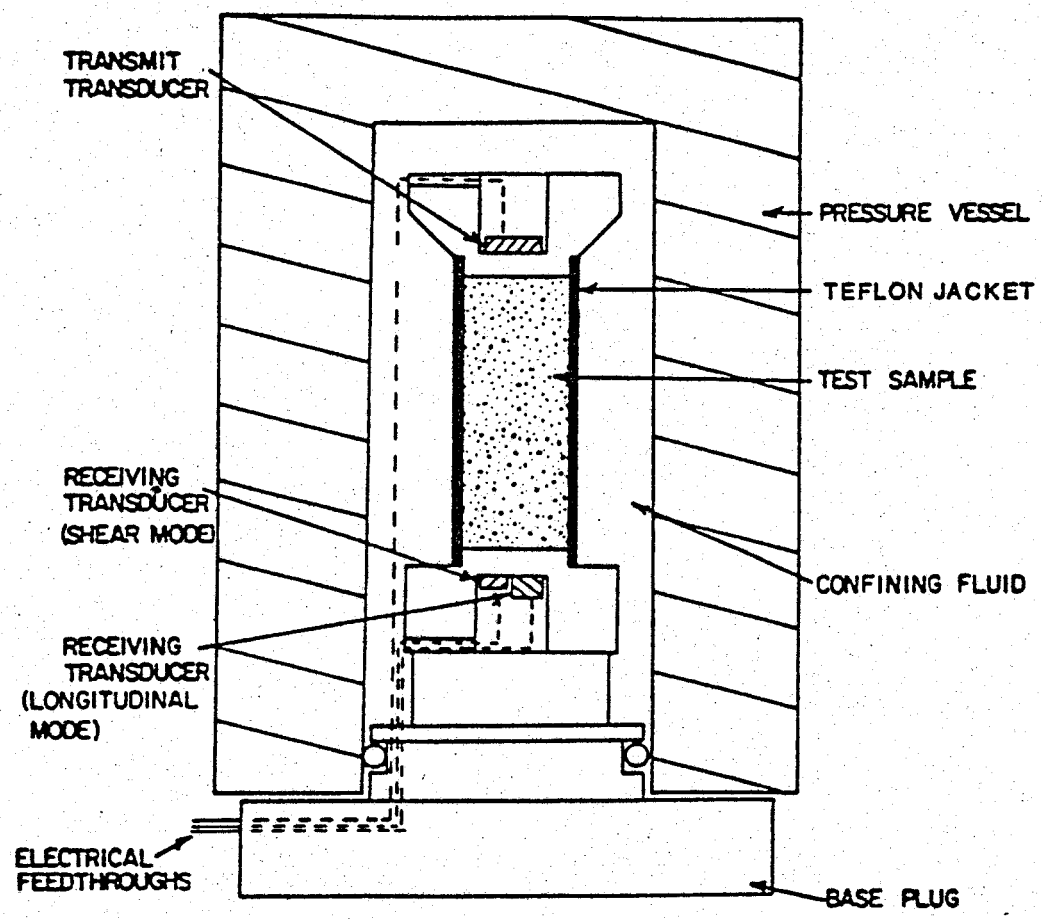


Figure II-8. Test Set-Up for Ultrasonic Velocity Measurements.

II.3 RESULTS AND DISCUSSION

II.3.1 Deformation Characteristics

A summary of all the test results and ranges of values obtained for different parameters are given in Table II-1. Computer plots characterizing the material behavior throughout individual tests are given in Appendix 1. The main features of the results are described and discussed here.

The deformational behavior of a test specimen under a complex triaxial loading sequence perhaps can best be represented by a mean effective pressure (σ_m) versus volumetric strain (ε_v) relationship. Figure II-9 shows a plot of this nature for a sandstone and a shale specimen. Initial nonlinearity in the stress-strain relationships is significant and can be attributed to the closure of pre-existing cracks and pore collapse. In addition to nonlinearity, inelasticity is clearly exhibited resulting in hysteresis. In one sandstone sample (DOW #6, depth 13,344 ft.) only about 33% of the strain at the maximum effective stress of 6000 psi was recovered during unloading to 200 psi.

Figure II-10 shows the compressibility variation with the mean effective stress for the same sandstone and shale specimens. Compressibility is obtained for all phases of loading by the slope of the tangent to the ($\sigma_m \sim \varepsilon_v$) curve. These curves are typical of all the samples tested.

The Young's and shear moduli are calculated from the deviatoric stress-strain ($\sigma_1 - \sigma_3 \sim \varepsilon_1$) and shear stress-strain ($\sigma_1 - \sigma_3/2 \sim \varepsilon_1 - \varepsilon_3$) curves (cf. Figure II-11 and II-12). The Young's modulus remained very much constant throughout the deviatoric stress loading phase although the shear modulus decreased considerably near the maximum shear stress. The flattening of shear stress-strain curves near the maximum shear stress is typical of many other rock types (Isenberg, 1972).

Table II-1

Summary of Results Describing Deformation Characteristics

Rock Type	Sample Number	Depth (ft)	Porosity (%)	Young's Modulus (psi) x10^6	Shear Modulus (psi) x10^6*	Compressibility $\left(\frac{1}{psi}\right)$ x10^{-6}**	Compaction Coefficient $\left(\frac{1}{psi}\right)$ x10^{-6}
Compaction							
Sandstone	6	13,344	28.6	1.26 3.24†	0.58 1.31†	3.30~1.38	0.35 0.30††
	33	13,364	25.8	0.84 1.27†	0.36 0.49†	10.30~1.95	0.35
	35	13,366	28.0	1.69	0.61	6.66~2.26	0.46
	67A	13,389	30.1	0.60	0.25	5.12~3.54	0.72
	68	13,390	26.7	1.55 2.16†	0.35~1.0 0.85†	5.08~3.19	0.65
Shale	129	13,446	20.2	0.54	--	3.15	--†††
Triaxial (to failure)							
Sandstone	41	13,371	36.2	1.18	0.75~0.45	3.52~2.58	--
	42	13,372	33.7	0.97	0.45~0.44	4.87~2.95	--
	75	13,395	27.9	0.96	0.51~0.37	5.59~3.85	--
Creep							
Sandstone	71A	13,393	29.6	1.58	1.06~0.52	4.06~2.83	0.70
	67B	13,389	30.1	0.68	0.30	4.42~3.69	0.66
Compaction or Creep§							
Sandstone	78	13,398	30.2	0.40	0.19	6.06	--
	7	13,344	23.0	--	--	3.24	--
	10	13,346	30.4	--	--	3.45	--
	40	13,369	37.5	--	--	--	--
	48	13,373	33.2	--	--	--	--
	80	13,400	26.7	--	--	3.33§§ 2.66§§ 2.55§§	-- --

*The range of values correspond to initial and final stages of triaxial loading phase.
**The range of values correspond to stress range between zero effective stress and reservoir conditions.
†These values were obtained from sonic velocity measurements.
††This value was obtained by repeating the uniaxial compaction phase.
†††Experimental results indicated a compaction coefficient of 0.85 x 10^{-6} 1/psi in this case. However, further investigation of the failed specimen indicated that during the testing a horizontal failure (along the bedding) was created in the specimen just above the lateral strain transducer stand-offs and the failure was confined in the upper half of the specimen. This resulted in recording of all the axial compression, but no lateral extension and hence a fictitiously high compaction coefficient.
§Partially completed tests (not completed due to specimen or equipment failure).
§§These values were obtained during subsequent loading cycles.

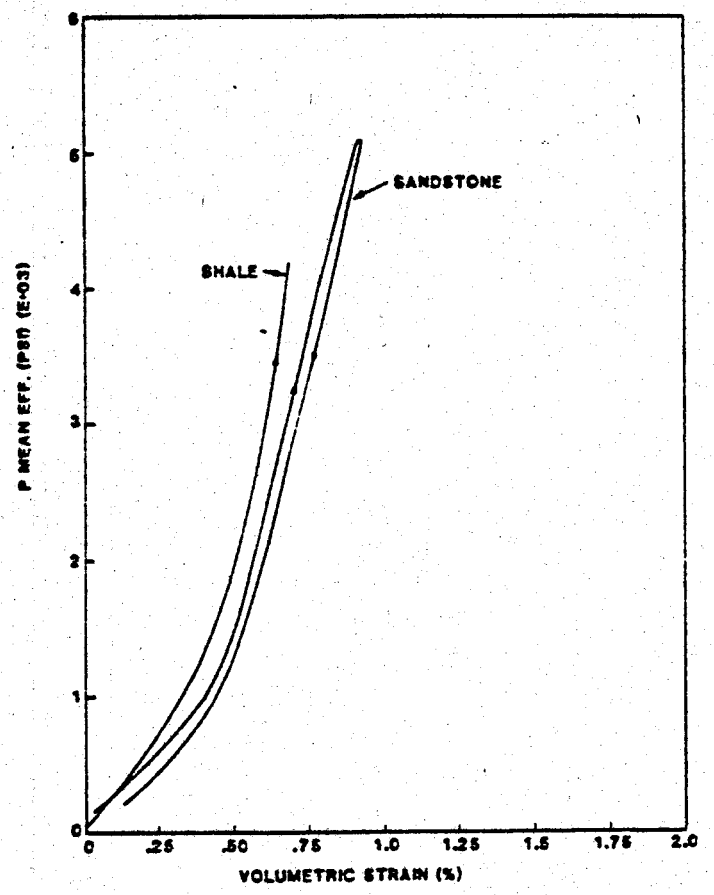


Figure II-9. Mean Effective Pressure - Volumetric Strain Relationship for Sandstone (#68) and Shale (#129) Specimens.

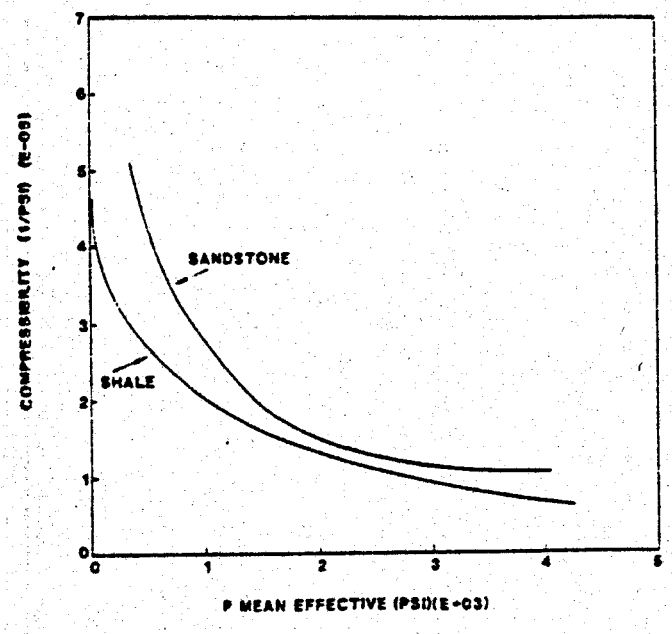


Figure II-10. Compressibility Variation with Mean Effective Stress for Sandstone (#68) and Shale (#129) Specimens.

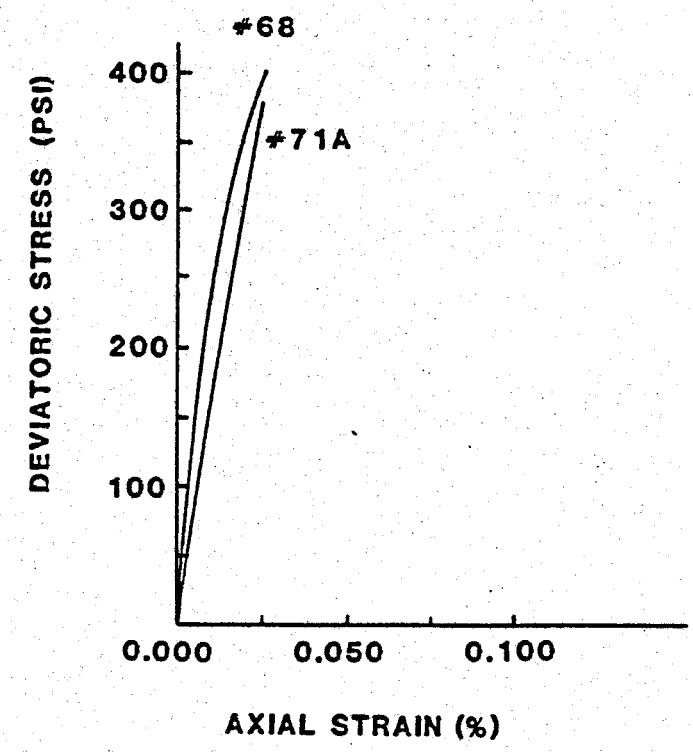


Figure II-11. Deviatoric Stress - Axial Strain Curves for Two Sandstone Specimens.

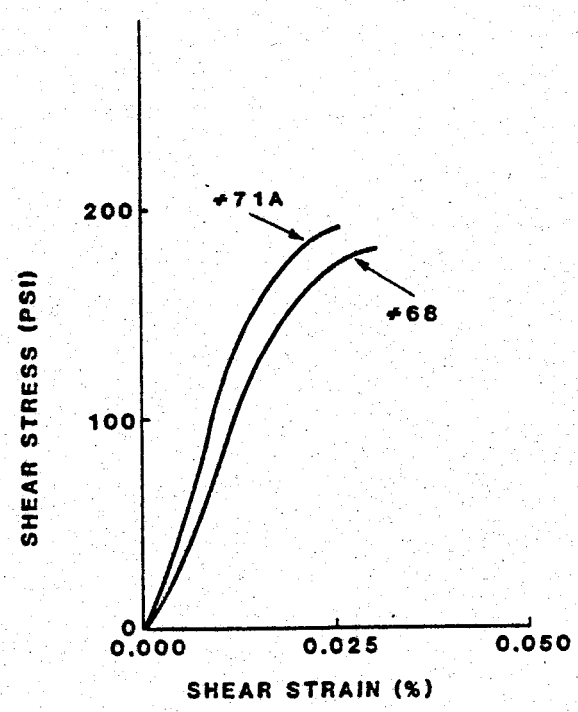


Figure II-12. Shear Stress-Strain Curves for Two Sandstone Specimens.

The elastic constants obtained from the sonic velocity measurements on three sandstone samples are much higher than the corresponding values obtained from static measurements. This is expected due to the low stress and short duration pulses used in sonic velocity measurements. Figure II-13 shows a comparison of the compressional velocities (P waves) obtained in the laboratory with those obtained from sonic logs.

Compaction coefficient (C_m) is obtained from the pore pressure ~ axial strain ($P_p \sim \varepsilon_1$) relationship during uniaxial compaction phase (change in lateral strain, $\delta\varepsilon_3 = 0$) simply as the slope $\partial\varepsilon_1/\partial P_p$. Compaction coefficients are fairly constant throughout the uniaxial compaction phase for most of the samples tested.

Figure II-14 shows the Mohr's circles and the failure envelopes obtained from the triaxial tests on three sandstone samples. The failure envelope at lower normal stress is very linear and if extrapolated downwards, gives a cohesion of approximately 300 psi and a friction angle of 28° (a lower cohesion and a friction angle value slightly higher than 28° may be a more realistic approximation if nonlinearity is assumed at the beginning). A reduction in the friction angle at the higher stresses probably is due to the associated higher strains causing a breakdown of the original structure of the grains and the pores within the sample.

Figure II-15 shows the creep curves obtained for a sandstone specimen allowed to creep under constant stress conditions for approximately five days. It appears that a steady-state creep mode had been attained in this case. Other creep tests yield similar results. Although it is difficult to say from these results how long the steady-state creep would have taken place, it is felt that over extended production periods creep compaction would be significant.

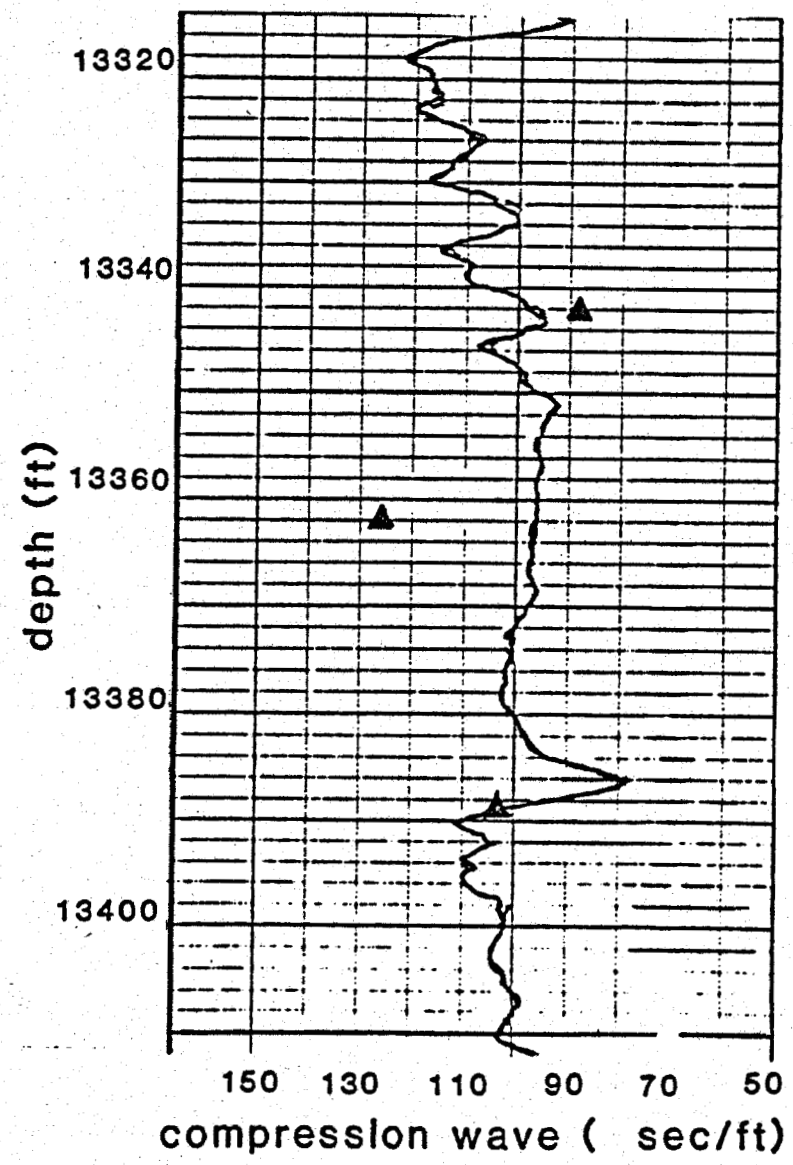


Figure II-13. Comparison of Field and Laboratory Compressional Wave Velocity Measurements.

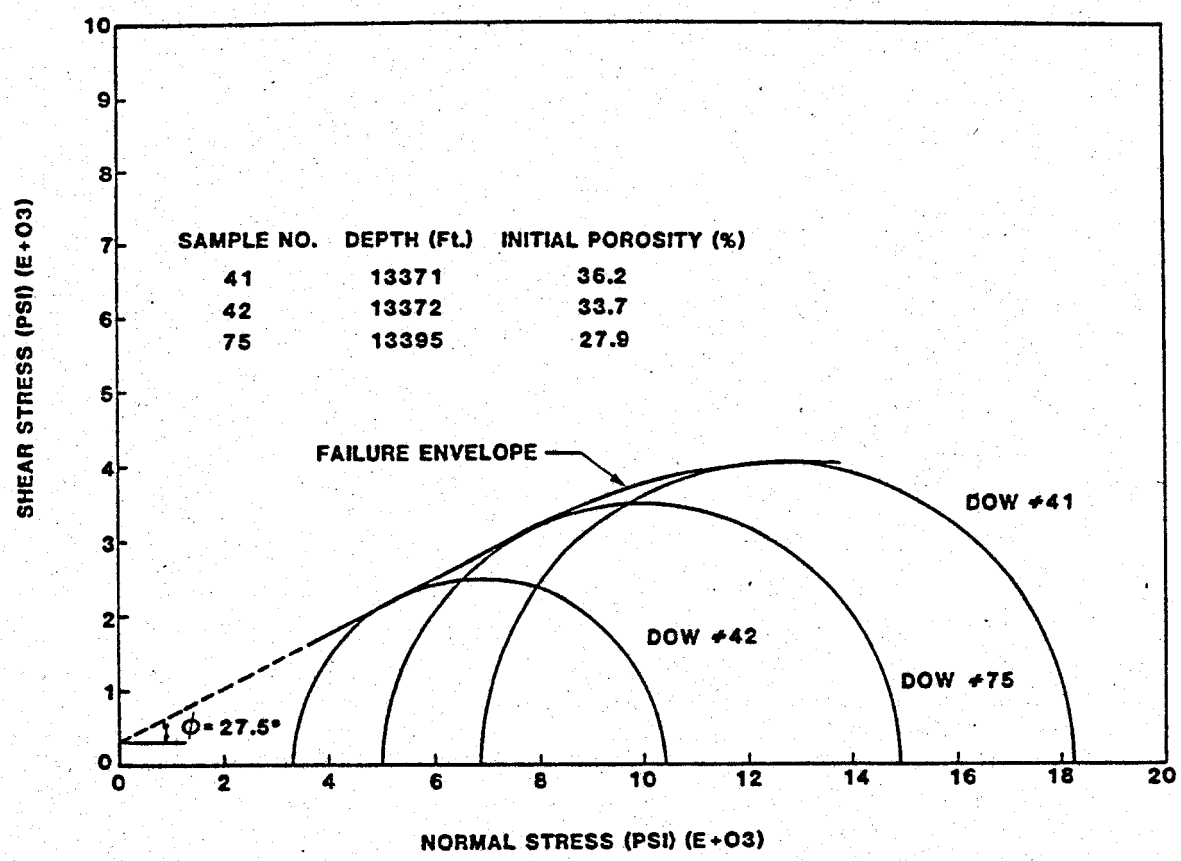


Figure II-14. Mohr's Circles and Failure Envelope for Sandstone Specimens.

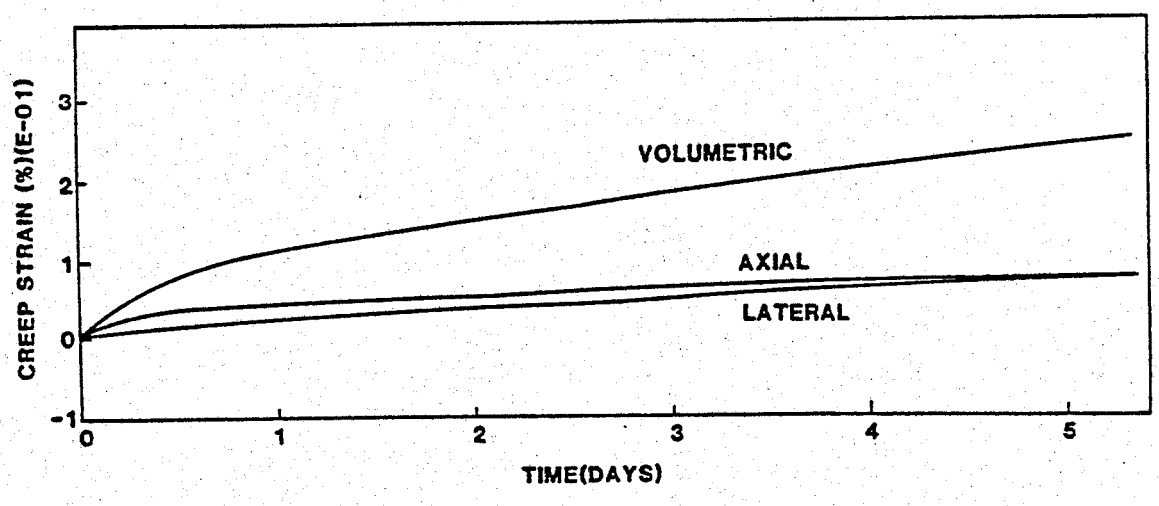


Figure II-15. Creep Curves for a Sandstone Specimen (#67B).

II.3.2 Transport Characteristics

Table II-2 gives permeability values for different sand samples. As described in the test procedure section these permeability values have been obtained by flowing NaCl brine through the specimen at reservoir conditions of stresses and temperature. The second permeability value reported for some cases corresponds to the test stage after the fluid production simulation phase. Some general comments are given below:

- The permeability values reported in Table 2 are approximately 1/4 to 1/10 of those reported by Core Laboratories, Inc. for samples from the same depth. This significant difference is due to the fact that Core Laboratory results are gas permeabilities obtained at bench condition.
- There is significant reduction, ranging from 26% to 88%, in permeability, caused by one-dimensional compaction simulating the fluid production phase.

Figure II-16 shows the result from the permeability measurement on a single shale specimen using the transient pulse technique. The final value corresponds to the reservoir conditions simulated as closely as the experimental setup permitted.

II.3.3 Electrical Resistivity

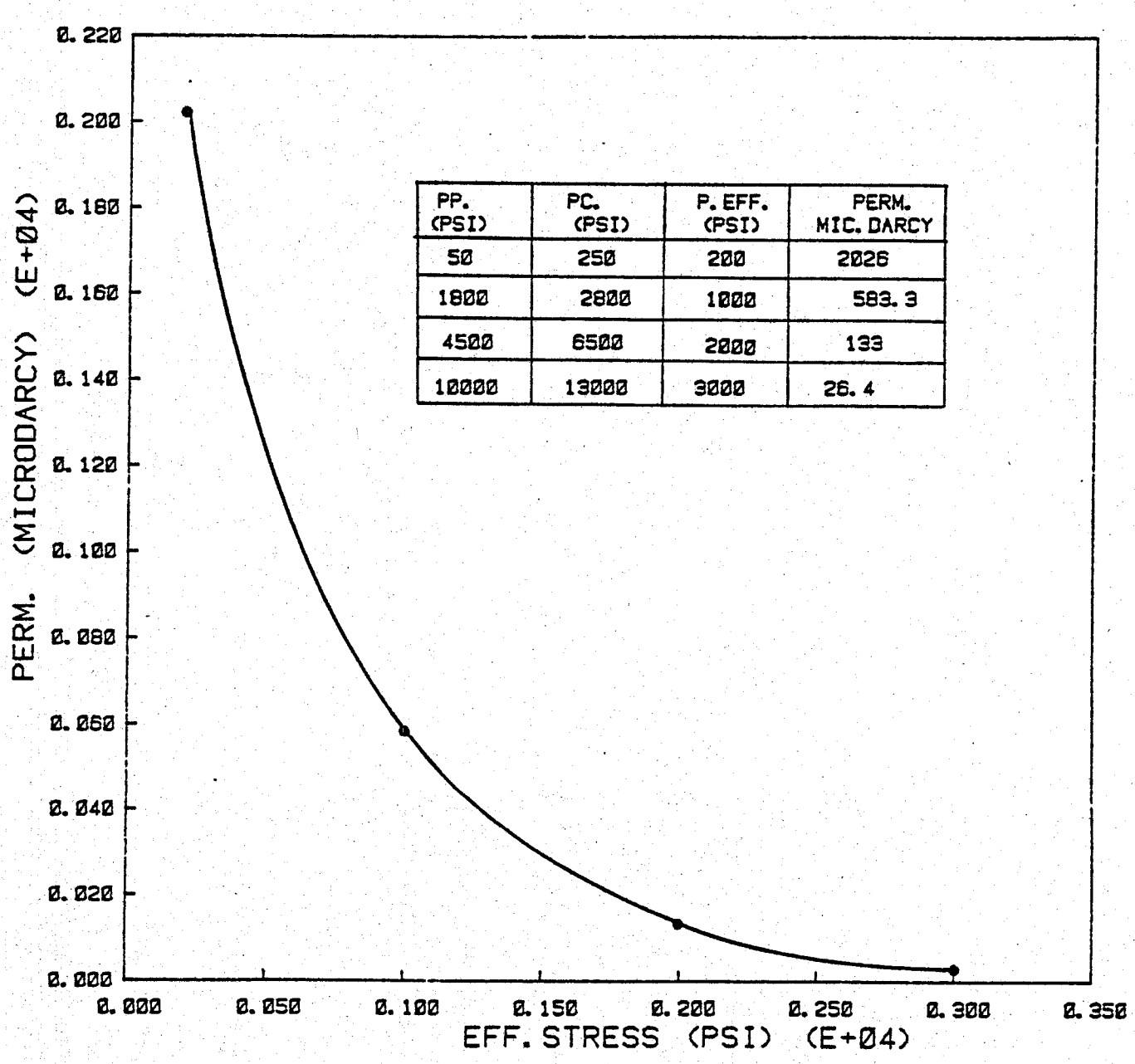
Electrical resistivity of a sand specimen (#41) from 13,371 ft depth obtained at an effective pressure of 980 psi and at temperatures of 23°C and 106°C are 266 ohm-meters and 217 ohm-meters, respectively. These values are approximately an order of magnitude higher than those expected.

Table II-2

Steady-State Permeability Values for Sand Samples

Sample Number	Depth (ft)	Porosity (%)	Permeability (millidarcy)	
			Reservoir Cond.	After Fluid Prod. Simulation Phase
#6	13,344	28.6	43.8	23.8
#33	13,364	25.8	188.8	*
#35	13,366	28.0	193.2	142.7
#41	13,371	36.2	914.4	*
#42	13,372	33.7	92.3	*
#67A	13,389	30.1	6.0	3.7
#67B	13,389	30.1	6.0	*
#68	13,390	26.7	26.3	3.1
#71A	13,393	29.6	13.6	4.5
#75	13,395	27.9	26.1	*

*Indicates that the permeability measurements were not reliable in these cases or the measurement was not made.



PP. (PSI)	PC. (PSI)	P. EFF. (PSI)	PERM. MIC. DARCY
50	250	200	2026
1800	2800	1000	583.3
4500	6500	2000	133
10000	13000	3000	26.4

Figure II-16. Permeability Reduction with Effective Stress Application for a Shale Specimen (Transient Pulse Technique).

II.4 CONCLUSIONS - MECHANICAL PROPERTIES AND BEHAVIOR

The results given in this report provide information on the deformational and transport characteristics of rocks from the Parcperdue Geothermal/Geopressured site. Table II-3 gives some average values and ranges of values for different parameters obtained from core testing.

Table II-3

Aveage Values for Mechanical and Transport Properties

Parameters	Values	Number of Values Used In Averaging
Porosity	(29.9 ± 3.81)%	16
Young's Modulus	(1.06 ± 0.43) 10^6 psi	11
Shear Modulus	(0.51 ± 0.25) 10^6 psi	16
Bulk Compressibility	(4.93 ± 1.9 ~ 2.82 ± 0.80) 10^{-6} 1/psi	14 and 10
Compaction Coefficient	(0.56 ± 0.16) 10^{-6} 1/psi	7
Permeability Coefficient (at reservoir condition)	6 ~ 914 md	Varies greatly and averaging these may not be meaningful.
Electrical Resistivity at 106°C	217 Ω m	1

Generally, the compressibility values are slightly higher than those obtained for reservoir rocks from the Pleasant Bayou Wells (Gray, 1980). The higher initial compressibility of Parcperdue samples can be attributed to the use of true reservoir temperatures during tests (Pleasant Bayou samples were tested at room temperature). Any simulation for subsidence prediction will have to consider this factor. Elastic moduli and the compaction coefficients in the two cases are of the same order.

Compaction coefficients are approximately an order of magnitude lower than those generally accepted for the reservoir sands in the same geologic

region (Ohkuma et al, 1979). This has serious implications with respect to production rate and the time for reservoir depletion. A smaller compaction coefficient results in reduction in the duration over which a maximum production rate can be maintained (Ohkuma et al, 1979).

Time and stress-dependent inelasticity exist and may be significant. These factors should be considered in evaluation and modification of field test procedures to obtain reservoir properties as well as mathematical modeling for long-term reservoir performance and subsidence prediction.

Sonic velocity measurements made in the laboratory correspond reasonably well with the field logs. As expected, the elastic constants derived from sonic velocities are higher than those obtained from static loading tests.

Permeability values are much lower than those obtained by Core Laboratories using gas as the permeating fluid, but the general trend of change in permeability with depth is the same. The lower permeabilities may be attributed to reservoir conditions simulated in the tests. (The dramatic reduction in permeability with increase in effective stress is highlighted by the results for shale specimens.)

Electrical resistivity value obtained for a specimen is much higher than that expected for a saturated rock. Since only a single test was done, it is difficult to judiciously comment on this discrepancy. Past experience has shown that the electrical resistivity and formation factor values for different rocks measured in the laboratory using the same equipment have correlated well with the field logs in a qualitative sense provided enough measurements are made in the laboratory.

III. GEOLOGY

III.1 BACKGROUND

The Cibb Jeff sand was deposited as an offshore beach barrier sand which trends along the northeast Gulf of Mexico. Figure III-1 illustrates the net sand isopach and Figure III-2 shows a vertical profile of core interval for Sweezy No. 1 test well. The total sand interval exhibits an overall upwards coarsening trend, indicative of a regressive phase of Frio shoreline facies (Selley, 1970). The sand interval may be separated into two distinct zones, upper and lower, both reflecting the depositional history and diagenesis of the sand and surrounding shale facies. Both the zones have similar mineralogies, but the ratio of their sand to clay contents differ significantly. The lower sand interval (13,391 - 13,424) exhibits an abundance of sedimentary structures, i.e., cross-bedding, sand flow clasts, and burrowing. Grains are commonly subangular, fair to poorly sorted, and average 0.15 mm in size. Mineralogically, detrital grains are predominantly quartz (average 60%), feldspar (5-10%), volcanic lithic fragments (5-10%), and minor mafics. Bonding agents are predominantly clay with scattered glauconite and carbonate cement. Although the porosity values obtained at bench condition generally are high (average ~28%), fluid permeabilities are low (average 20 md) for this porosity. This anomaly is due to the high clay content within pore throats as shown in the SEM photomicrographs (Figure III-3). Much of the clay found in the lower zone is detrital and was probably produced as a by-product of bioturbation, although authigenic kaolinite is also found commonly replacing early carbonate cement which has been dissolved. These clays appear to be loosely bound and extremely susceptible to mobilization with flow of brine through the rock matrix. Therefore, clay bridging at pore throats is a distinct probability

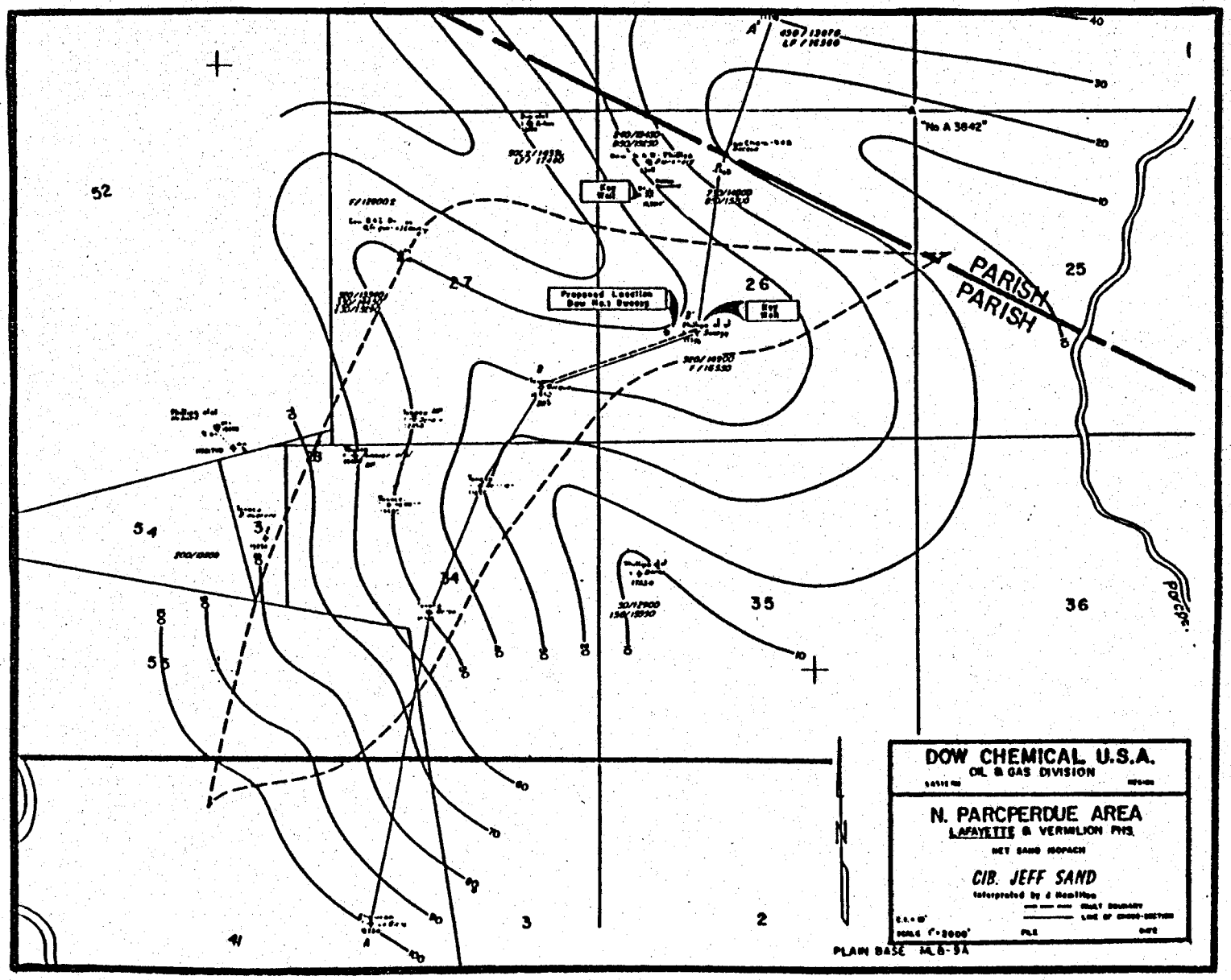
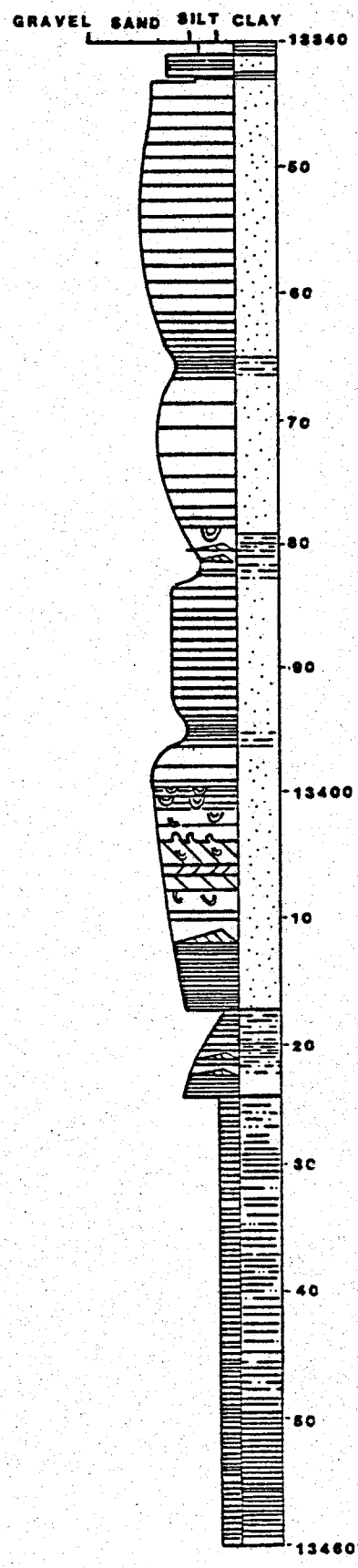


Figure III-1. Net Sand Isopach - N. Parcperdue Field (Hamilton and Wilson, 1980).



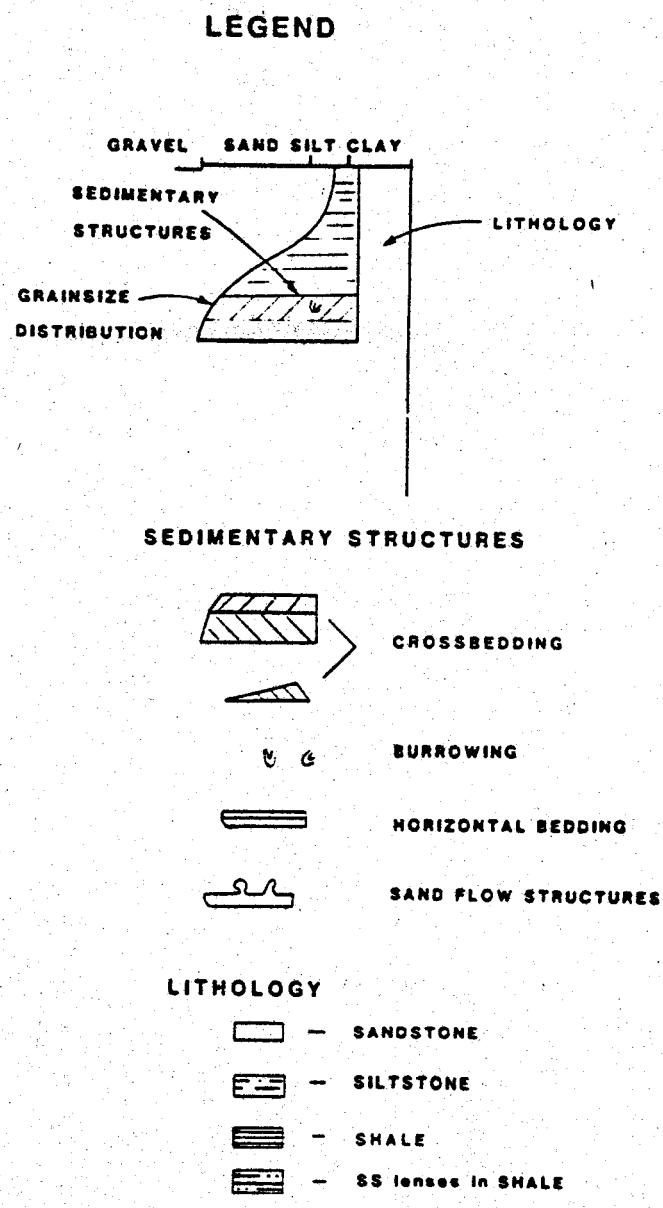


Figure III-2. Vertical Profile for Cored Interval.

Figure III-3A. SEM Photomicrograph of Lower Sand Rock Fabric. Note abundant clay coating grains and filling pore throats. (Dow Sample 80, 13,400 ft)

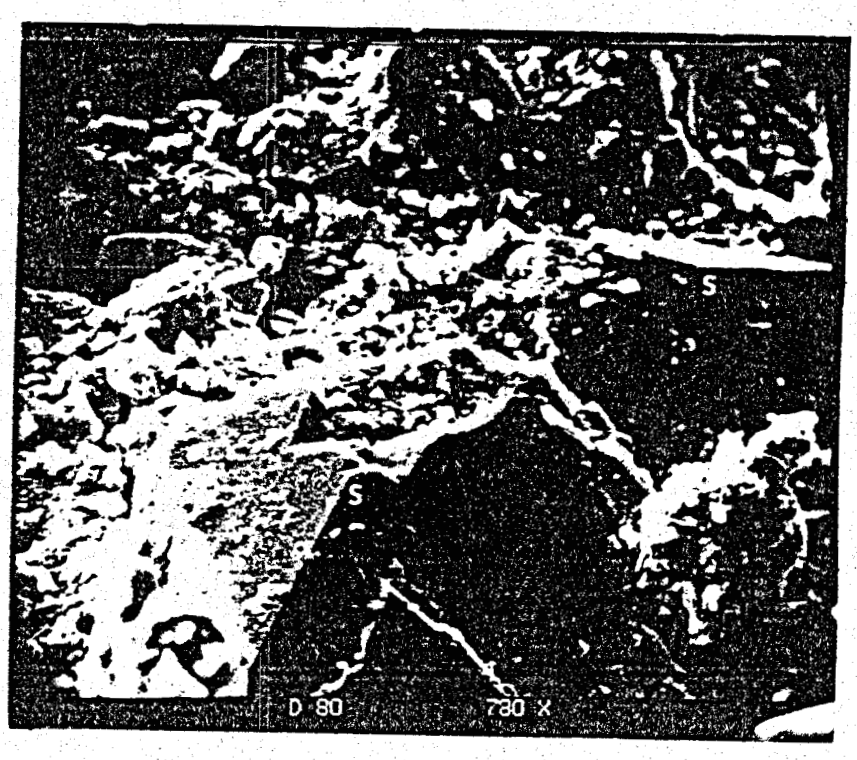


Figure III-3B. SEM Photomicrograph of Lower Sand Rock Fabric Showing Silica Overgrowths (S) on Quartz Grains and Abundant Clays. Limited pore space space is seen between grains. (Dow Sample 80, 13,400 ft)

Figure III-3C. SEM Photomicrograph Showing Close-Up of Kaolinite Clay (K). Note diagnostic pseudo-hexagonal form of platelets and bookleaf stacking (K). (Lower Sand Dow Sample 80, 13,400 feet)

during flow. This behavior was observed when saturating core samples for test purposes. It is clear that the clay in the lower zone will have a definite impact on efficient fluid production from this portion of the reservoir.

The upper sand interval (13,343-13,391) exhibits larger grain size (average 0.3 mm), improved sorting, rounded detrital grains and a greatly reduced clay matrix fraction. The sand is generally friable and in some sections a total of approximately 5 feet is practically unconsolidated. Mineralogically, detrital grains in this interval are predominantly quartz (approximately 70%) with feldspar and volcanic lithic fragments composing 5-10% each. Matrix components are authigenic clays (average 3%), trace mafics and early carbonate cement remnants. Bench condition porosities are unusually high (approximately 30%) and fluid permeabilities are in the range of one hundred millidarcies to one darcy. These porosity values reflect the restoration and enhancement of

primary porosity accompanying secondary porosity development and absence of subsequent late precipitation of carbonate cement. Permeability values are approximately an order of magnitude higher than those measured from core samples in the lower sand zone. The upper sand interval exhibits fewer sedimentary structures and minimal bioturbation compared to the lower sand interval. Clays found in the upper zone are authigenic and are believed to have occurred late in the diagenesis of the sand. SEM photomicrographs (Figure III-4) show the substantial contrast in the amount of clays found within pore throats in upper and lower zones.

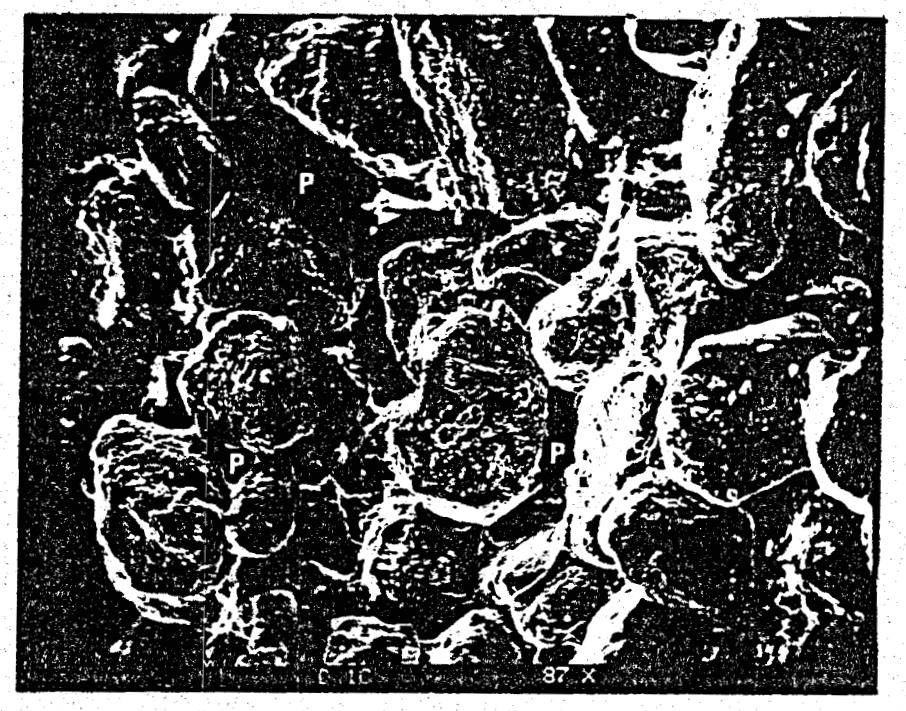


Figure III-4A. SEM Photomicrograph of Upper Sand Rock Fabric. Note absence of clay and large secondary pores (P) and inhomogeneity of their distribution. Some grains appear to have welded contacts. (Dow Sample 10, 13,346 ft)

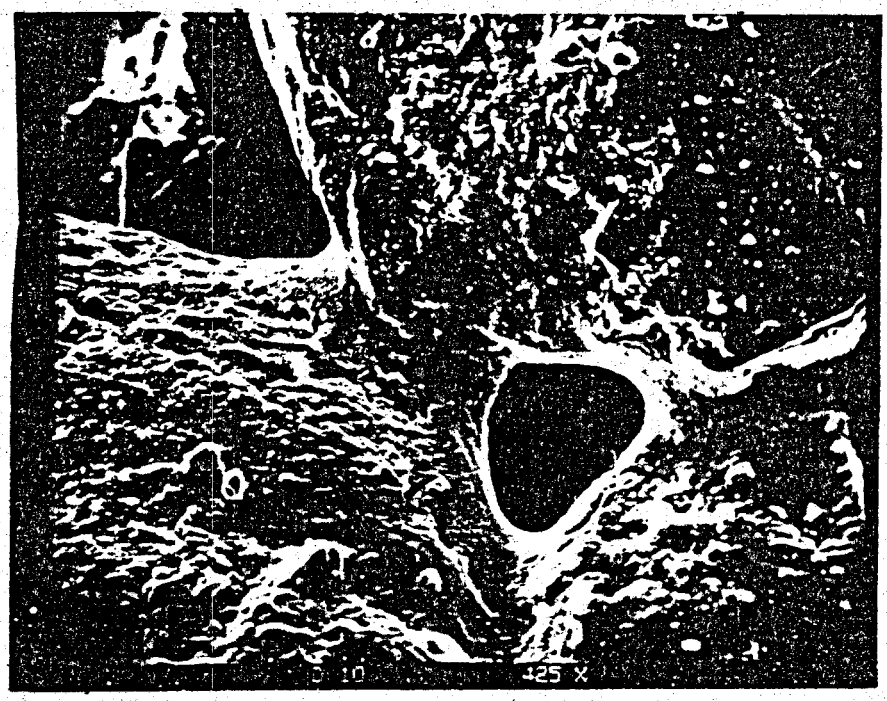


Figure III-4B. SEM Photomicrograph Close-Up of Photo 4A. Excellent example of a secondary solution pore. Grains appear to be welded and pore throats are free of clays. (Upper Sand, Dow Sample 10, 13,346 ft)

Figure III-4C. SEM Photomicrograph Showing Authigenic Kaolinite Development (K) Within Silica Overgrowths (S). Note pitted texture of grain (T) indicating incipient replacement by now dissolved carbonate cement. (Upper Sand, Dow Sample 10, 13,346 ft)

III.2 PETROGRAPHIC ANALYSIS

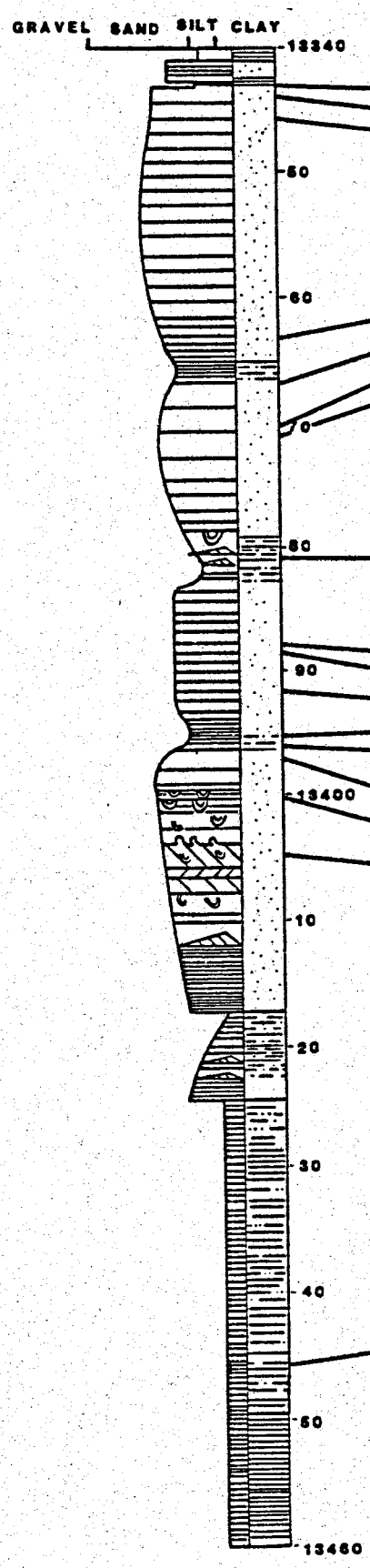
Petrographic descriptions of tested core samples have been prepared for the Sweezy #1 well. Detailed descriptions are given in Appendix 2. These analyses involve the preparation of thin sections for microscopic analysis of the rock fabric both before and after core tests. Thin sections were described to determine grain size, porosity, and mineralogical trends observed in the Cibb Jeff sand and surrounding shale. Core tests and petrographic analyses are distributed within the core interval as illustrated in Figure III-5.

One of the purposes of petrographic analysis was to determine and describe any effects of stress change on core samples. Examination of thin sections from tested core samples show minimal effects of stress on rock fabric in the total sand interval. Two reasons for lack of apparent changes caused by stress are:

1. Deformation in specimens usually is localized and the probability of finding a deformed zone in a particular thin section is low. Additional thin sections selected throughout a stressed specimen may reveal where preferential deformation occurred, but time and budget constraints prevented any additional sampling in this case.

2. Some of the deformations induced by stress changes during core testing could be masked by mechanical damage caused during grinding of thin sections making it difficult to discern one from the other.

In addition to thin section analysis, mercury intrusion tests were done on three sand specimens to determine their pore size distribution prior to and after the tests for mechanical properties. Approximately 1-2 cc volume of rock was tested in each case. Figure III-6 gives the cumulative pore volumes for a range of pore diameter in pre- and post-test stages of the three specimens. The pore size distribution remains practically unchanged in all three cases indicating that the volume changes seen during mechanical testing (see Appendix 1) was mostly due to elastic deformations and was recovered during



SAMPLE NO.	DEPTH	TEST	PETROGRAPHIC ANALYSIS
D6	13343	COMPACTION * +	TS, SEM
D7	13344	COMPACTION	TS, SEM
D10	13346	— +	TS, SEM
D33	13363	COMPACTION *	TS
D35	13365	COMPACTION	TS
D41	13370	TRIAXIAL	TS
D42	13371	TRIAXIAL	TS
D51	13381	—	SEM
D67	13389	COMPACTION	TS
D68	13390	COMPACTION * +	TS
D71	13393	CREEP	TS
D75	13395	TRIAXIAL	TS
D76	13397	CREEP	TS
D78	13398	COMPACTION	TS
D80	13400	COMPACTION	TS, SEM
D87	13404	—	TS
D129	13446	COMPACTION	TS, SEM

TS: THIN SECTION
SEM: SCANNING ELECTRON MICROSCOPE

* SONIC VELOCITY TEST
\+ MERCURY INTRUSION FOR PORE SIZE DISTRIBUTION PRE AND POST TEST

Figure III-5. Core Test and Petrographic Analysis Intervals.

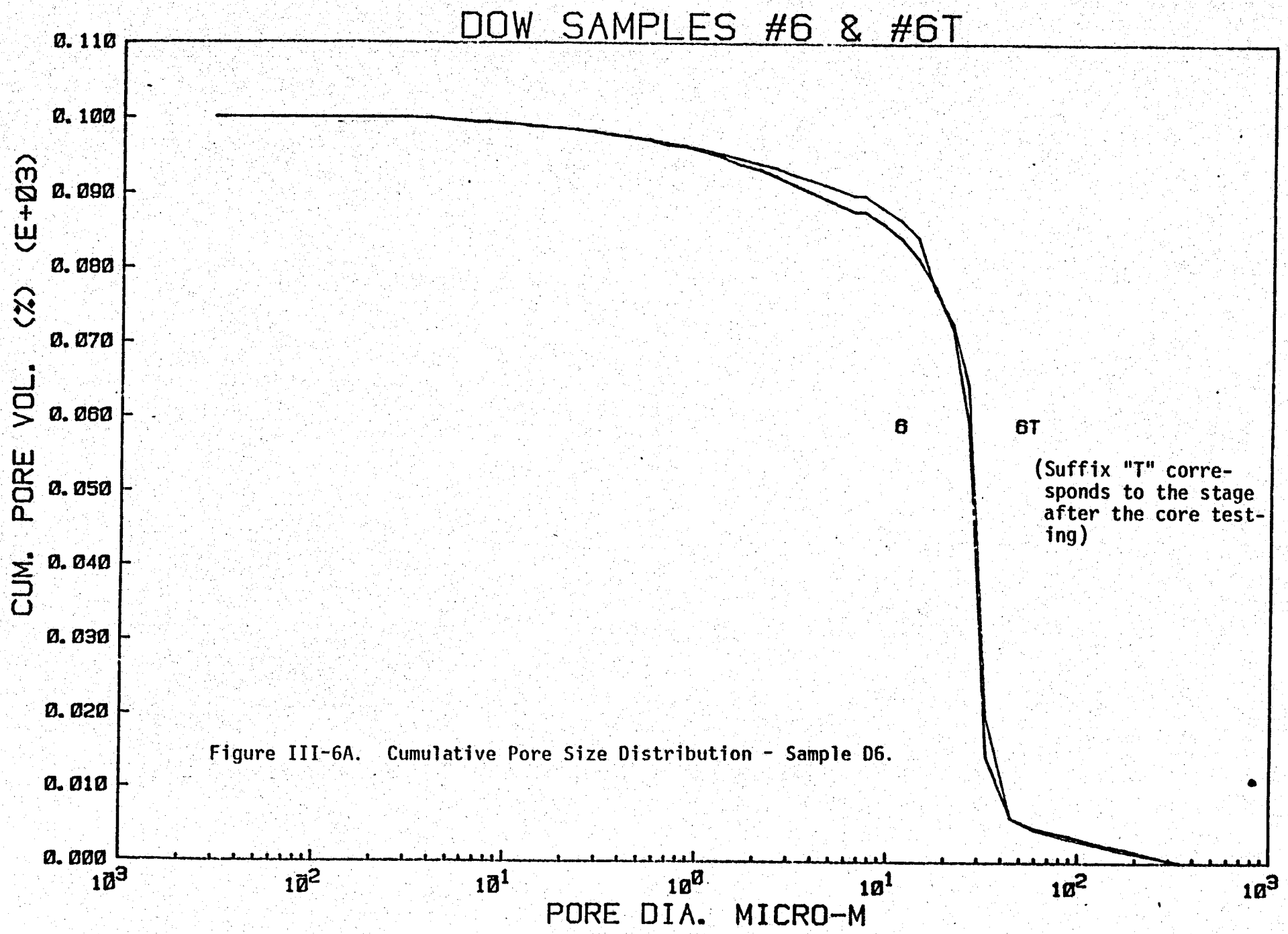


Figure III-6A. Cumulative Pore Size Distribution - Sample D6.

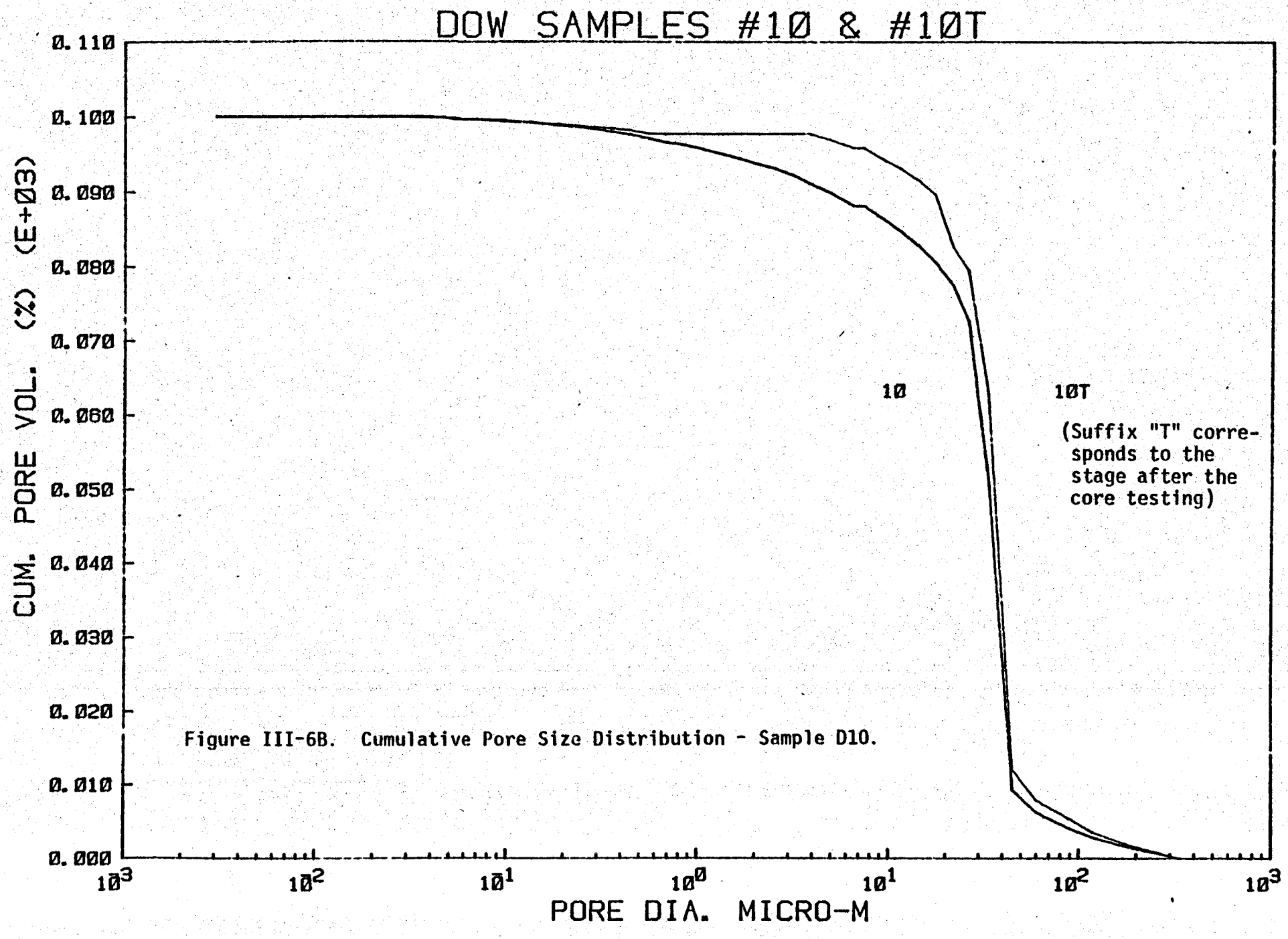


Figure III-6B. Cumulative Pore Size Distribution - Sample D10.

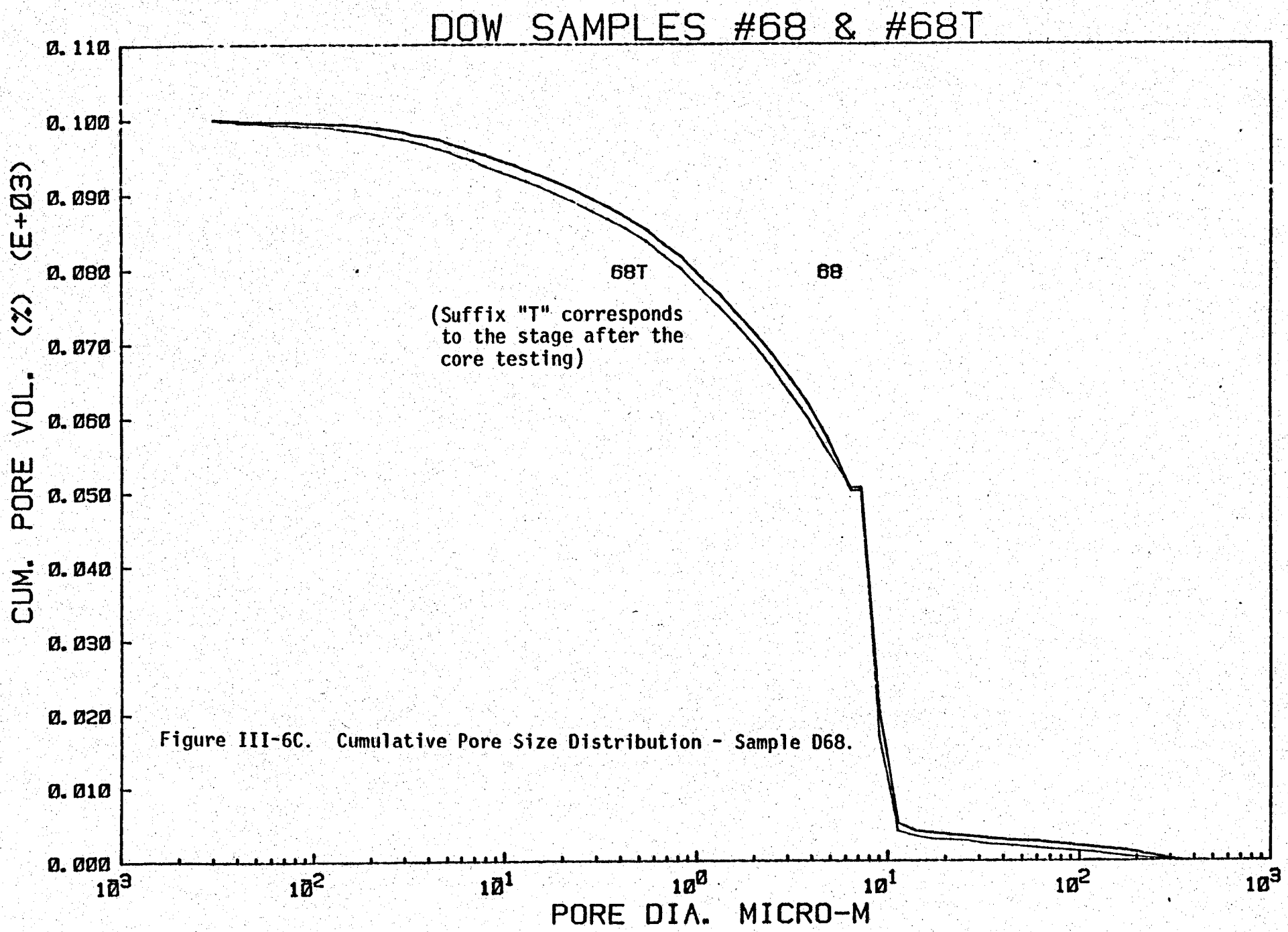


Figure III-6C. Cumulative Pore Size Distribution - Sample D68.

unloading. Subtle grain size differences in pre-test and post-test samples may be reflected in the pore size distribution, especially in the case of sample #10 where the post-test result displays a slight increase in pore diameters.

Additional SEM studies may provide evidence of stress fractures and pressure solution of silica at grain contacts (Schatz, et al, 1980).

III.3 POROSITY DEVELOPMENT

Secondary porosity development constitutes the predominant form of effective porosity formed in the Cibb Jeff sand. Approximately half of the total sand interval has excellent reservoir potential based on petrographic analysis. Careful analysis of these depth intervals should be considered when placing perforations in the well. Pore geometries have been altered with secondary porosity development, developing different reservoir characteristics in the Cibb Jeff sand where total sand diagenesis has not been uniform.

Porosity development within the upper and lower sand zones reflects the depositional history and diagenesis of the total sand and surrounding shale facies. Clay content is the primary factor controlling secondary porosity development. The lower sand zone contains an abundance of detrital clay which is a product of extensive bioturbation of the zone during deposition. These clays filled much of the available pore space prior to burial. In contrast, the upper sand zone shows little evidence of bioturbation. Massive bedding of the upper zone coupled with absence of clays are features which allow good vertical permeability within the sand. Initially, during burial and compaction of surrounding shales, selective replacement of feldspars and volcanic lithic fragments with carbonate occurred in both zones. Early precipitation of poikilotopic calcite cement exclusively filled all uncompacted pore space. Remaining pore space in the lower zone not occupied by detrital clays was also filled with carbonate cement.

Normal compaction and cementation proceeded with burial of the Cibb Jeff sand, and consequently primary porosity was reduced to less than 10% at depths of a few thousand feet (Figure III-7). Upper zone core sample porosities measured at bench condition average approximately 30 percent. Such porosity

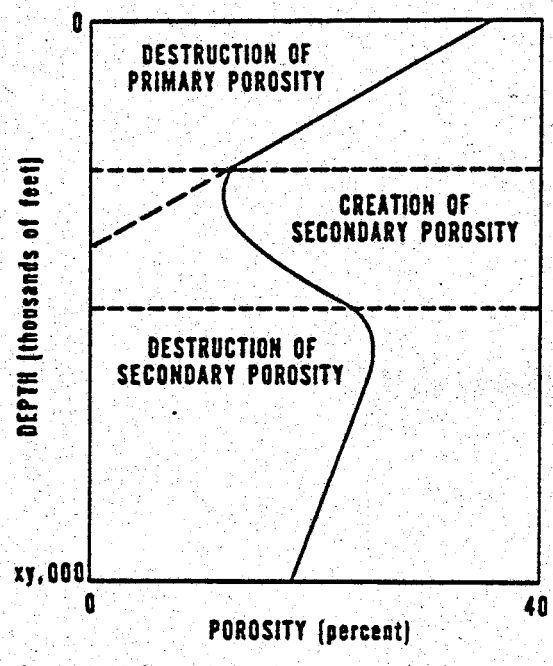


Figure III-7. Depth Distribution and Evolutionary Sequence of Primary and Secondary Porosity.

values are not possible when considering compaction and loss of fluids within pore space at depths below a few thousand feet (Hayes, 1981). To explain this phenomena, one must consider the diagenetic processes involved with secondary porosity development.

With the first episode of burial of Gulf Coast sediments, mud with up to 80% pore water is dewatered by compaction until porosity is about 15% at depths of several thousand feet (Burst, 1976). Figure III-8 shows the decrease of shale porosity with depth, and also shows that water squeezed from the mud enters the more permeable sands and flows laterally through the sands toward the surface (Magera, 1976). Various chemical reactions accompany shale dewatering and water chemistry changes compositionally updip as dissolved ions are exchanged and removed. For example, kerogen diagenesis in shales was accompanied by decarboxylation - a reaction which created acidic fluids that entered the sand zone (Schmidt, et al, 1977). These pore fluids preferentially leached soluble detrital grains and carbonate cements formed during initial

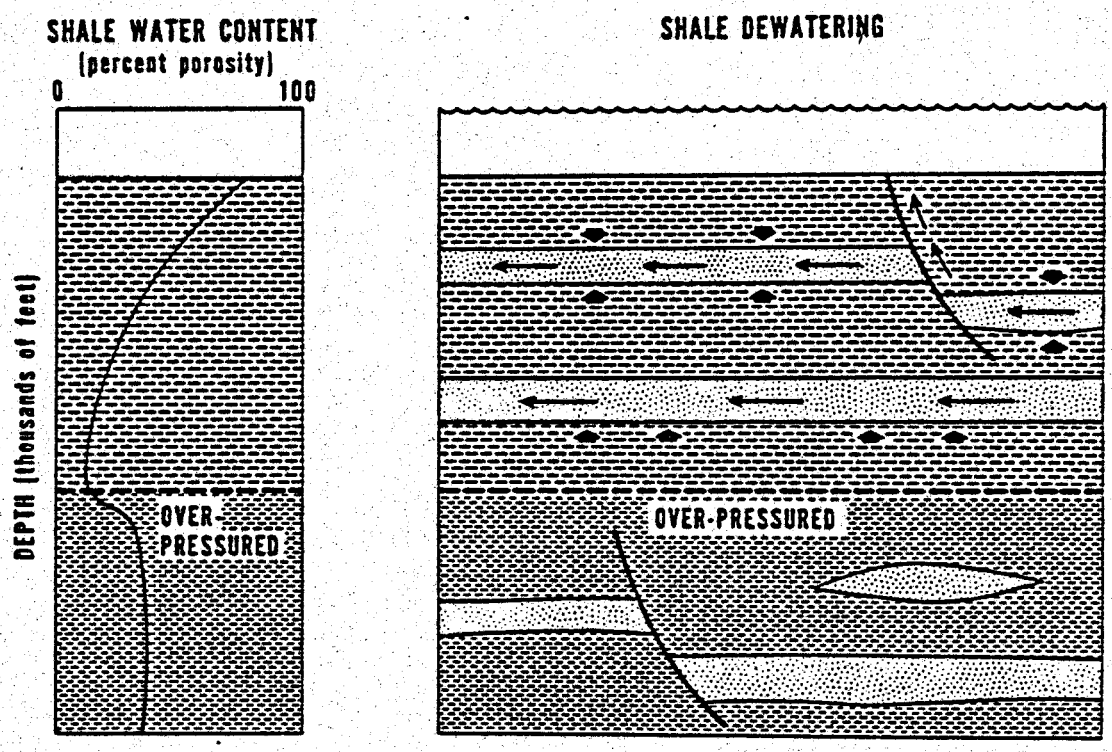


Figure III-8. Shale Porosity Versus Depth, and Flow Paths of Shale Water During Compaction and Diagenesis.

cementation of the total sand interval. Once dissolution began, removal of soluble grains and cements created flow channels causing increased flow rate, which in turn increased dissolution rates and the process became self-accelerating (Hayes, 1981). Subsequently, these carbonate rich fluids may be flushed updip to be precipitated as early diagenetic cement.

Fluids from shale dewatering flowed preferentially into the massive upper zone within the Cibb Jeff sand where near complete secondary leaching of carbonate cement, feldspars, and lithic fragments occured. Migration of abundant clay into pore throats and presence of detrital clays within the lower zone prevented secondary porosity development to the degree of that seen in the upper zone.

Evidence supporting the existence of secondary porosity can be documented in thin section analysis. Figure III-9 (shown on the following pages) shows

photomicrographs from the total Cibb Jeff sand interval evidencing secondary porosity development. Photos A-I depict the upper sand zone, and J-L depict the lower sand zone. All magnifications 120x except where noted. Schmidt, et al (1977) presented criteria for identifying secondary porosity development in thin section, all of which may be observed in portions of the Cibb Jeff sand. These criteria are listed below and are referenced with photomicrographs in Figure III-9:

1. Partial Dissolution: The leaching of the soluble constituents is incomplete. Patches of corroded remnant material occur adjacent to pores which can be identified as incomplete molds (Photomicrograph 9-A). This is an unequivocal and very common criterion for secondary porosity.

2. Inhomogeneity of Packing: The sandstone displays marked inhomogeneity with areas of very tight packing with little or no porosity immediately adjacent to areas of open packing with considerable porosity (Photomicrograph 9-B). The tighter packing is the result of mechanical compaction and/or chemical grain interpenetration in areas that contained no soluble material. Open packing is caused by removal of soluble cement or matrix. Individual grains may straddle the boundary between tight and open packing, thereby forming very diagnostic fabrics.

3. Recognizable Molds: The pores exhibit the shapes of precursor crystals or grains (Photomicrograph 9-C). Molds of small euhedral crystals are, however, often difficult to recognize in thin section and are better identified by means of a scanning electron microscope.

4. Oversized Pores: Pores that have a larger diameter than that of adjacent grains commonly indicate secondary porosity (Photomicrograph 9-D). However, oversized pores can also be created by sedimentary processes. Keystone vugs, for example, are formed by air escaping from unconsolidated sand.

5. Elongate Pores: Replacement processes often operate along grain boundaries. If the replacement mineral is subsequently dissolved, the sandstone will exhibit a high incidence of elongate pores which follow the grain boundaries (Photomicrograph 9-E).

6. Corroded Grains: The siliciclastic grains show ragged edges resulting from incipient replacement by the now-dissolved mineral (Photomicrograph 9-F). Early replacement attacked the detrital grains directly, whereas a late replacement may have had to penetrate silica overgrowths.

7. Honeycombed Grains: The interior of feldspar grains and shale fragments commonly suffered partial replacement by carbonate. The removal of the carbonate results in grains honeycombed by intragranular voids (Photomicrograph 9-G). Honeycombed grains are an excellent criterion for secondary porosity, as such grains could hardly have survived sedimentary transport or initial compaction.

8. Fractured Grains: The removal of a large amount of soluble constituents may increase the stress at some of the remaining grain contacts to such a degree that grains will fracture (Photomicrograph 9-H). Fractured grains are common in sandstones with a high percentage of secondary porosity.

Figure III-9A: Photomicrograph shows remnant poikilotopic pore filling calcite cement (C) evidencing early diagenetic precipitation within loose packing of grains. (Dow 10, 13,346')(x nicols)

Figure III-9B: Photomicrograph showing oversize pores (P) and inhomogeneity of packing. Pink is porosity, dark red is authigenic kaolinite (K), which commonly replaces dissolved carbonate cement. This photo was taken in the same section as Photo A, evidencing complete solution of primary cement. (Dow 10, 13,346')(plane light)

Figure III-9C: Photomicrograph of pore (P) which exhibits shape of precursor grain. Pore is much larger than other pores in section. This sample is near the bottom of upper sand zone. Note clay development in other pores (Cl). (Dow 67, 13,389')(plane light)

Figure III-9D: Photomicrograph shows oversize pores (P) and a partially dissolved lithic fragment (L). (Dow 7, 13,344')(nicols partially crossed for contrast)

Figure III-9E: Photomicrograph showing elongate pores (P), indicating high degree of interconnection. Porosity is pink. (Dow 10, 13,346')(plane light)

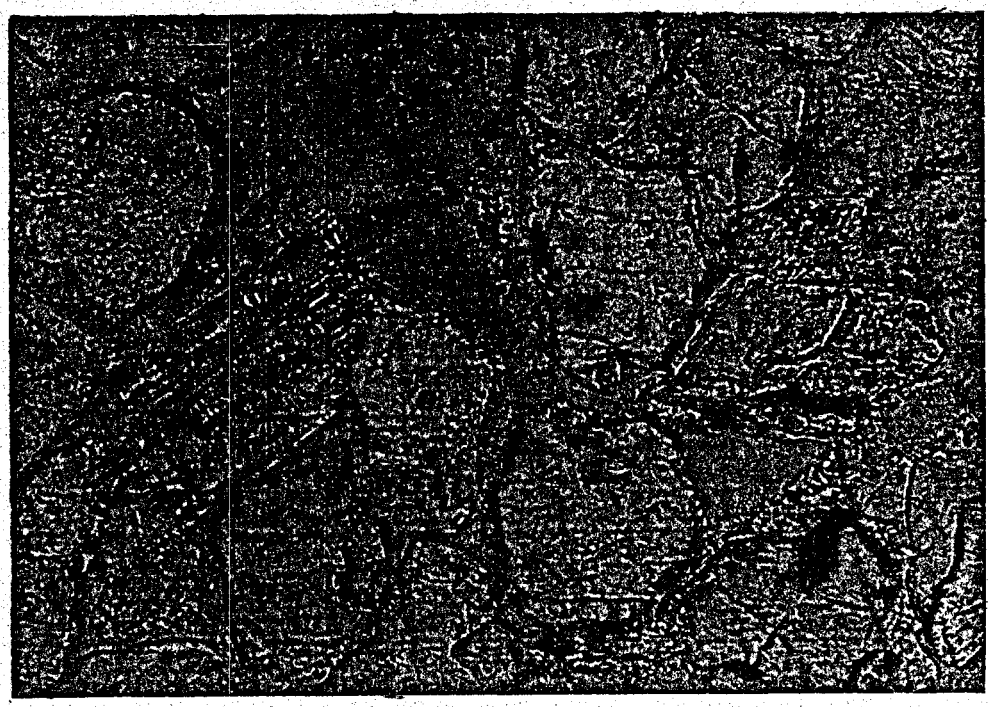


Figure III-9F: Photomicrograph showing corroded grain edges (C). Some corrosion attacked silica overgrowths on grain surfaces. Note intragranular porosity in feldspar grains (F). (Dow 33, 13,363')(plane light)

Figure III-9G: Photomicrograph showing closeup of honeycombed feldspar grain which was leached to form intragranular voids (V). (Dow 42, 13,371') (nicols partially crossed, 480x)

Figure III-9H: Photomicrograph shows fractured grains (X). Note near complete solution of "floating" grain in center (G). (Dow 42, 13,371')(plane light)

Figure III-9I: Photomicrograph showing partially dissolved lithic fragment (L), porosity (P). (Dow 42, 13,371')(nicols partially crossed)

Figure III-9J: Photomicrograph showing feldspar grain (F) similar to one in Photo G. This section was taken from a sample which occurs in the transition between the upper and lower sands. This grain has not been subjected to the degree of intragranular solution as those found in the upper zone, indicating low permeability to pore fluid movement. (Dow 71, 13,393') (partially crossed nicols, 480x)

Figure III-9K: Photomicrograph showing porosity (P), light blue, found in lower sand interval. Porosity is much reduced by kaolinite (K) and pores are much smaller (Dow 80, 13,400')(plane light)

Figure III-9L: Photomicrograph showing porosity (P), light blue, in lower sand interval. Clays (C) occupy much of available pore space. (Dow 80, 13,400')(plane light)

Textural development of secondary porosity is illustrated in Figure III-10. Primary porosity was destroyed with carbonate cementation and initial compaction. Feldspars and lithic fragments were also subjected to partial solution and replacement by carbonate. With diagenesis and flow of pore fluids through the rock matrix, preferential solution of the carbonate occurred, creating secondary porosity.

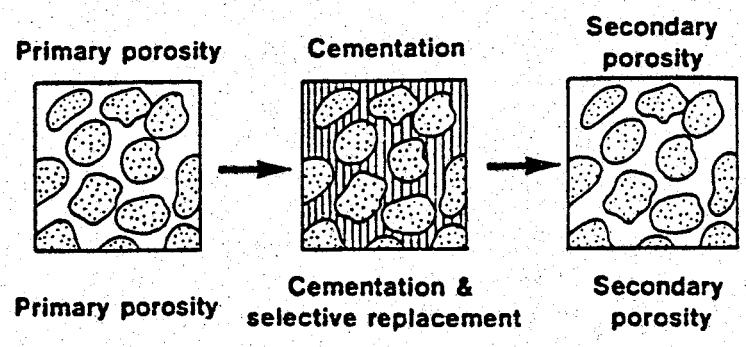


Figure III-10. Textural Development of Secondary Porosity.

III.4 CONCLUSIONS - RESERVOIR FLOW IMPLICATIONS

Primary and secondary porosity development within the Cibb Jeff sand will affect the reservoir properties differently. This mainly is due to the following differences:

1. The size range of secondary pores is wider and pore shapes highly variable.

2. The spectra of sizes and shapes of secondary pore throats are radically different.

3. Porosity distribution in secondary pores is much less uniform.

Pore throats observed in thin sections are enlarged replicas of precursor primary porosity, and interconnection of pores is vastly improved. Secondary porosity in many ways resembles vuggy porosity found in carbonates (Schmidt, et al, 1977). Irreducible water saturation within secondary porosity is also very similar to that found in vuggy porosity.

Mechanical competence to compaction can be expected to be much higher in zones of secondary porosity when compared to sandstone with similar volumes of primary porosity. This fact has been substantiated through Cibb Jeff sand core tests and mercury intrusion for pore size distributions. Inhomogeneity of grain packing and bridging of grains create a stronger rock matrix. Deformable grains and matrix components have already been dissolved and keystone relations for grain contacts were developed during initial compaction.

Permeabilities within the Cibb Jeff sand will be highest (>100 md) in the upper sand interval where secondary porosity development is greatest. They will also remain higher during production due to the lesser stress sensitivity of this interval. For optimization, additional petrographic analysis covering the entire upper sand zone should be performed to characterize the degree of secondary porosity development. In this way the most efficient perforation

placement may be estimated. Clay migration poses the biggest threat when producing fluids from the Cibb Jeff sand. Special consideration should be made to avoid high initial flow rates in the well, causing mobilization of authigenic clays and fines into pore throats.

IV. REFERENCES

Burst, J.F., 1976, "Argillaceous Sediment Dewatering", Annual Review of Earth and Planetary Sciences, F.A. Donath (ed.), Vol. 4, Annual Reviews, Inc., Palo Alto, CA, p. 293-318.

Gray, K.E., Jogi, P.N., Monta, N. and Thompson, T.W., 1979, "The Deformation Behavior of Rocks from the Pleasant Bayou Wells," Proceedings of Fourth U.S. Gulf Coast Geopressured-Geothermal Energy Conference, Research and Development, Vol. 3, Center for Energy Studies, University of Texas, Austin, TX, pp. 1031-1059.

Hamilton, J.R. and Wilson, J.S., 1980, "Study of Geopressured Reservoir by Drilling and Producing a Well in a Limited Geopressured Water Sand", Proceedings of Fourth U.S. Gulf Coast Geopressured-Geothermal Energy Conference, Research and Development, Vol. 3, Center for Energy Studies, University of Texas, Austin, TX, pp. 1137-1159.

Hayes, J.B., 1981, "Sandstone Diagenesis", AAPG Fall Education Conference '81, Vol. 2, The Education Department, Am. Assoc. Petroleum Geologists, Tulsa, OK.

Isenberg, J., 1972, "Nuclear Geoplosis - A Sourcebood of Underground Phenomena and Effects of Nuclear Explosions, Part 2 - Mechanical Properties of Earth Materials," Report No. DNA-128542, A report submitted to Defense Nuclear Agency, 137 p.

Magara, K., 1976, "Water Expulsion from Elastic Sediments During Compaction -- Directions and Volumes", Am. Assoc. Petroleum Geologists Bull., Vol. 60, pp. 543-553.

Mattaboni, P., 1967, "Methods of Pulse Transmission Measurements for Determining Sound Velocities," Journal of Geophysical Research, Vol. 70, No. 20, pp. 5160-5163.

Schatz, J.F., Wolgemuth, K.M. and Vonder Haar, S., 1980, "Evidence of Pressure Solution in Geothermal Reservoir Sandstone," Geothermal Resources Council, Trans. Vol. 4.

Schmidt, V., McDonald, D.A. and Platt, R.L., 1977, "Pore Geometry and Reservoir Aspects of Secondary Porosity in Sandstones", Bull. Canadian Pet. Geol., Vol. 25, pp. 271-290.

Selley, R.C., 1970, "Ancient Sedimentary Environments: A Brief Survey", Cornell University Press, Ithaca, NY.

V. APPENDICES

V.1 Core Testing Results

The following types of plots were obtained from the core tests on sand and shale specimens and are included in this appendix:

1. Mean Effective Pressure - Volumetric Strain
2. Deviatoric Stress - Axial Strain and Transverse Strain
3. Shear Stress - Shear Strain
4. Mohr's Circles and Failure Envelope (for triaxial tests)
5. Creep Strain - Time (for creep tests)

The type of plot and the test specimen description are given at the top of each plot. Description plots for shale specimen (#129) includes the word 'SHALE'.

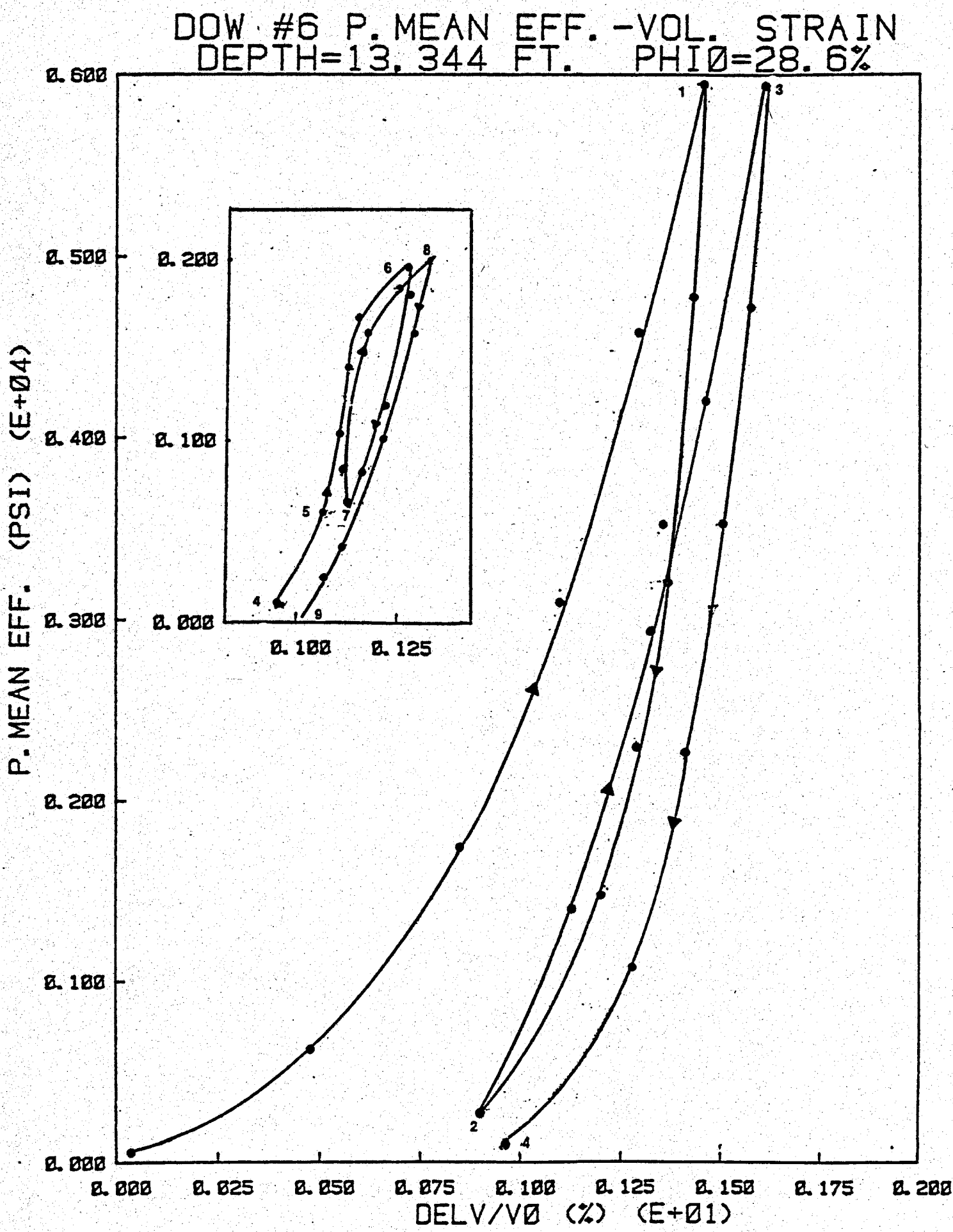
The following symbols or mneumonics have been used in labeling the axes and the heading of these plots.

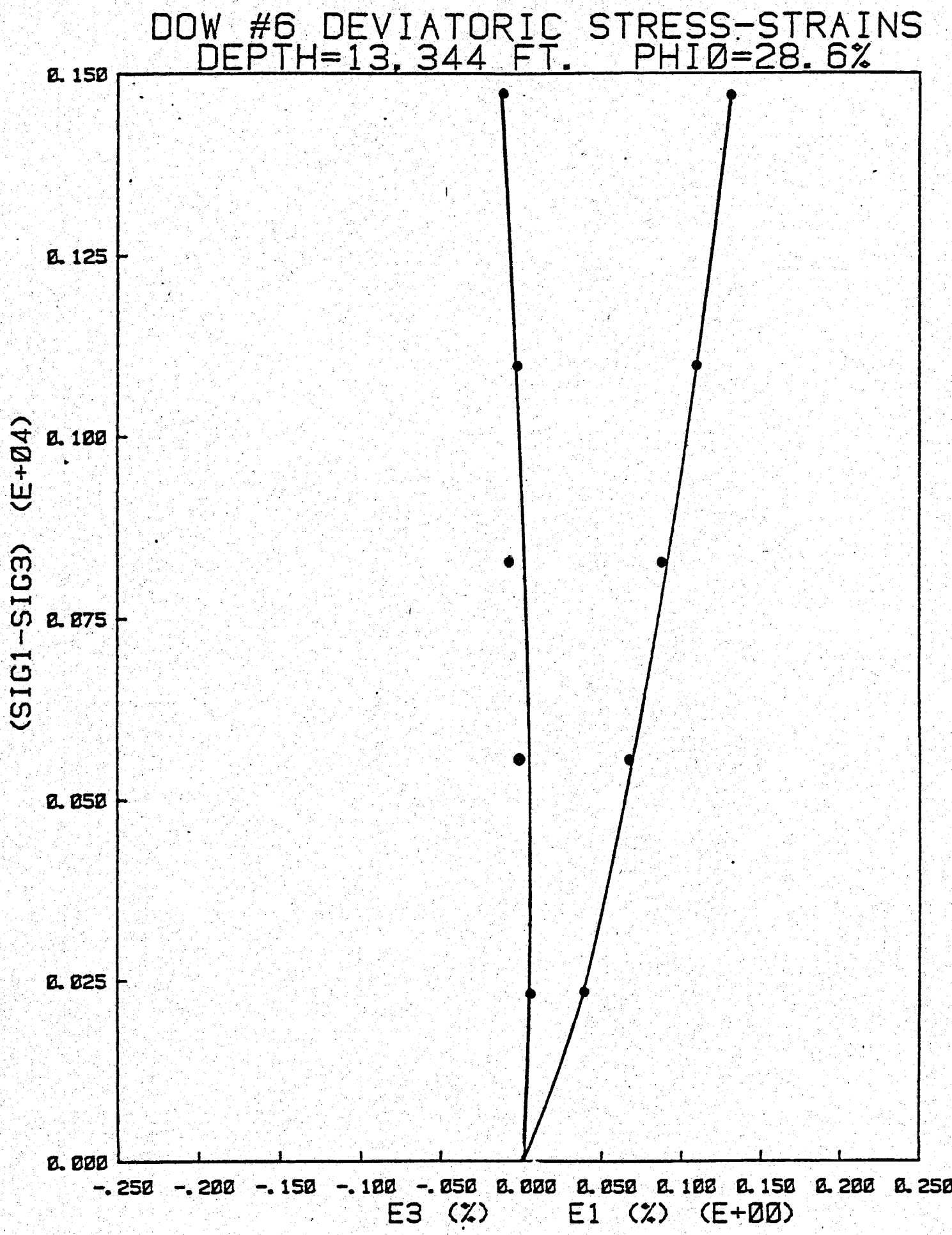
SIG1	- Axial stress (σ_1)
SIG3	- Confining stress (σ_3 or P_c)
E1	- Axial strain (ε_1)
E3	- Lateral strain (ε_3)
DELV/VØ	- Volumetric strain ($\Delta V/V_s = \varepsilon_1 + 2\varepsilon_3$)
VØ	- Initial volume of test specimen (V_o)
PHIØ	- Initial porosity of test specimen (ϕ_o)
P.MEAN EFF	- Mean Effective Pressure [(P_m) effective = $\sigma_1 + 2\sigma_3 - 3P_p$ in which P_p is the pore pressure]

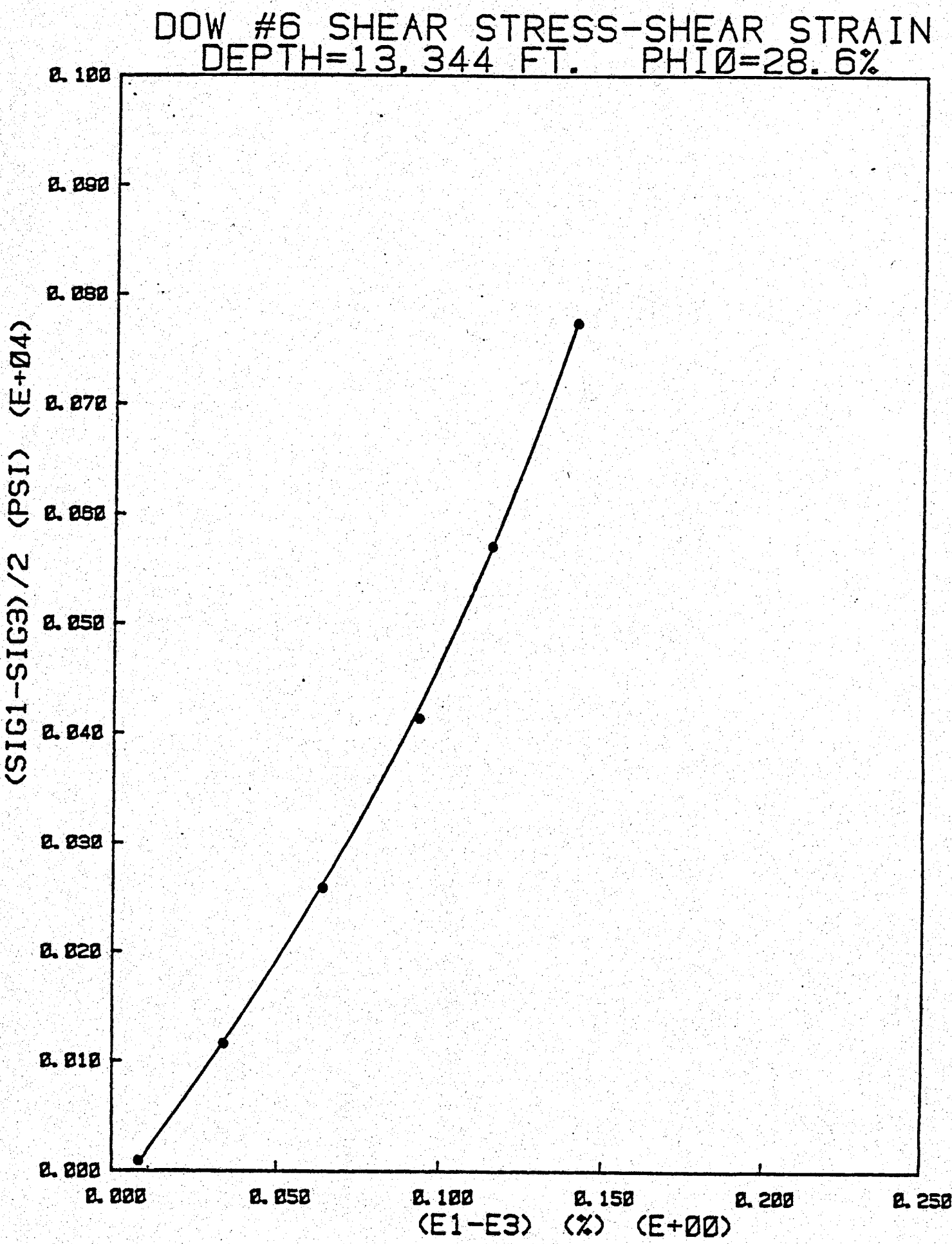
STRESS PATH FOR TEST SPECIMEN - DOW #6

Point	Condition
1	P_c = 6,000 psi
	P_p = 0 psi
2	P_c = 6,000 psi
	P_p = 5,900 psi
3	P_c = 11,900 psi
	P_p = 5,900 psi
4	P_c = 11,900 psi
	P_p = 11,850 psi
5	Reservoir Conditions
5-6	1st Uniaxial Compaction
7	Reservoir Conditions
7-8	2nd Uniaxial Compaction
9	Unloaded

NOTE: This specimen was overstressed in the process of attaining reservoir conditions.


DOW #6 P. MEAN EFF. -VOL. STRAIN
DEPTH=13.344 FT. PHI0=28.6%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.200
0.100
0.000
0.100
0.125
DELV/V0 (%) (E+01)
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
1
2
3
4
5
6
7
8
9

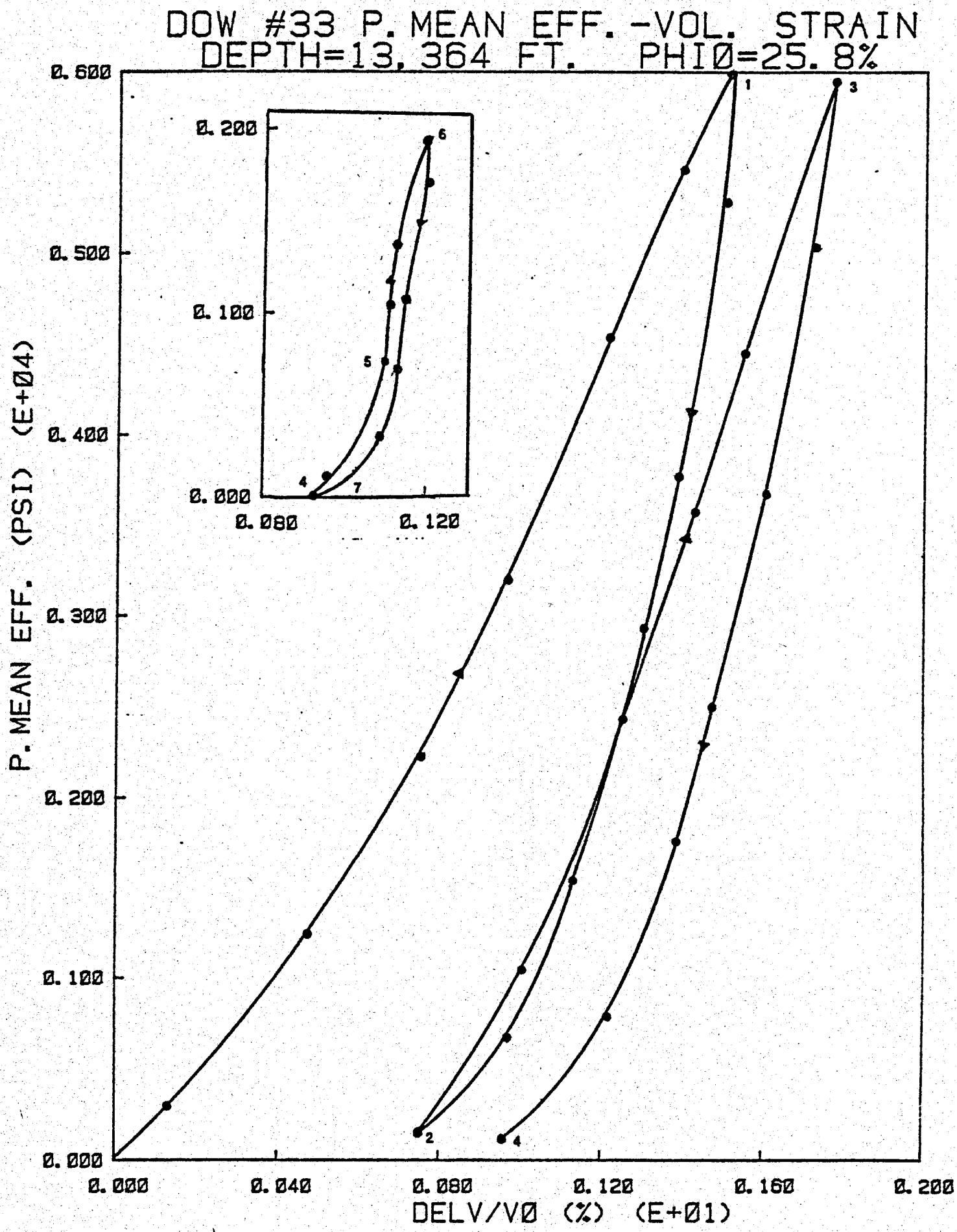

DOW #6 DEVIATORIC STRESS-STRAINS
DEPTH=13,344 FT. PHI0=28.6%
0.150
0.125
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (E+04)
-.250 -.200 -.150 -.100 -.050 0.000 0.050 0.100 0.150 0.200 0.250
E3 (%) E1 (%) (E+00)

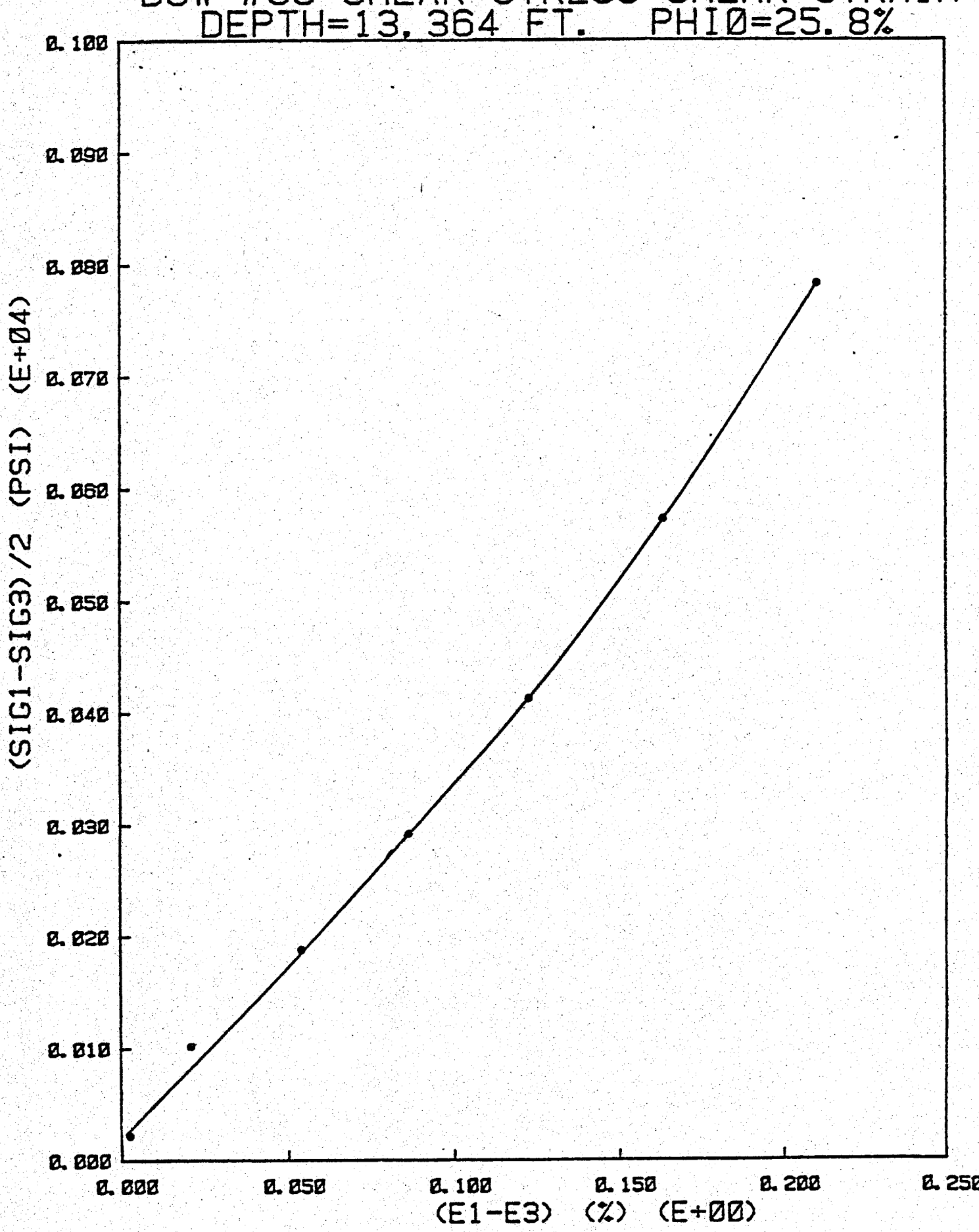

DOW #6 SHEAR STRESS-SHEAR STRAIN
DEPTH=13,344 FT. PHIØ=28.6%
(SIG1-SIG3)/2 (PSI) (E+Ø4)
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
0.000
0.050
0.100
0.150
0.200
0.250
(E1-E3) (%) (E+ØØ)

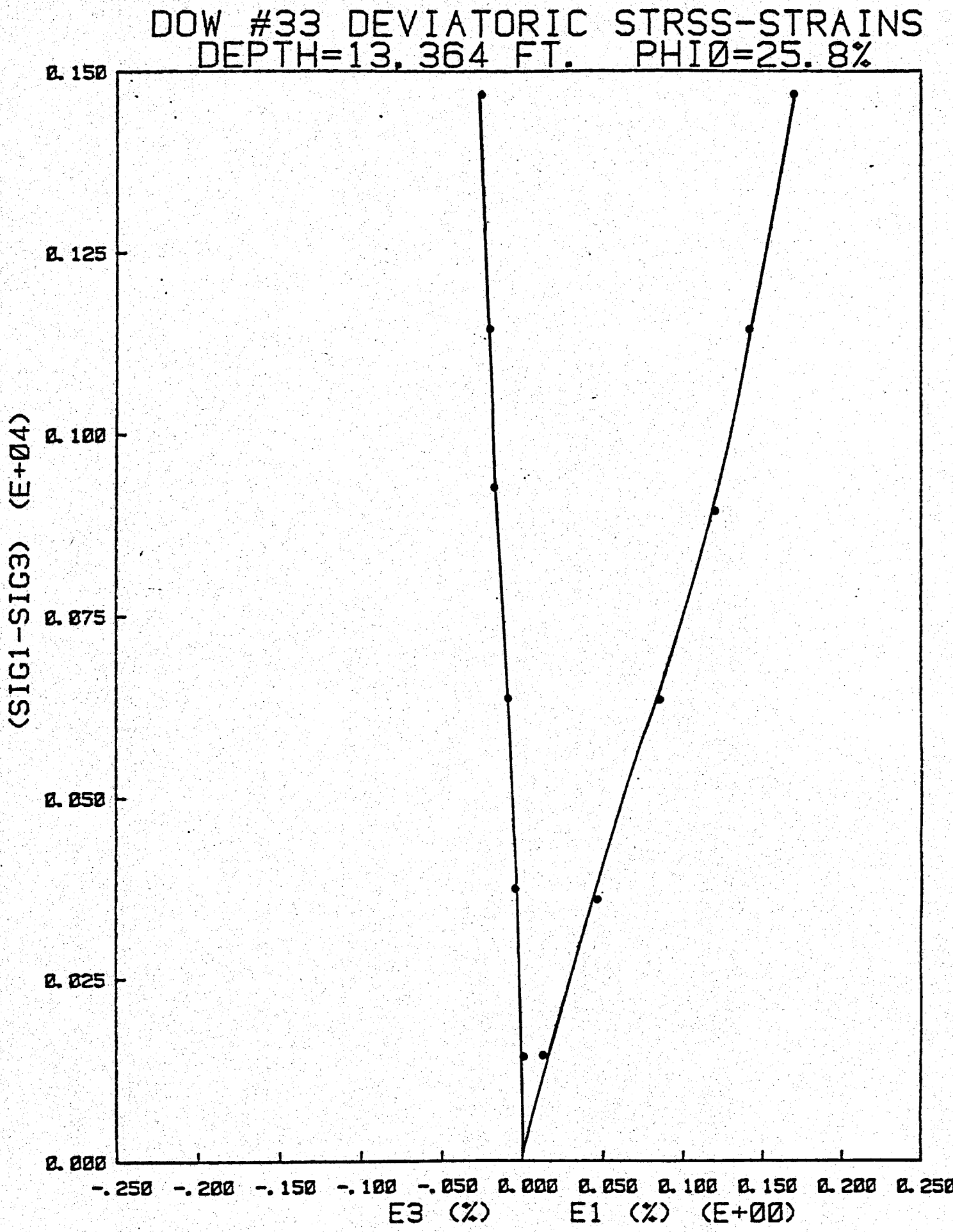
STRESS PATH FOR TEST SPECIMEN - DOW #33

Point	Condition
1	P_c = 6,000 psi
	P_p = 0 psi
2	P_c = 6,000 psi
	P_p = 5,900 psi
3	P_c = 11,850 psi
	P_p = 5,900 psi
4	P_c = 11,850 psi
	P_p = 11,750 psi
5	Reservoir Conditions
5-6	Uniaxial Compaction
7	Unloaded

NOTE: This specimen was overstressed in the process of attaining reservoir conditions.


DOW #33 P. MEAN EFF. -VOL. STRAIN
DEPTH=13,364 FT. PHI0=25.8%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.000
0.040
0.080
0.120
0.160
0.200
DELV/V0 (%) (E+01)
0.200
0.100
0.000
0.080
0.120
1
2
3
4
5
6
7

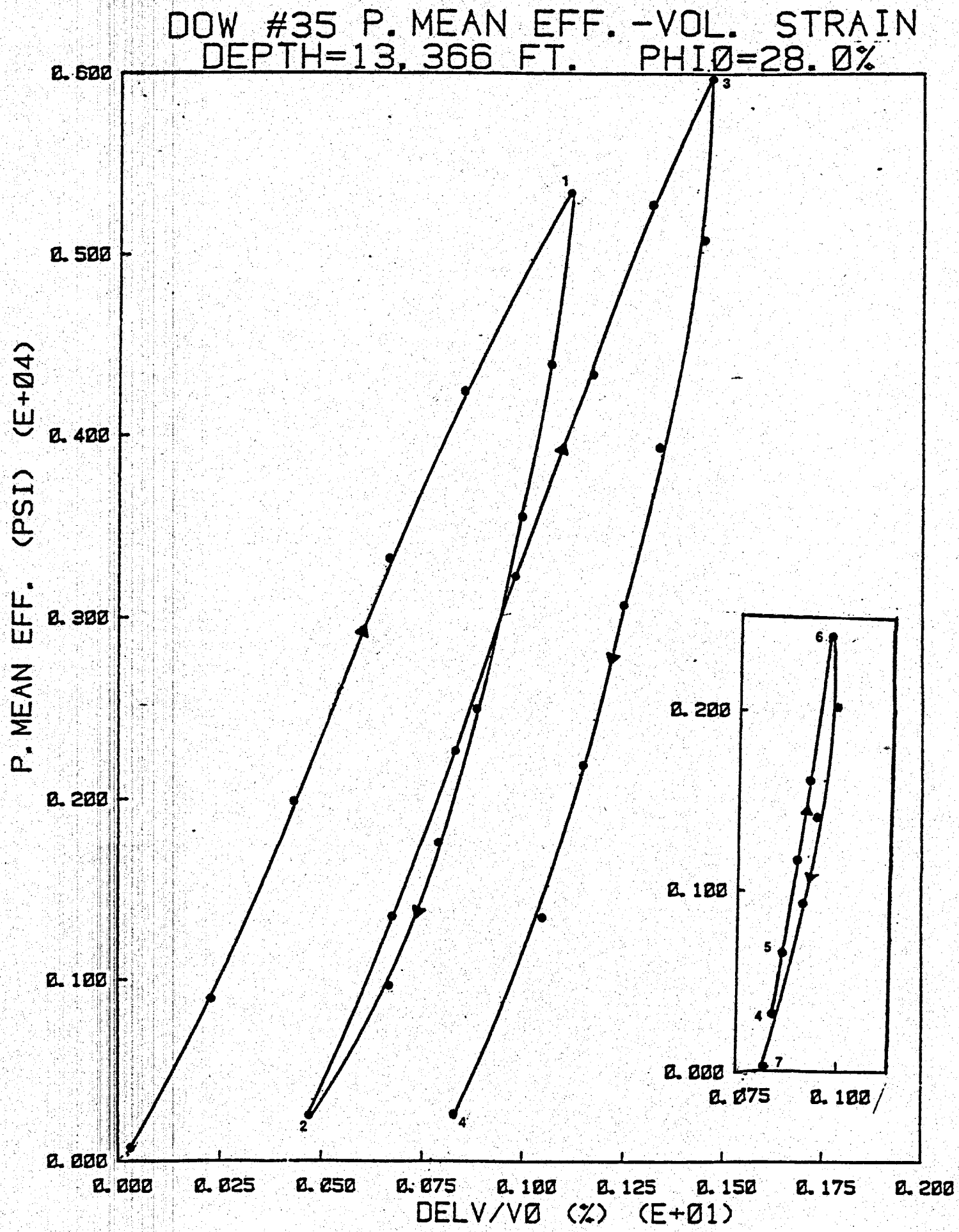

DOW #33 SHEAR STRESS-SHEAR STRAIN
DEPTH=13,364 FT. PHI0=25.8%
(SIG1-SIG3)/2 (PSI) (E+04)
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
0.000
0.050
0.100
0.150
0.200
0.250
(E1-E3) (%) (E+00)

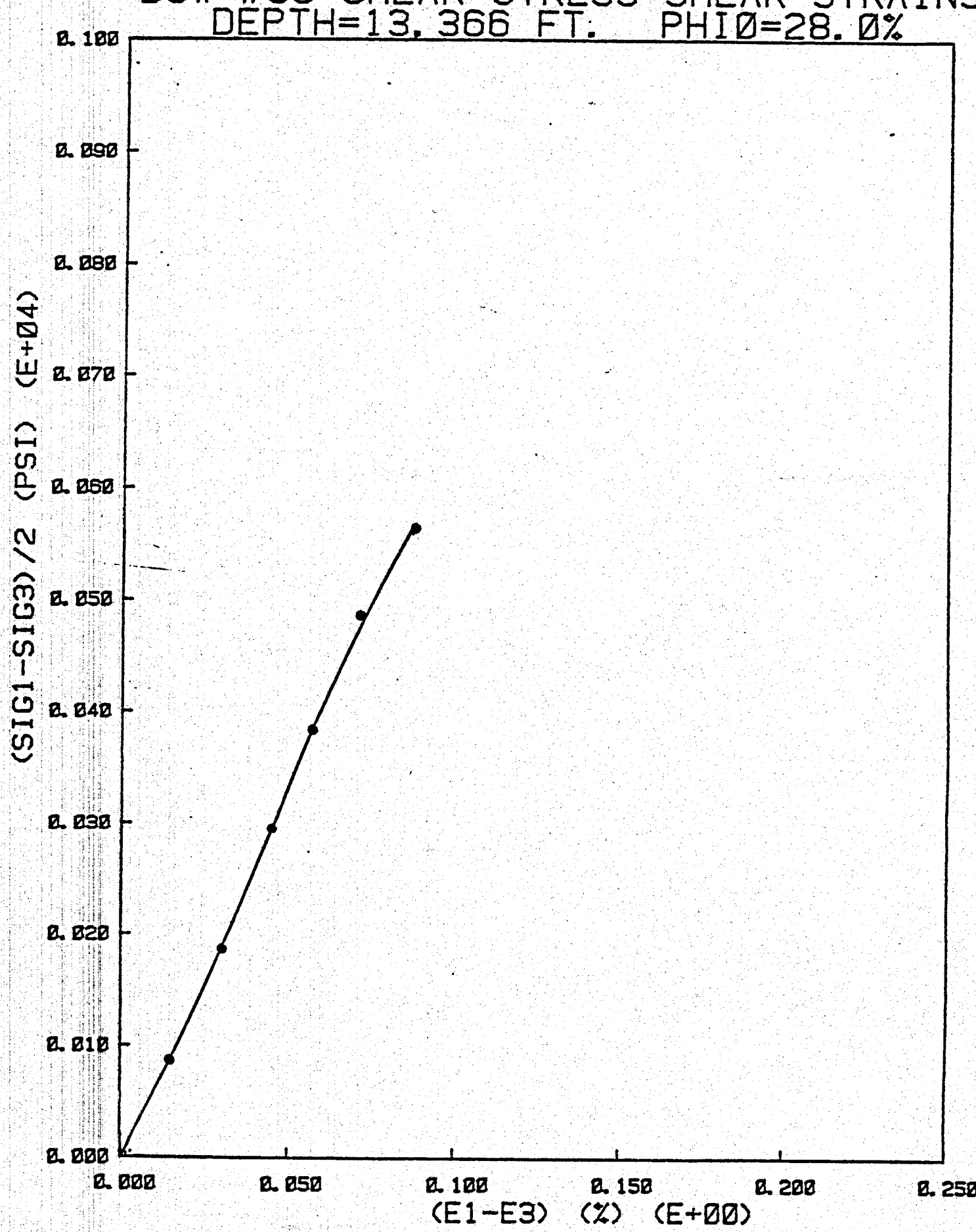

DOW #33 DEVIATORIC STRSS-STRAINS
DEPTH=13.364 FT. PHI0=25.8%
0.150
0.125
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (E+04)
-.250 -.200 -.150 -.100 -.050 0.000 0.050 0.100 0.150 0.200 0.250
E3 (%) E1 (%) (E+00)

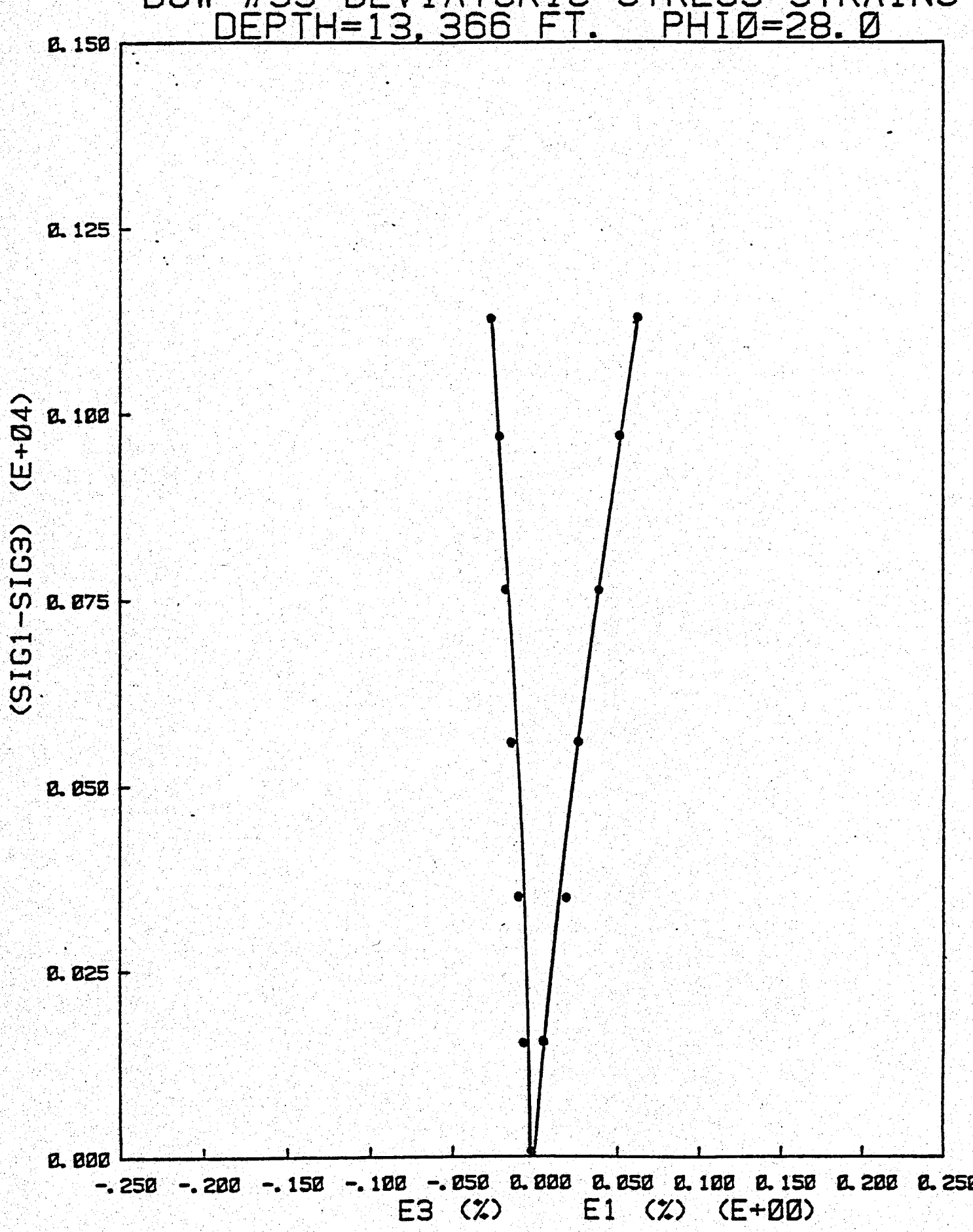
STRESS PATH FOR TEST SPECIMEN - DOW #35

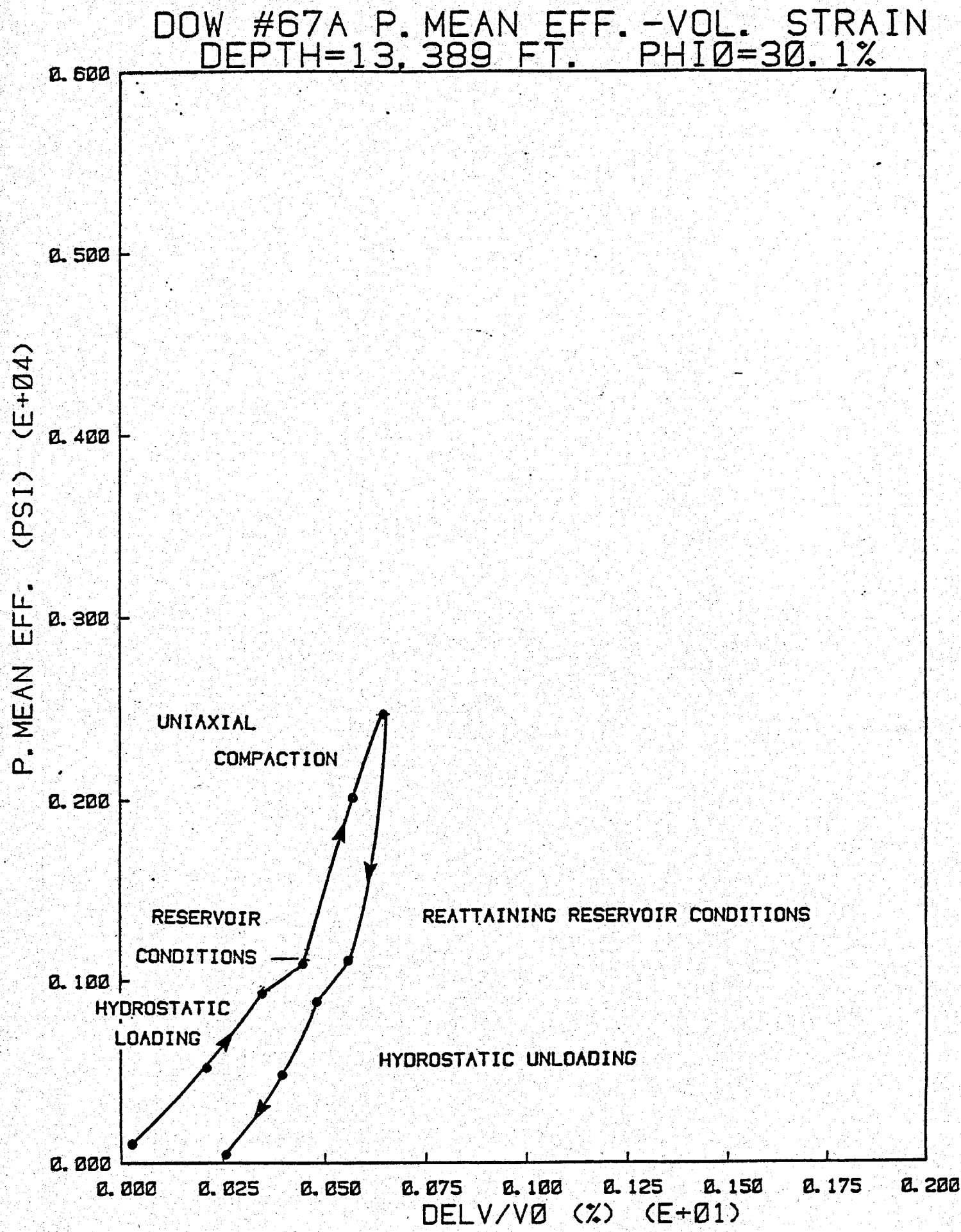
Point	Condition
1	P_c = 5,500 psi
	P_p = 0 psi
2	P_c = 5,500 psi
	P_p = 5,450 psi
3	P_c = 11,450 psi
	P_p = 5,450 psi
4	P_c = 11,450 psi
	P_p = 11,350 psi
5	Reservoir Conditions
5-6	Uniaxial Compaction
7	Unloaded

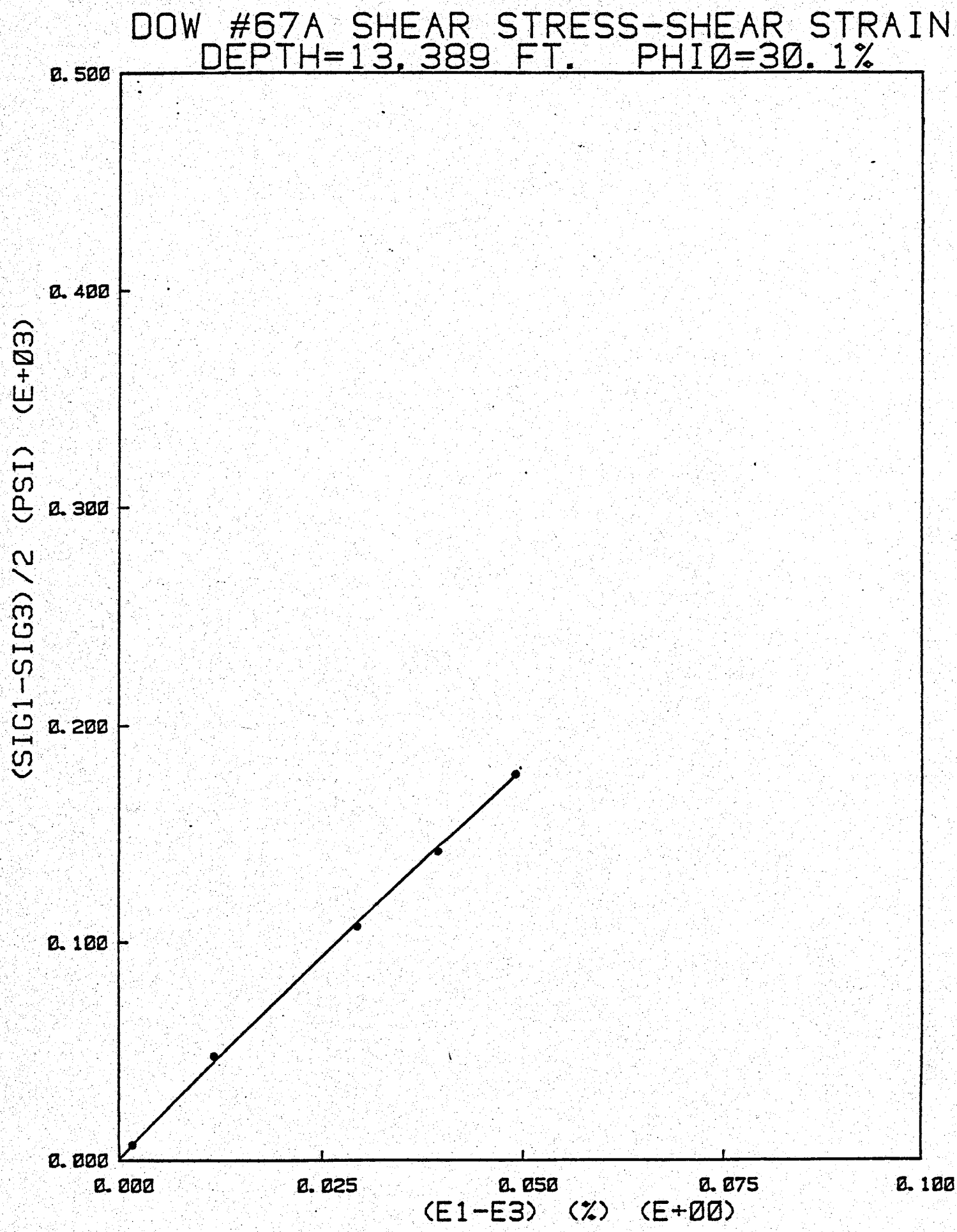
NOTE: This specimen was overstressed in the process of attaining reservoir conditions.

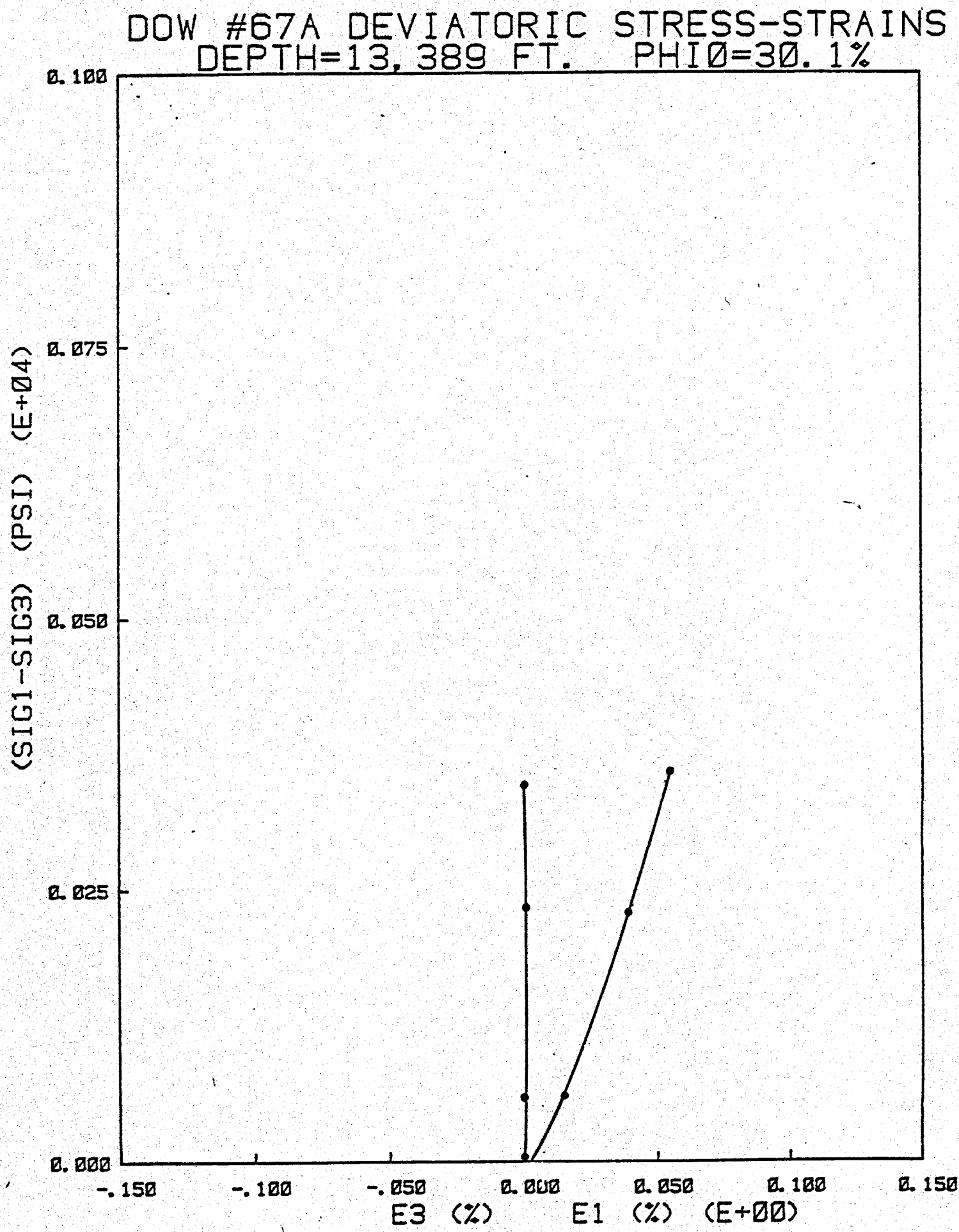

DOW #35 P. MEAN EFF. -VOL. STRAIN
DEPTH=13,366 FT. PHI0=28.0%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
DELV/V0 (%) (E+01)
1
2
3
4
5
6
7
0.200
0.100
0.000
0.075
0.100

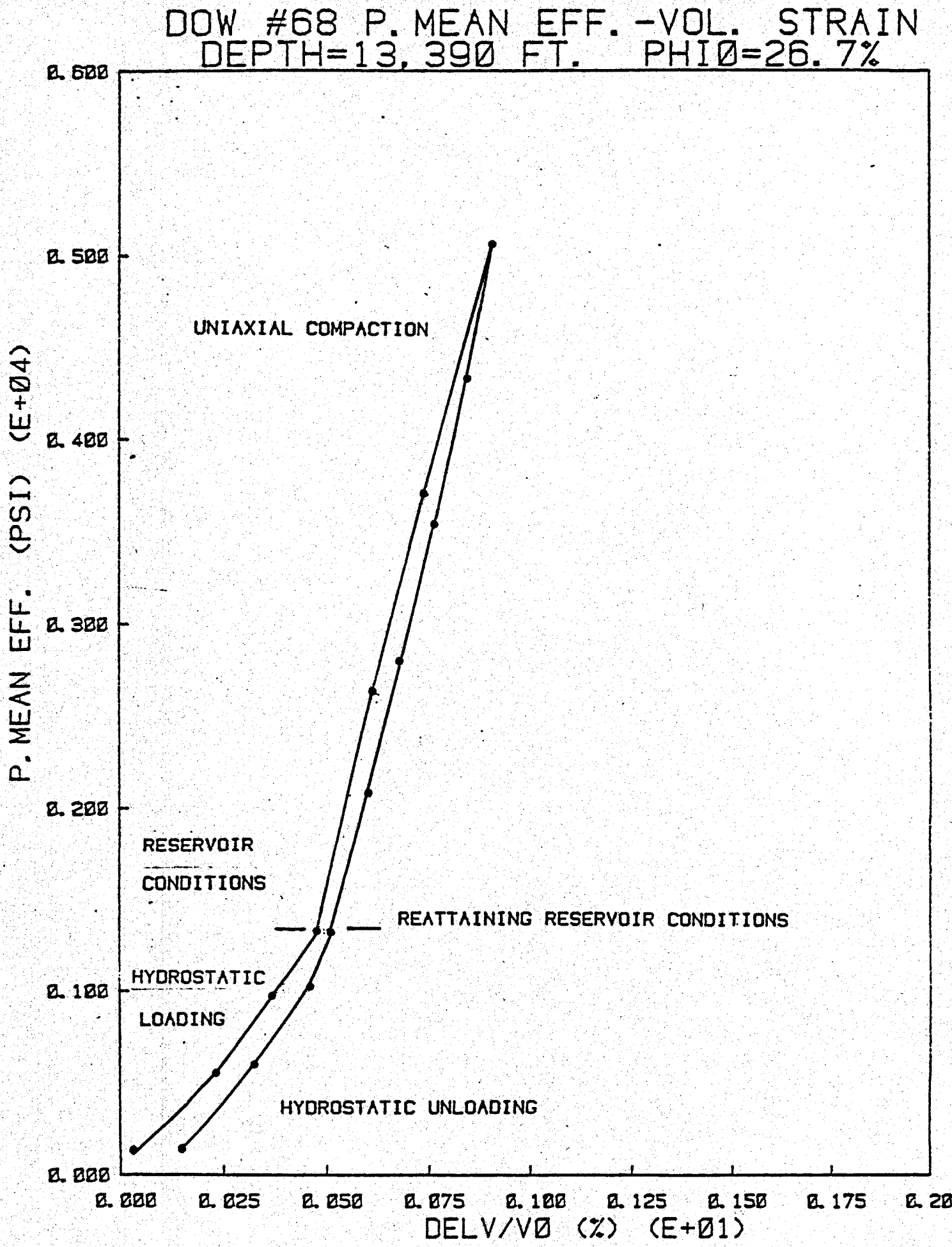

DOW #35 SHEAR STRESS-SHEAR STRAINS
DEPTH=13.366 FT. PHI0=28.0%
(SIG1-SIG3)/2 (PSI) (E+04)
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
0.000
0.050
0.100
0.150
0.200
0.250
(E1-E3) (%) (E+00)

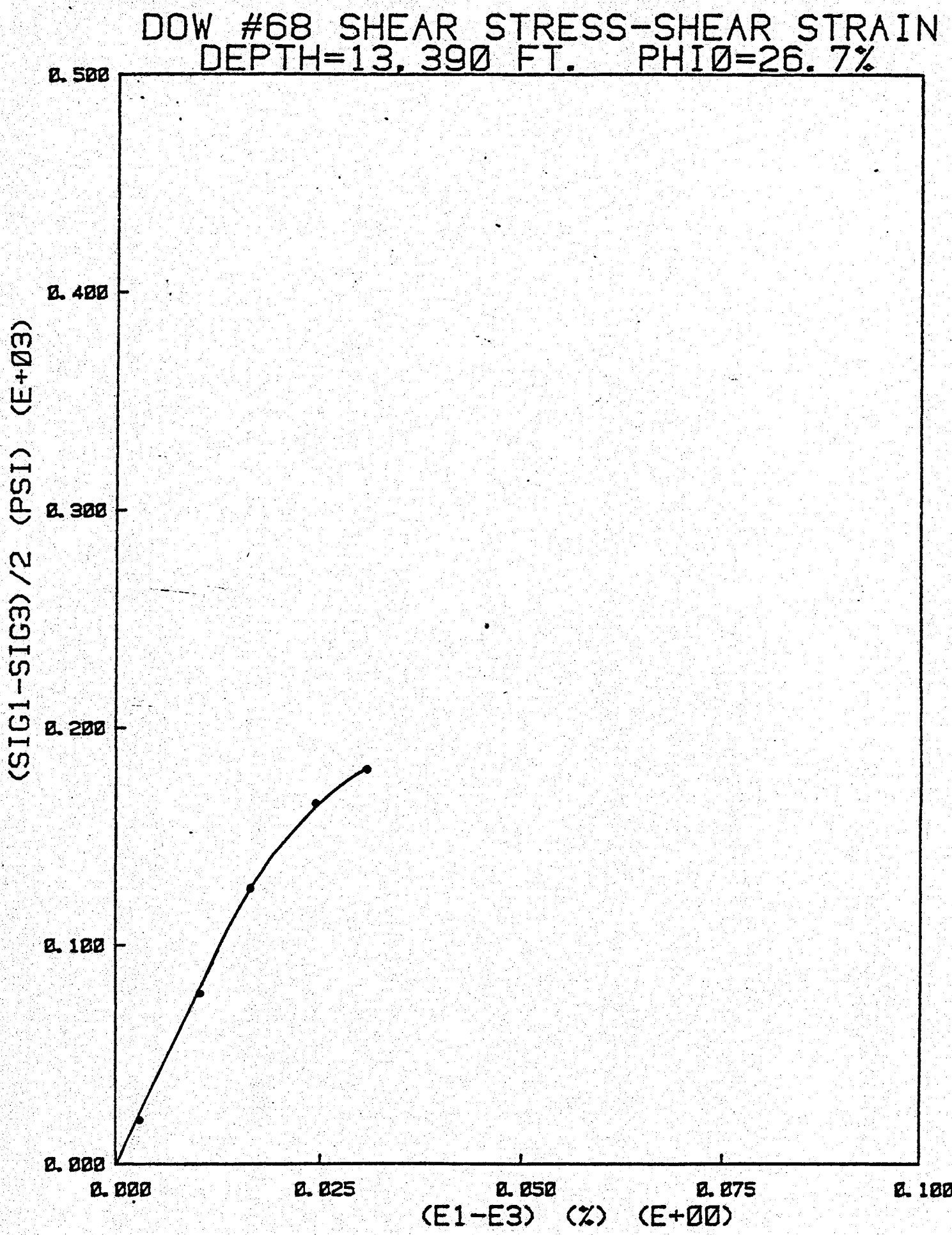

DOW #35 DEVIATORIC STRESS-STRAINS
DEPTH=13,366 FT. PHI0=28.0
0.150
0.125
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (E+04)
-.250 -.200 -.150 -.100 -.050 0.000 0.050 0.100 0.150 0.200 0.250
E3 (%) E1 (%) (E+00)

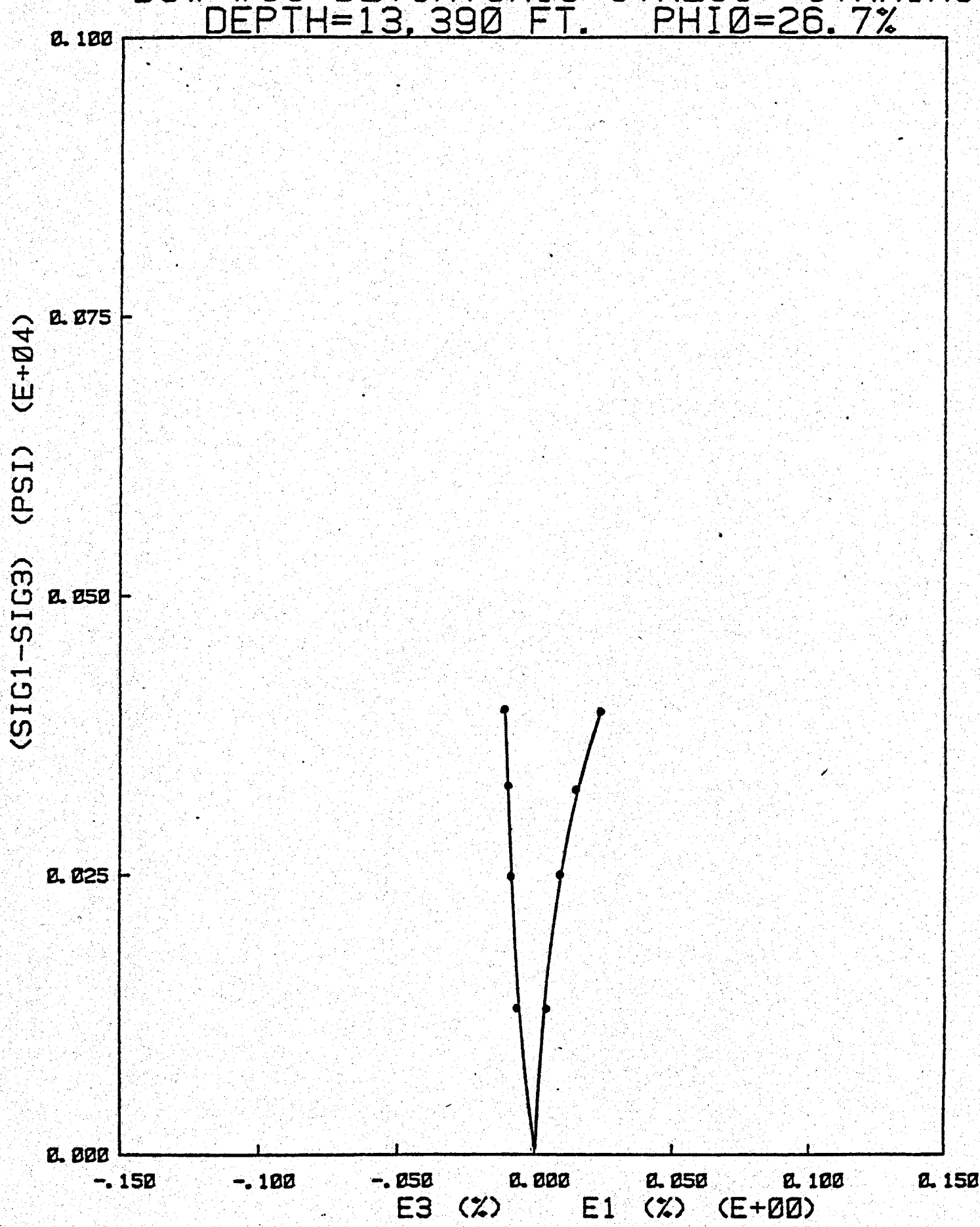

DOW #67A P. MEAN EFF. -VOL. STRAIN
DEPTH=13,389 FT. PHI0=30.1%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
UNIAXIAL
COMPACTION
RESERVOIR
CONDITIONS
HYDROSTATIC
LOADING
REATTAINING RESERVOIR CONDITIONS
HYDROSTATIC UNLOADING
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
DELV/V0 (%) (E+01)

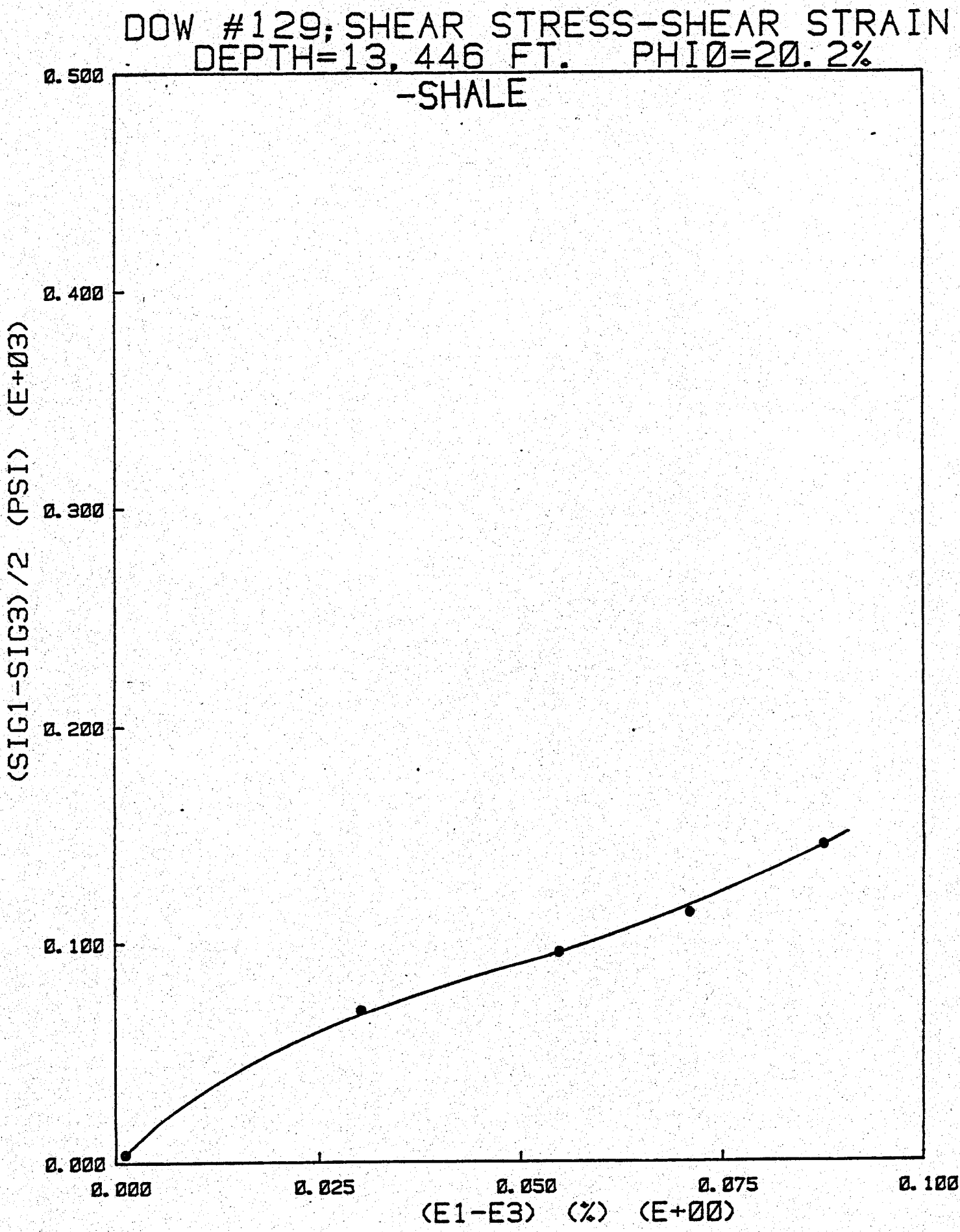

DOW #67A SHEAR STRESS-SHEAR STRAIN
DEPTH=13,389 FT. PHI0=30.1%
0.500
0.400
0.300
0.200
0.100
0.000
(SIG1-SIG3)/2 (PSI) (E+03)
0.000
0.025
0.050
0.075
0.100
(E1-E3) (%) (E+00)

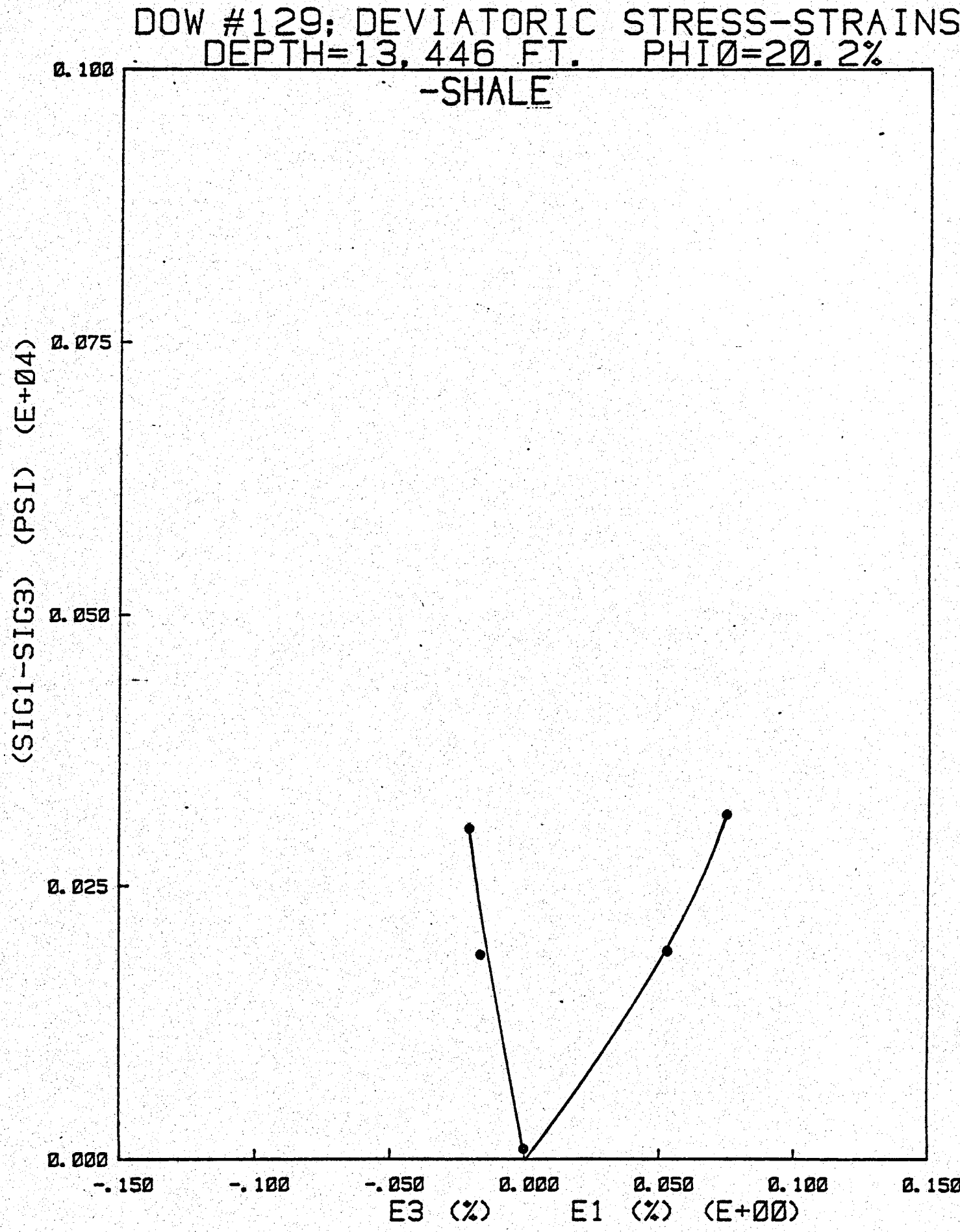

DOW #67A DEVIATORIC STRESS-STRAINS
DEPTH=13,389 FT. PHI0=30.1%
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (PSI) (E+04)
-.150
-.100
-.050
0.000
0.050
0.100
0.150
E3 (%) E1 (%) (E+00)

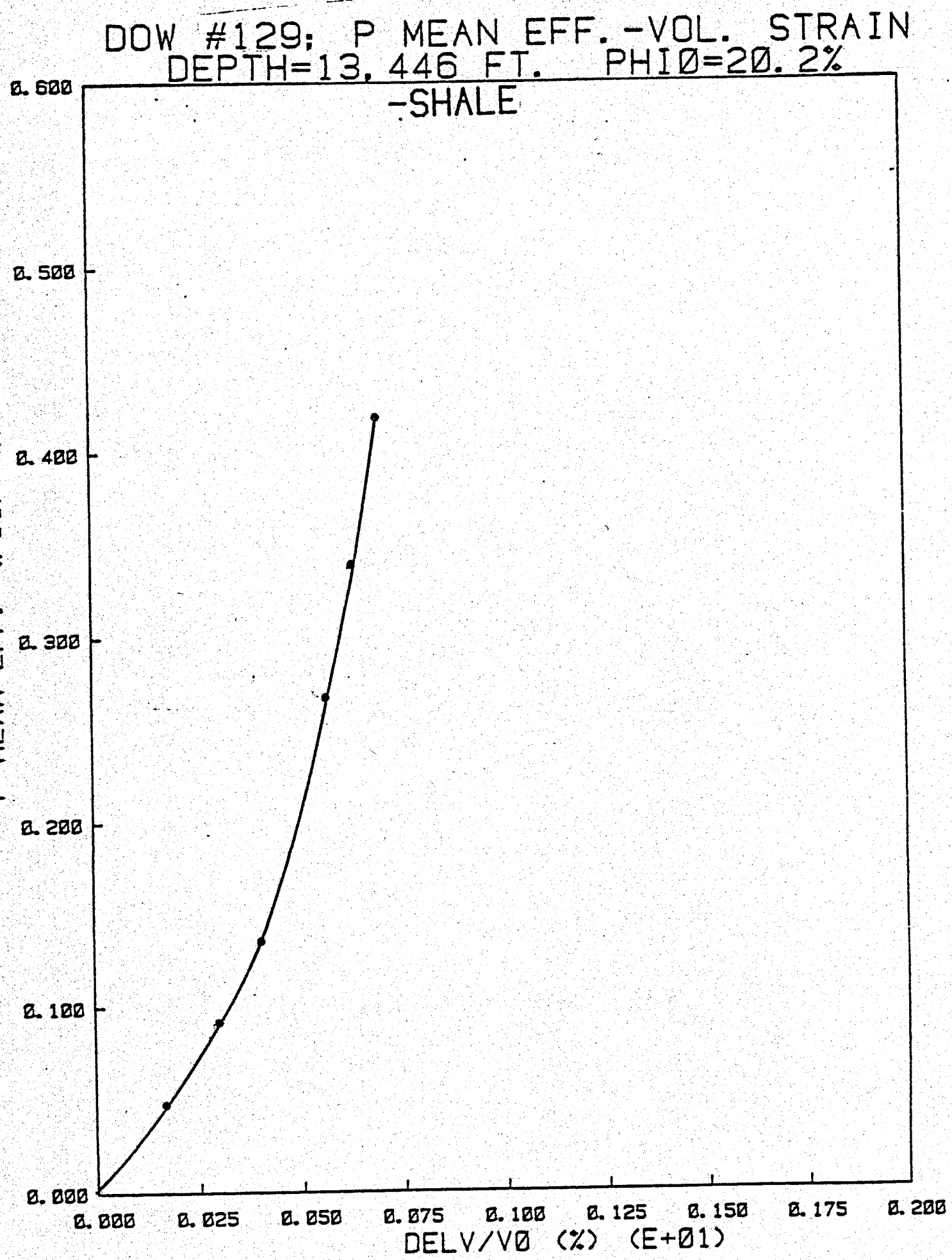

DOW #68 P. MEAN EFF. -VOL. STRAIN
DEPTH=13,390 FT. PHI0=26.7%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
UNIAXIAL COMPACTION
RESERVOIR
CONDITIONS
REATTAINING RESERVOIR CONDITIONS
HYDROSTATIC
LOADING
HYDROSTATIC UNLOADING
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.20
DELV/V0 (%) (E+01)

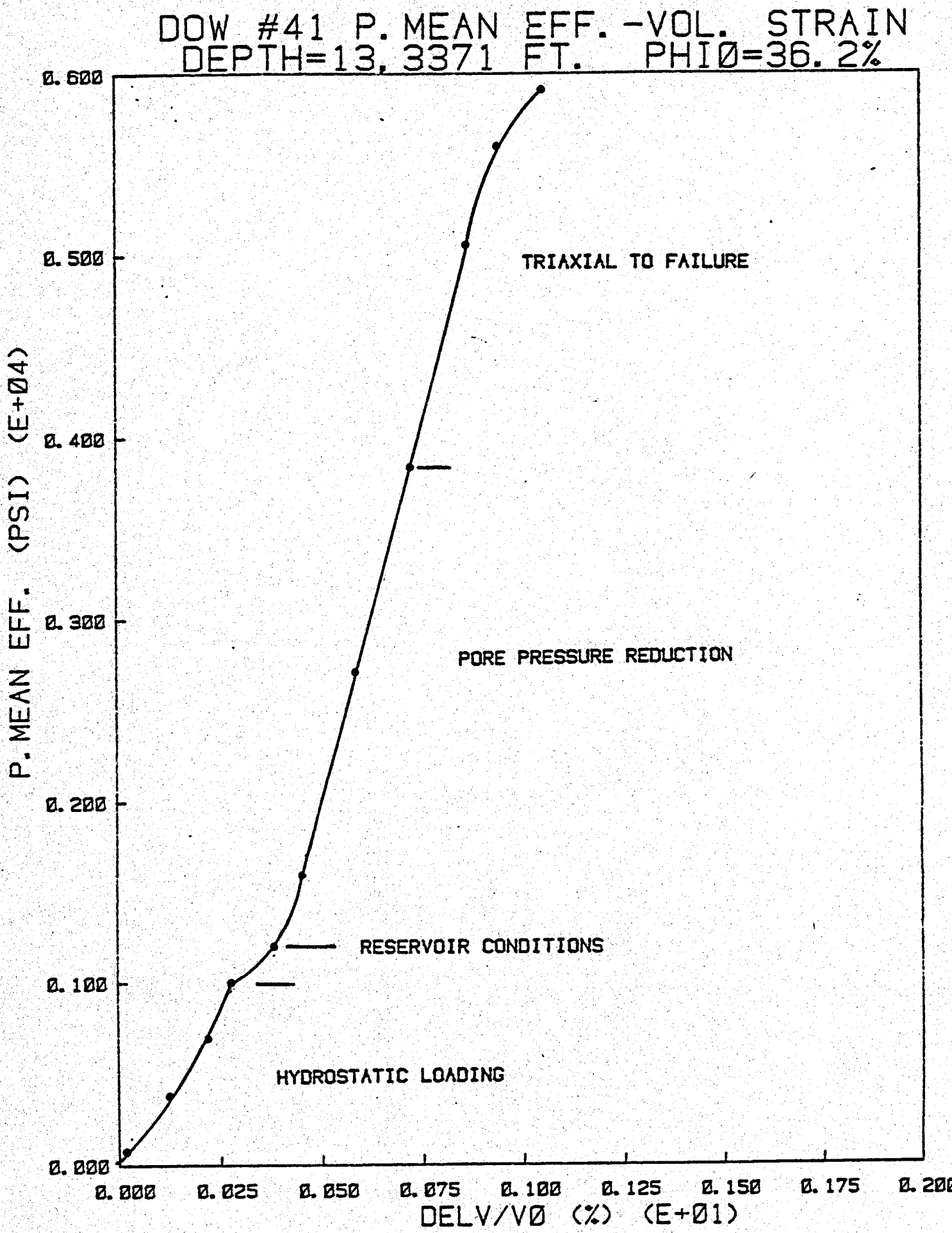

DOW #68 SHEAR STRESS-SHEAR STRAIN
DEPTH=13,390 FT. PHI0=26.7%
0.500
0.400
0.300
0.200
0.100
0.000
(SIG1-SIG3)/2 (PSI) (E+03)
0.000
0.025
0.050
0.075
0.100
(E1-E3) (%) (E+00)

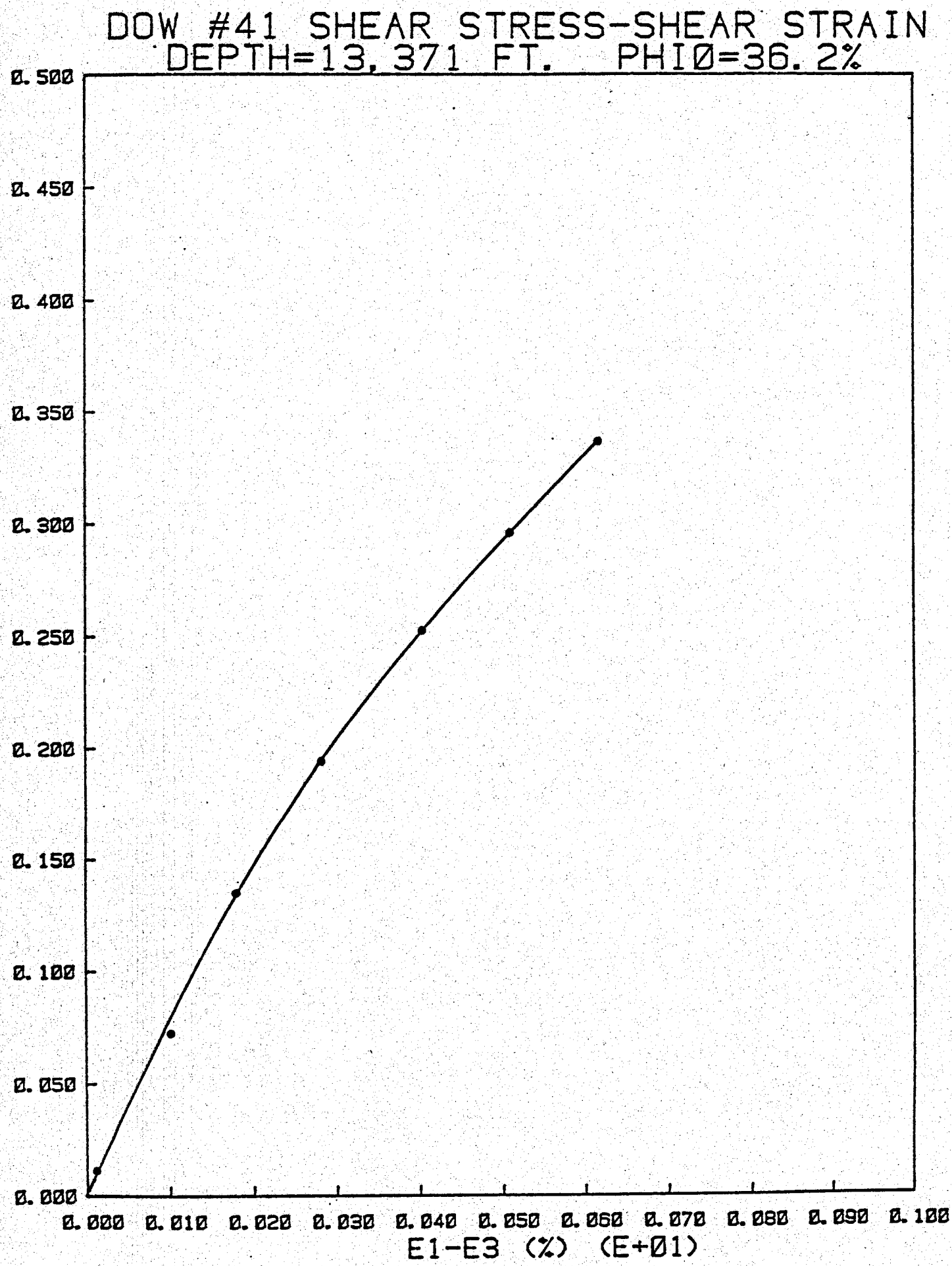

DOW #68 DEVIATORIC STRESS- STRAINS
DEPTH=13,390 FT. PHI0=26.7%
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (PSI) (E+04)
-.150
-.100
-.050
0.000
0.050
0.100
0.150
E3 (%) E1 (%) (E+00)

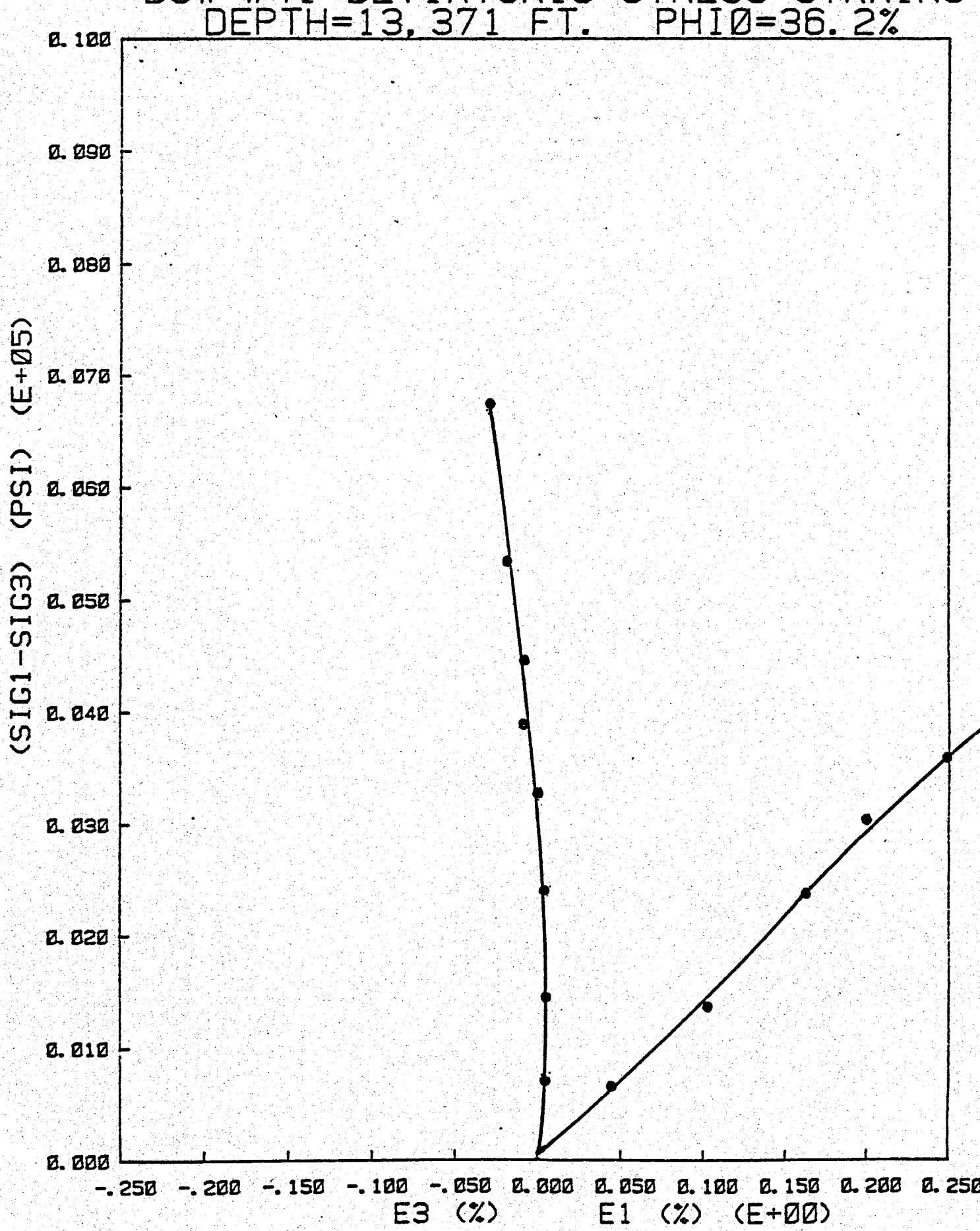

DOW #129; SHEAR STRESS-SHEAR STRAIN
DEPTH=13,446 FT. PHI0=20.2%
-SHALE
0.500
0.400
0.300
0.200
0.100
0.000
(SIG1-SIG3)/2 (PSI) (E+03)
0.000
0.025
0.050
0.075
0.100
(E1-E3) (%) (E+00)

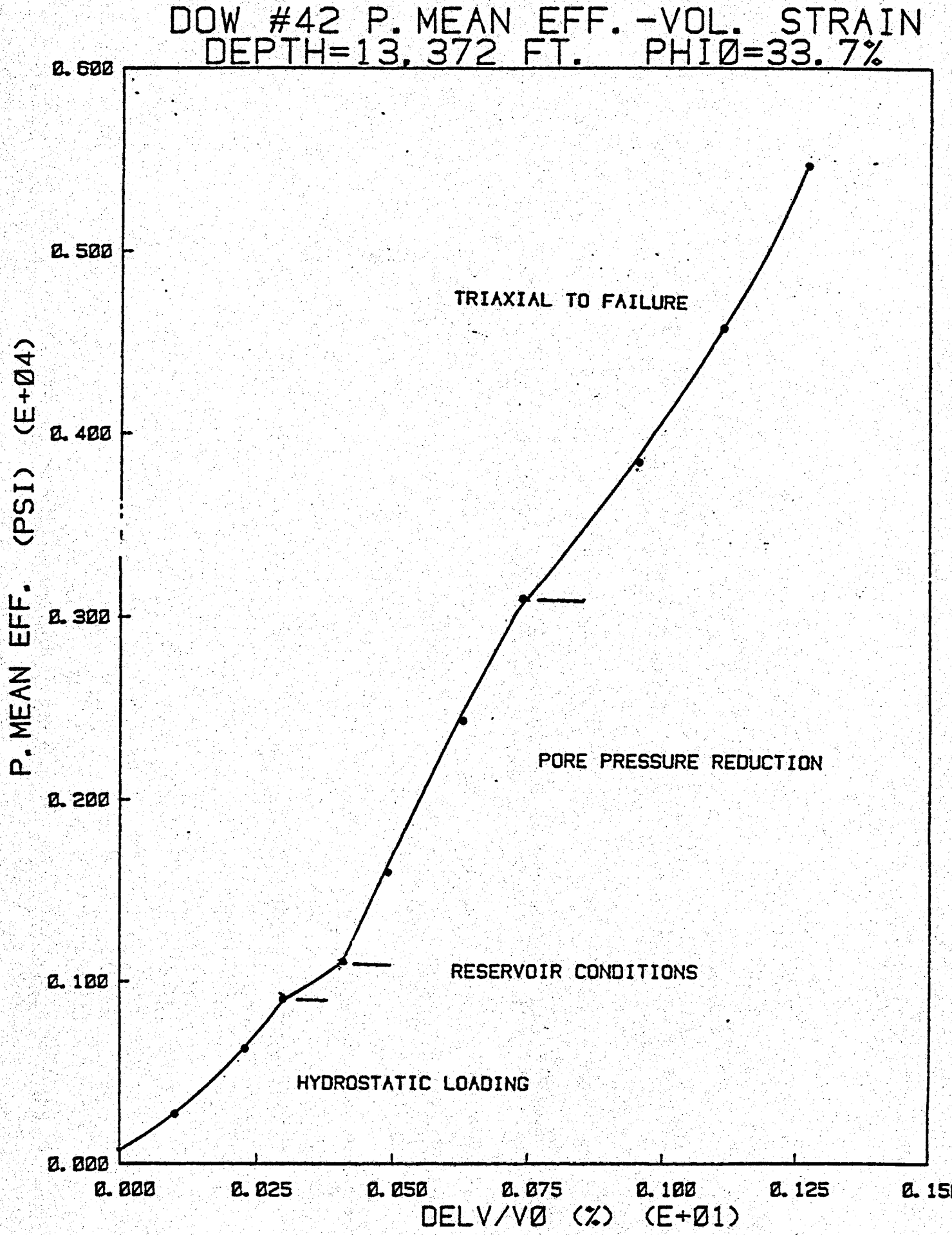

DOW #129; DEVIATORIC STRESS-STRAINS
DEPTH=13,446 FT. PHI0=20.2%
-SHALE
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (PSI) (E+04)
-.150
-.100
-.050
0.000
0.050
0.100
0.150
E3 (%) E1 (%) (E+00)

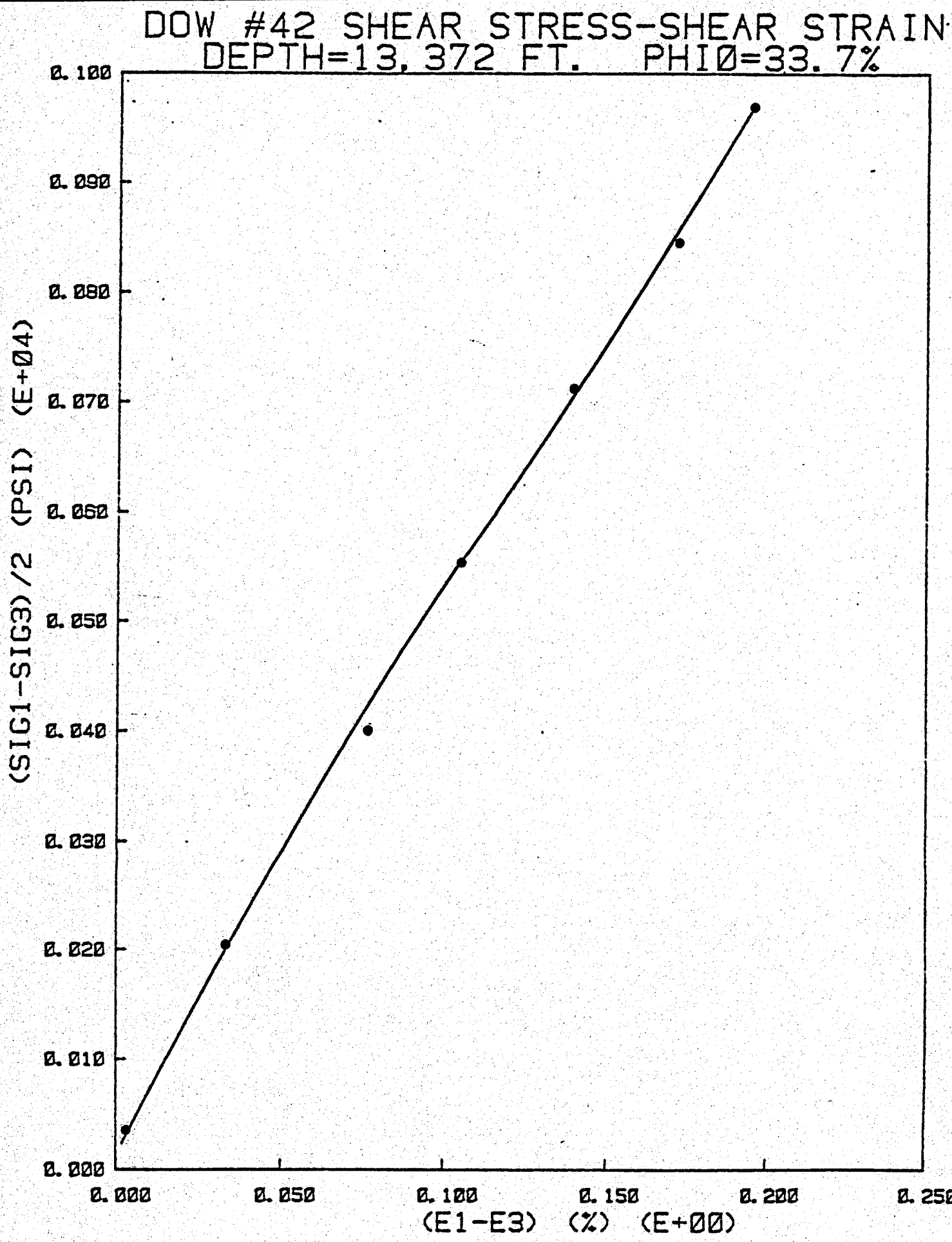

DOW #129; P MEAN EFF.-VOL. STRAIN
DEPTH=13,446 FT. PHI0=20.2%
-SHALE
P MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
DELV/V0 (%) (E+01)

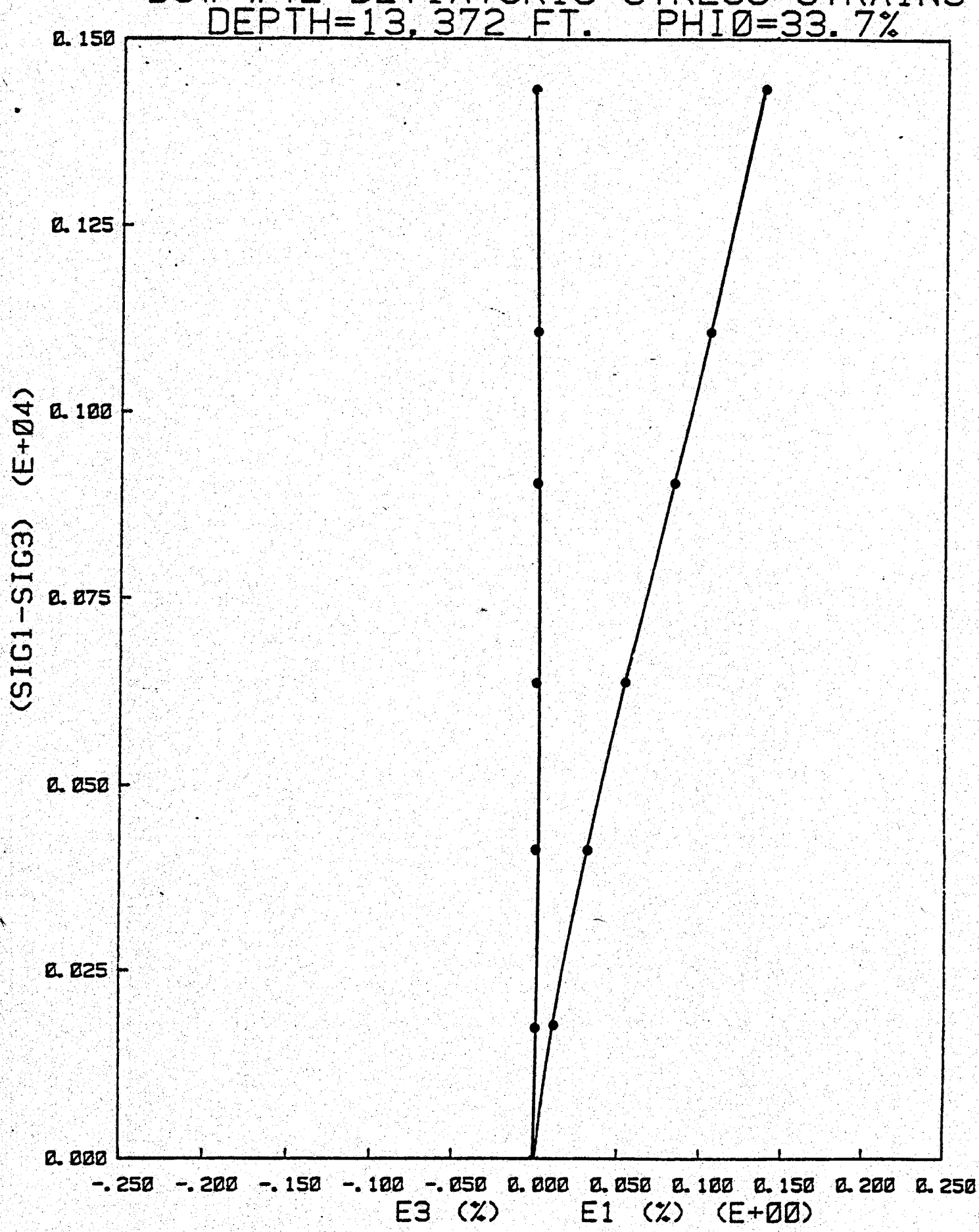

DOW #41 P. MEAN EFF. -VOL. STRAIN
DEPTH=13,3371 FT. PHI0=36.2%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
TRIAXIAL TO FAILURE
PORE PRESSURE REDUCTION
RESERVOIR CONDITIONS
HYDROSTATIC LOADING
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
DELV/V0 (%) (E+01)

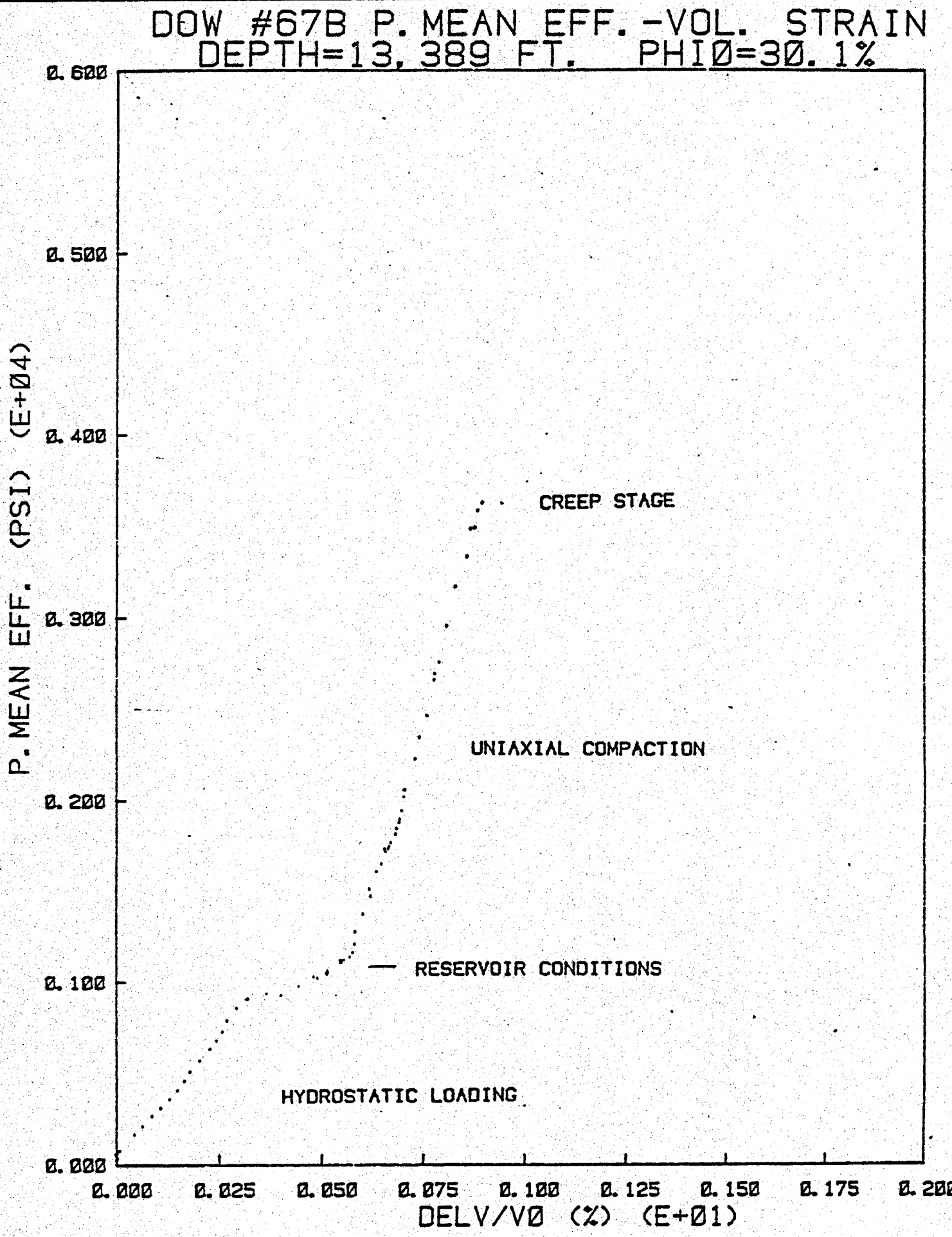

DOW #41 SHEAR STRESS-SHEAR STRAIN
DEPTH=13,371 FT. PHI0=36.2%
(SIG1-SIG3)/2 (PSI) (E+04)
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
0.000 0.010 0.020 0.030 0.040 0.050 0.060 0.070 0.080 0.090 0.100
E1-E3 (%) (E+01)

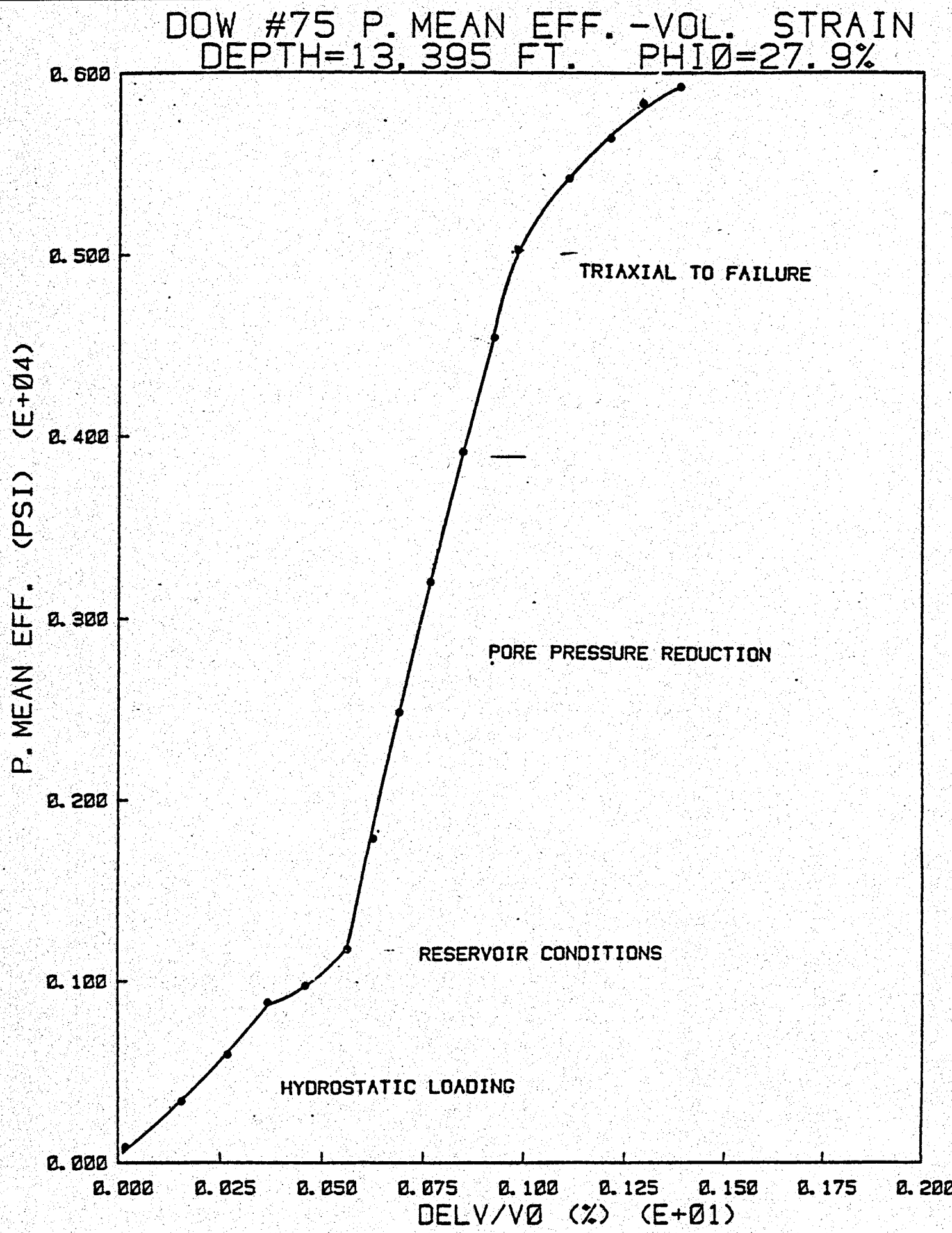

DOW #41 DEVIATORIC STRESS-STRAINS
DEPTH=13,371 FT. PHI0=36.2%
(SIG1-SIG3) (PSI) (E+05)
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
-.250 -.200 -.150 -.100 -.050 0.000 0.050 0.100 0.150 0.200 0.250
E3 (%)
E1 (%) (E+00)

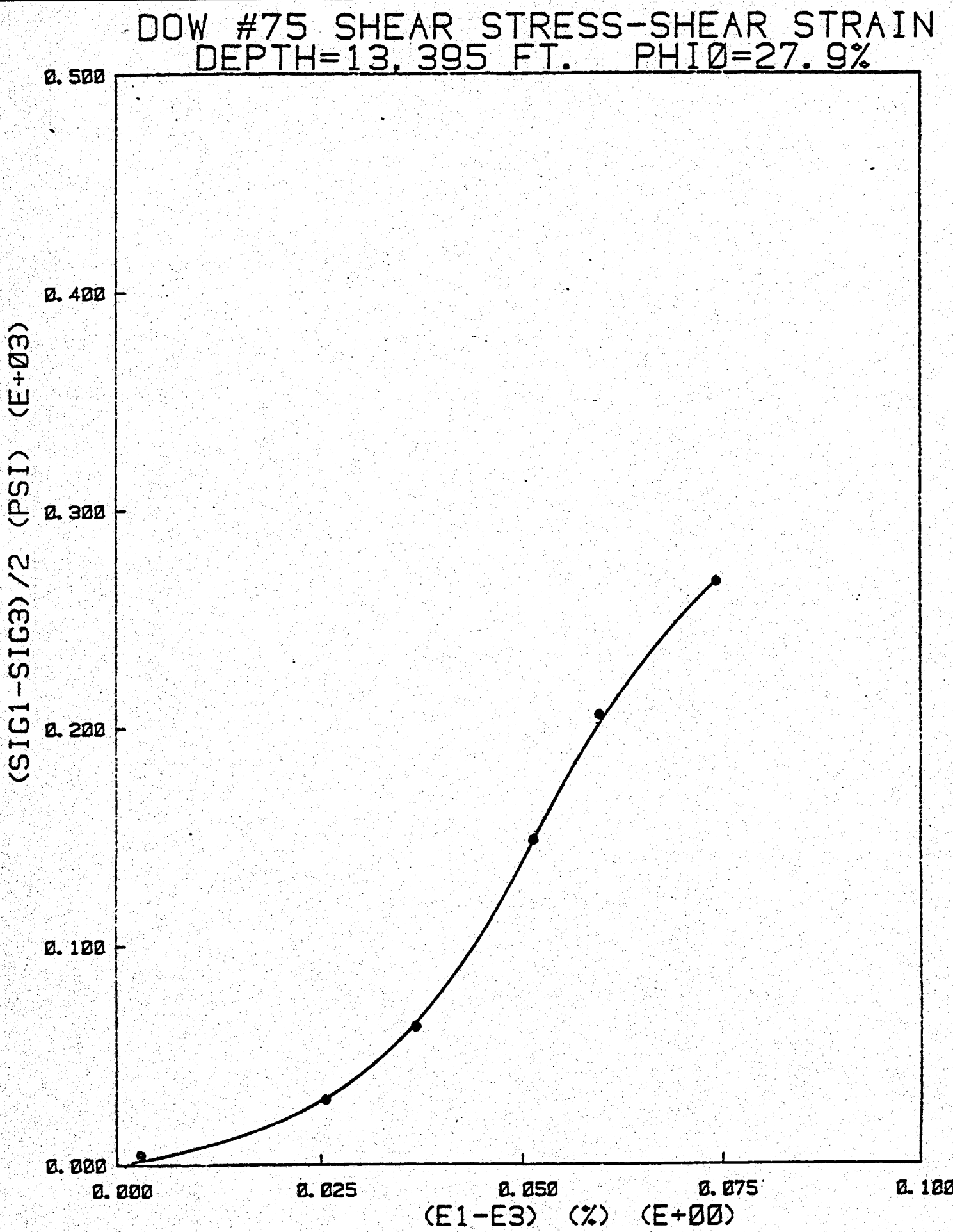

DOW #42 P. MEAN EFF. -VOL. STRAIN
DEPTH=13,372 FT. PHIØ=33.7%
P. MEAN EFF. (PSI) (E+Ø4)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.000
0.025
0.050
0.075
0.100
0.125
0.15
DELV/VØ (%) (E+Ø1)
TRIAXIAL TO FAILURE
PORE PRESSURE REDUCTION
RESERVOIR CONDITIONS
HYDROSTATIC LOADING

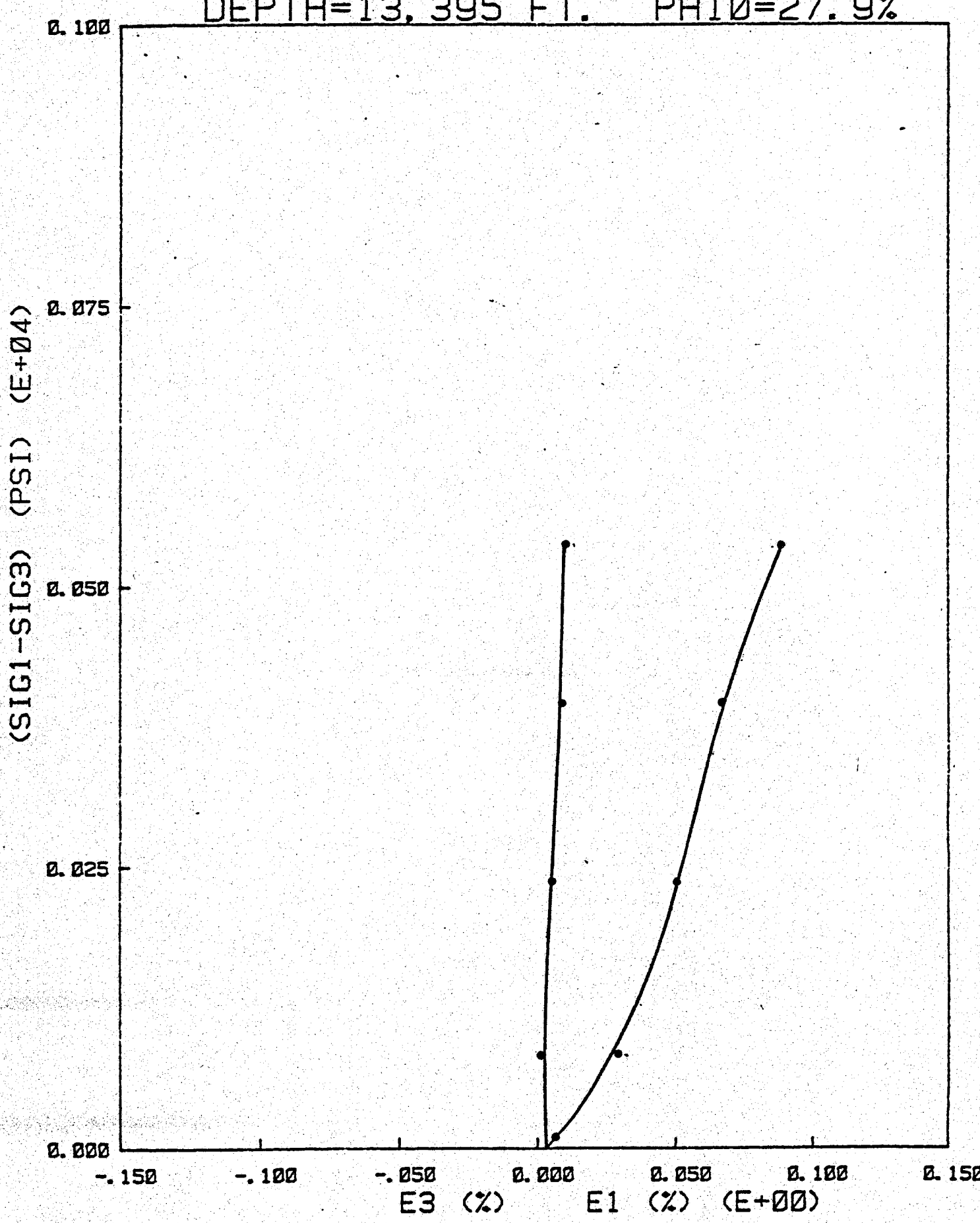

DOW #42 SHEAR STRESS-SHEAR STRAIN
DEPTH=13,372 FT. PHI0=33.7%
(SIG1-SIG3)/2 (PSI) (E+04)
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
0.000
0.050
0.100
0.150
0.200
0.250
(E1-E3) (%) (E+00)

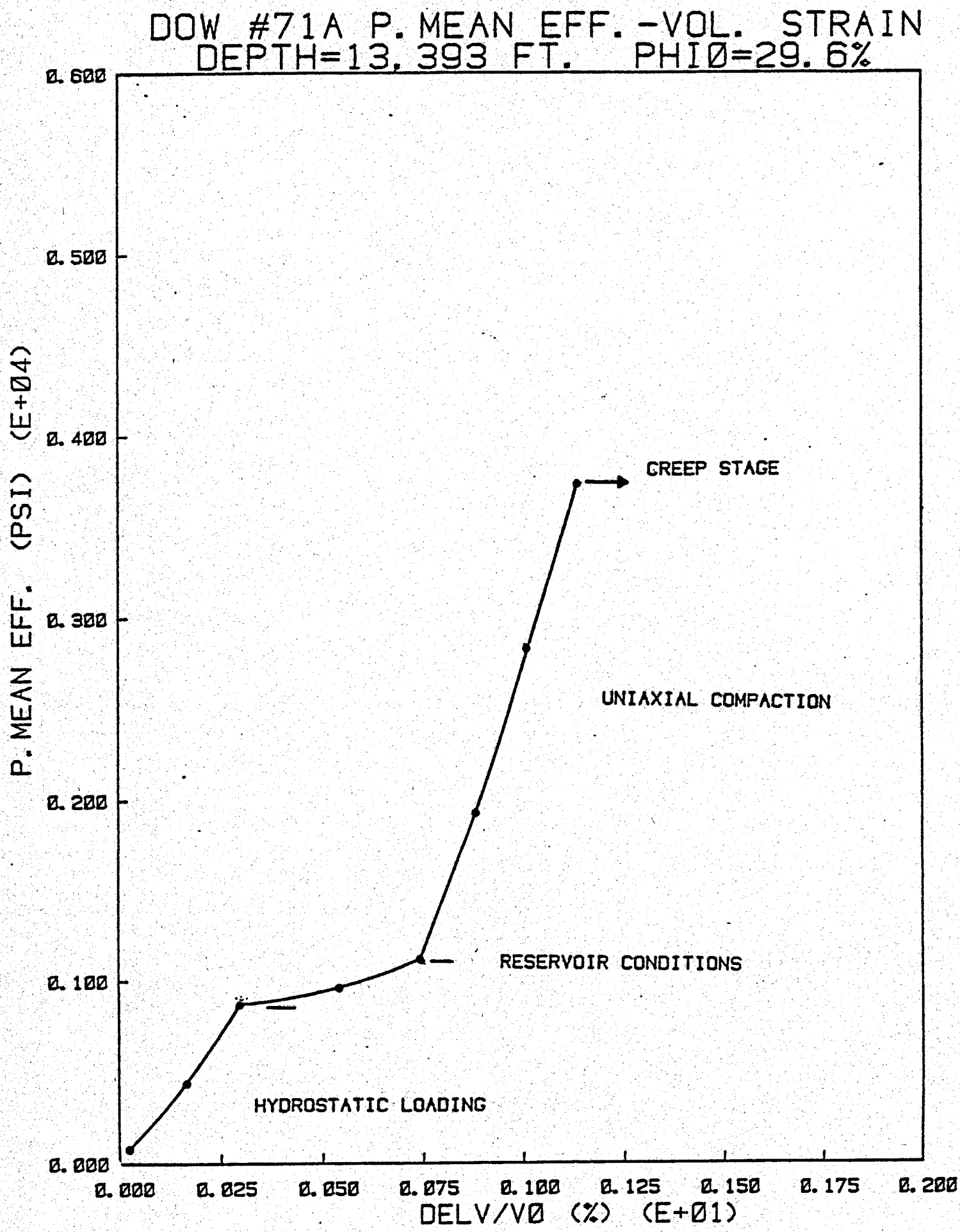

DOW #42 DEVIATORIC STRESS-STRAINS
DEPTH=13,372 FT. PHI0=33.7%
0.150
0.125
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (E+04)
-.250 -.200 -.150 -.100 -.050 0.000 0.050 0.100 0.150 0.200 0.250
E3 (%) E1 (%) (E+00)

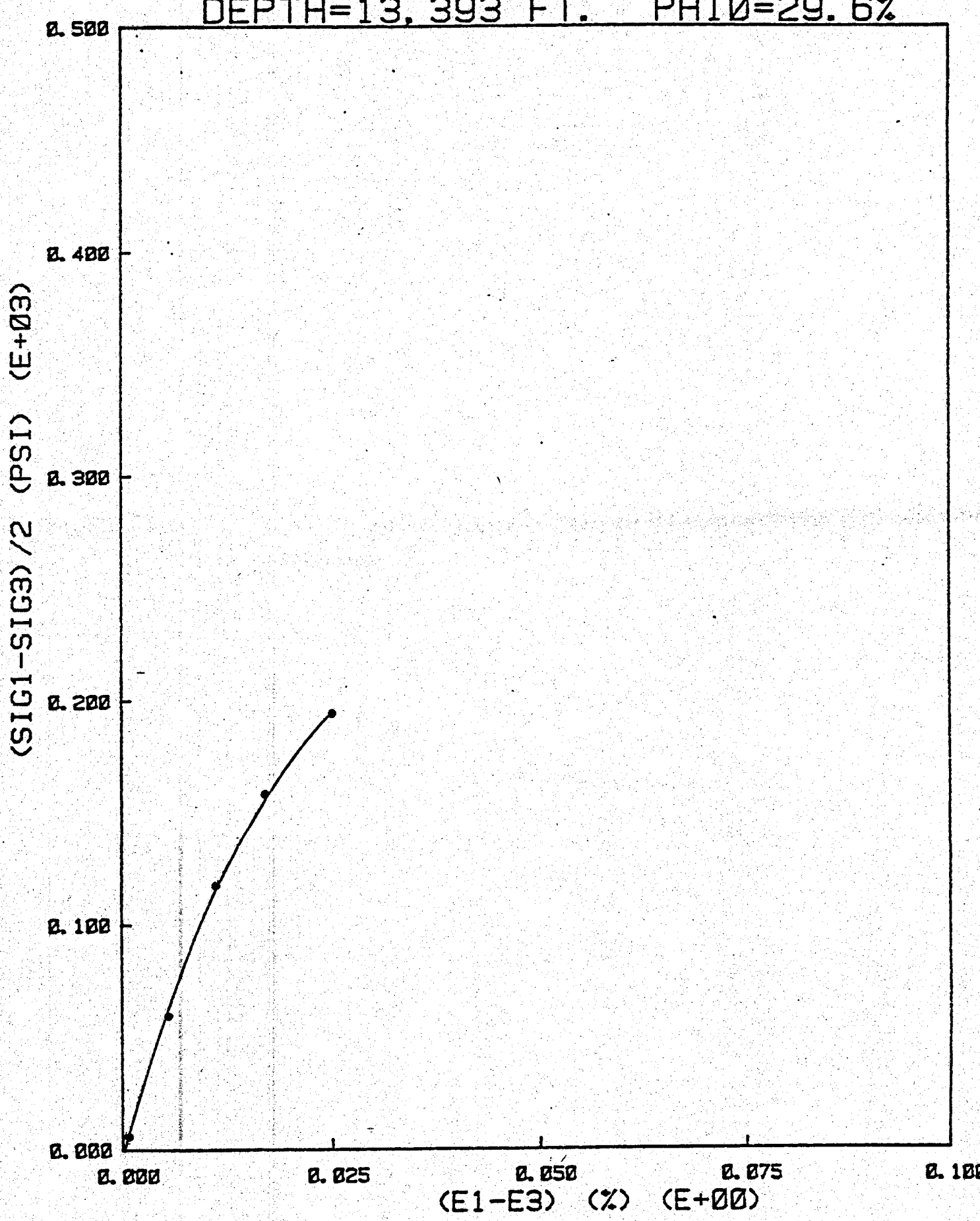

DOW #67B P. MEAN EFF. -VOL. STRAIN
DEPTH=13,389 FT. PHI0=30.1%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
CREEP STAGE
UNIAXIAL COMPACTION
RESERVOIR CONDITIONS
HYDROSTATIC LOADING
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
DELV/V0 (%) (E+01)

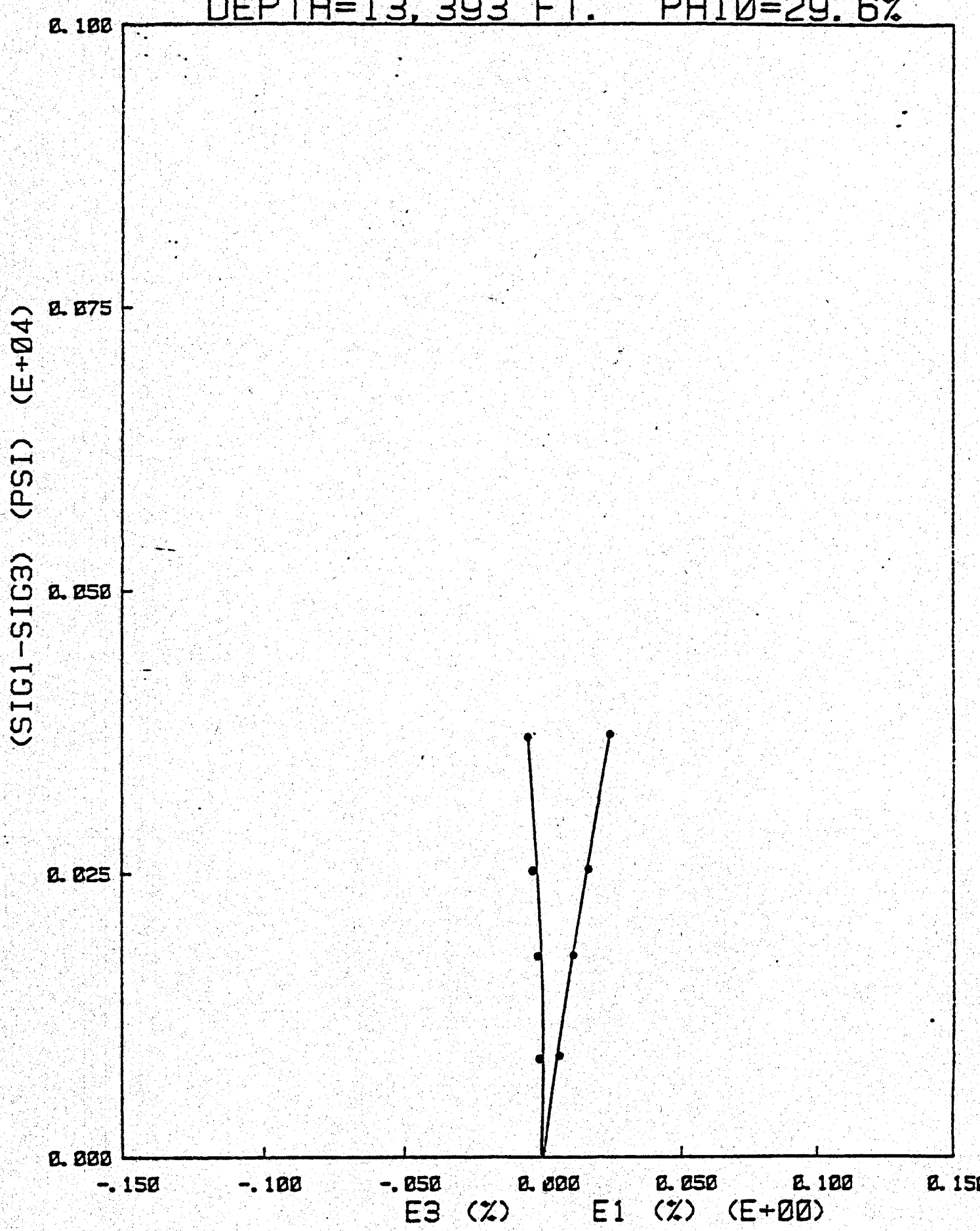

DOW #75 P. MEAN EFF. -VOL. STRAIN
DEPTH=13,395 FT. PHI0=27.9%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
DELV/V0 (%) (E+01)
TRIAXIAL TO FAILURE
PORE PRESSURE REDUCTION
RESERVOIR CONDITIONS
HYDROSTATIC LOADING

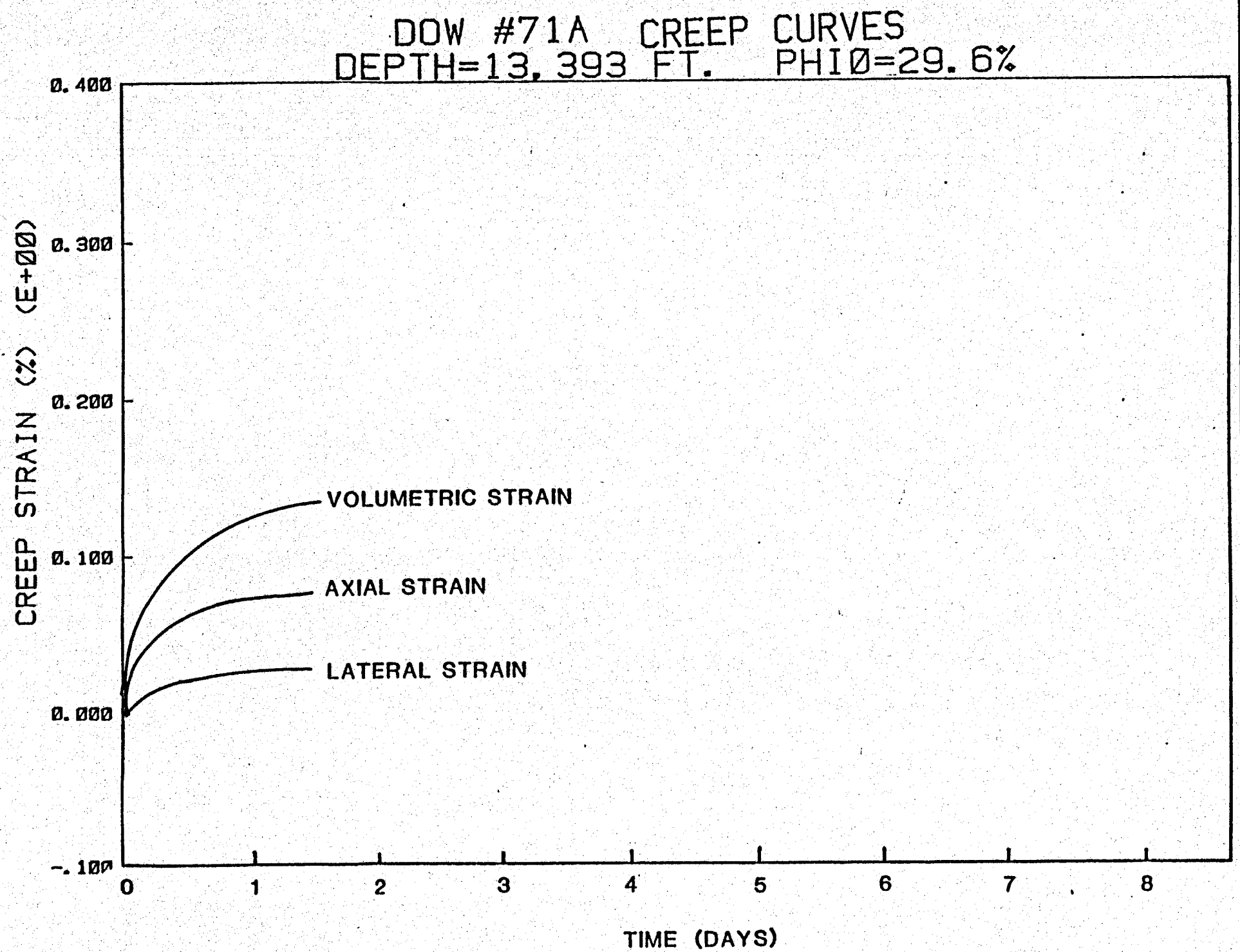

DOW #75 SHEAR STRESS-SHEAR STRAIN
DEPTH=13,395 FT. PHI0=27.9%
0.500
0.400
0.300
0.200
0.100
0.000
(SIG1-SIG3)/2 (PSI) (E+03)
0.000
0.025
0.050
0.075
0.100
(E1-E3) (%) (E+00)

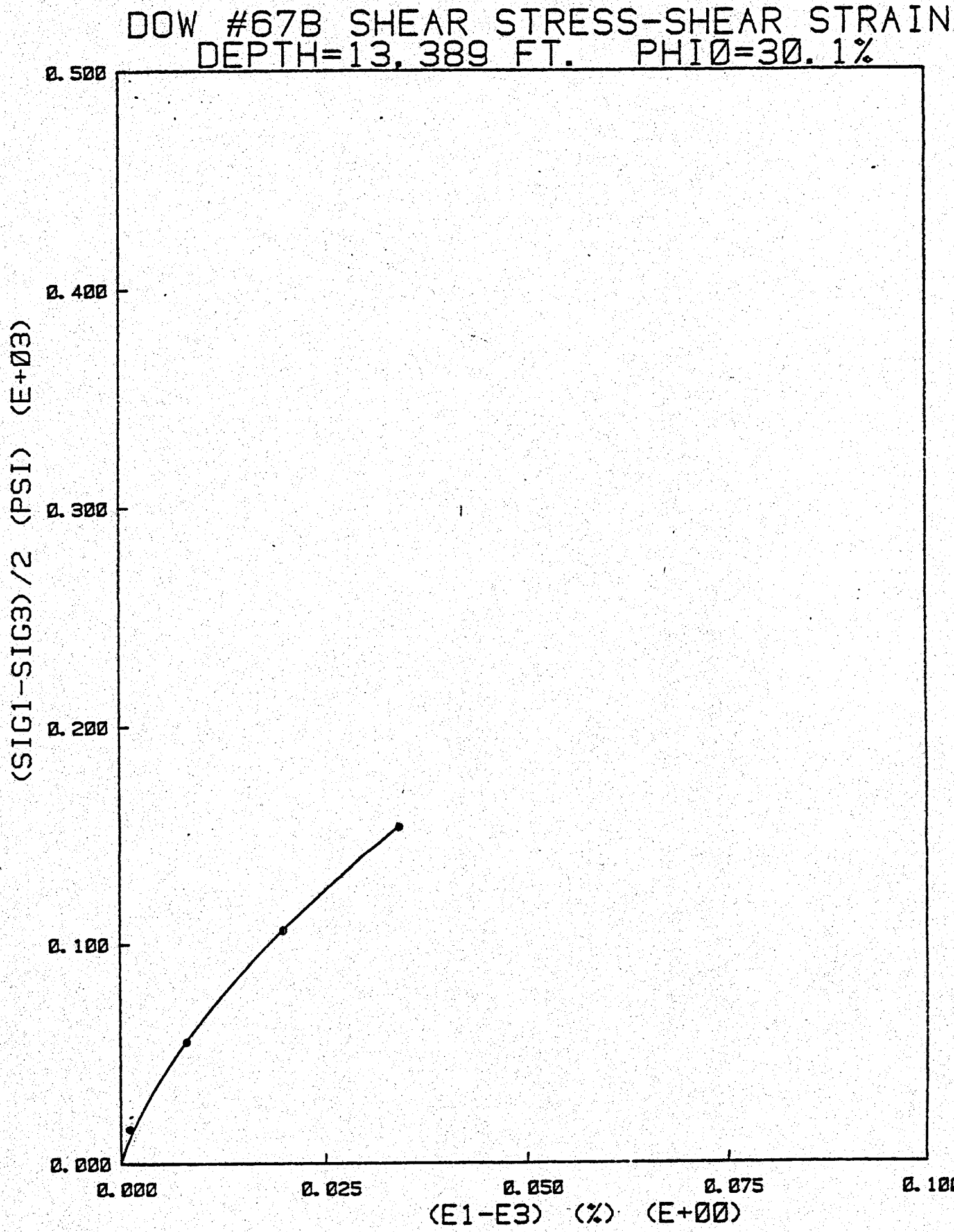

DOW #75 DEVIATORIC STRESS-STRAINS
DEPTH=13,395 FT. PHI0=27.9%
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (PSI) (E+04)
-.150
-.100
-.050
0.000
0.050
0.100
0.150
E3 (%) E1 (%) (E+00)

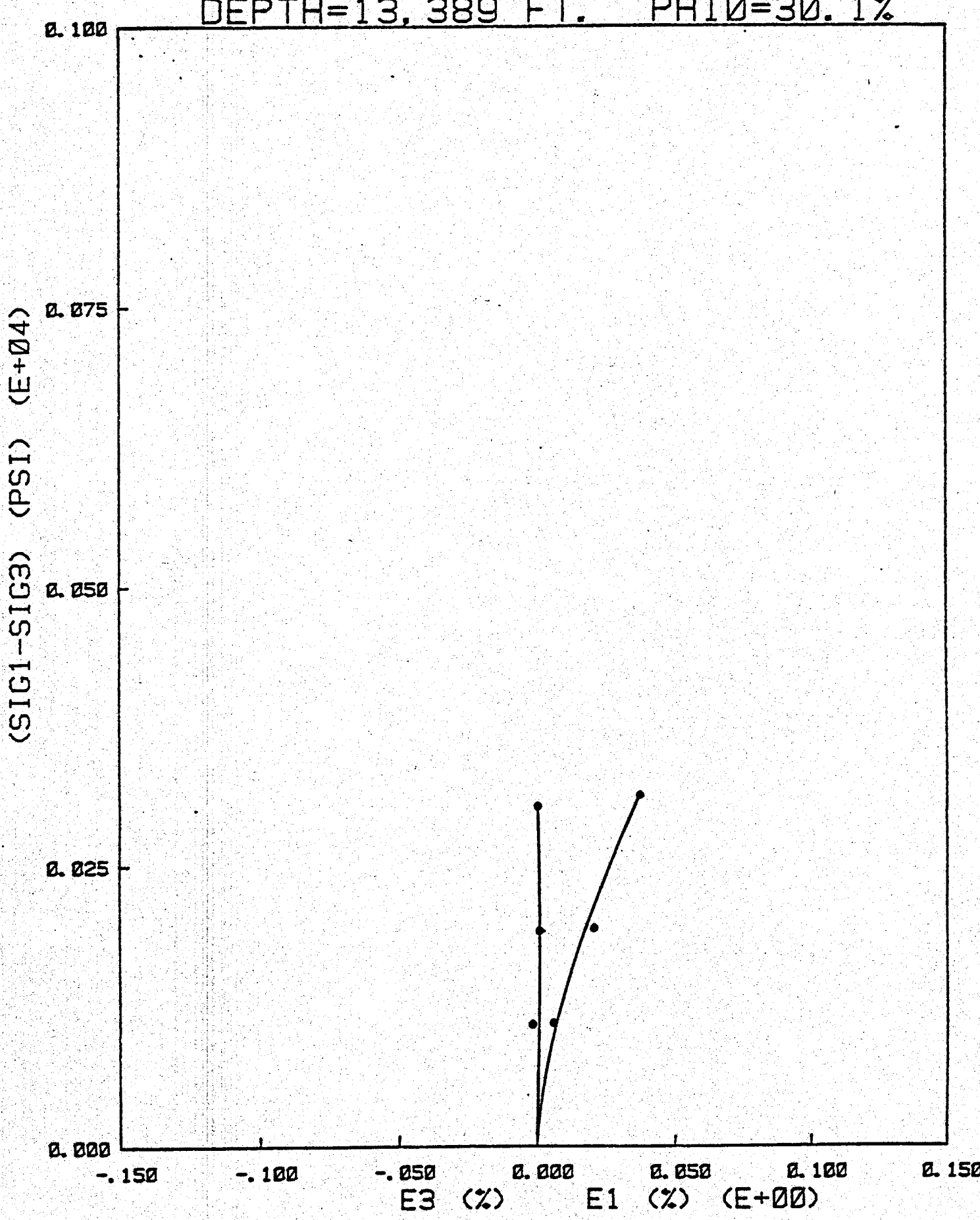

DOW #71A P. MEAN EFF. -VOL. STRAIN
DEPTH=13,393 FT. PHI0=29.6%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
DELV/V0 (%) (E+01)
CREEP STAGE
UNIAXIAL COMPACTION
RESERVOIR CONDITIONS
HYDROSTATIC LOADING

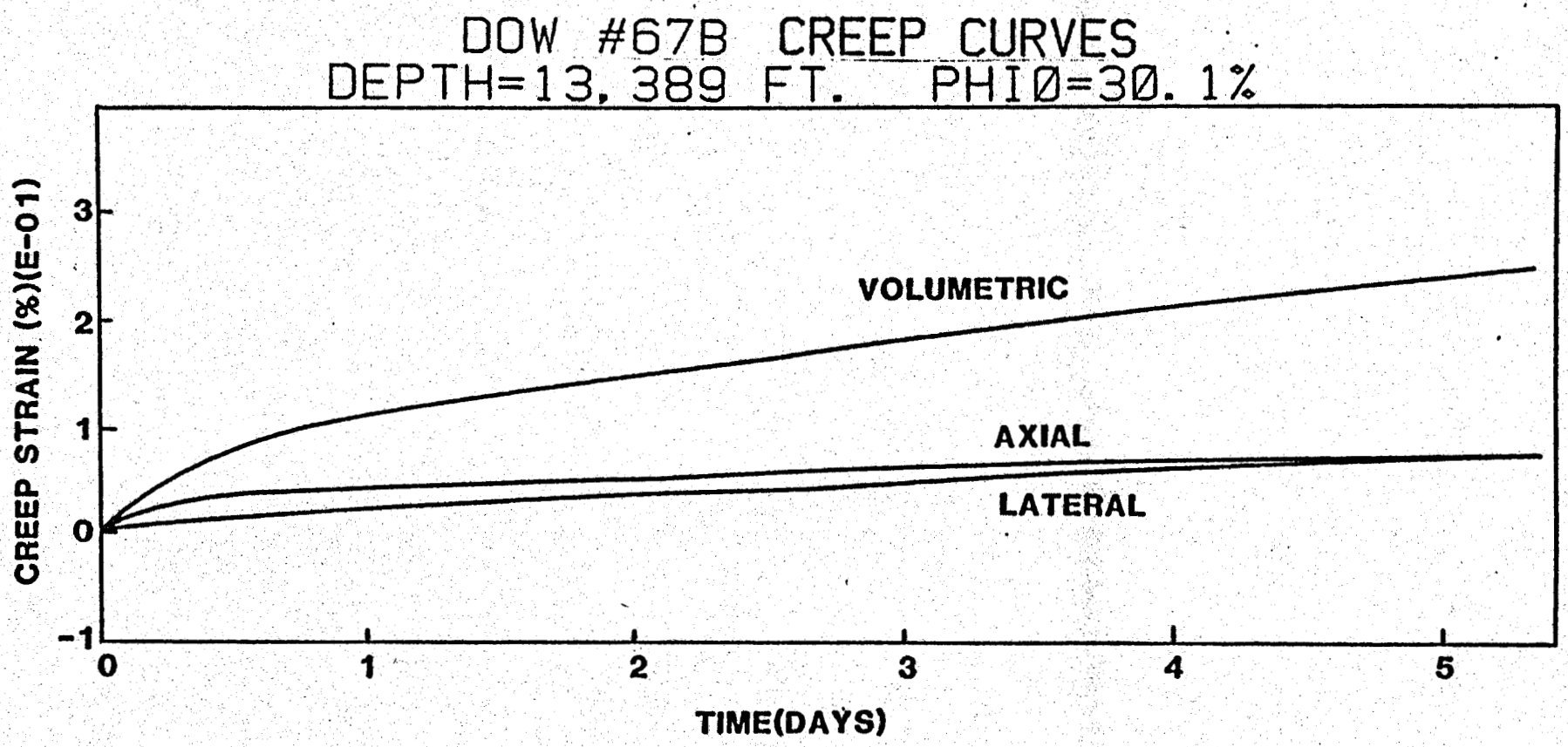

DOW #71A SHEAR STRESS-SHEAR STRAIN
DEPTH=13,393 FT. PHIØ=29.6%
0.500
0.400
0.300
0.200
0.100
0.000
(SIG1-SIG3)/2 (PSI) (E+03)
0.000
0.025
0.050
0.075
0.100
(E1-E3) (%) (E+00)

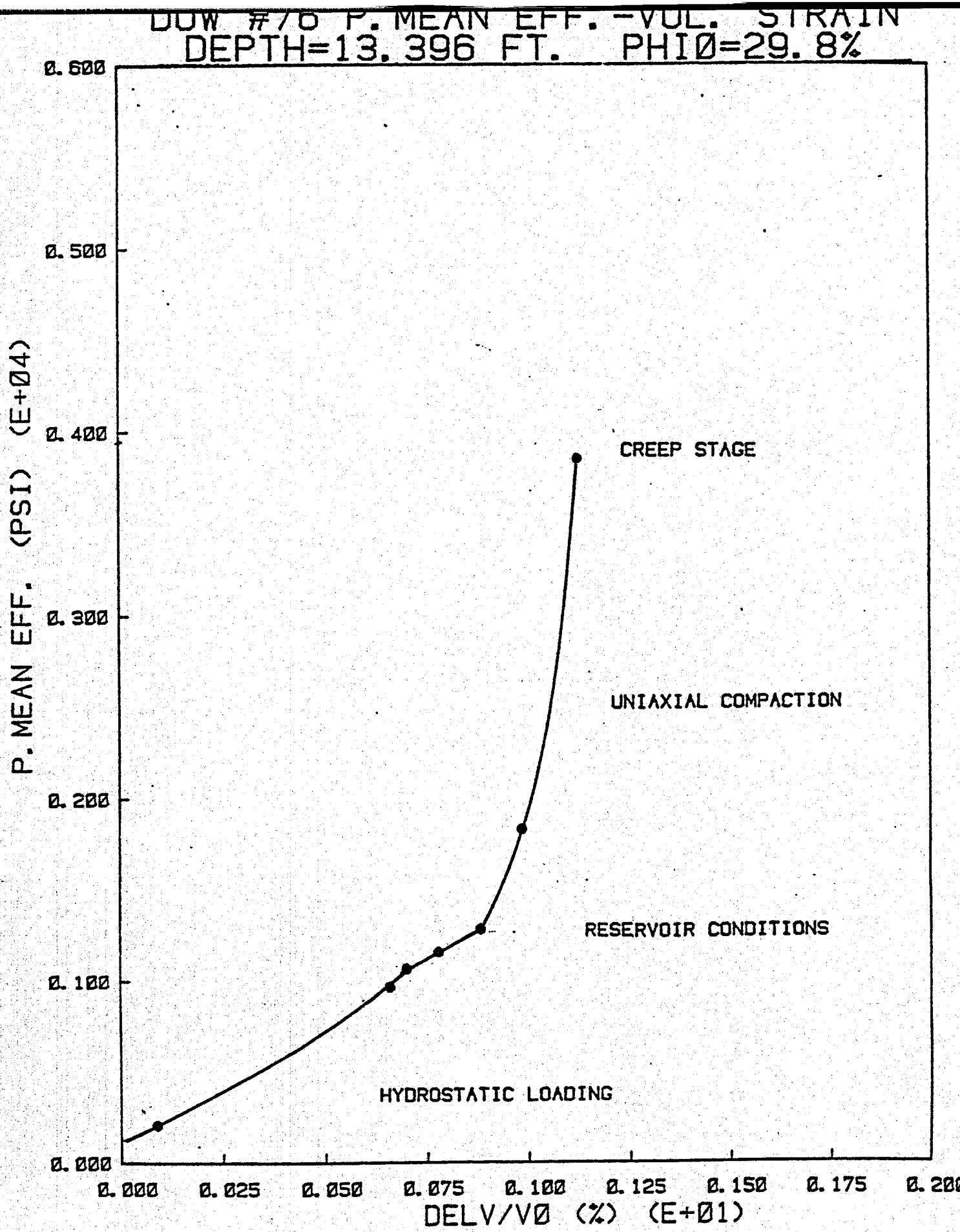

DOW #71A DEVIATORIC STRESS-STRAINS
DEPTH=13,393 FT. PHI0=29.6%
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (PSI) (E+04)
-.150
-.100
-.050
0.000
0.050
0.100
0.150
E3 (%)
E1 (%) (E+00)

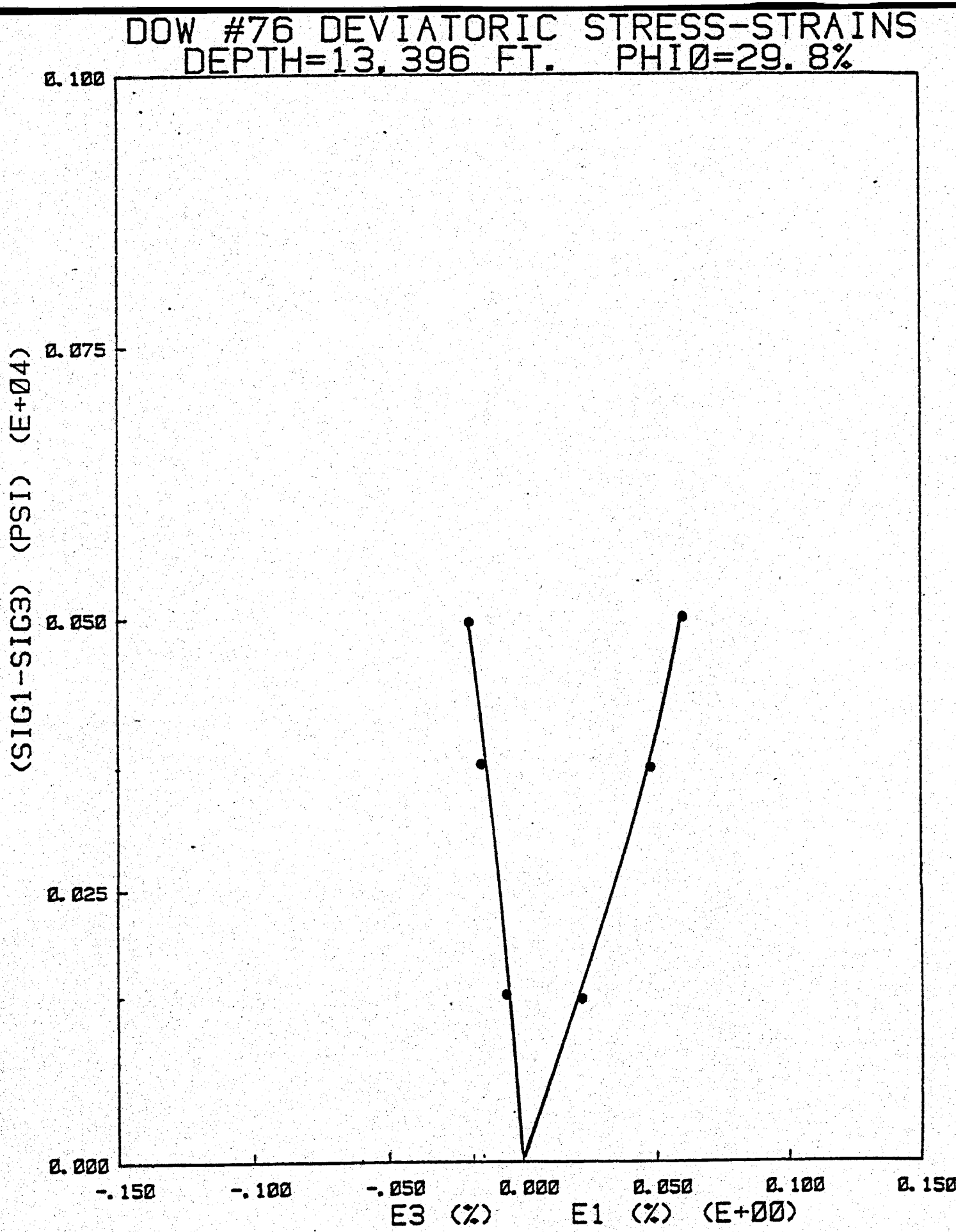

DOW #71A CREEP CURVES
DEPTH=13,393 FT. PHI0=29.6%
CREEP STRAIN (%) (E+00)
0.400
0.300
0.200
0.100
0.000
-.100
VOLUMETRIC STRAIN
AXIAL STRAIN
LATERAL STRAIN
0
1
2
3
4
5
6
7
8
TIME (DAYS)

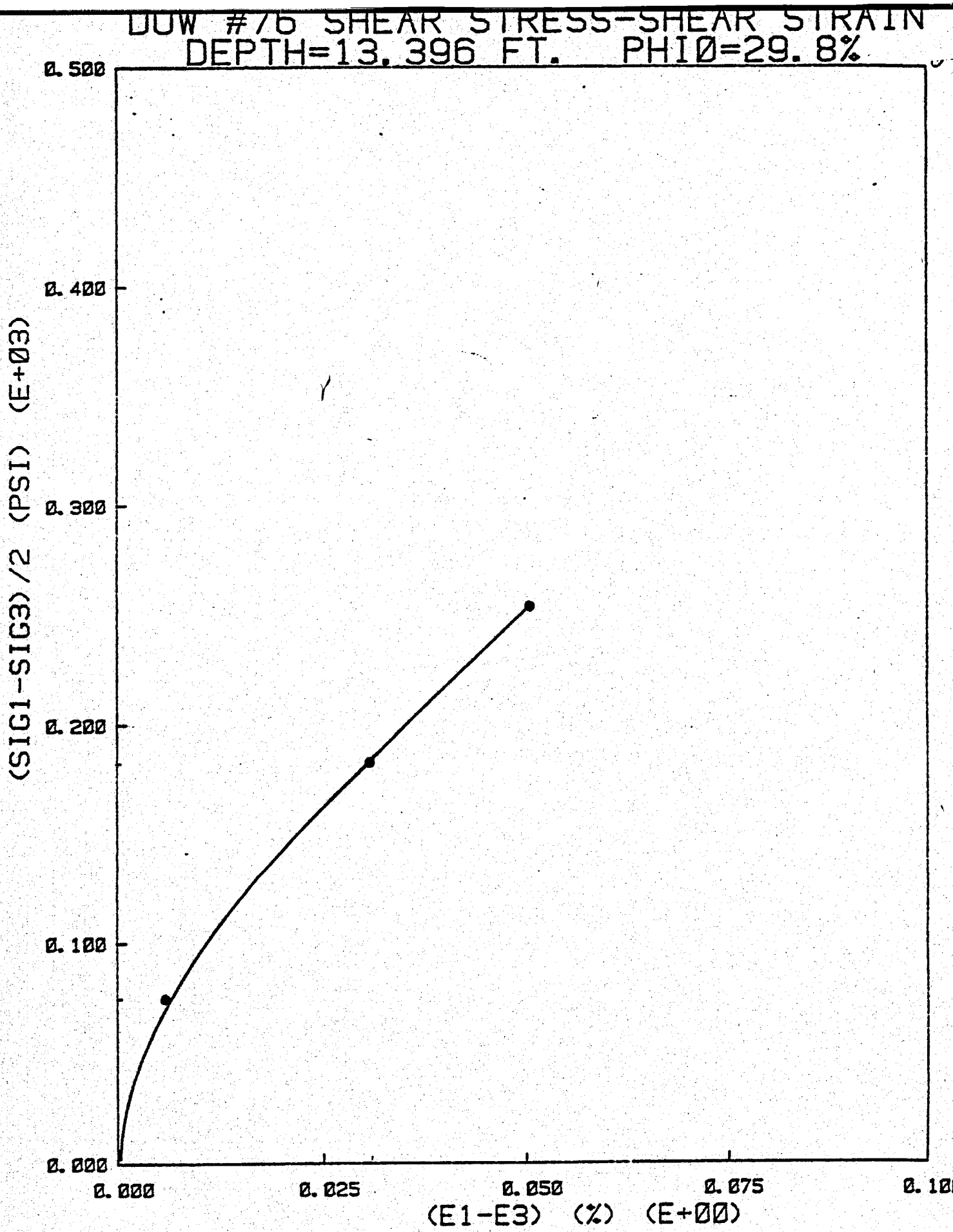

DOW #67B SHEAR STRESS-SHEAR STRAIN
DEPTH=13,389 FT. PHI0=30.1%
0.500
0.400
0.300
0.200
0.100
0.000
(SIG1-SIG3)/2 (PSI) (E+03)
0.000
0.025
0.050
0.075
0.100
(E1-E3) (%) (E+00)

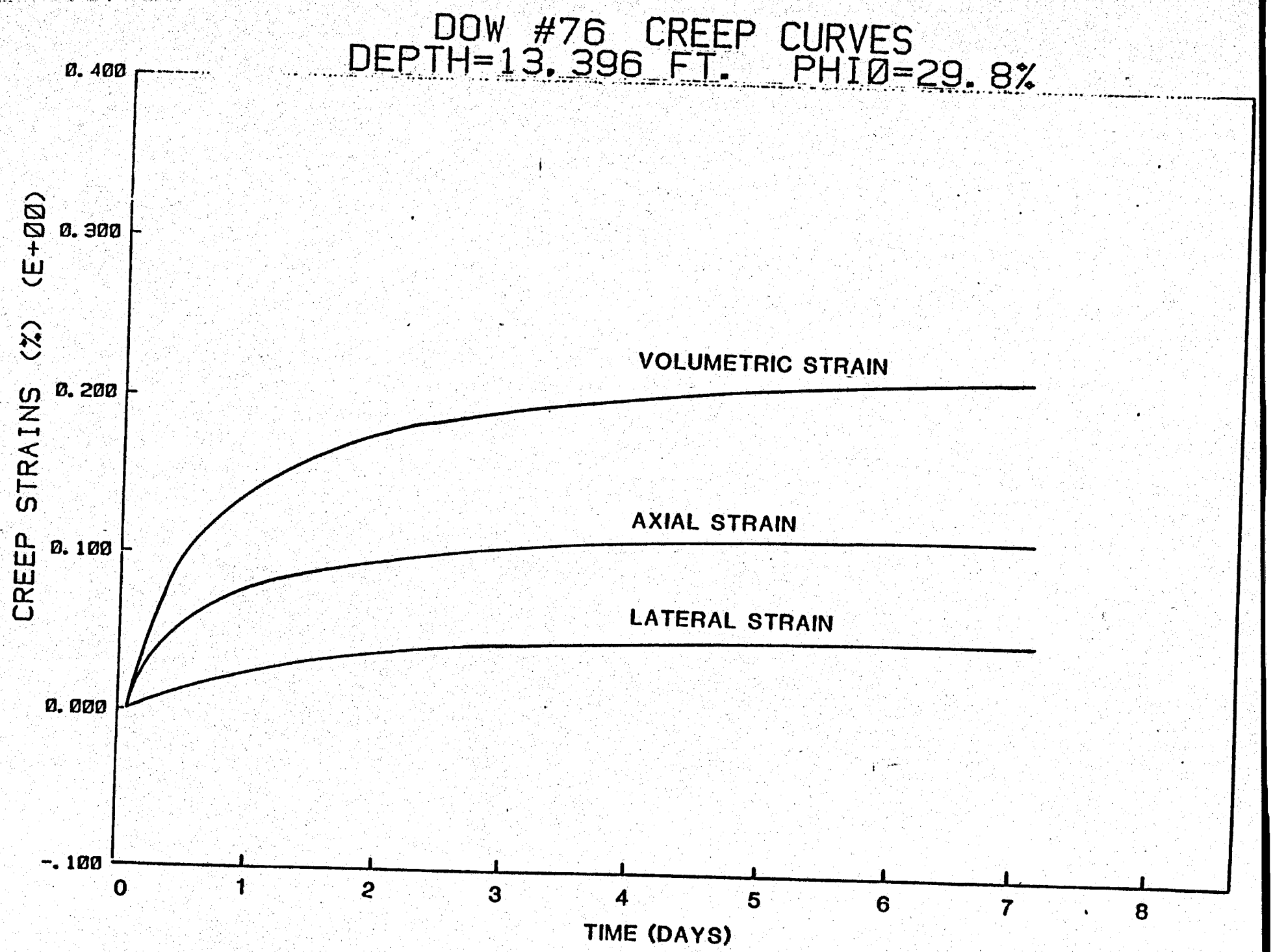

DOW #67B DEVIATORIC STRESS-STRAINS
DEPTH=13,389 FT. PHI0=30.1%
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (PSI) (E+04)
-.150
-.100
-.050
0.000
0.050
0.100
0.150
E3 (%)
E1 (%) (E+00)

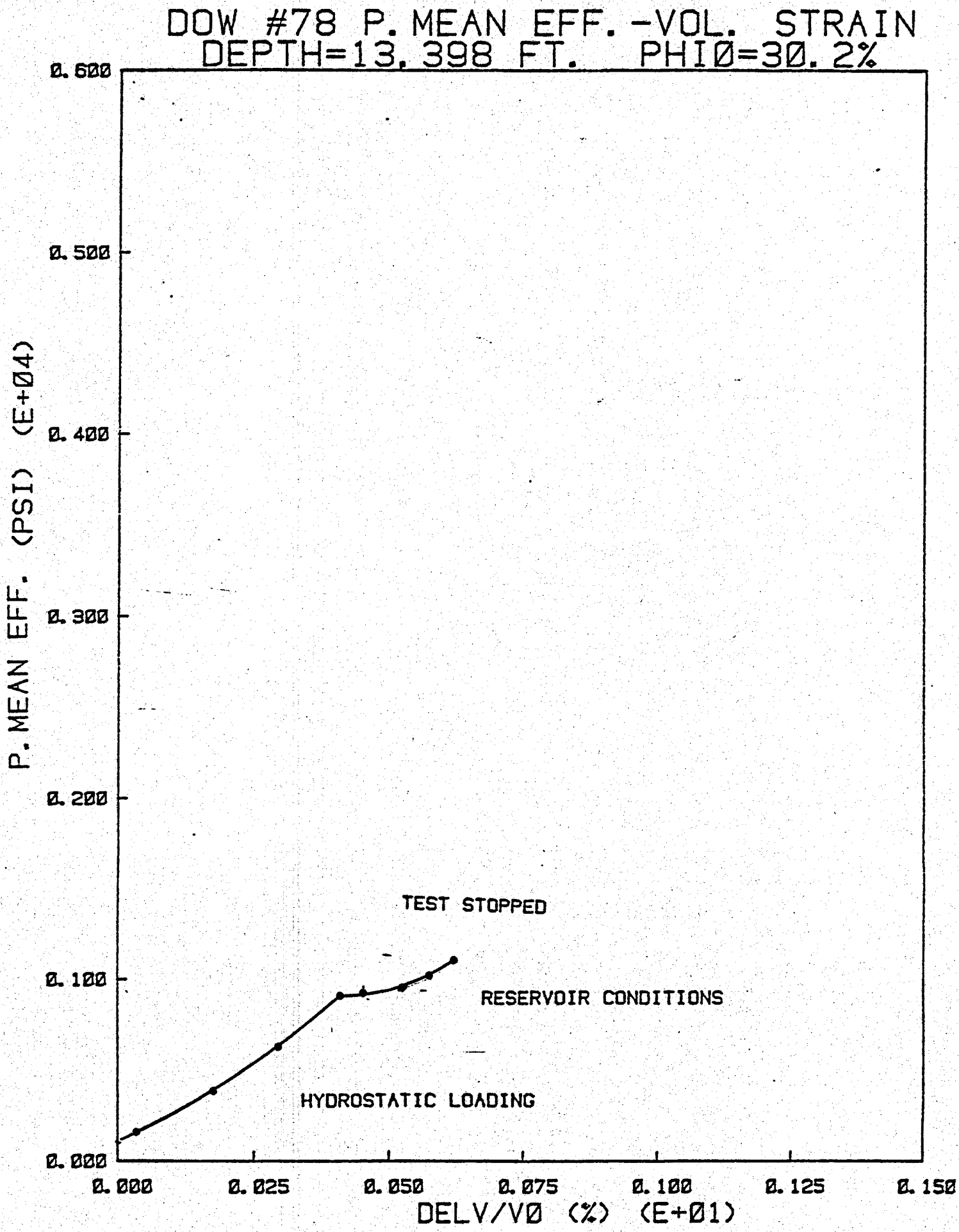

DOW #67B CREEP CURVES
DEPTH=13,389 FT. PHIØ=3Ø.1%
CREEP STRAIN (%)(E-01)
3
2
1
0
-1
VOLUMETRIC
AXIAL
LATERAL
0
1
2
3
4
5
TIME(DAYS)

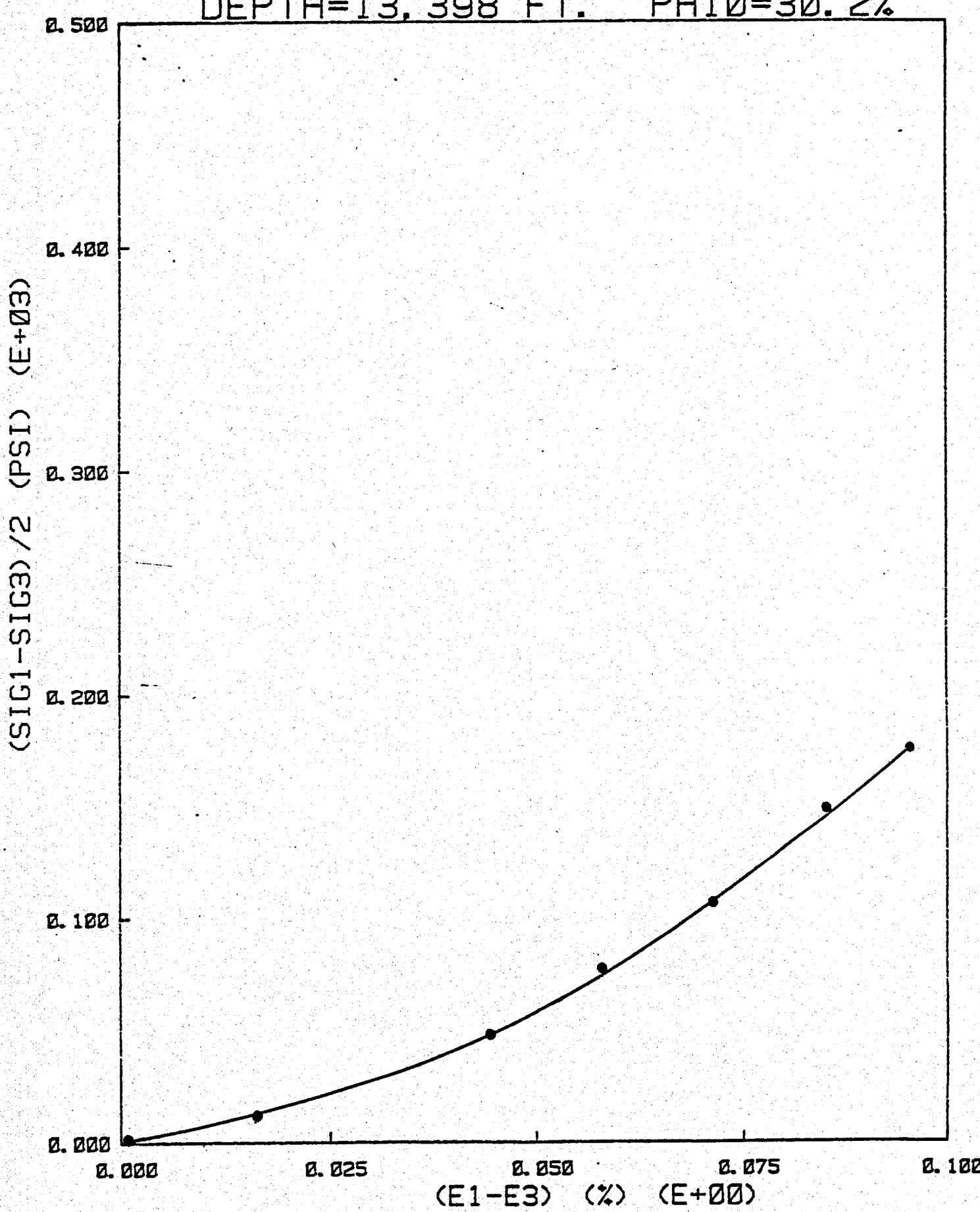

DOW #76 P.MEAN EFF.-VOL. STRAIN
DEPTH=13.396 FT. PHI0=29.8%
P.MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
CREEP STAGE
UNIAXIAL COMPACTION
RESERVOIR CONDITIONS
HYDROSTATIC LOADING
0.000
0.025
0.050
0.075
0.100
0.125
0.150
0.175
0.200
DELV/V0 (%) (E+01)

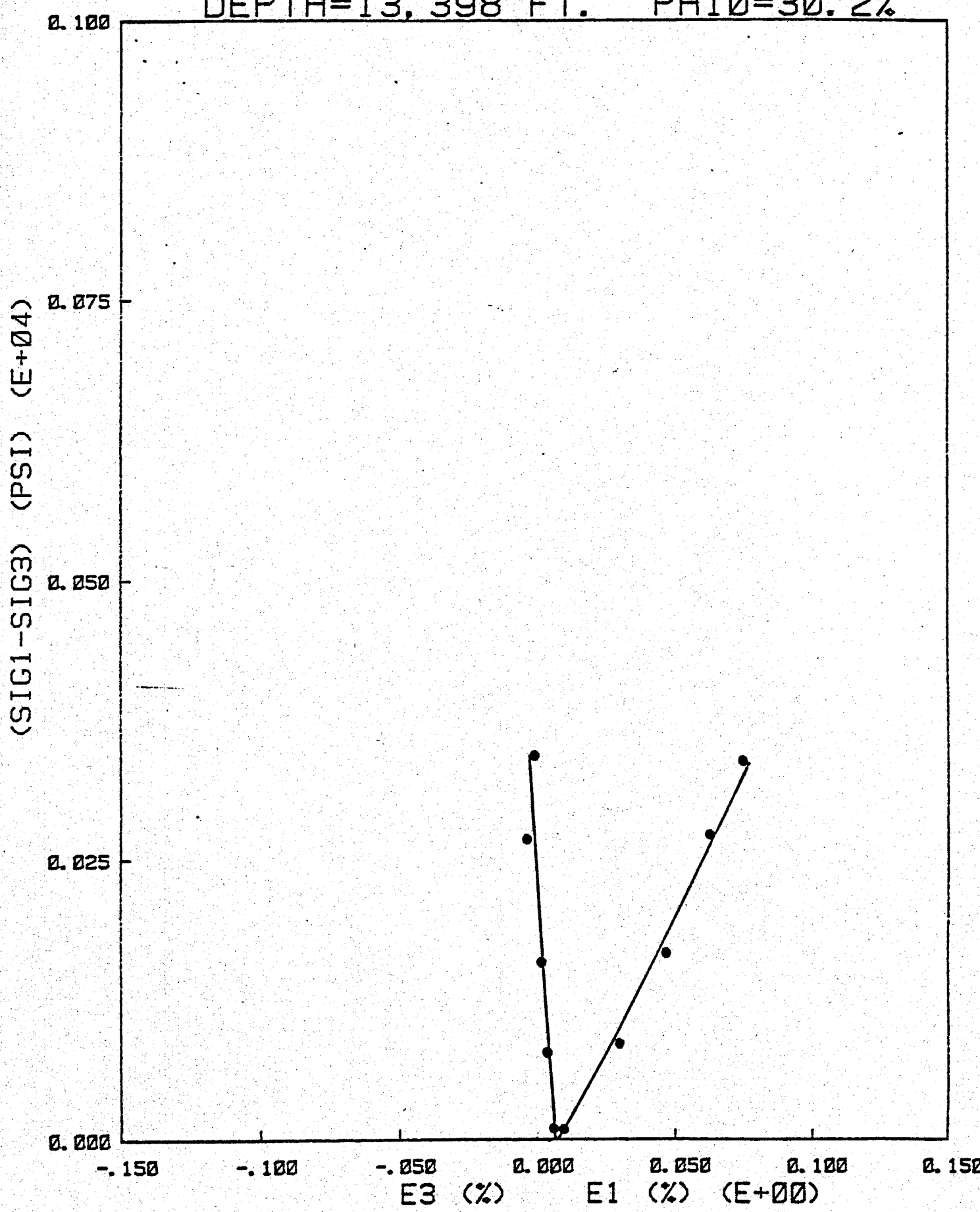

DOW #76 DEVIATORIC STRESS-STRAINS
DEPTH=13,396 FT. PHI0=29.8%
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (PSI) (E+04)
-.150
-.100
-.050
0.000
0.050
0.100
0.150
E3 (%)
E1 (%) (E+00)

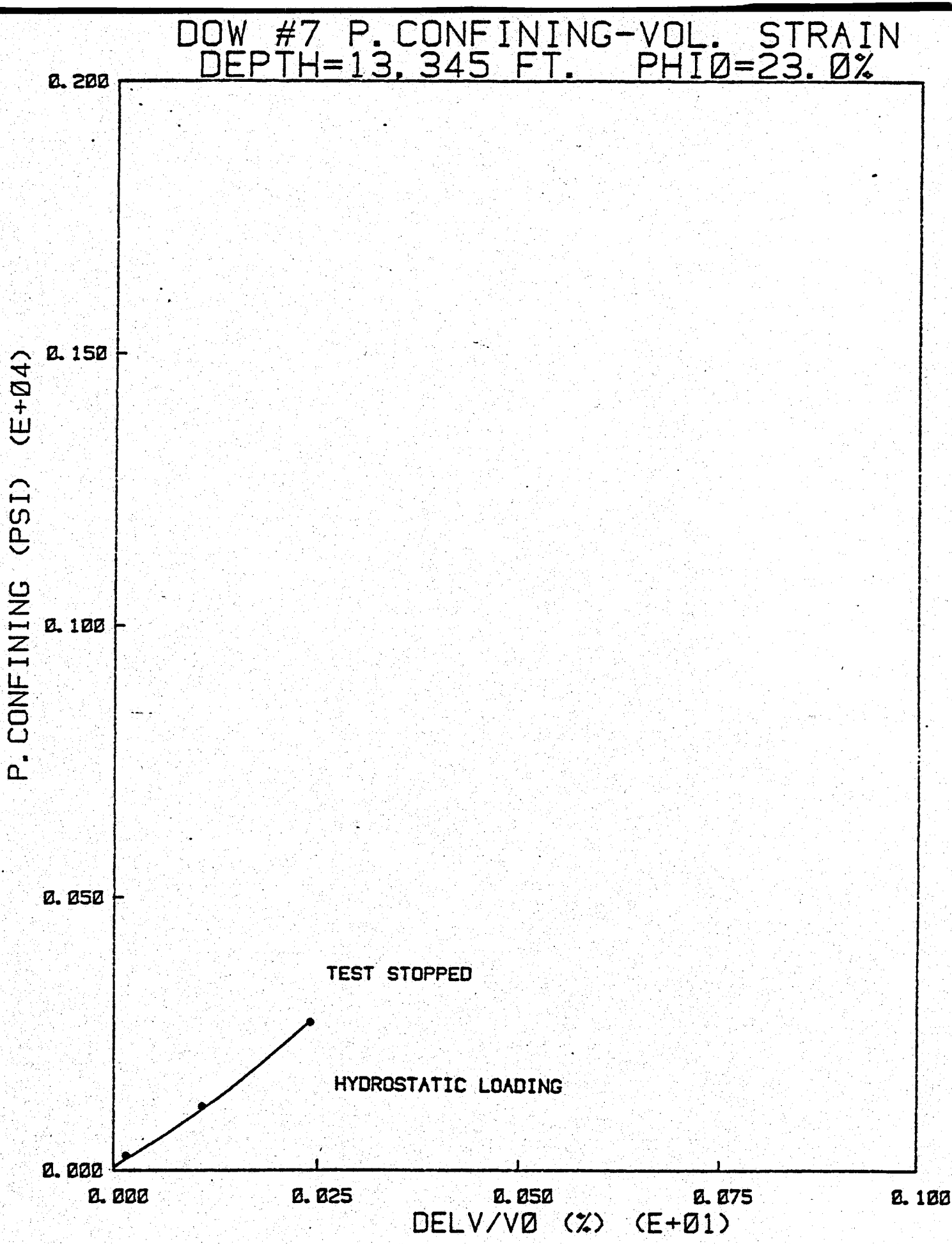

DOW #76 SHEAR STRESS-SHEAR STRAIN
DEPTH=13.396 FT. PHI0=29.8%
0.500
0.400
0.300
0.200
0.100
0.000
(SIG1-SIG3)/2 (PSI) (E+03)
0.000
0.025
0.050
0.075
0.10
(E1-E3) (%) (E+00)

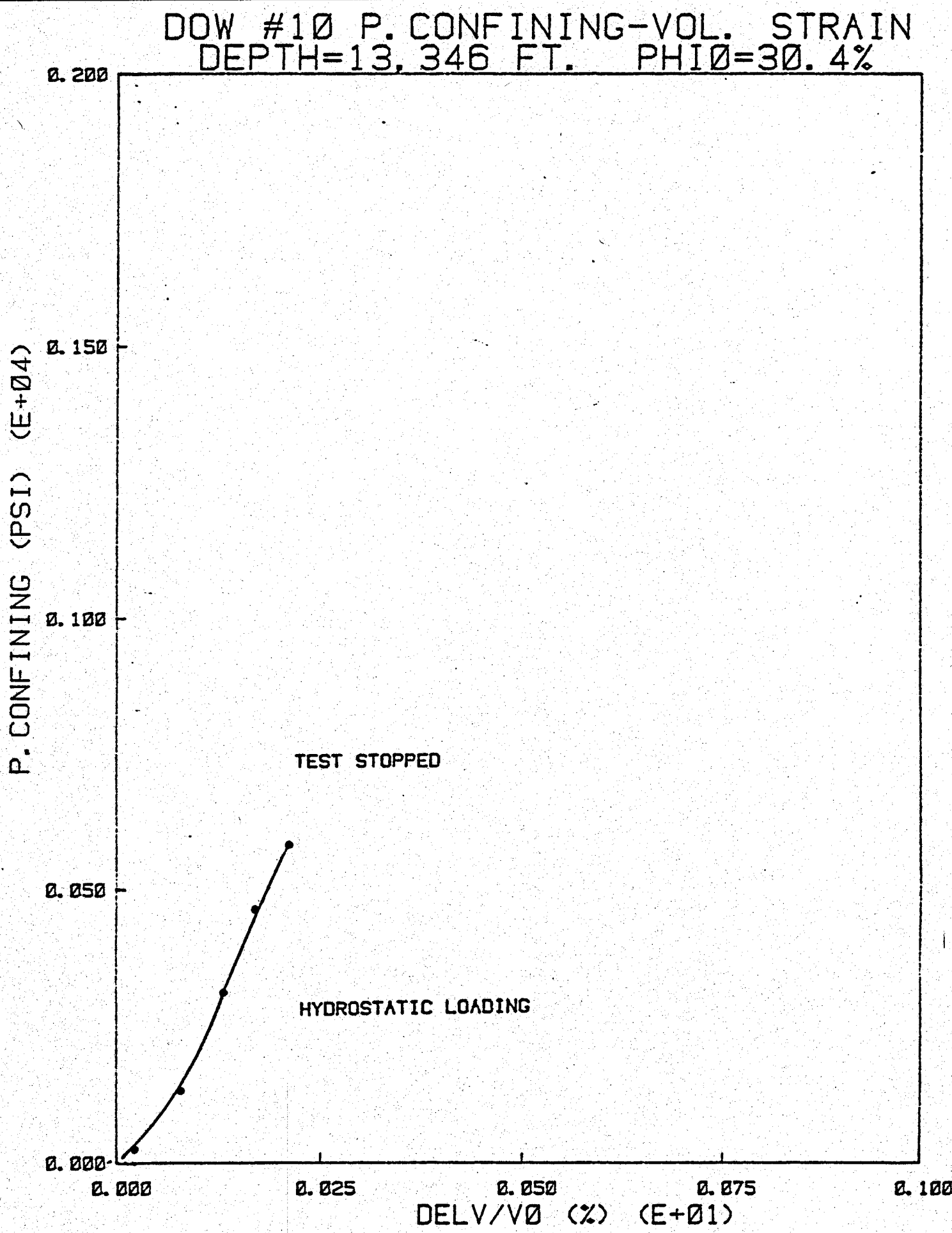

DOW #76 CREEP CURVES
DEPTH=13,396 FT. PHI0=29.8%
CREEP STRAINS (%) (E+00)
0.400
0.300
0.200
0.100
0.000
-.100
VOLUMETRIC STRAIN
AXIAL STRAIN
LATERAL STRAIN
0
1
2
3
4
5
6
7
8
TIME (DAYS)

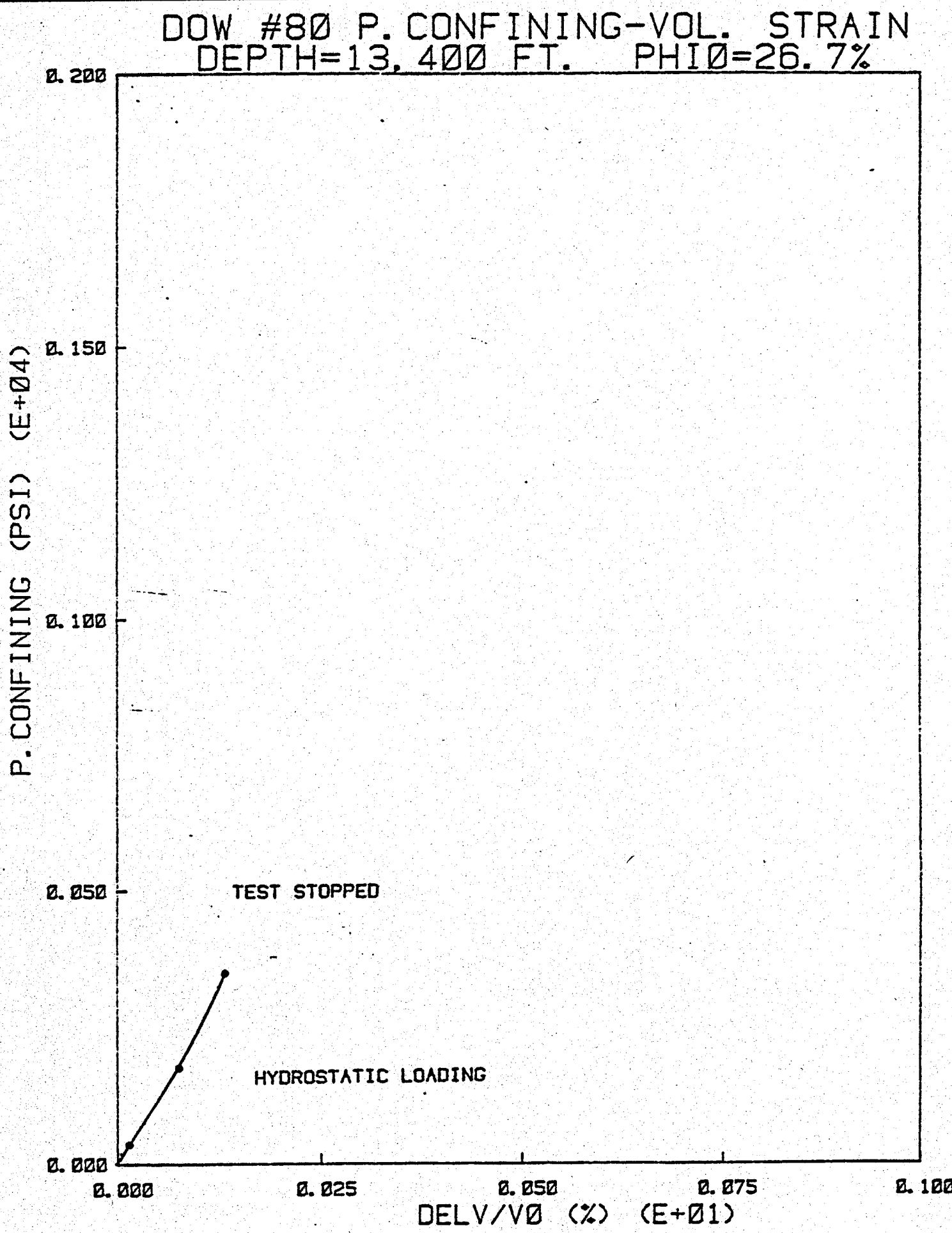

DOW #78 P. MEAN EFF. -VOL. STRAIN
DEPTH=13,398 FT. PHI0=30.2%
P. MEAN EFF. (PSI) (E+04)
0.600
0.500
0.400
0.300
0.200
0.100
0.000
TEST STOPPED
RESERVOIR CONDITIONS
HYDROSTATIC LOADING
0.000
0.025
0.050
0.075
0.100
0.125
0.150
DELV/V0 (%) (E+01)


DOW #78 SHEAR STRESS-SHEAR STRAIN
DEPTH=13,398 FT. PHI0=30.2%
0.500
0.400
0.300
0.200
0.100
0.000
(SIG1-SIG3)/2 (PSI) (E+03)
0.000
0.025
0.050
0.075
0.100
(E1-E3) (%) (E+00)


DOW #78 DEVIATORIC STRESS-STRAINS
DEPTH=13,398 FT. PHI0=30.2%
0.100
0.075
0.050
0.025
0.000
(SIG1-SIG3) (PSI) (E+04)
-.150
-.100
-.050
0.000
0.050
0.100
0.150
E3 (%)
E1 (%) (E+00)


DOW #7 P. CONFINING-VOL. STRAIN
DEPTH=13,345 FT. PHI0=23.0%
0.200
0.150
0.100
0.050
0.000
P. CONFINING (PSI) (E+04)
TEST STOPPED
HYDROSTATIC LOADING
0.000
0.025
0.050
0.075
0.100
DELV/V0 (%) (E+01)


DOW #10 P. CONFINING-VOL. STRAIN
DEPTH=13,346 FT. PHI0=30.4%
P. CONFINING (PSI) (E+04)
0.200
0.150
0.100
0.050
0.000
TEST STOPPED
HYDROSTATIC LOADING
0.000
0.025
0.050
0.075
0.100
DELV/V0 (%) (E+01)


DOW #80 P. CONFINING-VOL. STRAIN
DEPTH=13,400 FT. PHI0=26.7%
P. CONFINING (PSI) (E+04)
0.200
0.150
0.100
0.050
0.000
TEST STOPPED
HYDROSTATIC LOADING
0.000
0.025
0.050
0.075
0.100
DELV/V0 (%) (E+01)

V. APPENDICES

V.2 PETROGRAPHIC DESCRIPTIONS

Detailed results of petrographic analysis for all the sandstone and shale samples are included in this appendix. The sample numbers given at the top of each sheet correspond to those mentioned in the core testing sections. The suffix C and T respectively correspond to the stages prior to and after the core testing on the particular sample.

PETROGRAPHIC DESCRIPTION: DOW 6C

ROCK TYPE: Sandstone

This rock is composed of subangular to subrounded sand grains, 0.2 to 0.5 mm in size. Sorting is good. Porosity is about 25-30%. The surface area of any one grain touching adjacent grains is about 30%. The rock is quite friable. The quartz grains have overgrowth rims, 0.003-0.02 mm wide, of optically continuous quartz. Clay platelets (illite±kaolinite) oriented perpendicularly to grain surfaces, are sparsely disseminated on grain surfaces adjacent to open pores. Pockets of kaolinite occur throughout the rock nearby to completely filling in smaller pores and as replacements of lithic fragments. The total clay content is 3-5%. Carbonate is present in rare patches as a pore filling.

MINERALS	%	OCCURRENCE
Quartz	60	Subangular to subrounded; 0.2-0.5 mm in size; most grains exhibit weakly undulatory extinction; the remainder exhibit flat extinction.
Chert	3-4	Detrital grains composed of microcrystalline quartz.
Gneissic Quartz	0.5	Grains which are aggregates of fine-grained, foliated quartz.
Orthoclase	2-3	Weakly replaced by clays.
Plagioclase	1-2	Detrital grains 30 to 50% replaced by zeolites or dissolved away; some grains are honeycombed by voids.
Rutile	0.1	Detrital
Tourmaline	0.2	Detrital
Garnet	tr	
Magnetite	0.1	
Lithic Fragments	2-3	Appear to have originally been andesite; these particles are now composed mostly of zeolites and clays and appear to have largely been dissolved away.
Zeolite	0.2	Alters feldspars; tiny crystals present in some pores.
Illite	0.1	Clay platelets on grain surfaces.
Kaolinite	3-5	On grain surfaces and completely fills some pores.
Carbonate	0.1	Fills pores.
Porosity	25-30	Voids filled with blue epoxy; evenly disseminated throughout sample.

DOW-6T

Sample 6T is virtually identical to 6C. The porosity may have been reduced slightly by compaction.

PETROGRAPHIC DESCRIPTION: DOW-7

ROCK TYPE: Sandy Siltstone

SUMMARY: Angular to subrounded, quartz sand grains, 0.2 to 0.3 mm in size, form 30-40% of this rock. The sand grains occur in clots up to 4 mm across, in annular aggregates and in linear aggregates; the occurrence of the sand grains suggests some type of bioturbation. That is, the sand grains may fill worm burrows. Angular, quartz and feldspar silt grains, 0.01 to 0.05 mm in size, comprise about 50% of this rock. The silt grains are cemented together by authigenic feldspar or zeolite, mineral or minerals with low birefringence and refractive indices slightly greater than those of quartz. The cement is too fine-grained to identify optically.

No veins or fractures occur in this sample.

MINERALS	%	OCCURRENCE
Quartz	30-35	Sand grains, 0.2 to 0.3 mm in size; angular to subrounded; about 80% exhibit weak to moderate undulatory extinction; about 1% are derived from well-foliated, gneissic quartz--these grains are multicrystalline; overgrowth rims of optically continuous quartz up to 0.02 mm wide occur on most quartz sand grains.
	30-40	Silt grains, 0.01-0.05 mm; very angular.
Chert	1	Sand grains, 0.2-0.3 mm in size; composed of microcrystalline quartz.
Feldspar	10-20	Silt grains; very angular; 0.01-0.05 mm; albite-twinning seen in a few grains.
Cement	10-15	Authigenic feldspar and/or zeolite; very fine-grained; refractive indices slightly greater than those of quartz; birefringence low first order grey.
Kaolinite	2	Crystals up to 0.1 mm long; authigenic?; fills some pore spaces.
Porosity	3-5	This thin-section has not been impregnated by a colored epoxy; the voids observed may be original or artifacts of thin-section making; most of voids observed occur among clusters of sand grains--these clusters are isolated in seas of silt grains, therefore permeability is probably very low.
Garnet	0.1	Detrital grains.
Tourmaline	0.2	Detrital grains.
Carbonate	0.1	Tiny rhombs; cement?
Goethite	1	Tiny blebs disseminated throughout rock; authigenic?
Rutile	0.1	Detrital.
Muscovite	tr	Detrital.

PETROGRAPHIC DESCRIPTION: DOW-10

ROCK TYPE: Sandstone

SUMMARY: Subangular to subrounded sand grains, 0.2 to 0.4 mm in size, form most of this rock; the sand grains are predominantly quartz. The quartz sand grains have overgrowth rims of optically continuous quartz; the rims average 0.01 mm in width. The sand grains have been weakly to moderately compacted; about 20-50% of the surface area of any grain is touching adjacent grains. Kaolinite, carbonate and an unidentified mineral fill some interstitial spaces. Porosity is about 25-30%.

No veins or fractures occur in this sample.

MINERALS	%	OCCURRENCE
Quartz	60	Sand grains, 0.2 to 0.4 mm in size; subangular to subrounded; about half of the grains exhibit weak to moderate undulatory extinction; overgrowth rims of optically continuous quartz average about 0.01 mm in width.
Chert	1-2	Sand grains, 0.2 to 0.4 mm in size; subangular to subrounded; composed of microcrystalline quartz.
Plagioclase	1	Sand grains, 0.2 to 0.4 mm; subangular; albite-twinned.
Muscovite	1	Detrital grains.
Pyroxene?	0.5	Detrital grains.
Clay Clasts	0.5-1	Sand-sized clasts composed of clays; originally volcanic glass?
Rutile	tr	Detrital.
Orthoclase	0.5	Crystal clasts and fragments from rhyolites or aplites.
Tourmaline	0.1	Detrital clasts.
Carbonate	0.2	Fills some interstitial spaces.
Kaolinite	5-7	Fine-grained material which fills interstitial spaces.
Unknown	1	Authigenic cement; birefringence first order yellow, high indices of refraction--much greater than quartz; 2 V = 70-80°, opt +, occurs in tabular crystals with parallel extinction. Probably a sulfate, anglesite?
Porosity	25-30	This rock has not been impregnated by colored epoxy; the estimate of porosity includes original voids and areas of plucking developed during thin-section making.

PETROGRAPHIC DESCRIPTION: DOW-33C

ROCK TYPE: Sandstone

Angular to subrounded sand grains averaging 0.2 mm in size form most of this rock. Sorting is good. Porosity is about 25%. The rock is friable. The quartz grains have some very irregular surfaces suggesting dissolution; other surfaces have rims of optically continuous secondary quartz 0.005-0.02 mm wide. Plagioclase and orthoclase grains have been 30-60% replaced by zeolites and minor clays on their interiors; their exteriors have ragged borders indicating dissolution. Trace amounts of illite occur as grain surfaces adjacent to open pores; these clay plates are oriented nearly perpendicularly to grain surfaces. The pores occupied by kaolinite are usually completely filled with kaolinite; it is not common for kaolinite to only partially fill pores. Some kaolinite appears to be after original lithic fragments. No lithic fragments are present or recognizable as such; if any were present they have been dissolved away or replaced by clays. A trace of carbonate is present as pore fillings.

MINERALS	%	OCCURRENCE
Quartz	60	Angular to subrounded detrital grains; most grains exhibit weak to mild undulatory extinction; the remainder have flat extinction.
Chert	3	Detrital grains composed of microcrystalline quartz.
Orthoclase/ microcline	2-3	Detrital grains 30-60% replaced by zeolites and minor clays; irregular surfaces on grains suggest dissolution.
Plagioclase	1-2	Same as above.
Tourmaline	0.1	Detrital
Pyrite	tr	Specks occur in clay-altered grains.
Rutile/ leucoxene	tr	Detrital
Magnetite	tr	Detrital
Carbonate	tr	Fills pores.
Illite	0.5-1	Platelets perpendicular to grain surfaces; has also replaced primary muscovite and biotite grains.
Zeolites	0.5-1	Replace feldspar; occasionally occur as partial pore filling.
Kaolinite	3-5	Occurs as pore filling.
Porosity	25	

DOW-33T

33T is essentially the same as 33C. Porosity may be slightly less in 33T as compared to 33C.

PETROGRAPHIC DESCRIPTION: DOW-35C

ROCK TYPE: Sandstone

This rock is composed of angular to subangular particles, 0.1 to 0.6 mm in size; the average grain size is about 0.2 mm. Sorting is fair. Porosity is about 30%. The most common pore filling is kaolinite. Pockets of smectite±chlorite also occur. It is sometimes difficult to decide whether the smectites are pore fillings or replacements of lithic fragments; apparently both types of occurrences are present. Smectite±chlorite also occur as a thin rind (0.005 mm) on some quartz particles. Total clay content of the rock is about 10%. Most quartz particles have overgrowth rims of optically continuous quartz; the rinds range between 0.003 and 0.010 mm in thickness. On many quartz grains the overgrowth rinds appear to have been dissolved; irregularly surfaced pits interrupt the overgrowth rim. The exterior surfaces of the overgrowth rims or dissolution surfaces are partially covered by tiny platelets of clay (illite?, kaolinite?) oriented at a high angle to the grain surface; these clays are sparse. Tiny zeolite crystals are sometimes associated with the clay platelets; zeolites completely line some pores. Plagioclase grains have been partially replaced by zeolite; the exterior surfaces of plagioclase grains are in part highly irregular or pitted suggesting dissolution. All volcanic lithic fragments have been replaced by smectite±chlorite±quartz.

MINERALS	%	OCCURRENCE
Quartz	50	Angular to subangular; 0.1-0.6 mm; grains exhibit flat to mildly undulatory extinction.
Gneissic Quartz	1-2	Polycrystalline clasts composed of fine-grained, foliated quartz.
Chert	2	Detrital grains.
Orthoclase	1-2	Detrital; partially replaced by zeolite.
Plagioclase	3	Detrital; partially replaced by zeolite; has some ragged dissolution surfaces.
Rutile	tr	Detrital
Glauconite	0.2	Pellets of bright green clay.
Biotite/ Muscovite	0.5	Detrital flakes; usually bent around other grains; usually expanded by hydration.
Illite	0.5-1	Sparsely disseminated in pores; sometimes as alteration product of feldspar.
Smectite ±chlorite	5	Alteration product of lithic fragments; partially fills some pores; sometimes rims detrital particles; very fine-grained; pale greenish to brownish in plane light; up to first order yellow birefringence.
Pyrite	0.1	Most occurs in clay-altered lithic fragments.
Zeolites	1-2	Alteration product of feldspar; also sometimes a pore filling.
Goethite	0.1	Tiny blebs, after magnetite?

MINERALS	%	OCCURRENCE
Kaolinite	5-7	Pore filler; grains up to 0.1 mm in size.
Porosity	30	Rock has not been impregnated with colored epoxy; voids are uneven in size and distribution--this suggests that some grains may have been dissolved, i.e., secondary porosity; the irregular voids could also be artifacts, products of plucking during thin-section making.

DOW-35T

No differences were observed between 35C and 35T.

PETROGRAPHIC DESCRIPTION: DOW-41C

ROCK TYPE: Sandstone

This rock is composed of angular to subrounded clasts ranging between 0.1 and 0.9 mm in size. The average grain size is about 0.5 mm. Sorting is good. The rock is quite friable. Porosity is about 30-35%. Very few pores are filled, those few that are filled contain zeolites and/or kaolinite. The quartz grains have 0.001 to 0.01 mm wide overgrowth rims which are interrupted by dissolution pits. Clay platelets, 1 to 3 μm in size, on the surfaces of the clasts are arranged in "card-house"-type structures up to three layers thick. Zeolites form discontinuous rims up to 0.01 mm wide exterior to the quartz overgrowths. Zeolites also partially replace feldspars. Plagioclase clasts have suffered extensive dissolution, up to 60%. Volcanic clasts have been largely replaced by smectite±chlorite, ±quartz and have been honeycombed by dissolution.

MINERALS	%	OCCURRENCE
Quartz	50-55	Angular to subrounded; exhibits flat to mildly undulatory extinction.
Chert	1	Detrital.
Gneissic Quartz	2	Polycrystalline clasts of fine-grained, foliated quartz.
Orthoclase	1-2	Partially replaced by zeolites.
Plagioclase	2-3	Partially replaced by zeolites; some grains have been honeycombed by dissolution.
Muscovite	0.5	Detrital flakes.
Tourmaline	tr	Detrital
Pyrite	tr	Occurs in some clasts.
Carbonate	tr	In pores.
Smectite ±chlorite	1-2	Alteration product of volcanic fragments.
Kaolinite	2-3	Fills pore.
Zeolite	1-2	Alteration product of feldspar; lines and fills pores.
Porosity	30-35	Voids filled with blue epoxy.

DOW-41T

Sample 41T is petrographically the same as 41C.

PETROGRAPHIC DESCRIPTION: DOW-42C

ROCK TYPE: Sandstone

This sandstone is composed of subangular to subrounded clasts averaging 0.25 mm in size. Sorting is good. Consolidation/cementation is poor; the rock is quite friable. In thin-section, the grains appear to have less than 30% of their surface areas touching adjacent grains. Porosity is about 25%. The detrital quartz grains have rims up to 0.03 mm wide composed of subhedral to euhedral quartz crystals which are optically continuous with clastic quartz. Coatings of a brown clay occur on some grain surfaces bounding open pores. Kaolinite, up to 0.02 mm grain size, fills some of the smaller pores; if kaolinite is present in a pore it usually fills it up completely.

MINERALS	%	OCCURRENCE
Quartz	60	Originally subangular to subrounded; now have overgrowth rims of quartz and sometimes thin coatings of a brown clay. Most grains exhibit moderate undulatory extinction. Polycrystalline, foliated quartz grains derived from gneissic rocks comprise ~2% of these grains.
Chert	2-3	Detrital grains composed of very fine-grained, anhedral quartz.
Orthoclase	3	
Plagioclase	2-3	Partially replaced by zeolite.
Muscovite	0.5	Detrital flakes.
Tourmaline	tr	
Zircon	tr	
Volcanic Fragments	5	Largely clay-replaced (chlorite±smectite).
Carbonate	tr	Tiny blebs in pore spaces.
Zeolite	0.2	Partially replaces plagioclases; rarely in pore spaces.
Illite	tr	Coats a few grains.
Kaolinite	2-3	Occupies pores; up 0.02 mm grain size.
Porosity	25	

DOW-42T

Sample 42T is very similar to 42C. Porosity may have been reduced in 42T by a small fraction due to compaction.

PETROGRAPHIC DESCRIPTION: DOW-67C

ROCK TYPE: Lithic Sandstone

The sand grains are usually between 0.10 and 0.15 mm in size although grains up to 0.2 mm in size form about 10% of the rock. Sorting is fair. The particles are angular to subangular in shape. Porosity is unevenly distributed throughout the rock; voids as large as 0.3 mm are present but the usual pore size is about 0.03 mm. The large pores may be artifacts, i.e., areas of plucking developed when the rock was sawn. More probably the voids are sites of dissolved particles. Porosity appears to be about 15%. Volcanic lithic fragments which were probably glassy, originally formed about 10% of the rock; these fragments have been replaced by quartz, feldspar and clays. Clays in pore spaces and after lithic fragments comprise about 15% of the rock.

Authigenic rims, 0.003-0.005 mm wide, of subhedral to euhedral quartz crystals occur on most quartz clasts. The quartz is optically continuous with the grain quartz. Projecting into open pores are sprays of clay/mica crystals 0.001-0.005 mm in size, which are oriented perpendicularly to detrital grain surfaces. Subhedral to euhedral, lathlike crystals of zeolite, 0.005-0.01 mm in size, occur in some pores. Completely filled pores contain kaolinite or less commonly what appears to chlorite or smectite; the two clay types are usually not together.

MINERALS	%	OCCURRENCE
Quartz	50	Angular to subangular detrital grains; exhibits flat to weakly undulatory extinction.
Chert	2-3	Detrital clasts, 0.05-0.2 mm.
Orthoclase/ microcline	3-5	
Plagioclase	5-7	Partially replaced by zeolites.
Glauconite	0.5	Bright green blebs composed of fine-grained clays.
Lithic fragments	10-15	Originally from volcanic rocks which were partially to completely glassy; now composed of feldspar, ±quartz±clays (chlorite/smectite, ±illite).
Andesite fragments	tr	
Carbonate	2	Clasts usually; sometimes cement.
Muscovite/ biotite	0.5	Detrital flakes.
Zircon	0.1-0.2	Detrital.
Tourmaline	0.3	Dark green; dark brown; detrital.
Rutile/ leucoxene	0.5	Semi-transparent to opaque; white to reddish in reflected light; detrital.
Magnetite	0.1-0.2	Detrital.
Pyrite	0.1	Locally cements sand grains.
Kaolinite	7-10	Most occurs as filling of pore spaces; some may have replaced lithic fragments.

MINERALS	%	OCCURRENCE
Zeolite	0.5-1	In pore spaces and partially replaces some plagioclase grains.
Porosity	15	Voids filled with blue epoxy.

DOW-67T

No perceivable differences were observed between the two samples 67C and 67T.

PETROGRAPHIC DESCRIPTION: DOW-68C

ROCK TYPE: Silty Sandstone

Angular to subangular, detrital particles 0.04 to 0.25 in size constitute most of this rock; average grain size is about 0.1 mm. The particles are moderately well sorted. Porosity is about 15%. Interstices are usually partially filled with clays±zeolites. Completely filled pores are not common; they may be filled by zeolites and/or clays or rarely carbonate. The quartz grains have rims of optically continuous quartz, 0.003 to 0.02 mm wide; the rims are usually less than 0.01 mm in width. Rims of clay platelets are exterior to the quartz rim; zeolite crystals may be intergrown with clays or exterior to them. Smectite ±kaolinite occur in the clay rims. Volcanic clasts (andesites) have been 30 to 100% replaced by smectites±chlorite±zeolites±quartz. Latite particles have been weakly illite altered. Total clay content of the rock is about 10%.

MINERALS	%	OCCURRENCE
Quartz	50-55	Angular to subangular; most grains exhibit flat extinction, the remainder exhibit mildly undulatory extinction.
Chert	3-5	Composed of microcrystalline quartz.
Gneissic Quartz	1	Polycrystalline, foliated quartz grains.
Orthoclase/ Microcline	5	
Plagioclase	3	Partially replaced by zeolite.
Muscovite	0.3	
Biotite	0.2	
Tourmaline	0.2	
Glauconite	0.1	Fine-grained, bright green clay which occur in rounded aggregates.
Lithic Particles	5-7	Volcanic particles, both andesite and latites.
Zircon	0.5	Detrital
Pyrite	tr	
Rutile/ Leucoxene	0.5-1	Detrital; semi-transparent to opaque in transmitted light; white to reddish in reflected light.
Illite	0.5	Alteration product of feldspar in latite volcanic particles.
Carbonate	0.3	Fills pores.
Smectite ±chlorite	5	Alteration product of volcanics; rims some quartz particles.
Kaolinite	5	
Zeolites	2	Occupy pores; rim particles; partially replace plagioclase grains.
Porosity	15	Voids.

PETROGRAPHIC DESCRIPTION: DOW-68T

68T is very similar to 68C; no petrographic differences were observed.

PETROGRAPHIC DESCRIPTION: DOW-71C

ROCK TYPE: Sandstone

The sand grains average about 0.15 mm in size. The particles are subangular and fairly well sorted. Porosity averages about 20%. About two thirds of the quartz grains have narrow (0.01 mm) rims of optically continuous, subhedral to euhedral quartz. Rinds less than 0.005 mm thick, comprised of subhedral to euhedral crystals of a mineral with low relief and low birefringence (zeolite?) are present on the remainder of the quartz and feldspar sand grains. A very fine-grained, brownish clay sometimes occurs intermixed with or in place of the zeolite rim.

MINERALS	%	OCCURRENCE
Quartz	55	Angular to subangular grains ranging between 0.1 and 0.2 mm in size. No polycrystalline grains are included here. Extinction is flat to mildly undulatory.
Chert	5-7	Clasts composed of microcrystalline quartz.
Orthoclase	7	
Plagioclase	3-5	Partially replaced by zeolites.
Volcanic Rock Fragments	3	Rhyolitic porphyries both crystalline and glassy; weakly to moderately clay altered.
Metamorphic Fragments	0.5	Clasts of quartz-sericite phyllite.
Muscovite	1-2	Detrital flakes.
Hornblende	0.1	Brown.
Zircon	tr	Detrital.
Glauconite	<0.1	Bright green blebs of very fine-grained clay.
Tourmaline	<0.1	Brown and brown-green; detrital.
Pyrite	tr	One grain in thin-section.
Magnetite	<0.1	Opaque to transmitted light; black in reflected light.
Rutile	0.2	Clasts of rutile and leucoxene-replaced rutile. Opaque or semi-opaque to transmitted light; white, yellowish white or pale red in reflected light.
Zeolite(?)	0.5-1	Low-relief, low birefringence; subhedral to euhedral crystals form narrow rims (0.005 mm) around sand grains; also partially replaces some plagioclase grains.
Brown clay	tr	Very fine-grained; occurs in rims around sand grains.
Carbonate	0.5-1	Fills a few pores; also occurs in tiny blebs in zeolite rinds.

MINERALS	%	OCCURRENCE
Kaolinite	5-7	Fills some pores; pores occupied by kaolinite are usually completely filled.
Chlorite	0.1-0.2	Wisps in pores, associated with kaolinite.
Illite	0.1	Projects into pore spaces, usually from a partially clay-altered particle.
Porosity	20	Voids filled with blue epoxy; usually lined with quartz, zeolite, traces of clay and blebs of carbonate.

DOW-71T

Three 71T samples were examined in thin-section. No changes were observed between the C and T samples. No fractures were observed in the T samples; no differences were observed in grain coatings or pore fillings.

PETROGRAPHIC DESCRIPTION: DOW-75C

ROCK TYPE: Sandstone

This rock is composed of angular to subrounded particles 0.05 to 0.4 mm in size; the average particle size is about 0.15 mm. Sorting is moderate. Porosity is 15-20%. Pores are partially to completely filled with kaolinite ±zeolites; complete filling is uncommon. Overgrowth rims, 0.003-0.020 mm wide, of quartz are present on most quartz particles. Clay platelets are attached to surfaces of detrital particles exterior to quartz overgrowth rims. Zeolites are sometimes present in pores and as rims on particles. Volcanic clasts, now composed of smectites±quartz±zeolites, form 3-5% of the rock. Total clay content of this sandstone is about 10%.

MINERALS	%	OCCURRENCE
Quartz	55-60	Angular to subrounded; 0.05-0.4 mm in size, averaging 0.15 mm; most grains exhibit flat extinction, the remainder moderate undulatory extinction.
Chert	3	Detrital
Orthoclase/ microcline	5	
Plagioclase	3	Partially replaced by zeolites.
Biotite	0.1	Detrital flakes.
Muscovite	0.2	Detrital flakes.
Goethite/ Hematite	tr	Blebs of earthy limonite in clay-altered volcanic clasts; after magnetite.
Tourmaline	0.2	Detrital
Glauconite	0.1	Pellets composed of very fine-grained, bright green clay.
Pyrite	0.2	Blebs occur in clay-altered volcanic particles.
Rutile/ leucoxene	0.5	
Carbonate	0.2	In pores.
Illite	1	Platelets on surfaces of particles; alteration product of acidic volcanic particles.
Smectite ±chlorite	3-5	Sometimes rims particles; alteration product of volcanic clasts.
Kaolinite	5	Partially to completely fills pores.
Zeolite	0.5-1	Partially fills pores; partially replaces plagioclase particles.
Porosity	15-20	Voids filled with blue epoxy.

DOW-75T

75T is petrographically undistinguishable from 75C.

PETROGRAPHIC DESCRIPTION: DOW-76C

ROCK TYPE: Sandstone

This rock is composed of angular to subrounded particles 0.05 to 0.3 mm in size; the average particle size is about 0.15 mm. Sorting is moderate to poor. Porosity is 15-20%. Pores are partially to completely filled with kaolinite±zeolites; complete filling is uncommon. Overgrowth rims, 0.003-0.020 mm wide, of quartz are present on most quartz particles. Clay platelets are attached to surfaces of detrital particles exterior to quartz overgrowth rims. Zeolites are sometimes present in pores and as rims on particles. Volcanic clasts, now composed of smectites±quartz±zeolites, form 3-5% of the rock. Total clay content of this sandstone is about 10%.

MINERALS	%	OCCURRENCE
Quartz	55-60	Angular to subrounded; 0.05-0.4 mm in size, averaging 0.15 mm; most grains exhibit flat extinction, the remainder moderate undulatory extinction.
Chert	3	Detrital
Orthoclase/ microcline	5	
Plagioclase	3	Partially replaced by zeolites
Biotite	0.1	Detrital flakes
Muscovite	0.2	Detrital flakes
Goethite/ Hematite	tr	Blebs of earthy limonite in clay-altered volcanic clasts; after magnetite.
Tourmaline	0.2	Detrital
Glauconite	0.1	Pellets composed of very fine-grained, bright green clay.
Pyrite	0.2	Blebs occur in clay-altered volcanic particles.
Rutile/ leucoxene	0.5	
Carbonate	0.4	In pores
Illite	1	Platelets on surfaces of particles; alteration product of acidic volcanic particles.
Smectite ±chlorite	3-5	Sometimes rims particles; alteration product of volcanic clasts.
Kaolinite	7	Partially to completely fills pores
Zeolite	0.5-1	Partially fills pores; partially replaces plagioclase particles.
Porosity	15-20	Voids filled with blue epoxy.

PETROGRAPHIC DESCRIPTION: DOW-78C

ROCK TYPE: Sandstone

Angular detrital clasts, 0.03-0.4 mm in size, form this sandstone. Sorting is poor. Porosity is 15%. Pores are partially to completely filled with kaolinite±zeolites. Overgrowth rims, 0.003-0.020 mm wide, of quartz are present on most quartz particles. Clay platelets are attached to surfaces of detrital particles exterior to quartz overgrowth rims. Zeolites are sometimes present in pores and as rims on particles. Volcanic clasts, now composed of smectites± quartz±zeolites, form 3-5% of the rock. Traces of carbonate sometimes seen in pores. Total clay content of this sandstone is about 10%.

MINERALS	%	OCCURRENCE
Quartz	55-60	Angular to subrounded; 0.05-0.4 mm in size, averaging 0.15 mm; most grains exhibit flat extinction, the remainder moderate undulatory extinction.
Chert	2	Detrital
Orthoclase/ microcline	6	
Plagioclase	4	Partially replaced by zeolites
Muscovite	1	Detrital flakes
Goethite/ Hematite	tr	Blebs of earthy limonite in clay-altered volcanic clasts; after magnetite.
Tourmaline	0.2	Detrital
Glauconite	0.1	Pellets composed of very fine-grained, bright green clay.
Pyrite	0.2	Blebs occur in clay-altered volcanic particles.
Rutile/ leucoxene	0.5	Detrital
Carbonate	1	In pores
Illite	1	Platelets on surfaces of particles; alteration product of acidic volcanic particles.
Smectite ±chlorite	3-5	Sometimes rims particles; alteration product of volcanic clasts.
Kaolinite	7	Partially to completely fills pores
Zeolite	tr	Partially fills pores; partially replaces plagioclase particles.
Porosity	15	Voids filled with blue epoxy.

PETROGRAPHIC DESCRIPTION: DOW-80C

ROCK TYPE: Sandstone

Angular to subrounded detrital clasts, 0.05-0.5 mm in size, form this sandstone. Sorting is poor. Porosity is about 15%. The clast surfaces have a thin-rind, 0.003-0.01 mm, of subhedral to euhedral crystals of quartz, ±clays, ±traces of zeolites. The rim clay particles, illite usually, are oriented perpendicularly to clast surfaces. Kaolinite occurs as a pore filling in portions of the rock. Traces of carbonate are sometimes present in pores; rarely carbonate completely fills a pore. Lithic clasts of volcanic rock form 5% of the rock; most of these clasts are now composed largely of clay, ±granular quartz±traces of iron oxides. Total clay content of this rock is about 10%.

MINERALS	%	OCCURRENCE
Quartz	60-65	Angular to subrounded; 0.05-0.5 mm; most exhibit weakly to mildly undulatory extinction--the remainder have flat extinction. Overgrowth rims of quartz are less than 0.01 mm in thickness.
Chert	2	Detrital clasts; composed of microcrystalline quartz or rarely of fibrous chalcedony.
Orthoclase/ microcline	2	Detrital
Plagioclase	3	Detrital; partially replaced by zeolites.
Lithic Fragments of Volcanics	5	Derived from volcanic glasses, andesites, rhyolites; moderately to strongly replaced by clays (chlorites and smectites).
Glauconite	0.1	Bright green; clasts composed of very fine-grained, bright green clay.
Tourmaline	0.1	Detrital
Zircon	0.1	Detrital
Rutile	0.3	Opaque to semi-transparent in transmitted light; white to pale red in reflected light.
Muscovite	0.3	Detrital flakes.
Biotite	0.1	Detrital
Pyrite	<0.1	Detrital
Magnetite	0.2	Detrital
Kaolinite	7	Fills some pore spaces; up to 0.05 mm grain size.
Illite	tr	Clay-sized platelets oriented perpendicularly to clast surfaces.
Carbonate	0.5	Occurs in pores usually in trace amounts; rarely, completely fills a pore.
Zeolite	tr	Partially replaces some plagioclase clasts.
Porosity	15	Voids filled with blue epoxy.

PETROGRAPHIC DESCRIPTION: DOW-80T

Examination 80T indicates that it is very similar to 80C.

PETROGRAPHIC DESCRIPTION: DOW-87

ROCK TYPE: Sandstone

SUMMARY: Very angular to subangular, quartz sand grains, 0.1 to 0.4 mm in size, comprise the bulk of this rock. Thin, 0.005 mm, overgrowth rims of zeolite or feldspar (lower refractive indices than quartz) occur on most of the quartz grains. Fine-grained kaolinite and traces of montmorillonite fill or partially fill interstitial spaces. Porosity is about 25%.

No veins or fractures occur in this sample.

MINERALS	%	OCCURRENCE
Quartz	60-65	Sand grains, 0.1-0.4 mm; angular; most grains exhibit weak to moderate undulatory extinction.
Chert	1	Angular sand grains composed of microcrystalline quartz.
Plagioclase	2	Sand grains.
Orthoclase/ microcline	2-3	Sand grains.
Lithic clasts of partially to completely devitrified volcanic glass	1-2	Sand grains; some composed of glass partially replaced by clays; other devitrified to quartz and Kspar with spherulitic texture.
Tourmaline	tr	Detrital.
Hornblende	tr	Detrital.
Garnet	tr	Detrital.
Muscovite/ biotite	1-2	Detrital flakes; biotites are bleached and have exsolved their Ti-oxides.
Rutile/leucoxene	0.5	Detrital.
Zircon	tr	Detrital.
Montmorillonite	0.5	Partially fills interstitial pore spaces.
Kaolinite	5-7	Very fine-grained material partially filling interstitial spaces.
Zeolite/feldspar	0.5	Forms thin rinds on quartz clasts.
Carbonate	0.5	Occurs in interstitial spaces.
Porosity	20-25	Interstitial spaces filled with blue epoxy.

PETROGRAPHIC DESCRIPTION: DOW-129

ROCK TYPE: Shale

This rock is composed of angular silt grains 0.01 to 0.1 mm in size; the average detrital grains are about 0.025 mm. Silt grains occur within extensive clay matrix. Porosity estimates are difficult because of almost complete filling of pore space by clays, such that porosity would be found between clay grains. Cement appears to be carbonate, yet too fine grained to identify optically. Kaolinite and illite appear to be the most dominant clay types and completely fill most of the matrix.

MINERALS	%	OCCURRENCE
Quartz	20-25	Angular; 0.01-0.1 mm in size, averaging 0.025 mm.
Chert	3	Detrital
Orthoclase/ microcline	5	
Plagioclase	3	Partially replaced by zeolites
Muscovite	2	Detrital flakes
Glauconite	1	Pellets composed of very fine-grained, bright green clay.
Carbonate	5	In pores
Illite	20	
Kaolinite	20	
Zeolite	0.5-1	Partially fills pores; partially replaces plagioclase particles.
Porosity	5-10	

HYDROSTATIC COMPRESSION AND UNIAXIAL STRAIN TESTS PERFORMED IN SUPPORT OF THE PARCPERDUE GEOTHERMAL PROJECT

by

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INTRODUCTION

Important in the design and testing of deep geothermal wells is an understanding of reservoir rock behavior during well production. Laboratory tests are a useful means by which the actual in-situ behavior may be inferred. This report describes a laboratory test program conducted by TERRA TEK RESEARCH to determine the in-situ response of reservoir material from the SWEEZY NO. 1 TEST WELL during well production. Specifically, this test program was designed to:

- Determine the change in porosity, permeability, and formation compressibility of samples during reservoir-drawdown at simulated in-situ conditions.
- Provide a better understanding of the time dependent change in the formation compressibility during well production.
- Determine permeability, porosity and compressibility of barrier rock at simulated in-situ conditions.
- Provide necessary parameters for computer modeled, long-term production predictions.

PROCEDURES

Details of the specific testing procedures are contained and presented by test type in the Appendix. Deviations from these standard procedures and details specific to these tests are discussed in this section.

A total of seven mechanical tests and five high resolution permeability tests were performed on samples from the SWEEZY NO. 1 well. The test samples and procedures were specified by Mr. Jack Hamilton, DOW CHEMICAL during a visit to TERRA TEK RESEARCH in March 1983.

Core Characterization

Core received from DOW CHEMICAL was characterized by determining the following physical properties:

- Bulk Density
- Dry Bulk Density
- Grain Density
- Total Porosity
- Effective Porosity
- Bench Air Permeability

All mesurements were made according to API standards.

Uniaxial Strain Test with Pore Pressure Drawdown

Three uniaxial strain tests with pore pressure drawdown and subsequent pore pressure increase were specified for samples #1, 5 and 3. These samples, as were all of the mechanical test samples, were 1 inch in diameter and 2 inches in length, cored parallel to the whole core axis. After machining, all samples were saturated using a simulated formation brine. The chemical composition of this brine is presented in the Appendix. This brine differs from the actual SWEEZY well brine in that it was approximately 3.7% higher in chloride and contained no bicarbonate ions. This change was necessary because

of the formation of an insoluble bicarbonate-magnesium precipitate at a neutral pH.

After initial preparation and installation of the instrumented sample in the test cell, nominal 100 psi confining stress and 50 psi pore pressure were applied. The samples were then heated to the 226°F in-situ temperature. When temperature equilibration had been attained, the confining and pore fluid pressures were increased to 11,525 psi and 11,475 psi respectively. During this portion of the load path the differential between the confining and pore pressures was approximately 100 psi. The pore fluid pressure was then maintained at this level and the confining stress increased to 13,500 psi (1 psi/ft). The first permeability measurement was made at this point. The pore pressure drawdown sequence was then initiated to the abandonment pressure of 6050 psi. After reaching the abandonment pressure the pore fluid pressure was subsequently increased slowly to the original level. Permeability measurements were made at four equally spaced intervals during the pressure drawdown and subsequent increase. The target pore pressures at which permeability was measured were 11,475 psi, 9666 psi, 7858 psi and 6050 psi. The testing sequence was terminated after the initial pore fluid pressure had been reestablished.

Short-Term Hydrostatic Compression

Two short-term hydrostatic compression tests were performed on samples #2 and #3 to determine the bulk sample response to an increasing hydrostatic pressure. The samples were instrumented and installed in the test cell and nominal confining and pore fluid pressures of 200 psi and 100 psi, respectively, were applied. Hydrostatic loading commenced when the sample had reached temperature equilibrium. The confining pressure was increased in approximately five minutes time to 1870 psi. At this point the loading rate was de-

creased such that the maximum confining stress of 3600 psi was reached in approximately one hour. Unloading proceeded in the same manner with 1870 psi being reached in one hour and subsequent unloading to 200 psi in five minutes.

Long-Term Hydrostatic Compression

Two long-term hydrostatic compression/creep tests were performed to determine time dependence of the formation compressibility. Samples from cores #2 and #3 were used for these tests. These tests were performed in a small, heated hydrostatic test cell. The prepared and instrumented samples were placed in this test cell and brought to temprature equilibrium with nominal pore and confining stress. The confining stress was increased to approximately 1900 psi in 5-10 minutes time. This stress was then maintained constant for approximately 24 hours. During this time, the sample deformation was recorded by computer at 45 minute intervals. At the end of the 24 hour creep phase, the confining stress was increased approximately 430 psi. The confining stress was increased five times over five days to the maximum stress of 3600 psi, the same confining stress as that reached in the short term tests. After the creep period at the maximum stress level the sample was unloaded in approximately 10 minutes time.

High Resolution Permeability Tests

Five barrier shale samples were received from DOW CHEMICAL for permeability determinations. These samples were saturated in the synthetic formation brine prior to testing. Permeabilities were measured using a transient pulse technique at room temperature with a confining stress of 13,775 psi and a pore fluid pressure of 12,325 psi. These measurements were made on samples that were taken parallel to the whole core axis.

RESULTS AND DISCUSSION

Core Characterization

The physical properties of the core from SWEEZY NO. 1 WELL are given in Table 1. D113-134 were shale core that underwent permeability testing only. Samples 1-5 underwent uniaxial drawdown tests and short-term and long-term hydrostatic compression tests as described in the following sections.

Table 1

Physical Properties of Core from SWEEZY NO. 1 WELL

Sample I.D.	Depth (ft)	Natural Density (gm/cc)	Dry Density (gm/cc)	Effective Porosity (%)	Total Porosity (%)	Perme-ability (md)	Grain Density (gm/cc)
D113	13,431	2.16	2.06	24.4	25.0		2.72
D123	13,439	2.31	2.09	23.5	23.8		2.73
D125	13,444	2.33	2.09	23.5	25.7		2.73
D132	13,449	2.28	2.03	25.4	25.5		2.72
D134	13,451	2.25	2.02	25.4	26.0		2.70
1	13,345	2.14	1.97	26.1	26.1	1972	2.66
2	13,354	2.16	1.89	28.9	30.1	5524	2.66
3	13,378	2.02	1.84	30.8	30.9	1106	2.66
4	13,368	2.04	1.79	32.8	32.7	1768	2.66
5	13,396	2.04	1.86	30.2	30.3	415	2.67

Uniaxial Strain with Pore Pressure Drawdown

The results of the uniaxial strain tests with pore pressure drawdown are shown in Figures 1a-3f. These plots show:

a) Pore and mean effective stress versus volume strain
b) Confining, pore and total axial stress versus time
c) Pore volume strain versus pore pressure
d) Formation compressibility versus pore pressure
e) Porosity versus pore pressure
f) Permeability versus pore pressure

Computer printouts of these and other data acquired during the test are presented in the Appendix.

Three general regions are distinguishable in the stress-strain plots. The first region shows the path followed to the in-situ stress conditions where the first permeability measurement was made. The second region in these plots show the reduction in pore pressure to 6050 psi. Four permeability measurements are taken during this drawdown phase, are marked K1-K4 on the plots. Region 3 is characterized by the increase in pore pressure back to the original reservoir pressure. Three permeability measurements were made in this region, points K5-K7.

There is little volume strain during loading to the in-situ conditions where the effective stress is relatively low. The volume strain then increases as the pore pressure is lowered and the effective stress increases. In samples #3 and #5 a definite yield point was reached at approximately 4000 psi mean effective stress. Here the sample underwent large deformations at a relatively constant stress. There was a significant reduction in the permeability subsequent to this yielding. Sample #3 underwent an inadvertent and sudden loss of pore pressure to approximately 5000 psi. The mean effective stress increased past the point where yielding would have been expected. The proper pore pressure was reestablished and the test continued to completion.

Figure 1a.

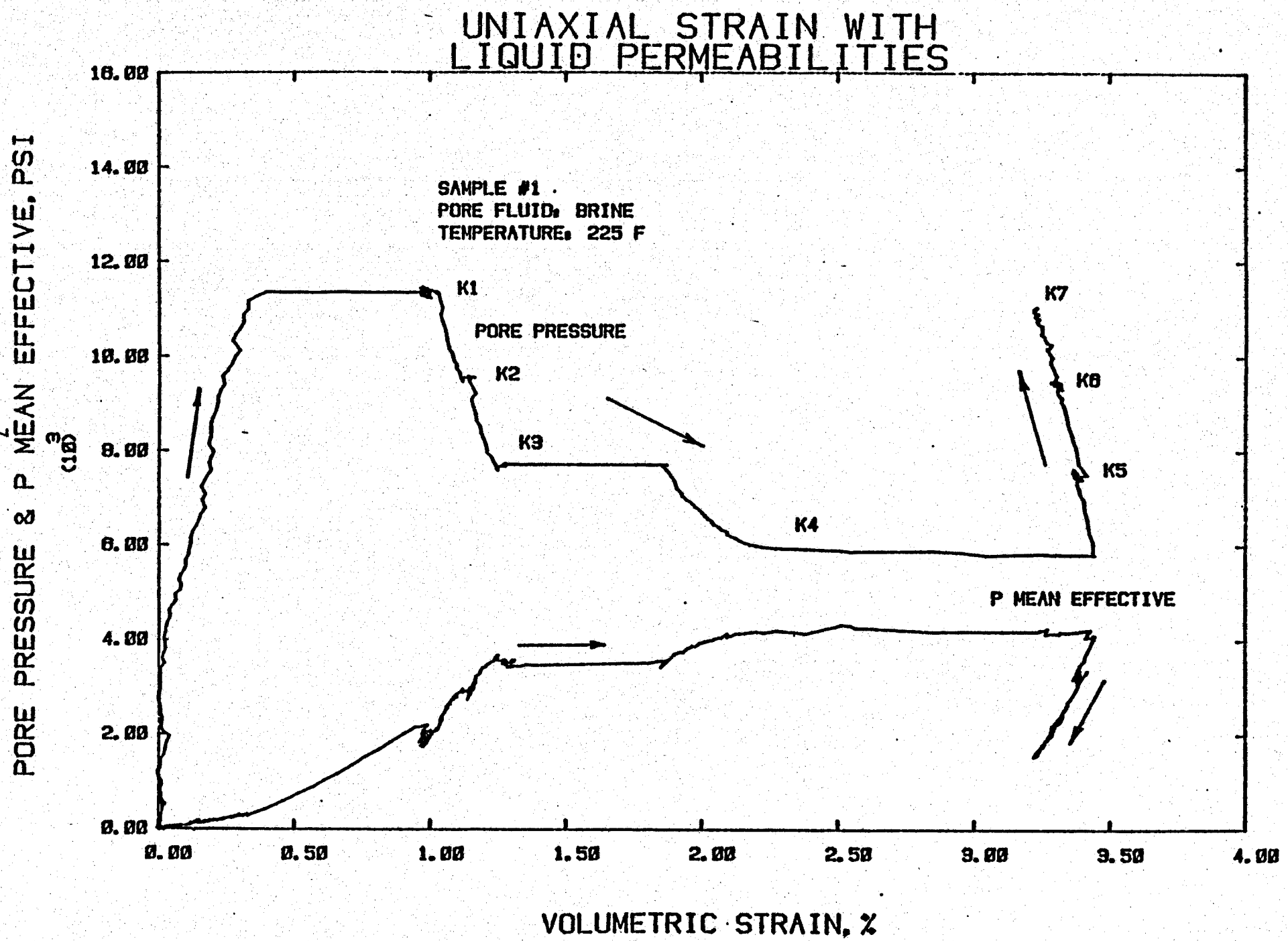

UNIAXIAL STRAIN WITH
LIQUID PERMEABILITIES
SAMPLE #1
PORE FLUID: BRINE
TEMPERATURE: 225 F
K1
PORE PRESSURE
K2
K3
K4
K5
K6
K7
P MEAN EFFECTIVE
PORE PRESSURE & P MEAN EFFECTIVE, PSI
(10^3)
VOLUMETRIC STRAIN, %
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00

Figure 1b.

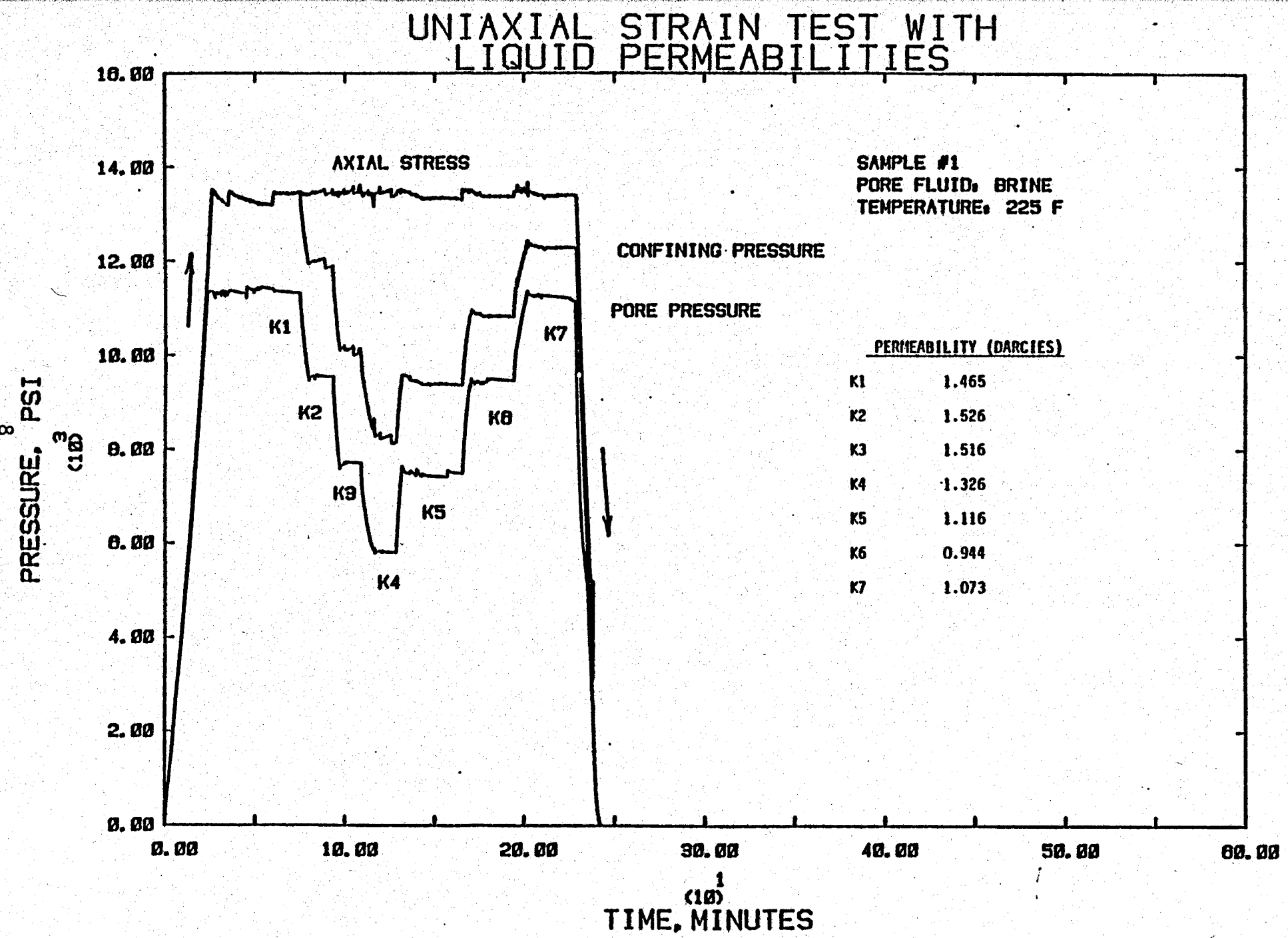

UNIAXIAL STRAIN TEST WITH
LIQUID PERMEABILITIES
AXIAL STRESS
CONFINING PRESSURE
PORE PRESSURE
SAMPLE #1
PORE FLUID: BRINE
TEMPERATURE: 225 F
PERMEABILITY (DARCIES)
K1 1.465
K2 1.526
K3 1.516
K4 1.326
K5 1.116
K6 0.944
K7 1.073
K1
K2
K3
K4
K5
K6
K7
PRESSURE, PSI
(10^3)
TIME, MINUTES
(10^1)
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00

Figure 1c.

UNIAXIAL STRAIN TEST WITH LIQUID PERMEABILITIES

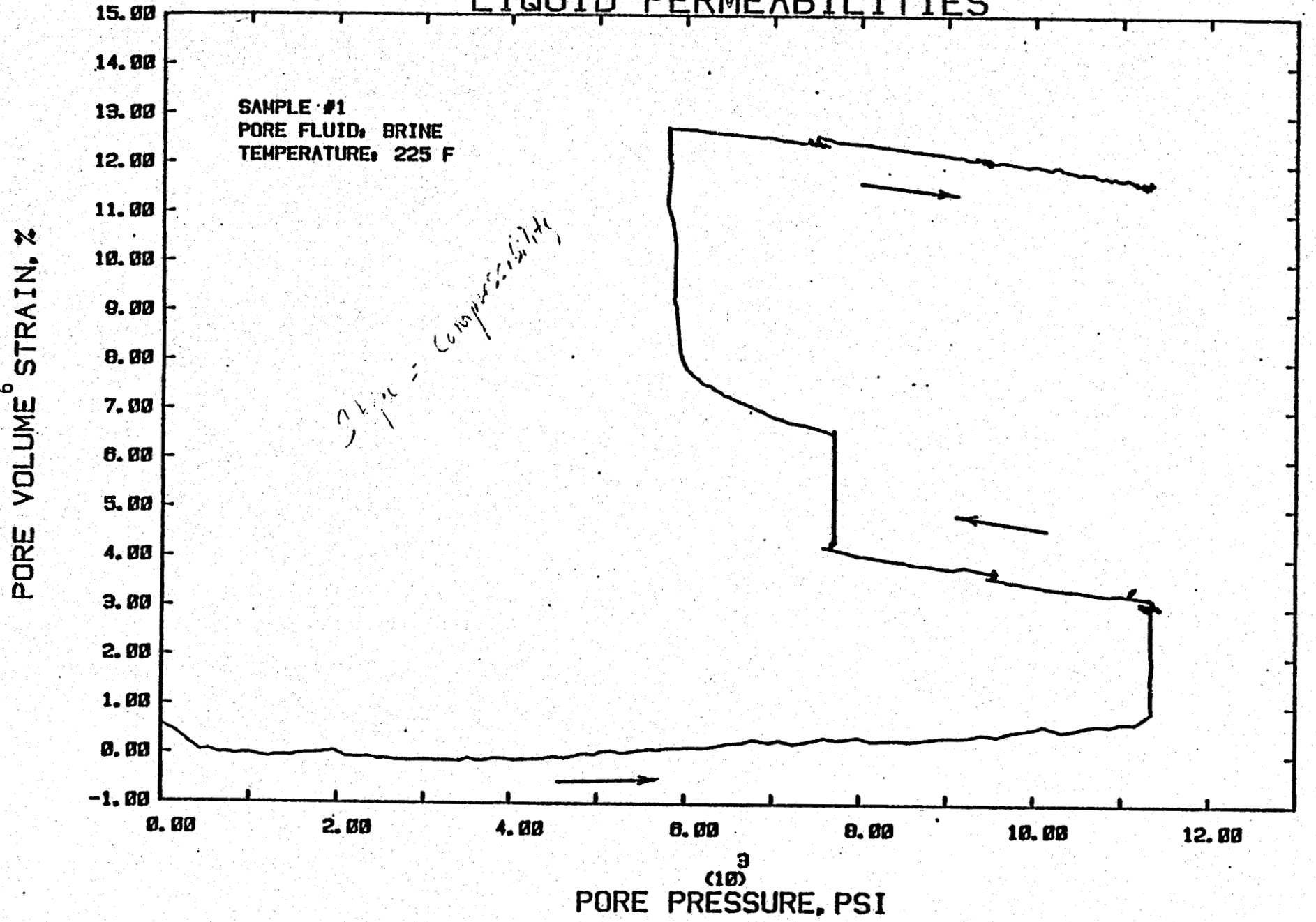


Figure 1d.

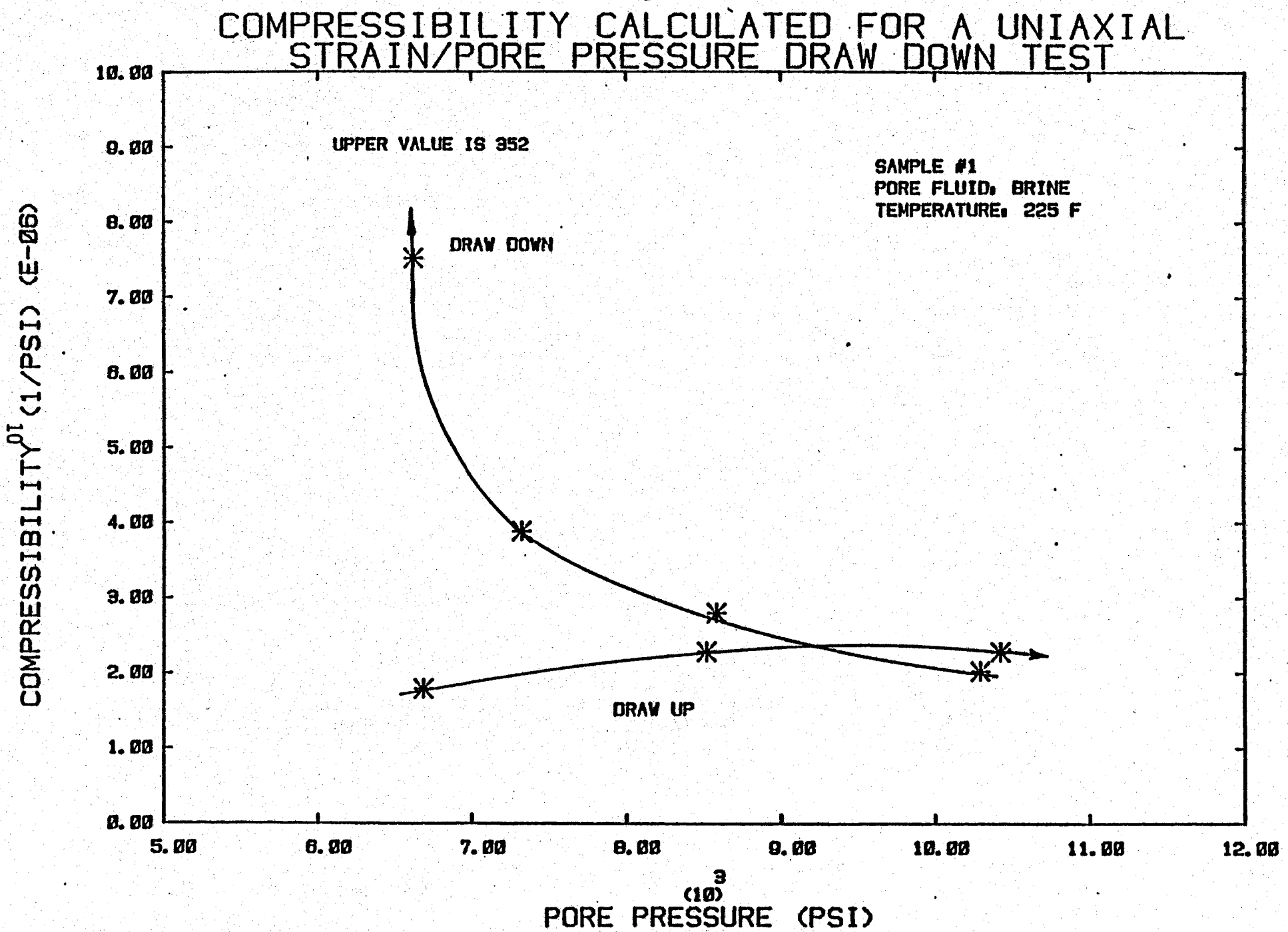

COMPRESSIBILITY CALCULATED FOR A UNIAXIAL STRAIN/PORE PRESSURE DRAW DOWN TEST
UPPER VALUE IS 352
SAMPLE #1
PORE FLUID: BRINE
TEMPERATURE: 225 F
DRAW DOWN
DRAW UP
COMPRESSIBILITY (1/PSI) (E-06)
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
(10)3
PORE PRESSURE (PSI)

Figure 1e.

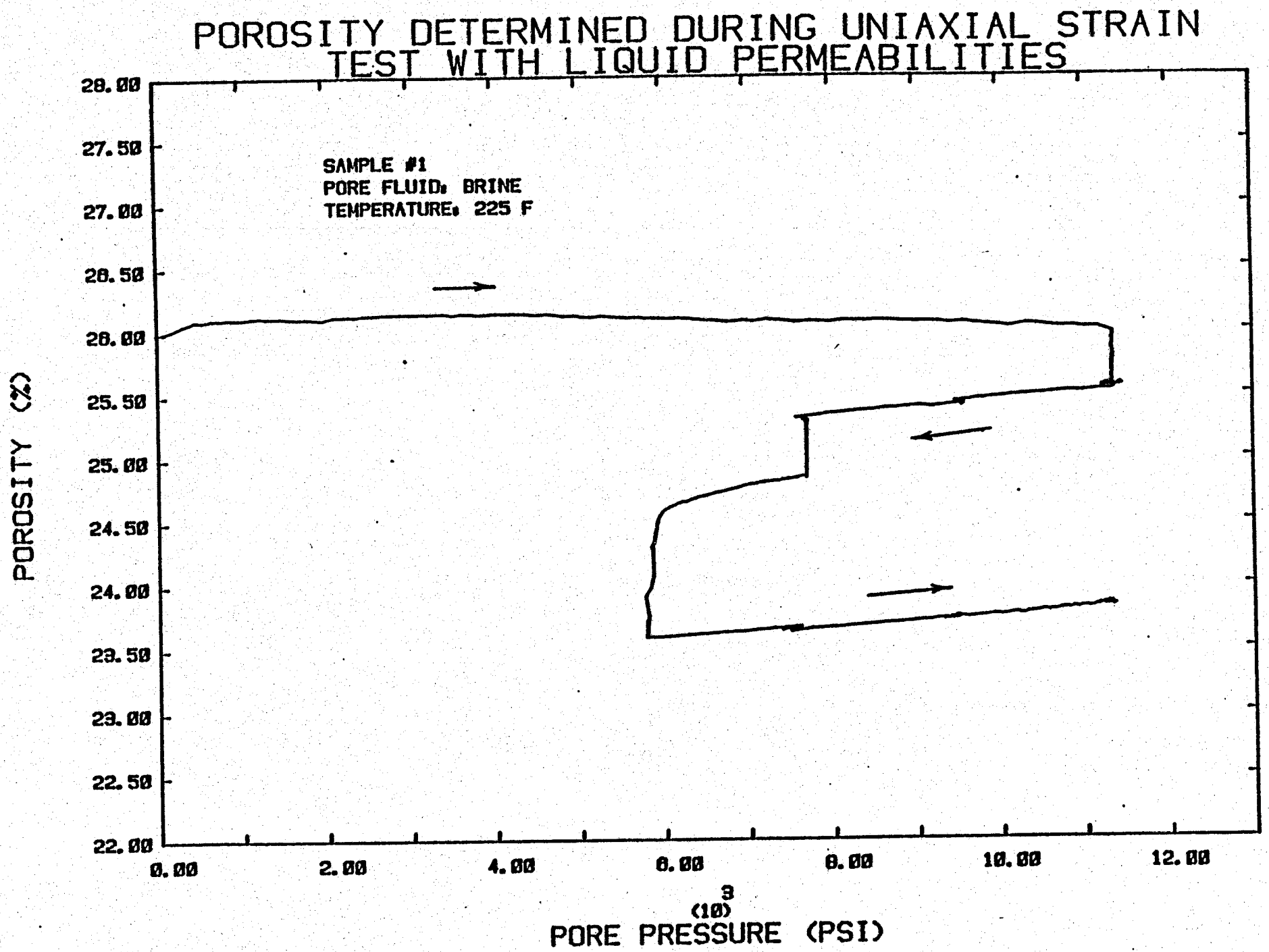

POROSITY DETERMINED DURING UNIAXIAL STRAIN TEST WITH LIQUID PERMEABILITIES
SAMPLE #1
PORE FLUID: BRINE
TEMPERATURE: 225 F
POROSITY (%)
28.00
27.50
27.00
26.50
26.00
25.50
25.00
24.50
24.00
23.50
23.00
22.50
22.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
(10)3
PORE PRESSURE (PSI)

Figure 1f.

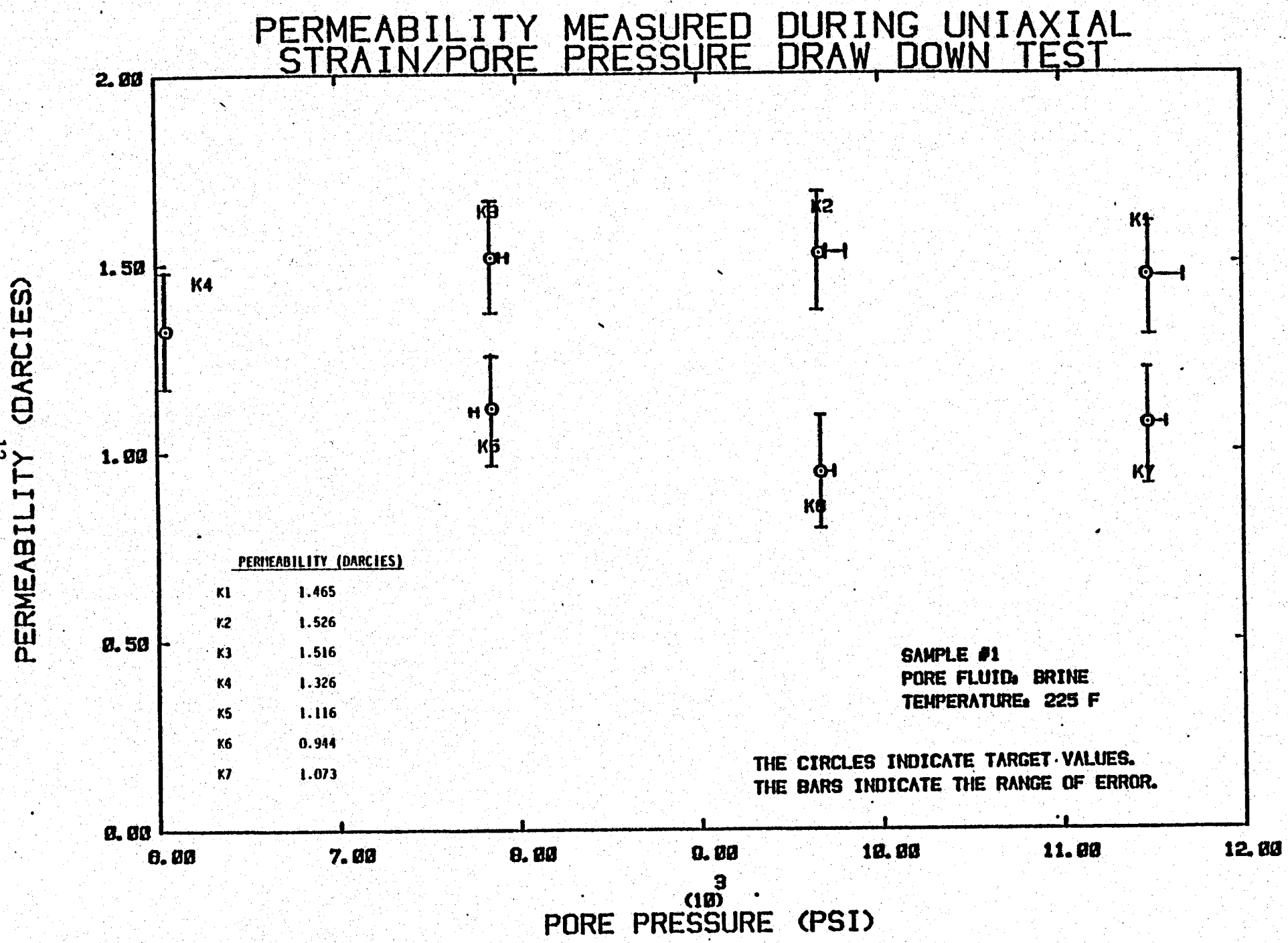

PERMEABILITY MEASURED DURING UNIAXIAL
STRAIN/PORE PRESSURE DRAW DOWN TEST
PERMEABILITY (DARCIES)
2.00
1.50
1.00
0.50
0.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
(10)3
PORE PRESSURE (PSI)
K1
K2
K3
K4
K5
K6
K7
PERMEABILITY (DARCIES)
K1 1.465
K2 1.526
K3 1.516
K4 1.326
K5 1.116
K6 0.944
K7 1.073
SAMPLE #1
PORE FLUID: BRINE
TEMPERATURE: 225 F
THE CIRCLES INDICATE TARGET VALUES.
THE BARS INDICATE THE RANGE OF ERROR.

Figure 2a.

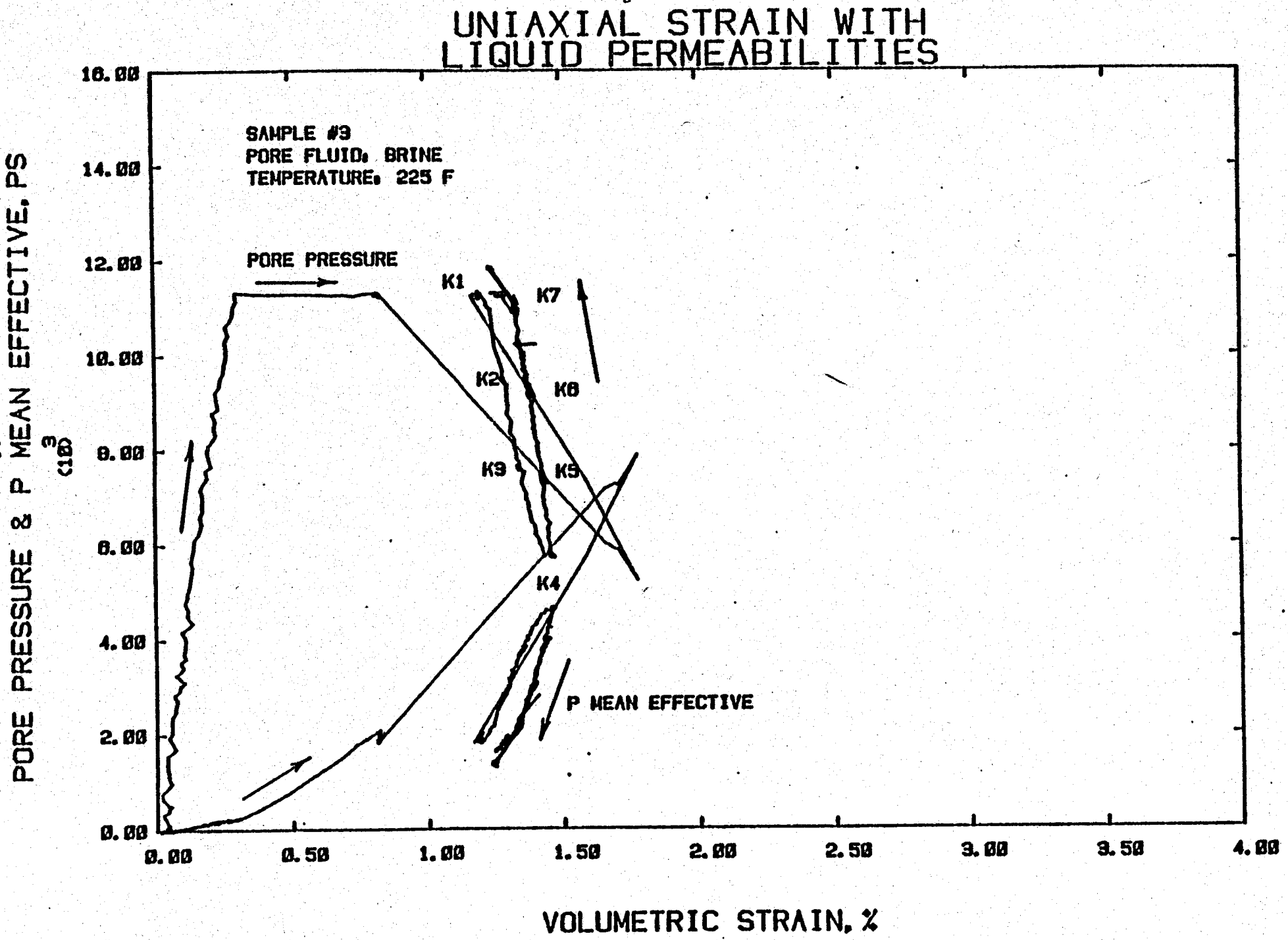

UNIAXIAL STRAIN WITH
LIQUID PERMEABILITIES
SAMPLE #3
PORE FLUID: BRINE
TEMPERATURE: 225 F
PORE PRESSURE
K1
K2
K3
K4
K5
K6
K7
P MEAN EFFECTIVE
PORE PRESSURE & P MEAN EFFECTIVE, PS
(10^3)
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
VOLUMETRIC STRAIN, %

Figure 2aa.

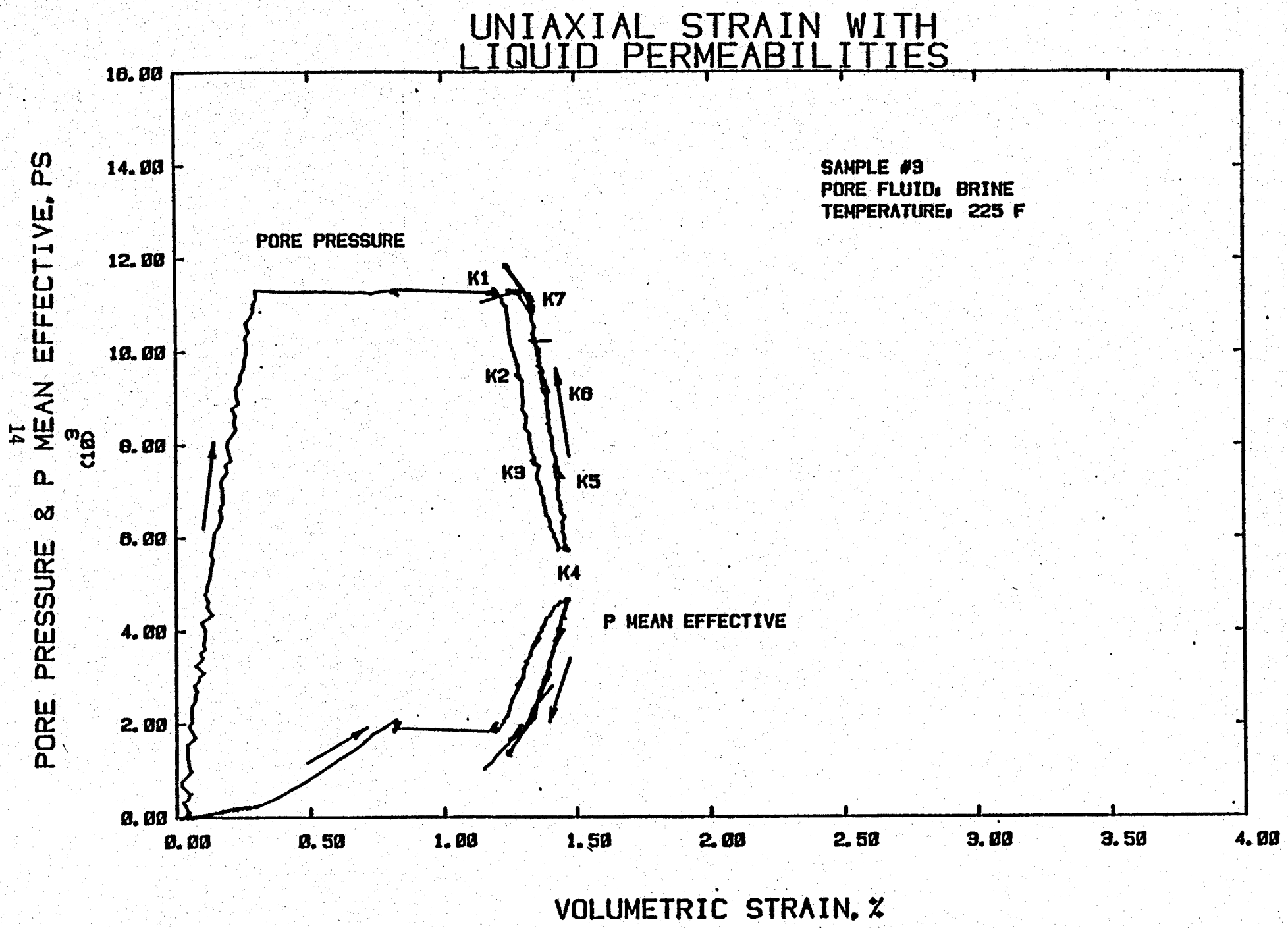

UNIAXIAL STRAIN WITH
LIQUID PERMEABILITIES
SAMPLE #3
PORE FLUID: BRINE
TEMPERATURE: 225 F
PORE PRESSURE
K1
K7
K2
K6
K9
K5
K4
P MEAN EFFECTIVE
PORE PRESSURE & P MEAN EFFECTIVE, PS
(10^3)
VOLUMETRIC STRAIN, %
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00

Figure 2b

UNIAXIAL STRAIN TEST WITH LIQUID PERMEABILITIES

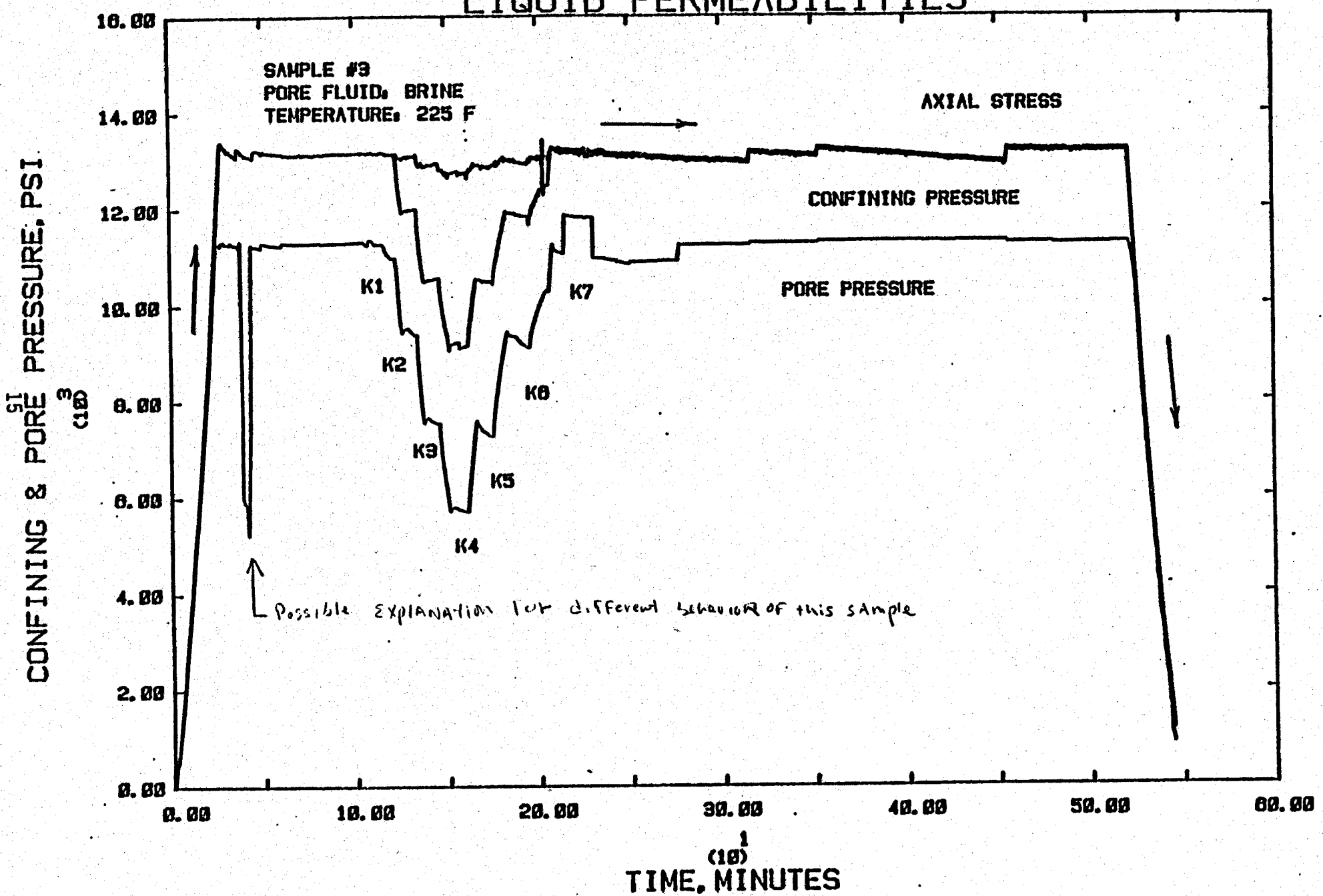


Figure 2bb.

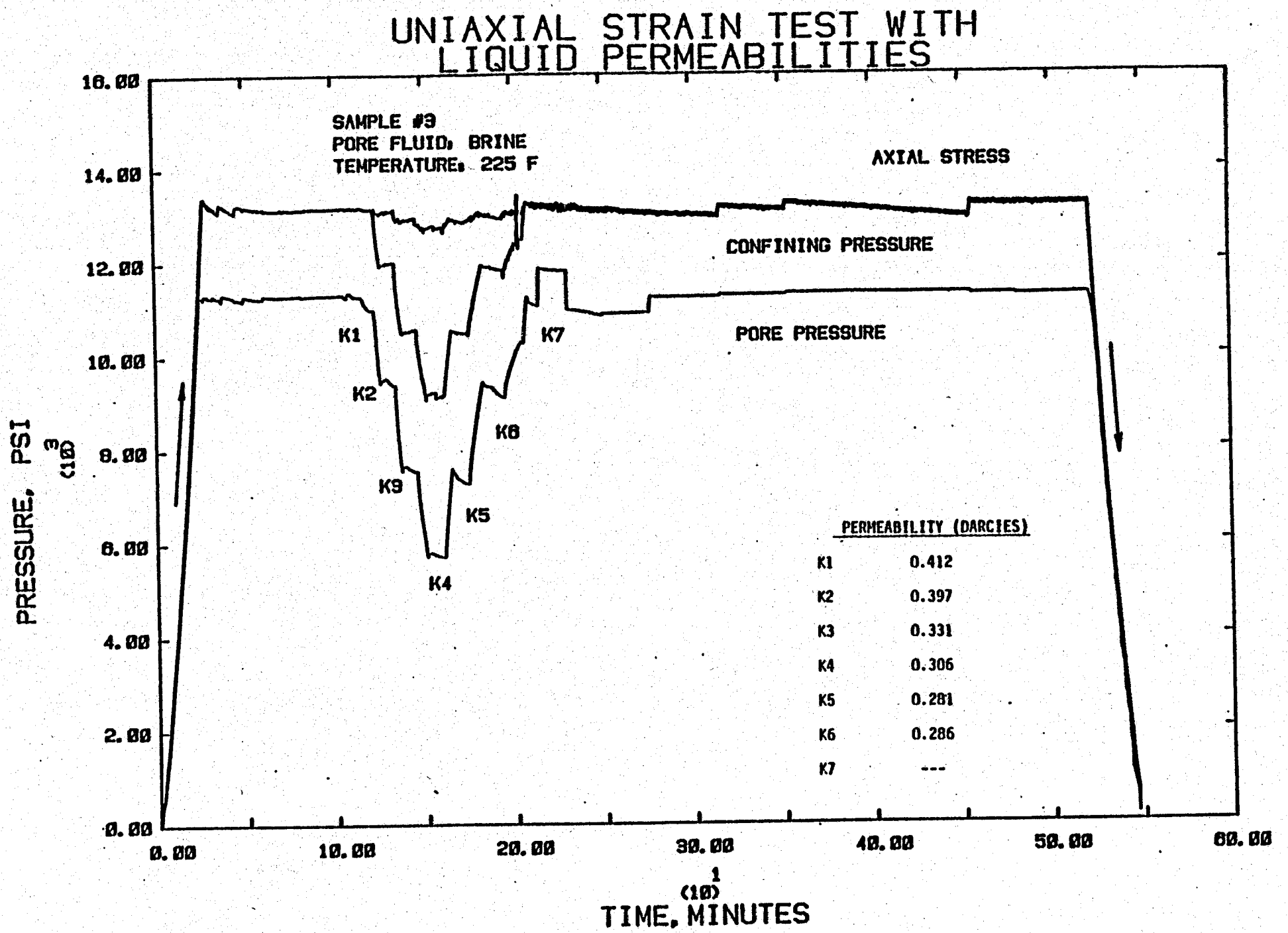

UNIAXIAL STRAIN TEST WITH
LIQUID PERMEABILITIES
SAMPLE #3
PORE FLUID: BRINE
TEMPERATURE: 225 F
AXIAL STRESS
CONFINING PRESSURE
PORE PRESSURE
K1
K2
K3
K4
K5
K6
K7
PERMEABILITY (DARCIES)
K1 0.412
K2 0.397
K3 0.331
K4 0.306
K5 0.281
K6 0.286
K7 ---
PRESSURE, PSI
(10^3)
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
(10^1)
TIME, MINUTES

Figure 2c.

UNIAXIAL STRAIN TEST WITH LIQUID PERMEABILITIES

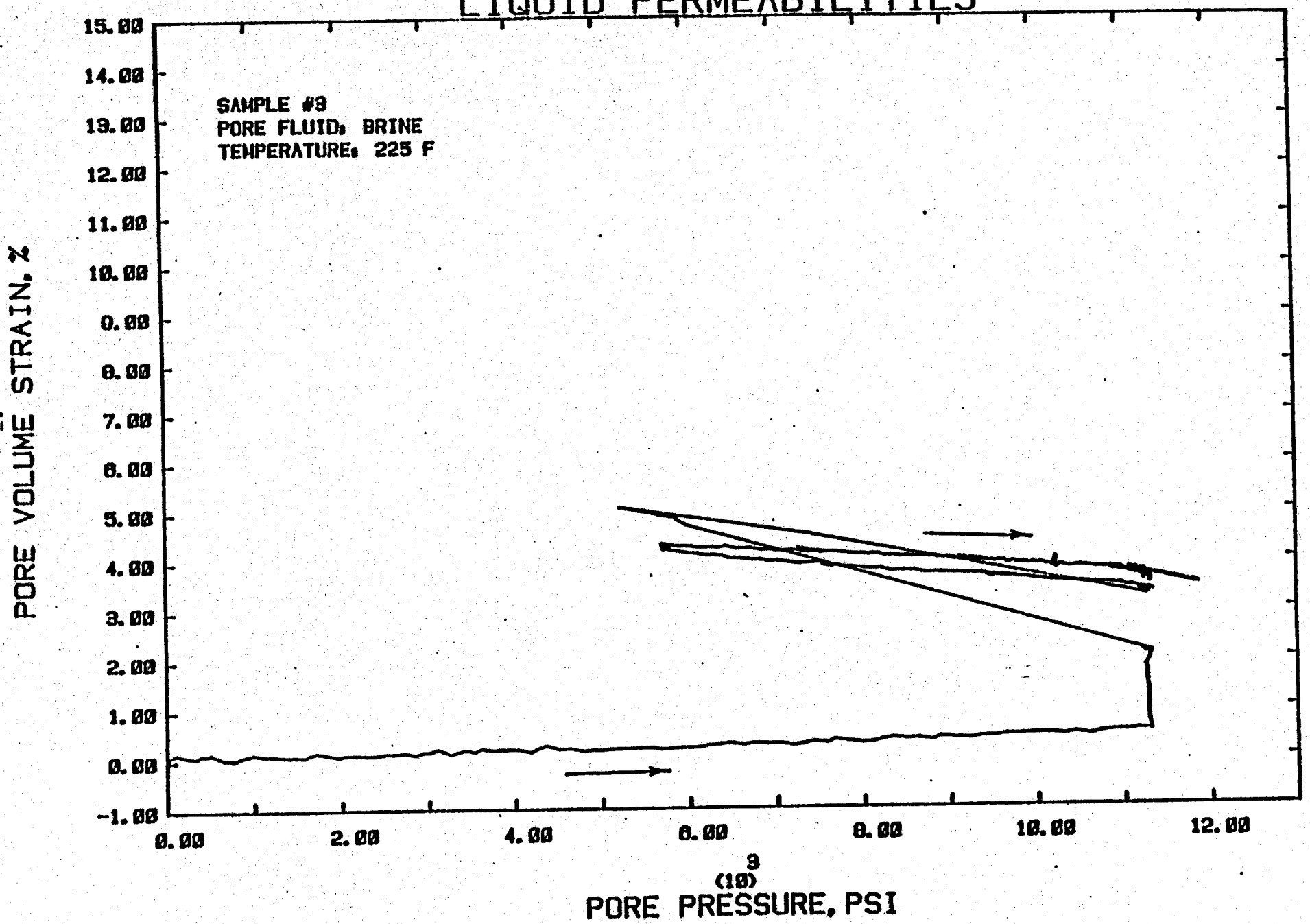


Figure 2cc.

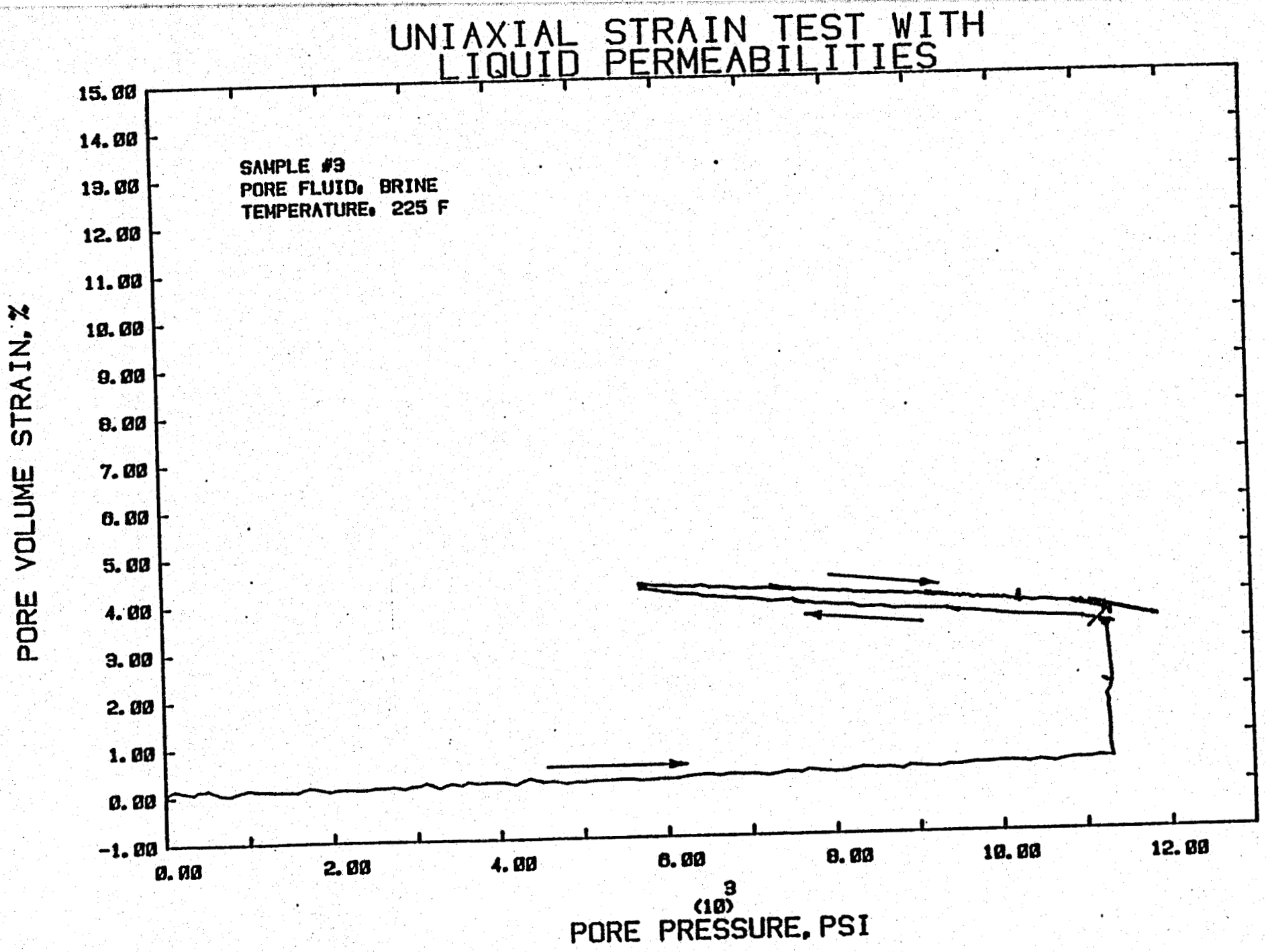

UNIAXIAL STRAIN TEST WITH
LIQUID PERMEABILITIES
SAMPLE #3
PORE FLUID: BRINE
TEMPERATURE: 225 F
PORE VOLUME STRAIN, %
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
(10)3
PORE PRESSURE, PSI

Figure 2d.

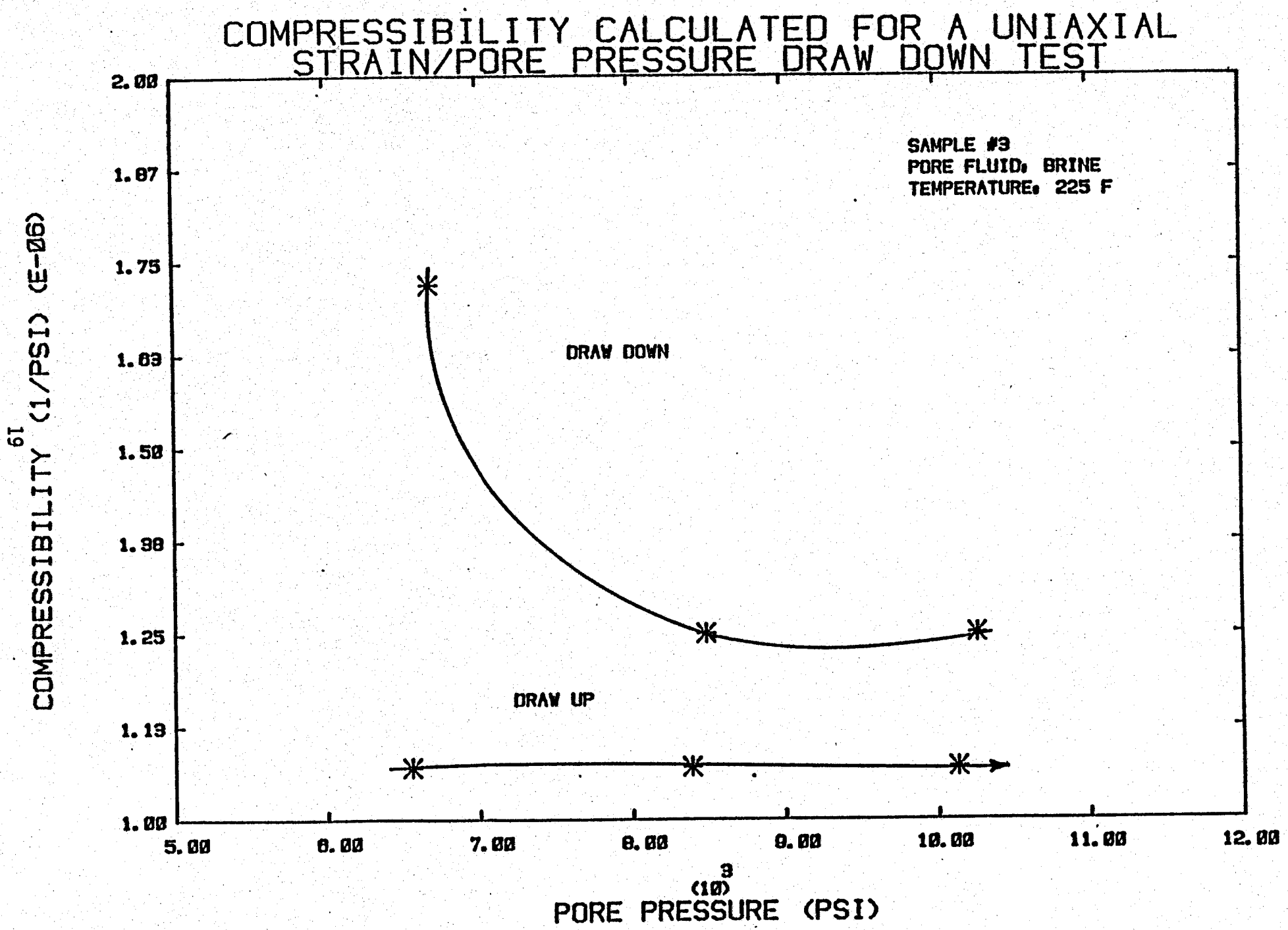

COMPRESSIBILITY CALCULATED FOR A UNIAXIAL
STRAIN/PORE PRESSURE DRAW DOWN TEST
SAMPLE #3
PORE FLUID: BRINE
TEMPERATURE: 225 F
DRAW DOWN
DRAW UP
COMPRESSIBILITY (1/PSI) (E-06)
2.00
1.87
1.75
1.63
1.50
1.38
1.25
1.13
1.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
(10)3
PORE PRESSURE (PSI)

Figure 2e.

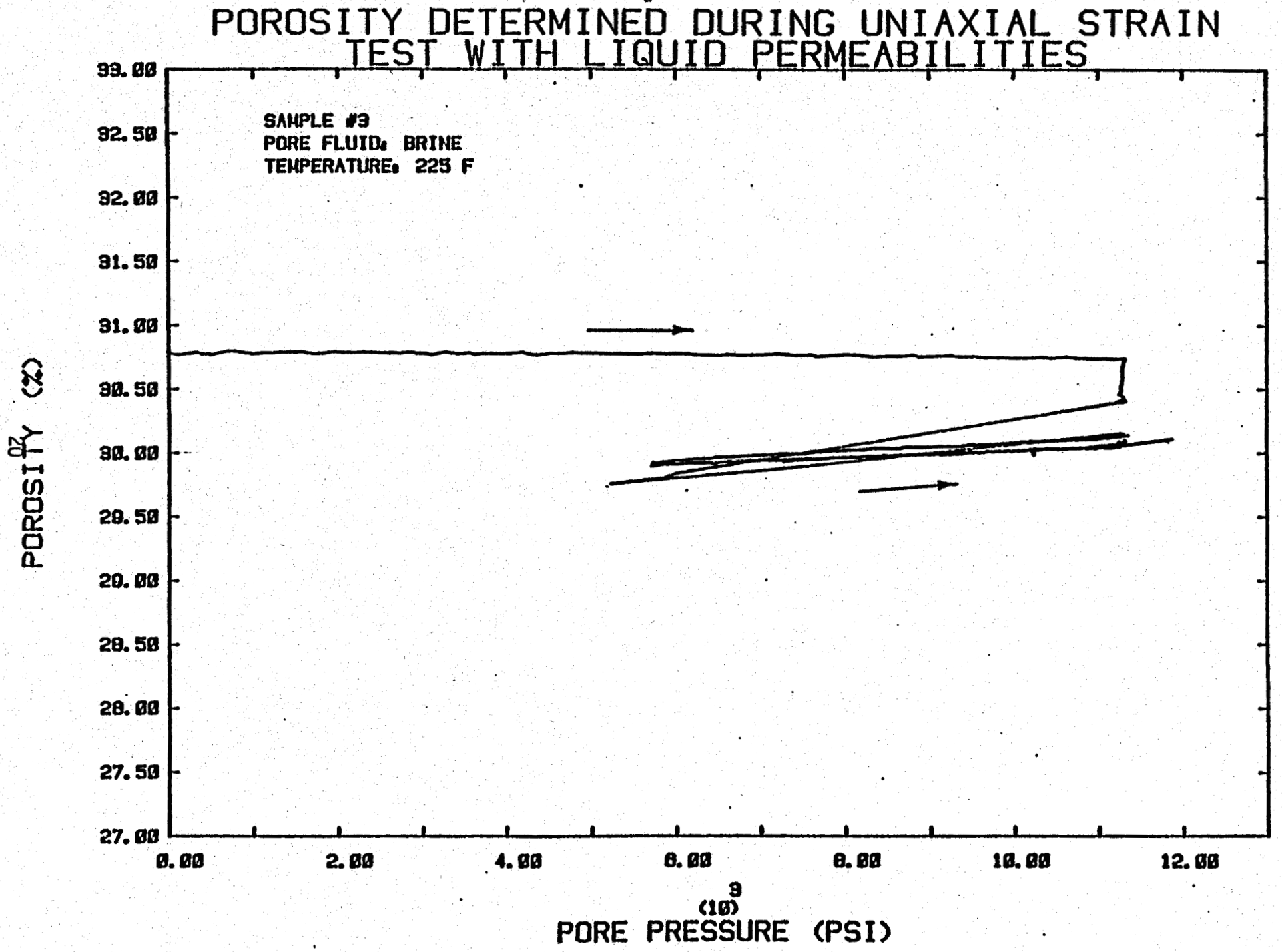

POROSITY DETERMINED DURING UNIAXIAL STRAIN TEST WITH LIQUID PERMEABILITIES
SAMPLE #3
PORE FLUID: BRINE
TEMPERATURE: 225 F
POROSITY (%)
33.00
32.50
32.00
31.50
31.00
30.50
30.00
29.50
29.00
28.50
28.00
27.50
27.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
(10)^3
PORE PRESSURE (PSI)

Figure 2ee.

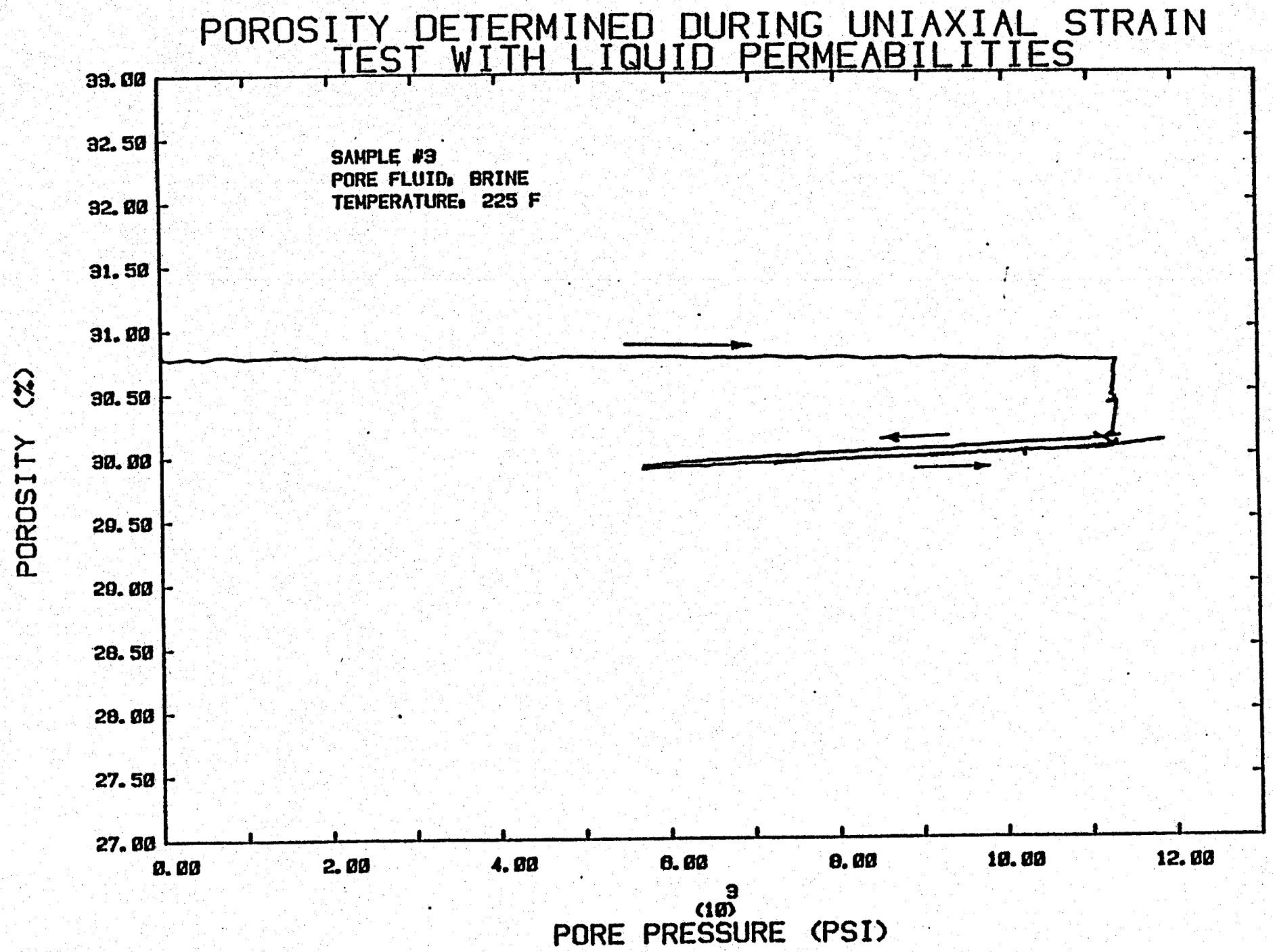

POROSITY DETERMINED DURING UNIAXIAL STRAIN TEST WITH LIQUID PERMEABILITIES
SAMPLE #3
PORE FLUID: BRINE
TEMPERATURE: 225 F
POROSITY (%)
33.00
32.50
32.00
31.50
31.00
30.50
30.00
29.50
29.00
28.50
28.00
27.50
27.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
(10)3
PORE PRESSURE (PSI)

Figure 2f.

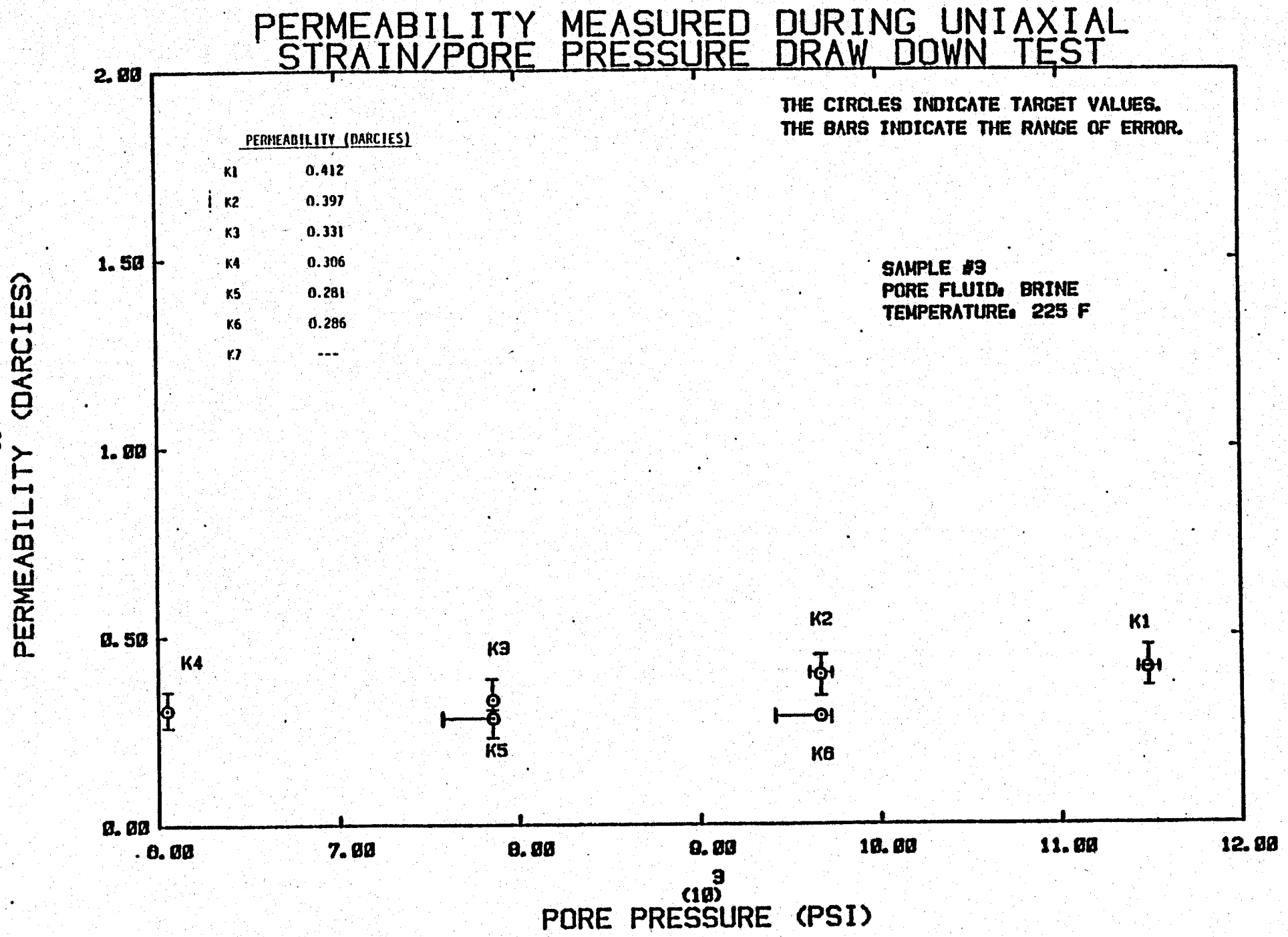

PERMEABILITY MEASURED DURING UNIAXIAL STRAIN/PORE PRESSURE DRAW DOWN TEST
THE CIRCLES INDICATE TARGET VALUES.
THE BARS INDICATE THE RANGE OF ERROR.
PERMEABILITY (DARCIES)
K1 0.412
K2 0.397
K3 0.331
K4 0.306
K5 0.281
K6 0.286
K7 ---
SAMPLE #3
PORE FLUID: BRINE
TEMPERATURE: 225 F
K1
K2
K3
K4
K5
K6
2.00
1.50
1.00
0.50
0.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
PERMEABILITY (DARCIES)
(10)3
PORE PRESSURE (PSI)

Figure 3a.

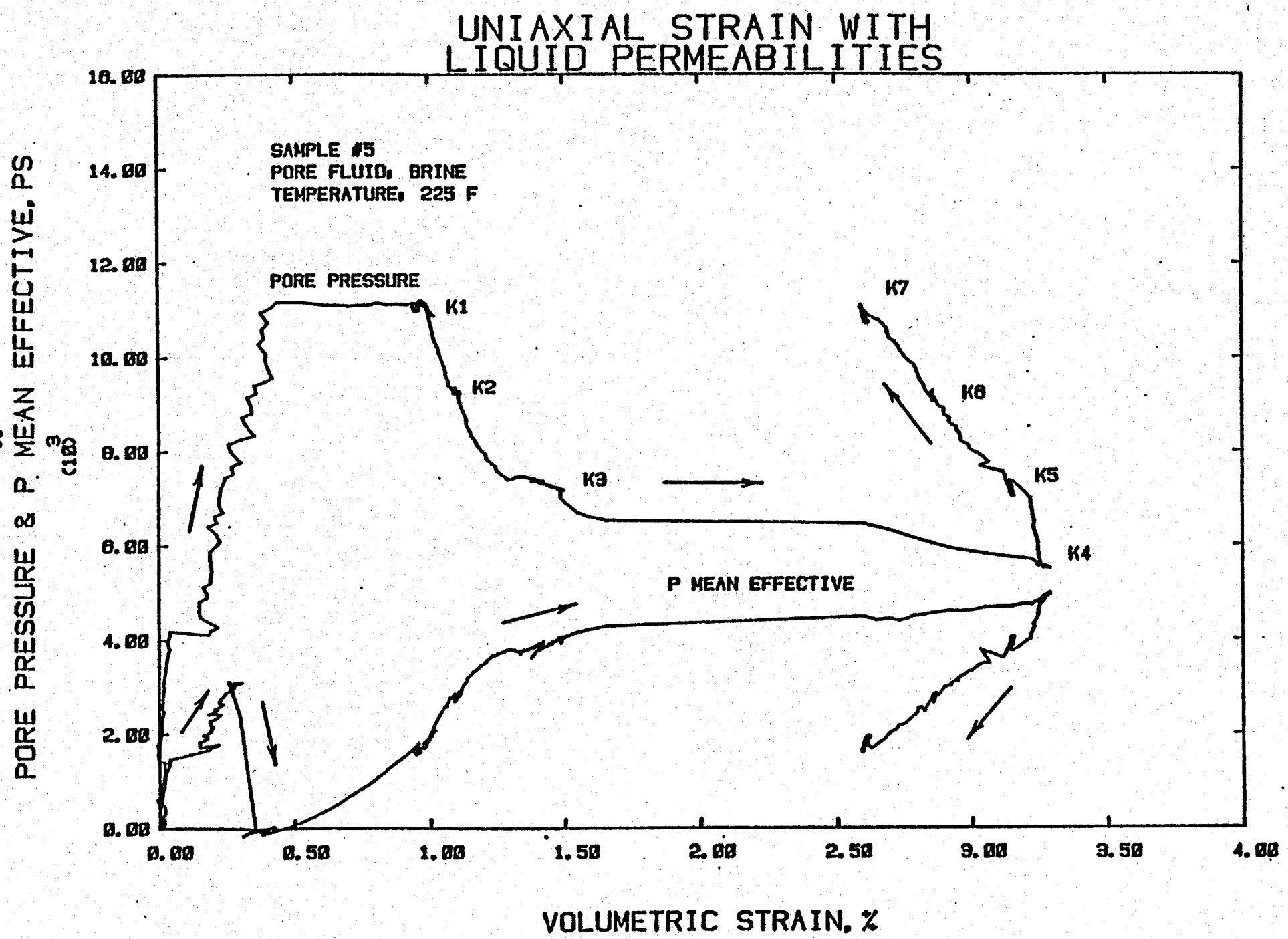

UNIAXIAL STRAIN WITH
LIQUID PERMEABILITIES
SAMPLE #5
PORE FLUID: BRINE
TEMPERATURE: 225 F
PORE PRESSURE
K1
K2
K3
K4
K5
K6
K7
P MEAN EFFECTIVE
PORE PRESSURE & P MEAN EFFECTIVE, PS
(10^3)
VOLUMETRIC STRAIN, %
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00

Figure 3b.

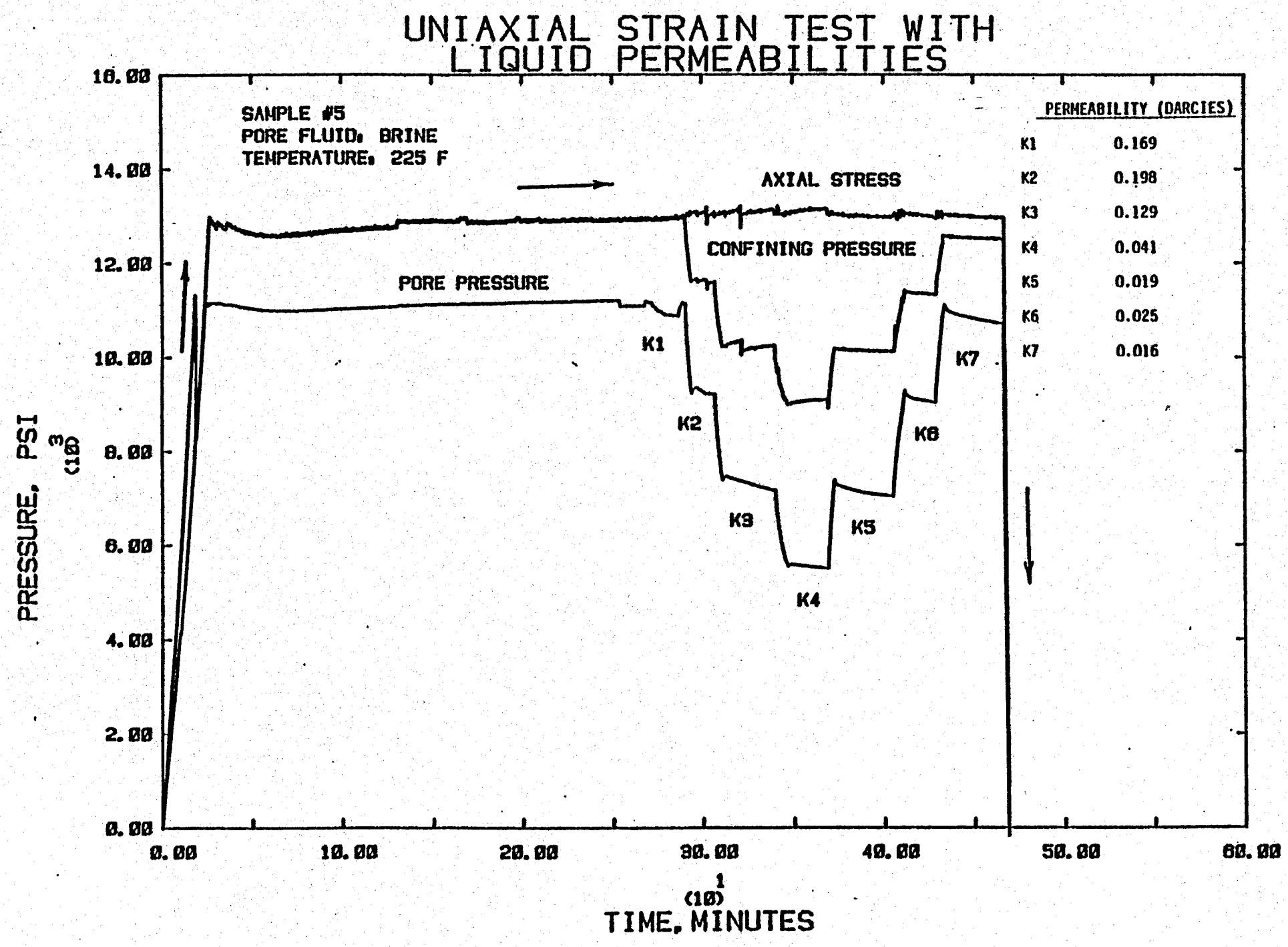

UNIAXIAL STRAIN TEST WITH
LIQUID PERMEABILITIES
SAMPLE #5
PORE FLUID: BRINE
TEMPERATURE: 225 F
AXIAL STRESS
CONFINING PRESSURE
PORE PRESSURE
K1
K2
K3
K4
K5
K6
K7
PERMEABILITY (DARCIES)
K1 0.169
K2 0.198
K3 0.129
K4 0.041
K5 0.019
K6 0.025
K7 0.016
PRESSURE, PSI
(10^3)
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
(10^1)
TIME, MINUTES

Figure 3c.

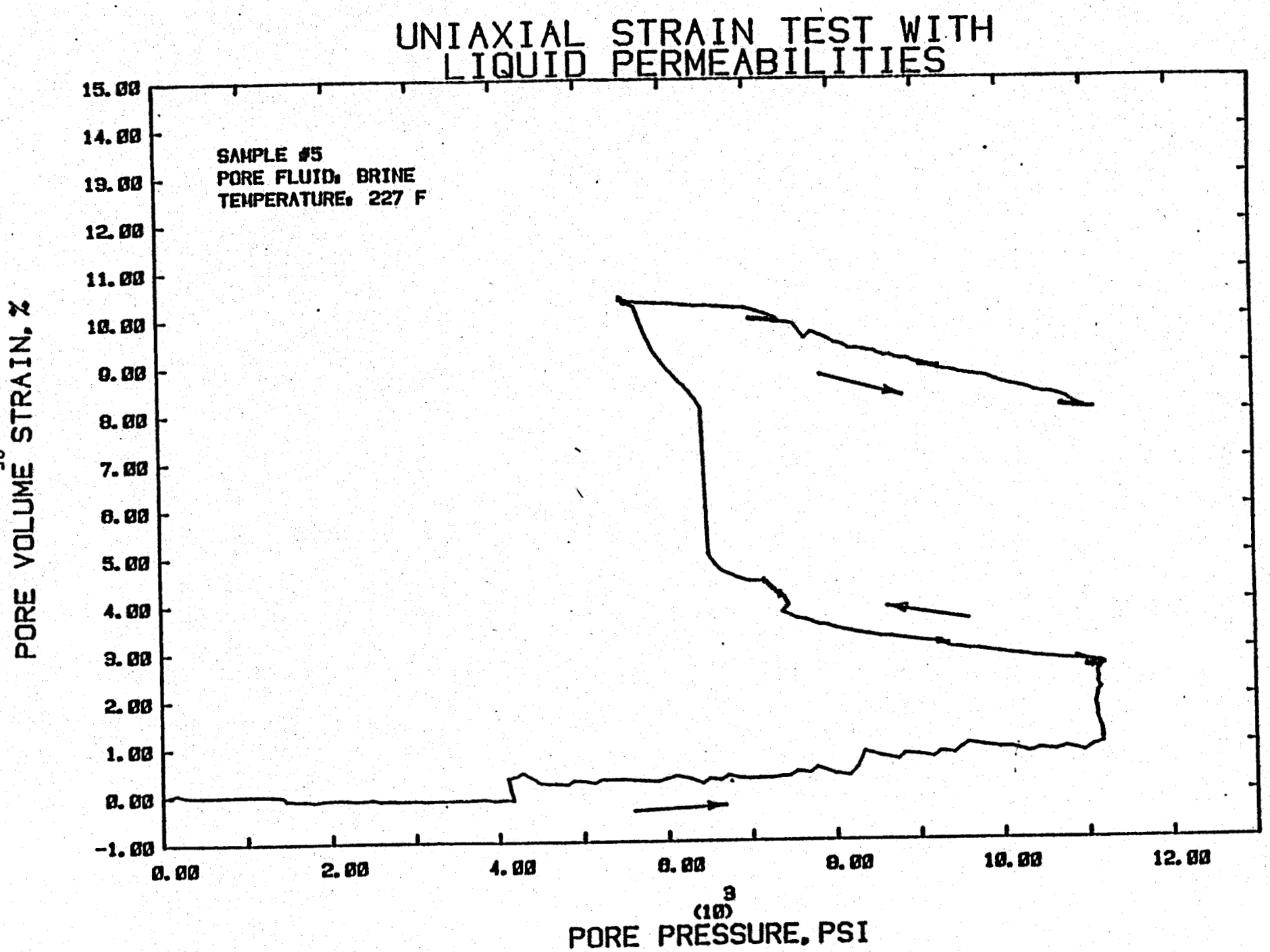

UNIAXIAL STRAIN TEST WITH
LIQUID PERMEABILITIES
SAMPLE #5
PORE FLUID: BRINE
TEMPERATURE: 227 F
PORE VOLUME STRAIN, %
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
(10)3
PORE PRESSURE, PSI

Figure 3d.

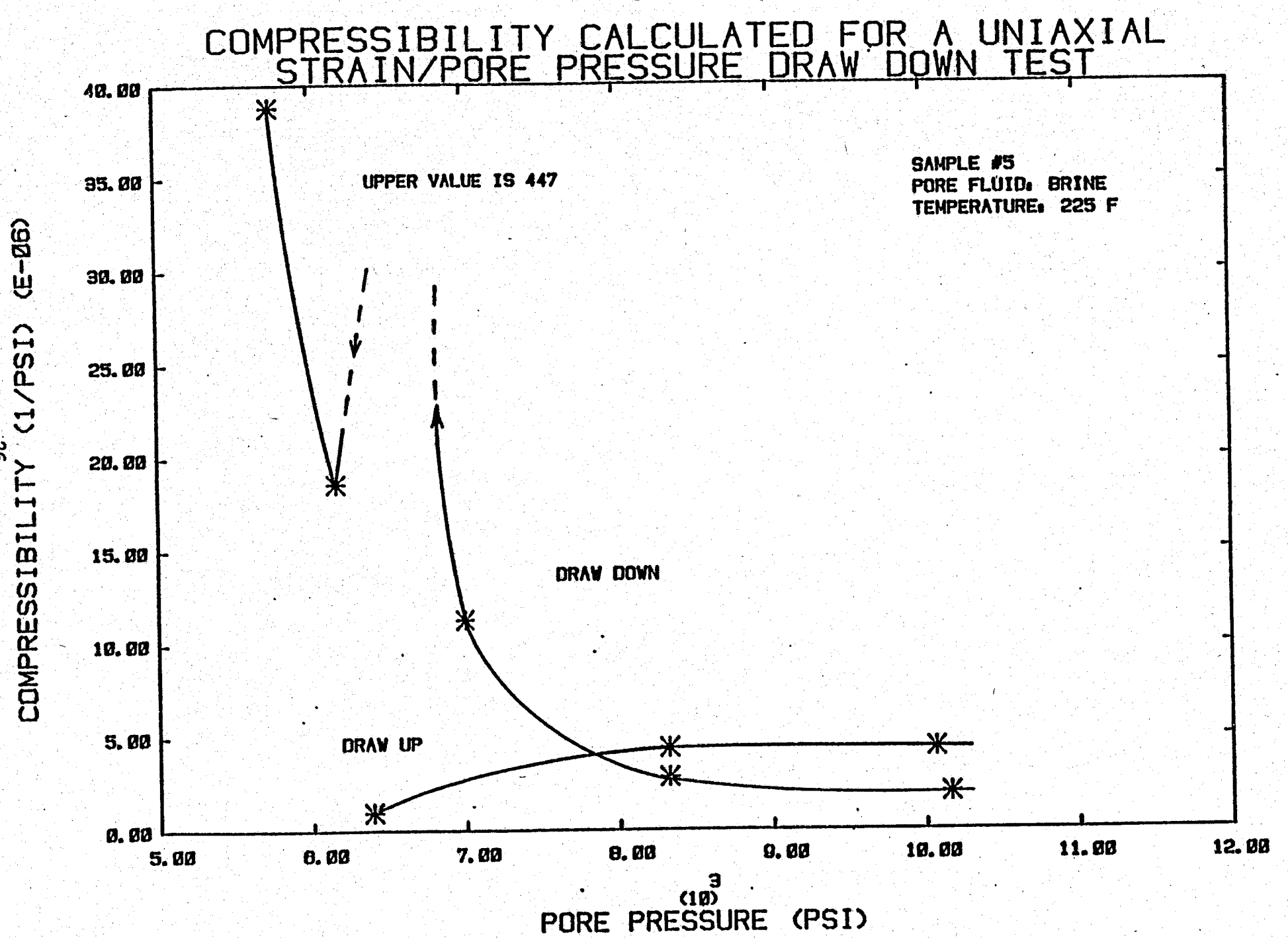

COMPRESSIBILITY CALCULATED FOR A UNIAXIAL STRAIN/PORE PRESSURE DRAW DOWN TEST
SAMPLE #5
PORE FLUID: BRINE
TEMPERATURE: 225 F
UPPER VALUE IS 447
DRAW DOWN
DRAW UP
COMPRESSIBILITY (1/PSI) (E-06)
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
(10)3
PORE PRESSURE (PSI)

Figure 3e.

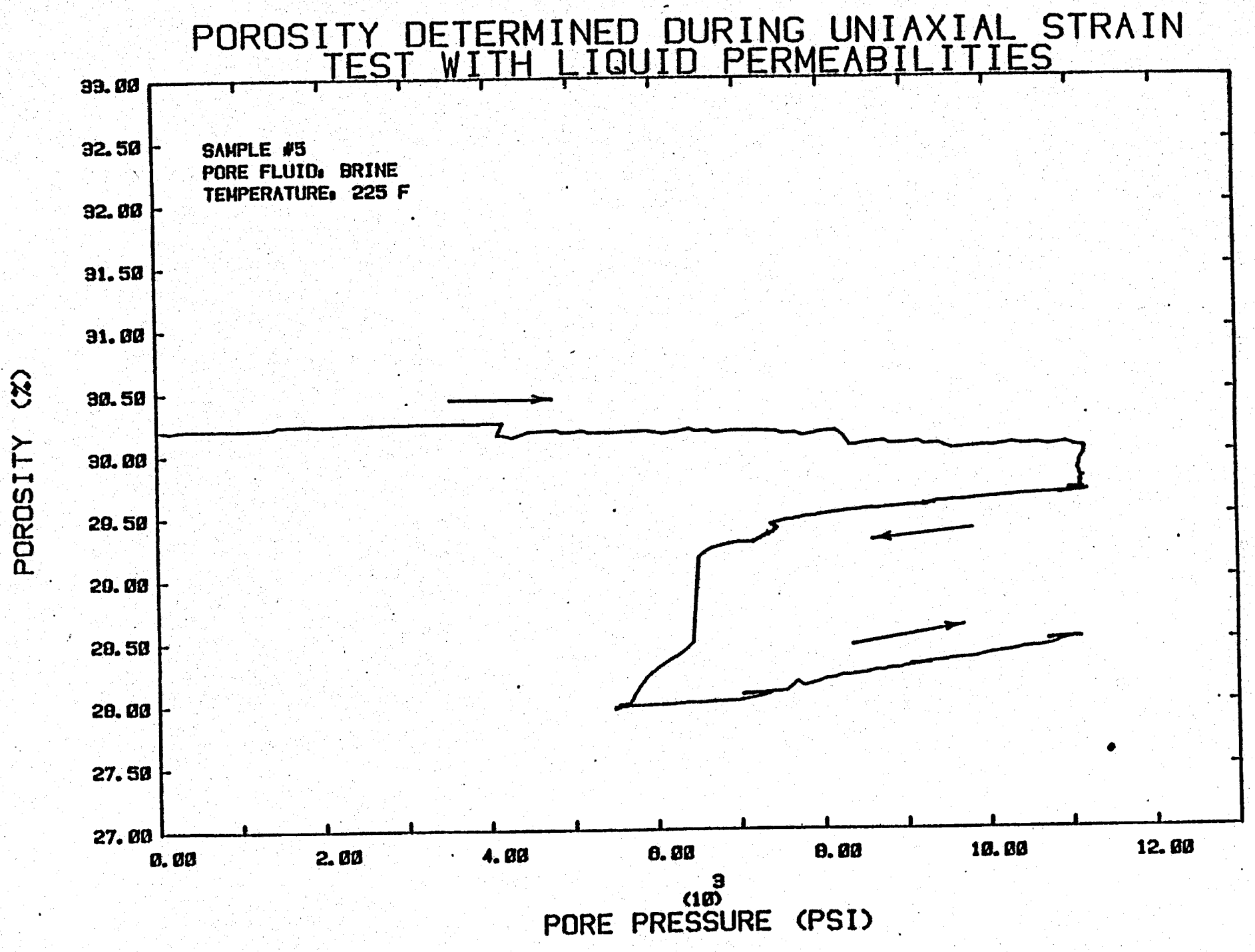
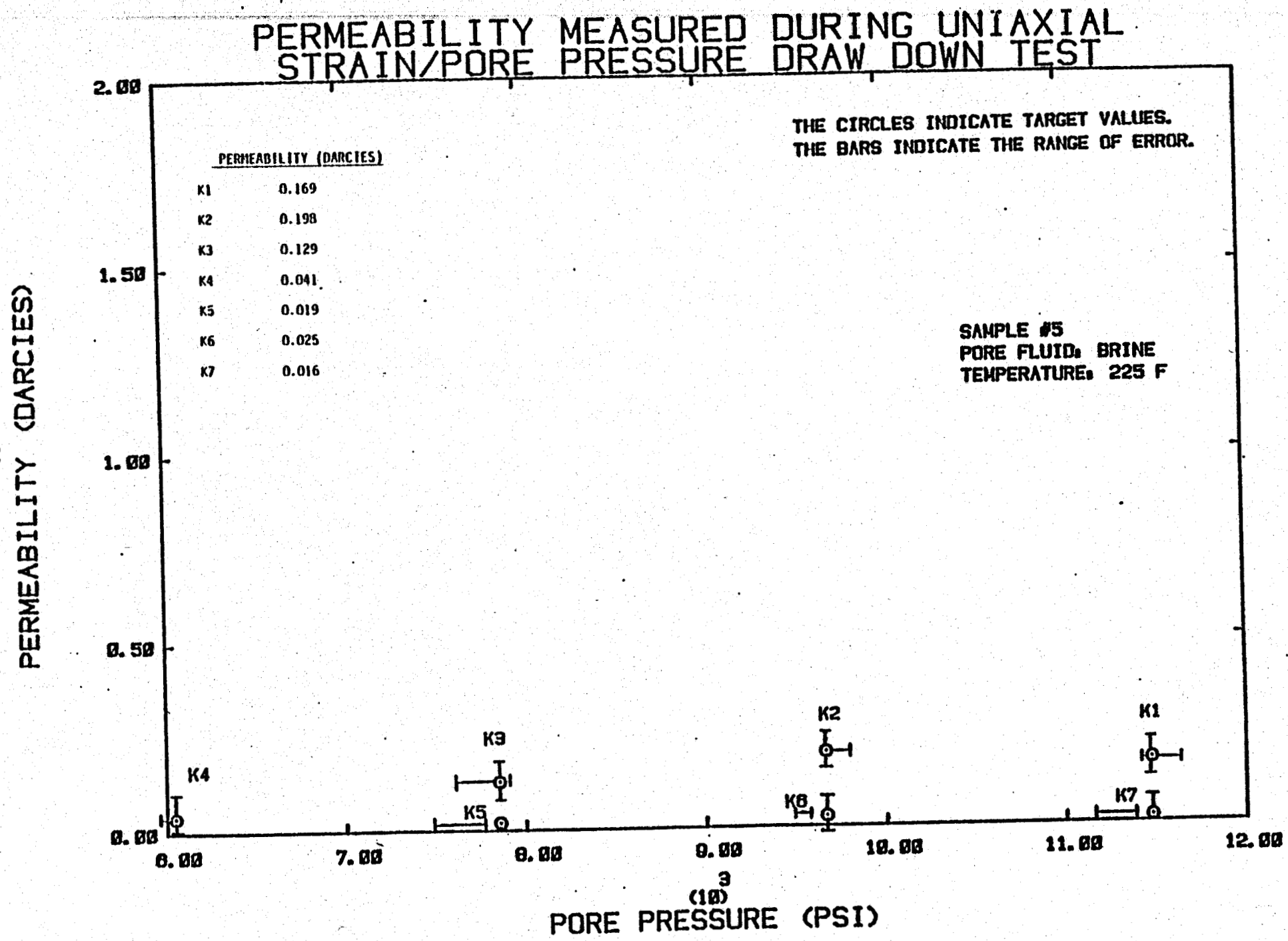

POROSITY DETERMINED DURING UNIAXIAL STRAIN TEST WITH LIQUID PERMEABILITIES
SAMPLE #5
PORE FLUID: BRINE
TEMPERATURE: 225 F
POROSITY (%)
33.00
32.50
32.00
31.50
31.00
30.50
30.00
29.50
29.00
28.50
28.00
27.50
27.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
(10)3
PORE PRESSURE (PSI)

Figure 3f.


PERMEABILITY MEASURED DURING UNIAXIAL
STRAIN/PORE PRESSURE DRAW DOWN TEST
THE CIRCLES INDICATE TARGET VALUES.
THE BARS INDICATE THE RANGE OF ERROR.
PERMEABILITY (DARCIES)
K1 0.169
K2 0.198
K3 0.129
K4 0.041
K5 0.019
K6 0.025
K7 0.016
SAMPLE #5
PORE FLUID: BRINE
TEMPERATURE: 225 F
PERMEABILITY (DARCIES)
2.00
1.50
1.00
0.50
0.00
K1
K2
K3
K4
K5
K6
K7
6.00
7.00
8.00
9.00
10.00
11.00
12.00
(10^3)
PORE PRESSURE (PSI)

The probable yield region is evident as the plateau immediately preceding point K1 on the graph. Figures 3a-e show the actual response of the sample to this event. Figures 3aa-3ee are the same plots where the pressure excursion is not shown and are included for purposes of clarity.

Figures (c) are plots of the pore volume strain as a function of pore pressure. The slope of this curve at any point is the formation compressibility. The pore volume strain is calculated from the expression:

$$\frac{\Delta Vp}{Vp_o} = \frac{1}{\phi_o} \left[\frac{\Delta Vb}{Vb_o} - \beta_g \left(P_c - \phi P_p \right) \right]$$

where: ϕ_o = initial porosity
$\Delta Vb/Vb_o$ = bulk volume strain
β_g = grain compressibility (assumed 1.8×10^{-7} psi^{-1})
P_c = confining pressure
P_p = pore pressure

Figures (d) show the variation in the formation compressibility as a function of pore fluid pressure. The values of the formation compressibility were obtained by taking slopes of the pore volume strain, pore pressure curves. In all cases, the compressibility is shown to increase significantly as the pore pressure decreases. This phenomenon is particularly noticeable in samples #1 and #5 where the samples yielded. The compressibility then decreased as the pore fluid pressure was re-established. The extreme increases in the compressibility shown in these graphs would likely not be as large in the field, where the compressibility is taken as an average over the formation. Locally yielded regions could, however, cause a noticeable increase in the compressibility.

Figures (e) show the porosity as a function of pore pressure. These figures show that there is only a slight change in porosity at low effective stress. A significant porosity change can be observed on pore fluid pressure

drawdown. In all three tests the linear portions of these curves are nearly parallel.

The permeability as a function of pore pressure is shown in figures (f). These plots show noticeable reductions in all samples during the pore pressure drawdown, particularly when the sample yielded. The permeability did not show corresponding recovery when the pore pressure was established to the initial reservoir pressure. Bars are included on these plots to show our estimated range of error for each variable. In the case of the pore pressure, the points represent the target pressures and the bars show the range of pressures over which the permeability measurements were actually made.

Short-Term Hydrostatic Compression Test

The results of the short-term hydrostatic compression tests are shown in Figures 4-6b. Figures (a) are plots of the axial, radial and volume strains as a function of confining pressure and figures (b) show the pore volume strain as a function of the confining pressure. In the case of sample #3, two tests were performed on different samples. In both tests, the axial strains are shown to be significantly larger than the radial strains. The change in slope in these tests at approximately 2000 psi corresponds to the change in the loading rate that occurred at 1870 psi. Sample #2 was a very friable sandstone. Its behavior is similar to sample #3 except that this test showed the sample to undergo similar compaction in all directions. One test was performed on this sample number.

Figure 4a.

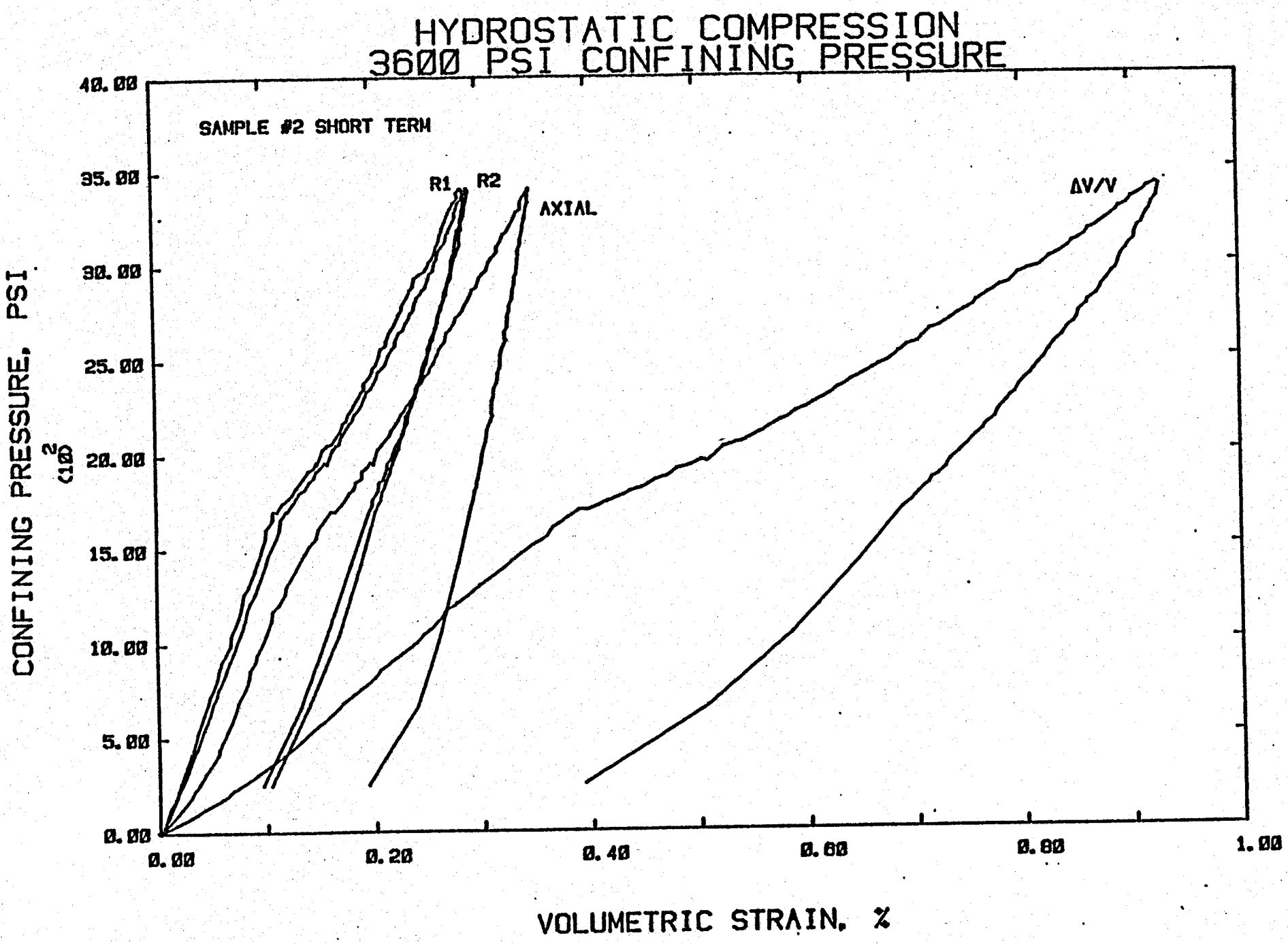

HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #2 SHORT TERM
R1
R2
AXIAL
ΔV/V
CONFINING PRESSURE, PSI
(10^2)
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
0.20
0.40
0.60
0.80
1.00
VOLUMETRIC STRAIN, %

Figure 4b.

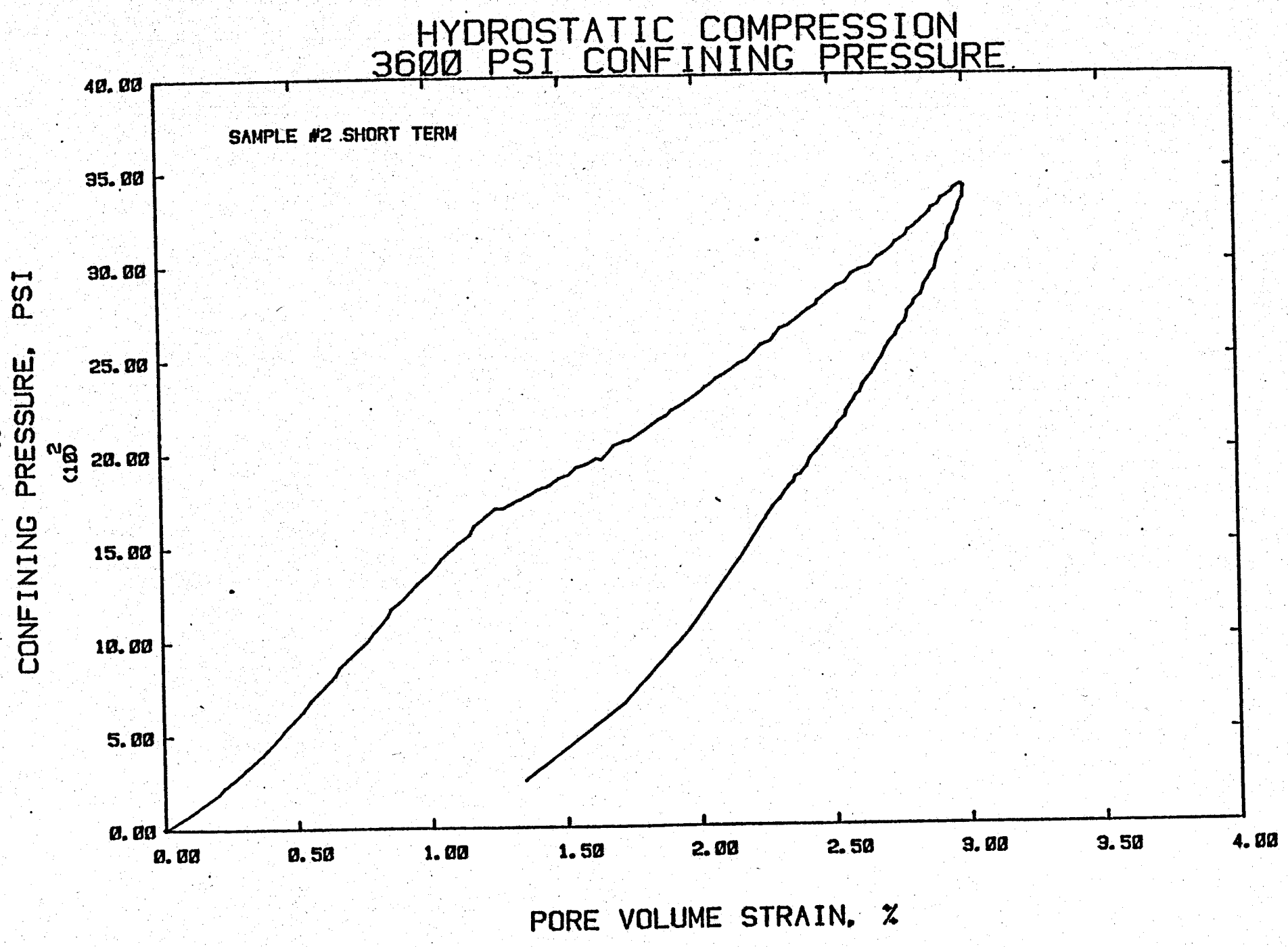

HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #2 SHORT TERM
CONFINING PRESSURE, PSI
(10)2
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
PORE VOLUME STRAIN, %

Figure 5a.

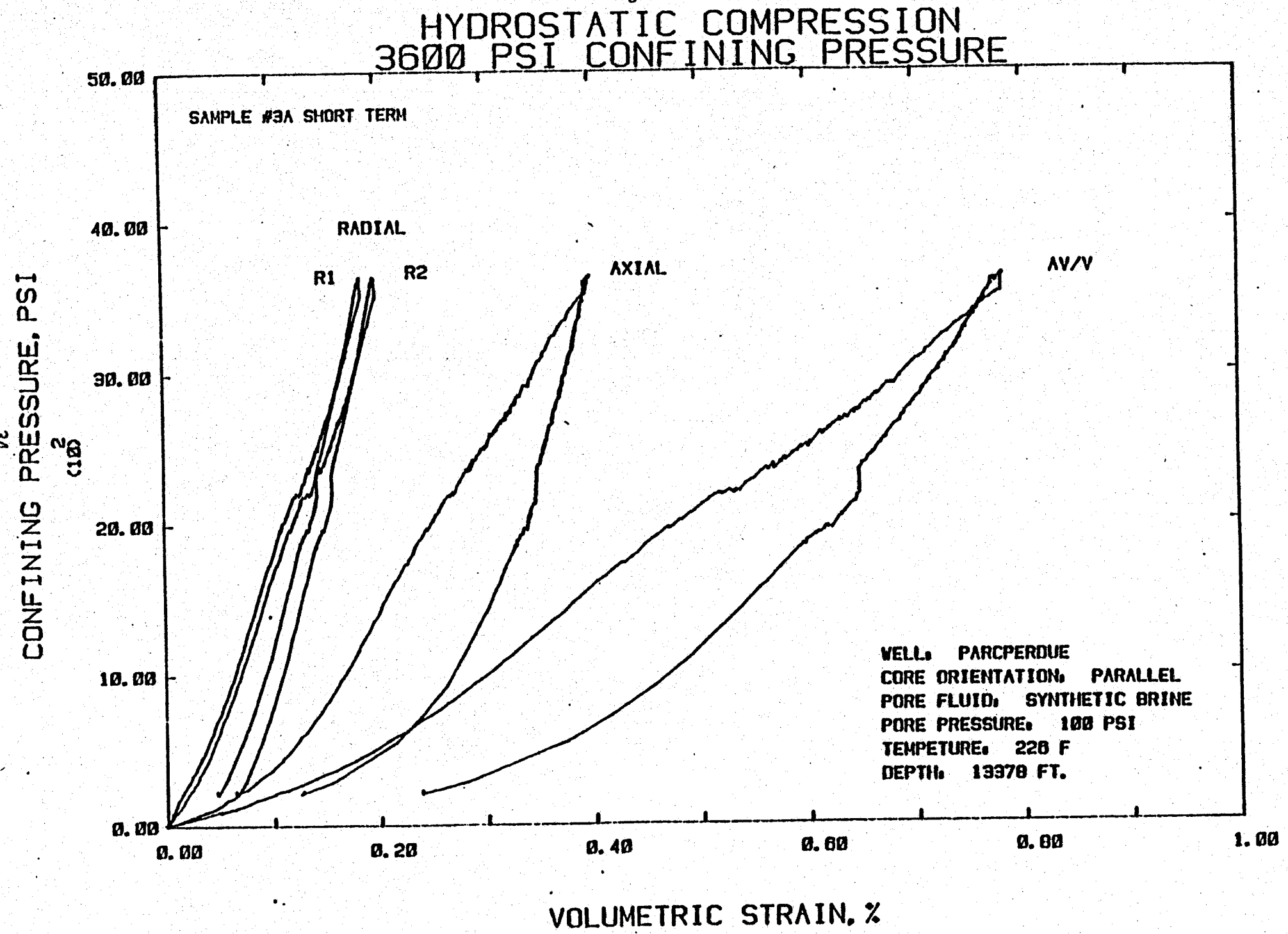

HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #3A SHORT TERM
RADIAL
R1
R2
AXIAL
AV/V
WELL: PARCPERDUE
CORE ORIENTATION: PARALLEL
PORE FLUID: SYNTHETIC BRINE
PORE PRESSURE: 100 PSI
TEMPETURE: 220 F
DEPTH: 13370 FT.
CONFINING PRESSURE, PSI
(10^2)
50.00
40.00
30.00
20.00
10.00
0.00
0.00
0.20
0.40
0.60
0.80
1.00
VOLUMETRIC STRAIN, %

Figure 5 b.

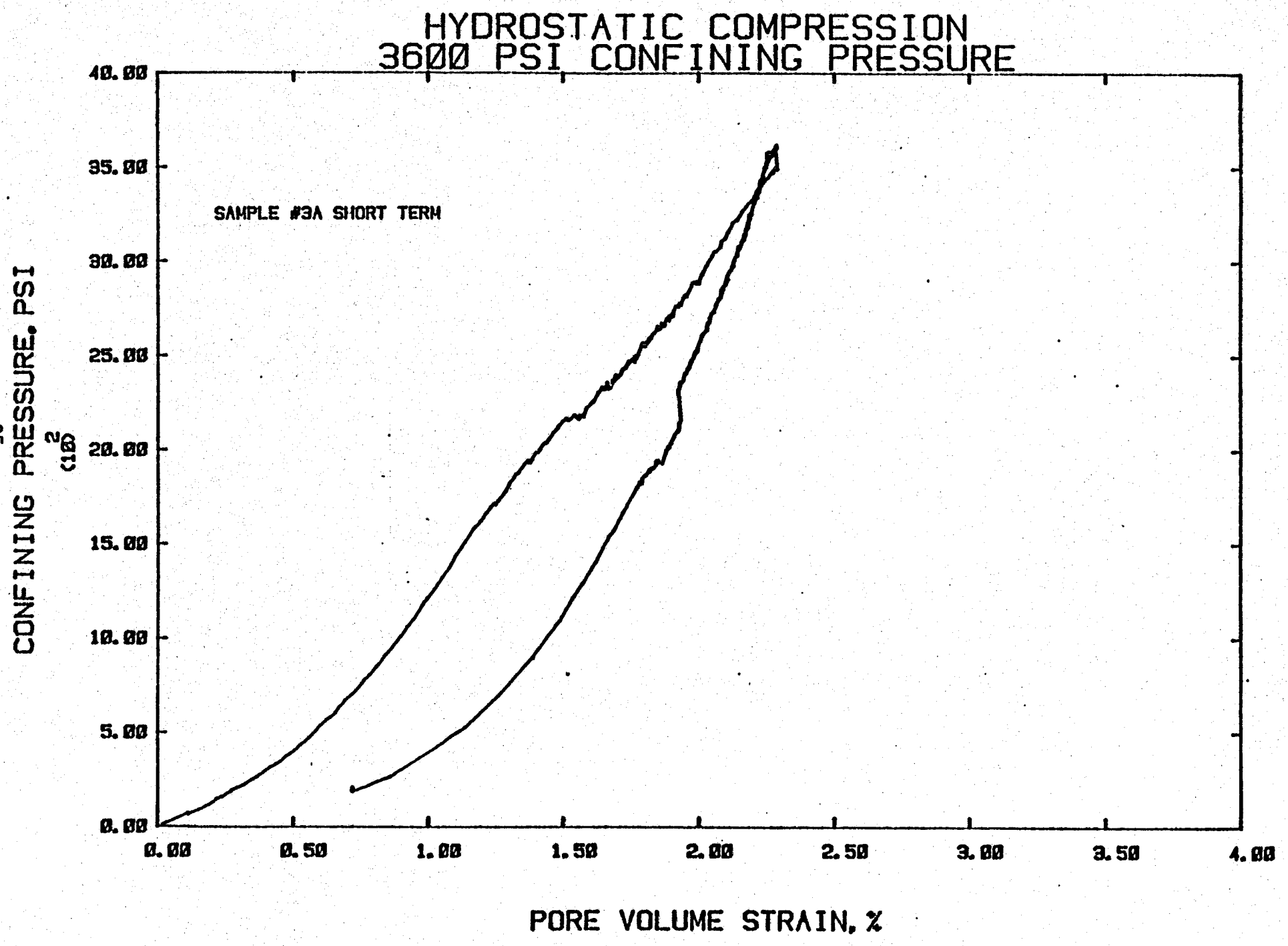

HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #3A SHORT TERM
CONFINING PRESSURE, PSI
(10^2)
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
PORE VOLUME STRAIN, %

Figure 6a.

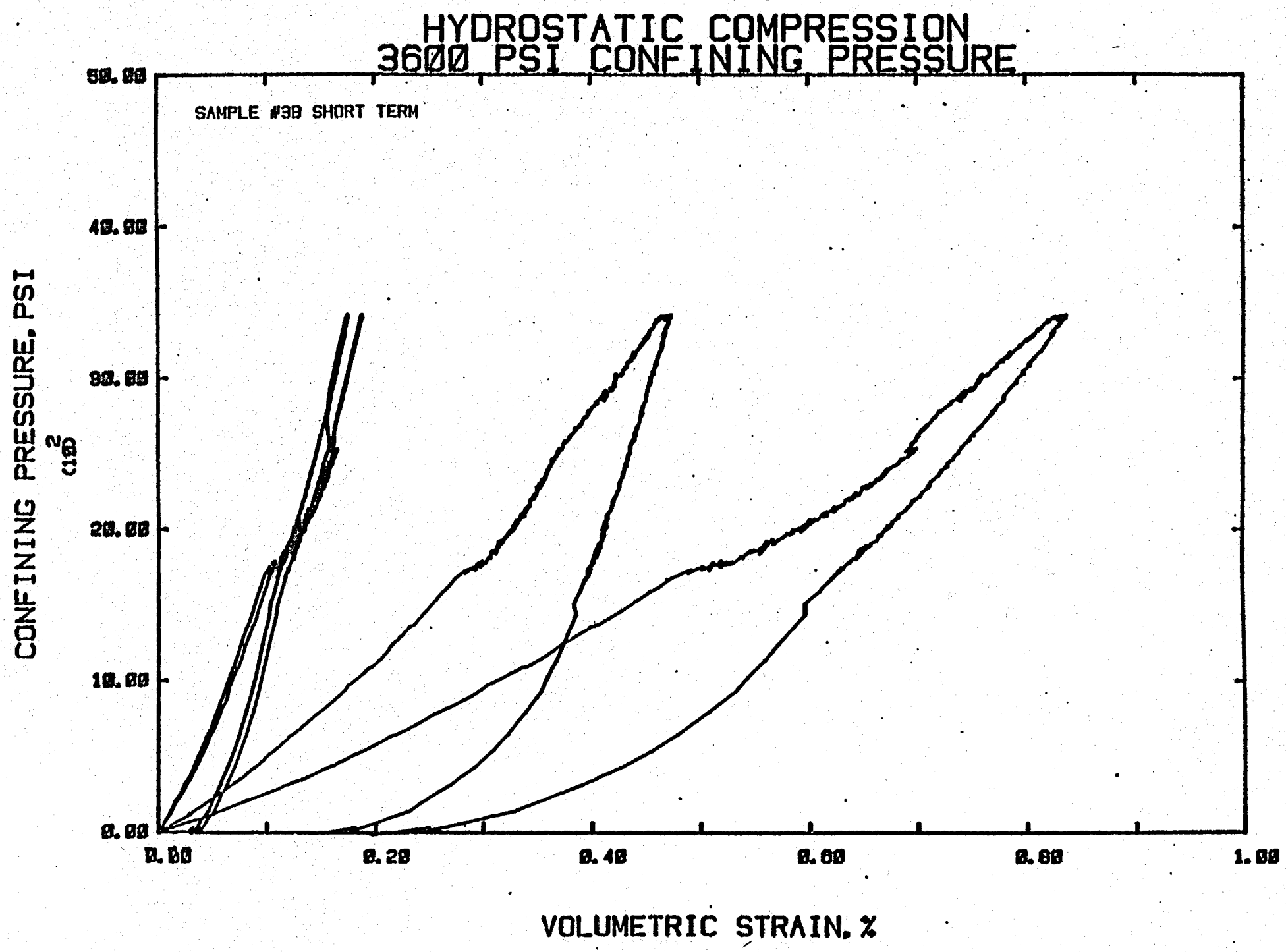
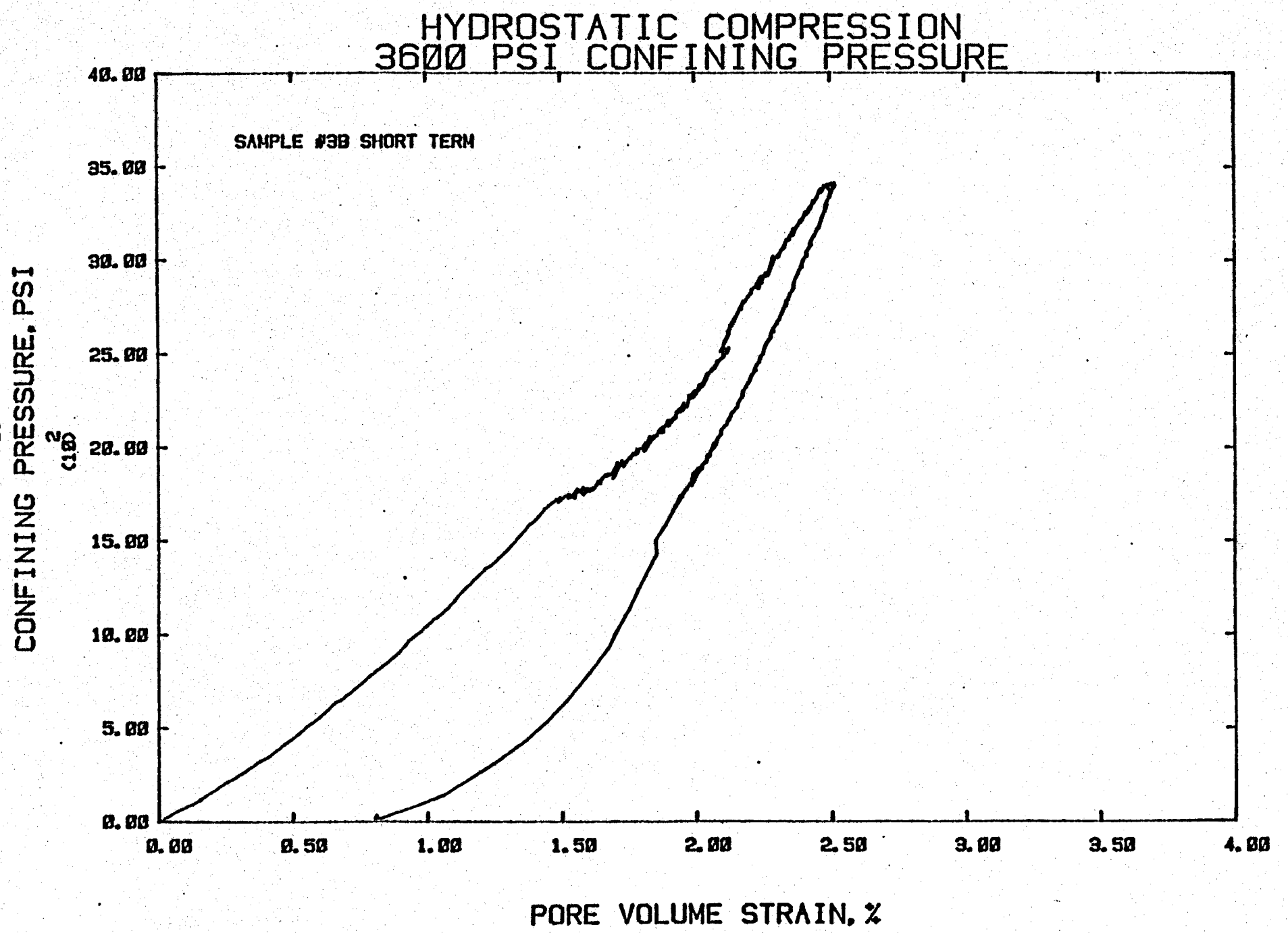

HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #3B SHORT TERM
CONFINING PRESSURE, PSI
50.00
40.00
30.00
20.00
10.00
0.00
0.00
0.20
0.40
0.60
0.80
1.00
VOLUMETRIC STRAIN, %

Figure 6b.


HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #3B SHORT TERM
CONFINING PRESSURE, PSI
(10^2)
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
PORE VOLUME STRAIN, %

Long-Term Hydrostatic Compression

Samples for the long-term hydrostatic compression tests were taken from the same core that were used to prepare samples for the short-term hydrostatic compression tests. These tests were designed to help determine the role of creep in the change of compressibility. The results of the long-term hydrostatic compression tests are shown in Figures 7a-8b which show (a) the bulk volume strain as a function of confining pressure, and (b) the pore volume strain as a function of confining stress.

The radial strain transducers drifted at an unacceptable amount during the creep tests. The possibility of this occurring during the test had been anticipated based on prior experience with strain gage transducers. Because of this axial strain was measured using linear variable differential transformers (LVDT). LVDTs are known for long-term stability and are frequently utilized in creep experiments. Due to time and economic constraints, radial LVDT transducers could not be developed for this project.

It was felt that the most accurate representation of the actual behavior of the sample would be determined by calculating the bulk volume change based on the axial strain measurement. The radial deformation was estimated by scaling the axial strain data. The amount of scaling was determined from the short-term hydrostatic strain data, which showed the radial strains to be qualitatively similar in samples #2 and #3 but approximately 6% and 57% smaller, respectively, in magnitude than the axial strains. Therefore, bulk volume strain was calculated as follows for the long-term hydrostatic compression tests:

$$\frac{\Delta Vb}{Vb_o} = \frac{\varepsilon_a + 2(K)\,\varepsilon_a}{3}$$

where: ε_a = axial strain

K = scaling constant

Figure 7a.

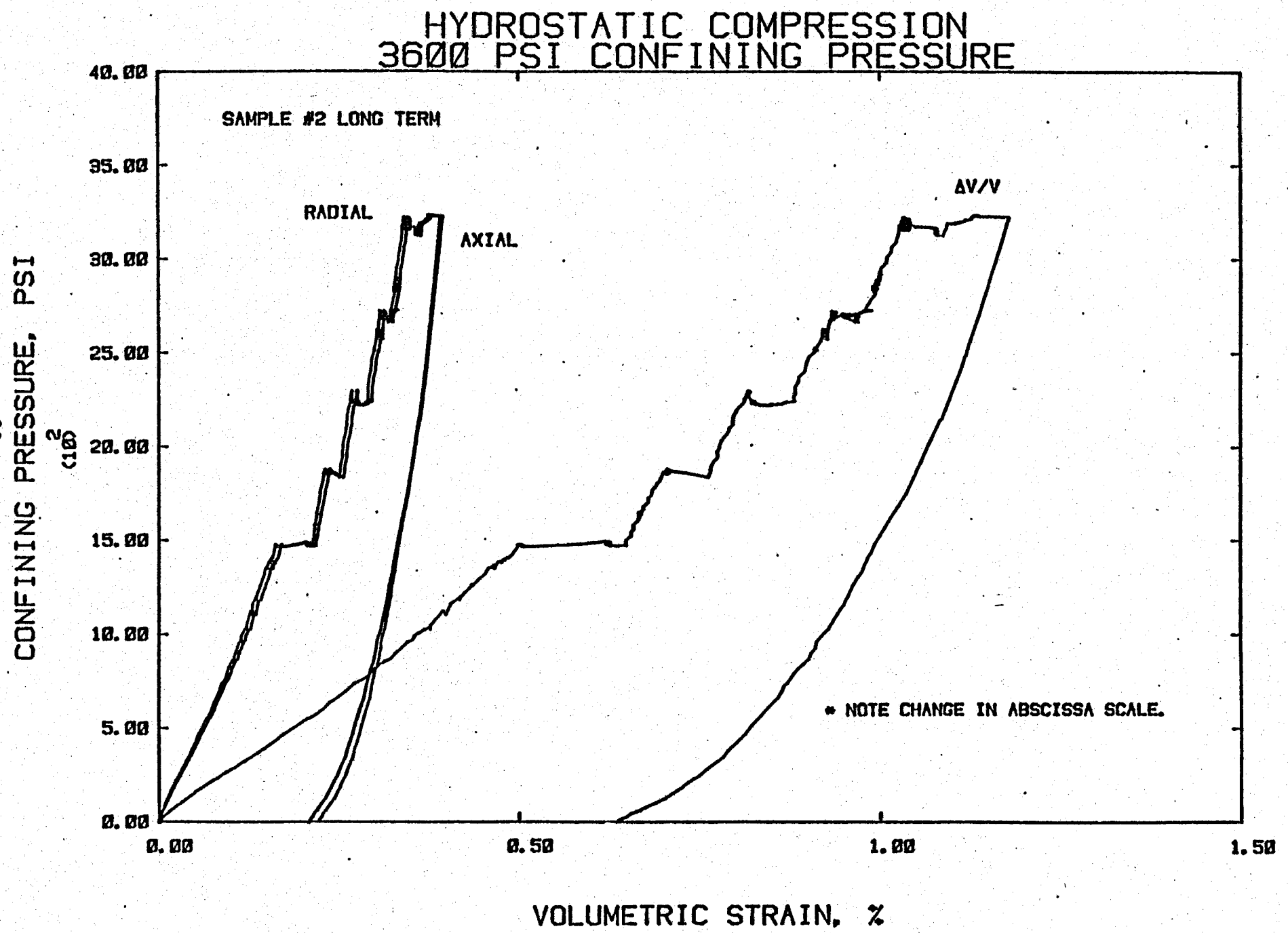
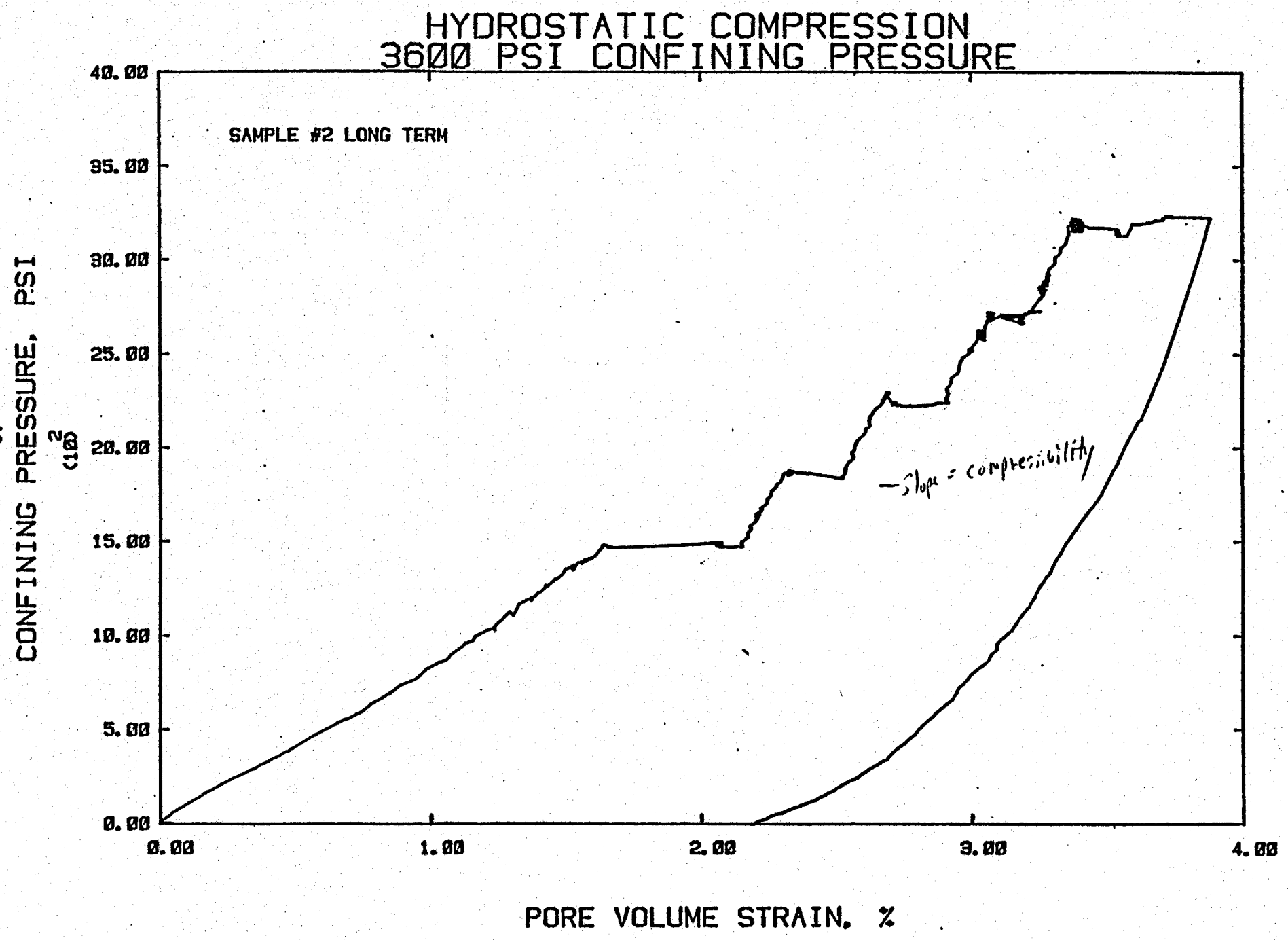

HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #2 LONG TERM
RADIAL
AXIAL
ΔV/V
* NOTE CHANGE IN ABSCISSA SCALE.
CONFINING PRESSURE, PSI
(10^2)
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
0.50
1.00
1.50
VOLUMETRIC STRAIN, %

Figure 7b.



TerraTek Research

Figure 8a.

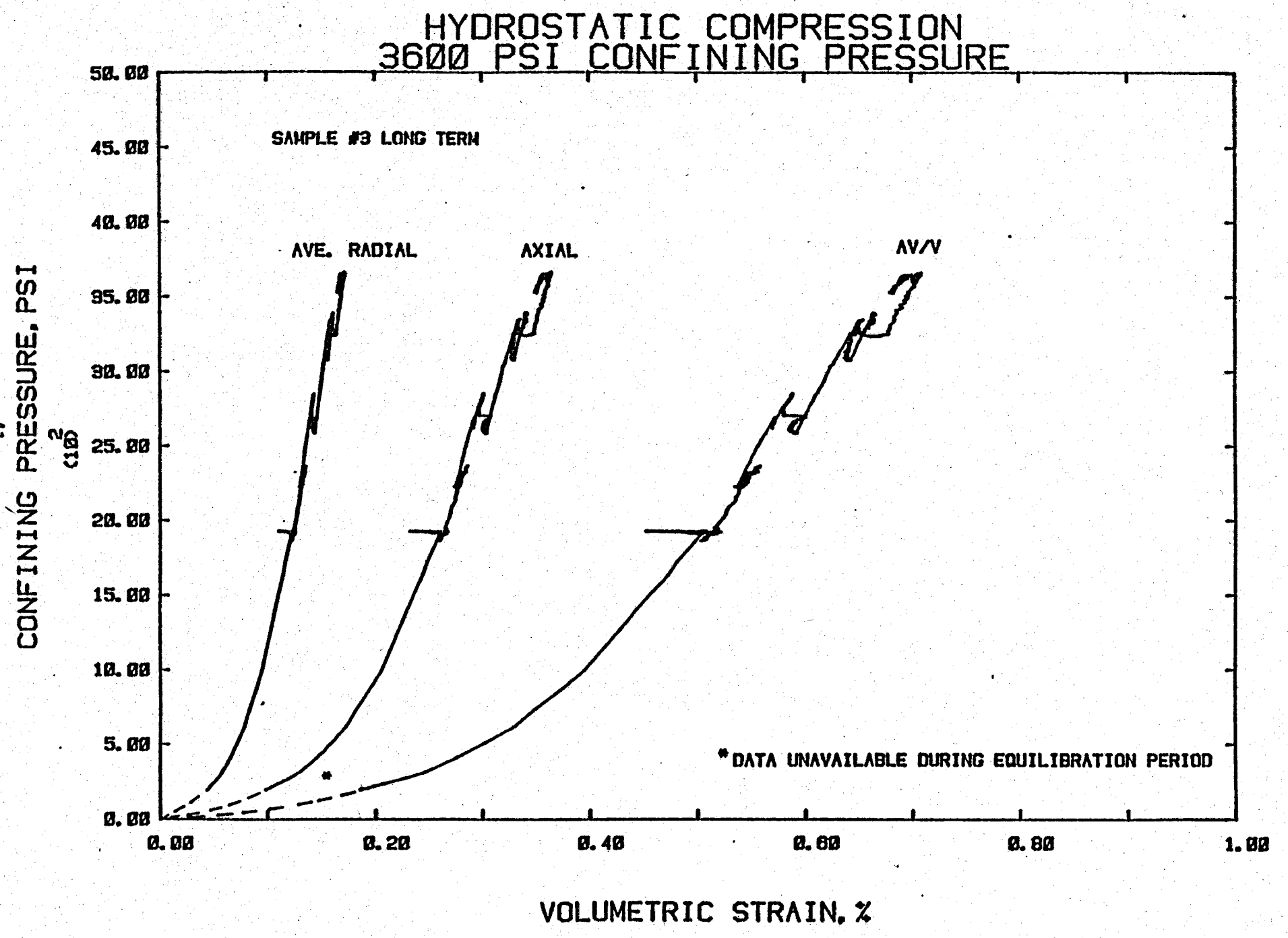
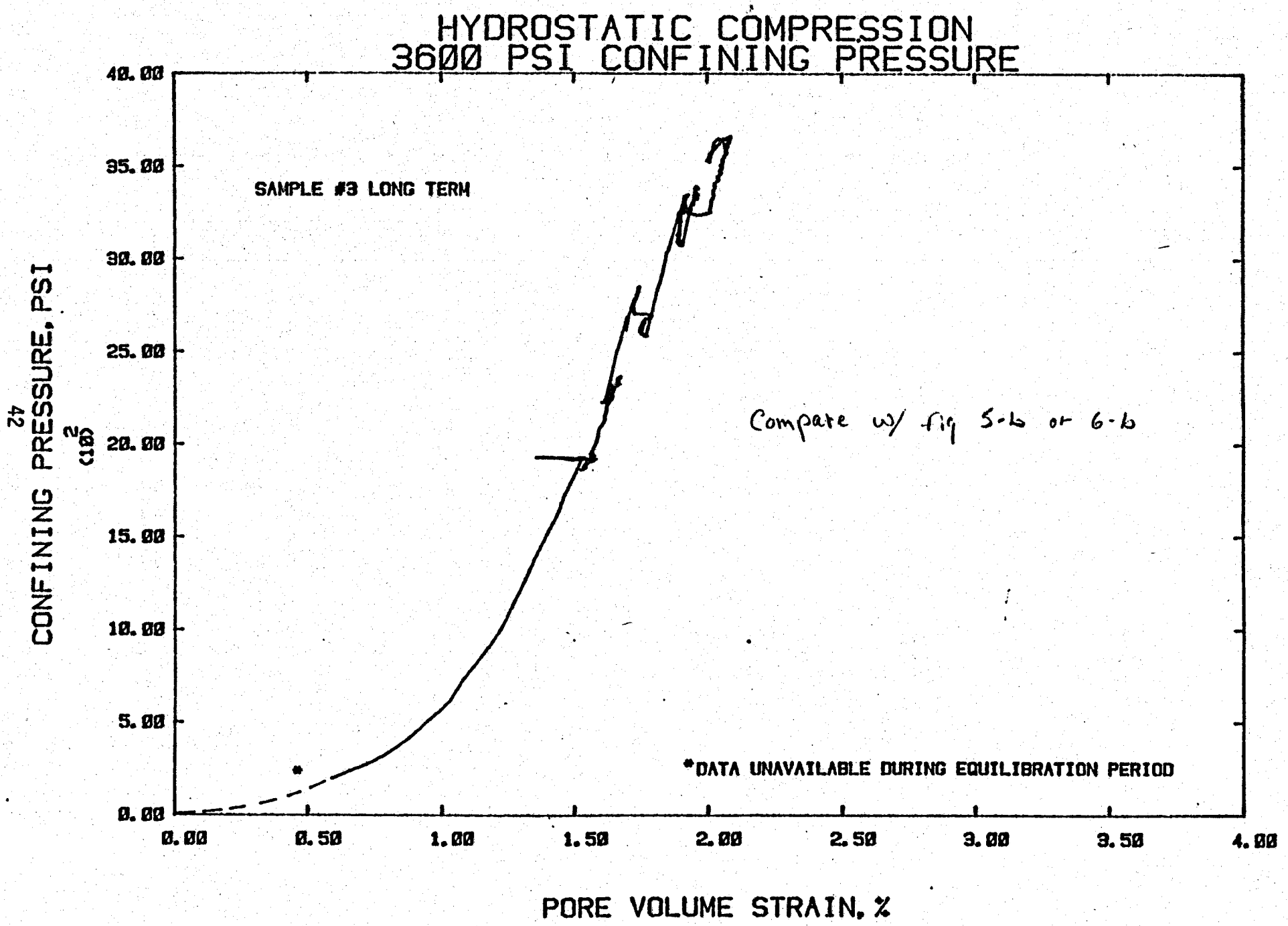
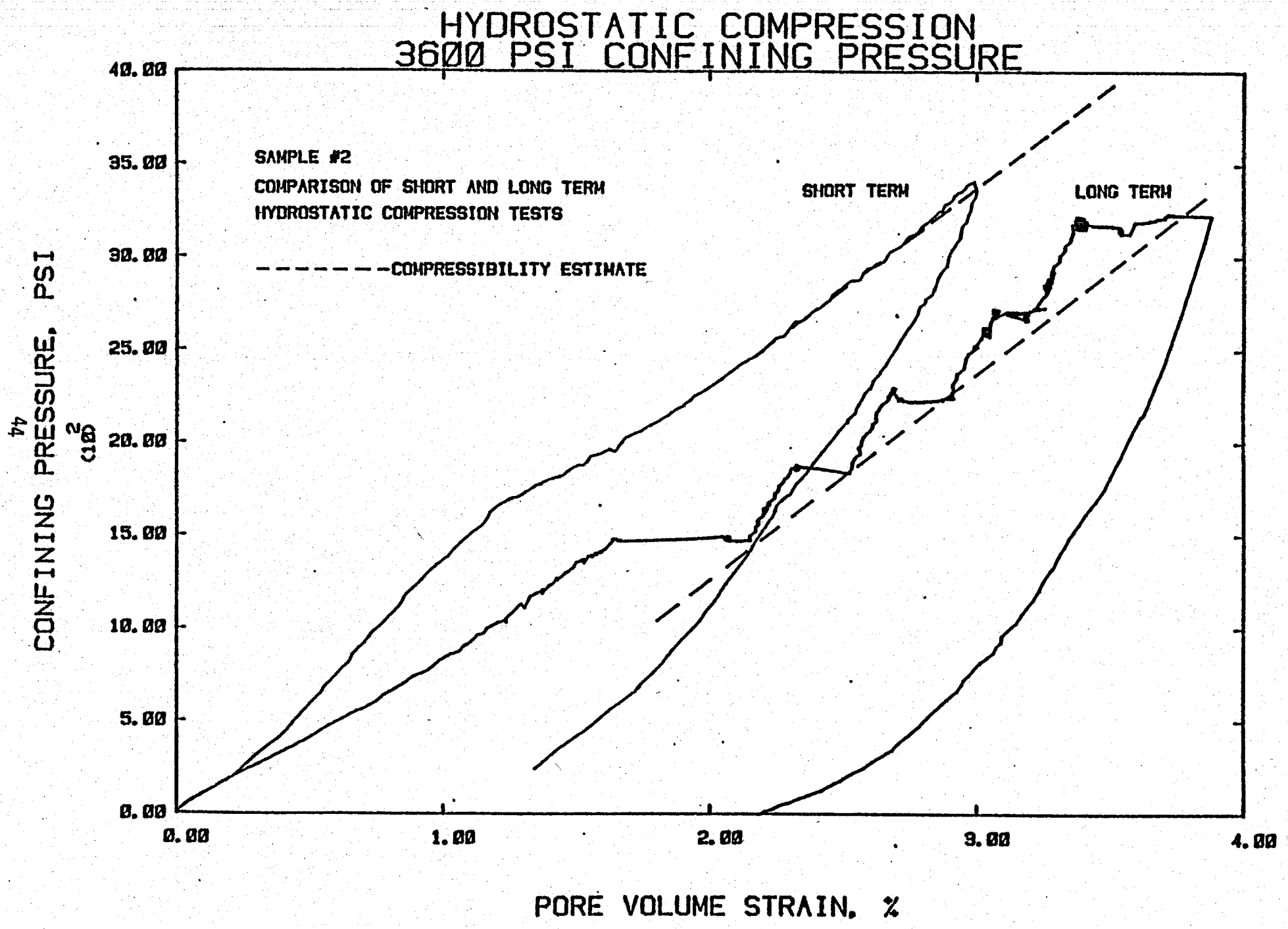

HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #3 LONG TERM
AVE. RADIAL
AXIAL
ΔV/V
*DATA UNAVAILABLE DURING EQUILIBRATION PERIOD
CONFINING PRESSURE, PSI
(10^2)
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
0.20
0.40
0.60
0.80
1.00
VOLUMETRIC STRAIN, %

Figure 8b.


HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #3 LONG TERM
Compare w/ fig 5-b or 6-b
*DATA UNAVAILABLE DURING EQUILIBRATION PERIOD
CONFINING PRESSURE, PSI
(10)2
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
PORE VOLUME STRAIN, %

Figures 7 and 8 show that there is a creep response of the samples to the applied stress. A direct comparison between the short- and long-term response of core material #2 is shown in Figure 9. As can be observed, the magnitude of the pore volume strain is larger when the sample is stressed over an extended period. However, the majority of the difference in strain response occurs below 2000 psi confining stress. In fact, above 2000 psi the compressibilities of the two samples are very similar. No sample yielding was observed in any of the hydrostatic compression tests.

Figure 9.


HYDROSTATIC COMPRESSION
3600 PSI CONFINING PRESSURE
SAMPLE #2
COMPARISON OF SHORT AND LONG TERM
HYDROSTATIC COMPRESSION TESTS
COMPRESSIBILITY ESTIMATE
SHORT TERM
LONG TERM
CONFINING PRESSURE, PSI
(10^2)
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
1.00
2.00
3.00
4.00
PORE VOLUME STRAIN, %

High Resolution Permeability Tests

The results of the permeability tests on the barrier material are shown in Table 2. These results show, as expected, that this barrier material was relatively impermeable to the synthetic formation brine. One sample, D-113, disintegrated during saturation, and as such no data is available for this sample. These data are consistent with other values from work performed on similar materials*.

Table 2

Permeability of Barrier Shales to Synthetic Formation Brine

Sample I.D.	Depth (ft)	Sample Length (in)	Sample Diameter (in)	Permeability (10^{-6} darcy)
D-113*	13430.8-13431.4	N/A	N/A	N/A
D-123	13439.7-13440.4	1.170	1.735	0.04±0.02
D-125	13441.9-13442.4	0.750	1.732	0.05±0.02
D-132	13448.0-13449.6	0.825	1.735	0.29±0.02
D-134	13450.8-13451.4	0.487	1.745	0.03±0.02

*Sample disintegrated during saturation.

*Wolf, R.G., "Porosity, Permeability, Distribution Coefficients and Dispersivity," Physical Properties of Rocks and Minerals, (Touloukian, Y.S., Judd, W.R., and Ray, R.F., editors), McGraw-Hill, New York, 1981.

APPENDIX

UNIAXIAL COMPRESSION TEST WITH PORE PRESSURE DRAWDOWN SIMULATING RESERVOIR PRODUCTION

Objective

Reduction of the permeability of a reservoir rock due to well production is a significant parameter which must be considered when designing and producing a well. This test is designed to simulate actual in-situ conditions and rock behavior during reservoir drawdown.

Test Description

A uniaxial compression test involves the application of stresses to a right circular cylinder of core material. In-situ conditions are reached by application of hydrostatic and deviatoric stresses such that there is no radial deflection of the sample surface throughout the course of the test. Pore fluid pressure is also controlled with the deviatoric and hydrostatic stresses. After the desired stress in-situ state has been attained, the pore fluid pressure is decreased simulating production while maintaining the radial sample boundary and the total axial stress.

All pressures, strains and temperature are recorded during the test. These individual data, and algebraic combinations may be plotted to show the simulated in-situ behavior.

Test Procedure

Core plugs are cut to length and the ends ground flat and parallel to within 0.001 in/in. To prevent the intrusion of the confining medium into the sample pore spaces, each sample is placed between hardened steel end caps and surrounded with either a Teflon or polyurethane jacket depending on the temperature requirements. The steel endcaps provide a relatively non-compliant surface on which the deviatoric stress is applied and a surface to which the jacketing material is secured. Cantilever beam type strain transducers are positioned on the sample to measure strains in three orthogonal directions.

The jacketed and instrumented sample is placed in a heated servo-controlled test cell and nominal confining and pore pressures are applied. After reaching temperature equilibrium, the loading sequence begins.

A ramped deviatoric stress is applied at a constant rate while the confining stress is adjusted such that there is no radial movement at the sample boundary. The pore fluid pressure is increased to the in-situ level proportionately with the confining stress. If the particular rock properties will not allow the in-situ conditions to be reached while following a uniaxial strain path, a proportional loading path will be followed.

When the in-situ stress state has been established, a permeability measurement, using the steady-state method, is taken. Reservoir production is then simulated by slowly decreasing the pore fluid pressure, while maintaining the radial boundary and the total axial stress constant. Pore fluid pressure is decreased until the abandonment pressure is reached. Several times during the course of the drawdown and at the abandonment pressure the permeability is measured. After the abandonment pressure has been reached the test may be terminated or the reverse process, namely pore pressure draw-up may begin. Permeability measurements during the pore pressure increase are measured at the same reservoir pressures as during the drawdown phase.

During the entire course of the test, the axial and radial strains, deviatoric, hydrostatic, differential and pore fluid pressures, and temperature are recorded using a digital data acquisition system and analog X-Y-Y recorders.

Test Results

Results of a uniaxial strain test with pore pressure drawdown are presented in tabular and graphical form. Data generally includes the permeabil-

ity, porosity and bulk volume change due to increasing effective stress. Individual strains and stresses and algebraic combinations may be plotted against each other as desired.

HYDROSTATIC COMPRESSION TEST

Objective

Hydrostatic compression tests provide bulk and pore volume changes in response to increasing overburden stresses. This test also provides a direct method of determining the bulk and formation compressibility.

Test Description

A hydrostatic compression test involves the application of stress to a right circular cylinder of core material. An increasing hydrostatic state of stress is imposed on the sample (i.e., $\sigma_1 = \sigma_2 = \sigma_3$) up to the desired level. Sample strain in the three principle directions is recorded throughout the test. Sample pore pressure and temperature can also be controlled and recorded.

Test Procedure

Core plugs are cut to length and the ends ground flat and parallel to within 0.001 in/in. To prevent the intrusion of confining fluid into the sample pore spaces, each sample is placed between two hardened steel endcaps and surrounded with a teflon jacket. Cantilever strain transducers are positioned on the endcaps to record axial strain, and lateral strain cantilever transducers are placed across the sample diameter at the mid-point of the sample to record lateral strain. The prepared sample is placed in a heated hydrostatic test cell and a nominal confining pressure and pore pressure preload are applied to the sample. After reaching temperature equilibrium, the sample is hydrostatically compressed to the specified effective confining pressure. Axial strain, lateral strain, and deviatoric stress are recorded continuously during hydrostatic and triaxial compression by computer and X-Y-Y plotters.

Test Results

The results of the hydrostatic compression tests are presented in graphical form. Data usually consist of a plot of the axial, radial and volume strain as a function of the confining pressure.

PERMEABILITY USING A TRANSIENT PULSE TECHNIQUE

Introduction

The use of transient methods to measure relative permeability is a predominant method and for reservoir material with permeability less than 1 μd. The following procedures are designed to measure relative permeability of gas at varying water saturation levels of test samples subjected to reservoir conditions of pressure and temperature. The results give relative permeability curves as a function of pressure for each water saturation level.

Sample Preparation

Core material is prepared as right circular cylinders with their axes perpendicular to the whole core axis. Air is used as a cooling medium in all sample preparation procedures. The test samples are then oven-dried to 50°C for 24 hours. The samples are then subjected to vacuum flooding techniques with deaerated brine solutions. The successive water saturation levels are then obtained by a series of drying (at ambient conditions) an weight measurements for mass balance calculations. Typical water saturation values used are 0, 20, 40 and 60%. The samples are then placed between two end caps and jacketed. The end caps are designed to allow fluid flow through the specimen in both directions.

Relative Permeability Measurements

The samples are connected to a fixed upstream gas volume, V_1, and a fixed downstream volume, V_2. Both volumes are large compared to the sample pore volume. The sample is placed in a hydrostatic test vessel and gradually subjected to simultaneous conditions of axial load, confining pressure, pore pressure and temperature. When equilibrium is reached (pressures in V_1, V_2 and the pore space are equal), a pressure pulse is introduced into the upstream volume, V_1. From the record of pressure decay in V_1 versus time, it is possible to calculate relative permeability of the sample to gas.

This procedure is repeated for each water saturation level chosen. The brine saturation measurements taken at ambient conditions are compensated for thermal expansion of water and stress related reduction in pore volume from subjecting the sample to in-situ conditions.

Two types of corrections for water saturation are made for this test. The first deals with pressure and the second deals with pore volume. The pressure is temperature corrected by calculating a thermal expansion coefficient of the specified brine. The pore volume is then pressure compensated by calculating a pore volume compressibility factor. If the elastic moduli are known for the sample, this can be easily calculated. If not, then a triaxial test can be run to determine these parameters.

Another way of evaluating pore volume compressibility is by saturating the sample with brine and subjecting the sample to in-situ pressures and ambient temperature. As the pressure is gradually applied, the expelled fluid volume is measured. The pore volume is then corrected for compressibility which results in a more accurate water saturation value.

PORE FLUID CHEMISTRY OF SYNTHETIC FORMATION BRINE FOR THE SWEEZY NO. 1 WELL

Pore Fluid Chemistry

During preparation of the original synthetic formation brine, a significant amount of a magnesium-bicarbonate precipitate was produced at neutral pH. A revised formulation eliminating the bicarbonate as allowed by Mr. Hamilton is listed in Table 1. The pH of this solution was 6.4.

Table 1

Revised Reservoir Fluid, Sweezy No. 1 Test Well

Compound	Molecular or Formula Weight	Required Mass (mgs)*	Chemical Constituents (ppmV)						
			Sodium	Potassium	Magnesium	Calcium	Chloride	Bicarbonate	Sulfate
NaCl	58.44	86,404	34,000				52,404		
KCl	74.56	342.2		180			163.20		
$MgCl_2 \cdot 6H_2O$	203.30	991.1			118.50		345.79		
$CaCl_2 \cdot 2H_2O$	146.99	6,418				1750	3,096		
$MgSO_4$	120.38	651.0			131.50				520
Actual Conc. ppmV			34,000	180	250.00	1750	56,009		520
Desired Conc. ppmV			34,000	180	250.00	1750	54,000	380	520

*Dissolve required mass of each compound in one liter of deionized water to produce required synthetic fluid composition.

UNIAXIAL STRAIN TEST, SAMPLE #1

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1	1332	1341	0.008	-0.001	1296	38	26.114	0.006	-0.046	3.0
2	1418	1430	0.008	-0.000	1378	46	26.114	0.007	-0.046	3.3
3	1509	1519	0.004	0.001	1471	41	26.116	0.006	-0.056	3.5
4	1593	1601	0.010	0.004	1557	38	26.109	0.017	-0.015	3.8
5	1698	1710	0.011	0.006	1650	54	26.106	0.023	-0.001	4.0
6	1801	1815	0.013	0.006	1754	51	26.106	0.025	0.004	4.2
7	1903	1918	0.012	0.010	1858	50	26.102	0.032	0.025	4.5
8	2007	2018	0.014	0.013	1962	49	26.098	0.040	0.048	4.7
9	2123	2145	0.005	0.002	2103	27	26.121	0.010	-0.072	5.0
10	2237	2255	0.004	0.002	2223	20	26.123	0.009	-0.080	5.3
11	2354	2374	0.005	0.004	2340	20	26.121	0.014	-0.068	5.5
12	2475	2484	0.006	-0.001	2460	18	26.130	0.004	-0.110	5.7
13	2581	2602	0.006	-0.000	2572	15	26.131	0.005	-0.112	6.0
14	2692	2717	0.004	-0.002	2686	14	26.136	-0.000	-0.138	6.2
15	2811	2823	0.003	-0.002	2805	10	26.137	-0.000	-0.144	6.5
16	2910	2925	0.004	-0.001	2907	8	26.137	0.002	-0.139	6.7
17	3017	3037	0.006	0.000	3002	21	26.136	0.006	-0.131	7.0
18	3115	3129	0.002	0.001	3118	1	26.138	0.004	-0.143	7.2
19	3211	3222	0.004	0.002	3211	3	26.138	0.007	-0.138	7.5
20	3312	3330	0.002	0.002	3309	8	26.140	0.005	-0.149	7.7
21	3397	3411	0.003	0.001	3398	3	26.142	0.004	-0.157	8.0
22	3505	3538	0.006	0.008	3505	11	26.131	0.021	-0.096	8.2
23	3613	3636	0.005	0.003	3606	15	26.140	0.011	-0.143	8.5
24	3714	3740	0.008	0.004	3703	20	26.138	0.015	-0.132	8.7
25	3810	3835	0.009	0.007	3799	19	26.133	0.024	-0.103	9.0
26	3907	3914	0.007	0.007	3909	0	26.136	0.022	-0.114	9.2
27	4040	4059	0.007	0.005	4038	8	26.141	0.017	-0.142	9.5
28	4161	4184	0.006	0.008	4149	19	26.138	0.023	-0.124	9.7
29	4277	4293	0.007	0.009	4269	12	26.137	0.026	-0.117	10.0
30	4400	4426	0.010	0.011	4375	33	26.136	0.031	-0.106	10.2
31	4513	4528	0.012	0.015	4487	30	26.129	0.042	-0.069	10.5
32	4654	4677	0.012	0.013	4620	41	26.135	0.037	-0.096	10.7
33	4770	4789	0.015	0.017	4728	48	26.128	0.049	-0.057	11.0
34	4881	4895	0.018	0.023	4830	56	26.119	0.063	-0.008	11.2
35	5006	5018	0.015	0.022	4959	51	26.123	0.060	-0.028	11.5
36	5122	5132	0.024	0.027	5046	79	26.111	0.078	0.038	11.7
37	5230	5255	0.024	0.030	5153	85	26.108	0.083	0.051	12.0
38	5342	5353	0.022	0.026	5271	75	26.117	0.074	0.008	12.2
39	5461	5490	0.024	0.028	5377	93	26.113	0.081	0.031	12.5
40	5568	5590	0.027	0.033	5470	105	26.106	0.093	0.069	12.7
41	5673	5698	0.029	0.035	5581	99	26.102	0.099	0.090	13.0
42	5788	5808	0.029	0.034	5690	104	26.105	0.098	0.077	13.2
43	5895	5909	0.031	0.039	5795	104	26.098	0.109	0.115	13.5
44	6016	6037	0.031	0.040	5919	103	26.099	0.111	0.115	13.7
45	6149	6169	0.034	0.042	6035	120	26.096	0.117	0.134	14.0
46	6279	6302	0.033	0.041	6165	121	26.098	0.116	0.122	14.2
47	6396	6409	0.035	0.044	6283	117	26.095	0.123	0.143	14.5
48	6534	6565	0.038	0.049	6401	143	26.087	0.137	0.188	14.7
49	6665	6687	0.040	0.053	6525	147	26.081	0.147	0.220	15.0
50	6811	6829	0.043	0.055	6653	163	26.077	0.154	0.240	15.2

UNIAXIAL STRAIN TEST. SAMPLE #1

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51	6946	6968	0.047	0.062	6775	177	26.067	0.170	0.296	15.5
52	7095	7116	0.045	0.056	6954	147	26.079	0.157	0.238	15.7
53	7248	7276	0.048	0.062	7070	187	26.071	0.171	0.282	16.0
54	7369	7384	0.042	0.056	7233	140	26.085	0.154	0.211	16.2
55	7499	7512	0.046	0.060	7351	152	26.078	0.166	0.251	16.5
56	7636	7663	0.048	0.065	7473	172	26.071	0.177	0.287	16.8
57	7776	7803	0.052	0.070	7583	202	26.063	0.192	0.335	17.0
58	7904	7922	0.050	0.066	7739	171	26.071	0.182	0.292	17.2
59	8036	8056	0.052	0.070	7853	189	26.066	0.191	0.321	17.5
60	8170	8190	0.055	0.073	7970	206	26.061	0.201	0.349	17.7
61	8310	8336	0.049	0.066	8141	178	26.077	0.181	0.268	18.0
62	8452	8471	0.051	0.069	8274	184	26.074	0.189	0.289	18.2
63	8593	8611	0.050	0.070	8405	194	26.074	0.191	0.291	18.5
64	8733	8760	0.050	0.069	8546	195	26.078	0.189	0.274	18.7
65	8873	8880	0.051	0.072	8684	191	26.074	0.195	0.293	19.0
66	9024	9029	0.054	0.076	8821	204	26.068	0.206	0.327	19.2
67	9176	9181	0.057	0.078	8970	207	26.065	0.214	0.349	19.5
68	9318	9321	0.057	0.079	9122	197	26.066	0.215	0.346	19.7
69	9484	9500	0.060	0.082	9272	217	26.062	0.224	0.371	20.0
70	9639	9653	0.065	0.087	9399	244	26.052	0.239	0.421	20.2
71	9784	9791	0.062	0.084	9571	214	26.061	0.230	0.380	20.5
72	9935	9953	0.068	0.091	9694	247	26.048	0.250	0.448	20.7
73	10107	10125	0.071	0.098	9842	270	26.039	0.266	0.500	21.0
74	10280	10294	0.075	0.102	9993	291	26.032	0.278	0.538	21.2
75	10425	10447	0.079	0.109	10109	323	26.021	0.296	0.597	21.5
76	10571	10586	0.071	0.098	10322	254	26.044	0.268	0.482	21.7
77	10720	10734	0.075	0.102	10454	271	26.037	0.280	0.520	22.0
78	10872	10890	0.081	0.108	10579	298	26.027	0.297	0.577	22.2
79	11022	11032	0.083	0.113	10712	313	26.019	0.310	0.620	22.5
80	11168	11181	0.082	0.112	10871	300	26.023	0.307	0.603	22.7
81	11313	11334	0.088	0.119	10981	338	26.011	0.326	0.667	23.0
82	11455	11471	0.085	0.120	11158	302	26.013	0.326	0.658	23.2
83	11625	11627	0.096	0.130	11256	369	25.993	0.356	0.764	23.5
84	11785	11794	0.103	0.144	11347	441	25.970	0.390	0.886	23.7
85	11941	11949	0.120	0.167	11336	607	25.925	0.454	1.121	24.0
86	12108	12116	0.137	0.188	11340	770	25.884	0.513	1.334	24.2
87	12224	12245	0.148	0.208	11330	900	25.849	0.564	1.521	24.5
88	12381	12402	0.159	0.224	11340	1048	25.819	0.608	1.678	24.7
89	12535	12553	0.171	0.243	11351	1190	25.784	0.658	1.859	25.0
90	12700	12714	0.183	0.263	11338	1366	25.749	0.709	2.046	25.2
91	12878	12901	0.195	0.282	11337	1548	25.715	0.758	2.221	25.5
92	13024	13029	0.204	0.301	11334	1692	25.682	0.806	2.395	25.7
93	13188	13210	0.215	0.318	11341	1854	25.652	0.850	2.551	26.0
94	13348	13360	0.226	0.335	11332	2019	25.620	0.896	2.718	26.2
95	13505	13518	0.237	0.352	11338	2170	25.590	0.941	2.877	26.5
96	13492	13509	0.238	0.358	11329	2168	25.579	0.955	2.931	26.7
97	13481	13491	0.241	0.361	11305	2179	25.573	0.963	2.964	27.0
98	13465	13469	0.238	0.366	11274	2192	25.567	0.971	2.994	27.3
99	13458	13469	0.241	0.368	11253	2209	25.561	0.978	3.021	27.5
100	13435	13440	0.243	0.371	11222	2214	25.555	0.986	3.052	27.7

UNIAXIAL STRAIN TEST. SAMPLE #1

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101	13418	13430	0.237	0.368	11322	2100	25.564	0.973	3.008	28.0
102	13417	13430	0.236	0.368	11325	2095	25.565	0.971	3.000	28.2
103	13402	13418	0.236	0.370	11329	2078	25.562	0.976	3.018	28.5
104	13394	13383	0.232	0.369	11333	2057	25.566	0.970	2.996	28.7
105	13380	13373	0.235	0.369	11309	2068	25.564	0.973	3.008	29.0
106	13371	13362	0.234	0.371	11292	2076	25.562	0.975	3.018	29.3
107	13349	13331	0.232	0.368	11312	2031	25.567	0.967	2.988	29.5
108	13350	13345	0.232	0.370	11309	2039	25.564	0.972	3.006	29.7
109	13339	13331	0.230	0.370	11322	2014	25.564	0.971	3.004	30.0
110	13323	13324	0.230	0.370	11325	1998	25.564	0.970	3.003	30.2
111	13313	13319	0.230	0.371	11313	2002	25.563	0.972	3.010	30.5
112	13316	13306	0.232	0.371	11292	2020	25.561	0.974	3.018	30.7
113	13303	13299	0.231	0.372	11268	2034	25.560	0.976	3.024	31.0
114	13302	13304	0.228	0.370	11345	1957	25.566	0.968	2.995	31.2
115	13292	13297	0.231	0.369	11323	1970	25.564	0.970	3.003	31.5
116	13281	13277	0.231	0.370	11299	1980	25.563	0.971	3.008	31.7
117	13270	13264	0.226	0.370	11348	1920	25.567	0.966	2.989	32.0
118	13266	13258	0.229	0.369	11325	1937	25.566	0.966	2.991	32.2
119	13255	13250	0.230	0.370	11303	1950	25.563	0.971	3.010	32.5
120	13253	13246	0.231	0.369	11278	1972	25.564	0.970	3.006	32.7
121	13244	13234	0.230	0.371	11258	1983	25.561	0.973	3.016	33.0
122	13233	13227	0.225	0.367	11343	1888	25.571	0.959	2.966	33.2
123	13233	13224	0.229	0.367	11321	1909	25.568	0.963	2.981	33.5
124	13225	13220	0.229	0.368	11299	1924	25.566	0.966	2.993	33.7
125	13218	13214	0.229	0.369	11281	1935	25.565	0.968	2.999	34.0
126	13204	13194	0.229	0.370	11269	1931	25.563	0.969	3.005	34.2
127	13197	13188	0.227	0.369	11269	1925	25.567	0.964	2.988	34.5
128	13199	13193	0.225	0.366	11335	1861	25.572	0.958	2.963	34.7
129	13192	13185	0.223	0.366	11332	1858	25.573	0.956	2.958	35.0
130	13180	13180	0.224	0.366	11329	1850	25.573	0.955	2.955	35.2
131	13261	13257	0.230	0.371	11337	1922	25.563	0.971	3.009	35.5
132	13434	13428	0.238	0.379	11364	2068	25.547	0.996	3.093	35.7
133	13469	13457	0.237	0.380	11364	2100	25.547	0.997	3.095	36.0
134	13453	13436	0.238	0.381	11365	2082	25.544	1.000	3.107	36.3
135	13451	13447	0.239	0.381	11360	2090	25.544	1.000	3.108	36.5
136	13448	13445	0.237	0.380	11360	2086	25.546	0.998	3.101	36.7
137	13442	13427	0.237	0.380	11358	2078	25.547	0.996	3.092	37.0
138	13444	13446	0.237	0.380	11355	2089	25.547	0.996	3.095	37.2
139	13432	13422	0.234	0.377	11352	2076	25.553	0.988	3.062	37.5
140	13423	13424	0.236	0.380	11352	2071	25.547	0.996	3.094	37.7
141	13424	13421	0.235	0.380	11352	2071	25.547	0.995	3.092	38.0
142	13411	13400	0.234	0.380	11349	2058	25.548	0.994	3.088	38.2
143	13413	13399	0.235	0.379	11346	2062	25.549	0.993	3.085	38.5
144	13405	13403	0.234	0.379	11341	2063	25.550	0.991	3.078	38.7
145	13396	13386	0.234	0.380	11341	2051	25.548	0.994	3.088	39.0
146	13392	13376	0.233	0.381	11342	2045	25.547	0.995	3.092	39.2
147	13387	13384	0.233	0.380	11338	2048	25.548	0.994	3.089	39.5
148	13381	13374	0.233	0.379	11335	2043	25.549	0.992	3.082	39.7
149	13379	13377	0.234	0.378	11335	2043	25.550	0.990	3.076	40.0
150	13378	13377	0.234	0.379	11332	2046	25.550	0.991	3.079	40.2

UNIAXIAL STRAIN TEST. SAMPLE #1

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151	13374	13372	0.233	0.380	11329	2044	25.549	0.992	3.084	40.5
152	13374	13368	0.233	0.380	11328	2043	25.548	0.993	3.085	40.7
153	13349	13347	0.232	0.380	11326	2022	25.548	0.993	3.086	41.0
154	13342	13332	0.233	0.379	11329	2009	25.549	0.992	3.083	41.3
155	13346	13351	0.231	0.379	11324	2023	25.551	0.989	3.072	41.5
156	13352	13350	0.232	0.379	11321	2030	25.549	0.991	3.080	41.7
157	13354	13349	0.231	0.379	11319	2033	25.551	0.988	3.070	42.0
158	13352	13344	0.233	0.378	11320	2029	25.550	0.990	3.077	42.2
159	13333	13325	0.232	0.380	11315	2014	25.549	0.991	3.083	42.5
160	13337	13338	0.232	0.379	11316	2021	25.550	0.990	3.079	42.7
161	13331	13323	0.232	0.380	11315	2013	25.549	0.991	3.081	43.0
162	13332	13327	0.232	0.377	11313	2016	25.552	0.987	3.064	43.2
163	13325	13313	0.230	0.380	11312	2009	25.550	0.989	3.075	43.5
164	13321	13311	0.231	0.379	11310	2007	25.551	0.989	3.072	43.7
165	13322	13314	0.231	0.379	11307	2011	25.551	0.989	3.072	44.0
166	13312	13299	0.231	0.380	11307	2000	25.549	0.991	3.081	44.2
167	13320	13310	0.231	0.378	11306	2010	25.552	0.986	3.064	44.5
168	13313	13306	0.231	0.379	11306	2004	25.551	0.989	3.073	44.7
169	13298	13287	0.229	0.380	11305	1989	25.551	0.988	3.072	45.0
170	13303	13301	0.234	0.382	11213	2089	25.543	0.998	3.110	45.2
171	13293	13283	0.225	0.373	11441	1848	25.563	0.971	3.009	45.5
172	13299	13298	0.228	0.374	11426	1872	25.559	0.976	3.029	45.7
173	13294	13287	0.230	0.376	11419	1872	25.555	0.981	3.049	46.0
174	13299	13286	0.229	0.374	11414	1880	25.558	0.978	3.034	46.2
175	13295	13295	0.228	0.375	11406	1889	25.558	0.978	3.036	46.5
176	13278	13275	0.228	0.375	11402	1874	25.557	0.979	3.041	46.7
177	13279	13269	0.228	0.374	11399	1877	25.559	0.976	3.030	47.0
178	13290	13286	0.227	0.375	11397	1891	25.558	0.977	3.033	47.2
179	13265	13250	0.229	0.374	11387	1872	25.558	0.977	3.034	47.5
180	13277	13272	0.229	0.376	11395	1880	25.556	0.980	3.045	47.8
181	13268	13258	0.228	0.378	11388	1877	25.552	0.985	3.065	48.0
182	13257	13247	0.228	0.374	11384	1870	25.558	0.976	3.032	48.2
183	13266	13257	0.227	0.377	11383	1879	25.556	0.980	3.046	48.5
184	13271	13267	0.229	0.376	11386	1884	25.554	0.982	3.053	48.7
185	13270	13265	0.230	0.377	11361	1906	25.553	0.984	3.058	49.0
186	13262	13254	0.230	0.378	11326	1932	25.552	0.986	3.066	49.2
187	13250	13251	0.229	0.376	11370	1880	25.556	0.980	3.044	49.5
188	13248	13234	0.226	0.377	11368	1875	25.555	0.980	3.047	49.7
189	13248	13233	0.225	0.375	11395	1847	25.560	0.974	3.024	50.0
190	13236	13235	0.226	0.374	11386	1849	25.559	0.975	3.027	50.2
191	13239	13224	0.227	0.373	11376	1857	25.561	0.973	3.019	50.5
192	13234	13222	0.224	0.376	11386	1843	25.558	0.976	3.031	50.8
193	13224	13213	0.225	0.376	11395	1825	25.558	0.977	3.035	51.0
194	13235	13223	0.225	0.375	11416	1815	25.560	0.974	3.024	51.3
195	13240	13229	0.225	0.373	11406	1830	25.562	0.971	3.013	51.5
196	13218	13197	0.229	0.376	11394	1817	25.554	0.981	3.052	51.7
197	13224	13209	0.227	0.374	11386	1833	25.559	0.975	3.027	52.0
198	13226	13210	0.224	0.376	11404	1816	25.557	0.977	3.037	52.2
199	13219	13195	0.224	0.374	11403	1807	25.561	0.972	3.019	52.5
200	13230	13218	0.223	0.375	11413	1812	25.561	0.973	3.019	52.7

UNIAXIAL STRAIN TEST, SAMPLE #1

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
201	13219	13206	0.223	0.375	11409	1805	25.560	0.973	3.022	53.0
202	13221	13209	0.222	0.374	11433	1783	25.563	0.969	3.008	53.3
203	13203	13192	0.221	0.374	11446	1753	25.563	0.968	3.006	53.5
204	13215	13202	0.223	0.372	11443	1767	25.564	0.968	3.003	53.7
205	13217	13206	0.222	0.372	11439	1774	25.565	0.966	2.996	54.0
206	13206	13184	0.223	0.373	11438	1761	25.562	0.970	3.010	54.2
207	13212	13205	0.223	0.373	11435	1774	25.563	0.969	3.006	54.5
208	13209	13203	0.222	0.370	11431	1776	25.568	0.962	2.981	54.7
209	13212	13200	0.224	0.374	11432	1776	25.561	0.972	3.018	55.0
210	13222	13211	0.223	0.372	11425	1793	25.564	0.967	3.000	55.3
211	13219	13198	0.223	0.373	11424	1787	25.563	0.969	3.005	55.5
212	13216	13207	0.224	0.372	11423	1790	25.565	0.967	2.999	55.7
213	13210	13191	0.223	0.372	11423	1780	25.565	0.967	2.999	56.0
214	13212	13194	0.224	0.373	11421	1785	25.562	0.971	3.013	56.2
215	13213	13197	0.223	0.371	11420	1787	25.565	0.966	2.994	56.5
216	13207	13188	0.224	0.372	11418	1782	25.563	0.969	3.006	56.8
217	13216	13203	0.224	0.373	11417	1794	25.562	0.971	3.013	57.0
218	13216	13201	0.223	0.373	11417	1794	25.563	0.968	3.004	57.2
219	13209	13190	0.223	0.373	11415	1787	25.562	0.970	3.009	57.5
220	13206	13185	0.224	0.375	11414	1784	25.559	0.974	3.025	57.7
221	13209	13190	0.224	0.373	11411	1791	25.563	0.969	3.008	58.0
222	13215	13201	0.224	0.373	11413	1797	25.562	0.970	3.010	58.2
223	13204	13183	0.224	0.374	11409	1787	25.561	0.972	3.017	58.5
224	13209	13192	0.224	0.374	11408	1795	25.561	0.971	3.016	58.7
225	13210	13192	0.224	0.374	11405	1798	25.560	0.973	3.021	59.0
226	13203	13179	0.225	0.375	11403	1791	25.559	0.974	3.028	59.6
227	13461	13438	0.237	0.388	11353	2100	25.534	1.013	3.159	60.6
228	13448	13417	0.236	0.387	11353	2084	25.537	1.010	3.146	61.6
229	13451	13423	0.238	0.388	11355	2086	25.533	1.014	3.163	62.6
230	13446	13415	0.238	0.388	11351	2084	25.533	1.014	3.164	63.6
231	13446	13418	0.238	0.388	11348	2088	25.534	1.013	3.159	64.6
232	13444	13432	0.238	0.389	11347	2092	25.533	1.015	3.167	65.6
233	13435	13419	0.238	0.388	11341	2088	25.534	1.014	3.161	66.6
234	13451	13427	0.238	0.390	11337	2105	25.531	1.018	3.176	67.6
235	13434	13411	0.239	0.388	11336	2090	25.532	1.016	3.169	68.6
236	13439	13418	0.241	0.390	11330	2102	25.528	1.021	3.189	69.6
237	13444	13420	0.242	0.388	11326	2110	25.530	1.019	3.179	70.6
238	13452	13425	0.241	0.391	11326	2116	25.528	1.022	3.192	71.6
239	13446	13428	0.242	0.388	11323	2116	25.530	1.018	3.178	72.6
240	13462	13443	0.241	0.389	11317	2138	25.531	1.018	3.175	73.6
241	13463	13436	0.241	0.392	11313	2140	25.526	1.024	3.200	74.2
242	13463	13436	0.241	0.390	11310	2143	25.529	1.021	3.187	74.5
243	13461	13441	0.242	0.389	11309	2144	25.530	1.020	3.183	74.7
244	13466	13453	0.241	0.392	11309	2153	25.526	1.025	3.202	75.0
245	13406	13426	0.245	0.393	11162	2251	25.520	1.032	3.231	75.2
246	13276	13454	0.253	0.394	11000	2335	25.511	1.042	3.275	75.5
247	13085	13408	0.258	0.388	10863	2329	25.515	1.033	3.252	75.7
248	13029	13414	0.263	0.389	10739	2418	25.509	1.040	3.281	76.0
249	12937	13415	0.269	0.390	10624	2472	25.502	1.048	3.314	76.2
250	12852	13434	0.273	0.391	10510	2535	25.496	1.055	3.343	76.5

UNIAXIAL STRAIN TEST. SAMPLE #1

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251	12792	13411	0.280	0.389	10413	2585	25.494	1.057	3.357	76.[illegible]
252	12634	13398	0.285	0.387	10321	2567	25.490	1.059	3.374	77.[illegible]
253	12585	13396	0.292	0.386	10225	2629	25.486	1.064	3.392	77.[illegible]
254	12505	13398	0.296	0.386	10139	2663	25.482	1.067	3.410	77.[illegible]
255	12493	13418	0.301	0.388	10052	2749	25.475	1.077	3.444	77.[illegible]
256	12372	13428	0.309	0.386	9969	2755	25.470	1.081	3.467	78.[illegible]
257	12337	13415	0.313	0.386	9892	2804	25.468	1.084	3.480	78.2
258	12224	13393	0.319	0.387	9814	2799	25.459	1.093	3.520	78.5
259	12183	13400	0.323	0.385	9733	2856	25.459	1.092	3.520	78.7
260	12130	13415	0.330	0.386	9660	2897	25.451	1.102	3.559	79.0
261	12052	13398	0.334	0.386	9592	2908	25.447	1.106	3.580	79.2
262	11963	13392	0.338	0.385	9523	2915	25.444	1.109	3.595	79.5
263	11944	13405	0.344	0.385	9466	2965	25.440	1.114	3.616	79.7
264	11943	13405	0.345	0.386	9493	2936	25.438	1.116	3.625	80.0
265	11941	13397	0.346	0.385	9513	2913	25.438	1.116	3.625	80.2
266	11952	13414	0.347	0.385	9522	2916	25.438	1.116	3.624	80.5
267	11967	13420	0.348	0.385	9533	2917	25.437	1.118	3.630	80.7
268	11982	13430	0.349	0.385	9538	2926	25.436	1.119	3.633	81.0
269	11976	13434	0.349	0.385	9545	2917	25.436	1.120	3.636	81.2
270	11982	13444	0.351	0.387	9548	2921	25.432	1.125	3.657	81.5
271	11988	13435	0.351	0.387	9554	2916	25.433	1.124	3.652	81.7
272	11992	13457	0.352	0.387	9553	2927	25.431	1.126	3.659	82.0
273	11991	13456	0.353	0.389	9545	2934	25.428	1.131	3.677	82.2
274	11986	13442	0.355	0.389	9530	2941	25.426	1.133	3.687	82.5
275	11993	13451	0.356	0.391	9517	2961	25.423	1.138	3.704	82.7
276	12002	13453	0.359	0.392	9491	2994	25.419	1.143	3.722	83.0
277	11983	13433	0.358	0.390	9518	2948	25.423	1.138	3.704	83.2
278	11980	13436	0.356	0.390	9553	2912	25.423	1.137	3.702	83.5
279	11983	13455	0.358	0.392	9544	2929	25.419	1.142	3.721	83.7
280	11987	13440	0.356	0.390	9556	2915	25.424	1.136	3.698	84.0
281	11990	13447	0.356	0.390	9571	2904	25.423	1.136	3.699	84.2
282	11989	13451	0.357	0.389	9568	2908	25.424	1.135	3.694	84.5
283	12002	13454	0.358	0.393	9565	2920	25.418	1.143	3.725	84.7
284	12002	13455	0.361	0.393	9541	2945	25.416	1.147	3.739	85.0
285	12008	13457	0.359	0.391	9552	2938	25.421	1.140	3.712	85.2
286	12005	13464	0.361	0.392	9553	2937	25.418	1.145	3.729	85.5
287	12021	13467	0.361	0.392	9547	2956	25.417	1.146	3.735	85.7
288	12005	13466	0.361	0.393	9551	2941	25.416	1.146	3.735	86.0
289	12020	13482	0.364	0.394	9550	2956	25.413	1.151	3.752	86.2
290	12017	13465	0.362	0.391	9542	2956	25.418	1.145	3.728	86.5
291	12022	13476	0.362	0.394	9550	2956	25.414	1.150	3.748	86.7
292	12031	13482	0.363	0.395	9552	2962	25.413	1.152	3.755	87.0
293	12028	13472	0.362	0.395	9548	2960	25.412	1.152	3.756	87.2
294	12027	13481	0.365	0.395	9547	2965	25.410	1.155	3.769	87.5
295	12030	13482	0.364	0.394	9541	2973	25.412	1.153	3.760	87.7
296	12041	13500	0.364	0.395	9544	2983	25.411	1.155	3.765	88.0
297	12039	13497	0.366	0.396	9546	2979	25.407	1.159	3.783	88.2
298	12040	13516	0.367	0.397	9544	2988	25.406	1.161	3.791	88.5
299	11840	13400	0.363	0.387	9539	2821	25.420	1.138	3.715	89.5
300	11860	13420	0.363	0.389	9539	2840	25.418	1.141	3.725	90.5

UNIAXIAL STRAIN TEST. SAMPLE #1

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301	11867	13435	0.366	0.388	9539	2050	25.416	1.143	3.733	91.5
302	11879	13436	0.367	0.390	9534	2864	25.414	1.147	3.745	92.5
303	11886	13500	0.369	0.390	9531	2893	25.413	1.148	3.751	93.0
304	11740	13399	0.366	0.384	9530	2763	25.421	1.134	3.707	93.3
305	11747	13422	0.379	0.395	9205	3100	25.397	1.168	3.829	93.5
306	11407	13395	0.383	0.383	9080	2989	25.406	1.149	3.778	93.8
307	11301	13420	0.391	0.383	8921	3086	25.398	1.157	3.815	94.0
308	11193	13431	0.400	0.384	8769	3170	25.389	1.168	3.859	94.3
309	11100	13412	0.407	0.381	8630	3240	25.386	1.170	3.872	94.5
310	10987	13443	0.417	0.384	8495	3310	25.374	1.185	3.935	94.8
311	10868	13449	0.426	0.380	8376	3352	25.370	1.187	3.949	95.0
312	10819	13438	0.431	0.383	8264	3427	25.363	1.196	3.985	95.3
313	10670	13405	0.442	0.380	8148	3433	25.356	1.203	4.019	95.6
314	10554	13405	0.448	0.380	8048	3456	25.350	1.208	4.045	95.8
315	10451	13390	0.455	0.378	7947	3483	25.347	1.210	4.059	96.0
316	10370	13452	0.466	0.380	7853	3544	25.335	1.226	4.123	96.3
317	10288	13376	0.472	0.381	7757	3561	25.328	1.234	4.157	96.5
318	10240	13458	0.482	0.380	7667	3645	25.321	1.242	4.190	96.8
319	10159	13446	0.488	0.380	7579	3675	25.315	1.248	4.218	97.0
320	10100	13415	0.490	0.378	7607	3598	25.316	1.245	4.210	97.3
321	10109	13420	0.490	0.378	7630	3582	25.315	1.246	4.215	97.5
322	10129	13444	0.493	0.378	7647	3587	25.313	1.249	4.226	97.8
323	10124	13422	0.495	0.380	7655	3567	25.309	1.255	4.249	98.0
324	10144	13443	0.497	0.379	7668	3576	25.309	1.256	4.249	98.3
325	10146	13438	0.498	0.382	7672	3571	25.304	1.261	4.272	98.5
326	10148	13461	0.502	0.381	7672	3579	25.302	1.264	4.281	98.8
327	10154	13463	0.504	0.383	7666	3591	25.298	1.270	4.305	99.0
328	10154	13447	0.504	0.385	7664	3587	25.295	1.274	4.319	99.3
329	10184	13509	0.510	0.383	7709	3583	25.293	1.277	4.329	99.5
330	10106	13417	0.505	0.381	7698	3511	25.299	1.267	4.296	99.8
331	10117	13455	0.508	0.382	7697	3532	25.296	1.272	4.315	100.0
332	10122	13447	0.510	0.381	7689	3541	25.296	1.272	4.312	100.3
333	10129	13458	0.512	0.383	7690	3548	25.292	1.278	4.335	100.5
334	10126	13462	0.513	0.381	7718	3520	25.294	1.274	4.323	100.8
335	10113	13473	0.513	0.382	7718	3515	25.292	1.277	4.334	101.0
336	10087	13435	0.514	0.381	7718	3485	25.292	1.276	4.332	101.3
337	10098	13451	0.514	0.381	7715	3500	25.292	1.276	4.332	101.5
338	10110	13472	0.516	0.381	7714	3517	25.290	1.279	4.342	101.8
339	10107	13466	0.517	0.381	7713	3513	25.289	1.280	4.347	102.0
340	10112	13451	0.518	0.382	7712	3512	25.289	1.281	4.351	102.3
341	10119	13481	0.520	0.381	7710	3529	25.287	1.283	4.357	102.5
342	10126	13475	0.521	0.384	7711	3531	25.284	1.288	4.375	102.8
343	10129	13488	0.523	0.383	7709	3539	25.282	1.290	4.382	103.0
344	10132	13488	0.524	0.384	7710	3540	25.281	1.292	4.389	103.3
345	10134	13501	0.526	0.385	7712	3543	25.278	1.296	4.406	103.6
346	10141	13496	0.526	0.385	7710	3549	25.278	1.296	4.403	103.8
347	10143	13496	0.531	0.386	7711	3550	25.272	1.304	4.434	104.0
348	10138	13494	0.531	0.387	7708	3548	25.272	1.304	4.436	104.3
349	10167	13525	0.532	0.385	7706	3580	25.274	1.301	4.424	104.6
350	10157	13567	0.536	0.386	7709	3584	25.269	1.309	4.452	104.8

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351	9992	13424	0.532	0.376	7708	3427	25.284	1.285	4.371	105.
352	10003	13433	0.530	0.378	7708	3438	25.283	1.286	4.376	105.
353	9996	13441	0.536	0.377	7707	3436	25.280	1.290	4.390	105.
354	10006	13438	0.538	0.379	7709	3441	25.276	1.295	4.412	105.
355	10008	13444	0.542	0.380	7706	3447	25.271	1.302	4.438	106.
356	10024	13456	0.547	0.380	7707	3461	25.267	1.307	4.455	106.
357	10023	13453	0.557	0.379	7710	3456	25.261	1.316	4.490	106.
358	10020	13451	0.571	0.380	7704	3459	25.250	1.330	4.543	106.
359	10050	13487	0.595	0.379	7705	3490	25.233	1.353	4.628	107.
360	10051	13457	0.623	0.380	7707	3479	25.211	1.382	4.742	107.
361	10106	13507	1.038	0.383	7703	3536	24.891	1.803	6.351	107.
362	10120	13557	1.071	0.380	7703	3562	24.871	1.831	6.454	107.
363	10134	13573	1.085	0.381	7703	3576	24.858	1.848	6.520	108.
364	10117	13552	1.093	0.380	7697	3564	24.853	1.854	6.543	108.
365	10126	13595	1.103	0.382	7700	3582	24.843	1.867	6.592	108.
366	9982	13455	1.095	0.374	7700	3439	24.858	1.844	6.517	108.
367	9983	13434	1.106	0.381	7586	3546	24.841	1.867	6.603	109.
368	9862	13487	1.131	0.383	7354	3716	24.817	1.896	6.717	109.
369	9651	13480	1.151	0.377	7189	3738	24.807	1.906	6.765	109.
370	9609	13410	1.162	0.379	7110	3766	24.796	1.920	6.821	109.
371	9482	13383	1.174	0.376	7032	3749	24.789	1.926	6.851	110.
372	9460	13424	1.190	0.375	6955	3826	24.778	1.941	6.909	110.
373	9433	13442	1.203	0.379	6881	3888	24.762	1.961	6.985	110.
374	9332	13395	1.215	0.379	6805	3881	24.752	1.972	7.035	110.
375	9301	13447	1.231	0.378	6742	3941	24.740	1.988	7.096	111.
376	9227	13449	1.244	0.377	6680	3954	24.731	1.998	7.139	111.
377	9176	13431	1.256	0.376	6617	3977	24.723	2.007	7.176	111.
378	9113	13438	1.268	0.376	6555	3999	24.713	2.020	7.228	111.
379	9050	13432	1.281	0.376	6494	4016	24.701	2.034	7.285	112.
380	8990	13428	1.292	0.374	6438	4031	24.696	2.040	7.311	112.
381	8945	13453	1.307	0.376	6381	4066	24.681	2.058	7.384	112.
382	8886	13411	1.318	0.375	6330	4063	24.672	2.068	7.426	112.
383	8894	13476	1.333	0.378	6276	4145	24.656	2.089	7.504	113.
384	8746	13419	1.342	0.374	6229	4074	24.653	2.090	7.516	113.
385	8726	13391	1.355	0.374	6181	4099	24.643	2.104	7.569	113.
386	8713	13438	1.372	0.376	6139	4149	24.628	2.123	7.644	113.
387	8653	13434	1.388	0.374	6093	4153	24.618	2.135	7.693	114.
388	8614	13400	1.405	0.375	6049	4160	24.602	2.155	7.770	114.
389	8570	13428	1.425	0.374	6009	4180	24.587	2.173	7.842	114.
390	8541	13439	1.448	0.374	5982	4192	24.569	2.197	7.934	114.
391	8485	13408	1.475	0.374	5959	4167	24.547	2.223	8.039	115.
392	8504	13420	1.514	0.376	5932	4210	24.514	2.267	8.205	115.
393	8432	13316	1.627	0.374	5909	4150	24.429	2.375	8.626	115.
394	8431	13383	1.738	0.386	5883	4332	24.328	2.510	9.128	115.
395	8442	13227	1.765	0.390	5855	4315	24.302	2.544	9.258	116.
396	8429	13162	1.778	0.390	5870	4269	24.291	2.558	9.313	116.
397	8385	13426	2.085	0.374	5879	4186	24.073	2.832	10.380	116.
398	8350	13397	2.207	0.374	5840	4193	23.977	2.954	10.848	116.
399	8258	13399	2.296	0.373	5780	4191	23.907	3.042	11.188	117.
400	8272	13420	2.364	0.371	5795	4192	23.857	3.106	11.434	117.

UNIAXIAL STRAIN TEST. SAMPLE #1

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
401	8278	13439	2.405	0.371	5805	4194	23.824	3.147	11.592	117.5
402	8291	13434	2.433	0.372	5808	4197	23.802	3.176	11.703	117.8
403	8290	13440	2.452	0.372	5812	4195	23.786	3.196	11.778	118.0
404	8294	13443	2.466	0.374	5813	4197	23.773	3.213	11.843	118.3
405	8294	13440	2.479	0.374	5818	4191	23.762	3.227	11.895	118.5
406	8305	13454	2.488	0.373	5817	4204	23.756	3.234	11.925	118.8
407	8323	13478	2.497	0.373	5820	4221	23.750	3.243	11.954	119.0
408	8324	13474	2.506	0.374	5821	4220	23.741	3.255	12.001	119.3
409	8333	13549	2.518	0.374	5820	4251	23.732	3.266	12.042	119.5
410	8217	13421	2.522	0.369	5814	4137	23.734	3.260	12.028	119.8
411	8217	13420	2.530	0.370	5808	4143	23.726	3.271	12.069	120.0
412	8225	13432	2.540	0.369	5802	4158	23.720	3.278	12.097	120.3
413	8217	13432	2.549	0.371	5797	4158	23.710	3.291	12.146	120.5
414	8228	13438	2.558	0.371	5813	4152	23.702	3.301	12.185	120.8
415	8223	13436	2.568	0.372	5808	4153	23.693	3.312	12.228	121.0
416	8238	13462	2.575	0.370	5801	4178	23.692	3.315	12.237	121.3
417	8237	13446	2.584	0.373	5797	4176	23.680	3.329	12.293	121.5
418	8240	13448	2.590	0.372	5801	4174	23.676	3.334	12.312	121.8
419	8242	13445	2.598	0.373	5802	4173	23.668	3.345	12.352	122.0
420	8244	13451	2.604	0.374	5799	4180	23.662	3.352	12.380	122.3
421	8255	13462	2.611	0.373	5803	4187	23.658	3.357	12.399	122.5
422	8253	13463	2.617	0.376	5803	4186	23.649	3.369	12.444	122.8
423	8262	13472	2.622	0.375	5803	4195	23.646	3.372	12.456	123.0
424	8255	13461	2.629	0.374	5800	4190	23.643	3.376	12.471	123.3
425	8262	13468	2.634	0.374	5798	4199	23.638	3.383	12.497	123.5
426	8272	13487	2.640	0.374	5803	4207	23.634	3.388	12.514	123.8
427	8265	13470	2.644	0.376	5799	4200	23.629	3.395	12.543	124.0
428	8277	13489	2.648	0.375	5801	4213	23.627	3.398	12.552	124.3
429	8269	13477	2.654	0.376	5799	4205	23.620	3.406	12.585	124.5
430	8281	13502	2.657	0.376	5799	4221	23.618	3.409	12.596	124.8
431	8283	13485	2.659	0.378	5800	4217	23.613	3.415	12.618	125.0
432	8289	13503	2.663	0.377	5800	4227	23.612	3.417	12.624	125.3
433	8284	13498	2.667	0.377	5799	4222	23.608	3.421	12.642	125.5
434	8291	13511	2.671	0.377	5798	4233	23.605	3.425	12.657	125.8
435	8118	13363	2.672	0.368	5796	4070	23.617	3.407	12.597	126.0
436	8127	13386	2.672	0.368	5799	4080	23.616	3.408	12.601	126.3
437	8117	13375	2.676	0.369	5797	4072	23.611	3.414	12.624	126.5
438	8123	13387	2.680	0.369	5798	4078	23.608	3.418	12.640	126.8
439	8131	13376	2.682	0.368	5798	4081	23.608	3.418	12.641	127.0
440	8116	13366	2.685	0.370	5797	4068	23.601	3.426	12.671	127.3
441	8126	13391	2.689	0.369	5801	4080	23.600	3.428	12.676	127.5
442	8142	13392	2.693	0.369	5798	4094	23.598	3.430	12.686	127.8
443	8148	13415	2.696	0.369	5793	4110	23.596	3.434	12.699	128.0
444	8153	13413	2.697	0.369	5795	4111	23.595	3.436	12.705	128.3
445	8144	13403	2.701	0.370	5793	4103	23.590	3.441	12.727	128.5
446	8141	13398	2.700	0.369	5820	4073	23.593	3.437	12.713	128.8
447	8415	13471	2.691	0.373	6066	4034	23.597	3.437	12.696	129.0
448	8470	13463	2.682	0.370	6274	3859	23.609	3.422	12.641	129.3
449	8627	13479	2.674	0.372	6423	3821	23.615	3.417	12.615	129.5
450	8773	13474	2.665	0.375	6563	3776	23.619	3.415	12.597	129.8

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
451	8874	13501	2.650	0.374	6728	3688	23.627	3.406	12.559	130.0
452	8973	13489	2.652	0.375	6841	3637	23.630	3.403	12.544	130.3
453	9057	13493	2.648	0.377	6957	3579	23.632	3.403	12.538	130.5
454	9170	13469	2.637	0.376	7108	3495	23.645	3.388	12.476	130.8
455	9238	13505	2.635	0.375	7203	3457	23.648	3.385	12.462	131.0
456	9298	13438	2.627	0.375	7303	3374	23.655	3.377	12.429	131.3
457	9431	13515	2.626	0.377	7424	3368	23.654	3.381	12.436	131.5
458	9471	13495	2.618	0.375	7545	3267	23.664	3.367	12.385	131.8
459	9556	13477	2.612	0.376	7621	3241	23.668	3.365	12.371	132.0
460	9550	13462	2.617	0.379	7578	3276	23.660	3.374	12.406	132.3
461	9551	13478	2.618	0.380	7552	3307	23.658	3.378	12.420	132.5
462	9568	13493	2.617	0.379	7534	3342	23.660	3.375	12.407	132.8
463	9557	13479	2.618	0.380	7523	3341	23.657	3.379	12.422	133.0
464	9550	13486	2.619	0.381	7514	3348	23.655	3.382	12.433	133.3
465	9548	13464	2.619	0.382	7505	3348	23.654	3.383	12.438	133.5
466	9550	13473	2.620	0.381	7496	3362	23.654	3.383	12.437	133.8
467	9549	13474	2.621	0.381	7482	3375	23.653	3.384	12.440	134.0
468	9544	13466	2.620	0.380	7482	3369	23.657	3.379	12.425	134.3
469	9542	13467	2.622	0.383	7475	3375	23.651	3.387	12.453	134.5
470	9531	13462	2.620	0.382	7481	3359	23.653	3.384	12.444	134.8
471	9532	13456	2.621	0.381	7481	3358	23.653	3.384	12.441	135.0
472	9538	13465	2.621	0.382	7474	3372	23.653	3.384	12.443	135.3
473	9526	13448	2.619	0.381	7480	3352	23.655	3.382	12.434	135.5
474	9535	13459	2.621	0.381	7486	3357	23.654	3.383	12.439	135.8
475	9526	13454	2.621	0.382	7470	3365	23.652	3.385	12.446	136.0
476	9468	13427	2.619	0.378	7479	3307	23.659	3.374	12.410	136.3
477	9463	13418	2.618	0.377	7524	3257	23.661	3.372	12.403	136.5
478	9459	13417	2.618	0.377	7506	3272	23.661	3.372	12.401	136.8
479	9454	13406	2.619	0.376	7502	3270	23.661	3.371	12.400	137.0
480	9448	13397	2.619	0.379	7500	3264	23.657	3.377	12.420	137.3
481	9456	13408	2.619	0.377	7493	3280	23.660	3.373	12.407	137.5
482	9454	13403	2.619	0.378	7489	3282	23.659	3.375	12.412	137.8
483	9456	13410	2.620	0.378	7487	3287	23.658	3.376	12.418	138.0
484	9453	13408	2.620	0.378	7479	3292	23.658	3.376	12.419	138.3
485	9446	13398	2.621	0.378	7463	3300	23.656	3.378	12.425	138.5
486	9446	13398	2.622	0.379	7453	3310	23.654	3.381	12.435	138.8
487	9441	13396	2.622	0.379	7440	3318	23.654	3.380	12.434	139.0
488	9434	13382	2.622	0.378	7429	3320	23.656	3.377	12.424	139.3
489	9448	13404	2.624	0.379	7428	3338	23.654	3.382	12.438	139.5
490	9446	13402	2.621	0.379	7435	3329	23.655	3.379	12.429	139.8
491	9439	13386	2.615	0.373	7564	3190	23.669	3.361	12.363	140.0
492	9429	13364	2.619	0.375	7542	3199	23.661	3.370	12.399	140.3
493	9432	13387	2.619	0.375	7526	3224	23.663	3.369	12.392	140.5
494	9426	13382	2.619	0.376	7509	3235	23.660	3.372	12.405	140.8
495	9417	13366	2.619	0.377	7490	3243	23.659	3.373	12.410	141.0
496	9404	13352	2.620	0.377	7472	3247	23.658	3.375	12.415	141.3
497	9406	13352	2.621	0.377	7461	3260	23.657	3.376	12.419	141.5
498	9408	13354	2.621	0.379	7444	3279	23.655	3.379	12.431	141.8
499	9396	13344	2.623	0.378	7429	3283	23.655	3.379	12.432	142.0
500	9398	13353	2.624	0.378	7419	3297	23.653	3.381	12.440	142.3

UNIAXIAL STRAIN TEST. SAMPLE #1

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501	9385	13329	2.622	0.378	7441	3259	23.655	3.378	12.429	142.5
502	9386	13344	2.619	0.377	7448	3257	23.659	3.373	12.409	142.8
503	9385	13333	2.622	0.379	7425	3275	23.653	3.380	12.437	143.0
504	9369	13308	2.619	0.375	7462	3220	23.662	3.369	12.395	143.3
505	9367	13316	2.621	0.377	7445	3238	23.657	3.376	12.421	143.5
506	9367	13319	2.622	0.377	7435	3249	23.656	3.376	12.424	143.8
507	9362	13308	2.623	0.379	7428	3248	23.653	3.380	12.440	144.0
508	9363	13319	2.623	0.378	7432	3249	23.654	3.379	12.433	144.3
509	9363	13316	2.621	0.376	7447	3233	23.659	3.373	12.412	144.5
510	9363	13305	2.622	0.379	7438	3238	23.653	3.380	12.436	144.8
511	9373	13324	2.624	0.375	7432	3257	23.658	3.374	12.416	145.0
512	9365	13322	2.624	0.377	7426	3257	23.655	3.378	12.430	145.3
513	9362	13316	2.624	0.378	7425	3254	23.653	3.380	12.440	145.5
514	9367	13313	2.624	0.376	7427	3255	23.656	3.376	12.424	145.8
515	9380	13331	2.625	0.377	7423	3273	23.654	3.379	12.435	146.0
516	9368	13320	2.624	0.378	7425	3260	23.653	3.380	12.440	146.3
517	9369	13324	2.625	0.378	7424	3263	23.653	3.380	12.439	146.5
518	9378	13330	2.625	0.378	7422	3273	23.653	3.381	12.440	146.8
519	9375	13320	2.625	0.378	7421	3269	23.652	3.382	12.445	147.0
520	9369	13323	2.626	0.379	7422	3264	23.650	3.384	12.451	147.3
521	9358	13304	2.626	0.377	7424	3249	23.653	3.380	12.438	147.5
522	9377	13333	2.627	0.378	7421	3275	23.651	3.383	12.450	147.8
523	9370	13320	2.627	0.379	7423	3264	23.650	3.385	12.456	148.0
524	9371	13321	2.628	0.378	7421	3267	23.650	3.384	12.454	148.3
525	9373	13324	2.628	0.380	7419	3271	23.647	3.388	12.466	148.5
526	9379	13324	2.627	0.379	7417	3277	23.650	3.385	12.456	148.8
527	9380	13335	2.628	0.378	7420	3278	23.650	3.385	12.456	149.0
528	9377	13319	2.627	0.380	7419	3271	23.648	3.387	12.465	149.3
529	9374	13317	2.629	0.379	7419	3268	23.648	3.387	12.465	149.5
530	9379	13337	2.627	0.379	7418	3280	23.648	3.386	12.461	149.8
531	9379	13325	2.629	0.379	7417	3277	23.648	3.387	12.465	150.0
532	9383	13332	2.629	0.377	7416	3283	23.650	3.384	12.452	150.3
533	9377	13331	2.629	0.379	7417	3277	23.649	3.386	12.461	150.5
534	9386	13344	2.630	0.378	7416	3289	23.648	3.387	12.463	150.8
535	9381	13335	2.630	0.378	7415	3284	23.648	3.387	12.462	151.0
536	9380	13329	2.630	0.378	7415	3280	23.649	3.385	12.457	151.3
537	9372	13322	2.630	0.381	7415	3273	23.644	3.392	12.482	151.5
538	9375	13326	2.630	0.379	7414	3278	23.648	3.387	12.463	151.8
539	9369	13321	2.631	0.380	7415	3270	23.644	3.392	12.482	152.0
540	9377	13318	2.630	0.380	7412	3277	23.645	3.390	12.476	152.3
541	9373	13329	2.630	0.379	7410	3281	23.647	3.388	12.468	152.5
542	9387	13342	2.632	0.379	7413	3292	23.646	3.389	12.471	152.8
543	9394	13352	2.631	0.380	7412	3301	23.646	3.390	12.475	153.0
544	9382	13325	2.632	0.378	7413	3282	23.647	3.389	12.470	153.3
545	9385	13332	2.632	0.379	7411	3289	23.646	3.390	12.475	153.5
546	9387	13339	2.632	0.379	7411	3292	23.646	3.389	12.472	153.8
547	9379	13334	2.632	0.379	7408	3288	23.646	3.389	12.471	154.0
548	9382	13344	2.633	0.380	7407	3295	23.644	3.392	12.483	154.3
549	9385	13333	2.631	0.380	7410	3290	23.645	3.391	12.478	154.5
550	9378	13341	2.632	0.379	7405	3293	23.646	3.390	12.474	154.8

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
551	9376	13326	2.632	0.380	7406	3286	23.645	3.391	12.480	155.0
552	9378	13325	2.633	0.378	7406	3288	23.646	3.390	12.473	155.3
553	9377	13332	2.633	0.378	7403	3292	23.647	3.388	12.469	155.5
554	9375	13329	2.633	0.380	7403	3289	23.642	3.394	12.491	155.8
555	9380	13331	2.632	0.379	7403	3294	23.645	3.391	12.477	156.0
556	9389	13338	2.633	0.377	7401	3305	23.648	3.387	12.464	156.3
557	9369	13327	2.635	0.381	7403	3284	23.641	3.396	12.499	156.5
558	9380	13330	2.633	0.378	7402	3294	23.646	3.389	12.473	156.8
559	9375	13333	2.633	0.379	7405	3289	23.645	3.390	12.476	157.0
560	9374	13332	2.632	0.379	7424	3270	23.646	3.390	12.475	157.3
561	9378	13329	2.628	0.374	7546	3148	23.657	3.375	12.421	157.5
562	9375	13329	2.629	0.375	7530	3163	23.655	3.378	12.431	157.8
563	9379	13338	2.630	0.375	7520	3178	23.654	3.379	12.435	158.0
564	9375	13328	2.630	0.374	7515	3177	23.654	3.378	12.433	158.3
565	9376	13327	2.630	0.375	7512	3180	23.652	3.381	12.443	158.5
566	9377	13324	2.632	0.375	7509	3183	23.652	3.381	12.443	158.8
567	9371	13318	2.632	0.377	7510	3176	23.649	3.385	12.457	159.0
568	9371	13322	2.632	0.375	7502	3186	23.651	3.382	12.448	159.3
569	9372	13326	2.633	0.375	7500	3189	23.650	3.384	12.453	159.5
570	9366	13318	2.634	0.376	7500	3182	23.649	3.385	12.459	159.8
571	9368	13322	2.631	0.375	7497	3188	23.651	3.382	12.446	160.0
572	9372	13325	2.633	0.375	7497	3192	23.651	3.383	12.449	160.3
573	9365	13320	2.633	0.375	7496	3187	23.650	3.383	12.452	160.5
574	9374	13325	2.633	0.376	7495	3196	23.650	3.384	12.455	160.8
575	9371	13326	2.633	0.376	7492	3197	23.650	3.384	12.454	161.0
576	9364	13316	2.633	0.375	7495	3186	23.650	3.384	12.453	161.3
577	9365	13322	2.633	0.375	7492	3192	23.651	3.383	12.449	161.5
578	9371	13335	2.634	0.374	7492	3200	23.652	3.381	12.443	161.8
579	9365	13318	2.635	0.377	7491	3191	23.646	3.388	12.472	162.0
580	9370	13322	2.633	0.376	7490	3197	23.650	3.384	12.455	162.3
581	9363	13313	2.634	0.377	7488	3191	23.648	3.387	12.465	162.5
582	9371	13327	2.634	0.376	7487	3202	23.648	3.386	12.461	162.8
583	9361	13316	2.634	0.375	7488	3191	23.650	3.383	12.451	163.0
584	9357	13307	2.635	0.376	7487	3186	23.647	3.388	12.469	163.3
585	9358	13317	2.634	0.376	7486	3191	23.648	3.386	12.462	163.5
586	9358	13317	2.636	0.376	7487	3190	23.647	3.387	12.466	163.8
587	9365	13318	2.635	0.376	7488	3193	23.647	3.387	12.467	164.0
588	9364	13313	2.636	0.375	7484	3196	23.648	3.386	12.460	164.3
589	9362	13319	2.635	0.376	7482	3198	23.647	3.388	12.469	164.5
590	9362	13322	2.635	0.374	7485	3197	23.650	3.383	12.451	164.8
591	9359	13299	2.636	0.375	7481	3191	23.647	3.387	12.466	165.0
592	9362	13318	2.636	0.376	7483	3198	23.647	3.388	12.470	165.3
593	9550	13523	2.649	0.383	7502	3371	23.629	3.415	12.559	165.5
594	9555	13494	2.636	0.374	7748	3119	23.653	3.383	12.443	165.8
595	9723	13456	2.622	0.378	7934	3033	23.659	3.378	12.414	166.0
596	9834	13492	2.618	0.377	8092	2962	23.664	3.373	12.390	166.3
597	9930	13473	2.606	0.379	8224	2886	23.673	3.364	12.351	166.5
598	10048	13488	2.602	0.379	8350	2844	23.678	3.359	12.327	166.8
599	10103	13513	2.596	0.377	8481	2759	23.685	3.350	12.292	167.0
600	10240	13492	2.585	0.379	8604	2720	23.692	3.344	12.259	167.3

UNIAXIAL STRAIN TEST. SAMPLE #1

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
601	10268	13489	2.582	0.379	8687	2654	23.695	3.341	12.248	167.5
602	10393	13496	2.576	0.380	8814	2613	23.700	3.337	12.226	167.8
603	10431	13478	2.571	0.381	8884	2562	23.703	3.333	12.210	168.0
604	10500	13497	2.568	0.381	8955	2544	23.706	3.330	12.196	168.3
605	10553	13455	2.558	0.381	9067	2453	23.715	3.320	12.155	168.5
606	10609	13507	2.561	0.381	9136	2438	23.713	3.322	12.162	168.8
607	10653	13471	2.548	0.380	9236	2356	23.726	3.308	12.104	169.0
608	10713	13473	2.546	0.379	9292	2340	23.728	3.305	12.092	169.3
609	10790	13453	2.543	0.383	9357	2321	23.726	3.309	12.104	169.5
610	10830	13483	2.545	0.385	9351	2363	23.722	3.315	12.124	169.8
611	10844	13499	2.547	0.387	9328	2401	23.718	3.321	12.145	170.0
612	10852	13509	2.547	0.386	9335	2402	23.721	3.318	12.131	170.3
613	10922	13475	2.535	0.385	9499	2274	23.732	3.304	12.076	170.5
614	10947	13491	2.541	0.386	9468	2327	23.725	3.314	12.112	170.8
615	10937	13491	2.539	0.388	9445	2344	23.724	3.315	12.117	171.0
616	10939	13500	2.538	0.388	9432	2360	23.725	3.314	12.112	171.3
617	10915	13470	2.539	0.388	9425	2341	23.723	3.316	12.120	171.5
618	10922	13479	2.542	0.388	9418	2356	23.722	3.317	12.126	171.8
619	10907	13460	2.537	0.388	9407	2351	23.725	3.314	12.113	172.0
620	10913	13464	2.538	0.389	9394	2369	23.722	3.317	12.125	172.3
621	10894	13445	2.537	0.389	9384	2359	23.724	3.315	12.118	172.5
622	10898	13452	2.536	0.388	9392	2357	23.725	3.313	12.109	172.8
623	10889	13443	2.534	0.387	9417	2323	23.729	3.307	12.089	173.0
624	10874	13422	2.535	0.387	9424	2299	23.728	3.309	12.098	173.3
625	10890	13444	2.534	0.386	9419	2322	23.730	3.306	12.087	173.5
626	10878	13413	2.535	0.386	9412	2310	23.729	3.307	12.091	173.8
627	10879	13432	2.534	0.386	9409	2321	23.730	3.306	12.087	174.0
628	10867	13403	2.531	0.387	9436	2276	23.731	3.305	12.083	174.3
629	10875	13423	2.532	0.385	9425	2299	23.732	3.303	12.074	174.5
630	10883	13444	2.533	0.386	9422	2313	23.731	3.305	12.081	174.8
631	10868	13418	2.533	0.387	9417	2301	23.729	3.307	12.089	175.0
632	10872	13421	2.534	0.386	9413	2308	23.731	3.305	12.084	175.3
633	10873	13420	2.533	0.389	9422	2300	23.726	3.311	12.107	175.5
634	10882	13444	2.535	0.387	9399	2336	23.729	3.308	12.092	175.8
635	10865	13416	2.533	0.386	9408	2307	23.730	3.306	12.085	176.0
636	10862	13414	2.534	0.386	9396	2316	23.730	3.306	12.088	176.3
637	10854	13402	2.532	0.384	9413	2290	23.734	3.300	12.064	176.5
638	10837	13383	2.532	0.385	9414	2271	23.732	3.302	12.074	176.8
639	10832	13388	2.532	0.385	9413	2270	23.732	3.303	12.076	177.0
640	10831	13381	2.533	0.385	9401	2280	23.732	3.302	12.074	177.3
641	10818	13367	2.533	0.387	9394	2273	23.728	3.307	12.095	177.5
642	10821	13377	2.530	0.385	9414	2259	23.734	3.300	12.065	177.8
643	10814	13359	2.530	0.386	9414	2247	23.733	3.301	12.072	178.0
644	10828	13382	2.529	0.384	9409	2270	23.736	3.297	12.056	178.3
645	10824	13377	2.531	0.386	9405	2269	23.732	3.302	12.074	178.5
646	10826	13378	2.530	0.385	9417	2259	23.734	3.300	12.067	178.8
647	10826	13379	2.529	0.383	9433	2243	23.738	3.295	12.047	179.0
648	10821	13375	2.529	0.385	9430	2242	23.735	3.298	12.059	179.3
649	10823	13372	2.530	0.383	9426	2246	23.737	3.296	12.051	179.5
650	10830	13378	2.528	0.383	9450	2228	23.739	3.294	12.044	179.8

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
651	10816	13364	2.526	0.382	9487	2178	23.742	3.289	12.027	180.0
652	10832	13379	2.526	0.382	9479	2201	23.741	3.290	12.029	180.3
653	10824	13377	2.528	0.380	9476	2199	23.743	3.288	12.023	180.5
654	10811	13369	2.528	0.381	9465	2198	23.741	3.290	12.030	180.8
655	10821	13370	2.526	0.382	9483	2187	23.741	3.290	12.030	181.0
656	10835	13396	2.526	0.380	9492	2197	23.745	3.285	12.011	181.3
657	10822	13375	2.526	0.380	9493	2180	23.745	3.286	12.014	181.5
658	10822	13376	2.526	0.381	9498	2175	23.743	3.287	12.020	181.8
659	10827	13379	2.527	0.380	9496	2181	23.744	3.287	12.018	182.0
660	10826	13377	2.527	0.380	9492	2184	23.744	3.286	12.015	182.3
661	10828	13380	2.526	0.381	9489	2189	23.744	3.287	12.019	182.5
662	10820	13377	2.526	0.380	9489	2183	23.744	3.286	12.016	182.8
663	10820	13374	2.527	0.379	9491	2179	23.745	3.285	12.012	183.0
664	10820	13371	2.527	0.380	9493	2177	23.743	3.287	12.020	183.3
665	10824	13381	2.526	0.379	9491	2185	23.745	3.285	12.011	183.5
666	10822	13373	2.528	0.379	9488	2184	23.744	3.286	12.016	183.8
667	10822	13372	2.527	0.381	9486	2186	23.742	3.289	12.026	184.0
668	10833	13386	2.528	0.378	9485	2199	23.745	3.285	12.010	184.3
669	10828	13379	2.528	0.379	9485	2193	23.745	3.286	12.013	184.5
670	10828	13381	2.528	0.379	9483	2195	23.744	3.287	12.017	184.8
671	10824	13369	2.528	0.379	9483	2189	23.745	3.286	12.012	185.0
672	10820	13371	2.527	0.378	9484	2186	23.746	3.284	12.008	185.3
673	10829	13381	2.528	0.379	9478	2201	23.744	3.287	12.017	185.5
674	10817	13377	2.528	0.380	9481	2190	23.742	3.289	12.026	185.8
675	10827	13375	2.529	0.379	9477	2199	23.743	3.288	12.021	186.0
676	10825	13376	2.528	0.380	9478	2196	23.742	3.289	12.026	186.3
677	10815	13359	2.529	0.381	9476	2186	23.740	3.292	12.038	186.5
678	10835	13386	2.528	0.379	9476	2209	23.745	3.286	12.014	186.8
679	10819	13367	2.528	0.381	9475	2193	23.741	3.290	12.030	187.0
680	10828	13379	2.529	0.379	9476	2202	23.744	3.287	12.019	187.3
681	10823	13375	2.529	0.380	9471	2203	23.742	3.289	12.025	187.5
682	10824	13373	2.529	0.380	9473	2200	23.743	3.288	12.022	187.8
683	10825	13377	2.528	0.380	9471	2204	23.744	3.287	12.018	188.0
684	10822	13376	2.529	0.380	9467	2206	23.743	3.288	12.023	188.3
685	10822	13375	2.528	0.379	9469	2203	23.745	3.285	12.011	188.5
686	10821	13368	2.529	0.379	9468	2201	23.743	3.288	12.021	188.8
687	10820	13376	2.529	0.380	9468	2204	23.741	3.290	12.029	189.0
688	10827	13379	2.528	0.380	9471	2206	23.743	3.288	12.020	189.3
689	10821	13373	2.529	0.379	9465	2206	23.743	3.287	12.020	189.5
690	10828	13381	2.529	0.381	9468	2211	23.740	3.292	12.036	189.8
691	10822	13374	2.530	0.381	9467	2206	23.740	3.292	12.038	190.0
692	10825	13381	2.529	0.379	9466	2211	23.744	3.287	12.019	190.3
693	10825	13385	2.530	0.379	9465	2213	23.743	3.288	12.021	190.5
694	10822	13384	2.529	0.380	9463	2213	23.741	3.290	12.030	190.8
695	10823	13379	2.530	0.379	9462	2213	23.742	3.289	12.025	191.0
696	10813	13357	2.531	0.378	9458	2202	23.744	3.287	12.019	191.3
697	10829	13381	2.530	0.379	9461	2218	23.742	3.289	12.025	191.5
698	10814	13364	2.529	0.378	9463	2201	23.745	3.285	12.011	191.8
699	10831	13374	2.529	0.379	9458	2220	23.744	3.287	12.015	192.0
700	10817	13376	2.530	0.379	9458	2211	23.743	3.288	12.022	192.3

UNIAXIAL STRAIN TEST. SAMPLE #1

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
701	10814	13364	2.530	0.380	9461	2202	23.741	3.290	12.032	192.5
702	10811	13358	2.530	0.380	9460	2199	23.741	3.290	12.030	192.8
703	10812	13367	2.532	0.379	9455	2208	23.741	3.290	12.030	193.0
704	10817	13369	2.530	0.380	9456	2211	23.742	3.289	12.026	193.3
705	10820	13368	2.531	0.380	9457	2212	23.741	3.290	12.029	193.5
706	10835	13389	2.531	0.379	9456	2229	23.742	3.290	12.028	193.8
707	10818	13371	2.530	0.380	9454	2214	23.742	3.289	12.027	194.0
708	10818	13375	2.531	0.379	9453	2216	23.742	3.289	12.026	194.3
709	10823	13386	2.530	0.379	9455	2222	23.743	3.288	12.021	194.5
710	11121	13483	2.528	0.388	9600	2307	23.735	3.304	12.066	194.8
711	11144	13488	2.521	0.385	9757	2168	23.746	3.290	12.014	195.0
712	11242	13471	2.509	0.384	9909	2076	23.757	3.278	11.962	195.3
713	11421	13477	2.506	0.391	9996	2109	23.752	3.288	11.989	195.5
714	11430	13468	2.496	0.389	10109	1999	23.762	3.274	11.937	195.8
715	11449	13475	2.493	0.386	10172	1951	23.769	3.265	11.905	196.0
716	11554	13536	2.495	0.392	10220	1995	23.761	3.278	11.947	196.3
717	11629	13602	2.497	0.393	10264	2022	23.758	3.283	11.962	196.5
718	11560	13535	2.492	0.387	10310	1908	23.770	3.266	11.901	196.8
719	11643	13497	2.480	0.390	10364	1896	23.777	3.259	11.871	197.0
720	11668	13475	2.475	0.390	10428	1842	23.780	3.256	11.857	197.3
721	11697	13481	2.471	0.387	10490	1802	23.788	3.245	11.816	197.5
722	11765	13485	2.469	0.390	10543	1794	23.786	3.249	11.827	197.8
723	11778	13510	2.468	0.389	10597	1758	23.788	3.246	11.816	198.0
724	11853	13544	2.468	0.390	10652	1763	23.788	3.248	11.818	198.3
725	11851	13527	2.461	0.387	10701	1708	23.798	3.234	11.767	198.5
726	11879	13456	2.451	0.389	10755	1649	23.803	3.228	11.743	198.8
727	11973	13505	2.452	0.392	10802	1681	23.800	3.235	11.764	199.0
728	11970	13495	2.448	0.387	10855	1623	23.810	3.222	11.714	199.3
729	12049	13531	2.448	0.391	10906	1636	23.804	3.231	11.743	199.5
730	12047	13480	2.440	0.389	10949	1575	23.813	3.219	11.699	199.8
731	12110	13476	2.435	0.391	10999	1565	23.816	3.217	11.687	200.0
732	12173	13559	2.440	0.393	11042	1592	23.809	3.226	11.719	200.3
733	12157	13531	2.433	0.393	11089	1526	23.814	3.219	11.694	200.5
734	12163	13506	2.428	0.389	11121	1489	23.824	3.207	11.649	200.8
735	12216	13509	2.427	0.392	11149	1497	23.821	3.212	11.663	201.0
736	12258	13441	2.416	0.391	11190	1461	23.832	3.199	11.612	201.3
737	12331	13476	2.414	0.393	11236	1476	23.831	3.201	11.616	201.5
738	12322	13459	2.411	0.392	11283	1417	23.835	3.195	11.596	201.8
739	12429	13509	2.411	0.396	11348	1440	23.831	3.203	11.619	202.0
740	12428	13676	2.426	0.395	11326	1517	23.821	3.215	11.665	202.3
741	12285	13388	2.401	0.390	11308	1345	23.846	3.180	11.541	202.5
742	12371	13492	2.413	0.395	11296	1448	23.830	3.202	11.620	202.8
743	12367	13492	2.413	0.395	11290	1451	23.829	3.203	11.624	203.0
744	12371	13481	2.413	0.395	11280	1460	23.830	3.203	11.622	203.3
745	12369	13489	2.414	0.394	11274	1467	23.830	3.203	11.620	203.5
746	12368	13475	2.413	0.396	11270	1466	23.828	3.205	11.631	203.8
747	12367	13474	2.414	0.394	11267	1468	23.830	3.202	11.619	204.0
748	12337	13447	2.413	0.397	11262	1444	23.827	3.206	11.634	204.3
749	12336	13445	2.413	0.394	11260	1445	23.830	3.202	11.620	204.5
750	12332	13437	2.413	0.396	11258	1441	23.829	3.204	11.627	204.8

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
751	12330	13436	2.411	0.396	11268	1430	23.829	3.203	11.624	205.0
752	12331	13449	2.411	0.394	11266	1437	23.833	3.199	11.608	205.3
753	12329	13439	2.415	0.396	11240	1459	23.825	3.208	11.643	205.5
754	12316	13419	2.409	0.394	11250	1433	23.834	3.197	11.603	205.8
755	12315	13438	2.410	0.393	11263	1426	23.835	3.196	11.598	206.0
756	12323	13449	2.412	0.395	11253	1444	23.829	3.203	11.624	206.3
757	12328	13436	2.411	0.395	11245	1452	23.830	3.202	11.619	206.5
758	12317	13428	2.412	0.395	11246	1441	23.830	3.202	11.620	206.8
759	12312	13415	2.410	0.397	11254	1425	23.829	3.204	11.628	207.0
760	12312	13428	2.409	0.393	11265	1419	23.835	3.195	11.594	207.3
761	12310	13421	2.406	0.393	11279	1401	23.837	3.193	11.588	207.5
762	12292	13395	2.406	0.392	11289	1369	23.838	3.190	11.579	207.8
763	12301	13408	2.408	0.394	11272	1397	23.834	3.196	11.598	208.0
764	12288	13400	2.409	0.395	11258	1400	23.831	3.199	11.613	208.3
765	12300	13408	2.407	0.393	11279	1390	23.835	3.194	11.594	208.5
766	12296	13409	2.406	0.392	11272	1395	23.839	3.190	11.576	208.8
767	12289	13401	2.407	0.393	11266	1394	23.837	3.193	11.588	209.0
768	12290	13398	2.408	0.392	11260	1398	23.837	3.192	11.586	209.3
769	12295	13409	2.411	0.393	11245	1421	23.833	3.198	11.608	209.5
770	12291	13408	2.410	0.395	11223	1439	23.831	3.200	11.616	209.8
771	12294	13410	2.404	0.391	11274	1392	23.841	3.187	11.567	210.0
772	12291	13407	2.406	0.392	11263	1400	23.839	3.190	11.576	210.3
773	12280	13389	2.405	0.391	11270	1379	23.841	3.186	11.564	210.5
774	12269	13378	2.405	0.391	11267	1372	23.841	3.187	11.568	210.8
775	12267	13379	2.405	0.391	11262	1375	23.840	3.188	11.570	211.0
776	12255	13361	2.404	0.392	11266	1357	23.840	3.188	11.570	211.3
777	12247	13340	2.403	0.387	11269	1342	23.848	3.177	11.531	211.5
778	12258	13354	2.403	0.391	11267	1356	23.843	3.184	11.556	211.8
779	12273	13386	2.405	0.393	11262	1381	23.838	3.190	11.580	212.0
780	12267	13367	2.405	0.390	11262	1372	23.842	3.185	11.559	212.3
781	12265	13382	2.405	0.391	11261	1376	23.841	3.186	11.566	212.5
782	12281	13399	2.406	0.391	11257	1396	23.841	3.188	11.569	212.8
783	12279	13404	2.405	0.390	11257	1396	23.843	3.185	11.558	213.0
784	12279	13390	2.406	0.389	11256	1393	23.844	3.183	11.552	213.3
785	12275	13383	2.406	0.391	11257	1387	23.841	3.187	11.569	213.5
786	12282	13392	2.405	0.390	11255	1397	23.842	3.186	11.561	213.8
787	12282	13378	2.407	0.390	11250	1397	23.841	3.187	11.567	214.0
788	12279	13394	2.406	0.389	11253	1398	23.843	3.184	11.556	214.3
789	12283	13398	2.408	0.389	11250	1404	23.842	3.186	11.561	214.5
790	12274	13386	2.408	0.390	11251	1393	23.839	3.189	11.575	214.8
791	12269	13381	2.407	0.391	11249	1390	23.840	3.188	11.572	215.0
792	12282	13398	2.407	0.391	11250	1403	23.839	3.190	11.578	215.3
793	12276	13392	2.407	0.391	11246	1401	23.840	3.188	11.572	215.5
794	12277	13384	2.407	0.392	11245	1400	23.837	3.192	11.586	215.8
795	12275	13388	2.408	0.392	11243	1402	23.838	3.191	11.582	216.0
796	12274	13390	2.409	0.390	11244	1402	23.839	3.189	11.574	216.3
797	12281	13396	2.408	0.391	11240	1412	23.839	3.190	11.578	216.5
798	12271	13377	2.408	0.392	11242	1398	23.836	3.193	11.589	216.8
799	12269	13387	2.407	0.390	11240	1401	23.841	3.187	11.566	217.0
800	12279	13399	2.410	0.393	11242	1411	23.834	3.196	11.602	217.3

UNIAXIAL STRAIN TEST. SAMPLE #1

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
801	12280	13391	2.409	0.391	11239	1411	23.837	3.192	11.585	217.5
802	12288	13399	2.408	0.391	11239	1419	23.839	3.190	11.576	217.8
803	12270	13383	2.408	0.391	11235	1406	23.838	3.191	11.581	218.0
804	12287	13404	2.409	0.391	11237	1422	23.838	3.191	11.582	218.3
805	12283	13389	2.408	0.392	11234	1417	23.838	3.191	11.583	218.5
806	12287	13398	2.409	0.392	11233	1423	23.837	3.192	11.586	218.8
807	12292	13410	2.410	0.390	11234	1430	23.839	3.190	11.578	219.0
808	12282	13393	2.408	0.391	11234	1418	23.838	3.191	11.579	219.3
809	12287	13408	2.410	0.391	11234	1426	23.836	3.193	11.589	219.5
810	12284	13394	2.409	0.391	11233	1421	23.839	3.190	11.577	219.8
811	12277	13394	2.409	0.392	11231	1417	23.836	3.193	11.589	220.0
812	12283	13398	2.410	0.391	11233	1421	23.837	3.192	11.584	220.3
813	12291	13403	2.410	0.391	11230	1431	23.837	3.192	11.586	220.5
814	12289	13398	2.409	0.391	11229	1429	23.838	3.191	11.581	220.8
815	12292	13408	2.409	0.391	11225	1439	23.839	3.191	11.579	221.0
816	12292	13402	2.408	0.391	11227	1434	23.838	3.191	11.579	221.3
817	12282	13401	2.409	0.393	11224	1430	23.835	3.195	11.594	221.5
818	12287	13403	2.411	0.390	11225	1434	23.838	3.191	11.582	221.8
819	12286	13396	2.410	0.392	11223	1433	23.836	3.194	11.593	222.0
820	12284	13391	2.410	0.391	11222	1431	23.837	3.193	11.587	222.3
821	12292	13404	2.411	0.392	11223	1439	23.835	3.195	11.596	222.5
822	12283	13398	2.410	0.392	11220	1434	23.835	3.195	11.596	222.8
823	12285	13395	2.410	0.393	11220	1435	23.834	3.196	11.599	223.0
824	12283	13386	2.409	0.392	11217	1433	23.837	3.193	11.588	223.3
825	12284	13398	2.410	0.394	11219	1435	23.833	3.197	11.604	223.5
826	12290	13406	2.411	0.393	11218	1443	23.833	3.197	11.603	223.8
827	12299	13413	2.411	0.391	11218	1452	23.837	3.193	11.586	224.0
828	12291	13405	2.410	0.391	11216	1446	23.837	3.193	11.588	224.3
829	12292	13406	2.411	0.391	11215	1448	23.836	3.193	11.589	224.5
830	12290	13408	2.412	0.391	11212	1450	23.836	3.194	11.590	224.8
831	12294	13410	2.411	0.391	11215	1451	23.836	3.193	11.589	225.0
832	12289	13407	2.412	0.391	11212	1450	23.836	3.194	11.590	225.3
833	12295	13405	2.413	0.393	11192	1473	23.831	3.200	11.614	225.5
834	12289	13401	2.413	0.392	11180	1480	23.833	3.198	11.608	225.8
835	12294	13410	2.413	0.392	11184	1482	23.834	3.197	11.602	226.0
836	12286	13403	2.413	0.391	11183	1475	23.835	3.196	11.598	226.3
837	12292	13413	2.414	0.392	11184	1481	23.834	3.197	11.603	226.5
838	12294	13405	2.412	0.392	11172	1492	23.834	3.197	11.600	226.8
839	12287	13395	2.415	0.394	11156	1500	23.829	3.203	11.625	227.0
840	12283	13396	2.414	0.393	11154	1500	23.830	3.201	11.619	227.3
841	12284	13399	2.413	0.395	11153	1502	23.829	3.203	11.624	227.5
842	12290	13399	2.415	0.393	11155	1504	23.830	3.201	11.619	227.8
843	12283	13407	2.414	0.394	11157	1501	23.830	3.201	11.618	228.0
844	12292	13406	2.413	0.393	11159	1504	23.832	3.199	11.611	228.3
845	12283	13387	2.414	0.394	11159	1492	23.830	3.201	11.619	228.5
846	12280	13396	2.443	0.419	10611	2040	23.770	3.281	11.916	228.8
847	12224	13341	2.475	0.446	9907	2689	23.705	3.367	12.234	229.0
848	12013	13142	2.482	0.458	9365	3023	23.679	3.398	12.359	229.3
849	11742	12880	2.480	0.466	8920	3201	23.664	3.413	12.426	229.5
850	11492	12631	2.479	0.470	8530	3342	23.656	3.420	12.463	229.8

UNIAXIAL STRAIN TEST. SAMPLE 11

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
851	11255	12396	2.478	0.472	8193	3442	23.651	3.422	12.483	230.0
852	10964	12119	2.478	0.473	7885	3464	23.647	3.423	12.499	230.3
853	10378	11538	2.470	0.457	7589	3175	23.669	3.383	12.383	230.5
854	9940	11116	2.467	0.449	7320	3012	23.677	3.364	12.336	230.8
855	9692	10859	2.465	0.446	7082	2999	23.679	3.358	12.323	231.0
856	9423	10594	2.462	0.440	6865	2948	23.687	3.342	12.278	231.3
857	9158	10319	2.457	0.437	6669	2876	23.691	3.331	12.253	231.5
858	8891	10062	2.452	0.433	6491	2790	23.697	3.318	12.218	231.8
859	8618	9788	2.445	0.427	6328	2680	23.709	3.298	12.157	232.0
860	8355	9529	2.437	0.419	6179	2567	23.724	3.274	12.081	232.3
861	8091	9252	2.428	0.412	6044	2434	23.736	3.253	12.014	232.5
862	7825	8990	2.419	0.405	5923	2290	23.751	3.229	11.938	232.8
863	7563	8731	2.411	0.396	5810	2142	23.766	3.204	11.858	233.0
864	7337	8522	2.403	0.387	5704	2028	23.784	3.176	11.767	233.3
865	7095	8268	2.394	0.377	5602	1883	23.803	3.148	11.672	233.5
866	6863	8045	2.383	0.368	5506	1750	23.821	3.119	11.577	233.8
867	6640	7809	2.376	0.359	5418	1612	23.838	3.093	11.491	234.0
868	6416	7601	2.366	0.346	5335	1475	23.862	3.058	11.369	234.3
869	6186	7364	2.357	0.332	5256	1322	23.887	3.021	11.244	234.5
870	5955	7130	2.345	0.315	5183	1164	23.920	2.974	11.079	234.8
871	5730	6908	2.333	0.285	5143	979	23.972	2.903	10.820	235.0
872	5493	6669	2.333	0.274	4886	998	23.985	2.882	10.751	235.3
873	5265	6441	2.338	0.276	4594	1062	23.976	2.890	10.791	235.5
874	5049	6221	2.338	0.276	4360	1080	23.973	2.890	10.802	235.8
875	4859	6030	2.337	0.274	4161	1088	23.974	2.885	10.795	236.0
876	4651	5826	2.337	0.269	3984	1058	23.980	2.874	10.764	236.3
877	4467	5639	2.334	0.267	3820	1037	23.982	2.868	10.748	236.5
878	4282	5444	2.331	0.264	3671	998	23.986	2.860	10.727	236.8
879	4105	5273	2.329	0.256	3536	958	23.998	2.841	10.667	237.0
880	3922	5090	2.324	0.249	3404	907	24.010	2.822	10.602	237.3
881	3725	4898	2.332	0.252	3113	1003	23.996	2.837	10.670	237.5
882	3519	4691	2.334	0.256	2887	1022	23.987	2.846	10.712	237.8
883	3317	4485	2.332	0.254	2690	1015	23.988	2.840	10.700	238.0
884	3112	4279	2.329	0.251	2515	985	23.992	2.831	10.679	238.3
885	3671	4843	2.346	0.261	2118	1943	23.976	2.868	10.773	238.5

UNIAXIAL STRAIN TEST. SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1	0	0	0.000	0.000	0	0	30.800	0.000	0.000	0.0
2	49	47	0.013	0.011	35	13	30.777	0.034	0.109	0.3
3	118	124	0.019	0.015	97	23	30.768	0.048	0.151	0.5
4	223	220	0.010	0.012	220	2	30.779	0.034	0.103	0.8
5	320	316	0.007	0.009	328	-9	30.787	0.024	0.066	1.0
6	410	410	0.017	0.014	386	23	30.774	0.045	0.128	1.3
7	504	515	0.017	0.015	483	24	30.774	0.047	0.133	1.5
8	523	528	0.019	0.018	498	25	30.769	0.054	0.155	1.8
9	521	532	0.021	0.016	494	31	30.769	0.054	0.153	2.0
10	522	521	0.021	0.015	503	19	30.771	0.051	0.146	2.3
11	634	633	0.005	0.007	656	-22	30.794	0.020	0.041	2.5
12	724	728	0.001	0.008	765	-39	30.797	0.017	0.025	2.8
13	824	821	0.011	0.011	835	-12	30.788	0.032	0.072	3.0
14	917	924	0.016	0.014	909	10	30.781	0.044	0.106	3.3
15	1003	1016	0.020	0.018	981	26	30.774	0.056	0.141	3.5
16	1091	1106	0.016	0.015	1095	1	30.782	0.046	0.105	3.8
17	1186	1188	0.015	0.015	1190	-2	30.783	0.045	0.100	4.0
18	1274	1284	0.013	0.014	1292	-14	30.787	0.042	0.084	4.3
19	1356	1366	0.013	0.014	1380	-20	30.788	0.041	0.079	4.5
20	1451	1461	0.013	0.015	1469	-14	30.789	0.042	0.077	4.7
21	1537	1550	0.011	0.014	1561	-19	30.792	0.039	0.066	5.0
22	1625	1639	0.020	0.018	1626	3	30.781	0.056	0.117	5.3
23	1729	1745	0.025	0.023	1704	29	30.773	0.070	0.158	5.5
24	1816	1829	0.021	0.020	1818	1	30.780	0.061	0.125	5.8
25	1919	1943	0.013	0.016	1949	-21	30.793	0.045	0.069	6.0
26	2026	2036	0.018	0.020	2035	-6	30.785	0.057	0.105	6.2
27	2143	2160	0.019	0.020	2151	-1	30.786	0.059	0.105	6.5
28	2251	2263	0.016	0.021	2273	-18	30.789	0.057	0.094	6.8
29	2361	2368	0.017	0.021	2390	-26	30.788	0.059	0.097	7.0
30	2479	2508	0.024	0.023	2491	-1	30.782	0.070	0.129	7.2
31	2598	2623	0.024	0.024	2602	4	30.783	0.071	0.127	7.5
32	2694	2726	0.027	0.025	2710	-5	30.780	0.078	0.144	7.7
33	2830	2849	0.021	0.023	2838	-1	30.789	0.066	0.100	8.0
34	2953	2966	0.026	0.029	2926	31	30.779	0.083	0.151	8.2
35	3035	3070	0.031	0.029	3021	25	30.777	0.089	0.164	8.5
36	3147	3167	0.036	0.034	3103	50	30.767	0.104	0.211	8.7
37	3239	3266	0.020	0.026	3261	-13	30.790	0.072	0.103	9.0
38	3337	3354	0.027	0.031	3335	7	30.780	0.089	0.154	9.2
39	3423	3444	0.033	0.033	3410	20	30.774	0.100	0.185	9.5
40	3546	3573	0.028	0.031	3540	14	30.782	0.090	0.148	9.7
41	3629	3645	0.033	0.038	3610	24	30.769	0.110	0.211	10.0
42	3732	3762	0.032	0.035	3719	23	30.776	0.102	0.180	10.2
43	3843	3874	0.032	0.038	3818	34	30.774	0.107	0.191	10.5
44	3949	3977	0.034	0.038	3928	30	30.773	0.110	0.198	10.7
45	4065	4096	0.034	0.038	4034	41	30.775	0.110	0.191	11.0
46	4182	4219	0.027	0.034	4178	16	30.787	0.095	0.138	11.2
47	4302	4325	0.037	0.041	4265	44	30.771	0.119	0.212	11.5
48	4422	4458	0.045	0.046	4350	84	30.761	0.137	0.264	11.7
49	4547	4578	0.035	0.041	4508	48	30.776	0.116	0.193	12.0
50	4672	4707	0.039	0.041	4623	61	30.774	0.121	0.205	12.2

UNIAXIAL STRAIN TEST. SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
51	4797	4831	0.029	0.039	4781	27	30.785	0.107	0.155	12.5
52	4919	4948	0.035	0.041	4890	38	30.780	0.117	0.181	12.7
53	5040	5079	0.036	0.041	4998	55	30.781	0.118	0.179	13.0
54	5154	5189	0.037	0.044	5111	54	30.778	0.125	0.198	13.2
55	5272	5313	0.039	0.045	5219	66	30.777	0.129	0.204	13.5
56	5390	5433	0.040	0.046	5326	77	30.777	0.131	0.207	13.7
57	5490	5544	0.044	0.046	5435	73	30.775	0.136	0.218	14.0
58	5608	5648	0.041	0.048	5546	75	30.775	0.138	0.219	14.2
59	5726	5771	0.038	0.046	5668	72	30.781	0.130	0.191	14.5
60	5841	5883	0.039	0.048	5777	78	30.779	0.135	0.202	14.7
61	5953	5991	0.041	0.050	5885	80	30.777	0.141	0.215	15.0
62	6071	6110	0.042	0.051	5996	87	30.777	0.143	0.216	15.2
63	6192	6235	0.043	0.051	6113	92	30.777	0.146	0.221	15.5
64	6316	6363	0.047	0.056	6224	107	30.769	0.159	0.260	15.7
65	6446	6487	0.052	0.057	6328	131	30.766	0.166	0.276	16.0
66	6568	6612	0.053	0.060	6443	140	30.763	0.173	0.292	16.2
67	6701	6735	0.048	0.058	6601	111	30.770	0.165	0.261	16.5
68	6850	6899	0.054	0.061	6729	137	30.764	0.176	0.292	16.7
69	6993	7028	0.051	0.061	6885	120	30.767	0.174	0.281	17.0
70	7132	7160	0.051	0.063	7017	124	30.767	0.176	0.282	17.2
71	7276	7310	0.049	0.059	7179	108	30.775	0.167	0.247	17.5
72	7415	7448	0.052	0.063	7298	127	30.770	0.177	0.274	17.7
73	7560	7595	0.057	0.068	7410	161	30.762	0.193	0.317	18.0
74	7691	7724	0.054	0.066	7577	124	30.768	0.186	0.291	18.2
75	7828	7863	0.062	0.073	7661	179	30.755	0.207	0.354	18.5
76	7974	8010	0.058	0.070	7820	166	30.763	0.198	0.319	18.7
77	8105	8138	0.055	0.068	7978	138	30.769	0.191	0.291	19.0
78	8241	8279	0.056	0.071	8106	147	30.767	0.197	0.304	19.2
79	8373	8417	0.065	0.073	8202	185	30.759	0.212	0.345	19.5
80	8509	8545	0.069	0.078	8321	199	30.751	0.225	0.383	19.7
81	8644	8674	0.064	0.077	8488	166	30.758	0.218	0.354	20.0
82	8787	8816	0.067	0.079	8620	176	30.755	0.224	0.368	20.2
83	8921	8955	0.058	0.076	8791	141	30.766	0.210	0.320	20.5
84	9059	9098	0.072	0.082	8877	195	30.751	0.235	0.393	20.7
85	9233	9271	0.065	0.081	9095	150	30.759	0.227	0.360	21.0
86	9382	9415	0.065	0.079	9235	158	30.762	0.224	0.346	21.2
87	9542	9575	0.072	0.084	9348	204	30.754	0.240	0.389	21.5
88	9683	9716	0.075	0.084	9506	187	30.754	0.243	0.393	21.7
89	9860	9900	0.078	0.088	9650	223	30.747	0.255	0.426	22.0
90	10013	10043	0.078	0.090	9817	206	30.748	0.257	0.427	22.2
91	10171	10209	0.079	0.093	9966	218	30.744	0.265	0.446	22.5
92	10324	10359	0.081	0.093	10129	206	30.745	0.266	0.443	22.7
93	10487	10524	0.077	0.091	10305	194	30.752	0.260	0.417	23.0
94	10633	10666	0.083	0.096	10432	212	30.744	0.274	0.455	23.2
95	10778	10819	0.078	0.092	10612	180	30.754	0.262	0.412	23.5
96	10932	10976	0.085	0.098	10736	210	30.743	0.280	0.464	23.7
97	11087	11128	0.088	0.101	10861	240	30.739	0.290	0.489	24.0
98	11229	11267	0.089	0.101	11024	217	30.739	0.291	0.488	24.2
99	11384	11422	0.094	0.104	11146	251	30.733	0.303	0.519	24.5
100	11536	11556	0.090	0.104	11315	228	30.738	0.299	0.500	24.7

UNIAXIAL STRAIN TEST, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
101	11681	11715	0.122	0.124	11288	404	30.692	0.369	0.720	25.0
102	11849	11889	0.149	0.139	11279	583	30.656	0.426	0.893	25.2
103	12008	12040	0.169	0.153	11285	733	30.625	0.474	1.041	25.5
104	12174	12208	0.191	0.164	11285	900	30.597	0.518	1.173	25.7
105	12336	12376	0.211	0.175	11282	1067	30.570	0.561	1.303	26.0
106	12506	12531	0.232	0.188	11273	1241	30.541	0.607	1.444	26.2
107	12658	12691	0.254	0.200	11260	1408	30.511	0.654	1.585	26.5
108	12823	12849	0.271	0.210	11272	1559	30.488	0.691	1.696	26.7
109	13010	13048	0.291	0.221	11243	1779	30.463	0.732	1.819	27.0
110	13176	13201	0.305	0.232	11292	1892	30.440	0.768	1.926	27.2
111	13343	13370	0.319	0.244	11308	2044	30.416	0.807	2.043	27.5
112	13366	13387	0.326	0.246	11290	2082	30.408	0.819	2.080	27.7
113	13349	13368	0.325	0.248	11303	2052	30.406	0.821	2.088	28.0
114	13352	13381	0.323	0.247	11308	2053	30.409	0.817	2.076	28.2
115	13334	13345	0.323	0.245	11316	2021	30.411	0.814	2.067	28.5
116	13306	13319	0.322	0.247	11311	1999	30.409	0.816	2.075	28.7
117	13301	13325	0.322	0.248	11316	1993	30.408	0.817	2.079	29.0
118	13288	13311	0.322	0.247	11313	1982	30.408	0.817	2.081	29.2
119	13283	13302	0.326	0.249	11280	2009	30.403	0.824	2.102	29.5
120	13269	13293	0.323	0.247	11278	1998	30.407	0.818	2.083	29.7
121	13271	13296	0.323	0.248	11278	2000	30.406	0.819	2.086	30.0
122	13243	13272	0.322	0.249	11276	1976	30.405	0.820	2.091	30.2
123	13247	13271	0.321	0.247	11270	1984	30.408	0.816	2.077	30.5
124	13224	13243	0.322	0.248	11271	1958	30.407	0.817	2.084	30.7
125	13213	13236	0.320	0.249	11272	1948	30.406	0.818	2.085	31.0
126	13211	13235	0.321	0.248	11269	1949	30.407	0.817	2.082	31.2
127	13190	13203	0.321	0.249	11269	1925	30.404	0.820	2.093	31.5
128	13186	13204	0.321	0.248	11265	1927	30.406	0.817	2.084	31.7
129	13181	13205	0.321	0.248	11267	1922	30.407	0.816	2.082	32.0
130	13190	13216	0.323	0.248	11263	1935	30.405	0.819	2.090	32.2
131	13190	13218	0.322	0.248	11263	1936	30.405	0.819	2.090	32.5
132	13175	13193	0.319	0.247	11299	1882	30.409	0.813	2.073	32.8
133	13169	13190	0.317	0.248	11291	1884	30.408	0.814	2.076	33.0
134	13140	13167	0.319	0.245	11266	1882	30.410	0.810	2.065	34.0
135	13114	13125	0.318	0.247	11256	1861	30.409	0.811	2.071	35.0
136	13088	13084	0.317	0.247	11258	1828	30.408	0.812	2.074	36.0
137	13234	13258	0.327	0.253	11208	2034	30.396	0.833	2.133	37.0
138	13209	13238	0.323	0.249	11322	1897	30.404	0.821	2.097	38.0
139	13170	13179	0.654	0.502	6002	7170	29.841	1.658	4.721	39.0
140	13146	13151	0.671	0.512	5879	7268	29.814	1.695	4.841	40.0
141	13118	13112	0.674	0.515	5879	7236	29.808	1.704	4.870	41.0
142	13116	13106	0.704	0.536	5227	7885	29.760	1.776	5.094	42.0
143	13098	13092	0.634	0.477	7363	5732	29.882	1.587	4.519	43.0
144	13083	13083	0.481	0.345	11262	1820	30.156	1.170	3.237	44.0
145	13073	13063	0.483	0.346	11222	1847	30.152	1.176	3.255	45.0
146	13207	13197	0.489	0.350	11224	1979	30.145	1.189	3.289	46.0
147	13221	13213	0.491	0.353	11217	2001	30.140	1.197	3.314	47.0
148	13213	13208	0.491	0.352	11203	2008	30.141	1.196	3.311	48.0
149	13203	13198	0.492	0.354	11192	2009	30.137	1.201	3.328	49.0
150	13176	13161	0.488	0.351	11282	1889	30.144	1.190	3.295	50.0

UNIAXIAL STRAIN TEST. SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
151	13186	13187	0.485	0.350	11279	1907	30.147	1.185	3.279	51.0
152	13173	13169	0.486	0.352	11268	1903	30.143	1.190	3.297	52.0
153	13176	13167	0.486	0.350	11262	1910	30.146	1.186	3.282	53.0
154	13160	13158	0.488	0.351	11257	1902	30.144	1.189	3.295	54.0
155	13155	13154	0.488	0.351	11249	1905	30.144	1.189	3.295	55.0
156	13148	13142	0.486	0.352	11247	1899	30.142	1.191	3.301	56.0
157	13147	13151	0.488	0.352	11241	1907	30.141	1.193	3.306	57.0
158	13141	13151	0.487	0.353	11240	1904	30.141	1.192	3.305	58.0
159	13136	13141	0.488	0.352	11230	1907	30.142	1.191	3.303	59.0
160	13132	13135	0.487	0.353	11235	1898	30.141	1.192	3.306	60.0
161	13137	13147	0.483	0.349	11289	1851	30.149	1.180	3.267	61.0
162	13119	13116	0.484	0.349	11289	1829	30.147	1.183	3.276	62.0
163	13128	13119	0.483	0.350	11286	1838	30.148	1.182	3.274	63.0
164	13116	13119	0.483	0.352	11283	1834	30.145	1.186	3.289	64.0
165	13114	13110	0.485	0.352	11281	1831	30.143	1.189	3.296	65.0
166	13115	13114	0.485	0.351	11283	1831	30.144	1.188	3.293	66.0
167	13110	13107	0.485	0.351	11279	1829	30.143	1.188	3.295	67.0
168	13111	13118	0.486	0.352	11279	1834	30.143	1.189	3.298	68.0
169	13116	13106	0.484	0.351	11274	1838	30.146	1.185	3.283	69.0
170	13122	13114	0.485	0.352	11280	1839	30.143	1.188	3.295	70.0
171	13121	13137	0.485	0.352	11282	1844	30.144	1.188	3.294	71.0
172	13105	13115	0.486	0.355	11280	1828	30.139	1.195	3.316	72.0
173	13117	13129	0.486	0.353	11283	1838	30.140	1.192	3.308	73.0
174	13119	13129	0.486	0.353	11283	1839	30.141	1.191	3.305	74.0
175	13119	13130	0.488	0.352	11285	1838	30.141	1.192	3.305	75.0
176	13119	13120	0.485	0.353	11285	1833	30.141	1.192	3.305	76.0
177	13114	13122	0.485	0.353	11291	1825	30.142	1.191	3.303	77.0
178	13106	13112	0.488	0.353	11290	1817	30.139	1.194	3.314	78.0
179	13119	13132	0.486	0.353	11291	1832	30.140	1.193	3.310	79.0
180	13122	13130	0.486	0.353	11296	1828	30.142	1.191	3.303	80.0
181	13130	13140	0.489	0.351	11300	1832	30.141	1.191	3.304	81.0
182	13125	13131	0.488	0.355	11277	1850	30.137	1.197	3.322	82.0
183	13119	13130	0.490	0.354	11278	1844	30.136	1.199	3.330	83.0
184	13130	13142	0.489	0.354	11284	1849	30.137	1.198	3.324	84.0
185	13136	13148	0.489	0.353	11284	1855	30.139	1.196	3.317	85.0
186	13138	13148	0.490	0.354	11289	1852	30.137	1.198	3.326	86.0
187	13140	13145	0.490	0.353	11290	1851	30.138	1.197	3.320	87.0
188	13144	13156	0.490	0.353	11293	1854	30.138	1.197	3.321	88.0
189	13147	13152	0.490	0.354	11290	1858	30.138	1.197	3.321	89.0
190	13143	13148	0.490	0.354	11293	1851	30.136	1.199	3.329	90.0
191	13152	13154	0.488	0.354	11295	1857	30.139	1.195	3.316	91.0
192	13145	13148	0.489	0.354	11292	1854	30.138	1.196	3.319	92.0
193	13148	13147	0.491	0.356	11293	1854	30.134	1.202	3.337	93.0
194	13142	13148	0.489	0.355	11295	1848	30.137	1.198	3.326	94.0
195	13151	13148	0.489	0.355	11294	1856	30.136	1.200	3.330	95.0
196	13145	13141	0.491	0.356	11300	1842	30.134	1.202	3.338	96.0
197	13149	13147	0.490	0.355	11300	1848	30.135	1.200	3.332	97.0
198	13149	13151	0.490	0.355	11300	1849	30.135	1.201	3.333	98.0
199	13150	13156	0.491	0.356	11299	1852	30.134	1.202	3.339	99.0
200	13155	13151	0.489	0.356	11305	1848	30.135	1.201	3.333	100.0

UNIAXIAL STRAIN TEST. SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TI (MI
201	13149	13149	0.490	0.357	11302	1847	30.133	1.204	3.345	101.
202	13154	13155	0.489	0.355	11308	1846	30.136	1.200	3.331	102.
203	13163	13159	0.489	0.356	11313	1849	30.135	1.201	3.335	103.
204	13164	13150	0.489	0.356	11311	1848	30.136	1.200	3.332	104.
205	13162	13165	0.490	0.355	11311	1851	30.136	1.200	3.329	105.
206	13161	13164	0.492	0.356	11271	1891	30.133	1.204	3.342	106.
207	13155	13147	0.493	0.358	11253	1899	30.130	1.209	3.358	107.
208	13163	13163	0.486	0.355	11343	1820	30.138	1.196	3.319	108.
209	13164	13155	0.488	0.354	11347	1813	30.138	1.196	3.319	109.
210	13172	13170	0.490	0.356	11313	1858	30.134	1.203	3.340	110.
211	13145	13150	0.493	0.356	11271	1875	30.133	1.204	3.345	111.
212	13156	13156	0.493	0.357	11270	1886	30.131	1.207	3.354	112.
213	13151	13143	0.493	0.357	11264	1884	30.131	1.207	3.352	113.
214	13157	13157	0.492	0.358	11262	1895	30.131	1.208	3.355	114.
215	13168	13163	0.494	0.358	11260	1906	30.129	1.210	3.361	115.
216	13160	13156	0.495	0.360	11213	1945	30.126	1.215	3.377	116.
217	13153	13138	0.498	0.365	11108	2040	30.117	1.227	3.417	117.
218	13134	13126	0.500	0.363	11058	2073	30.118	1.226	3.413	118.
219	13135	13125	0.502	0.365	11017	2114	30.114	1.233	3.433	119.
220	13131	13122	0.504	0.366	10981	2146	30.112	1.236	3.443	120.
221	13134	13131	0.505	0.367	10977	2156	30.110	1.238	3.450	121.
222	13134	13130	0.505	0.368	10980	2152	30.108	1.242	3.462	122.
223	12994	13144	0.513	0.387	10755	2289	30.103	1.247	3.484	123.
224	12506	13062	0.532	0.363	10180	2511	30.089	1.258	3.537	124.
225	12203	13061	0.553	0.366	9683	2805	30.067	1.285	3.635	125.
226	11928	13031	0.562	0.362	9433	2863	30.063	1.286	3.646	126.
227	11933	13041	0.561	0.361	9456	2846	30.065	1.283	3.637	126.
228	11952	13059	0.562	0.359	9474	2846	30.067	1.280	3.629	126.
229	11953	13064	0.561	0.360	9487	2835	30.067	1.281	3.631	126.
230	11952	13059	0.562	0.360	9493	2827	30.067	1.281	3.631	127.
231	11947	13057	0.559	0.361	9500	2817	30.066	1.282	3.634	127.
232	11957	13059	0.562	0.361	9508	2816	30.065	1.284	3.640	127.
233	11965	13082	0.560	0.359	9505	2832	30.069	1.278	3.620	127.
234	11959	13072	0.562	0.361	9512	2818	30.064	1.285	3.643	128.
235	11967	13079	0.561	0.359	9511	2826	30.068	1.279	3.624	128.
236	11964	13074	0.563	0.362	9520	2814	30.063	1.286	3.648	128.
237	11978	13087	0.560	0.363	9513	2835	30.063	1.287	3.649	128.
238	11961	13062	0.562	0.359	9516	2811	30.067	1.280	3.628	129.
239	11970	13073	0.562	0.361	9517	2820	30.065	1.283	3.638	129.
240	11979	13084	0.563	0.362	9511	2836	30.063	1.287	3.649	129.
241	11976	13090	0.565	0.359	9494	2853	30.065	1.284	3.639	129.
242	11975	13074	0.565	0.362	9484	2857	30.062	1.288	3.654	130.
243	11984	13094	0.566	0.361	9473	2881	30.063	1.288	3.651	130.
244	11985	13091	0.565	0.361	9460	2893	30.063	1.287	3.647	130.
245	11980	13093	0.566	0.362	9445	2905	30.060	1.291	3.661	130.
246	11984	13089	0.566	0.364	9436	2916	30.059	1.294	3.670	131.
247	11977	13085	0.567	0.364	9426	2920	30.058	1.295	3.673	131.
248	11984	13090	0.566	0.365	9424	2928	30.058	1.295	3.673	131.
249	11980	13081	0.571	0.363	9409	2937	30.057	1.296	3.676	131.
250	11982	13092	0.569	0.364	9400	2952	30.057	1.296	3.677	132.

UNIAXIAL STRAIN TEST. SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
251	11975	13089	0.569	0.362	9393	2953	30.059	1.293	3.668	132.2
252	11992	13101	0.569	0.366	9381	2980	30.054	1.301	3.692	132.5
253	11986	13087	0.570	0.365	9374	2979	30.054	1.301	3.692	132.7
254	11988	13091	0.570	0.364	9375	2980	30.056	1.298	3.682	133.0
255	11983	13096	0.570	0.366	9375	2979	30.053	1.302	3.694	133.2
256	11993	13106	0.569	0.366	9376	2987	30.053	1.302	3.695	133.5
257	11987	13089	0.570	0.365	9375	2979	30.054	1.300	3.690	133.7
258	11963	13118	0.570	0.365	9375	2973	30.054	1.300	3.691	134.0
259	11730	13032	0.576	0.362	9114	3049	30.050	1.301	3.703	134.2
260	11575	13010	0.583	0.361	8920	3134	30.046	1.305	3.721	134.5
261	11389	12935	0.586	0.357	8745	3159	30.047	1.300	3.712	134.7
262	11365	12954	0.593	0.362	8607	3287	30.036	1.317	3.765	135.0
263	11216	12934	0.597	0.359	8472	3317	30.035	1.315	3.765	135.2
264	11060	12893	0.598	0.356	8345	3326	30.037	1.310	3.756	135.5
265	11054	12915	0.607	0.360	8223	3451	30.024	1.328	3.815	135.7
266	10958	12936	0.609	0.359	8111	3505	30.024	1.327	3.814	136.0
267	10866	12918	0.615	0.357	8011	3538	30.021	1.330	3.827	136.2
268	10814	12945	0.620	0.358	7905	3618	30.016	1.336	3.848	136.5
269	10723	12904	0.621	0.357	7806	3643	30.016	1.335	3.847	136.7
270	10697	12948	0.628	0.359	7721	3726	30.008	1.345	3.882	137.0
271	10611	12906	0.631	0.358	7629	3746	30.007	1.346	3.888	137.2
272	10525	12891	0.633	0.356	7556	3757	30.006	1.345	3.888	137.5
273	10499	12873	0.632	0.354	7594	3696	30.009	1.340	3.874	137.7
274	10519	12891	0.631	0.353	7619	3690	30.011	1.338	3.866	138.0
275	10517	12898	0.632	0.353	7631	3679	30.011	1.337	3.865	138.2
276	10497	12876	0.632	0.354	7643	3647	30.008	1.341	3.877	138.5
277	10511	12888	0.632	0.354	7646	3657	30.009	1.339	3.872	138.7
278	10513	12890	0.633	0.351	7654	3651	30.012	1.336	3.860	139.0
279	10514	12887	0.632	0.353	7659	3645	30.011	1.337	3.865	139.2
280	10519	12899	0.633	0.354	7660	3652	30.009	1.340	3.874	139.5
281	10516	12893	0.633	0.353	7642	3665	30.010	1.339	3.871	139.7
282	10528	12912	0.634	0.354	7642	3680	30.008	1.342	3.880	140.0
283	10520	12903	0.635	0.355	7635	3679	30.006	1.345	3.889	140.2
284	10521	12897	0.635	0.355	7624	3689	30.006	1.345	3.890	140.5
285	10522	12898	0.636	0.355	7614	3699	30.005	1.347	3.894	140.7
286	10523	12902	0.636	0.357	7603	3713	30.003	1.349	3.901	141.0
287	10524	12900	0.637	0.356	7593	3723	30.004	1.348	3.899	141.2
288	10530	12908	0.637	0.356	7586	3736	30.003	1.350	3.904	141.5
289	10523	12903	0.639	0.357	7580	3736	30.001	1.352	3.910	141.7
290	10530	12912	0.638	0.357	7574	3750	30.001	1.352	3.909	142.0
291	10525	12908	0.640	0.357	7571	3747	29.999	1.354	3.919	142.2
292	10531	12897	0.637	0.357	7564	3755	30.002	1.351	3.907	142.5
293	10538	12910	0.639	0.357	7565	3763	30.000	1.354	3.916	142.7
294	10545	12921	0.638	0.358	7557	3779	30.001	1.353	3.914	143.0
295	10540	12916	0.639	0.357	7555	3776	30.000	1.354	3.916	143.2
296	10550	12926	0.639	0.359	7548	3793	29.999	1.356	3.923	143.5
297	10543	12921	0.641	0.358	7545	3790	29.998	1.357	3.925	143.7
298	10552	12938	0.641	0.358	7540	3807	29.998	1.357	3.925	144.0
299	10557	12930	0.641	0.357	7538	3810	30.000	1.355	3.918	144.2
300	10546	12921	0.644	0.358	7531	3806	29.996	1.359	3.933	144.5

UNIAXIAL STRAIN TEST. SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
301	10555	12935	0.643	0.359	7528	3820	29.996	1.361	3.936	144.7
302	10559	12941	0.643	0.358	7527	3826	29.997	1.359	3.930	145.0
303	10561	12951	0.646	0.359	7530	3827	29.994	1.364	3.945	145.2
304	10568	12949	0.643	0.359	7530	3831	29.995	1.362	3.941	145.5
305	10562	12945	0.643	0.359	7533	3823	29.995	1.362	3.940	145.7
306	10457	12901	0.646	0.357	7444	3827	29.996	1.359	3.934	146.0
307	10275	12827	0.645	0.353	7290	3836	29.998	1.352	3.921	146.2
308	10233	12835	0.653	0.355	7158	3942	29.991	1.362	3.953	146.5
309	10126	12815	0.658	0.357	7046	3976	29.983	1.372	3.988	146.7
310	10075	12817	0.661	0.354	6943	4045	29.984	1.369	3.980	147.0
311	9999	12815	0.665	0.356	6856	4082	29.977	1.378	4.012	147.2
312	9934	12819	0.667	0.355	6766	4129	29.977	1.377	4.013	147.5
313	9856	12796	0.672	0.355	6687	4149	29.973	1.381	4.028	147.7
314	9800	12812	0.679	0.353	6609	4195	29.969	1.386	4.045	148.0
315	9751	12787	0.681	0.353	6535	4228	29.969	1.386	4.048	148.2
316	9689	12770	0.685	0.352	6467	4249	29.966	1.389	4.058	148.5
317	9642	12778	0.691	0.354	6397	4290	29.958	1.399	4.094	148.7
318	9561	12766	0.695	0.353	6328	4301	29.955	1.402	4.106	149.0
319	9540	12761	0.697	0.353	6267	4346	29.953	1.404	4.114	149.2
320	9475	12719	0.698	0.352	6213	4343	29.954	1.402	4.110	149.5
321	9453	12738	0.704	0.352	6157	4391	29.950	1.408	4.130	149.7
322	9415	12755	0.710	0.353	6076	4452	29.944	1.416	4.156	150.0
323	9371	12739	0.714	0.353	5990	4503	29.941	1.419	4.167	150.2
324	9296	12715	0.719	0.354	5911	4524	29.935	1.427	4.195	150.5
325	9201	12693	0.725	0.353	5837	4527	29.931	1.431	4.212	150.7
326	9198	12737	0.732	0.354	5769	4609	29.925	1.439	4.239	151.0
327	9066	12662	0.731	0.351	5722	4542	29.928	1.432	4.223	151.2
328	9161	12715	0.737	0.351	5748	4598	29.924	1.440	4.242	151.5
329	9171	12724	0.739	0.352	5767	4588	29.922	1.443	4.253	151.7
330	9168	12719	0.738	0.349	5773	4579	29.927	1.436	4.232	152.0
331	9177	12732	0.740	0.352	5783	4579	29.922	1.444	4.255	152.2
332	9187	12743	0.742	0.353	5789	4583	29.919	1.447	4.267	152.5
333	9190	12744	0.743	0.353	5792	4582	29.919	1.448	4.268	152.7
334	9188	12746	0.745	0.352	5792	4581	29.917	1.450	4.275	153.0
335	9194	12741	0.748	0.353	5790	4585	29.914	1.455	4.290	153.2
336	9193	12749	0.749	0.353	5782	4595	29.913	1.456	4.295	153.5
337	9193	12746	0.747	0.354	5783	4594	29.914	1.454	4.287	153.7
338	9213	12757	0.748	0.355	5779	4615	29.912	1.459	4.301	154.0
339	9204	12751	0.751	0.353	5772	4614	29.912	1.458	4.299	154.2
340	9207	12762	0.751	0.353	5769	4623	29.912	1.457	4.297	154.5
341	9214	12770	0.751	0.353	5765	4635	29.913	1.457	4.296	154.7
342	9213	12764	0.753	0.354	5761	4635	29.910	1.460	4.307	155.0
343	9219	12770	0.754	0.355	5754	4648	29.908	1.463	4.316	155.2
344	9224	12774	0.754	0.354	5747	4660	29.909	1.463	4.313	155.5
345	9222	12781	0.755	0.353	5746	4662	29.911	1.460	4.305	155.7
346	9209	12768	0.756	0.356	5747	4647	29.904	1.469	4.334	156.0
347	9216	12776	0.756	0.355	5738	4664	29.906	1.466	4.325	156.2
348	9221	12778	0.758	0.356	5737	4669	29.903	1.471	4.339	156.5
349	9101	12708	0.756	0.351	5734	4569	29.910	1.458	4.306	156.7
350	9119	12735	0.756	0.350	5730	4594	29.912	1.456	4.297	157.0

UNIAXIAL STRAIN TEST, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
351	9108	12732	0.757	0.353	5728	4587	29.907	1.462	4.318	157.2
352	9122	12735	0.759	0.352	5728	4598	29.907	1.462	4.318	157.5
353	9121	12740	0.759	0.352	5724	4603	29.908	1.462	4.317	157.7
354	9120	12724	0.759	0.352	5723	4598	29.908	1.462	4.317	158.0
355	9121	12719	0.760	0.351	5721	4599	29.908	1.462	4.317	158.2
356	9135	12737	0.759	0.352	5718	4617	29.907	1.463	4.320	158.5
357	9133	12734	0.761	0.352	5717	4616	29.906	1.464	4.323	158.7
358	9127	12722	0.761	0.350	5710	4614	29.909	1.461	4.313	159.0
359	9139	12735	0.762	0.352	5710	4627	29.906	1.465	4.326	159.2
360	9150	12746	0.762	0.352	5712	4637	29.905	1.466	4.329	159.5
361	9136	12736	0.765	0.353	5705	4631	29.902	1.471	4.343	159.7
362	9150	12751	0.764	0.351	5708	4642	29.905	1.467	4.330	160.0
363	9153	12751	0.764	0.353	5711	4641	29.903	1.470	4.340	160.2
364	9152	12754	0.766	0.351	5709	4643	29.904	1.468	4.335	160.5
365	9150	12753	0.765	0.352	5709	4641	29.903	1.470	4.341	160.7
366	9155	12760	0.765	0.352	5720	4636	29.903	1.470	4.340	161.0
367	9175	12655	0.755	0.350	5893	4441	29.913	1.455	4.293	161.2
368	9277	12724	0.755	0.351	6006	4420	29.913	1.456	4.295	161.5
369	9334	12645	0.746	0.350	6129	4308	29.920	1.447	4.262	161.7
370	9474	12758	0.747	0.352	6221	4347	29.919	1.451	4.271	162.0
371	9545	12777	0.743	0.352	6342	4280	29.923	1.446	4.253	162.2
372	9626	12767	0.744	0.357	6432	4240	29.916	1.457	4.285	162.4
373	9739	12823	0.738	0.351	6550	4216	29.929	1.441	4.228	162.7
374	9751	12788	0.736	0.353	6633	4130	29.929	1.441	4.229	163.0
375	9845	12801	0.732	0.355	6722	4107	29.929	1.442	4.229	163.2
376	9935	12801	0.729	0.351	6842	4048	29.937	1.432	4.192	163.4
377	10005	12831	0.726	0.354	6925	4021	29.936	1.435	4.199	163.7
378	10089	12839	0.723	0.353	7005	4000	29.942	1.429	4.176	163.9
379	10171	12854	0.722	0.355	7091	3974	29.940	1.432	4.183	164.2
380	10275	12889	0.720	0.358	7204	3942	29.939	1.436	4.192	164.5
381	10271	12870	0.715	0.355	7297	3840	29.945	1.426	4.161	164.7
382	10363	12902	0.713	0.355	7384	3825	29.949	1.422	4.145	164.9
383	10422	12940	0.712	0.355	7453	3807	29.950	1.423	4.144	165.2
384	10478	12942	0.709	0.355	7531	3768	29.953	1.418	4.128	165.4
385	10536	12919	0.710	0.356	7577	3753	29.951	1.422	4.138	165.7
386	10528	12918	0.711	0.359	7544	3780	29.947	1.428	4.157	166.0
387	10514	12895	0.712	0.358	7521	3787	29.948	1.427	4.155	166.2
388	10521	12901	0.714	0.356	7512	3802	29.949	1.426	4.149	166.4
389	10524	12895	0.712	0.360	7500	3814	29.945	1.431	4.167	166.7
390	10516	12896	0.712	0.361	7494	3815	29.943	1.434	4.175	166.9
391	10521	12905	0.712	0.359	7484	3831	29.945	1.431	4.167	167.2
392	10527	12914	0.713	0.359	7467	3855	29.945	1.432	4.168	167.5
393	10529	12918	0.713	0.361	7449	3876	29.944	1.434	4.175	167.7
394	10523	12899	0.714	0.361	7441	3873	29.942	1.436	4.181	167.9
395	10508	12897	0.716	0.360	7420	3884	29.942	1.436	4.182	168.2
396	10504	12889	0.716	0.361	7404	3895	29.941	1.438	4.188	168.5
397	10512	12893	0.715	0.361	7394	3911	29.942	1.436	4.181	168.7
398	10504	12892	0.716	0.361	7385	3914	29.941	1.438	4.188	169.0
399	10503	12886	0.716	0.363	7377	3920	29.939	1.441	4.197	169.2
400	10486	12848	0.718	0.362	7369	3904	29.938	1.441	4.198	169.4

UNIAXIAL STRAIN TEST. SAMPLE #3

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401	10496	12881	0.716	0.363	7363	3927	29.938	1.442	4.202	169.7
402	10496	12874	0.715	0.362	7362	3927	29.940	1.439	4.191	169.9
403	10496	12876	0.715	0.364	7354	3935	29.938	1.442	4.201	170.2
404	10497	12885	0.716	0.363	7346	3947	29.938	1.442	4.202	170.4
405	10496	12877	0.717	0.364	7338	3952	29.936	1.445	4.209	170.7
406	10492	12873	0.717	0.363	7331	3954	29.938	1.442	4.202	170.9
407	10490	12874	0.716	0.363	7326	3959	29.938	1.441	4.199	171.2
408	10487	12863	0.718	0.364	7321	3957	29.934	1.447	4.216	171.5
409	10487	12870	0.717	0.363	7312	3969	29.937	1.443	4.205	171.7
410	10486	12866	0.717	0.364	7307	3972	29.936	1.445	4.209	171.9
411	10490	12865	0.717	0.364	7300	3981	29.937	1.444	4.206	172.2
412	10480	12860	0.718	0.364	7294	3978	29.936	1.445	4.211	172.4
413	10489	12868	0.717	0.364	7286	3995	29.936	1.445	4.210	172.7
414	10479	12848	0.718	0.362	7282	3986	29.938	1.441	4.198	172.9
415	10489	12867	0.718	0.362	7277	4004	29.938	1.443	4.202	173.2
416	10495	12871	0.718	0.366	7274	4013	29.933	1.449	4.221	173.4
417	10493	12870	0.718	0.365	7277	4007	29.934	1.449	4.221	173.7
418	10478	12852	0.721	0.366	7271	3997	29.930	1.453	4.238	173.9
419	10494	12876	0.719	0.366	7277	4010	29.932	1.450	4.227	174.2
420	10499	12876	0.718	0.366	7277	4014	29.933	1.450	4.225	174.4
421	10505	12882	0.718	0.365	7275	4022	29.934	1.449	4.221	174.7
422	10506	12884	0.719	0.366	7277	4021	29.932	1.451	4.227	174.9
423	10499	12875	0.719	0.365	7275	4015	29.934	1.448	4.219	175.2
424	10451	12880	0.710	0.359	7453	3807	29.946	1.428	4.160	175.4
425	10549	12908	0.705	0.360	7586	3749	29.950	1.425	4.145	175.7
426	10647	12906	0.705	0.360	7673	3727	29.950	1.426	4.146	175.9
427	10719	12912	0.701	0.360	7776	3673	29.954	1.421	4.129	176.2
428	10775	12900	0.698	0.358	7859	3623	29.959	1.415	4.106	176.4
429	10824	12918	0.695	0.359	7930	3591	29.961	1.413	4.099	176.7
430	10870	12919	0.693	0.360	7998	3554	29.961	1.414	4.100	177.0
431	10921	12907	0.690	0.360	8071	3512	29.965	1.409	4.081	177.2
432	11006	12957	0.692	0.361	8129	3526	29.962	1.415	4.096	177.4
433	10998	12910	0.689	0.360	8185	3450	29.965	1.409	4.081	177.7
434	11030	12913	0.684	0.359	8259	3398	29.971	1.402	4.057	177.9
435	11082	12896	0.681	0.361	8327	3360	29.971	1.402	4.056	178.2
436	11194	12995	0.683	0.360	8399	3395	29.973	1.402	4.050	178.4
437	11184	12953	0.679	0.359	8441	3332	29.977	1.396	4.032	178.7
438	11234	12923	0.677	0.362	8514	3282	29.974	1.401	4.046	178.9
439	11286	12958	0.674	0.361	8580	3263	29.978	1.396	4.028	179.2
440	11335	12942	0.674	0.361	8652	3218	29.978	1.397	4.028	179.4
441	11395	12958	0.673	0.364	8691	3224	29.977	1.400	4.036	179.7
442	11413	12976	0.670	0.362	8759	3175	29.980	1.395	4.018	179.9
443	11490	13016	0.668	0.363	8831	3167	29.982	1.394	4.013	180.2
444	11514	13006	0.667	0.362	8871	3140	29.984	1.391	4.004	180.4
445	11547	12998	0.665	0.362	8939	3091	29.986	1.389	3.997	180.7
446	11616	13033	0.667	0.364	8978	3110	29.982	1.395	4.013	180.9
447	11668	13050	0.664	0.364	9046	3082	29.985	1.392	4.000	181.2
448	11664	13044	0.658	0.362	9113	3010	29.992	1.381	3.967	181.4
449	11724	13015	0.655	0.362	9148	3006	29.995	1.378	3.955	181.7
450	11757	13040	0.660	0.364	9205	2979	29.989	1.387	3.982	182.0

UNIAXIAL STRAIN TEST. SAMPLE #3

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451	11813	13065	0.659	0.362	9249	2980	29.993	1.383	3.965	182.2
452	11802	12995	0.651	0.363	9309	2891	29.998	1.376	3.946	182.4
453	11872	13031	0.652	0.365	9344	2914	29.995	1.381	3.959	182.7
454	11933	13040	0.650	0.364	9400	2901	29.998	1.378	3.946	183.0
455	11915	13012	0.650	0.364	9432	2848	29.998	1.378	3.948	183.2
456	11926	13034	0.650	0.363	9413	2882	29.999	1.376	3.939	183.4
457	11922	13020	0.651	0.365	9395	2893	29.995	1.382	3.958	183.7
458	11910	13010	0.651	0.366	9386	2890	29.995	1.382	3.961	183.9
459	11915	13010	0.651	0.364	9374	2905	29.998	1.378	3.947	184.2
460	11907	13011	0.654	0.365	9373	2901	29.993	1.385	3.970	184.4
461	11910	13003	0.651	0.366	9368	2906	29.994	1.383	3.964	184.7
462	11900	13002	0.652	0.366	9363	2904	29.993	1.384	3.966	184.9
463	11897	12991	0.652	0.366	9358	2903	29.994	1.383	3.964	185.2
464	11904	13014	0.652	0.366	9352	2922	29.993	1.385	3.969	185.4
465	11901	12998	0.651	0.366	9350	2916	29.995	1.382	3.960	185.7
466	11903	13011	0.651	0.366	9348	2923	29.993	1.384	3.966	185.9
467	11894	12992	0.652	0.367	9344	2915	29.992	1.386	3.973	186.2
468	11896	13004	0.652	0.366	9343	2922	29.993	1.385	3.969	186.4
469	11891	12994	0.652	0.366	9341	2917	29.993	1.385	3.970	186.7
470	11897	13005	0.652	0.365	9339	2926	29.994	1.383	3.963	186.9
471	11896	12999	0.650	0.366	9339	2924	29.995	1.382	3.958	187.2
472	11896	12996	0.652	0.366	9336	2926	29.994	1.384	3.965	187.4
473	11903	13019	0.648	0.367	9328	2946	29.994	1.383	3.962	187.7
474	11890	12988	0.651	0.368	9323	2932	29.992	1.386	3.974	187.9
475	11893	13001	0.651	0.365	9325	2937	29.996	1.381	3.956	188.2
476	11875	12979	0.651	0.366	9324	2918	29.994	1.383	3.963	188.4
477	11882	12978	0.652	0.367	9317	2930	29.992	1.386	3.974	188.7
478	11875	12974	0.653	0.368	9297	2944	29.990	1.389	3.983	188.9
479	11872	12973	0.655	0.368	9278	2961	29.989	1.391	3.989	189.2
480	11868	12964	0.654	0.367	9267	2965	29.990	1.388	3.981	189.4
481	11864	12959	0.653	0.369	9260	2969	29.989	1.391	3.988	189.7
482	11863	12957	0.655	0.368	9250	2977	29.989	1.391	3.989	189.9
483	11853	12954	0.655	0.370	9241	2978	29.986	1.394	3.999	190.2
484	11863	12967	0.654	0.368	9228	3002	29.988	1.391	3.990	190.4
485	11863	12967	0.655	0.368	9217	3014	29.988	1.392	3.991	190.7
486	11860	12960	0.656	0.368	9206	3020	29.988	1.392	3.991	190.9
487	11844	12950	0.656	0.369	9194	3019	29.986	1.395	4.001	191.2
488	11846	12954	0.657	0.369	9188	3026	29.985	1.396	4.004	191.4
489	11838	12955	0.658	0.371	9183	3027	29.983	1.399	4.015	191.7
490	11843	12943	0.657	0.370	9174	3035	29.985	1.396	4.007	191.9
491	11843	12940	0.657	0.369	9168	3040	29.986	1.395	4.001	192.2
492	11843	12942	0.656	0.369	9164	3045	29.986	1.394	3.998	192.4
493	11835	12931	0.657	0.370	9158	3041	29.984	1.396	4.007	192.7
494	11837	12934	0.657	0.370	9153	3049	29.985	1.396	4.004	192.9
495	11832	12926	0.657	0.371	9144	3052	29.983	1.399	4.016	193.2
496	11834	12933	0.657	0.371	9144	3056	29.983	1.399	4.014	193.4
497	11840	12947	0.658	0.372	9133	3076	29.981	1.401	4.022	193.7
498	11837	12938	0.657	0.370	9132	3072	29.984	1.397	4.009	193.9
499	11837	12938	0.659	0.370	9124	3080	29.982	1.400	4.017	194.2
500	11843	12954	0.655	0.371	9126	3087	29.984	1.397	4.008	194.4

UNIAXIAL STRAIN TEST, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
501	11837	12931	0.656	0.372	9125	3076	29.983	1.399	4.015	194.7
502	11839	12945	0.656	0.371	9126	3081	29.984	1.398	4.012	194.9
503	11727	13004	0.658	0.366	9124	3028	29.988	1.389	3.989	195.2
504	11685	13014	0.654	0.361	9198	2930	29.997	1.375	3.948	195.4
505	11844	13029	0.657	0.363	9287	2951	29.993	1.383	3.965	195.7
506	11844	13033	0.650	0.363	9363	2877	29.999	1.375	3.940	195.9
507	11883	13041	0.648	0.363	9422	2847	30.000	1.374	3.937	196.2
508	11890	12986	0.646	0.363	9457	2798	30.001	1.372	3.929	196.4
509	11983	13070	0.647	0.364	9503	2842	30.000	1.376	3.937	196.7
510	11950	13063	0.646	0.361	9534	2786	30.005	1.368	3.914	196.9
511	12061	13036	0.644	0.367	9574	2811	29.999	1.378	3.941	197.2
512	12065	13076	0.644	0.365	9596	2805	30.002	1.374	3.929	197.4
513	12068	13071	0.644	0.365	9640	2762	30.002	1.374	3.929	197.7
514	12049	13046	0.640	0.363	9663	2718	30.008	1.365	3.901	197.9
515	12064	13059	0.638	0.361	9687	2709	30.012	1.360	3.885	198.2
516	12131	13037	0.639	0.365	9729	2703	30.007	1.369	3.910	198.4
517	12153	13035	0.638	0.366	9752	2694	30.006	1.370	3.912	198.7
518	12166	13054	0.634	0.364	9782	2679	30.011	1.362	3.888	198.9
519	12154	13030	0.634	0.364	9806	2640	30.012	1.362	3.887	199.2
520	12196	13048	0.633	0.365	9832	2648	30.011	1.363	3.888	199.4
521	12263	13073	0.633	0.367	9870	2662	30.010	1.366	3.897	199.7
522	12248	13046	0.633	0.366	9891	2622	30.010	1.365	3.894	199.9
523	12255	13059	0.630	0.365	9914	2608	30.014	1.360	3.876	200.2
524	12264	13016	0.627	0.365	9952	2563	30.016	1.357	3.867	200.4
525	12339	13105	0.631	0.368	9972	2622	30.011	1.366	3.894	200.7
526	12327	13089	0.628	0.366	9992	2589	30.015	1.360	3.874	200.9
527	12275	13023	0.626	0.365	10032	2491	30.017	1.356	3.865	201.2
528	12404	13095	0.629	0.368	10049	2585	30.012	1.365	3.888	201.4
529	12397	13090	0.628	0.367	10063	2565	30.014	1.362	3.878	201.7
530	12388	13086	0.623	0.366	10103	2517	30.018	1.355	3.859	201.9
531	12396	13105	0.625	0.364	10122	2510	30.020	1.353	3.850	202.2
532	12381	13087	0.623	0.365	10136	2480	30.020	1.352	3.850	202.4
533	12377	13077	0.622	0.365	10161	2449	30.021	1.352	3.848	202.7
534	12376	12944	0.616	0.363	10191	2374	30.027	1.342	3.819	202.9
535	12607	12901	0.614	0.374	10204	2500	30.017	1.363	3.872	203.2
536	12843	13426	0.638	0.385	10231	2807	29.988	1.408	4.006	203.4
537	12286	13056	0.616	0.357	10240	2302	30.034	1.330	3.786	203.7
538	12432	13032	0.614	0.363	10264	2367	30.029	1.341	3.812	203.9
539	12494	13110	0.617	0.366	10275	2424	30.023	1.350	3.837	204.2
540	12498	13113	0.616	0.366	10288	2415	30.024	1.349	3.834	204.4
541	12496	13111	0.615	0.365	10298	2402	30.026	1.346	3.826	204.7
542	12497	13102	0.616	0.365	10303	2396	30.026	1.347	3.827	204.9
543	12495	13104	0.618	0.365	10294	2404	30.025	1.348	3.832	205.2
544	12485	13096	0.618	0.366	10289	2399	30.024	1.349	3.835	205.4
545	12498	13111	0.618	0.364	10279	2422	30.025	1.347	3.829	205.7
546	12493	13096	0.619	0.366	10277	2417	30.023	1.350	3.838	205.9
547	12494	13026	0.611	0.364	10384	2286	30.031	1.339	3.803	206.2
548	12724	13112	0.610	0.369	10517	2335	30.027	1.349	3.825	206.4
549	12787	13107	0.604	0.366	10687	2206	30.036	1.337	3.785	206.7
550	12892	13134	0.601	0.368	10790	2182	30.037	1.337	3.782	207.0

UNIAXIAL STRAIN TEST, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TI (HI
551	12977	13185	0.598	0.368	10890	2156	30.040	1.334	3.769	207.
552	13059	13188	0.592	0.367	10981	2120	30.047	1.325	3.738	207.
553	13111	13200	0.590	0.368	11092	2048	30.047	1.326	3.739	207.
554	13205	13235	0.584	0.370	11216	1999	30.049	1.325	3.731	207.
555	13270	13249	0.589	0.370	11242	2021	30.047	1.329	3.741	208.
556	13272	13248	0.589	0.371	11203	2061	30.046	1.331	3.746	208.
557	13267	13240	0.590	0.373	11180	2078	30.042	1.336	3.763	208.
558	13272	13241	0.591	0.373	11164	2097	30.041	1.337	3.767	208.
559	13266	13244	0.591	0.373	11151	2108	30.041	1.337	3.767	209.
560	13254	13223	0.591	0.374	11137	2107	30.040	1.340	3.775	209.
561	13257	13225	0.591	0.374	11131	2115	30.040	1.339	3.773	209.
562	13256	13223	0.591	0.373	11120	2124	30.041	1.338	3.770	209.
563	13247	13227	0.592	0.374	11119	2121	30.039	1.340	3.776	210.
564	13258	13230	0.589	0.372	11109	2139	30.045	1.333	3.752	210.
565	13254	13230	0.591	0.373	11110	2136	30.041	1.337	3.767	210.
566	13225	13188	0.590	0.375	11105	2107	30.039	1.340	3.777	210.
567	13246	13212	0.591	0.374	11098	2136	30.040	1.339	3.772	211.
568	13249	13207	0.591	0.374	11087	2148	30.041	1.338	3.771	211.
569	13229	13188	0.590	0.375	11089	2125	30.038	1.341	3.780	211.
570	13259	13219	0.590	0.375	11088	2157	30.039	1.341	3.778	211.
571	13242	13199	0.592	0.375	11082	2145	30.039	1.341	3.780	212.
572	13237	13173	0.589	0.374	11080	2135	30.042	1.336	3.765	212.
573	13232	13177	0.589	0.375	11079	2134	30.040	1.339	3.773	212.
574	13248	13210	0.588	0.374	11085	2151	30.042	1.336	3.762	212.
575	13240	13172	0.592	0.375	11075	2142	30.039	1.341	3.780	213.
576	13230	13152	0.592	0.375	11071	2132	30.037	1.343	3.786	213.
577	13236	13157	0.592	0.375	11070	2140	30.038	1.343	3.785	213.
578	13243	13161	0.593	0.374	11075	2140	30.039	1.341	3.780	213.
579	13237	13158	0.592	0.374	11070	2139	30.040	1.340	3.775	214.
580	13232	13153	0.585	0.370	11190	2015	30.049	1.326	3.733	214.
581	13241	13169	0.555	0.351	11732	1484	30.095	1.257	3.519	214.
582	13239	13162	0.546	0.345	11871	1342	30.109	1.236	3.453	214.
583	13238	13161	0.548	0.346	11858	1354	30.105	1.241	3.469	215.
584	13236	13163	0.549	0.348	11857	1354	30.103	1.244	3.478	215.
585	13234	13161	0.548	0.348	11855	1355	30.103	1.243	3.477	215.
586	13232	13165	0.550	0.347	11852	1357	30.103	1.243	3.477	215.
587	13239	13180	0.550	0.347	11852	1367	30.102	1.245	3.481	216.
588	13236	13173	0.550	0.347	11847	1368	30.104	1.243	3.475	216.
589	13226	13154	0.550	0.347	11841	1361	30.104	1.243	3.476	216.
590	13236	13174	0.548	0.346	11844	1371	30.106	1.240	3.465	216.
591	13236	13181	0.549	0.347	11843	1375	30.104	1.243	3.474	217.
592	13228	13160	0.550	0.347	11839	1366	30.103	1.244	3.479	217.
593	13232	13170	0.550	0.348	11836	1375	30.101	1.247	3.487	217.
594	13230	13160	0.549	0.347	11838	1368	30.104	1.243	3.476	217.
595	13231	13160	0.549	0.346	11831	1376	30.104	1.242	3.473	218.
596	13235	13170	0.549	0.347	11835	1378	30.104	1.243	3.476	218.
597	13238	13161	0.548	0.346	11832	1380	30.107	1.239	3.462	218.
598	13229	13157	0.550	0.347	11830	1374	30.103	1.244	3.478	218.
599	13215	13152	0.549	0.348	11828	1365	30.102	1.245	3.484	219.
600	13219	13150	0.549	0.347	11824	1372	30.104	1.243	3.476	219.

UNIAXIAL STRAIN TEST, SAMPLE #3

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601	13226	13161	0.548	0.347	11829	1375	30.104	1.243	3.475	219.7
602	13220	13155	0.549	0.347	11825	1372	30.104	1.243	3.475	219.9
603	13226	13160	0.550	0.347	11824	1379	30.103	1.244	3.479	220.2
604	13226	13153	0.548	0.346	11819	1382	30.107	1.239	3.461	220.4
605	13218	13147	0.550	0.350	11819	1374	30.100	1.249	3.495	220.7
606	13203	13131	0.551	0.347	11816	1363	30.102	1.244	3.481	220.9
607	13213	13147	0.549	0.348	11821	1369	30.103	1.244	3.480	221.2
608	13223	13150	0.549	0.346	11826	1372	30.105	1.241	3.469	221.4
609	13205	13146	0.551	0.348	11818	1366	30.101	1.246	3.487	221.7
610	13225	13174	0.547	0.348	11822	1386	30.103	1.244	3.477	221.9
611	13213	13149	0.549	0.348	11820	1371	30.102	1.246	3.485	222.2
612	13199	13132	0.549	0.348	11813	1363	30.102	1.244	3.482	222.4
613	13200	13136	0.548	0.348	11814	1364	30.103	1.243	3.477	222.7
614	13211	13152	0.548	0.347	11813	1378	30.104	1.242	3.474	222.9
615	13229	13152	0.549	0.348	11825	1378	30.102	1.246	3.485	223.2
616	13182	13112	0.550	0.348	11825	1333	30.100	1.247	3.490	223.4
617	13204	13147	0.549	0.346	11826	1359	30.104	1.241	3.471	223.7
618	13206	13130	0.548	0.345	11819	1361	30.107	1.238	3.460	223.9
619	13191	13121	0.548	0.348	11822	1345	30.101	1.245	3.485	224.2
620	13184	13119	0.549	0.348	11824	1338	30.102	1.245	3.483	224.4
623	13251	13177	0.550	0.349	11808	1417	30.100	1.248	3.491	225.2
624	13232	13156	0.550	0.347	11806	1400	30.104	1.243	3.475	225.4
625	13248	13183	0.550	0.347	11807	1419	30.104	1.244	3.476	225.7
626	13229	13157	0.549	0.348	11800	1404	30.102	1.246	3.485	225.9
627	13246	13184	0.547	0.347	11807	1418	30.105	1.241	3.469	226.2
628	13229	13164	0.549	0.348	11801	1406	30.103	1.244	3.479	226.4
629	13155	13080	0.547	0.348	11813	1316	30.103	1.242	3.477	226.7
630	13183	13111	0.548	0.348	11814	1344	30.102	1.244	3.481	227.0
631	13193	13119	0.548	0.347	11814	1353	30.103	1.243	3.477	227.2
632	13181	13113	0.548	0.348	11816	1342	30.103	1.243	3.479	227.4
633	13180	13116	0.547	0.349	11812	1346	30.102	1.245	3.484	227.7
634	13175	13100	0.549	0.347	11810	1339	30.103	1.243	3.477	227.9
635	13135	13079	0.549	0.350	11808	1307	30.098	1.249	3.502	228.2
636	13230	13151	0.547	0.347	11811	1392	30.105	1.242	3.471	228.4
637	13171	13101	0.549	0.347	11810	1338	30.102	1.244	3.483	228.7
638	13175	13114	0.549	0.346	11807	1347	30.104	1.242	3.474	228.9
639	13198	13127	0.550	0.348	11808	1366	30.101	1.246	3.486	229.2
640	13207	13141	0.549	0.352	11802	1382	30.097	1.252	3.506	229.4
641	13184	13108	0.549	0.348	11807	1352	30.101	1.246	3.486	229.7
642	13188	13117	0.550	0.348	11806	1358	30.101	1.246	3.489	229.9
643	13175	13097	0.548	0.348	11803	1345	30.103	1.243	3.478	230.2
644	13180	13107	0.587	0.377	10983	2172	30.039	1.340	3.777	230.4
645	13186	13118	0.587	0.375	10982	2181	30.041	1.338	3.771	230.7
646	13181	13105	0.586	0.377	10977	2179	30.039	1.340	3.778	230.9
647	13190	13116	0.586	0.375	10975	2189	30.042	1.336	3.765	231.2
648	13187	13112	0.588	0.377	10973	2189	30.037	1.342	3.786	231.4
649	13188	13118	0.587	0.376	10973	2191	30.040	1.339	3.775	231.7
650	13191	13117	0.588	0.376	10968	2198	30.039	1.340	3.776	231.9

UNIAXIAL STRAIN TEST, SAMPLE #3

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651	13192	13122	0.589	0.376	10969	2199	30.038	1.342	3.783	232.2
652	13182	13119	0.587	0.377	10970	2191	30.037	1.342	3.785	232.4
653	13208	13146	0.588	0.378	10967	2220	30.036	1.345	3.791	232.7
654	13196	13132	0.588	0.377	10968	2207	30.039	1.341	3.779	232.9
655	13182	13121	0.588	0.378	10970	2192	30.037	1.343	3.787	233.2
656	13171	13112	0.588	0.378	10964	2187	30.035	1.345	3.794	233.4
657	13183	13111	0.588	0.376	10962	2196	30.039	1.340	3.776	233.7
658	13183	13116	0.588	0.379	10963	2198	30.035	1.346	3.797	233.9
659	13223	13158	0.587	0.376	10962	2239	30.041	1.339	3.771	234.2
660	13222	13144	0.588	0.376	10957	2239	30.040	1.340	3.776	234.4
661	13215	13148	0.589	0.377	10960	2232	30.038	1.343	3.784	234.7
662	13206	13151	0.589	0.376	10958	2229	30.039	1.341	3.778	234.9
663	13213	13156	0.588	0.378	10959	2235	30.037	1.344	3.787	235.2
664	13199	13130	0.587	0.377	10955	2220	30.039	1.340	3.778	235.4
665	13219	13172	0.587	0.376	10960	2243	30.040	1.339	3.772	235.7
666	13203	13140	0.588	0.376	10954	2227	30.039	1.341	3.778	235.9
667	13200	13135	0.586	0.376	10953	2224	30.040	1.339	3.772	236.2
668	13195	13127	0.588	0.376	10952	2220	30.039	1.340	3.778	236.4
669	13199	13138	0.587	0.378	10944	2234	30.038	1.342	3.784	236.7
670	13200	13141	0.587	0.375	10950	2231	30.041	1.338	3.768	236.9
671	13193	13131	0.588	0.376	10945	2227	30.039	1.340	3.777	237.2
672	13163	13103	0.587	0.377	10940	2202	30.038	1.341	3.782	237.4
673	13161	13098	0.587	0.378	10938	2201	30.037	1.342	3.785	237.7
674	13160	13108	0.587	0.376	10939	2203	30.039	1.340	3.778	237.9
675	13162	13104	0.588	0.376	10936	2206	30.039	1.340	3.779	238.2
676	13161	13108	0.588	0.375	10937	2206	30.040	1.338	3.771	238.4
677	13147	13089	0.587	0.376	10934	2193	30.039	1.339	3.775	238.7
678	13150	13097	0.587	0.376	10931	2201	30.039	1.339	3.775	238.9
679	13162	13101	0.586	0.377	10933	2208	30.039	1.340	3.777	239.2
680	13148	13095	0.587	0.376	10932	2198	30.039	1.340	3.778	239.4
681	13157	13106	0.586	0.376	10928	2212	30.040	1.339	3.774	239.7
682	13142	13090	0.587	0.377	10929	2196	30.038	1.341	3.783	239.9
683	13140	13082	0.588	0.377	10928	2193	30.037	1.341	3.784	240.2
684	13141	13090	0.587	0.377	10923	2201	30.038	1.341	3.781	240.4
685	13137	13091	0.589	0.376	10918	2203	30.038	1.341	3.781	240.7
686	13145	13090	0.587	0.376	10925	2201	30.039	1.339	3.775	240.9
687	13146	13100	0.587	0.375	10919	2211	30.040	1.338	3.771	241.2
688	13146	13093	0.587	0.376	10920	2208	30.039	1.339	3.776	241.4
689	13134	13078	0.588	0.374	10919	2196	30.041	1.337	3.769	241.7
690	13142	13081	0.587	0.376	10914	2207	30.039	1.339	3.777	241.9
691	13143	13080	0.587	0.376	10915	2207	30.039	1.340	3.777	242.2
692	13141	13087	0.588	0.376	10911	2211	30.039	1.339	3.775	242.4
693	13135	13094	0.588	0.377	10913	2208	30.037	1.342	3.786	242.7
694	13148	13085	0.587	0.377	10913	2213	30.038	1.340	3.780	242.9
695	13148	13087	0.587	0.375	10911	2216	30.041	1.336	3.766	243.2
696	13144	13100	0.586	0.377	10891	2238	30.039	1.339	3.777	243.4
697	13141	13083	0.588	0.374	10889	2232	30.041	1.336	3.766	243.7
698	13135	13085	0.587	0.377	10894	2224	30.038	1.340	3.780	243.9
699	13143	13086	0.586	0.379	10894	2229	30.036	1.343	3.790	244.2
700	13126	13066	0.586	0.376	10896	2209	30.040	1.338	3.773	244.4

UNIAXIAL STRAIN TEST, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
701	13124	13071	0.587	0.376	10893	2212	30.039	1.338	3.775	244.7
702	13113	13056	0.587	0.377	10889	2204	30.038	1.340	3.781	244.9
703	13124	13068	0.588	0.376	10885	2220	30.038	1.340	3.780	245.2
704	13128	13070	0.588	0.377	10875	2233	30.038	1.341	3.782	245.4
705	13141	13073	0.589	0.378	10875	2243	30.035	1.345	3.794	245.7
706	13132	13070	0.588	0.376	10875	2236	30.039	1.339	3.776	245.9
707	13124	13066	0.589	0.376	10868	2235	30.037	1.342	3.785	246.2
708	13135	13098	0.589	0.375	10868	2253	30.039	1.339	3.776	246.4
709	13129	13066	0.588	0.376	10864	2243	30.038	1.341	3.781	246.7
710	13138	13085	0.587	0.379	10865	2255	30.035	1.345	3.794	246.9
711	13140	13088	0.587	0.376	10868	2254	30.040	1.339	3.774	247.2
712	13142	13087	0.587	0.376	10864	2258	30.039	1.340	3.778	247.4
713	13138	13081	0.588	0.377	10861	2258	30.038	1.341	3.782	247.7
714	13134	13080	0.587	0.376	10853	2262	30.040	1.339	3.774	247.9
715	13131	13070	0.589	0.377	10852	2258	30.037	1.342	3.786	248.2
716	13117	13059	0.587	0.377	10854	2243	30.038	1.341	3.783	248.4
717	13131	13078	0.587	0.375	10856	2256	30.041	1.337	3.769	248.7
718	13133	13067	0.588	0.378	10852	2259	30.036	1.343	3.789	248.9
719	13130	13081	0.588	0.377	10846	2267	30.037	1.342	3.786	249.2
720	13118	13058	0.589	0.378	10853	2245	30.035	1.345	3.795	249.4
721	13127	13066	0.586	0.376	10850	2257	30.039	1.339	3.776	249.7
722	13131	13079	0.588	0.377	10861	2252	30.037	1.343	3.789	249.9
723	13126	13073	0.586	0.377	10852	2255	30.039	1.339	3.777	250.2
724	13134	13076	0.586	0.376	10883	2231	30.041	1.337	3.770	250.4
725	13133	13074	0.585	0.378	10883	2229	30.038	1.340	3.780	250.7
726	13136	13080	0.586	0.377	10883	2233	30.039	1.340	3.779	250.9
727	13122	13065	0.586	0.376	10881	2222	30.040	1.338	3.772	251.2
728	13123	13065	0.586	0.377	10880	2223	30.039	1.340	3.779	251.4
729	13130	13077	0.585	0.376	10882	2229	30.041	1.337	3.768	251.7
730	13118	13060	0.586	0.377	10886	2213	30.039	1.339	3.777	251.9
731	13122	13066	0.586	0.376	10885	2217	30.040	1.338	3.772	252.2
732	13112	13051	0.585	0.376	10881	2210	30.040	1.338	3.774	252.4
733	13138	13090	0.584	0.374	10885	2237	30.043	1.333	3.757	252.7
734	13145	13081	0.585	0.376	10882	2241	30.041	1.336	3.767	252.9
735	13131	13058	0.586	0.377	10884	2222	30.038	1.341	3.783	253.2
736	13143	13087	0.584	0.375	10886	2238	30.043	1.333	3.757	253.4
737	13130	13072	0.585	0.377	10889	2221	30.040	1.338	3.772	253.7
738	13136	13078	0.583	0.376	10886	2230	30.042	1.336	3.764	253.9
739	13145	13093	0.585	0.377	10887	2241	30.039	1.340	3.778	254.2
740	13131	13080	0.586	0.376	10891	2223	30.040	1.338	3.774	254.4
741	13132	13075	0.586	0.377	10889	2224	30.039	1.339	3.775	254.7
742	13138	13078	0.584	0.374	10887	2231	30.044	1.332	3.754	254.9
743	13139	13085	0.584	0.374	10889	2232	30.045	1.331	3.750	255.2
744	13134	13078	0.584	0.374	10887	2228	30.044	1.332	3.753	255.4
745	13135	13081	0.584	0.376	10890	2226	30.041	1.337	3.769	255.7
746	13133	13073	0.585	0.377	10889	2223	30.039	1.339	3.777	255.9
747	13129	13068	0.584	0.375	10890	2218	30.043	1.334	3.760	256.2
748	13135	13078	0.584	0.375	10890	2226	30.042	1.335	3.762	256.4
749	13125	13061	0.585	0.374	10887	2216	30.043	1.334	3.759	256.7
750	13130	13081	0.585	0.374	10891	2222	30.043	1.333	3.758	256.9

UNIAXIAL STRAIN TEST. SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
751	13129	13079	0.584	0.375	10889	2222	30.042	1.334	3.761	257.2
752	13129	13072	0.584	0.377	10892	2218	30.039	1.339	3.775	257.4
753	13132	13074	0.584	0.376	10893	2219	30.041	1.337	3.769	257.7
754	13121	13067	0.585	0.375	10889	2214	30.042	1.335	3.762	258.1
755	13119	13062	0.584	0.374	10889	2210	30.044	1.332	3.756	259.1
756	13111	13051	0.584	0.374	10894	2196	30.044	1.332	3.755	260.1
757	13087	13032	0.584	0.374	10893	2175	30.043	1.332	3.757	261.1
758	13092	13036	0.584	0.376	10897	2176	30.041	1.335	3.766	262.1
759	13090	13018	0.583	0.375	10892	2173	30.043	1.333	3.759	263.1
760	13086	13033	0.583	0.375	10895	2173	30.042	1.333	3.760	264.1
761	13090	13027	0.583	0.374	10892	2177	30.044	1.331	3.753	265.1
762	13087	13031	0.582	0.374	10900	2168	30.045	1.330	3.748	266.1
763	13085	13035	0.582	0.373	10901	2167	30.047	1.327	3.741	267.1
764	13081	13023	0.581	0.372	10900	2161	30.048	1.325	3.735	268.1
765	13077	13012	0.583	0.374	10907	2148	30.044	1.331	3.753	269.1
766	13073	13017	0.583	0.374	10904	2150	30.044	1.330	3.751	270.1
767	13072	13012	0.582	0.373	10904	2147	30.046	1.328	3.744	271.1
768	13068	13010	0.581	0.372	10907	2141	30.048	1.325	3.735	272.1
769	13068	13016	0.581	0.373	10907	2143	30.046	1.327	3.742	273.1
770	13061	13007	0.581	0.373	10910	2133	30.046	1.328	3.743	274.1
771	13061	12991	0.581	0.373	10911	2126	30.046	1.327	3.742	275.1
772	13063	13003	0.581	0.372	10911	2131	30.047	1.326	3.737	276.1
773	13061	13004	0.566	0.361	11233	1809	30.072	1.288	3.620	277.1
774	13060	13009	0.566	0.360	11234	1809	30.073	1.287	3.617	278.1
775	13053	13000	0.565	0.362	11235	1800	30.071	1.289	3.624	279.1
776	13056	13003	0.565	0.360	11232	1806	30.074	1.286	3.613	280.1
777	13044	12987	0.566	0.362	11233	1792	30.070	1.290	3.628	281.1
778	13035	12964	0.566	0.361	11237	1774	30.071	1.289	3.625	282.1
779	13038	12974	0.565	0.361	11230	1785	30.073	1.287	3.617	283.1
780	13038	12985	0.566	0.360	11233	1786	30.073	1.286	3.616	284.1
781	13041	12982	0.564	0.360	11235	1786	30.074	1.284	3.610	285.1
782	13041	12989	0.566	0.360	11234	1789	30.073	1.286	3.616	286.1
783	13032	12974	0.566	0.360	11237	1775	30.073	1.286	3.617	287.1
784	13029	12974	0.566	0.361	11238	1771	30.072	1.287	3.621	288.1
785	13026	12969	0.565	0.359	11237	1770	30.075	1.284	3.609	289.1
786	13029	12984	0.563	0.360	11237	1777	30.076	1.282	3.604	290.1
787	13031	12979	0.564	0.361	11233	1780	30.074	1.285	3.612	291.1
788	13038	12975	0.565	0.361	11239	1777	30.072	1.287	3.619	292.1
789	13033	12975	0.563	0.360	11237	1776	30.075	1.284	3.608	293.1
790	13014	12952	0.564	0.359	11236	1757	30.076	1.282	3.603	294.1
791	13016	12956	0.564	0.359	11236	1760	30.075	1.282	3.605	295.1
792	13024	12978	0.564	0.358	11240	1768	30.077	1.281	3.599	296.1
793	13012	12955	0.563	0.358	11235	1757	30.078	1.278	3.592	297.1
794	13029	12973	0.563	0.358	11234	1776	30.078	1.278	3.591	298.1
795	13029	12979	0.564	0.356	11236	1776	30.080	1.276	3.584	299.1
796	13021	12970	0.564	0.356	11238	1765	30.079	1.277	3.587	300.1
797	13007	12955	0.565	0.358	11241	1748	30.076	1.281	3.603	301.1
798	13016	12961	0.563	0.357	11242	1756	30.079	1.277	3.587	302.1
799	13025	12972	0.562	0.357	11242	1765	30.080	1.277	3.586	303.1
800	13016	12965	0.562	0.356	11239	1760	30.081	1.274	3.579	304.1

UNIAXIAL STRAIN TEST. SAMPLE #3

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801	13012	12960	0.563	0.356	11240	1754	30.080	1.275	3.582	305.1
802	13010	12953	0.561	0.357	11238	1753	30.081	1.275	3.581	306.1
803	13012	12952	0.562	0.357	11240	1751	30.080	1.275	3.582	307.1
804	13012	12949	0.563	0.356	11240	1751	30.081	1.274	3.579	308.1
805	13009	12957	0.563	0.358	11240	1752	30.077	1.279	3.595	309.1
806	13012	12955	0.562	0.358	11239	1754	30.078	1.278	3.591	310.1
807	12998	12935	0.562	0.357	11242	1734	30.080	1.276	3.585	311.1
808	13009	12944	0.562	0.357	11245	1742	30.080	1.276	3.585	312.1
809	12995	12936	0.560	0.357	11237	1739	30.081	1.274	3.580	313.1
810	13011	12954	0.561	0.355	11243	1749	30.083	1.272	3.571	314.1
811	12996	12935	0.561	0.357	11240	1735	30.080	1.275	3.581	315.1
812	13192	13140	0.571	0.362	11274	1899	30.069	1.296	3.640	316.1
813	13192	13134	0.571	0.363	11276	1896	30.069	1.296	3.640	317.1
814	13185	13142	0.571	0.364	11277	1893	30.067	1.299	3.649	318.1
815	13179	13125	0.571	0.362	11273	1887	30.069	1.295	3.636	319.1
816	13183	13141	0.570	0.364	11277	1892	30.067	1.298	3.646	320.1
817	13187	13135	0.568	0.360	11273	1896	30.074	1.288	3.614	321.1
818	13167	13116	0.569	0.361	11270	1880	30.071	1.292	3.627	322.1
819	13180	13123	0.568	0.363	11275	1885	30.070	1.294	3.633	323.1
820	13176	13127	0.568	0.360	11274	1886	30.073	1.289	3.618	324.1
821	13167	13114	0.569	0.360	11271	1878	30.074	1.288	3.615	325.1
822	13170	13113	0.568	0.361	11273	1877	30.073	1.290	3.621	326.1
823	13159	13098	0.567	0.359	11272	1866	30.075	1.286	3.608	327.1
824	13158	13094	0.566	0.360	11273	1863	30.075	1.286	3.608	328.1
825	13153	13094	0.567	0.360	11273	1859	30.075	1.287	3.612	329.1
826	13167	13109	0.566	0.361	11275	1872	30.074	1.288	3.615	330.1
827	13165	13104	0.566	0.360	11274	1870	30.075	1.287	3.612	331.1
828	13157	13111	0.565	0.357	11272	1869	30.080	1.279	3.588	332.1
829	13155	13116	0.566	0.360	11280	1861	30.075	1.286	3.608	333.1
830	13149	13092	0.568	0.357	11277	1853	30.078	1.282	3.598	334.1
831	13156	13112	0.564	0.358	11273	1868	30.079	1.280	3.590	335.1
832	13153	13095	0.564	0.360	11275	1858	30.077	1.283	3.601	336.1
833	13155	13098	0.565	0.359	11273	1863	30.077	1.284	3.602	337.1
834	13134	13072	0.565	0.359	11276	1837	30.077	1.283	3.600	338.1
835	13142	13089	0.565	0.360	11270	1854	30.076	1.284	3.604	339.1
836	13143	13078	0.564	0.357	11274	1847	30.080	1.278	3.585	340.1
837	13124	13056	0.563	0.358	11275	1826	30.079	1.280	3.591	341.1
838	13131	13071	0.565	0.360	11276	1835	30.076	1.284	3.604	342.1
839	13132	13069	0.565	0.360	11277	1834	30.075	1.286	3.610	343.1
840	13126	13067	0.563	0.358	11275	1831	30.080	1.278	3.587	344.1
841	13129	13078	0.565	0.356	11272	1840	30.081	1.277	3.581	345.1
842	13112	13077	0.564	0.361	11282	1817	30.074	1.286	3.613	346.1
843	13125	13073	0.564	0.358	11276	1831	30.079	1.279	3.589	347.1
844	13131	13076	0.564	0.358	11277	1835	30.079	1.280	3.590	348.1
845	13119	13065	0.564	0.357	11276	1825	30.080	1.278	3.586	349.1
846	13128	13072	0.565	0.358	11277	1832	30.078	1.281	3.595	350.1
847	13124	13074	0.564	0.357	11279	1827	30.081	1.277	3.583	351.1
848	13113	13063	0.564	0.358	11282	1814	30.079	1.279	3.588	352.1
849	13263	13206	0.574	0.363	11304	1939	30.067	1.300	3.650	353.1
850	13258	13202	0.573	0.361	11306	1933	30.070	1.295	3.634	354.1

UNIAXIAL STRAIN TEST, SAMPLE #3

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851	13263	13207	0.573	0.360	11308	1936	30.072	1.293	3.626	355.1
852	13255	13201	0.571	0.361	11308	1929	30.072	1.293	3.626	356.1
853	13261	13198	0.570	0.360	11309	1930	30.073	1.291	3.621	357.1
854	13251	13196	0.570	0.361	11307	1925	30.073	1.292	3.622	358.1
855	13258	13204	0.570	0.359	11306	1933	30.076	1.288	3.609	359.1
856	13239	13178	0.570	0.360	11307	1911	30.073	1.291	3.620	360.1
857	13233	13183	0.570	0.359	11308	1908	30.074	1.289	3.614	361.1
858	13235	13178	0.569	0.359	11306	1909	30.075	1.287	3.609	362.1
859	13223	13174	0.569	0.361	11308	1898	30.072	1.291	3.624	363.1
860	13217	13158	0.568	0.360	11306	1891	30.075	1.288	3.612	364.1
861	13222	13167	0.569	0.358	11305	1898	30.077	1.285	3.602	365.1
862	13222	13168	0.569	0.360	11307	1896	30.074	1.289	3.616	366.1
863	13205	13150	0.569	0.359	11308	1878	30.076	1.286	3.607	367.1
864	13224	13172	0.568	0.359	11313	1893	30.076	1.287	3.608	368.1
865	13215	13168	0.566	0.358	11309	1890	30.078	1.283	3.597	369.1
866	13212	13163	0.567	0.358	11314	1882	30.078	1.283	3.597	370.1
867	13208	13151	0.566	0.357	11312	1877	30.079	1.281	3.590	371.1
868	13208	13169	0.567	0.359	11314	1881	30.076	1.285	3.605	372.1
869	13215	13152	0.567	0.359	11315	1879	30.077	1.284	3.600	373.1
870	13207	13148	0.566	0.358	11314	1874	30.078	1.282	3.595	374.1
871	13205	13144	0.567	0.357	11312	1872	30.079	1.281	3.590	375.1
872	13190	13148	0.567	0.359	11312	1864	30.077	1.284	3.603	376.1
873	13193	13138	0.566	0.358	11315	1859	30.078	1.282	3.595	377.1
874	13185	13129	0.566	0.358	11314	1852	30.078	1.283	3.599	378.1
875	13190	13139	0.566	0.357	11314	1858	30.079	1.281	3.593	379.1
876	13189	13127	0.566	0.357	11315	1853	30.080	1.280	3.588	380.1
877	13181	13137	0.567	0.356	11310	1856	30.081	1.278	3.584	381.1
878	13180	13128	0.567	0.357	11312	1850	30.079	1.280	3.591	382.1
879	13176	13121	0.565	0.357	11316	1841	30.081	1.278	3.582	383.1
880	13171	13116	0.566	0.355	11314	1839	30.082	1.277	3.579	384.1
881	13182	13134	0.566	0.358	11314	1851	30.078	1.282	3.594	385.1
882	13163	13102	0.567	0.357	11318	1824	30.079	1.280	3.590	386.1
883	13177	13132	0.565	0.355	11316	1845	30.082	1.276	3.576	387.1
884	13156	13107	0.566	0.354	11315	1825	30.083	1.274	3.572	388.1
885	13170	13124	0.565	0.356	11317	1838	30.082	1.277	3.579	389.1
886	13164	13109	0.566	0.356	11317	1828	30.081	1.278	3.583	390.1
887	13155	13095	0.565	0.356	11318	1817	30.081	1.277	3.580	391.1
888	13154	13099	0.564	0.356	11317	1819	30.082	1.275	3.576	392.1
889	13147	13086	0.565	0.356	11315	1812	30.082	1.276	3.578	393.1
890	13146	13097	0.565	0.353	11315	1815	30.085	1.272	3.564	394.1
891	13145	13093	0.566	0.354	11315	1813	30.083	1.274	3.572	395.1
892	13150	13095	0.564	0.354	11315	1816	30.084	1.272	3.566	396.1
893	13145	13090	0.564	0.354	11315	1811	30.085	1.271	3.563	397.1
894	13136	13085	0.565	0.354	11315	1804	30.083	1.273	3.570	398.1
895	13128	13079	0.563	0.356	11312	1799	30.082	1.275	3.575	399.1
896	13130	13079	0.564	0.353	11315	1797	30.086	1.270	3.559	400.1
897	13122	13052	0.567	0.354	11314	1785	30.082	1.275	3.577	401.1
898	13123	13066	0.564	0.354	11315	1788	30.084	1.272	3.567	402.1
899	13124	13072	0.563	0.355	11313	1793	30.084	1.273	3.569	403.1
900	13119	13068	0.563	0.353	11313	1788	30.086	1.269	3.558	404.1

UNIAXIAL STRAIN TEST. SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
901	13117	13071	0.563	0.354	11316	1785	30.085	1.271	3.564	405.1
902	13106	13059	0.564	0.354	11312	1779	30.084	1.271	3.566	406.1
903	13106	13060	0.563	0.354	11313	1777	30.085	1.271	3.564	407.1
904	13096	13049	0.563	0.354	11316	1763	30.084	1.271	3.566	408.1
905	13109	13065	0.563	0.353	11313	1781	30.086	1.268	3.556	409.1
906	13096	13041	0.563	0.352	11313	1763	30.087	1.267	3.552	410.1
907	13094	13033	0.563	0.352	11310	1763	30.087	1.267	3.554	411.1
908	13095	13051	0.562	0.354	11310	1770	30.086	1.269	3.558	412.1
909	13082	13040	0.562	0.353	11313	1754	30.087	1.267	3.553	413.1
910	13076	13022	0.562	0.354	11312	1746	30.086	1.269	3.559	414.1
911	13080	13019	0.563	0.352	11309	1751	30.087	1.268	3.554	415.1
912	13070	13019	0.561	0.353	11311	1742	30.087	1.266	3.551	416.1
913	13069	13017	0.560	0.352	11309	1742	30.089	1.264	3.545	417.1
914	13070	13021	0.560	0.353	11308	1745	30.088	1.266	3.549	418.1
915	13055	13005	0.561	0.352	11308	1730	30.088	1.266	3.550	419.1
916	13055	13000	0.560	0.352	11309	1727	30.089	1.264	3.544	420.1
917	13054	13004	0.558	0.353	11308	1729	30.089	1.264	3.544	421.1
918	13055	12988	0.561	0.353	11303	1730	30.087	1.267	3.553	422.1
919	13048	12991	0.559	0.353	11308	1721	30.088	1.265	3.548	423.1
920	13036	12972	0.560	0.353	11310	1704	30.086	1.267	3.555	424.1
921	13051	12996	0.560	0.352	11313	1719	30.088	1.264	3.545	425.1
922	13034	12981	0.560	0.351	11309	1707	30.090	1.262	3.538	426.1
923	13039	12987	0.560	0.351	11311	1709	30.090	1.262	3.538	427.1
924	13037	13009	0.558	0.351	11318	1709	30.091	1.260	3.533	428.1
925	13044	12993	0.559	0.351	11312	1715	30.091	1.260	3.533	429.1
926	13030	12985	0.559	0.351	11312	1702	30.091	1.260	3.533	430.6
927	13028	12976	0.558	0.352	11310	1700	30.089	1.263	3.543	431.1
928	13027	12976	0.557	0.353	11311	1698	30.089	1.262	3.541	432.1
929	13028	12976	0.558	0.349	11312	1698	30.094	1.256	3.519	433.1
930	13028	12974	0.559	0.351	11314	1696	30.091	1.260	3.532	434.1
931	13021	12965	0.558	0.349	11315	1687	30.094	1.256	3.519	435.1
932	13019	12965	0.558	0.349	11312	1688	30.093	1.257	3.523	436.1
933	13014	12965	0.557	0.349	11313	1684	30.094	1.255	3.517	437.1
934	13014	12964	0.557	0.349	11315	1682	30.094	1.255	3.518	438.1
935	12999	12945	0.560	0.351	11314	1666	30.089	1.263	3.544	439.1
936	12999	12950	0.557	0.350	11312	1670	30.092	1.257	3.526	440.1
937	12997	12951	0.555	0.351	11314	1667	30.092	1.257	3.526	441.1
938	12999	12942	0.557	0.351	11309	1671	30.092	1.258	3.529	442.1
939	12993	12932	0.557	0.347	11309	1663	30.097	1.251	3.506	443.1
940	12990	12942	0.556	0.349	11313	1660	30.094	1.255	3.518	444.1
941	12985	12926	0.556	0.350	11315	1650	30.093	1.256	3.524	445.1
942	12987	12927	0.555	0.348	11313	1653	30.097	1.250	3.504	446.1
943	12979	12921	0.555	0.347	11315	1645	30.097	1.250	3.503	447.1
944	12981	12926	0.554	0.347	11313	1649	30.099	1.247	3.495	448.1
945	12974	12917	0.554	0.349	11312	1642	30.096	1.252	3.510	449.1
946	12981	12933	0.554	0.347	11312	1652	30.098	1.248	3.498	450.1
947	12977	12928	0.555	0.348	11315	1645	30.097	1.250	3.505	451.1
948	12974	12916	0.555	0.348	11312	1642	30.095	1.252	3.511	452.1
949	12984	12931	0.554	0.348	11316	1650	30.097	1.250	3.505	453.1
950	12962	12887	0.553	0.348	11308	1628	30.097	1.249	3.502	454.1

UNIAXIAL STRAIN TEST, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
951	12979	12908	0.555	0.349	11313	1642	30.095	1.253	3.512	455.1
952	13250	13186	0.572	0.359	11273	1955	30.074	1.290	3.616	456.1
953	13230	13169	0.574	0.361	11274	1935	30.069	1.296	3.639	457.1
954	13238	13171	0.574	0.358	11279	1936	30.073	1.291	3.620	458.1
955	13227	13161	0.573	0.361	11276	1929	30.070	1.295	3.635	459.1
956	13246	13171	0.571	0.361	11281	1940	30.071	1.293	3.628	460.1
957	13234	13165	0.572	0.359	11279	1932	30.073	1.290	3.619	461.1
958	13230	13166	0.572	0.359	11280	1928	30.073	1.291	3.622	462.1
959	13231	13169	0.572	0.359	11281	1929	30.073	1.291	3.621	463.1
960	13229	13161	0.572	0.360	11281	1925	30.072	1.292	3.624	464.1
961	13220	13156	0.571	0.360	11281	1917	30.073	1.291	3.623	465.1
962	13235	13174	0.573	0.359	11280	1935	30.074	1.290	3.617	466.1
963	13231	13172	0.572	0.358	11280	1932	30.075	1.288	3.613	467.1
964	13229	13168	0.573	0.360	11280	1928	30.072	1.292	3.626	468.1
965	13247	13201	0.570	0.359	11286	1946	30.075	1.289	3.613	469.1
966	13231	13180	0.571	0.359	11284	1929	30.074	1.289	3.614	470.1
967	13217	13163	0.572	0.360	11280	1919	30.072	1.292	3.625	471.1
968	13226	13165	0.571	0.360	11283	1922	30.073	1.291	3.622	472.1
969	13224	13162	0.571	0.359	11283	1920	30.074	1.289	3.616	473.1
970	13232	13167	0.572	0.360	11284	1926	30.072	1.293	3.626	474.1
971	13218	13147	0.572	0.360	11284	1910	30.072	1.292	3.624	475.1
972	13215	13151	0.571	0.360	11286	1908	30.072	1.292	3.624	476.1
973	13224	13162	0.571	0.362	11285	1918	30.070	1.294	3.633	477.1
974	13220	13165	0.570	0.361	11289	1912	30.072	1.291	3.623	478.1
975	13207	13143	0.571	0.361	11283	1902	30.071	1.293	3.630	479.1
976	13228	13167	0.571	0.358	11284	1924	30.075	1.288	3.613	480.1
977	13222	13147	0.574	0.361	11261	1936	30.070	1.295	3.636	481.1
978	13221	13159	0.574	0.361	11262	1937	30.068	1.297	3.642	482.1
979	13230	13176	0.575	0.360	11263	1948	30.069	1.296	3.637	483.1
980	13219	13158	0.574	0.359	11260	1938	30.072	1.292	3.626	484.1
981	13229	13160	0.572	0.357	11256	1949	30.076	1.287	3.608	485.1
982	13215	13155	0.574	0.362	11261	1934	30.068	1.298	3.645	486.1
983	13234	13177	0.574	0.360	11257	1957	30.071	1.293	3.628	487.1
984	13217	13166	0.574	0.360	11267	1933	30.071	1.294	3.631	488.1
985	13216	13157	0.574	0.361	11261	1935	30.069	1.296	3.637	489.1
986	13209	13160	0.576	0.360	11264	1928	30.069	1.296	3.638	490.1
987	13201	13131	0.575	0.360	11261	1916	30.069	1.296	3.638	491.1
988	13213	13153	0.574	0.361	11265	1928	30.068	1.297	3.642	492.1
989	13221	13163	0.573	0.360	11266	1935	30.071	1.293	3.630	493.1
990	13217	13148	0.574	0.360	11267	1926	30.070	1.294	3.633	494.1
991	13218	13162	0.574	0.360	11267	1932	30.071	1.293	3.630	495.1
992	13211	13146	0.573	0.359	11269	1920	30.073	1.290	3.620	496.1
993	13215	13159	0.575	0.360	11269	1927	30.070	1.295	3.635	497.1
994	13225	13167	0.573	0.360	11269	1937	30.071	1.293	3.630	498.1
995	13218	13158	0.574	0.361	11272	1925	30.069	1.297	3.641	499.1
996	13232	13176	0.574	0.360	11271	1941	30.070	1.295	3.634	500.1
997	13216	13158	0.574	0.361	11273	1923	30.069	1.296	3.639	501.1
998	13223	13157	0.574	0.359	11272	1929	30.071	1.293	3.628	502.2
999	13215	13156	0.574	0.361	11273	1923	30.070	1.295	3.636	503.1
1000	13218	13148	0.571	0.359	11272	1922	30.075	1.288	3.613	504.1

UNIAXIAL STRAIN TEST, SAMPLE #3

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1001	13213	13151	0.574	0.362	11271	1921	30.068	1.297	3.643	505.1
1002	13222	13173	0.573	0.359	11273	1932	30.073	1.291	3.622	506.1
1003	13219	13161	0.573	0.360	11277	1923	30.071	1.294	3.631	507.1
1004	13214	13154	0.574	0.358	11278	1915	30.073	1.291	3.622	508.1
1005	13219	13168	0.574	0.359	11274	1928	30.072	1.292	3.626	509.1
1006	13213	13161	0.574	0.360	11273	1922	30.071	1.294	3.631	510.1
1007	13211	13166	0.571	0.360	11274	1921	30.072	1.291	3.624	511.1
1008	13222	13168	0.574	0.359	11280	1923	30.072	1.293	3.627	512.1
1009	13225	13171	0.574	0.358	11281	1926	30.073	1.290	3.619	513.1
1010	13219	13160	0.574	0.358	11281	1918	30.073	1.290	3.620	514.1
1011	13218	13168	0.574	0.360	11280	1920	30.071	1.294	3.632	515.1
1012	13224	13165	0.573	0.359	11282	1922	30.072	1.291	3.623	516.1
1013	13227	13169	0.572	0.359	11284	1923	30.073	1.290	3.619	517.1
1014	13218	13166	0.572	0.359	11281	1919	30.073	1.290	3.620	518.1
1015	13216	13167	0.574	0.358	11285	1914	30.073	1.291	3.621	519.1
1016	13224	13166	0.573	0.359	11285	1919	30.072	1.292	3.624	520.1
1017	13212	13155	0.572	0.361	11287	1905	30.070	1.295	3.634	521.1
1018	13222	13165	0.574	0.360	11285	1917	30.071	1.293	3.630	521.5
1019	13163	13116	0.569	0.358	11276	1871	30.076	1.285	3.607	521.7
1020	12990	12929	0.561	0.352	11245	1724	30.088	1.264	3.548	522.0
1021	12804	12738	0.552	0.346	11215	1566	30.099	1.243	3.490	522.2
1022	12635	12582	0.544	0.338	11180	1437	30.112	1.221	3.426	522.5
1023	12461	12410	0.534	0.332	11141	1303	30.125	1.198	3.362	522.7
1024	12280	12221	0.525	0.327	11102	1157	30.136	1.178	3.308	523.0
1025	12106	12050	0.512	0.320	11060	1026	30.152	1.152	3.232	523.2
1026	11937	11881	0.501	0.313	11016	902	30.167	1.127	3.159	523.5
1027	11762	11708	0.491	0.305	10961	782	30.182	1.102	3.087	523.8
1028	11576	11521	0.477	0.298	10902	655	30.199	1.073	3.003	524.0
1029	11421	11370	0.463	0.290	10839	564	30.217	1.044	2.916	524.2
1030	11231	11166	0.449	0.283	10759	450	30.234	1.015	2.833	524.5
1031	11070	11006	0.433	0.275	10676	372	30.255	0.982	2.734	524.7
1032	10897	10846	0.419	0.266	10576	304	30.275	0.950	2.638	525.0
1033	10722	10664	0.403	0.259	10468	234	30.293	0.920	2.550	525.3
1034	10580	10526	0.390	0.249	10356	206	30.314	0.888	2.451	525.5
1035	10411	10371	0.406	0.251	10087	311	30.298	0.909	2.524	525.8
1036	10266	10216	0.392	0.244	10001	247	30.316	0.880	2.438	526.0
1037	10113	10055	0.377	0.237	9908	185	30.335	0.850	2.349	526.3
1038	9957	9936	0.363	0.231	9798	151	30.351	0.824	2.269	526.5
1039	9810	9760	0.377	0.234	9562	231	30.336	0.844	2.339	526.7
1040	9660	9611	0.382	0.235	9365	278	30.328	0.852	2.371	527.0
1041	9503	9456	0.407	0.244	9067	420	30.296	0.896	2.516	527.3
1042	9347	9306	0.395	0.235	9003	330	30.316	0.865	2.424	527.5
1043	9180	9127	0.405	0.240	8769	393	30.300	0.885	2.493	527.8
1044	9026	8985	0.392	0.232	8700	311	30.318	0.856	2.408	528.0
1045	8846	8786	0.400	0.235	8460	365	30.306	0.870	2.461	528.2
1046	8733	8694	0.416	0.241	8184	535	30.286	0.898	2.553	528.5
1047	8555	8505	0.404	0.235	8131	407	30.300	0.873	2.481	528.7
1048	8405	8361	0.391	0.227	8062	328	30.318	0.845	2.397	529.0
1049	8259	8209	0.376	0.219	7985	256	30.338	0.813	2.302	529.2
1050	8093	8055	0.404	0.231	7644	436	30.299	0.867	2.480	529.5

UNIAXIAL STRAIN TEST, SAMPLE #3

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1051	7947	7901	0.392	0.223	7585	346	30.317	0.838	2.394	529.8
1052	7803	7761	0.377	0.215	7517	271	30.336	0.807	2.301	530.0
1053	7679	7636	0.407	0.229	7154	510	30.295	0.866	2.491	530.3
1054	7536	7482	0.399	0.224	7100	417	30.306	0.847	2.438	530.5
1055	7414	7368	0.389	0.215	7045	352	30.323	0.819	2.354	530.7
1056	7262	7215	0.376	0.208	6977	269	30.341	0.791	2.270	531.0
1057	7121	7077	0.398	0.220	6674	432	30.307	0.838	2.425	531.2
1058	6992	6942	0.388	0.213	6630	345	30.321	0.815	2.356	531.5
1059	6881	6830	0.377	0.206	6571	292	30.338	0.789	2.277	531.7
1060	6739	6692	0.388	0.212	6356	366	30.320	0.812	2.356	532.0
1061	6620	6572	0.378	0.204	6303	301	30.337	0.786	2.277	532.3
1062	6469	6410	0.362	0.197	6227	222	30.355	0.757	2.193	532.5
1063	6347	6300	0.385	0.205	5985	346	30.327	0.795	2.318	532.7
1064	6177	6131	0.370	0.198	5910	251	30.344	0.767	2.235	533.0
1065	6075	6025	0.360	0.192	5845	213	30.358	0.745	2.167	533.3
1066	5944	5901	0.347	0.186	5756	173	30.375	0.719	2.090	533.5
1067	5801	5745	0.366	0.190	5531	250	30.354	0.746	2.184	533.7
1068	5671	5628	0.354	0.185	5465	191	30.368	0.724	2.117	534.0
1069	5539	5485	0.341	0.178	5380	140	30.385	0.697	2.035	534.2
1070	5422	5390	0.380	0.194	5065	346	30.335	0.768	2.267	534.5
1071	5302	5248	0.370	0.188	5011	273	30.348	0.747	2.205	534.7
1072	5180	5134	0.358	0.185	4953	211	30.360	0.727	2.146	535.0
1073	5073	5017	0.348	0.176	4887	167	30.377	0.699	2.062	535.2
1074	4952	4908	0.337	0.171	4814	123	30.390	0.679	2.001	535.5
1075	4846	4798	0.328	0.166	4727	102	30.401	0.661	1.947	535.7
1076	4730	4690	0.391	0.194	4326	391	30.318	0.779	2.332	536.0
1077	4645	4600	0.383	0.188	4283	347	30.331	0.759	2.271	536.3
1078	4531	4485	0.375	0.183	4245	271	30.342	0.740	2.215	536.5
1079	4426	4381	0.366	0.178	4188	222	30.354	0.722	2.160	536.7
1080	4310	4265	0.355	0.171	4128	166	30.369	0.697	2.087	537.0
1081	4204	4150	0.411	0.202	3659	527	30.287	0.816	2.469	537.2
1082	4097	4049	0.402	0.195	3627	453	30.301	0.793	2.400	537.5
1083	3984	3934	0.396	0.190	3585	382	30.311	0.776	2.351	537.8
1084	3867	3820	0.384	0.184	3535	316	30.327	0.751	2.277	538.0
1085	3751	3708	0.377	0.178	3484	252	30.338	0.732	2.220	538.3
1086	3629	3587	0.363	0.172	3415	200	30.354	0.706	2.143	538.5
1087	3523	3482	0.355	0.165	3351	158	30.368	0.684	2.077	538.7
1088	3415	3374	0.341	0.159	3275	125	30.384	0.659	2.000	539.0
1089	3279	3229	0.333	0.154	3192	69	30.395	0.641	1.948	539.2
1090	3195	3150	0.396	0.184	2774	406	30.310	0.764	2.343	539.5
1091	3087	3037	0.386	0.179	2736	334	30.322	0.744	2.284	539.7
1092	2982	2932	0.378	0.173	2691	274	30.333	0.725	2.229	540.0
1093	2890	2836	0.371	0.169	2644	228	30.343	0.709	2.182	540.2
1094	2792	2742	0.388	0.180	2413	362	30.316	0.748	2.308	540.5
1095	2701	2658	0.382	0.174	2382	304	30.326	0.731	2.258	540.8
1096	2597	2548	0.374	0.170	2340	241	30.337	0.714	2.207	541.0
1097	2510	2469	0.368	0.165	2296	200	30.347	0.697	2.159	541.2
1098	2420	2366	0.360	0.157	2245	156	30.361	0.675	2.089	541.5
1099	2334	2283	0.350	0.153	2187	129	30.373	0.656	2.033	541.7
1100	2224	2185	0.408	0.187	1729	482	30.285	0.782	2.441	542.0

UNIAXIAL STRAIN TEST, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1101	2136	2093	0.401	0.181	1701	420	30.297	0.764	2.385	542.3
1102	2027	1969	0.393	0.177	1663	345	30.307	0.747	2.337	542.5
1103	1927	1882	0.387	0.169	1621	291	30.320	0.725	2.271	542.8
1104	1822	1775	0.434	0.201	1077	729	30.243	0.836	2.628	543.0
1105	1725	1670	0.430	0.198	1058	649	30.249	0.826	2.600	543.3
1106	1620	1567	0.422	0.192	1030	571	30.261	0.806	2.542	543.5
1107	1502	1456	0.417	0.188	996	490	30.268	0.794	2.506	543.7
1108	1403	1356	0.409	0.183	960	427	30.280	0.774	2.449	544.0
1109	1318	1268	0.403	0.178	920	381	30.290	0.758	2.401	544.2
1110	1202	1153	0.396	0.172	874	311	30.300	0.741	2.351	544.5

UNIAXIAL STRAIN TEST, SAMPLE #5

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1	0	0	0.000	0.000	0	0	30.200	0.000	0.000	0.0
2	118	115	0.007	0.001	72	44	30.196	0.009	0.023	0.3
3	245	254	0.016	0.002	153	95	30.190	0.020	0.054	0.5
4	362	366	0.006	-0.001	261	102	30.202	0.005	-0.001	0.7
5	494	501	0.002	0.000	363	133	30.205	0.003	-0.014	1.0
6	628	628	-0.001	0.004	461	166	30.204	0.007	-0.006	1.2
7	760	766	-0.000	0.004	554	207	30.205	0.009	-0.007	1.5
8	873	885	-0.004	0.008	649	227	30.204	0.011	-0.003	1.7
9	1009	1010	-0.005	0.009	748	261	30.205	0.013	-0.004	2.0
10	1131	1144	-0.005	0.011	847	288	30.204	0.018	0.006	2.2
11	1297	1316	-0.007	0.014	965	338	30.204	0.021	0.009	2.5
12	1414	1423	-0.009	0.016	1060	357	30.204	0.023	0.009	2.7
13	1576	1598	-0.006	0.014	1178	404	30.206	0.022	0.001	3.0
14	1729	1749	-0.009	0.015	1293	443	30.209	0.021	-0.010	3.2
15	1890	1908	-0.010	0.014	1409	487	30.213	0.019	-0.024	3.5
16	1970	1992	0.005	-0.003	1453	525	30.228	-0.001	-0.094	3.7
17	2114	2154	0.006	-0.005	1565	562	30.233	-0.004	-0.112	4.0
18	2267	2304	0.008	-0.005	1674	605	30.233	-0.002	-0.111	4.2
19	2394	2409	0.009	-0.008	1778	621	30.238	-0.007	-0.134	4.5
20	2551	2592	0.006	-0.001	1893	672	30.232	0.005	-0.103	4.7
21	2681	2709	0.008	0.000	1993	696	30.231	0.009	-0.094	5.0
22	2821	2856	0.009	0.001	2095	737	30.231	0.011	-0.093	5.2
23	2972	3001	0.008	0.001	2197	784	30.235	0.009	-0.108	5.5
24	3089	3119	0.008	0.000	2283	814	30.238	0.008	-0.117	5.7
25	3218	3241	0.011	0.001	2383	842	30.236	0.013	-0.106	6.0
26	3323	3345	0.011	0.004	2475	854	30.234	0.018	-0.093	6.2
27	3472	3494	0.012	-0.001	2578	901	30.241	0.010	-0.127	6.5
28	3601	3627	0.013	0.001	2672	937	30.240	0.015	-0.117	6.8
29	3723	3747	0.013	0.000	2765	965	30.243	0.013	-0.129	7.0
30	3877	3902	0.016	0.001	2872	1013	30.242	0.017	-0.123	7.2
31	4023	4061	0.017	0.002	2975	1060	30.243	0.020	-0.121	7.5
32	4171	4207	0.018	-0.001	3091	1091	30.247	0.016	-0.139	7.8
33	4311	4333	0.020	0.000	3202	1116	30.246	0.020	-0.133	8.0
34	4482	4516	0.019	0.002	3329	1163	30.246	0.024	-0.128	8.2
35	4661	4696	0.021	0.003	3455	1217	30.246	0.028	-0.123	8.5
36	4816	4848	0.023	0.003	3569	1257	30.247	0.029	-0.125	8.7
37	4974	5004	0.025	0.005	3688	1296	30.246	0.034	-0.116	9.0
38	5143	5185	0.028	0.007	3803	1354	30.243	0.041	-0.102	9.2
39	5327	5380	0.021	0.006	3948	1396	30.252	0.033	-0.138	9.5
40	5485	5523	0.020	0.011	4071	1426	30.248	0.041	-0.117	9.7
41	5633	5678	0.026	0.008	4174	1473	30.250	0.041	-0.125	10.0
42	5758	5799	0.094	0.044	4103	1667	30.154	0.183	0.335	10.2
43	5896	5946	0.099	0.047	4193	1719	30.148	0.193	0.364	10.5
44	6049	6097	0.106	0.056	4279	1786	30.133	0.219	0.442	10.7
45	6187	6239	0.080	0.037	4490	1714	30.180	0.153	0.220	11.0
46	6323	6370	0.079	0.036	4593	1745	30.184	0.150	0.203	11.2
47	6482	6531	0.079	0.037	4704	1794	30.185	0.152	0.201	11.5
48	6628	6684	0.078	0.036	4809	1837	30.189	0.149	0.186	11.7
49	6768	6823	0.091	0.043	4877	1909	30.172	0.177	0.270	12.0
50	6921	6977	0.090	0.044	4988	1951	30.174	0.177	0.264	12.2

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NUMBER	CONFININD PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
51	7088	7157	0.085	0.040	5130	1981	30.185	0.164	0.214	12.5
52	7239	7294	0.097	0.047	5206	2051	30.169	0.191	0.295	12.7
53	7412	7465	0.097	0.048	5337	2092	30.170	0.192	0.290	13.0
54	7581	7641	0.099	0.049	5451	2150	30.170	0.197	0.297	13.2
55	7762	7825	0.096	0.048	5596	2187	30.175	0.192	0.274	13.5
56	7939	7988	0.094	0.048	5734	2221	30.179	0.190	0.259	13.7
57	8121	8186	0.094	0.047	5871	2271	30.183	0.188	0.244	14.0
58	8290	8364	0.101	0.054	5981	2333	30.171	0.209	0.304	14.2
59	8481	8541	0.110	0.059	6087	2414	30.161	0.227	0.356	14.5
60	8652	8717	0.104	0.054	6245	2429	30.173	0.213	0.301	14.7
61	8823	8886	0.091	0.046	6414	2429	30.197	0.182	0.193	15.0
62	8978	9049	0.104	0.055	6490	2511	30.177	0.214	0.292	15.2
63	9141	9217	0.100	0.053	6629	2537	30.184	0.207	0.259	15.5
64	9318	9388	0.111	0.063	6708	2633	30.165	0.238	0.353	15.7
65	9493	9556	0.108	0.058	6856	2657	30.177	0.224	0.299	16.0
66	9639	9701	0.108	0.057	6965	2693	30.181	0.221	0.284	16.2
67	9808	9872	0.108	0.060	7093	2736	30.179	0.227	0.296	16.5
68	9960	10021	0.110	0.060	7217	2762	30.180	0.229	0.295	16.7
69	10131	10205	0.112	0.064	7336	2820	30.175	0.240	0.324	17.0
70	10295	10365	0.115	0.066	7446	2872	30.173	0.247	0.337	17.2
71	10487	10572	0.127	0.075	7531	2984	30.155	0.277	0.426	17.5
72	10663	10737	0.125	0.072	7681	3006	30.162	0.270	0.396	17.7
73	10844	10907	0.136	0.083	7768	3096	30.139	0.306	0.507	18.0
74	11036	11104	0.122	0.074	7985	3073	30.168	0.269	0.376	18.2
75	11245	11323	0.121	0.069	8158	3113	30.178	0.258	0.330	18.5
76	10606	10655	0.130	0.085	8249	2373	30.137	0.300	0.508	18.7
77	8274	8329	0.136	0.109	8337	-44	30.055	0.355	0.832	19.0
78	8419	8464	0.126	0.100	8548	-114	30.077	0.326	0.731	19.2
79	8543	8604	0.116	0.096	8737	-174	30.091	0.308	0.669	19.5
80	8743	8790	0.131	0.108	8812	-53	30.067	0.347	0.786	19.7
81	8900	8950	0.130	0.106	8974	-56	30.072	0.343	0.767	20.0
82	9036	9079	0.122	0.103	9154	-103	30.083	0.329	0.715	20.2
83	9169	9220	0.136	0.114	9236	-50	30.061	0.363	0.823	20.5
84	9305	9366	0.132	0.111	9401	-75	30.068	0.355	0.790	20.7
85	9450	9497	0.145	0.123	9480	-14	30.045	0.391	0.903	21.0
86	9583	9635	0.158	0.132	9564	36	30.025	0.423	1.001	21.2
87	9739	9792	0.151	0.128	9761	-4	30.038	0.407	0.942	21.5
88	9890	9938	0.146	0.125	9943	-36	30.047	0.396	0.902	21.7
89	10025	10073	0.147	0.126	10083	-42	30.047	0.399	0.904	22.0
90	10184	10247	0.137	0.116	10290	-84	30.069	0.370	0.804	22.2
91	10317	10375	0.145	0.123	10410	-74	30.055	0.391	0.868	22.5
92	10472	10531	0.139	0.122	10602	-110	30.063	0.383	0.835	22.7
93	10627	10687	0.149	0.129	10730	-82	30.049	0.407	0.906	23.0
94	10792	10848	0.137	0.121	10947	-136	30.070	0.379	0.808	23.2
95	10958	11012	0.153	0.133	11050	-73	30.045	0.418	0.930	23.5
96	11114	11177	0.160	0.139	11171	-36	30.032	0.439	0.993	23.8
97	11272	11337	0.192	0.167	11164	129	29.974	0.526	1.272	24.0
98	11442	11499	0.222	0.193	11108	352	29.919	0.608	1.532	24.3
99	11587	11645	0.240	0.208	11106	500	29.889	0.655	1.678	24.5
100	11757	11804	0.258	0.223	11086	686	29.858	0.704	1.829	24.8

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
101	11898	11961	0.271	0.234	11107	812	29.835	0.739	1.937	25.0
102	12047	12118	0.285	0.247	11113	957	29.810	0.778	2.060	25.2
103	12205	12260	0.296	0.254	11152	1071	29.795	0.803	2.132	25.5
104	12355	12408	0.309	0.267	11114	1258	29.770	0.843	2.256	25.7
105	12511	12570	0.322	0.276	11129	1401	29.750	0.875	2.352	26.0
106	12674	12728	0.336	0.290	11108	1584	29.724	0.915	2.476	26.3
107	12809	12878	0.346	0.296	11136	1696	29.711	0.938	2.542	26.5
108	12907	12983	0.353	0.302	11124	1808	29.699	0.958	2.602	26.7
109	12892	12962	0.350	0.301	11139	1776	29.702	0.953	2.587	27.0
110	12861	12937	0.348	0.301	11145	1741	29.703	0.951	2.582	27.4
111	12817	12896	0.346	0.300	11150	1693	29.705	0.946	2.569	28.4
112	12785	12865	0.344	0.298	11145	1666	29.709	0.940	2.551	29.4
113	12734	12779	0.342	0.298	11135	1614	29.710	0.937	2.545	30.4
114	12825	12877	0.348	0.301	11151	1691	29.702	0.950	2.582	31.4
115	12788	12837	0.345	0.300	11140	1664	29.706	0.945	2.566	32.4
116	12772	12822	0.345	0.301	11129	1659	29.704	0.947	2.575	33.4
117	12734	12784	0.344	0.300	11120	1630	29.705	0.944	2.566	34.4
118	12715	12766	0.342	0.300	11112	1619	29.707	0.941	2.559	35.4
119	12800	12850	0.348	0.302	11119	1697	29.701	0.952	2.588	36.4
120	12790	12834	0.346	0.305	11117	1687	29.698	0.956	2.602	37.4
121	12768	12809	0.343	0.305	11111	1671	29.699	0.954	2.599	38.4
122	12742	12777	0.344	0.304	11101	1652	29.699	0.953	2.596	39.4
123	12734	12776	0.343	0.304	11093	1654	29.700	0.951	2.590	40.4
124	12709	12745	0.342	0.304	11085	1635	29.701	0.950	2.587	41.4
125	12690	12726	0.342	0.303	11073	1629	29.702	0.947	2.580	42.4
126	12690	12718	0.340	0.300	11058	1641	29.708	0.939	2.552	43.4
127	12661	12704	0.342	0.304	11060	1615	29.700	0.949	2.588	44.4
128	12642	12682	0.341	0.304	11049	1606	29.700	0.950	2.590	45.4
129	12620	12669	0.338	0.304	11051	1585	29.702	0.945	2.577	46.4
130	12633	12675	0.340	0.303	11035	1612	29.702	0.946	2.578	47.4
131	12610	12666	0.339	0.303	11037	1591	29.703	0.944	2.574	48.4
132	12612	12653	0.341	0.302	11028	1597	29.702	0.945	2.577	49.4
133	12598	12636	0.340	0.303	11023	1587	29.702	0.946	2.581	50.4
134	12590	12632	0.342	0.303	11014	1590	29.700	0.949	2.589	51.4
135	12571	12611	0.341	0.303	11014	1570	29.700	0.948	2.588	52.4
136	12579	12616	0.341	0.304	11007	1584	29.700	0.948	2.587	53.4
137	12581	12622	0.341	0.302	11003	1591	29.703	0.944	2.575	54.4
138	12579	12628	0.340	0.306	10994	1600	29.698	0.951	2.597	55.4
139	12557	12610	0.341	0.303	10992	1582	29.700	0.948	2.588	56.4
140	12553	12604	0.343	0.305	10991	1578	29.696	0.953	2.606	57.4
141	12553	12595	0.339	0.305	10990	1576	29.699	0.950	2.594	58.4
142	12554	12583	0.340	0.306	10988	1575	29.697	0.952	2.601	59.4
143	12548	12597	0.341	0.304	10984	1580	29.699	0.949	2.592	60.4
144	12556	12610	0.341	0.306	10985	1588	29.697	0.952	2.603	61.4
145	12556	12606	0.341	0.305	10986	1586	29.698	0.951	2.598	62.4
146	12549	12592	0.342	0.304	10984	1579	29.698	0.950	2.597	63.4
147	12545	12582	0.340	0.305	10981	1575	29.699	0.950	2.594	64.4
148	12544	12586	0.340	0.306	10985	1572	29.697	0.952	2.601	65.4
149	12553	12611	0.340	0.304	10985	1587	29.699	0.949	2.591	66.4
150	12553	12609	0.342	0.305	10981	1589	29.698	0.951	2.599	67.4

UNIAXIAL STRAIN TEST, SAMPLE #5

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
151	12556	12621	0.342	0.306	10980	1598	29.696	0.954	2.607	68.4
152	12563	12639	0.345	0.308	10984	1604	29.690	0.962	2.635	69.4
153	12560	12618	0.343	0.305	10983	1596	29.696	0.954	2.609	70.4
154	12549	12605	0.342	0.307	10980	1587	29.694	0.956	2.617	71.4
155	12566	12629	0.341	0.307	10980	1606	29.695	0.955	2.611	72.4
156	12575	12638	0.344	0.303	10985	1610	29.698	0.951	2.596	73.4
157	12573	12633	0.343	0.303	10981	1611	29.700	0.949	2.590	74.4
158	12584	12647	0.345	0.304	10982	1622	29.697	0.953	2.603	75.4
159	12568	12635	0.344	0.304	10990	1600	29.697	0.953	2.603	76.4
160	12583	12629	0.344	0.305	10990	1607	29.696	0.954	2.606	77.4
161	12583	12636	0.345	0.306	10987	1613	29.694	0.956	2.614	78.4
162	12582	12639	0.344	0.306	10989	1611	29.694	0.956	2.614	79.4
163	12588	12642	0.346	0.306	10990	1615	29.694	0.957	2.617	80.4
164	12596	12653	0.345	0.304	10998	1617	29.697	0.953	2.603	81.4
165	12603	12663	0.345	0.305	10994	1629	29.696	0.955	2.609	82.4
166	12583	12633	0.342	0.304	10995	1605	29.699	0.950	2.593	83.4
167	12600	12661	0.343	0.307	11001	1619	29.695	0.956	2.614	84.4
168	12615	12673	0.345	0.306	10999	1634	29.694	0.958	2.617	85.4
169	12609	12663	0.343	0.305	11008	1619	29.697	0.954	2.605	86.4
170	12621	12684	0.345	0.306	11006	1635	29.694	0.958	2.618	87.4
171	12627	12685	0.347	0.305	11006	1640	29.695	0.956	2.611	88.4
172	12617	12671	0.344	0.308	11004	1631	29.692	0.960	2.626	89.4
173	12626	12680	0.345	0.305	11005	1639	29.697	0.954	2.604	90.4
174	12639	12693	0.347	0.305	11013	1644	29.695	0.957	2.612	91.4
175	12639	12697	0.347	0.306	11018	1640	29.693	0.960	2.625	92.4
176	12652	12704	0.346	0.304	11021	1648	29.697	0.954	2.605	93.4
177	12651	12705	0.347	0.306	11018	1650	29.694	0.959	2.620	94.4
178	12652	12706	0.346	0.305	11019	1650	29.695	0.957	2.612	95.4
179	12661	12716	0.347	0.301	11021	1658	29.701	0.949	2.587	96.4
180	12660	12722	0.346	0.303	11030	1650	29.698	0.953	2.599	97.4
181	12657	12711	0.346	0.303	11029	1645	29.699	0.951	2.594	98.4
182	12670	12728	0.347	0.304	11023	1666	29.697	0.955	2.606	99.4
183	12671	12725	0.347	0.305	11031	1658	29.695	0.958	2,616	100.4
184	12673	12724	0.349	0.304	11034	1656	29.696	0.956	2.610	101.4
185	12675	12746	0.348	0.303	11035	1663	29.697	0.954	2.603	102.4
186	12677	12730	0.346	0.306	11033	1661	29.695	0.958	2.616	103.4
187	12674	12722	0.347	0.303	11036	1654	29.698	0.953	2.598	104.4
188	12680	12731	0.347	0.304	11040	1656	29.697	0.955	2.604	105.4
189	12689	12745	0.348	0.305	11038	1669	29.694	0.959	2.617	106.4
190	12686	12733	0.347	0.307	11042	1659	29.692	0.962	2.628	107.4
191	12689	12735	0.349	0.305	11040	1664	29.694	0.959	2.617	108.4
192	12689	12738	0.347	0.305	11047	1657	29.695	0.958	2.614	109.4
193	12690	12732	0.346	0.305	11048	1656	29.696	0.957	2.610	110.4
194	12697	12751	0.348	0.306	11048	1667	29.695	0.959	2.616	111.4
195	12698	12738	0.346	0.306	11047	1664	29.695	0.958	2.613	112.4
196	12705	12760	0.348	0.305	11053	1669	29.695	0.958	2.613	113.4
197	12713	12765	0.347	0.305	11051	1679	29.697	0.956	2.606	114.4
198	12706	12754	0.347	0.306	11056	1666	29.695	0.958	2.614	115.4
199	12713	12767	0.348	0.306	11057	1674	29.694	0.959	2.618	116.4
200	12713	12757	0.347	0.304	11060	1667	29.697	0.955	2.605	117.4

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
201	12725	12787	0.348	0.306	11061	1684	29.693	0.961	2.622	118.4
202	12719	12769	0.348	0.304	11064	1671	29.696	0.957	2.608	119.4
203	12723	12769	0.348	0.305	11066	1672	29.695	0.958	2.613	120.4
204	12723	12774	0.348	0.306	11069	1671	29.694	0.960	2.621	121.4
205	12725	12752	0.344	0.301	11067	1666	29.704	0.946	2.572	122.4
206	12729	12774	0.348	0.305	11067	1677	29.695	0.958	2.614	123.4
207	12727	12767	0.348	0.304	11070	1670	29.696	0.957	2.609	124.4
208	12725	12799	0.347	0.304	11066	1683	29.697	0.956	2.605	125.4
209	12723	12766	0.346	0.306	11069	1668	29.695	0.959	2.615	126.4
210	12725	12769	0.347	0.304	11069	1669	29.697	0.955	2.604	127.4
211	12735	12785	0.348	0.305	11074	1677	29.696	0.958	2.612	128.4
212	12757	12794	0.347	0.304	11075	1694	29.697	0.956	2.604	129.4
213	12742	12793	0.348	0.303	11074	1685	29.698	0.955	2.602	130.4
214	12860	12910	0.354	0.310	11092	1784	29.687	0.973	2.656	131.4
215	12849	12901	0.353	0.309	11099	1767	29.689	0.971	2.648	132.4
216	12859	12900	0.355	0.308	11097	1776	29.689	0.970	2.647	133.4
217	12863	12902	0.354	0.309	11098	1777	29.688	0.972	2.653	134.4
218	12853	12903	0.353	0.311	11100	1770	29.686	0.975	2.661	135.4
219	12851	12891	0.354	0.310	11097	1767	29.687	0.973	2.657	136.4
220	12845	12888	0.353	0.310	11103	1756	29.686	0.974	2.658	137.4
221	12860	12894	0.354	0.310	11105	1766	29.686	0.975	2.662	138.4
222	12860	12903	0.355	0.310	11104	1770	29.686	0.975	2.660	139.4
223	12851	12902	0.354	0.310	11107	1761	29.686	0.974	2.659	140.4
224	12858	12910	0.353	0.310	11105	1770	29.687	0.972	2.653	141.4
225	12855	12902	0.355	0.309	11107	1763	29.688	0.972	2.652	142.4
226	12852	12908	0.353	0.307	11103	1768	29.691	0.967	2.635	143.4
227	12856	12889	0.355	0.309	11108	1758	29.686	0.974	2.658	144.4
228	12868	12917	0.356	0.310	11114	1769	29.686	0.975	2.661	145.4
229	12855	12909	0.357	0.309	11114	1759	29.685	0.975	2.663	146.4
230	12866	12909	0.356	0.309	11112	1768	29.686	0.975	2.661	147.4
231	12857	12915	0.356	0.311	11111	1765	29.684	0.977	2.670	148.4
232	12861	12924	0.357	0.310	11114	1768	29.684	0.978	2.671	149.4
233	12868	12919	0.356	0.310	11116	1768	29.685	0.976	2.665	150.4
234	12867	12913	0.354	0.309	11116	1766	29.688	0.971	2.650	151.4
235	12867	12919	0.353	0.307	11115	1769	29.692	0.966	2.633	152.4
236	12871	12905	0.356	0.308	11122	1760	29.688	0.972	2.652	153.4
237	12859	12907	0.355	0.309	11122	1753	29.686	0.974	2.658	154.4
238	12865	12912	0.357	0.308	11119	1761	29.687	0.972	2.653	155.4
239	12868	12901	0.353	0.310	11118	1760	29.687	0.973	2.655	156.4
240	12858	12893	0.354	0.309	11117	1752	29.687	0.973	2.655	157.4
241	12866	12903	0.356	0.309	11117	1761	29.686	0.974	2.659	158.4
242	12869	12907	0.354	0.309	11121	1761	29.688	0.972	2.653	159.4
243	12862	12908	0.355	0.307	11123	1754	29.689	0.970	2.645	160.4
244	12868	12903	0.354	0.309	11121	1757	29.687	0.973	2.656	161.4
245	12855	12897	0.354	0.311	11119	1749	29.684	0.976	2.667	162.4
246	12862	12896	0.354	0.310	11122	1751	29.686	0.974	2.660	163.4
247	12871	12926	0.355	0.309	11117	1772	29.687	0.973	2.655	164.4
248	12868	12899	0.356	0.311	11121	1756	29.684	0.977	2.669	165.4
249	12927	12963	0.358	0.309	11130	1809	29.686	0.976	2.661	166.4
250	12916	12948	0.354	0.312	11132	1794	29.684	0.978	2.670	167.4

UNIAXIAL STRAIN TEST, SAMPLE #5

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
251	12922	12963	0.356	0.310	11133	1803	29.685	0.977	2.665	168.4
252	12923	12966	0.356	0.310	11134	1803	29.686	0.976	2.661	169.4
253	12840	12872	0.356	0.310	11121	1728	29.685	0.975	2.663	170.4
254	12843	12880	0.354	0.309	11127	1728	29.687	0.972	2.654	171.4
255	12846	12899	0.355	0.311	11128	1736	29.684	0.976	2.667	172.4
256	12835	12881	0.353	0.310	11133	1717	29.686	0.974	2.660	173.4
257	12845	12884	0.355	0.308	11132	1725	29.688	0.971	2.651	174.4
258	12846	12886	0.354	0.308	11129	1730	29.689	0.969	2.645	175.4
259	12832	12872	0.353	0.307	11128	1717	29.691	0.966	2.636	176.4
260	12848	12881	0.352	0.309	11133	1726	29.688	0.971	2.650	177.4
261	12833	12885	0.353	0.310	11134	1715	29.687	0.972	2.655	178.4
262	12844	12885	0.353	0.310	11131	1726	29.687	0.973	2.657	179.4
263	12835	12874	0.352	0.310	11132	1716	29.687	0.972	2.655	180.4
264	12835	12869	0.352	0.309	11131	1715	29.689	0.969	2.644	181.4
265	12836	12876	0.353	0.310	11132	1717	29.687	0.973	2.656	182.4
266	12847	12881	0.354	0.309	11131	1727	29.687	0.973	2.656	183.4
267	12839	12886	0.353	0.308	11133	1721	29.689	0.969	2.643	184.4
268	12847	12889	0.352	0.311	11137	1724	29.686	0.974	2.659	185.4
269	12841	12878	0.353	0.311	11136	1716	29.685	0.974	2.662	186.4
270	12847	12886	0.353	0.309	11141	1719	29.688	0.971	2.651	187.4
271	12846	12890	0.353	0.309	11134	1727	29.687	0.972	2.655	188.4
272	12848	12888	0.351	0.309	11139	1722	29.689	0.969	2.645	189.4
273	12849	12877	0.353	0.312	11142	1716	29.684	0.976	2.667	190.4
274	12852	12900	0.352	0.309	11143	1724	29.689	0.970	2.647	191.4
275	12871	12911	0.354	0.310	11143	1740	29.686	0.975	2.660	192.4
276	12872	12914	0.352	0.308	11144	1741	29.690	0.969	2.642	193.4
277	12872	12906	0.354	0.310	11143	1740	29.687	0.974	2.657	194.4
278	12876	12916	0.353	0.310	11149	1740	29.687	0.973	2.655	195.4
279	12878	12920	0.353	0.312	11150	1742	29.685	0.976	2.666	196.4
280	12925	12963	0.356	0.311	11153	1784	29.685	0.977	2.666	197.4
281	12917	12960	0.355	0.310	11148	1783	29.687	0.974	2.655	198.4
282	12874	12919	0.355	0.311	11155	1734	29.685	0.976	2.667	199.5
283	12869	12910	0.353	0.310	11154	1728	29.687	0.972	2.653	200.4
284	12877	12919	0.353	0.309	11154	1736	29.689	0.971	2.648	201.4
285	12872	12918	0.354	0.308	11153	1734	29.689	0.969	2.644	202.4
286	12857	12917	0.354	0.313	11160	1717	29.682	0.980	2.678	203.4
287	12872	12921	0.354	0.309	11156	1731	29.688	0.972	2.651	204.4
288	12873	12918	0.353	0.311	11157	1731	29.686	0.975	2.660	205.4
289	12878	12914	0.354	0.310	11156	1734	29.686	0.974	2.658	206.4
290	12893	12924	0.354	0.309	11154	1748	29.689	0.971	2.648	207.4
291	12892	12939	0.353	0.311	11157	1750	29.686	0.975	2.662	208.4
292	12907	12947	0.354	0.310	11154	1765	29.687	0.974	2.657	209.4
293	12869	12910	0.354	0.309	11156	1726	29.687	0.973	2.655	210.4
294	12871	12918	0.354	0.310	11155	1731	29.687	0.973	2.656	211.4
295	12869	12918	0.355	0.309	11159	1726	29.687	0.973	2.656	212.4
296	12868	12910	0.353	0.309	11158	1724	29.688	0.972	2.651	213.4
297	12859	12907	0.354	0.309	11160	1714	29.687	0.972	2.654	214.4
298	12857	12902	0.354	0.310	11160	1712	29.686	0.973	2.658	215.4
299	12865	12907	0.353	0.311	11164	1714	29.685	0.975	2.664	216.4
300	12876	12915	0.354	0.310	11166	1722	29.686	0.975	2.662	217.4

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
301	12868	12907	0.355	0.310	11165	1715	29.685	0.976	2.664	218.4
302	12868	12911	0.352	0.310	11163	1718	29.687	0.972	2.653	219.4
303	12873	12909	0.354	0.309	11162	1722	29.688	0.972	2.651	220.4
304	12868	12908	0.355	0.310	11166	1715	29.685	0.975	2.664	221.4
305	12886	12925	0.354	0.308	11163	1735	29.689	0.971	2.648	222.4
306	12885	12933	0.353	0.310	11166	1735	29.688	0.972	2.653	223.4
307	12872	12907	0.353	0.309	11171	1712	29.688	0.971	2.650	224.4
308	12876	12907	0.353	0.310	11165	1722	29.686	0.974	2.658	225.4
309	12878	12917	0.354	0.311	11170	1720	29.685	0.976	2.664	226.4
310	12886	12934	0.353	0.311	11175	1726	29.686	0.975	2.660	227.4
311	12891	12942	0.354	0.308	11174	1733	29.689	0.970	2.646	228.4
312	12881	12923	0.353	0.309	11175	1719	29.688	0.972	2.652	229.4
313	12878	12918	0.353	0.309	11175	1715	29.688	0.971	2.650	230.4
314	12885	12932	0.354	0.309	11174	1727	29.688	0.971	2.649	231.4
315	12902	12942	0.352	0.310	11177	1738	29.688	0.972	2.649	232.4
316	12888	12945	0.355	0.309	11180	1726	29.687	0.973	2.654	233.4
317	12889	12934	0.353	0.310	11175	1729	29.688	0.972	2.652	234.4
318	12889	12937	0.352	0.309	11180	1724	29.690	0.969	2.642	235.5
319	12890	12934	0.354	0.309	11184	1720	29.689	0.971	2.648	236.5
320	12882	12918	0.352	0.307	11180	1713	29.693	0.965	2.628	237.5
321	12898	12941	0.352	0.308	11187	1725	29.690	0.968	2.639	238.4
322	12876	12914	0.352	0.309	11183	1706	29.689	0.970	2.646	239.4
323	12884	12913	0.354	0.310	11183	1710	29.687	0.973	2.655	240.4
324	12875	12905	0.353	0.311	11189	1695	29.686	0.974	2.658	241.4
325	12876	12912	0.353	0.309	11185	1703	29.688	0.971	2.649	242.4
326	12881	12928	0.352	0.310	11189	1707	29.687	0.973	2.655	243.4
327	12879	12920	0.354	0.310	11193	1700	29.687	0.973	2.657	244.4
328	12877	12920	0.353	0.307	11190	1701	29.691	0.967	2.635	245.4
329	12874	12910	0.353	0.310	11188	1698	29.687	0.973	2.655	246.4
330	12868	12901	0.353	0.311	11181	1698	29.685	0.976	2.665	247.4
331	12889	12932	0.353	0.308	11188	1715	29.690	0.969	2.641	248.4
332	12885	12933	0.352	0.307	11190	1710	29.692	0.966	2.634	249.4
333	12888	12932	0.354	0.309	11194	1708	29.688	0.972	2.652	250.4
334	12888	12930	0.355	0.307	11191	1711	29.689	0.970	2.644	251.4
335	12886	12942	0.354	0.308	11191	1713	29.690	0.969	2.642	252.4
336	12898	12947	0.352	0.308	11192	1721	29.690	0.968	2.640	253.4
337	12881	12917	0.359	0.315	11069	1824	29.676	0.989	2.706	254.4
338	12882	12918	0.361	0.314	11070	1824	29.677	0.988	2.703	255.4
339	12906	12951	0.361	0.314	11071	1849	29.677	0.988	2.703	256.4
340	12904	12951	0.361	0.311	11074	1845	29.681	0.983	2.684	257.4
341	12891	12930	0.361	0.313	11076	1827	29.678	0.987	2.698	258.4
342	12893	12945	0.361	0.313	11075	1835	29.677	0.988	2.702	259.4
343	12898	12952	0.361	0.313	11076	1839	29.678	0.987	2.698	260.4
344	12896	12937	0.358	0.312	11076	1834	29.681	0.982	2.682	261.4
345	12890	12942	0.361	0.312	11078	1829	29.679	0.986	2.694	262.4
346	12895	12944	0.359	0.311	11076	1835	29.681	0.982	2.682	263.4
347	12893	12942	0.361	0.311	11083	1826	29.680	0.984	2.688	264.4
348	12899	12947	0.360	0.313	11080	1834	29.678	0.987	2.699	265.4
349	12902	12963	0.362	0.313	11080	1841	29.678	0.987	2.700	266.4
350	12906	12940	0.359	0.316	11079	1838	29.676	0.991	2.710	267.4

UNIAXIAL STRAIN TEST, SAMPLE #5

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
351	12900	12951	0.357	0.309	11175	1742	29.686	0.975	2.662	268.4
352	12907	12952	0.356	0.312	11165	1756	29.682	0.981	2.679	269.4
353	12912	12947	0.357	0.310	11145	1778	29.685	0.977	2.666	270.4
354	12910	12951	0.358	0.310	11150	1773	29.684	0.978	2.669	271.4
355	12898	12936	0.358	0.312	11092	1818	29.680	0.983	2.687	272.4
356	12899	12943	0.361	0.316	11052	1861	29.674	0.993	2.719	273.4
357	12912	12967	0.364	0.316	11014	1916	29.673	0.995	2.725	274.4
358	12906	12940	0.364	0.317	10976	1940	29.671	0.998	2.732	275.4
359	12900	12935	0.365	0.319	10962	1950	29.667	1.003	2.750	276.4
360	12904	12951	0.366	0.318	10936	1983	29.668	1.002	2.746	277.4
361	12916	12958	0.370	0.319	10915	2014	29.665	1.007	2.762	278.4
362	12915	12960	0.369	0.320	10892	2037	29.663	1.009	2.768	279.4
363	12908	12955	0.370	0.320	10887	2036	29.662	1.010	2.772	280.4
364	12924	12968	0.373	0.320	10884	2054	29.661	1.013	2.781	281.4
365	12929	12963	0.370	0.319	10881	2059	29.665	1.007	2.761	282.4
366	12926	12970	0.372	0.320	10878	2062	29.663	1.011	2.772	283.5
367	12934	12976	0.372	0.321	10876	2072	29.661	1.013	2.778	284.4
368	12951	13003	0.371	0.320	10871	2097	29.663	1.010	2.769	285.4
369	12930	12967	0.373	0.322	10870	2072	29.659	1.016	2.791	286.4
370	12939	12981	0.363	0.315	11032	1921	29.675	0.993	2.714	287.4
371	12948	12974	0.361	0.307	11148	1808	29.686	0.976	2.662	289.0
372	12959	13006	0.363	0.310	11143	1831	29.681	0.983	2.683	289.4
373	12945	12984	0.361	0.313	11129	1829	29.678	0.988	2.699	290.4
374	12403	12999	0.402	0.308	10377	2225	29.651	1.017	2.815	291.4
375	12336	13040	0.410	0.310	10221	2349	29.642	1.030	2.858	291.7
376	12232	13043	0.420	0.308	10079	2422	29.636	1.036	2.884	291.9
377	12143	13039	0.428	0.309	9950	2491	29.628	1.046	2.918	292.2
378	12067	13051	0.435	0.310	9824	2571	29.622	1.054	2.949	292.4
379	11914	13011	0.443	0.310	9713	2566	29.613	1.063	2.985	292.7
380	11853	13002	0.448	0.308	9599	2636	29.612	1.064	2.989	292.9
381	11782	13017	0.459	0.307	9490	2703	29.605	1.074	3.023	293.2
382	11692	13044	0.464	0.305	9391	2751	29.604	1.074	3.027	293.4
383	11668	13075	0.473	0.310	9290	2846	29.590	1.093	3.092	293.7
384	11615	13041	0.478	0.307	9242	2847	29.589	1.093	3.094	293.9
385	11637	13061	0.478	0.308	9277	2835	29.589	1.094	3.097	294.2
386	11637	13060	0.477	0.306	9301	2809	29.592	1.089	3.081	294.4
387	11633	13054	0.478	0.307	9313	2793	29.589	1.093	3.092	294.7
388	11638	13066	0.478	0.307	9325	2788	29.590	1.092	3.088	294.9
389	11644	13065	0.478	0.307	9331	2786	29.589	1.093	3.092	295.2
390	11647	13062	0.479	0.308	9336	2782	29.588	1.095	3.101	295.4
391	11652	13074	0.480	0.306	9334	2792	29.591	1.091	3.086	295.7
392	11658	13079	0.480	0.309	9342	2789	29.587	1.097	3.105	295.9
393	11640	13064	0.479	0.303	9345	2768	29.594	1.086	3.070	296.2
394	11655	13076	0.480	0.306	9347	2781	29.590	1.093	3.092	296.4
395	11655	13081	0.482	0.308	9349	2781	29.585	1.099	3.111	296.7
396	11663	13092	0.483	0.307	9349	2790	29.587	1.097	3.104	296.9
397	11612	13032	0.479	0.305	9345	2740	29.592	1.088	3.080	297.2
398	11610	13034	0.481	0.306	9334	2750	29.588	1.093	3.097	297.4
399	11596	13012	0.483	0.306	9328	2739	29.587	1.095	3.101	297.7
400	11624	13053	0.485	0.305	9317	2782	29.587	1.095	3.102	297.9

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
401	11609	13044	0.484	0.307	9306	2781	29.585	1.098	3.112	298.2
402	11616	13053	0.486	0.307	9301	2794	29.585	1.099	3.113	298.4
403	11616	13047	0.485	0.306	9300	2792	29.586	1.098	3.110	298.7
404	11621	13053	0.486	0.308	9293	2805	29.583	1.102	3.123	298.9
405	11618	13048	0.486	0.309	9284	2810	29.581	1.105	3.133	299.2
406	11622	13052	0.487	0.309	9281	2818	29.580	1.105	3.135	299.4
407	11618	13042	0.486	0.310	9279	2814	29.580	1.106	3.136	299.7
408	11625	13050	0.490	0.311	9266	2833	29.576	1.111	3.154	299.9
409	11634	13053	0.488	0.311	9262	2844	29.578	1.109	3.146	300.2
410	11628	13065	0.489	0.310	9256	2850	29.578	1.109	3.147	300.4
411	11644	13082	0.490	0.309	9248	2875	29.578	1.109	3.146	300.7
412	11644	13065	0.490	0.311	9238	2879	29.577	1.112	3.153	300.9
413	11640	13074	0.493	0.311	9233	2884	29.574	1.115	3.164	301.2
414	11637	13071	0.492	0.311	9227	2887	29.575	1.113	3.159	301.4
415	11641	13069	0.494	0.311	9219	2897	29.574	1.116	3.166	301.7
416	11638	13061	0.494	0.311	9215	2897	29.574	1.116	3.167	301.9
417	11631	13061	0.493	0.312	9214	2893	29.572	1.118	3.173	302.2
418	11592	13021	0.492	0.309	9217	2850	29.577	1.110	3.151	302.4
419	11592	13189	0.502	0.306	9219	2905	29.574	1.114	3.164	302.7
420	11440	12825	0.483	0.305	9220	2681	29.587	1.092	3.101	302.9
421	11538	12974	0.492	0.308	9222	2795	29.577	1.108	3.147	303.2
422	11544	13000	0.496	0.306	9221	2808	29.577	1.108	3.147	303.4
423	11560	13016	0.492	0.307	9216	2828	29.579	1.107	3.141	303.7
424	11551	12999	0.493	0.309	9221	2821	29.576	1.110	3.154	303.9
425	11566	13007	0.493	0.308	9220	2826	29.577	1.109	3.150	304.2
426	11567	13018	0.496	0.305	9222	2828	29.579	1.107	3.142	304.4
427	11564	13018	0.493	0.309	9217	2831	29.576	1.111	3.155	304.7
428	11579	13036	0.494	0.307	9221	2843	29.578	1.108	3.144	304.9
429	11574	13027	0.495	0.308	9215	2842	29.576	1.110	3.152	305.2
430	11577	13031	0.494	0.307	9218	2844	29.578	1.109	3.147	305.4
431	11578	13030	0.494	0.309	9213	2849	29.574	1.113	3.162	305.7
432	11572	13013	0.496	0.307	9216	2836	29.576	1.111	3.153	305.9
433	11577	13026	0.497	0.307	9214	2846	29.576	1.111	3.155	306.1
434	11585	13027	0.496	0.308	9214	2851	29.576	1.111	3.155	306.4
435	11592	13066	0.497	0.306	9212	2871	29.578	1.108	3.144	306.6
436	11419	12982	0.503	0.306	9036	2904	29.571	1.115	3.173	306.9
437	11302	13040	0.517	0.305	8838	3042	29.561	1.128	3.219	307.1
438	11183	13043	0.525	0.307	8678	3124	29.552	1.139	3.262	307.4
439	11061	13022	0.533	0.303	8539	3175	29.549	1.140	3.270	307.7
440	10968	13024	0.545	0.304	8410	3243	29.539	1.153	3.315	307.9
441	10875	13015	0.556	0.302	8289	3299	29.533	1.161	3.344	308.2
442	10797	13012	0.566	0.303	8192	3343	29.523	1.173	3.387	308.4
443	10722	13012	0.577	0.302	8093	3392	29.516	1.182	3.420	308.6
444	10663	13023	0.589	0.302	7999	3450	29.508	1.193	3.458	308.9
445	10626	13031	0.599	0.306	7911	3516	29.495	1.210	3.517	309.2
446	10534	13018	0.609	0.301	7819	3542	29.492	1.212	3.527	309.4
447	10520	13065	0.624	0.303	7730	3638	29.480	1.230	3.585	309.6
448	10437	13057	0.637	0.304	7652	3658	29.468	1.245	3.639	309.9
449	10357	13043	0.650	0.300	7564	3688	29.463	1.251	3.661	310.2
450	10298	13039	0.665	0.301	7492	3719	29.451	1.267	3.718	310.4

UNIAXIAL STRAIN TEST. SAMPLE #5

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
451	10249	13034	0.684	0.301	7410	3767	29.437	1.286	3.780	310.6
452	10221	13039	0.696	0.298	7384	3776	29.432	1.292	3.801	310.9
453	10224	13065	0.705	0.301	7407	3764	29.421	1.308	3.854	311.1
454	10230	13074	0.714	0.301	7425	3752	29.415	1.316	3.883	311.4
455	10229	13074	0.719	0.300	7436	3741	29.413	1.319	3.890	311.6
456	10243	13085	0.724	0.301	7444	3746	29.408	1.326	3.914	311.9
457	10232	13057	0.730	0.301	7451	3723	29.403	1.332	3.935	312.1
458	10246	13087	0.733	0.299	7456	3737	29.404	1.331	3.932	312.4
459	10219	13057	0.735	0.299	7455	3709	29.403	1.333	3.938	312.6
460	10216	13000	0.735	0.300	7457	3686	29.401	1.334	3.944	312.9
461	10253	13044	0.738	0.302	7455	3728	29.397	1.342	3.966	313.1
462	10260	13043	0.739	0.300	7447	3740	29.398	1.340	3.959	313.4
463	10268	13068	0.744	0.303	7445	3756	29.391	1.350	3.992	313.6
464	10276	13062	0.747	0.301	7438	3766	29.391	1.350	3.992	313.9
465	10275	13051	0.749	0.304	7434	3767	29.387	1.356	4.012	314.2
466	10275	13063	0.750	0.304	7431	3773	29.385	1.359	4.022	314.4
467	10270	13052	0.752	0.305	7429	3768	29.382	1.363	4.035	314.6
468	10277	13049	0.755	0.304	7424	3776	29.382	1.363	4.035	314.9
469	10281	13077	0.757	0.303	7426	3787	29.382	1.364	4.036	315.2
470	10276	13055	0.760	0.305	7417	3785	29.377	1.370	4.056	315.4
471	10294	13085	0.763	0.306	7416	3807	29.374	1.375	4.073	315.7
472	10285	13066	0.768	0.303	7416	3795	29.375	1.374	4.069	315.9
473	10286	13078	0.768	0.304	7411	3805	29.373	1.376	4.077	316.2
474	10292	13077	0.769	0.308	7409	3811	29.366	1.386	4.111	316.4
475	10298	13079	0.769	0.306	7405	3820	29.369	1.381	4.094	316.6
476	10296	13081	0.772	0.307	7401	3823	29.366	1.386	4.109	316.9
477	10307	13104	0.775	0.307	7396	3842	29.364	1.389	4.118	317.2
478	10306	13082	0.775	0.306	7394	3837	29.365	1.388	4.115	317.4
479	10294	13096	0.776	0.307	7386	3842	29.363	1.390	4.124	317.6
480	10314	13097	0.779	0.307	7387	3854	29.362	1.392	4.127	317.9
481	10315	13104	0.780	0.308	7384	3860	29.360	1.396	4.139	318.1
482	10319	13100	0.782	0.308	7382	3863	29.358	1.398	4.146	318.4
483	10302	13105	0.785	0.308	7379	3858	29.356	1.400	4.156	318.6
484	10322	13109	0.784	0.309	7374	3876	29.356	1.402	4.159	318.9
485	10328	13125	0.789	0.307	7373	3887	29.354	1.404	4.166	319.2
486	10316	13116	0.789	0.308	7372	3877	29.353	1.406	4.172	319.4
487	10327	13111	0.790	0.307	7364	3890	29.354	1.405	4.168	319.7
488	10337	13135	0.792	0.307	7364	3905	29.353	1.405	4.169	319.9
489	10318	13083	0.793	0.308	7365	3874	29.351	1.408	4.180	320.1
490	10335	13130	0.795	0.310	7359	3907	29.346	1.415	4.201	320.4
491	10341	13115	0.796	0.311	7360	3905	29.344	1.419	4.215	320.7
492	10348	13193	0.801	0.310	7355	3941	29.342	1.421	4.222	320.9
493	10216	13202	0.807	0.303	7349	3862	29.346	1.412	4.199	321.1
494	10044	12752	0.782	0.297	7347	3599	29.368	1.377	4.093	321.4
495	10360	13064	0.797	0.310	7343	3918	29.345	1.418	4.210	321.6
496	10132	13031	0.801	0.300	7339	3759	29.352	1.401	4.168	321.9
497	10134	13030	0.802	0.301	7339	3759	29.350	1.404	4.179	322.1
498	10124	13020	0.802	0.301	7339	3750	29.351	1.403	4.175	322.4
499	10140	13025	0.804	0.300	7332	3769	29.351	1.403	4.175	322.6
500	10139	13030	0.805	0.300	7328	3774	29.350	1.405	4.180	322.9

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
501	10143	13039	0.809	0.301	7330	3778	29.346	1.410	4.197	323.1
502	10141	13048	0.810	0.300	7324	3785	29.346	1.411	4.199	323.4
503	10159	13052	0.811	0.300	7321	3802	29.347	1.410	4.194	323.6
504	10149	13047	0.815	0.299	7316	3799	29.344	1.414	4.207	323.9
505	10145	13039	0.814	0.299	7313	3796	29.346	1.412	4.201	324.1
506	10154	13039	0.814	0.301	7313	3803	29.343	1.415	4.213	324.4
507	10152	13034	0.818	0.300	7310	3803	29.341	1.418	4.221	324.6
508	10159	13061	0.817	0.301	7308	3818	29.340	1.419	4.226	324.9
509	10152	13055	0.819	0.301	7305	3814	29.338	1.422	4.234	325.1
510	10181	13081	0.821	0.300	7300	3847	29.340	1.421	4.229	325.4
511	10172	13071	0.822	0.301	7296	3842	29.337	1.425	4.242	325.6
512	10160	13059	0.823	0.304	7299	3827	29.332	1.431	4.263	325.9
513	10174	13075	0.823	0.302	7294	3847	29.336	1.426	4.247	326.1
514	10175	13066	0.826	0.302	7292	3846	29.333	1.430	4.261	326.4
515	10171	13068	0.827	0.303	7288	3849	29.332	1.432	4.266	326.6
516	10192	13110	0.831	0.303	7276	3888	29.328	1.437	4.282	326.9
517	10179	13066	0.828	0.304	7284	3857	29.329	1.436	4.279	327.2
518	10193	13092	0.831	0.302	7282	3877	29.330	1.435	4.274	327.4
519	10191	13068	0.832	0.302	7271	3879	29.330	1.435	4.276	327.6
520	10187	13082	0.832	0.303	7274	3877	29.328	1.438	4.285	327.9
521	10187	13074	0.834	0.303	7272	3877	29.326	1.440	4.291	328.1
522	10190	13080	0.836	0.303	7268	3885	29.324	1.443	4.301	328.4
523	10189	13079	0.838	0.303	7261	3891	29.323	1.445	4.308	328.6
524	10168	13061	0.838	0.303	7260	3872	29.324	1.443	4.303	328.9
525	10173	13059	0.839	0.306	7258	3876	29.318	1.451	4.329	329.2
526	10195	13088	0.841	0.302	7254	3905	29.322	1.446	4.311	329.4
527	10182	13092	0.842	0.302	7248	3904	29.322	1.445	4.310	329.6
528	10186	13089	0.842	0.302	7247	3907	29.322	1.446	4.310	329.9
529	10190	13076	0.844	0.304	7247	3904	29.319	1.451	4.327	330.2
530	10187	13090	0.845	0.303	7246	3908	29.319	1.450	4.326	330.4
531	10199	13091	0.846	0.303	7241	3921	29.318	1.452	4.330	330.6
532	10208	13104	0.848	0.304	7239	3933	29.315	1.457	4.345	330.9
533	10207	13101	0.849	0.304	7236	3936	29.314	1.457	4.347	331.1
534	10201	13092	0.850	0.303	7233	3931	29.315	1.457	4.346	331.4
535	10204	13107	0.851	0.305	7232	3939	29.312	1.461	4.360	331.6
536	10215	13110	0.852	0.303	7226	3953	29.315	1.457	4.346	331.9
537	10206	13087	0.852	0.304	7224	3942	29.312	1.461	4.359	332.1
538	10214	13119	0.854	0.304	7223	3959	29.310	1.463	4.366	332.4
539	10204	13081	0.856	0.303	7220	3942	29.310	1.463	4.365	332.7
540	10198	13104	0.857	0.306	7220	3946	29.306	1.469	4.387	332.9
541	10225	13117	0.858	0.305	7215	3974	29.307	1.468	4.382	333.1
542	10212	13096	0.858	0.307	7214	3959	29.305	1.471	4.392	333.4
543	10227	13115	0.860	0.306	7209	3980	29.305	1.472	4.393	333.6
544	10224	13113	0.861	0.306	7205	3982	29.303	1.474	4.401	333.9
545	10217	13104	0.862	0.305	7203	3976	29.304	1.472	4.394	334.2
546	10217	13107	0.863	0.308	7203	3977	29.299	1.479	4.417	334.4
547	10214	13111	0.863	0.307	7198	3982	29.300	1.478	4.414	334.6
548	10214	13112	0.864	0.308	7199	3980	29.299	1.479	4.418	334.9
549	10231	13113	0.866	0.307	7190	4001	29.299	1.479	4.418	335.1
550	10220	13104	0.868	0.305	7193	3988	29.300	1.478	4.415	335.4

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
551	10220	13115	0.869	0.307	7186	4003	29.296	1.484	4.434	335.6
552	10220	13118	0.870	0.307	7182	4003	29.296	1.484	4.435	335.9
553	10232	13116	0.871	0.308	7180	4013	29.294	1.487	4.444	336.1
554	10232	13126	0.871	0.308	7175	4021	29.294	1.487	4.443	336.4
555	10220	13122	0.872	0.307	7174	4013	29.294	1.486	4.442	336.6
556	10231	13129	0.874	0.309	7171	4025	29.290	1.492	4.459	336.9
557	10241	13113	0.872	0.304	7167	4030	29.300	1.479	4.416	337.2
558	10237	13131	0.877	0.310	7166	4035	29.287	1.497	4.477	337.4
559	10236	13130	0.876	0.307	7163	4037	29.292	1.490	4.453	337.6
560	10236	13139	0.876	0.307	7157	4046	29.291	1.491	4.455	337.9
561	10227	13128	0.877	0.306	7161	4032	29.292	1.489	4.449	338.1
562	10234	13129	0.878	0.308	7159	4040	29.289	1.494	4.465	338.4
563	10226	13118	0.878	0.307	7157	4032	29.290	1.492	4.459	338.6
564	10239	13133	0.881	0.306	7163	4041	29.290	1.493	4.461	338.9
565	10231	13124	0.880	0.309	7165	4030	29.286	1.498	4.478	339.1
566	10239	13130	0.881	0.308	7163	4039	29.286	1.498	4.477	339.4
567	10236	13121	0.881	0.308	7160	4037	29.287	1.496	4.473	339.6
568	10083	13037	0.881	0.303	7161	3906	29.292	1.486	4.450	339.9
569	9934	13093	0.895	0.296	6995	3992	29.290	1.486	4.453	340.1
570	9862	13068	0.910	0.297	6873	4057	29.276	1.505	4.520	340.4
571	9781	13060	0.930	0.300	6765	4108	29.257	1.530	4.604	340.6
572	9711	13045	0.955	0.296	6674	4148	29.243	1.548	4.667	340.9
573	9683	13031	0.992	0.298	6594	4205	29.214	1.589	4.801	341.1
574	9664	13042	1.057	0.298	6513	4276	29.167	1.654	5.018	341.4
575	9768	13207	1.978	0.306	6442	4472	28.488	2.591	8.112	341.6
576	9602	13107	2.045	0.299	6374	4396	28.447	2.643	8.295	341.9
577	9525	13124	2.102	0.294	6305	4419	28.411	2.690	8.454	342.1
578	9421	13034	2.139	0.294	6244	4381	28.383	2.727	8.581	342.4
579	9385	13034	2.172	0.292	6181	4419	28.361	2.755	8.676	342.6
580	9408	13040	2.204	0.291	6132	4487	28.340	2.785	8.772	342.9
581	9346	13036	2.230	0.295	6069	4507	28.313	2.821	8.892	343.1
582	9333	13031	2.258	0.296	6019	4546	28.291	2.851	8.993	343.4
583	9279	13038	2.294	0.296	5969	4562	28.264	2.886	9.111	343.6
584	9259	13027	2.321	0.296	5926	4588	28.243	2.914	9.205	343.9
585	9176	13012	2.368	0.291	5880	4574	28.215	2.950	9.328	344.1
586	9140	13020	2.413	0.293	5836	4597	28.178	3.000	9.495	344.4
587	9164	13037	2.456	0.296	5796	4658	28.143	3.049	9.653	344.6
588	9117	13030	2.509	0.294	5756	4665	28.106	3.097	9.816	344.9
589	9089	13022	2.561	0.293	5722	4678	28.068	3.148	9.984	345.1
590	9116	13044	2.604	0.294	5693	4732	28.036	3.193	10.130	345.4
591	9074	13005	2.632	0.295	5670	4714	28.013	3.223	10.232	345.6
592	9084	13063	2.644	0.295	5643	4767	28.005	3.233	10.266	345.9
593	9073	13046	2.650	0.294	5618	4779	28.001	3.239	10.285	346.1
594	9010	13069	2.654	0.294	5595	4767	27.997	3.243	10.301	346.4
595	8992	13048	2.656	0.293	5567	4776	27.997	3.242	10.299	346.6
596	8985	13045	2.660	0.294	5543	4795	27.994	3.247	10.316	346.9
597	8989	13038	2.659	0.294	5557	4782	27.994	3.247	10.316	347.1
598	8999	13058	2.659	0.292	5563	4789	27.997	3.243	10.302	347.4
599	8999	13057	2.661	0.294	5572	4779	27.993	3.249	10.321	347.6
600	9001	13055	2.662	0.294	5572	4779	27.991	3.251	10.328	347.9

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
601	8995	13038	2.660	0.294	5576	4766	27.992	3.249	10.323	348.1
602	9009	13068	2.660	0.295	5579	4783	27.991	3.250	10.326	348.4
603	8998	13043	2.661	0.294	5580	4766	27.992	3.249	10.322	348.6
604	9022	13080	2.661	0.293	5574	4800	27.993	3.248	10.317	348.9
605	9022	13076	2.662	0.297	5574	4799	27.988	3.255	10.341	349.1
606	9027	13081	2.661	0.293	5571	4807	27.994	3.247	10.315	349.4
607	9025	13069	2.663	0.296	5571	4802	27.988	3.255	10.340	349.6
608	9030	13083	2.663	0.294	5573	4808	27.991	3.251	10.326	349.9
609	9021	13075	2.662	0.295	5573	4799	27.990	3.253	10.333	350.1
610	9016	13066	2.663	0.297	5571	4795	27.987	3.256	10.344	350.4
611	9025	13091	2.663	0.299	5576	4805	27.983	3.262	10.363	350.6
612	9024	13069	2.664	0.297	5570	4802	27.986	3.258	10.350	350.9
613	9035	13092	2.663	0.297	5568	4819	27.986	3.258	10.350	351.1
614	9036	13082	2.667	0.296	5566	4818	27.986	3.258	10.351	351.4
615	9030	13080	2.665	0.298	5566	4814	27.984	3.261	10.359	351.6
616	9047	13103	2.664	0.297	5564	4835	27.986	3.258	10.351	351.9
617	9037	13093	2.666	0.298	5564	4824	27.984	3.261	10.360	352.1
618	9035	13077	2.666	0.297	5563	4819	27.984	3.261	10.359	352.4
619	9046	13099	2.667	0.297	5564	4833	27.984	3.261	10.359	352.6
620	9040	13092	2.667	0.297	5558	4832	27.984	3.261	10.359	352.9
621	9050	13098	2.667	0.297	5561	4838	27.984	3.261	10.358	353.1
622	9040	13087	2.667	0.298	5558	4830	27.982	3.264	10.368	353.4
623	9052	13108	2.668	0.298	5557	4847	27.982	3.265	10.370	353.6
624	9047	13101	2.669	0.296	5554	4844	27.984	3.261	10.359	353.9
625	9045	13102	2.668	0.297	5558	4839	27.982	3.263	10.366	354.1
626	9058	13125	2.668	0.299	5556	4858	27.981	3.266	10.375	354.4
627	9063	13123	2.667	0.297	5550	4865	27.985	3.260	10.356	354.6
628	9053	13105	2.669	0.299	5552	4850	27.979	3.268	10.381	354.9
629	9058	13115	2.670	0.300	5551	4859	27.978	3.269	10.385	355.1
630	9051	13099	2.669	0.300	5550	4850	27.979	3.269	10.384	355.4
631	9065	13116	2.669	0.297	5549	4866	27.982	3.264	10.368	355.6
632	9057	13103	2.669	0.299	5548	4858	27.980	3.267	10.378	355.9
633	9063	13120	2.669	0.299	5544	4870	27.980	3.268	10.379	356.1
634	9072	13131	2.670	0.298	5542	4883	27.981	3.266	10.373	356.4
635	9079	13113	2.670	0.300	5547	4876	27.978	3.270	10.385	356.6
636	9061	13115	2.669	0.298	5541	4871	27.982	3.264	10.368	356.9
637	9066	13118	2.671	0.299	5540	4876	27.979	3.268	10.380	357.1
638	9071	13117	2.671	0.298	5539	4880	27.980	3.267	10.377	357.4
639	9071	13125	2.669	0.299	5539	4883	27.980	3.267	10.378	357.6
640	9075	13123	2.671	0.299	5541	4883	27.979	3.269	10.384	357.9
641	9071	13120	2.671	0.301	5537	4883	27.976	3.273	10.396	358.1
642	9069	13120	2.670	0.300	5535	4884	27.978	3.270	10.386	358.4
643	9080	13131	2.673	0.301	5535	4895	27.975	3.274	10.400	358.6
644	9078	13133	2.673	0.300	5531	4898	27.976	3.273	10.396	358.9
645	9068	13115	2.671	0.301	5533	4884	27.976	3.273	10.395	359.1
646	9084	13153	2.672	0.299	5533	4907	27.978	3.270	10.387	359.4
647	9076	13134	2.674	0.299	5530	4898	27.977	3.271	10.390	359.6
648	9082	13127	2.675	0.299	5526	4904	27.976	3.273	10.397	359.9
649	9078	13148	2.673	0.302	5530	4904	27.974	3.276	10.407	360.1
650	9077	13119	2.673	0.302	5525	4899	27.973	3.277	10.409	360.4

UNIAXIAL STRAIN TEST. SAMPLE #5

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
651	9079	13126	2.675	0.301	5523	4904	27.974	3.276	10.405	360.6
652	9076	13124	2.675	0.301	5524	4901	27.973	3.277	10.408	360.9
653	9087	13136	2.675	0.301	5525	4911	27.974	3.276	10.405	361.1
654	9084	13138	2.676	0.301	5521	4913	27.972	3.279	10.415	361.4
655	9080	13128	2.676	0.302	5519	4909	27.971	3.280	10.419	361.6
656	9084	13128	2.678	0.303	5521	4910	27.969	3.283	10.430	361.9
657	9082	13125	2.678	0.300	5519	4910	27.972	3.278	10.413	362.1
658	9083	13127	2.677	0.301	5517	4913	27.973	3.278	10.412	362.4
659	9079	13140	2.677	0.302	5516	4916	27.970	3.281	10.423	362.6
660	9081	13142	2.677	0.302	5514	4921	27.970	3.281	10.422	362.9
661	9090	13139	2.679	0.301	5516	4923	27.971	3.280	10.418	363.1
662	9086	13133	2.679	0.302	5514	4920	27.969	3.282	10.426	363.4
663	9088	13147	2.676	0.299	5510	4930	27.975	3.275	10.403	363.6
664	9077	13125	2.678	0.302	5512	4914	27.969	3.282	10.426	363.9
665	9075	13123	2.678	0.303	5513	4910	27.968	3.284	10.432	364.1
666	9087	13143	2.679	0.302	5508	4931	27.968	3.284	10.431	364.4
667	9078	13131	2.679	0.303	5509	4919	27.967	3.285	10.435	364.6
668	9083	13141	2.679	0.303	5511	4924	27.967	3.285	10.435	364.9
669	9084	13126	2.680	0.302	5506	4925	27.968	3.283	10.430	365.1
670	9087	13140	2.680	0.303	5507	4931	27.967	3.285	10.436	365.4
671	9088	13138	2.680	0.302	5505	4933	27.968	3.284	10.431	365.6
672	9089	13144	2.680	0.302	5505	4935	27.969	3.283	10.430	365.9
673	9089	13138	2.680	0.302	5505	4933	27.968	3.284	10.431	366.1
674	9082	13142	2.681	0.301	5503	4932	27.968	3.284	10.431	366.4
675	9089	13135	2.681	0.302	5503	4934	27.967	3.285	10.436	366.6
676	9083	13136	2.680	0.304	5501	4933	27.965	3.288	10.443	366.9
677	9098	13149	2.682	0.303	5499	4949	27.965	3.288	10.445	367.1
678	9092	13144	2.682	0.303	5499	4943	27.965	3.288	10.445	367.4
679	9095	13152	2.681	0.303	5495	4952	27.966	3.287	10.441	367.6
680	9089	13134	2.682	0.304	5498	4938	27.964	3.289	10.449	367.9
681	9110	13150	2.683	0.304	5496	4961	27.964	3.290	10.450	368.1
682	9086	13144	2.682	0.303	5494	4944	27.965	3.289	10.448	368.4
683	9088	13137	2.681	0.304	5495	4942	27.964	3.290	10.452	368.6
684	9084	13129	2.683	0.303	5499	4933	27.964	3.290	10.451	368.9
685	8910	13029	2.674	0.295	5495	4787	27.979	3.265	10.378	369.1
686	9035	13040	2.662	0.294	5708	4662	27.992	3.249	10.323	369.4
687	9160	13052	2.656	0.295	5906	4551	27.996	3.245	10.306	369.6
688	9300	13049	2.654	0.296	6066	4483	27.998	3.245	10.301	369.9
689	9398	13018	2.644	0.296	6230	4374	28.006	3.236	10.267	370.1
690	9483	13071	2.636	0.298	6376	4303	28.012	3.228	10.237	370.4
691	9623	13027	2.635	0.299	6506	4251	28.011	3.233	10.248	370.6
692	9680	13054	2.630	0.298	6618	4186	28.016	3.226	10.225	370.9
693	9772	13078	2.626	0.299	6738	4136	28.019	3.223	10.211	371.1
694	9848	13066	2.621	0.299	6856	4064	28.023	3.218	10.194	371.4
695	9921	13082	2.615	0.301	6980	3994	28.025	3.218	10.189	371.6
696	10004	13075	2.602	0.299	7106	3921	28.039	3.200	10.127	371.9
697	10054	13049	2.582	0.298	7230	3822	28.055	3.178	10.056	372.1
698	10127	13026	2.556	0.299	7348	3745	28.074	3.154	9.973	372.4
699	10178	13036	2.538	0.300	7376	3755	28.086	3.139	9.920	372.6
700	10184	13036	2.539	0.302	7336	3797	28.083	3.143	9.932	372.9

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
701	10182	13031	2.540	0.302	7308	3823	28.083	3.143	9.932	373.1
702	10181	13034	2.539	0.303	7296	3836	28.082	3.145	9.937	373.4
703	10180	13025	2.540	0.303	7287	3842	28.081	3.146	9.940	373.6
704	10172	13022	2.538	0.303	7274	3848	28.082	3.145	9.938	373.9
705	10168	13021	2.538	0.303	7275	3843	28.082	3.144	9.937	374.1
706	10169	13022	2.538	0.302	7266	3854	28.084	3.142	9.929	374.4
707	10172	13024	2.538	0.304	7264	3859	28.081	3.146	9.941	374.6
708	10170	13015	2.538	0.305	7257	3861	28.080	3.148	9.948	374.9
709	10172	13034	2.539	0.305	7255	3870	28.079	3.149	9.950	375.1
710	10158	13016	2.537	0.306	7254	3857	28.078	3.150	9.955	375.4
711	10163	13010	2.537	0.303	7248	3863	28.083	3.143	9.934	375.6
712	10169	13018	2.537	0.306	7242	3876	28.079	3.148	9.949	375.9
713	10167	13013	2.537	0.304	7241	3874	28.082	3.145	9.939	376.1
714	10158	13008	2.537	0.307	7239	3869	28.078	3.150	9.955	376.4
715	10161	13011	2.536	0.305	7234	3876	28.080	3.147	9.944	376.6
716	10161	13009	2.535	0.305	7228	3882	28.081	3.146	9.941	376.9
717	10155	13012	2.536	0.304	7227	3879	28.082	3.145	9.937	377.1
718	10176	13034	2.536	0.303	7223	3905	28.084	3.142	9.928	377.4
719	10165	13009	2.538	0.305	7221	3892	28.080	3.147	9.945	377.6
720	10162	12995	2.536	0.306	7218	3888	28.079	3.149	9.950	377.9
721	10177	13018	2.537	0.307	7215	3909	28.078	3.150	9.955	378.1
722	10153	13010	2.536	0.305	7211	3894	28.081	3.146	9.942	378.4
723	10158	13003	2.536	0.305	7208	3898	28.081	3.146	9.942	378.6
724	10155	12998	2.537	0.305	7205	3897	28.080	3.148	9.948	378.9
725	10149	12998	2.536	0.306	7201	3897	28.079	3.148	9.950	379.1
726	10153	13001	2.536	0.305	7200	3902	28.081	3.146	9.943	379.4
727	10153	12999	2.536	0.305	7197	3904	28.081	3.147	9.944	379.6
728	10157	13010	2.536	0.306	7194	3914	28.079	3.148	9.949	379.9
729	10159	13008	2.537	0.305	7191	3918	28.080	3.147	9.945	380.1
730	10159	13014	2.535	0.307	7187	3923	28.078	3.150	9.954	380.4
731	10145	12989	2.537	0.303	7185	3908	28.084	3.142	9.928	380.6
732	10139	12976	2.535	0.305	7188	3895	28.082	3.145	9.939	380.9
733	10155	13004	2.536	0.307	7177	3926	28.079	3.150	9.953	381.1
734	10153	12991	2.536	0.307	7179	3920	28.079	3.149	9.951	381.4
735	10154	13002	2.537	0.305	7175	3928	28.080	3.147	9.945	381.6
736	10153	13010	2.537	0.306	7169	3936	28.079	3.149	9.951	381.9
737	10137	12990	2.535	0.308	7171	3917	28.077	3.151	9.960	382.1
738	10153	13008	2.537	0.306	7167	3938	28.080	3.148	9.948	382.4
739	10146	12996	2.536	0.306	7164	3931	28.079	3.149	9.950	382.6
740	10148	13004	2.537	0.305	7160	3940	28.080	3.147	9.945	382.9
741	10150	12999	2.536	0.306	7159	3940	28.080	3.148	9.948	383.1
742	10145	12981	2.536	0.308	7153	3937	28.077	3.152	9.961	383.4
743	10151	13007	2.536	0.306	7156	3946	28.080	3.147	9.945	383.6
744	10156	12998	2.536	0.306	7154	3949	28.081	3.147	9.943	383.9
745	10145	12999	2.537	0.307	7151	3945	28.077	3.151	9.958	384.1
746	10142	12993	2.536	0.306	7147	3945	28.080	3.148	9.946	384.4
747	10152	13006	2.535	0.306	7143	3960	28.081	3.147	9.942	384.6
748	10159	13023	2.535	0.305	7144	3969	28.082	3.146	9.940	384.9
749	10140	12994	2.537	0.305	7140	3951	28.080	3.147	9.945	385.1
750	10143	12989	2.537	0.304	7138	3953	28.081	3.146	9.940	385.4

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
751	10141	12997	2.536	0.307	7137	3956	28.078	3.151	9.957	385.6
752	10142	12997	2.536	0.306	7133	3960	28.080	3.148	9.946	385.9
753	10150	12995	2.536	0.307	7129	3969	28.079	3.149	9.950	386.1
754	10146	12997	2.537	0.306	7131	3965	28.078	3.150	9.954	386.4
755	10152	13006	2.535	0.306	7127	3976	28.080	3.148	9.946	386.6
756	10148	13006	2.536	0.307	7127	3973	28.078	3.151	9.956	386.9
757	10138	12991	2.535	0.308	7123	3965	28.078	3.150	9.955	387.1
758	10141	12995	2.536	0.307	7121	3971	28.079	3.150	9.953	387.4
759	10144	12992	2.537	0.307	7119	3974	28.078	3.150	9.954	387.6
760	10145	12991	2.536	0.307	7115	3978	28.079	3.149	9.951	387.9
761	10135	12991	2.536	0.308	7112	3975	28.076	3.153	9.963	388.1
762	10132	12984	2.537	0.306	7111	3971	28.078	3.150	9.953	388.4
763	10135	13004	2.535	0.307	7109	3982	28.079	3.148	9.949	388.6
764	10138	12989	2.537	0.305	7108	3979	28.081	3.146	9.942	388.9
765	10136	12994	2.536	0.307	7103	3985	28.079	3.149	9.950	389.1
766	10137	12982	2.536	0.304	7104	3981	28.083	3.144	9.935	389.4
767	10137	12992	2.537	0.306	7106	3982	28.080	3.148	9.946	389.6
768	10133	12993	2.536	0.307	7102	3984	28.078	3.150	9.954	389.9
769	10137	12988	2.538	0.307	7102	3985	28.078	3.151	9.957	390.1
770	10139	12991	2.536	0.305	7098	3992	28.081	3.146	9.942	390.4
771	10129	12989	2.536	0.307	7096	3986	28.077	3.151	9.958	390.6
772	10135	12981	2.536	0.307	7094	3989	28.079	3.149	9.952	390.9
773	10140	13001	2.536	0.306	7092	4001	28.079	3.149	9.949	391.1
774	10138	12980	2.537	0.304	7093	3992	28.081	3.146	9.940	391.4
775	10137	12978	2.537	0.307	7088	3996	28.078	3.150	9.954	391.6
776	10132	12975	2.535	0.306	7090	3989	28.080	3.147	9.946	391.9
777	10117	12966	2.536	0.308	7089	3977	28.077	3.151	9.960	392.1
778	10129	12986	2.536	0.306	7083	3996	28.079	3.149	9.951	392.4
779	10130	12982	2.537	0.306	7083	3997	28.080	3.148	9.948	392.6
780	10126	12983	2.536	0.305	7084	3993	28.081	3.146	9.943	392.9
781	10126	12974	2.537	0.307	7081	3994	28.077	3.151	9.959	393.1
782	10127	12980	2.537	0.308	7086	3992	28.076	3.153	9.964	393.4
783	10125	12975	2.537	0.305	7079	3995	28.080	3.148	9.947	393.6
784	10121	12975	2.535	0.308	7078	3994	28.076	3.152	9.963	393.9
785	10127	12980	2.535	0.307	7076	4002	28.079	3.149	9.950	394.1
786	10138	12976	2.536	0.307	7079	4005	28.079	3.149	9.950	394.4
787	10123	12974	2.536	0.306	7075	3997	28.079	3.149	9.952	394.6
788	10122	12974	2.536	0.307	7076	3996	28.079	3.149	9.950	394.9
789	10124	12978	2.536	0.307	7073	4001	28.078	3.150	9.954	395.1
790	10122	12977	2.536	0.307	7072	4001	28.079	3.149	9.952	395.4
791	10120	12970	2.536	0.306	7072	3998	28.079	3.149	9.951	395.6
792	10123	12974	2.535	0.307	7069	4004	28.078	3.150	9.954	395.9
793	10134	12990	2.536	0.306	7067	4019	28.080	3.148	9.946	396.1
794	10131	12980	2.537	0.307	7070	4010	28.077	3.152	9.961	396.4
795	10131	12983	2.537	0.308	7066	4015	28.077	3.152	9.961	396.6
796	10125	12976	2.536	0.307	7063	4012	28.078	3.151	9.957	396.9
797	10116	12967	2.536	0.307	7064	4002	28.077	3.151	9.958	397.1
798	10124	12977	2.537	0.308	7067	4008	28.076	3.153	9.966	397.4
799	10116	12979	2.536	0.308	7063	4007	28.077	3.152	9.960	397.6
800	10126	12982	2.537	0.308	7060	4018	28.076	3.153	9.965	397.9

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
801	10116	12974	2.536	0.307	7058	4010	28.078	3.150	9.953	398.1
802	10122	12978	2.535	0.309	7056	4017	28.076	3.154	9.966	398.4
803	10119	12979	2.535	0.309	7054	4018	28.076	3.153	9.964	398.6
804	10119	12975	2.536	0.308	7055	4015	28.076	3.153	9.964	398.9
805	10120	12972	2.536	0.308	7057	4013	28.076	3.153	9.963	399.1
806	10126	12976	2.536	0.307	7054	4021	28.078	3.151	9.956	399.4
807	10119	12967	2.537	0.307	7055	4013	28.078	3.151	9.957	399.6
808	10128	12962	2.536	0.307	7056	4016	28.079	3.149	9.950	399.9
809	10122	12973	2.537	0.308	7054	4018	28.075	3.154	9.967	400.1
810	10121	12970	2.536	0.310	7054	4016	28.074	3.156	9.974	400.4
811	10131	12985	2.537	0.307	7050	4032	28.077	3.151	9.958	400.6
812	10123	12982	2.536	0.306	7049	4027	28.079	3.149	9.950	400.9
813	10128	12981	2.536	0.308	7048	4031	28.077	3.151	9.958	401.1
814	10124	12973	2.537	0.307	7049	4024	28.078	3.151	9.956	401.4
815	10122	12974	2.538	0.307	7042	4030	28.077	3.152	9.960	401.6
816	10121	12969	2.536	0.308	7045	4025	28.077	3.152	9.961	401.9
817	10122	12971	2.536	0.308	7041	4030	28.077	3.152	9.961	402.1
818	10122	12967	2.537	0.309	7038	4032	28.075	3.155	9.971	402.4
819	10119	12970	2.537	0.309	7043	4026	28.075	3.154	9.968	402.6
820	10118	12966	2.536	0.309	7044	4022	28.075	3.154	9.968	402.9
821	10126	12982	2.537	0.308	7039	4038	28.076	3.153	9.964	403.1
822	10128	12971	2.535	0.308	7039	4036	28.077	3.151	9.958	403.4
823	10128	12983	2.537	0.308	7036	4043	28.076	3.153	9.964	403.6
824	10115	12963	2.535	0.310	7035	4030	28.074	3.156	9.974	403.9
825	10120	12967	2.537	0.309	7035	4034	28.075	3.155	9.969	404.1
826	10123	12976	2.537	0.308	7039	4034	28.076	3.153	9.965	404.4
827	10117	12976	2.536	0.308	7031	4039	28.076	3.153	9.964	404.6
828	10123	12976	2.537	0.310	7034	4039	28.074	3.156	9.975	404.9
829	10116	12976	2.536	0.305	7155	3914	28.080	3.147	9.945	405.1
830	10126	12983	2.537	0.297	7320	3758	28.091	3.130	9.894	405.4
831	10212	13016	2.527	0.300	7464	3682	28.095	3.127	9.879	405.6
832	10214	13029	2.528	0.295	7555	3597	28.101	3.117	9.850	405.9
833	10660	13051	2.401	0.316	7684	3773	28.171	3.033	9.546	406.1
834	10357	13007	2.472	0.297	7760	3479	28.140	3.067	9.677	406.4
835	10499	13030	2.439	0.303	7874	3469	28.159	3.044	9.597	406.6
836	10556	13035	2.425	0.301	7948	3434	28.173	3.027	9.536	406.9
837	10543	12949	2.407	0.296	8037	3307	28.193	2.998	9.444	407.1
838	10649	13019	2.391	0.299	8135	3303	28.202	2.988	9.407	407.4
839	10639	12927	2.368	0.297	8216	3185	28.221	2.962	9.321	407.6
840	10732	13019	2.368	0.298	8285	3208	28.222	2.963	9.320	407.9
841	10833	13049	2.353	0.303	8369	3202	28.226	2.958	9.301	408.1
842	10785	13028	2.355	0.296	8438	3093	28.233	2.948	9.269	408.4
843	10925	13100	2.346	0.301	8506	3144	28.235	2.948	9.263	408.6
844	10925	13041	2.337	0.297	8552	3078	28.246	2.932	9.211	408.9
845	10981	12978	2.313	0.303	8626	3020	28.256	2.920	9.169	409.1
846	11030	13077	2.318	0.302	8705	3006	28.255	2.922	9.173	409.4
847	11108	13019	2.296	0.305	8764	2981	28.268	2.906	9.117	409.6
848	11156	13066	2.295	0.303	8822	2970	28.273	2.900	9.097	409.9
849	11258	13113	2.287	0.306	8903	2972	28.274	2.900	9.092	410.1
850	11157	13007	2.280	0.298	8984	2789	28.289	2.877	9.022	410.4

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
851	11251	13041	2.270	0.301	9055	2792	28.293	2.873	9.006	410.6
852	11303	13062	2.261	0.302	9115	2773	28.299	2.866	8.980	410.9
853	11254	13003	2.258	0.299	9194	2642	28.305	2.855	8.949	411.1
854	11423	13076	2.247	0.306	9277	2697	28.306	2.858	8.950	411.4
855	11381	13037	2.246	0.302	9239	2693	28.312	2.849	8.923	411.6
856	11380	13051	2.246	0.304	9219	2717	28.309	2.854	8.937	411.9
857	11372	13044	2.247	0.302	9205	2723	28.310	2.852	8.932	412.1
858	11383	13042	2.247	0.303	9196	2739	28.307	2.857	8.947	412.4
859	11375	13039	2.247	0.303	9186	2744	28.309	2.853	8.935	412.6
860	11379	13031	2.246	0.305	9176	2753	28.306	2.857	8.948	412.9
861	11387	13043	2.248	0.306	9167	2771	28.305	2.859	8.954	413.1
862	11377	13042	2.250	0.306	9159	2773	28.303	2.862	8.963	413.4
863	11376	13037	2.249	0.306	9154	2776	28.304	2.860	8.958	413.6
864	11376	13043	2.249	0.305	9150	2781	28.305	2.860	8.956	413.9
865	11376	13041	2.248	0.305	9143	2788	28.306	2.858	8.949	414.1
866	11362	13016	2.248	0.306	9140	2772	28.304	2.861	8.960	414.4
867	11373	13046	2.250	0.306	9131	2799	28.302	2.863	8.967	414.6
868	11371	13042	2.250	0.305	9132	2796	28.304	2.861	8.959	414.9
869	11375	13035	2.248	0.304	9126	2802	28.308	2.856	8.944	415.1
870	11365	13029	2.250	0.306	9124	2795	28.304	2.861	8.959	415.4
871	11359	13016	2.248	0.307	9121	2790	28.303	2.861	8.962	415.6
872	11365	13026	2.250	0.305	9120	2799	28.304	2.861	8.960	415.9
873	11357	13015	2.248	0.307	9114	2795	28.303	2.862	8.964	416.1
874	11359	13024	2.249	0.306	9109	2804	28.304	2.860	8.958	416.4
875	11359	13009	2.249	0.307	9113	2796	28.302	2.864	8.970	416.6
876	11362	13028	2.248	0.306	9109	2808	28.304	2.860	8.958	416.9
877	11361	13020	2.249	0.306	9109	2805	28.304	2.861	8.960	417.1
878	11355	13032	2.249	0.305	9105	2809	28.305	2.859	8.953	417.4
879	11357	13015	2.250	0.306	9105	2804	28.304	2.861	8.961	417.6
880	11356	13027	2.249	0.304	9104	2809	28.306	2.858	8.950	417.9
881	11347	13010	2.248	0.308	9102	2799	28.301	2.864	8.971	418.1
882	11352	13011	2.248	0.306	9101	2803	28.305	2.859	8.955	418.4
883	11356	13018	2.249	0.305	9097	2812	28.305	2.859	8.954	418.6
884	11351	13005	2.247	0.305	9095	2807	28.306	2.857	8.948	418.9
885	11362	13017	2.248	0.307	9093	2820	28.303	2.862	8.964	419.1
886	11359	13014	2.247	0.307	9092	2818	28.303	2.862	8.964	419.4
887	11360	13021	2.248	0.306	9090	2823	28.304	2.861	8.959	419.6
888	11354	13014	2.249	0.305	9090	2817	28.304	2.860	8.957	419.9
889	11354	13008	2.250	0.307	9084	2821	28.302	2.863	8.968	420.1
890	11354	13008	2.249	0.307	9087	2818	28.303	2.863	8.966	420.4
891	11345	13007	2.248	0.305	9084	2814	28.306	2.858	8.952	420.6
892	11350	13012	2.248	0.308	9080	2823	28.302	2.863	8.968	420.9
893	11359	13015	2.249	0.307	9082	2829	28.302	2.863	8.967	421.1
894	11352	13005	2.249	0.307	9076	2826	28.303	2.862	8.963	421.4
895	11343	12998	2.248	0.306	9078	2816	28.305	2.859	8.953	421.6
896	11341	13004	2.247	0.306	9077	2818	28.305	2.859	8.955	421.9
897	11345	12995	2.247	0.308	9079	2816	28.301	2.864	8.971	422.1
898	11340	12995	2.249	0.307	9069	2822	28.303	2.862	8.963	422.4
899	11351	13000	2.250	0.307	9072	2828	28.301	2.864	8.972	422.6
900	11346	13000	2.248	0.308	9070	2827	28.302	2.863	8.966	422.9

AXIAL STRAIN TEST, SAMPLE #5

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
901	11354	12994	2.247	0.311	9064	2836	28.298	2.868	8.985	423.1
902	11344	12992	2.247	0.306	9067	2826	28.305	2.859	8.954	423.4
903	11339	12993	2.248	0.308	9065	2825	28.301	2.865	8.973	423.6
904	11338	12998	2.248	0.307	9064	2826	28.303	2.862	8.964	423.9
905	11347	12992	2.248	0.307	9064	2830	28.303	2.862	8.964	424.1
906	11345	13001	2.249	0.307	9062	2835	28.302	2.863	8.966	424.4
907	11346	13001	2.249	0.306	9059	2838	28.303	2.862	8.963	424.6
908	11328	12985	2.246	0.308	9059	2821	28.303	2.862	8.964	424.9
909	11338	12993	2.248	0.307	9057	2832	28.302	2.863	8.966	425.1
910	11336	12986	2.248	0.308	9060	2826	28.302	2.863	8.968	425.4
911	11339	12994	2.248	0.307	9052	2838	28.302	2.863	8.966	425.6
912	11335	12992	2.249	0.309	9050	2837	28.300	2.866	8.976	425.9
913	11330	12980	2.246	0.307	9047	2833	28.304	2.860	8.958	426.1
914	11330	12979	2.247	0.308	9050	2829	28.302	2.863	8.969	426.4
915	11330	12972	2.249	0.307	9050	2827	28.303	2.862	8.964	426.6
916	11339	12991	2.248	0.308	9047	2843	28.301	2.865	8.974	426.9
917	11337	12987	2.248	0.308	9045	2842	28.302	2.864	8.970	427.1
918	11331	12985	2.247	0.309	9042	2840	28.301	2.864	8.972	427.4
919	11327	12971	2.247	0.309	9045	2829	28.301	2.865	8.974	427.6
920	11319	12967	2.247	0.310	9042	2826	28.300	2.866	8.979	427.9
921	11325	12970	2.248	0.309	9041	2832	28.299	2.866	8.979	428.1
922	11331	12972	2.247	0.308	9056	2822	28.302	2.863	8.969	428.4
923	11332	12937	2.231	0.301	9272	2595	28.322	2.834	8.876	428.6
924	11341	12997	2.235	0.294	9432	2461	28.330	2.823	8.841	428.9
925	11609	12986	2.197	0.308	9524	2543	28.342	2.812	8.792	429.1
926	11761	13078	2.185	0.308	9668	2532	28.352	2.802	8.751	429.4
927	11765	13051	2.180	0.308	9759	2435	28.355	2.796	8.734	429.6
928	11800	13089	2.178	0.307	9845	2384	28.361	2.789	8.708	429.9
929	11808	13022	2.161	0.303	9938	2274	28.377	2.767	8.638	430.1
930	11874	12968	2.139	0.306	10035	2204	28.389	2.752	8.584	430.4
931	11969	12967	2.119	0.309	10137	2164	28.400	2.737	8.534	430.6
932	12085	13056	2.112	0.308	10243	2165	28.408	2.729	8.499	430.9
933	12083	13036	2.106	0.305	10329	2071	28.417	2.716	8.460	431.1
934	12145	13000	2.087	0.305	10416	2014	28.431	2.698	8.396	431.4
935	12231	12998	2.072	0.309	10509	1978	28.438	2.690	8.366	431.6
936	12301	13088	2.071	0.309	10600	1963	28.440	2.689	8.361	431.9
937	12320	13063	2.060	0.308	10684	1883	28.449	2.676	8.318	432.1
938	12369	13060	2.047	0.306	10783	1815	28.462	2.658	8.260	432.4
939	12340	12952	2.022	0.301	10869	1674	28.486	2.624	8.150	432.6
940	12583	13038	1.982	0.314	10948	1786	28.501	2.610	8.090	432.9
941	12578	13011	1.980	0.312	10986	1736	28.505	2.604	8.071	433.1
942	12570	13025	1.979	0.310	11000	1722	28.509	2.598	8.052	433.4
943	12562	13016	1.971	0.311	11106	1607	28.512	2.593	8.038	433.6
944	12563	13023	1.972	0.309	11082	1634	28.514	2.590	8.027	433.9
945	12566	13020	1.974	0.307	11058	1659	28.516	2.589	8.022	434.1
946	12569	13017	1.974	0.309	11041	1676	28.513	2.592	8.033	434.4
947	12560	13008	1.974	0.310	11032	1677	28.512	2.593	8.037	434.6
948	12565	13024	1.975	0.309	11024	1694	28.513	2.593	8.036	434.9
949	12553	13011	1.973	0.310	11012	1693	28.512	2.593	8.037	435.1
950	12558	13013	1.974	0.310	11007	1702	28.512	2.594	8.038	435.4

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
951	12566	13024	1.974	0.312	10987	1731	28.509	2.598	0.052	435.6
952	12567	13021	1.976	0.311	10979	1739	28.509	2.599	0.054	435.9
953	12553	13000	1.975	0.311	10972	1729	28.510	2.597	0.048	436.1
954	12562	13023	1.975	0.311	10963	1752	28.510	2.596	0.046	436.4
955	12571	13025	1.975	0.312	10961	1761	28.509	2.599	0.053	436.6
956	12556	13001	1.976	0.312	10947	1757	28.507	2.601	0.060	436.9
957	12563	13021	1.976	0.311	10944	1771	28.509	2.599	0.053	437.1
958	12542	12999	1.977	0.311	10942	1752	28.509	2.598	0.054	437.4
959	12550	13001	1.976	0.312	10938	1762	28.507	2.600	0.060	437.6
960	12553	13001	1.976	0.313	10936	1766	28.507	2.602	0.063	437.9
961	12549	13003	1.976	0.313	10930	1769	28.506	2.602	0.066	438.1
962	12567	13010	1.975	0.311	10930	1784	28.510	2.598	0.049	438.4
963	12547	13001	1.977	0.312	10928	1770	28.507	2.601	0.062	438.6
964	12541	12994	1.975	0.313	10922	1769	28.507	2.601	0.062	438.9
965	12554	13003	1.976	0.313	10919	1784	28.507	2.601	0.062	439.1
966	12556	13023	1.978	0.311	10918	1793	28.507	2.601	0.060	439.4
967	12544	13001	1.977	0.312	10913	1783	28.507	2.601	0.060	439.6
968	12543	12996	1.976	0.313	10912	1781	28.506	2.602	0.064	439.9
969	12541	12997	1.976	0.314	10907	1785	28.505	2.603	0.068	440.1
970	12552	13014	1.976	0.311	10905	1800	28.509	2.599	0.053	440.4
971	12547	12998	1.976	0.313	10902	1794	28.506	2.602	0.065	440.6
972	12548	13005	1.976	0.313	10899	1801	28.507	2.601	0.061	440.9
973	12537	12995	1.978	0.313	10894	1794	28.505	2.603	0.069	441.1
974	12546	13007	1.977	0.314	10895	1804	28.505	2.604	0.072	441.4
975	12534	12988	1.977	0.313	10889	1796	28.504	2.604	0.073	441.6
976	12548	13003	1.977	0.313	10890	1809	28.506	2.602	0.065	441.9
977	12544	12994	1.977	0.311	10884	1809	28.509	2.599	0.053	442.1
978	12537	12982	1.976	0.313	10881	1804	28.506	2.602	0.066	442.4
979	12543	12996	1.976	0.313	10881	1812	28.506	2.602	0.064	442.6
980	12544	12990	1.975	0.312	10878	1814	28.509	2.599	0.054	442.9
981	12542	12997	1.976	0.314	10875	1818	28.505	2.604	0.071	443.1
982	12530	12989	1.978	0.314	10876	1807	28.505	2.604	0.072	443.4
983	12533	12989	1.979	0.313	10871	1813	28.505	2.604	0.071	443.6
984	12539	12994	1.977	0.313	10870	1820	28.505	2.604	0.070	443.9
985	12540	13004	1.975	0.315	10862	1832	28.504	2.606	0.077	444.1
986	12528	12989	1.978	0.314	10863	1818	28.503	2.606	0.079	444.4
987	12534	12989	1.976	0.313	10864	1821	28.507	2.601	0.062	444.6
988	12533	12991	1.977	0.313	10859	1826	28.505	2.604	0.070	444.9
989	12530	12990	1.977	0.312	10856	1827	28.508	2.600	0.059	445.1
990	12530	12988	1.976	0.313	10858	1824	28.506	2.603	0.067	445.4
991	12536	12994	1.975	0.314	10852	1836	28.506	2.603	0.067	445.6
992	12531	12991	1.976	0.314	10850	1834	28.505	2.604	0.069	445.9
993	12544	12999	1.978	0.314	10851	1844	28.504	2.605	0.074	446.1
994	12530	12983	1.977	0.313	10849	1831	28.506	2.603	0.067	446.4
995	12535	12991	1.978	0.313	10845	1842	28.505	2.604	0.071	446.6
996	12520	12983	1.977	0.314	10843	1830	28.504	2.604	0.072	446.9
997	12527	12980	1.977	0.314	10840	1837	28.503	2.606	0.078	447.1
998	12539	12996	1.977	0.314	10837	1854	28.504	2.605	0.074	447.4
999	12525	12979	1.977	0.314	10839	1837	28.504	2.605	0.076	447.6
1000	12525	12986	1.978	0.315	10833	1845	28.501	2.609	0.088	447.9

UNIAXIAL STRAIN TEST, SAMPLE #5

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1001	12516	12964	1.978	0.315	10829	1835	28.502	2.607	0.082	448.1
1002	12532	12990	1.977	0.313	10827	1857	28.506	2.603	0.068	448.4
1003	12522	12975	1.978	0.315	10823	1850	28.502	2.608	0.085	448.6
1004	12530	12982	1.977	0.316	10823	1857	28.501	2.610	0.090	448.9
1005	12531	12996	1.979	0.315	10820	1865	28.502	2.608	0.084	449.1
1006	12526	12970	1.977	0.316	10820	1854	28.502	2.608	0.085	449.4
1007	12520	12966	1.977	0.316	10818	1850	28.501	2.609	0.086	449.6
1008	12519	12966	1.978	0.314	10814	1853	28.504	2.606	0.077	449.9
1009	12527	12978	1.978	0.315	10810	1867	28.502	2.608	0.085	450.1
1010	12527	12988	1.978	0.316	10810	1871	28.501	2.609	0.088	450.4
1011	12511	12968	1.978	0.314	10809	1854	28.503	2.606	0.079	450.6
1012	12522	12976	1.979	0.315	10808	1864	28.501	2.609	0.087	450.9
1013	12519	12975	1.979	0.315	10804	1867	28.502	2.608	0.084	451.1
1014	12511	12968	1.978	0.312	10804	1859	28.506	2.603	0.068	451.4
1015	12508	12966	1.977	0.315	10805	1856	28.502	2.607	0.082	451.6
1016	12521	12968	1.980	0.315	10804	1866	28.501	2.610	0.090	451.9
1017	12513	12969	1.977	0.316	10796	1869	28.501	2.609	0.087	452.1
1018	12513	12969	1.979	0.315	10793	1872	28.501	2.610	0.089	452.4
1019	12516	12972	1.978	0.316	10794	1874	28.501	2.610	0.090	452.6
1020	12524	12983	1.978	0.315	10792	1885	28.501	2.609	0.087	452.9
1021	12518	12969	1.978	0.314	10788	1880	28.503	2.606	0.078	453.1
1022	12511	12966	1.979	0.315	10784	1878	28.501	2.609	0.089	453.4
1023	12512	12965	1.979	0.316	10784	1879	28.499	2.612	0.096	453.6
1024	12516	12960	1.979	0.314	10783	1880	28.503	2.607	0.081	453.9
1025	12508	12964	1.979	0.315	10779	1880	28.501	2.609	0.086	454.1
1026	12514	12974	1.979	0.314	10779	1887	28.502	2.608	0.083	454.4
1027	12511	12969	1.978	0.316	10780	1883	28.501	2.609	0.089	454.6
1028	12514	12962	1.980	0.317	10779	1884	28.498	2.613	0.100	454.9
1029	12512	12964	1.978	0.315	10776	1886	28.501	2.609	0.087	455.1
1030	12508	12959	1.979	0.316	10775	1883	28.500	2.611	0.093	455.4
1031	12514	12967	1.980	0.315	10772	1892	28.501	2.610	0.090	455.6
1032	12510	12972	1.979	0.316	10770	1894	28.500	2.611	0.093	455.9
1033	12517	12973	1.979	0.316	10767	1902	28.500	2.611	0.094	456.1
1034	12510	12959	1.979	0.317	10768	1891	28.498	2.613	0.102	456.4
1035	12508	12962	1.979	0.317	10763	1896	28.498	2.614	0.103	456.6
1036	12509	12949	1.978	0.313	10760	1895	28.505	2.604	0.072	456.9
1037	12506	12965	1.980	0.316	10760	1898	28.500	2.611	0.093	457.1
1038	12517	12971	1.980	0.316	10760	1908	28.499	2.612	0.097	457.4
1039	12508	12963	1.978	0.317	10759	1901	28.499	2.612	0.096	457.6
1040	12504	12951	1.979	0.316	10757	1895	28.500	2.610	0.091	457.9
1041	12514	12968	1.980	0.317	10754	1910	28.497	2.615	0.105	458.1
1042	12505	12962	1.979	0.316	10751	1905	28.500	2.610	0.092	458.4
1043	12507	12961	1.979	0.316	10750	1907	28.499	2.612	0.096	458.6
1044	12499	12956	1.980	0.317	10754	1897	28.498	2.614	0.103	458.9
1045	12511	12965	1.977	0.319	10753	1909	28.496	2.616	0.110	459.1
1046	12512	12966	1.981	0.316	10748	1915	28.498	2.613	0.100	459.4
1047	12522	12981	1.979	0.320	10742	1932	28.494	2.619	0.120	459.6
1048	12510	12959	1.980	0.317	10743	1916	28.498	2.614	0.102	459.9
1049	12509	12966	1.980	0.317	10743	1917	28.498	2.614	0.102	460.1
1050	12507	12965	1.980	0.316	10740	1919	28.499	2.613	0.099	460.4

UNIAXIAL STRAIN TEST, SAMPLE #5

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1051	12508	12964	1.981	0.317	10740	1920	28.496	2.616	8.109	460.6
1052	12499	12963	1.981	0.317	10739	1914	28.496	2.616	8.110	460.9
1053	12517	12968	1.979	0.315	10732	1934	28.501	2.610	8.090	461.1
1054	12500	12963	1.980	0.317	10735	1919	28.498	2.614	8.103	461.4
1055	12514	12975	1.980	0.317	10734	1933	28.499	2.613	8.100	461.6
1056	12501	12951	1.981	0.318	10732	1918	28.496	2.617	8.113	461.9
1057	12507	12962	1.980	0.316	10730	1928	28.499	2.613	8.099	462.1
1058	12505	12968	1.982	0.314	10726	1933	28.501	2.610	8.090	462.4
1059	12494	12966	1.981	0.315	10724	1927	28.500	2.610	8.091	462.6
1060	12495	12945	1.981	0.318	10726	1918	28.495	2.618	8.116	462.9
1061	12507	12964	1.981	0.318	10723	1935	28.496	2.616	8.111	463.1
1062	12499	12961	1.981	0.316	10726	1926	28.498	2.613	8.101	463.4
1063	12513	12971	1.980	0.317	10721	1944	28.498	2.614	8.103	463.6
1064	12511	12960	1.981	0.317	10720	1940	28.497	2.615	8.108	463.9
1065	12504	12959	1.980	0.318	10717	1938	28.496	2.616	8.109	464.1
1066	12511	12958	1.981	0.317	10715	1944	28.497	2.615	8.106	464.4
1067	12514	12965	1.982	0.317	10715	1949	28.497	2.616	8.109	464.6
1068	12511	12970	1.980	0.318	10713	1950	28.496	2.617	8.112	464.9
1069	12497	12951	1.982	0.318	10713	1935	28.495	2.618	8.117	465.1
1070	12507	12960	1.981	0.316	10712	1945	28.497	2.614	8.105	465.4
1071	12504	12966	1.981	0.315	10714	1943	28.499	2.612	8.096	465.6
1072	12505	12962	1.979	0.317	10715	1942	28.498	2.614	8.103	465.9
1073	12505	12953	1.980	0.315	10713	1941	28.500	2.611	8.093	466.1
1074	12492	12966	1.981	0.317	10713	1936	28.497	2.615	8.106	466.4
1075	12509	12956	1.981	0.316	10712	1945	28.498	2.613	8.101	466.6
1076	12483	12940	2.125	0.429	7644	4992	28.242	2.984	9.273	466.9
1077	10968	11442	2.114	0.420	6167	4958	28.244	2.954	9.238	467.1
1078	9264	9755	2.071	0.378	5228	4199	28.311	2.828	8.905	467.4
1079	7702	8225	2.040	0.345	4156	3720	28.360	2.730	8.657	467.6
1080	6127	6115	1.853	0.312	3326	2796	28.521	2.477	7.898	467.9
1081	4686	4685	1.797	0.278	2428	2258	28.591	2.353	7.554	468.1
1082	3122	3125	1.719	0.235	1537	1585	28.687	2.189	7.088	468.4
1083	1924	1916	1.689	0.214	542	1379	28.722	2.118	6.907	468.6
1084	888	885	1.639	0.183	-173	1061	28.786	2.009	6.595	468.9

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1	0	0	0.000	0.000	0	0	28.900	0.000	0.000	0.0
2	9	9	0.002	0.001	0	9	28.898	0.004	0.012	35.1
3	4	4	-0.001	-0.000	0	4	28.901	-0.002	-0.006	41.6
4	0	0	0.001	0.001	0	0	28.898	0.003	0.010	48.7
5	5	5	0.001	0.000	0	5	28.899	0.001	0.004	55.6
6	45	45	0.008	0.004	0	45	28.889	0.017	0.054	62.6
7	87	87	0.014	0.008	0	87	28.880	0.031	0.101	69.6
8	130	130	0.021	0.011	0	130	28.872	0.043	0.140	76.6
9	187	187	0.029	0.016	0	187	28.860	0.061	0.199	83.6
10	225	225	0.033	0.018	0	225	28.855	0.069	0.223	90.7
11	261	261	0.038	0.021	0	261	28.848	0.079	0.258	97.6
12	321	321	0.044	0.025	0	321	28.839	0.094	0.305	104.6
13	352	352	0.048	0.027	0	352	28.834	0.102	0.330	111.6
14	413	413	0.054	0.031	0	413	28.824	0.117	0.379	118.6
15	423	423	0.056	0.032	0	423	28.823	0.119	0.385	125.6
16	442	442	0.056	0.034	0	442	28.820	0.123	0.399	132.6
17	540	540	0.064	0.039	0	540	28.808	0.143	0.460	140.4
18	623	623	0.071	0.045	0	623	28.797	0.160	0.516	153.6
19	689	689	0.074	0.049	0	689	28.790	0.172	0.552	160.6
20	726	726	0.077	0.051	0	726	28.785	0.180	0.578	167.7
21	757	757	0.081	0.053	0	757	28.780	0.187	0.600	174.6
22	817	817	0.084	0.058	0	817	28.772	0.200	0.641	181.9
23	860	860	0.085	0.060	0	860	28.769	0.206	0.658	189.0
24	907	907	0.090	0.063	0	907	28.762	0.217	0.693	196.2
25	948	948	0.092	0.067	0	948	28.756	0.226	0.722	202.7
26	1000	1000	0.097	0.071	0	1000	28.748	0.239	0.763	209.7
27	1044	1044	0.101	0.073	0	1044	28.744	0.246	0.785	217.0
28	1124	1124	0.106	0.078	0	1124	28.734	0.262	0.837	231.4
29	1173	1173	0.107	0.080	0	1173	28.730	0.268	0.853	238.1
30	1211	1211	0.113	0.082	0	1211	28.724	0.278	0.886	244.9
31	1265	1265	0.119	0.086	0	1265	28.716	0.291	0.926	252.2
32	1305	1305	0.120	0.089	0	1305	28.711	0.298	0.950	259.0
33	1392	1392	0.129	0.095	0	1392	28.697	0.320	1.019	272.7
34	1433	1433	0.133	0.098	0	1433	28.692	0.328	1.045	279.5
35	1472	1472	0.137	0.100	0	1472	28.686	0.337	1.074	286.6
36	1515	1515	0.141	0.103	0	1515	28.680	0.347	1.107	293.5
37	1558	1558	0.148	0.106	0	1558	28.671	0.360	1.149	300.5
38	1607	1607	0.150	0.108	0	1607	28.668	0.366	1.166	307.6
39	1659	1659	0.156	0.112	0	1659	28.659	0.380	1.211	314.5
40	1700	1700	0.162	0.114	0	1700	28.652	0.390	1.244	321.5
41	1698	1698	0.164	0.116	0	1698	28.648	0.396	1.265	329.1
42	1699	1699	0.165	0.116	0	1699	28.647	0.398	1.272	341.8
43	1745	1745	0.173	0.122	0	1745	28.634	0.417	1.333	401.8
44	1770	1770	0.176	0.126	0	1770	28.626	0.428	1.371	461.9
45	1797	1797	0.179	0.130	0	1797	28.620	0.438	1.404	521.8
46	1818	1818	0.183	0.134	0	1818	28.612	0.450	1.443	581.8
47	1856	1856	0.185	0.138	0	1856	28.604	0.461	1.480	642.1
48	1876	1876	0.190	0.141	0	1876	28.596	0.473	1.518	701.9
49	1914	1914	0.191	0.145	0	1914	28.591	0.481	1.545	761.8
50	1931	1931	0.194	0.149	0	1931	28.583	0.492	1.583	821.9

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
51	1960	1960	0.198	0.153	0	1960	28.576	0.504	1.621	883.9
52	1951	1951	0.201	0.154	0	1951	28.572	0.509	1.639	942.0
53	2029	2029	0.205	0.160	0	2029	28.562	0.524	1.688	1001.8
54	2051	2051	0.209	0.163	0	2051	28.554	0.535	1.725	1062.0
55	2057	2057	0.210	0.166	0	2057	28.550	0.542	1.746	1121.9
56	2103	2103	0.216	0.170	0	2103	28.540	0.557	1.797	1181.8
57	2124	2124	0.218	0.173	0	2124	28.536	0.564	1.818	1241.8
58	2168	2168	0.223	0.177	0	2168	28.527	0.576	1.860	1301.7
59	2182	2182	0.225	0.179	0	2182	28.522	0.583	1.883	1361.8
60	2216	2216	0.228	0.182	0	2216	28.518	0.591	1.907	1422.1
61	2234	2234	0.230	0.184	0	2234	28.512	0.599	1.932	1482.2
62	2259	2259	0.233	0.187	0	2259	28.507	0.607	1.959	1541.7
63	2307	2307	0.239	0.191	0	2307	28.497	0.622	2.009	1601.8
64	2337	2337	0.242	0.194	0	2337	28.492	0.629	2.032	1661.8
65	2352	2352	0.241	0.197	0	2352	28.489	0.634	2.049	1722.7
66	2381	2381	0.246	0.198	0	2381	28.484	0.642	2.072	1782.6
67	2412	2412	0.250	0.202	0	2412	28.476	0.653	2.109	1841.7
68	2439	2439	0.254	0.204	0	2439	28.471	0.662	2.138	1901.7
69	2461	2461	0.255	0.206	0	2461	28.467	0.667	2.156	1961.7
70	2479	2479	0.258	0.209	0	2479	28.461	0.676	2.184	2022.1
71	2527	2527	0.262	0.212	0	2527	28.454	0.687	2.218	2082.3
72	2561	2561	0.264	0.215	0	2561	28.450	0.694	2.241	2141.7
73	2578	2578	0.267	0.219	0	2578	28.443	0.704	2.275	2201.7
74	2602	2602	0.270	0.219	0	2602	28.440	0.708	2.287	2261.8
75	2646	2646	0.271	0.222	0	2646	28.436	0.715	2.310	2321.7
76	2661	2661	0.275	0.225	0	2661	28.430	0.724	2.340	2381.9
77	2697	2697	0.279	0.228	0	2697	28.423	0.734	2.373	2441.7
78	2723	2723	0.280	0.231	0	2723	28.419	0.741	2.395	2501.6
79	2744	2744	0.284	0.232	0	2744	28.414	0.747	2.415	2561.6
80	2769	2769	0.287	0.235	0	2769	28.408	0.756	2.444	2621.6
81	2790	2790	0.288	0.235	0	2790	28.407	0.759	2.451	2681.6
82	2831	2831	0.292	0.239	0	2831	28.400	0.770	2.487	2741.6
83	2872	2872	0.295	0.243	0	2872	28.392	0.781	2.525	2801.5
84	2886	2886	0.299	0.245	0	2886	28.387	0.789	2.552	2862.2
85	2935	2935	0.302	0.248	0	2935	28.381	0.798	2.578	2921.8
86	2957	2957	0.305	0.251	0	2957	28.376	0.806	2.606	2981.9
87	2973	2973	0.308	0.255	0	2973	28.368	0.818	2.645	3042.1
88	3020	3020	0.311	0.258	0	3020	28.362	0.827	2.673	3101.7
89	3034	3034	0.312	0.260	0	3034	28.358	0.833	2.692	3161.8
90	3073	3073	0.318	0.263	0	3073	28.351	0.844	2.728	3221.5
91	3098	3098	0.318	0.265	0	3098	28.348	0.848	2.740	3281.6
92	3132	3132	0.322	0.268	0	3132	28.341	0.859	2.777	3341.6
93	3165	3165	0.324	0.269	0	3165	28.338	0.863	2.789	3401.6
94	3180	3180	0.327	0.271	0	3180	28.334	0.869	2.809	3461.7
95	3195	3195	0.329	0.272	0	3195	28.332	0.873	2.820	3521.8
96	3258	3258	0.335	0.277	0	3258	28.322	0.888	2.870	3581.6
97	3283	3283	0.336	0.277	0	3283	28.321	0.891	2.878	3641.6
98	3298	3298	0.340	0.279	0	3298	28.316	0.898	2.902	3701.6
99	3332	3332	0.340	0.281	0	3332	28.313	0.902	2.915	3761.6
100	3363	3363	0.343	0.285	0	3363	28.306	0.913	2.951	3821.5

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
101	3385	3385	0.346	0.286	0	3385	28.304	0.917	2.961	3881.5
102	3409	3409	0.348	0.288	0	3409	28.298	0.925	2.988	3941.5
103	3397	3397	0.348	0.290	0	3397	28.296	0.928	2.999	4001.5
104	3354	3354	0.347	0.290	0	3354	28.296	0.926	2.996	4061.5
105	3335	3335	0.347	0.289	0	3335	28.296	0.926	2.996	4121.6
106	3303	3303	0.345	0.288	0	3303	28.299	0.921	2.982	4181.7
107	3263	3263	0.344	0.287	0	3263	28.300	0.919	2.976	4241.5
108	3248	3248	0.344	0.286	0	3248	28.301	0.916	2.969	4301.5
109	3213	3213	0.342	0.286	0	3213	28.303	0.913	2.960	4361.5
110	3192	3192	0.342	0.285	0	3192	28.304	0.912	2.956	4421.5
111	3178	3178	0.342	0.283	0	3178	28.306	0.908	2.945	4481.5
112	3142	3142	0.340	0.283	0	3142	28.308	0.905	2.936	4541.5
113	3109	3109	0.340	0.282	0	3109	28.308	0.905	2.936	4601.5
114	3076	3076	0.337	0.281	0	3076	28.311	0.899	2.918	4661.5
115	3056	3056	0.338	0.280	0	3056	28.312	0.897	2.913	4721.5
116	3028	3028	0.337	0.278	0	3028	28.315	0.892	2.899	4781.5
117	2987	2987	0.336	0.277	0	2987	28.316	0.890	2.892	4841.4
118	2951	2951	0.336	0.276	0	2951	28.317	0.887	2.886	4901.5
119	2938	2938	0.334	0.275	0	2938	28.319	0.884	2.877	4961.5
120	2898	2898	0.334	0.273	0	2898	28.322	0.879	2.860	5021.5
121	2866	2866	0.332	0.271	0	2866	28.325	0.874	2.845	5081.6
122	2851	2851	0.332	0.271	0	2851	28.326	0.873	2.843	5141.6
123	2818	2818	0.331	0.269	0	2818	28.328	0.869	2.833	5201.5
124	2784	2784	0.328	0.266	0	2784	28.333	0.861	2.806	5261.5
125	2767	2767	0.329	0.266	0	2767	28.333	0.860	2.805	5321.5
126	2729	2729	0.327	0.263	0	2729	28.338	0.853	2.782	5381.5
127	2694	2694	0.327	0.262	0	2694	28.338	0.851	2.778	5441.5
128	2671	2671	0.327	0.261	0	2671	28.340	0.848	2.770	5501.4
129	2646	2646	0.324	0.259	0	2646	28.344	0.843	2.752	5561.5
130	2610	2610	0.324	0.257	0	2610	28.346	0.839	2.739	5621.4
131	2604	2604	0.325	0.256	0	2604	28.346	0.838	2.737	5681.5
132	2579	2579	0.323	0.255	0	2579	28.350	0.833	2.722	5741.4
133	2563	2563	0.322	0.254	0	2563	28.351	0.830	2.712	5801.4
134	2524	2524	0.320	0.252	0	2524	28.355	0.825	2.697	5861.4
135	2485	2485	0.320	0.250	0	2485	28.357	0.820	2.684	5921.4
136	2456	2456	0.319	0.248	0	2456	28.360	0.816	2.669	5981.4
137	2425	2425	0.317	0.247	0	2425	28.362	0.811	2.656	6041.4
138	2399	2399	0.317	0.245	0	2399	28.365	0.808	2.646	6101.4
139	2374	2374	0.316	0.243	0	2374	28.368	0.803	2.629	6161.4
140	2341	2341	0.313	0.242	0	2341	28.371	0.797	2.613	6221.4
141	2302	2302	0.314	0.240	0	2302	28.373	0.793	2.601	6281.4
142	2287	2287	0.312	0.239	0	2287	28.376	0.789	2.588	6341.4
143	2262	2262	0.311	0.237	0	2262	28.378	0.786	2.579	6401.4
144	2218	2218	0.311	0.234	0	2218	28.382	0.779	2.557	6461.4
145	2202	2202	0.312	0.232	0	2202	28.383	0.777	2.551	6521.4
146	2174	2174	0.310	0.232	0	2174	28.384	0.775	2.546	6581.4
147	2130	2130	0.307	0.229	0	2130	28.390	0.765	2.515	6641.4
148	2110	2110	0.306	0.229	0	2110	28.391	0.763	2.510	6701.4
149	2084	2084	0.306	0.226	0	2084	28.395	0.758	2.494	6761.4
150	2059	2059	0.305	0.224	0	2059	28.398	0.753	2.478	6821.4

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
151	2028	2028	0.303	0.223	0	2028	28.401	0.748	2.462	6881.5
152	2004	2004	0.302	0.221	0	2004	28.404	0.743	2.447	6941.4
153	1987	1987	0.301	0.220	0	1987	28.406	0.740	2.438	7001.3
154	1950	1950	0.301	0.216	0	1950	28.411	0.733	2.414	7061.4
155	1932	1932	0.300	0.215	0	1932	28.412	0.731	2.408	7121.4
156	1910	1910	0.299	0.215	0	1910	28.413	0.728	2.402	7181.4
157	1865	1865	0.298	0.211	0	1865	28.418	0.720	2.377	7241.4
158	1853	1853	0.297	0.209	0	1853	28.422	0.715	2.358	7301.3
159	1823	1823	0.296	0.208	0	1823	28.423	0.712	2.351	7361.4
160	1807	1807	0.295	0.207	0	1807	28.426	0.708	2.338	7421.4
161	1756	1756	0.293	0.203	0	1756	28.431	0.700	2.311	7481.4
162	1735	1735	0.292	0.202	0	1735	28.433	0.696	2.301	7541.4
163	1697	1697	0.290	0.199	0	1697	28.438	0.688	2.274	7601.4
164	1415	1415	0.279	0.184	0	1415	28.463	0.646	2.147	7661.4
165	1039	1039	0.261	0.162	0	1039	28.500	0.585	1.959	7721.4
166	653	653	0.238	0.134	0	653	28.550	0.507	1.712	7781.3

SHORT TERM HYDROSTATIC COMPRESSION. SAMPLE #3 A

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1	0	0	0.000	0.000	0	0	30.800	0.000	0.000	0.0
2	13	13	0.005	0.001	0	13	30.795	0.007	0.022	0.1
3	17	17	0.008	0.001	0	17	30.793	0.010	0.031	0.3
4	18	18	0.007	0.001	0	18	30.793	0.010	0.033	0.4
5	70	70	0.027	0.005	0	70	30.775	0.037	0.117	0.5
6	70	70	0.025	0.005	0	70	30.776	0.036	0.112	0.7
7	64	64	0.025	0.006	0	64	30.776	0.036	0.114	0.8
8	89	89	0.034	0.008	0	89	30.767	0.050	0.157	0.9
9	107	107	0.039	0.009	0	107	30.762	0.058	0.181	1.1
10	123	123	0.042	0.011	0	123	30.758	0.064	0.200	1.2
11	145	145	0.046	0.012	0	145	30.754	0.070	0.217	1.3
12	155	155	0.050	0.013	0	155	30.750	0.076	0.236	1.5
13	186	186	0.057	0.015	0	186	30.743	0.088	0.273	1.6
14	191	191	0.056	0.016	0	191	30.742	0.088	0.275	1.7
15	205	205	0.059	0.017	0	205	30.739	0.094	0.293	1.9
16	215	215	0.064	0.018	0	215	30.734	0.100	0.313	2.0
17	247	247	0.070	0.021	0	247	30.727	0.112	0.348	2.1
18	260	260	0.072	0.023	0	260	30.724	0.117	0.365	2.3
19	289	289	0.077	0.025	0	289	30.718	0.126	0.392	2.4
20	312	312	0.081	0.026	0	312	30.714	0.133	0.413	2.5
21	342	342	0.088	0.029	0	342	30.706	0.145	0.451	2.7
22	369	369	0.091	0.030	0	369	30.701	0.152	0.472	2.8
23	406	406	0.097	0.033	0	406	30.694	0.164	0.508	2.9
24	426	426	0.099	0.035	0	426	30.691	0.169	0.522	3.1
25	466	466	0.105	0.037	0	466	30.684	0.180	0.556	3.2
26	536	536	0.113	0.041	0	536	30.675	0.195	0.601	3.3
27	566	566	0.116	0.043	0	566	30.670	0.202	0.622	3.5
28	595	595	0.121	0.045	0	595	30.664	0.211	0.652	3.6
29	629	629	0.124	0.046	0	629	30.661	0.217	0.669	3.7
30	670	670	0.128	0.049	0	670	30.656	0.226	0.693	3.9
31	700	700	0.132	0.051	0	700	30.651	0.234	0.718	4.0
32	732	732	0.135	0.053	0	732	30.646	0.241	0.739	4.1
33	781	781	0.139	0.055	0	781	30.641	0.250	0.765	4.3
34	802	802	0.142	0.057	0	802	30.637	0.255	0.782	4.4
35	850	850	0.146	0.059	0	850	30.632	0.265	0.809	4.5
36	908	908	0.152	0.062	0	908	30.625	0.275	0.841	4.7
37	937	937	0.153	0.064	0	937	30.622	0.282	0.859	4.8
38	1005	1005	0.160	0.067	0	1005	30.614	0.294	0.896	4.9
39	1059	1059	0.164	0.069	0	1059	30.609	0.303	0.922	5.1
40	1098	1098	0.168	0.072	0	1098	30.604	0.311	0.945	5.2
41	1173	1173	0.173	0.075	0	1173	30.597	0.323	0.979	5.3
42	1213	1213	0.176	0.077	0	1213	30.593	0.329	0.998	5.5
43	1260	1260	0.180	0.079	0	1260	30.588	0.338	1.023	5.6
44	1322	1322	0.184	0.082	0	1322	30.582	0.348	1.052	5.7
45	1370	1370	0.189	0.084	0	1370	30.576	0.358	1.081	5.9
46	1438	1438	0.193	0.087	0	1438	30.571	0.367	1.107	6.0
47	1505	1505	0.198	0.090	0	1505	30.565	0.378	1.138	6.1
48	1582	1582	0.204	0.093	0	1582	30.558	0.390	1.174	6.3
49	1618	1618	0.208	0.095	0	1618	30.553	0.398	1.196	6.4
50	1662	1662	0.211	0.097	0	1662	30.549	0.405	1.217	6.5

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #4A

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
51	1693	1693	0.214	0.098	0	1693	30.545	0.410	1.234	6.7
52	1708	1708	0.215	0.099	0	1708	30.544	0.414	1.243	6.8
53	1705	1705	0.216	0.100	0	1705	30.542	0.416	1.250	6.9
54	1739	1739	0.218	0.102	0	1739	30.538	0.422	1.268	7.1
55	1778	1778	0.222	0.103	0	1778	30.534	0.429	1.289	7.2
56	1821	1821	0.224	0.105	0	1821	30.531	0.434	1.304	7.3
57	1865	1865	0.228	0.107	0	1865	30.527	0.442	1.325	7.5
58	1873	1873	0.229	0.108	0	1873	30.525	0.444	1.333	7.6
59	1924	1924	0.233	0.110	0	1924	30.520	0.453	1.359	7.7
60	1942	1942	0.235	0.111	0	1942	30.518	0.457	1.370	7.9
61	1932	1932	0.235	0.112	0	1932	30.516	0.459	1.376	8.0
62	1930	1930	0.234	0.112	0	1930	30.517	0.457	1.371	8.1
63	1945	1945	0.236	0.112	0	1945	30.515	0.461	1.384	8.3
64	1985	1985	0.240	0.114	0	1985	30.511	0.467	1.400	8.4
65	1987	1987	0.240	0.115	0	1987	30.510	0.469	1.408	8.6
66	1999	1999	0.241	0.115	0	1999	30.508	0.472	1.414	8.7
67	2027	2027	0.243	0.116	0	2027	30.506	0.476	1.427	8.8
68	2035	2035	0.244	0.117	0	2035	30.504	0.478	1.433	8.9
69	2033	2033	0.243	0.118	0	2033	30.504	0.479	1.435	9.1
70	2046	2046	0.245	0.118	0	2046	30.502	0.481	1.443	9.2
71	2093	2093	0.248	0.120	0	2093	30.498	0.489	1.465	9.3
72	2109	2109	0.250	0.121	0	2109	30.496	0.493	1.476	9.5
73	2113	2113	0.250	0.122	0	2113	30.495	0.494	1.479	9.6
74	2125	2125	0.251	0.122	0	2125	30.494	0.495	1.484	9.7
75	2152	2152	0.254	0.123	0	2152	30.491	0.500	1.498	9.9
76	2158	2158	0.255	0.124	0	2158	30.489	0.503	1.506	10.0
77	2164	2164	0.256	0.124	0	2164	30.489	0.504	1.510	10.1
78	2165	2165	0.256	0.125	0	2165	30.488	0.505	1.513	10.3
79	2163	2163	0.257	0.125	0	2163	30.487	0.506	1.518	10.4
80	2158	2158	0.256	0.125	0	2158	30.487	0.506	1.517	10.5
81	2155	2155	0.256	0.125	0	2155	30.486	0.507	1.520	10.7
82	2157	2157	0.257	0.125	0	2157	30.486	0.507	1.521	10.8
83	2163	2163	0.258	0.126	0	2163	30.485	0.509	1.528	10.9
84	2159	2159	0.256	0.126	0	2159	30.486	0.508	1.524	11.2
85	2185	2185	0.259	0.127	0	2185	30.482	0.514	1.542	11.5
86	2181	2181	0.260	0.128	0	2181	30.481	0.515	1.546	11.9
87	2172	2172	0.260	0.129	0	2172	30.479	0.518	1.553	12.2
88	2172	2172	0.259	0.128	0	2172	30.480	0.516	1.549	12.5
89	2169	2169	0.259	0.129	0	2169	30.480	0.517	1.552	12.9
90	2163	2163	0.260	0.129	0	2163	30.479	0.518	1.556	13.2
91	2184	2184	0.260	0.130	0	2184	30.478	0.520	1.561	13.5
92	2170	2170	0.259	0.130	0	2170	30.478	0.520	1.561	13.9
93	2182	2182	0.261	0.131	0	2182	30.476	0.523	1.570	14.2
94	2177	2177	0.261	0.131	0	2177	30.475	0.524	1.574	14.5
95	2227	2227	0.264	0.133	0	2227	30.472	0.529	1.589	14.9
96	2246	2246	0.266	0.134	0	2246	30.469	0.534	1.602	15.2
97	2246	2246	0.266	0.134	0	2246	30.469	0.534	1.601	15.5
98	2253	2253	0.266	0.134	0	2253	30.468	0.535	1.606	15.9
99	2251	2251	0.267	0.135	0	2251	30.468	0.536	1.610	16.2
100	2308	2308	0.271	0.136	0	2308	30.464	0.544	1.630	16.5

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #3A

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
101	2304	2304	0.271	0.136	0	2304	30.463	0.544	1.630	16.9
102	2334	2334	0.273	0.138	0	2334	30.461	0.548	1.644	17.2
103	2323	2323	0.274	0.138	0	2323	30.460	0.550	1.648	17.5
104	2320	2320	0.274	0.138	0	2320	30.459	0.551	1.653	17.9
105	2319	2319	0.273	0.138	0	2319	30.460	0.550	1.649	18.2
106	2351	2351	0.276	0.140	0	2351	30.456	0.555	1.665	18.5
107	2356	2356	0.276	0.139	0	2356	30.457	0.555	1.663	18.9
108	2342	2342	0.275	0.139	0	2342	30.457	0.554	1.661	19.2
109	2335	2335	0.276	0.140	0	2335	30.456	0.556	1.667	19.5
110	2325	2325	0.275	0.140	0	2325	30.456	0.555	1.667	19.9
111	2333	2333	0.276	0.140	0	2333	30.455	0.556	1.670	20.2
112	2329	2329	0.277	0.140	0	2329	30.454	0.557	1.673	20.5
113	2372	2372	0.279	0.142	0	2372	30.451	0.563	1.689	20.9
114	2371	2371	0.278	0.142	0	2371	30.452	0.561	1.684	21.2
115	2366	2366	0.278	0.142	0	2366	30.452	0.562	1.687	21.5
116	2398	2398	0.279	0.143	0	2398	30.450	0.565	1.695	21.9
117	2397	2397	0.281	0.143	0	2397	30.449	0.567	1.702	22.2
118	2394	2394	0.280	0.143	0	2394	30.449	0.567	1.700	22.5
119	2382	2382	0.279	0.143	0	2382	30.449	0.566	1.699	22.9
120	2398	2398	0.282	0.144	0	2398	30.447	0.570	1.710	23.2
121	2424	2424	0.283	0.145	0	2424	30.445	0.573	1.718	23.5
122	2431	2431	0.284	0.145	0	2431	30.444	0.574	1.722	23.9
123	2423	2423	0.283	0.145	0	2423	30.445	0.573	1.719	24.2
124	2446	2446	0.286	0.146	0	2446	30.442	0.577	1.731	24.5
125	2437	2437	0.285	0.146	0	2437	30.442	0.577	1.732	24.9
126	2472	2472	0.287	0.147	0	2472	30.441	0.581	1.741	25.2
127	2468	2468	0.288	0.147	0	2468	30.440	0.582	1.745	25.5
128	2459	2459	0.287	0.147	0	2459	30.440	0.581	1.742	25.9
129	2486	2486	0.290	0.148	0	2486	30.437	0.586	1.757	26.2
130	2481	2481	0.289	0.148	0	2481	30.437	0.585	1.756	26.5
131	2467	2467	0.290	0.149	0	2467	30.436	0.587	1.762	26.9
132	2485	2485	0.291	0.148	0	2485	30.436	0.587	1.761	27.2
133	2491	2491	0.291	0.149	0	2491	30.435	0.589	1.766	27.5
134	2500	2500	0.292	0.149	0	2500	30.435	0.589	1.767	27.9
135	2484	2484	0.291	0.149	0	2484	30.435	0.589	1.767	28.2
136	2484	2484	0.292	0.149	0	2484	30.435	0.590	1.769	28.5
137	2569	2569	0.295	0.152	0	2569	30.430	0.599	1.793	28.9
138	2568	2568	0.296	0.152	0	2568	30.430	0.599	1.794	29.2
139	2567	2567	0.296	0.152	0	2567	30.429	0.600	1.797	29.5
140	2560	2560	0.296	0.152	0	2560	30.429	0.600	1.799	29.9
141	2572	2572	0.298	0.153	0	2572	30.427	0.603	1.807	30.2
142	2548	2548	0.296	0.152	0	2548	30.428	0.600	1.801	30.5
143	2554	2554	0.296	0.152	0	2554	30.428	0.601	1.803	30.9
144	2592	2592	0.301	0.154	0	2592	30.423	0.608	1.824	31.2
145	2592	2592	0.299	0.154	0	2592	30.425	0.606	1.817	31.5
146	2618	2618	0.303	0.154	0	2618	30.421	0.612	1.834	31.9
147	2616	2616	0.302	0.155	0	2616	30.422	0.611	1.831	32.2
148	2617	2617	0.302	0.155	0	2617	30.422	0.611	1.832	32.5
149	2635	2635	0.303	0.156	0	2635	30.419	0.615	1.843	32.9
150	2643	2643	0.305	0.156	0	2643	30.419	0.616	1.846	33.2

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #3A

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
151	2639	2639	0.305	0.156	0	2639	30.418	0.617	1.849	33.5
152	2654	2654	0.305	0.156	0	2654	30.418	0.617	1.848	33.9
153	2637	2637	0.305	0.156	0	2637	30.418	0.617	1.851	34.2
154	2661	2661	0.307	0.157	0	2661	30.416	0.621	1.861	34.5
155	2645	2645	0.306	0.157	0	2645	30.416	0.620	1.858	34.9
156	2662	2662	0.308	0.157	0	2662	30.415	0.622	1.863	35.2
157	2671	2671	0.308	0.157	0	2671	30.415	0.622	1.863	35.5
158	2655	2655	0.308	0.158	0	2655	30.414	0.623	1.869	35.9
159	2664	2664	0.309	0.157	0	2664	30.414	0.623	1.869	36.2
160	2660	2660	0.310	0.158	0	2660	30.413	0.625	1.873	36.6
161	2698	2698	0.310	0.159	0	2698	30.411	0.628	1.882	36.9
162	2698	2698	0.310	0.160	0	2698	30.411	0.629	1.885	37.2
163	2687	2687	0.311	0.159	0	2687	30.410	0.630	1.889	37.5
164	2696	2696	0.312	0.159	0	2696	30.410	0.631	1.890	37.9
165	2706	2706	0.311	0.160	0	2706	30.410	0.631	1.889	38.2
166	2718	2718	0.313	0.160	0	2718	30.408	0.634	1.898	38.6
167	2710	2710	0.314	0.160	0	2710	30.407	0.634	1.902	38.9
168	2711	2711	0.315	0.160	0	2711	30.407	0.636	1.905	39.2
169	2703	2703	0.313	0.160	0	2703	30.408	0.633	1.898	39.5
170	2764	2764	0.316	0.162	0	2764	30.404	0.640	1.916	39.9
171	2762	2762	0.317	0.162	0	2762	30.404	0.640	1.918	40.2
172	2758	2758	0.317	0.162	0	2758	30.403	0.642	1.922	40.5
173	2779	2779	0.318	0.163	0	2779	30.402	0.644	1.928	40.9
174	2769	2769	0.319	0.163	0	2769	30.401	0.645	1.932	41.2
175	2771	2771	0.319	0.163	0	2771	30.401	0.645	1.932	41.5
176	2808	2808	0.320	0.164	0	2808	30.399	0.649	1.943	41.9
177	2820	2820	0.322	0.165	0	2820	30.398	0.651	1.948	42.2
178	2812	2812	0.322	0.165	0	2812	30.397	0.651	1.950	42.5
179	2819	2819	0.323	0.165	0	2819	30.397	0.652	1.951	42.9
180	2814	2814	0.323	0.165	0	2814	30.397	0.652	1.954	43.2
181	2888	2888	0.327	0.167	0	2888	30.392	0.661	1.978	43.5
182	2885	2885	0.328	0.167	0	2885	30.390	0.663	1.984	43.9
183	2885	2885	0.328	0.167	0	2885	30.391	0.663	1.983	44.2
184	2888	2888	0.328	0.167	0	2888	30.391	0.662	1.982	44.5
185	2886	2886	0.328	0.167	0	2886	30.390	0.663	1.984	44.9
186	2882	2882	0.330	0.167	0	2882	30.389	0.665	1.989	45.2
187	2892	2892	0.330	0.168	0	2892	30.389	0.666	1.992	45.5
188	2893	2893	0.330	0.168	0	2893	30.389	0.666	1.993	45.9
189	2892	2892	0.330	0.168	0	2892	30.388	0.666	1.994	46.2
190	2886	2886	0.330	0.168	0	2886	30.388	0.667	1.995	46.5
191	2883	2883	0.331	0.168	0	2883	30.387	0.668	1.999	46.9
192	2935	2935	0.333	0.170	0	2935	30.385	0.672	2.011	47.2
193	2932	2932	0.333	0.170	0	2932	30.384	0.673	2.014	47.5
194	2935	2935	0.333	0.170	0	2935	30.384	0.673	2.013	47.9
195	2973	2973	0.336	0.171	0	2973	30.382	0.677	2.025	48.2
196	2993	2993	0.337	0.172	0	2993	30.380	0.680	2.034	48.5
197	3025	3025	0.339	0.173	0	3025	30.378	0.685	2.047	48.9
198	3052	3052	0.340	0.174	0	3052	30.376	0.688	2.057	49.2
199	3053	3053	0.341	0.174	0	3053	30.374	0.690	2.062	49.5
200	3082	3082	0.345	0.176	0	3082	30.371	0.696	2.081	49.9

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #3 A

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
201	3108	3108	0.345	0.176	0	3108	30.370	0.698	2.084	50.2
202	3122	3122	0.347	0.177	0	3122	30.368	0.702	2.095	50.5
203	3153	3153	0.349	0.178	0	3153	30.366	0.705	2.106	50.9
204	3206	3206	0.352	0.180	0	3206	30.362	0.712	2.125	51.2
205	3217	3217	0.354	0.180	0	3217	30.360	0.715	2.135	51.5
206	3220	3220	0.355	0.181	0	3220	30.359	0.716	2.138	51.9
207	3219	3219	0.356	0.181	0	3219	30.358	0.717	2.141	52.2
208	3273	3273	0.360	0.183	0	3273	30.354	0.725	2.162	52.5
209	3295	3295	0.362	0.184	0	3295	30.351	0.730	2.176	52.9
210	3309	3309	0.363	0.184	0	3309	30.350	0.732	2.182	53.2
211	3317	3317	0.365	0.185	0	3317	30.348	0.734	2.190	53.5
212	3321	3321	0.366	0.185	0	3321	30.347	0.736	2.194	53.9
213	3376	3376	0.369	0.187	0	3376	30.344	0.742	2.213	54.2
214	3394	3394	0.372	0.187	0	3394	30.341	0.747	2.226	54.5
215	3395	3395	0.372	0.187	0	3395	30.341	0.746	2.224	54.9
216	3420	3420	0.374	0.189	0	3420	30.338	0.751	2.240	55.2
217	3431	3431	0.375	0.189	0	3431	30.337	0.753	2.244	55.5
218	3445	3445	0.377	0.189	0	3445	30.335	0.756	2.254	55.9
219	3461	3461	0.378	0.190	0	3461	30.334	0.759	2.261	56.2
220	3467	3467	0.379	0.190	0	3467	30.333	0.760	2.265	56.5
221	3481	3481	0.381	0.191	0	3481	30.331	0.763	2.273	56.9
222	3473	3473	0.381	0.191	0	3473	30.331	0.763	2.274	57.2
223	3485	3485	0.382	0.191	0	3485	30.330	0.765	2.279	57.5
224	3488	3488	0.382	0.191	0	3488	30.330	0.765	2.280	57.9
225	3492	3492	0.385	0.192	0	3492	30.328	0.768	2.289	58.2
226	3566	3566	0.387	0.190	0	3566	30.329	0.768	2.285	60.2
227	3572	3572	0.387	0.190	0	3572	30.329	0.768	2.285	60.5
228	3598	3598	0.386	0.190	0	3598	30.331	0.766	2.278	60.9
229	3610	3610	0.388	0.190	0	3610	30.330	0.768	2.284	61.2
230	3590	3590	0.386	0.190	0	3590	30.331	0.766	2.278	61.5
231	3598	3598	0.388	0.190	0	3598	30.329	0.768	2.285	61.9
232	3603	3603	0.389	0.190	0	3603	30.329	0.769	2.287	62.2
233	3613	3613	0.389	0.190	0	3613	30.329	0.769	2.286	62.5
234	3608	3608	0.389	0.190	0	3608	30.329	0.769	2.285	62.9
235	3590	3590	0.387	0.190	0	3590	30.330	0.767	2.279	63.2
236	3584	3584	0.386	0.189	0	3584	30.332	0.764	2.272	63.5
237	3561	3561	0.387	0.189	0	3561	30.332	0.764	2.272	63.9
238	3555	3555	0.385	0.188	0	3555	30.333	0.762	2.266	64.2
239	3583	3583	0.385	0.188	0	3583	30.334	0.762	2.264	64.5
240	3580	3580	0.385	0.188	0	3580	30.335	0.760	2.259	64.9
241	3575	3575	0.383	0.188	0	3575	30.336	0.758	2.254	65.2
242	3574	3574	0.385	0.188	0	3574	30.334	0.761	2.261	65.5
243	3562	3562	0.383	0.188	0	3562	30.336	0.758	2.254	65.9
244	3533	3533	0.384	0.187	0	3533	30.336	0.758	2.254	66.2
245	3527	3527	0.383	0.187	0	3527	30.336	0.757	2.251	66.5
246	3538	3538	0.386	0.187	0	3538	30.335	0.759	2.258	66.9
247	3526	3526	0.384	0.186	0	3526	30.336	0.757	2.252	67.2
248	3500	3500	0.383	0.186	0	3500	30.337	0.755	2.248	67.5
249	3500	3500	0.383	0.186	0	3500	30.337	0.755	2.245	67.9
250	3454	3454	0.382	0.185	0	3454	30.339	0.751	2.236	68.2

SHORT TERM HYDROSTATIC COMPRESSION. SAMPLE #3A

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
251	3441	3441	0.381	0.184	0	3441	30.339	0.750	2.234	68.5
252	3443	3443	0.382	0.184	0	3443	30.339	0.751	2.238	68.9
253	3446	3446	0.382	0.185	0	3446	30.338	0.752	2.239	69.2
254	3435	3435	0.381	0.184	0	3435	30.339	0.750	2.235	69.5
255	3445	3445	0.383	0.185	0	3445	30.338	0.752	2.241	69.9
256	3432	3432	0.380	0.184	0	3432	30.341	0.748	2.229	70.2
257	3403	3403	0.380	0.183	0	3403	30.341	0.746	2.224	70.5
258	3394	3394	0.380	0.183	0	3394	30.342	0.745	2.222	70.9
259	3391	3391	0.380	0.183	0	3391	30.342	0.746	2.223	71.2
260	3376	3376	0.380	0.183	0	3376	30.341	0.746	2.225	71.5
261	3383	3383	0.379	0.183	0	3383	30.342	0.745	2.220	71.9
262	3375	3375	0.379	0.182	0	3375	30.343	0.744	2.218	72.2
263	3370	3370	0.380	0.183	0	3370	30.342	0.745	2.221	72.5
264	3340	3340	0.378	0.181	0	3340	30.344	0.741	2.210	72.9
265	3340	3340	0.380	0.182	0	3340	30.343	0.743	2.216	73.2
266	3338	3338	0.379	0.182	0	3338	30.343	0.742	2.215	73.5
267	3337	3337	0.379	0.182	0	3337	30.343	0.743	2.216	73.9
268	3339	3339	0.379	0.181	0	3339	30.343	0.742	2.215	74.2
269	3315	3315	0.377	0.181	0	3315	30.345	0.739	2.205	74.5
270	3310	3310	0.377	0.181	0	3310	30.345	0.738	2.204	74.9
271	3279	3279	0.376	0.180	0	3279	30.347	0.735	2.196	75.2
272	3253	3253	0.375	0.179	0	3253	30.348	0.733	2.189	75.5
273	3254	3254	0.376	0.179	0	3254	30.347	0.734	2.194	75.9
274	3250	3250	0.375	0.179	0	3250	30.347	0.734	2.192	76.2
275	3252	3252	0.376	0.179	0	3252	30.347	0.734	2.192	76.5
276	3250	3250	0.376	0.179	0	3250	30.347	0.735	2.195	76.9
277	3250	3250	0.375	0.179	0	3250	30.348	0.733	2.189	77.2
278	3247	3247	0.375	0.179	0	3247	30.348	0.732	2.188	77.5
279	3232	3232	0.374	0.179	0	3232	30.349	0.731	2.186	77.9
280	3226	3226	0.374	0.179	0	3226	30.348	0.732	2.188	78.2
281	3207	3207	0.373	0.178	0	3207	30.350	0.730	2.181	78.5
282	3200	3200	0.373	0.178	0	3200	30.350	0.729	2.180	78.9
283	3183	3183	0.373	0.178	0	3183	30.349	0.729	2.182	79.2
284	3197	3197	0.373	0.178	0	3197	30.350	0.729	2.180	79.5
285	3180	3180	0.373	0.177	0	3180	30.350	0.728	2.179	79.9
286	3179	3179	0.373	0.177	0	3179	30.351	0.727	2.176	80.2
287	3180	3180	0.373	0.177	0	3180	30.350	0.728	2.178	80.5
288	3142	3142	0.371	0.176	0	3142	30.352	0.724	2.168	80.9
289	3142	3142	0.372	0.176	0	3142	30.352	0.725	2.170	81.2
290	3139	3139	0.372	0.176	0	3139	30.352	0.725	2.170	81.5
291	3146	3146	0.373	0.176	0	3146	30.351	0.726	2.172	81.9
292	3135	3135	0.372	0.176	0	3135	30.352	0.725	2.171	82.2
293	3138	3138	0.372	0.176	0	3138	30.352	0.724	2.168	82.5
294	3116	3116	0.372	0.176	0	3116	30.353	0.723	2.164	82.8
295	3114	3114	0.372	0.176	0	3114	30.352	0.723	2.166	83.2
296	3115	3115	0.371	0.175	0	3115	30.353	0.722	2.164	83.5
297	3108	3108	0.370	0.175	0	3108	30.354	0.721	2.159	83.9
298	3067	3067	0.369	0.174	0	3067	30.356	0.717	2.150	84.2
299	3074	3074	0.369	0.174	0	3074	30.356	0.717	2.149	84.5
300	3078	3078	0.369	0.174	0	3078	30.356	0.717	2.147	84.9

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #3A

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
301	3053	3053	0.368	0.174	0	3053	30.357	0.715	2.143	85.2
302	3046	3046	0.368	0.173	0	3046	30.358	0.714	2.140	85.5
303	3032	3032	0.368	0.173	0	3032	30.357	0.715	2.143	85.8
304	3023	3023	0.367	0.173	0	3023	30.359	0.712	2.135	86.2
305	3012	3012	0.366	0.172	0	3012	30.359	0.711	2.132	86.5
306	3009	3009	0.366	0.172	0	3009	30.359	0.711	2.131	86.8
307	2981	2981	0.366	0.171	0	2981	30.361	0.708	2.125	87.2
308	2975	2975	0.366	0.171	0	2975	30.360	0.708	2.125	87.5
309	2975	2975	0.366	0.171	0	2975	30.360	0.709	2.128	87.8
310	2973	2973	0.366	0.171	0	2973	30.361	0.708	2.124	88.2
311	2958	2958	0.365	0.170	0	2958	30.362	0.706	2.119	88.5
312	2950	2950	0.364	0.170	0	2950	30.363	0.704	2.114	88.8
313	2911	2911	0.362	0.169	0	2911	30.365	0.700	2.101	89.2
314	2905	2905	0.363	0.169	0	2905	30.364	0.701	2.106	89.5
315	2901	2901	0.363	0.168	0	2901	30.365	0.700	2.103	89.8
316	2893	2893	0.362	0.168	0	2893	30.366	0.699	2.099	90.2
317	2882	2882	0.362	0.168	0	2882	30.366	0.698	2.098	90.5
318	2868	2868	0.361	0.167	0	2868	30.367	0.696	2.091	90.8
319	2855	2855	0.360	0.167	0	2855	30.368	0.694	2.086	91.2
320	2852	2852	0.361	0.167	0	2852	30.368	0.694	2.088	91.5
321	2848	2848	0.360	0.166	0	2848	30.368	0.693	2.085	91.8
322	2835	2835	0.360	0.166	0	2835	30.369	0.693	2.084	92.2
323	2808	2808	0.360	0.165	0	2808	30.369	0.691	2.079	92.5
324	2808	2808	0.360	0.165	0	2808	30.370	0.690	2.076	92.8
325	2805	2805	0.359	0.165	0	2805	30.371	0.689	2.074	93.2
326	2798	2798	0.359	0.165	0	2798	30.371	0.689	2.072	93.5
327	2773	2773	0.357	0.164	0	2773	30.373	0.685	2.063	93.8
328	2768	2768	0.357	0.164	0	2768	30.373	0.685	2.063	94.2
329	2733	2733	0.355	0.163	0	2733	30.375	0.681	2.053	94.5
330	2733	2733	0.356	0.163	0	2733	30.375	0.682	2.053	94.8
331	2731	2731	0.356	0.163	0	2731	30.374	0.682	2.055	95.2
332	2726	2726	0.355	0.163	0	2726	30.376	0.680	2.049	95.5
333	2700	2700	0.354	0.162	0	2700	30.377	0.677	2.040	95.8
334	2685	2685	0.354	0.162	0	2685	30.377	0.677	2.040	96.2
335	2679	2679	0.353	0.161	0	2679	30.378	0.675	2.036	96.5
336	2677	2677	0.354	0.161	0	2677	30.378	0.676	2.037	96.8
337	2667	2667	0.353	0.160	0	2667	30.379	0.674	2.033	97.2
338	2638	2638	0.353	0.159	0	2638	30.380	0.672	2.027	97.5
339	2637	2637	0.354	0.160	0	2637	30.379	0.673	2.030	97.8
340	2622	2622	0.351	0.159	0	2622	30.381	0.669	2.019	98.2
341	2613	2613	0.350	0.158	0	2613	30.383	0.667	2.014	98.5
342	2601	2601	0.350	0.158	0	2601	30.383	0.666	2.010	98.8
343	2542	2542	0.348	0.156	0	2542	30.386	0.660	1.994	99.2
344	2530	2530	0.348	0.156	0	2530	30.386	0.660	1.996	99.5
345	2525	2525	0.347	0.156	0	2525	30.388	0.658	1.988	99.8
346	2521	2521	0.348	0.156	0	2521	30.387	0.659	1.991	100.2
347	2507	2507	0.346	0.155	0	2507	30.389	0.656	1.983	100.5
348	2490	2490	0.346	0.154	0	2490	30.389	0.655	1.980	100.8
349	2484	2484	0.345	0.154	0	2484	30.390	0.653	1.975	101.2
350	2471	2471	0.345	0.154	0	2471	30.390	0.652	1.973	101.5

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #3A

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
351	2467	2467	0.344	0.154	0	2467	30.391	0.651	1.969	101.8
352	2439	2439	0.344	0.153	0	2439	30.392	0.649	1.965	102.2
353	2434	2434	0.343	0.152	0	2434	30.393	0.647	1.959	102.5
354	2436	2436	0.344	0.152	0	2436	30.392	0.649	1.963	102.8
355	2412	2412	0.342	0.152	0	2412	30.394	0.645	1.954	103.2
356	2406	2406	0.342	0.152	0	2406	30.394	0.645	1.953	103.5
357	2408	2408	0.342	0.151	0	2408	30.395	0.644	1.949	103.8
358	2408	2408	0.342	0.151	0	2408	30.395	0.644	1.949	104.2
359	2377	2377	0.341	0.150	0	2377	30.396	0.641	1.943	104.5
360	2369	2369	0.341	0.150	0	2369	30.397	0.641	1.942	104.8
361	2359	2359	0.340	0.150	0	2359	30.398	0.639	1.937	105.2
362	2361	2361	0.339	0.149	0	2361	30.399	0.638	1.932	105.5
363	2337	2337	0.338	0.149	0	2337	30.399	0.636	1.929	105.8
364	2317	2317	0.338	0.148	0	2317	30.401	0.634	1.922	106.2
365	2296	2296	0.338	0.148	0	2296	30.400	0.634	1.925	106.5
366	2196	2196	0.337	0.149	0	2196	30.398	0.635	1.932	106.8
367	2158	2158	0.337	0.149	0	2158	30.397	0.635	1.934	107.2
368	2144	2144	0.336	0.148	0	2144	30.399	0.632	1.927	107.5
369	2120	2120	0.337	0.147	0	2120	30.399	0.632	1.927	107.8
370	2102	2102	0.335	0.147	0	2102	30.399	0.630	1.924	108.2
371	2098	2098	0.335	0.148	0	2098	30.399	0.630	1.922	108.5
372	2103	2103	0.336	0.147	0	2103	30.399	0.631	1.925	108.8
373	2107	2107	0.335	0.147	0	2107	30.399	0.630	1.923	109.2
374	2083	2083	0.334	0.146	0	2083	30.402	0.626	1.911	109.5
375	2065	2065	0.332	0.146	0	2065	30.403	0.624	1.906	109.8
376	2037	2037	0.332	0.144	0	2037	30.405	0.621	1.896	110.2
377	2034	2034	0.332	0.144	0	2034	30.405	0.621	1.897	110.5
378	2020	2020	0.330	0.144	0	2020	30.406	0.618	1.888	110.8
379	2013	2013	0.331	0.144	0	2013	30.406	0.618	1.890	111.2
380	2000	2000	0.330	0.143	0	2000	30.408	0.615	1.881	111.5
381	1927	1927	0.328	0.140	0	1927	30.411	0.609	1.864	113.8
382	1938	1938	0.329	0.140	0	1938	30.411	0.609	1.866	114.2
383	1931	1931	0.326	0.139	0	1931	30.414	0.605	1.851	114.5
384	1943	1943	0.326	0.139	0	1943	30.414	0.605	1.851	114.8
385	1940	1940	0.326	0.139	0	1940	30.415	0.603	1.844	115.2
386	1922	1922	0.325	0.138	0	1922	30.416	0.602	1.842	115.5
387	1900	1900	0.325	0.137	0	1900	30.418	0.598	1.832	115.8
388	1902	1902	0.325	0.137	0	1902	30.418	0.598	1.829	116.2
389	1898	1898	0.324	0.136	0	1898	30.419	0.597	1.826	116.5
390	1904	1904	0.324	0.136	0	1904	30.419	0.597	1.825	116.8
391	1884	1884	0.322	0.136	0	1884	30.421	0.594	1.818	117.2
392	1893	1893	0.322	0.136	0	1893	30.421	0.594	1.817	117.5
393	1877	1877	0.322	0.135	0	1877	30.422	0.591	1.810	117.8
394	1863	1863	0.320	0.134	0	1863	30.424	0.589	1.804	118.2
395	1863	1863	0.320	0.134	0	1863	30.424	0.588	1.801	118.5
396	1860	1860	0.319	0.134	0	1860	30.425	0.588	1.799	118.8
397	1851	1851	0.319	0.133	0	1851	30.426	0.586	1.793	119.2
398	1818	1818	0.319	0.132	0	1818	30.426	0.584	1.790	119.5
399	1825	1825	0.318	0.132	0	1825	30.427	0.583	1.787	119.8
400	1829	1829	0.318	0.132	0	1829	30.428	0.582	1.783	120.2

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #3A

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
401	1818	1818	0.317	0.132	0	1818	30.428	0.581	1.781	120.5
402	1803	1803	0.317	0.131	0	1803	30.430	0.579	1.774	120.8
403	1799	1799	0.317	0.131	0	1799	30.430	0.578	1.771	121.2
404	1667	1667	0.307	0.126	0	1667	30.440	0.560	1.721	121.5
405	1568	1568	0.302	0.123	0	1568	30.447	0.548	1.686	121.8
406	1536	1536	0.299	0.121	0	1536	30.451	0.541	1.668	122.2

SHORT TERM HYDROSTATIC COMPRESSION. SAMPLE #3B

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1	0	0	0.000	0.000	0	0	30.800	0.000	0.000	0.0
2	58	58	0.015	0.005	0	58	30.784	0.024	0.076	0.1
3	114	114	0.030	0.010	0	114	30.767	0.051	0.158	0.3
4	117	117	0.029	0.011	0	117	30.767	0.050	0.156	0.4
5	202	202	0.047	0.017	0	202	30.748	0.080	0.249	0.5
6	255	255	0.057	0.022	0	255	30.735	0.101	0.311	0.7
7	321	321	0.070	0.026	0	321	30.721	0.122	0.379	0.8
8	342	342	0.075	0.028	0	342	30.715	0.132	0.407	0.9
9	411	411	0.086	0.033	0	411	30.702	0.152	0.469	1.1
10	461	461	0.095	0.036	0	461	30.692	0.168	0.517	1.2
11	507	507	0.102	0.039	0	507	30.684	0.180	0.554	1.3
12	554	554	0.110	0.042	0	554	30.675	0.194	0.599	1.5
13	631	631	0.122	0.046	0	631	30.663	0.214	0.657	1.6
14	647	647	0.125	0.048	0	647	30.659	0.220	0.677	1.7
15	702	702	0.134	0.051	0	702	30.649	0.237	0.727	1.9
16	774	774	0.146	0.055	0	774	30.637	0.256	0.785	2.0
17	806	806	0.152	0.057	0	806	30.631	0.265	0.813	2.1
18	867	867	0.162	0.061	0	867	30.619	0.283	0.868	2.3
19	927	927	0.171	0.063	0	927	30.610	0.297	0.912	2.4
20	964	964	0.175	0.065	0	964	30.606	0.304	0.932	2.5
21	1041	1041	0.189	0.069	0	1041	30.593	0.326	0.997	2.7
22	1080	1080	0.194	0.071	0	1080	30.586	0.336	1.028	2.8
23	1082	1082	0.196	0.072	0	1082	30.584	0.339	1.037	2.9
24	1133	1133	0.204	0.074	0	1133	30.576	0.353	1.079	3.1
25	1233	1233	0.216	0.078	0	1233	30.563	0.373	1.138	3.2
26	1286	1286	0.223	0.081	0	1286	30.556	0.385	1.175	3.3
27	1350	1350	0.232	0.084	0	1350	30.547	0.400	1.220	3.5
28	1361	1361	0.235	0.085	0	1361	30.543	0.405	1.236	3.6
29	1404	1404	0.241	0.087	0	1404	30.536	0.416	1.268	3.7
30	1447	1447	0.247	0.089	0	1447	30.530	0.426	1.299	3.9
31	1520	1520	0.256	0.092	0	1520	30.521	0.441	1.343	4.0
32	1580	1580	0.263	0.095	0	1580	30.513	0.454	1.380	4.1
33	1604	1604	0.267	0.097	0	1604	30.509	0.460	1.401	4.3
34	1669	1669	0.275	0.099	0	1669	30.501	0.473	1.439	4.4
35	1697	1697	0.280	0.101	0	1697	30.496	0.481	1.464	4.5
36	1715	1715	0.283	0.102	0	1715	30.492	0.487	1.481	4.7
37	1725	1725	0.285	0.103	0	1725	30.489	0.491	1.495	4.8
38	1704	1704	0.284	0.103	0	1704	30.491	0.489	1.488	4.9
39	1734	1734	0.289	0.104	0	1734	30.485	0.498	1.514	5.1
40	1733	1733	0.289	0.104	0	1733	30.485	0.498	1.514	5.2
41	1744	1744	0.291	0.105	0	1744	30.483	0.501	1.526	5.3
42	1739	1739	0.292	0.105	0	1739	30.481	0.503	1.533	5.5
43	1727	1727	0.291	0.105	0	1727	30.483	0.501	1.527	5.6
44	1728	1728	0.292	0.106	0	1728	30.481	0.504	1.534	5.7
45	1760	1760	0.295	0.108	0	1760	30.477	0.510	1.553	5.9
46	1769	1769	0.296	0.108	0	1769	30.476	0.512	1.558	6.0
47	1727	1727	0.294	0.107	0	1727	30.478	0.508	1.548	6.1
48	1724	1724	0.293	0.107	0	1724	30.478	0.508	1.548	6.3
49	1751	1751	0.295	0.108	0	1751	30.476	0.511	1.556	6.4
50	1760	1760	0.297	0.109	0	1760	30.474	0.514	1.566	6.5

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #3B

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
51	1781	1781	0.299	0.110	0	1781	30.471	0.519	1.581	6.7
52	1758	1758	0.298	0.109	0	1758	30.473	0.516	1.572	6.8
53	1754	1754	0.298	0.109	0	1754	30.472	0.517	1.575	6.9
54	1754	1754	0.299	0.110	0	1754	30.471	0.518	1.579	7.1
55	1761	1761	0.299	0.110	0	1761	30.470	0.520	1.584	7.2
56	1746	1746	0.298	0.110	0	1746	30.471	0.519	1.582	7.3
57	1767	1767	0.299	0.111	0	1767	30.469	0.521	1.590	7.5
58	1775	1775	0.300	0.111	0	1775	30.468	0.523	1.595	7.6
59	1763	1763	0.300	0.111	0	1763	30.468	0.522	1.593	7.7
60	1770	1770	0.301	0.112	0	1770	30.467	0.525	1.601	7.9
61	1759	1759	0.299	0.112	0	1759	30.468	0.522	1.593	8.0
62	1765	1765	0.301	0.112	0	1765	30.467	0.525	1.601	8.1
63	1776	1776	0.303	0.113	0	1776	30.464	0.529	1.613	8.3
64	1772	1772	0.301	0.113	0	1772	30.465	0.527	1.608	8.4
65	1763	1763	0.301	0.113	0	1763	30.466	0.526	1.605	8.5
66	1769	1769	0.303	0.114	0	1769	30.463	0.530	1.617	8.7
67	1808	1808	0.306	0.115	0	1808	30.459	0.537	1.637	8.8
68	1812	1812	0.306	0.115	0	1812	30.459	0.537	1.637	8.9
69	1807	1807	0.306	0.115	0	1807	30.459	0.537	1.637	9.1
70	1807	1807	0.306	0.115	0	1807	30.459	0.537	1.638	9.2
71	1802	1802	0.307	0.116	0	1802	30.458	0.539	1.644	9.3
72	1815	1815	0.307	0.116	0	1815	30.458	0.539	1.645	9.5
73	1834	1834	0.309	0.117	0	1834	30.455	0.543	1.656	9.6
74	1848	1848	0.310	0.118	0	1848	30.454	0.546	1.665	9.7
75	1843	1843	0.309	0.118	0	1843	30.454	0.545	1.662	9.9
76	1849	1849	0.309	0.119	0	1849	30.453	0.547	1.666	10.0
77	1854	1854	0.311	0.119	0	1854	30.451	0.550	1.676	10.1
78	1851	1851	0.311	0.119	0	1851	30.451	0.550	1.677	10.3
79	1843	1843	0.309	0.119	0	1843	30.452	0.547	1.670	10.4
80	1850	1850	0.311	0.120	0	1850	30.451	0.550	1.678	10.5
81	1849	1849	0.311	0.120	0	1849	30.450	0.551	1.682	10.7
82	1856	1856	0.313	0.120	0	1856	30.448	0.554	1.689	10.8
83	1914	1914	0.315	0.123	0	1914	30.444	0.561	1.709	10.9
84	1911	1911	0.315	0.123	0	1911	30.444	0.561	1.710	11.1
85	1868	1868	0.313	0.121	0	1868	30.447	0.556	1.697	11.2
86	1907	1907	0.317	0.124	0	1907	30.442	0.564	1.719	11.3
87	1904	1904	0.317	0.123	0	1904	30.442	0.564	1.719	11.5
88	1830	1830	0.312	0.121	0	1830	30.447	0.554	1.693	11.6
89	1923	1923	0.318	0.124	0	1923	30.441	0.566	1.725	11.7
90	1914	1914	0.317	0.124	0	1914	30.441	0.565	1.723	11.9
91	1913	1913	0.318	0.124	0	1913	30.441	0.566	1.727	12.0
92	1910	1910	0.318	0.125	0	1910	30.440	0.567	1.730	12.1
93	1909	1909	0.319	0.125	0	1909	30.439	0.568	1.732	12.3
94	1899	1899	0.318	0.125	0	1899	30.439	0.568	1.732	12.4
95	1922	1922	0.320	0.126	0	1922	30.437	0.571	1.742	12.5
96	1894	1894	0.317	0.125	0	1894	30.440	0.567	1.730	12.7
97	1904	1904	0.317	0.125	0	1904	30.439	0.568	1.733	12.8
98	1942	1942	0.321	0.127	0	1942	30.434	0.576	1.756	12.9
99	1945	1945	0.322	0.127	0	1945	30.434	0.577	1.759	13.1
100	1938	1938	0.321	0.128	0	1938	30.434	0.576	1.756	13.2

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #3B

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
101	1963	1963	0.323	0.128	0	1963	30.432	0.580	1.767	13.3
102	1958	1958	0.324	0.128	0	1958	30.431	0.580	1.770	13.5
103	1956	1956	0.323	0.129	0	1956	30.431	0.580	1.770	13.6
104	1986	1986	0.326	0.130	0	1986	30.429	0.585	1.784	13.7
105	1980	1980	0.326	0.130	0	1980	30.428	0.586	1.786	13.9
106	1958	1958	0.324	0.129	0	1958	30.430	0.582	1.776	14.0
107	1969	1969	0.325	0.130	0	1969	30.428	0.585	1.785	14.1
108	1984	1984	0.325	0.130	0	1984	30.429	0.585	1.784	14.3
109	1987	1987	0.327	0.131	0	1987	30.426	0.588	1.794	14.4
110	1993	1993	0.328	0.131	0	1993	30.425	0.591	1.801	14.5
111	1997	1997	0.328	0.131	0	1997	30.425	0.591	1.802	14.7
112	1987	1987	0.326	0.131	0	1987	30.427	0.588	1.793	14.8
113	1990	1990	0.328	0.132	0	1990	30.424	0.591	1.804	14.9
114	2014	2014	0.329	0.133	0	2014	30.422	0.595	1.814	15.1
115	1992	1992	0.327	0.132	0	1992	30.425	0.590	1.799	15.2
116	1995	1995	0.328	0.132	0	1995	30.424	0.592	1.807	15.3
117	2020	2020	0.329	0.133	0	2020	30.422	0.596	1.815	15.5
118	2029	2029	0.330	0.134	0	2029	30.421	0.598	1.822	15.6
119	2052	2052	0.331	0.135	0	2052	30.419	0.600	1.830	15.7
120	2029	2029	0.331	0.134	0	2029	30.420	0.599	1.826	15.9
121	1976	1976	0.327	0.133	0	1976	30.423	0.593	1.809	16.0
122	1991	1991	0.329	0.133	0	1991	30.422	0.595	1.815	16.1
123	2029	2029	0.332	0.135	0	2029	30.418	0.601	1.834	16.3
124	2028	2028	0.331	0.135	0	2028	30.419	0.600	1.828	16.4
125	2042	2042	0.332	0.136	0	2042	30.417	0.604	1.841	16.5
126	2041	2041	0.332	0.136	0	2041	30.416	0.604	1.842	16.7
127	2054	2054	0.333	0.136	0	2054	30.416	0.605	1.843	16.8
128	2043	2043	0.332	0.136	0	2043	30.417	0.603	1.838	16.9
129	2060	2060	0.334	0.137	0	2060	30.414	0.608	1.853	17.1
130	2055	2055	0.334	0.137	0	2055	30.414	0.607	1.851	17.2
131	2057	2057	0.334	0.137	0	2057	30.414	0.608	1.854	17.3
132	2088	2088	0.336	0.138	0	2088	30.412	0.612	1.865	17.5
133	2094	2094	0.336	0.138	0	2094	30.411	0.613	1.868	17.6
134	2083	2083	0.335	0.139	0	2083	30.411	0.612	1.866	17.7
135	2103	2103	0.338	0.139	0	2103	30.409	0.616	1.878	17.9
136	2104	2104	0.338	0.139	0	2104	30.409	0.617	1.880	18.0
137	2073	2073	0.336	0.139	0	2073	30.410	0.613	1.870	18.1
138	2079	2079	0.339	0.139	0	2079	30.408	0.616	1.880	18.3
139	2085	2085	0.337	0.140	0	2085	30.409	0.616	1.879	18.4
140	2100	2100	0.338	0.140	0	2100	30.408	0.618	1.882	18.5
141	2105	2105	0.338	0.140	0	2105	30.408	0.618	1.882	18.7
142	2111	2111	0.339	0.140	0	2111	30.406	0.620	1.890	18.8
143	2112	2112	0.340	0.140	0	2112	30.407	0.620	1.889	18.9
144	2130	2130	0.340	0.141	0	2130	30.405	0.622	1.896	19.1
145	2138	2138	0.341	0.141	0	2138	30.405	0.623	1.899	19.2
146	2121	2121	0.340	0.141	0	2121	30.405	0.622	1.895	19.3
147	2130	2130	0.340	0.141	0	2130	30.405	0.622	1.896	19.5
148	2130	2130	0.341	0.142	0	2130	30.404	0.624	1.902	19.6
149	2141	2141	0.342	0.142	0	2141	30.403	0.626	1.908	19.7
150	2145	2145	0.342	0.143	0	2145	30.402	0.627	1.912	19.9

SHORT TERM HYDROSTATIC COMPRESSION. SAMPLE #3B

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
151	2109	2109	0.339	0.142	0	2109	30.405	0.623	1.899	20.0
152	2115	2115	0.340	0.142	0	2115	30.404	0.624	1.902	20.1
153	2144	2144	0.342	0.143	0	2144	30.402	0.628	1.913	20.3
154	2146	2146	0.343	0.143	0	2146	30.401	0.629	1.918	20.4
155	2136	2136	0.342	0.143	0	2136	30.402	0.628	1.913	20.5
156	2149	2149	0.342	0.144	0	2149	30.401	0.629	1.917	20.7
157	2142	2142	0.341	0.143	0	2142	30.401	0.628	1.915	20.8
158	2146	2146	0.342	0.144	0	2146	30.401	0.629	1.918	20.9
159	2151	2151	0.342	0.144	0	2151	30.400	0.630	1.920	21.1
160	2153	2153	0.344	0.144	0	2153	30.399	0.632	1.925	21.2
161	2187	2187	0.344	0.145	0	2187	30.398	0.634	1.931	21.3
162	2200	2200	0.346	0.146	0	2200	30.396	0.637	1.941	21.5
163	2198	2198	0.347	0.146	0	2198	30.395	0.639	1.945	21.6
164	2220	2220	0.348	0.147	0	2220	30.394	0.641	1.953	21.7
165	2222	2222	0.348	0.147	0	2222	30.393	0.643	1.956	21.9
166	2231	2231	0.349	0.147	0	2231	30.392	0.643	1.959	22.0
167	2213	2213	0.347	0.147	0	2213	30.394	0.641	1.952	22.1
168	2225	2225	0.348	0.147	0	2225	30.392	0.643	1.958	22.3
169	2185	2185	0.344	0.147	0	2185	30.396	0.637	1.941	22.4
170	2193	2193	0.347	0.147	0	2193	30.394	0.640	1.949	22.5
171	2193	2193	0.347	0.147	0	2193	30.394	0.640	1.951	22.7
172	2210	2210	0.348	0.147	0	2210	30.392	0.643	1.958	22.8
173	2218	2218	0.349	0.148	0	2218	30.392	0.644	1.962	22.9
174	2208	2208	0.347	0.148	0	2208	30.392	0.643	1.957	23.1
175	2219	2219	0.349	0.148	0	2219	30.391	0.646	1.966	23.2
176	2218	2218	0.349	0.148	0	2218	30.391	0.645	1.963	23.3
177	2206	2206	0.346	0.148	0	2206	30.393	0.642	1.956	23.5
178	2218	2218	0.349	0.148	0	2218	30.390	0.646	1.968	23.6
179	2215	2215	0.349	0.149	0	2215	30.390	0.646	1.968	23.7
180	2270	2270	0.352	0.149	0	2270	30.388	0.651	1.979	23.9
181	2269	2269	0.352	0.150	0	2269	30.387	0.652	1.984	24.0
182	2271	2271	0.352	0.150	0	2271	30.387	0.652	1.983	24.1
183	2274	2274	0.350	0.150	0	2274	30.388	0.650	1.979	24.3
184	2273	2273	0.352	0.151	0	2273	30.387	0.653	1.986	24.4
185	2281	2281	0.352	0.151	0	2281	30.386	0.653	1.988	24.5
186	2282	2282	0.353	0.151	0	2282	30.384	0.656	1.997	24.7
187	2281	2281	0.352	0.151	0	2281	30.386	0.654	1.989	24.8
188	2297	2297	0.353	0.152	0	2297	30.384	0.657	1.998	24.9
189	2295	2295	0.354	0.152	0	2295	30.383	0.658	2.002	25.1
190	2265	2265	0.353	0.151	0	2265	30.385	0.654	1.992	25.2
191	2277	2277	0.353	0.151	0	2277	30.385	0.656	1.996	25.3
192	2278	2278	0.353	0.151	0	2278	30.384	0.656	1.997	25.5
193	2263	2263	0.351	0.151	0	2263	30.386	0.653	1.988	25.6
194	2282	2282	0.354	0.152	0	2282	30.383	0.658	2.003	25.7
195	2293	2293	0.353	0.152	0	2293	30.384	0.657	1.999	25.9
196	2303	2303	0.356	0.153	0	2303	30.381	0.661	2.011	26.0
197	2298	2298	0.353	0.153	0	2298	30.383	0.658	2.003	26.1
198	2325	2325	0.357	0.153	0	2325	30.380	0.664	2.018	26.3
199	2329	2329	0.357	0.154	0	2329	30.380	0.664	2.020	26.4
200	2323	2323	0.355	0.154	0	2323	30.380	0.663	2.016	26.5

SHORT TERM HYDROSTATIC COMPRESSION. SAMPLE #3B

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
201	2322	2322	0.356	0.154	0	2322	30.380	0.663	2.016	26.7
202	2325	2325	0.356	0.154	0	2325	30.380	0.664	2.019	26.8
203	2328	2328	0.357	0.154	0	2328	30.379	0.665	2.024	26.9
204	2330	2330	0.357	0.154	0	2330	30.380	0.664	2.020	27.1
205	2334	2334	0.358	0.154	0	2334	30.378	0.667	2.029	27.2
206	2391	2391	0.361	0.156	0	2391	30.375	0.673	2.044	27.3
207	2317	2317	0.356	0.154	0	2317	30.379	0.664	2.021	27.5
208	2329	2329	0.357	0.155	0	2329	30.378	0.667	2.029	27.7
209	2398	2398	0.362	0.157	0	2398	30.373	0.676	2.053	28.1
210	2407	2407	0.362	0.158	0	2407	30.372	0.677	2.059	28.4
211	2404	2404	0.362	0.158	0	2404	30.372	0.677	2.058	28.7
212	2411	2411	0.362	0.158	0	2411	30.371	0.679	2.063	29.1
213	2417	2417	0.363	0.158	0	2417	30.370	0.680	2.066	29.4
214	2449	2449	0.365	0.160	0	2449	30.367	0.685	2.080	29.7
215	2415	2415	0.362	0.159	0	2415	30.370	0.681	2.068	30.1
216	2461	2461	0.366	0.161	0	2461	30.366	0.687	2.088	30.4
217	2460	2460	0.365	0.161	0	2460	30.367	0.686	2.083	30.7
218	2476	2476	0.368	0.162	0	2476	30.363	0.692	2.101	31.1
219	2508	2508	0.369	0.162	0	2508	30.362	0.694	2.107	31.4
220	2477	2477	0.368	0.162	0	2477	30.363	0.692	2.102	31.7
221	2507	2507	0.370	0.163	0	2507	30.360	0.696	2.114	32.1
222	2526	2526	0.371	0.164	0	2526	30.359	0.699	2.121	32.4
223	2503	2503	0.370	0.163	0	2503	30.360	0.697	2.116	32.7
224	2527	2527	0.371	0.164	0	2527	30.358	0.699	2.123	33.1
225	2510	2510	0.370	0.160	0	2510	30.365	0.690	2.093	33.4
226	2512	2512	0.371	0.160	0	2512	30.365	0.690	2.093	33.7
227	2524	2524	0.373	0.160	0	2524	30.363	0.692	2.100	34.1
228	2576	2576	0.376	0.161	0	2576	30.361	0.698	2.115	34.4
229	2562	2562	0.375	0.160	0	2562	30.362	0.696	2.109	34.7
230	2581	2581	0.378	0.160	0	2581	30.360	0.698	2.117	35.1
231	2604	2604	0.380	0.160	0	2604	30.359	0.701	2.123	35.4
232	2616	2616	0.381	0.160	0	2616	30.359	0.701	2.124	35.7
233	2616	2616	0.382	0.159	0	2616	30.359	0.701	2.122	36.1
234	2620	2620	0.383	0.159	0	2620	30.359	0.701	2.124	36.4
235	2665	2665	0.386	0.160	0	2665	30.356	0.706	2.138	36.7
236	2647	2647	0.386	0.160	0	2647	30.357	0.705	2.134	37.1
237	2660	2660	0.387	0.160	0	2660	30.356	0.707	2.139	37.4
238	2652	2652	0.385	0.160	0	2652	30.357	0.704	2.132	37.7
239	2687	2687	0.390	0.160	0	2687	30.354	0.709	2.146	38.1
240	2674	2674	0.390	0.160	0	2674	30.355	0.709	2.145	38.4
241	2690	2690	0.391	0.160	0	2690	30.354	0.710	2.150	38.7
242	2723	2723	0.393	0.161	0	2723	30.351	0.714	2.160	39.1
243	2735	2735	0.394	0.161	0	2735	30.351	0.716	2.164	39.4
244	2733	2733	0.395	0.161	0	2733	30.350	0.717	2.168	39.7
245	2751	2751	0.397	0.161	0	2751	30.349	0.718	2.171	40.1
246	2776	2776	0.398	0.162	0	2776	30.348	0.721	2.177	40.4
247	2774	2774	0.398	0.162	0	2774	30.347	0.722	2.181	40.7
248	2802	2802	0.401	0.163	0	2802	30.344	0.727	2.195	41.1
249	2817	2817	0.404	0.163	0	2817	30.343	0.729	2.203	41.4
250	2819	2819	0.404	0.163	0	2819	30.342	0.730	2.205	41.7

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE #3B

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
251	2827	2827	0.406	0.163	0	2827	30.342	0.731	2.208	42.1
252	2837	2837	0.405	0.163	0	2837	30.341	0.732	2.209	42.4
253	2868	2868	0.409	0.165	0	2868	30.337	0.738	2.229	42.7
254	2871	2871	0.409	0.164	0	2871	30.338	0.738	2.228	43.1
255	2903	2903	0.412	0.165	0	2903	30.335	0.742	2.241	43.4
256	2910	2910	0.414	0.165	0	2910	30.334	0.744	2.246	43.7
257	2852	2852	0.410	0.164	0	2852	30.338	0.737	2.226	44.1
258	2847	2847	0.412	0.164	0	2847	30.336	0.739	2.233	44.4
259	2875	2875	0.415	0.164	0	2875	30.334	0.743	2.243	44.7
260	2875	2875	0.415	0.164	0	2875	30.334	0.744	2.246	45.1
261	2901	2901	0.416	0.165	0	2901	30.333	0.746	2.251	45.4
262	2926	2926	0.418	0.166	0	2926	30.331	0.749	2.262	45.7
263	2928	2928	0.418	0.166	0	2928	30.331	0.749	2.262	46.1
264	2919	2919	0.417	0.165	0	2919	30.331	0.748	2.258	46.4
265	2909	2909	0.418	0.165	0	2909	30.331	0.748	2.259	46.7
266	2929	2929	0.420	0.165	0	2929	30.330	0.751	2.266	47.1
267	2935	2935	0.421	0.166	0	2935	30.328	0.753	2.272	47.4
268	3017	3017	0.423	0.168	0	3017	30.325	0.759	2.289	47.7
269	2915	2915	0.420	0.166	0	2915	30.329	0.751	2.268	48.1
270	3005	3005	0.424	0.168	0	3005	30.324	0.761	2.295	48.4
271	3007	3007	0.424	0.168	0	3007	30.324	0.761	2.295	48.7
272	3021	3021	0.427	0.169	0	3021	30.322	0.764	2.305	49.1
273	3020	3020	0.428	0.168	0	3020	30.321	0.765	2.307	49.4
274	3019	3019	0.429	0.168	0	3019	30.321	0.765	2.308	49.7
275	3018	3018	0.428	0.169	0	3018	30.321	0.766	2.309	50.1
276	3012	3012	0.427	0.168	0	3012	30.322	0.764	2.303	50.4
277	3010	3010	0.428	0.168	0	3010	30.322	0.764	2.305	50.7
278	3048	3048	0.430	0.169	0	3048	30.319	0.769	2.317	51.1
279	3066	3066	0.433	0.170	0	3066	30.317	0.773	2.330	51.4
280	3060	3060	0.431	0.170	0	3060	30.318	0.771	2.324	51.7
281	3093	3093	0.434	0.171	0	3093	30.316	0.775	2.335	52.1
282	3101	3101	0.434	0.171	0	3101	30.315	0.777	2.340	52.4
283	3105	3105	0.436	0.171	0	3105	30.313	0.779	2.347	52.7
284	3107	3107	0.435	0.171	0	3107	30.314	0.777	2.341	53.1
285	3132	3132	0.438	0.172	0	3132	30.312	0.781	2.353	53.4
286	3139	3139	0.439	0.172	0	3139	30.311	0.783	2.360	53.7
287	3126	3126	0.438	0.172	0	3126	30.312	0.781	2.354	54.1
288	3165	3165	0.439	0.173	0	3165	30.310	0.785	2.365	54.4
289	3128	3128	0.439	0.172	0	3128	30.311	0.783	2.360	54.7
290	3181	3181	0.443	0.174	0	3181	30.307	0.790	2.379	55.1
291	3191	3191	0.444	0.174	0	3191	30.306	0.792	2.384	55.4
292	3210	3210	0.446	0.174	0	3210	30.304	0.794	2.390	55.7
293	3202	3202	0.445	0.174	0	3202	30.304	0.794	2.391	56.1
294	3199	3199	0.445	0.175	0	3199	30.304	0.794	2.391	56.4
295	3218	3218	0.447	0.175	0	3218	30.303	0.796	2.398	56.7
296	3206	3206	0.446	0.175	0	3206	30.304	0.795	2.393	57.1
297	3250	3250	0.449	0.176	0	3250	30.301	0.800	2.408	57.4
298	3270	3270	0.452	0.177	0	3270	30.298	0.805	2.422	57.7
299	3237	3237	0.449	0.175	0	3237	30.301	0.800	2.409	58.1
300	3264	3264	0.453	0.176	0	3264	30.298	0.805	2.423	58.4

SHORT TERM HYDROSTATIC COMPRESSION. SAMPLE #3B

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
301	3276	3276	0.453	0.177	0	3276	30.296	0.807	2.429	58.7
302	3280	3280	0.452	0.177	0	3280	30.297	0.807	2.427	59.1
303	3319	3319	0.456	0.178	0	3319	30.294	0.812	2.443	59.4
304	3314	3314	0.455	0.178	0	3314	30.295	0.811	2.439	59.7
305	3305	3305	0.454	0.178	0	3305	30.294	0.811	2.439	60.1
306	3327	3327	0.457	0.178	0	3327	30.293	0.814	2.448	60.4
307	3376	3376	0.460	0.180	0	3376	30.290	0.819	2.463	60.7
308	3360	3360	0.460	0.180	0	3360	30.289	0.820	2.465	61.1
309	3376	3376	0.461	0.180	0	3376	30.288	0.821	2.468	61.4
310	3372	3372	0.462	0.180	0	3372	30.288	0.822	2.471	61.7
311	3366	3366	0.460	0.180	0	3366	30.288	0.821	2.469	62.1
312	3389	3389	0.462	0.181	0	3389	30.287	0.824	2.477	62.4
313	3394	3394	0.463	0.180	0	3394	30.287	0.824	2.478	62.7
314	3396	3396	0.464	0.181	0	3396	30.286	0.826	2.482	63.1
315	3398	3398	0.464	0.181	0	3398	30.285	0.827	2.486	63.4
316	3397	3397	0.464	0.181	0	3397	30.286	0.826	2.482	63.7
317	3387	3387	0.464	0.181	0	3387	30.285	0.826	2.483	64.1
318	3397	3397	0.465	0.181	0	3397	30.285	0.827	2.486	64.4
319	3389	3389	0.465	0.181	0	3389	30.285	0.826	2.485	64.7
320	3393	3393	0.466	0.181	0	3393	30.284	0.827	2.487	65.1
321	3386	3386	0.465	0.180	0	3386	30.285	0.826	2.483	65.4
322	3385	3385	0.465	0.181	0	3385	30.284	0.827	2.487	65.7
323	3402	3402	0.468	0.181	0	3402	30.283	0.830	2.496	66.1
324	3392	3392	0.467	0.181	0	3392	30.283	0.829	2.493	66.4
325	3394	3394	0.468	0.181	0	3394	30.282	0.830	2.497	66.7
326	3394	3394	0.468	0.181	0	3394	30.282	0.830	2.498	67.1
327	3405	3405	0.470	0.181	0	3405	30.281	0.833	2.504	67.4
328	3403	3403	0.470	0.181	0	3403	30.281	0.832	2.503	67.7
329	3386	3386	0.467	0.181	0	3386	30.283	0.829	2.494	68.1
330	3396	3396	0.470	0.181	0	3396	30.281	0.832	2.504	68.4
331	3386	3386	0.468	0.181	0	3386	30.282	0.830	2.498	68.7
332	3377	3377	0.468	0.181	0	3377	30.283	0.829	2.495	69.1
333	3397	3397	0.470	0.181	0	3397	30.281	0.833	2.505	69.4
334	3386	3386	0.469	0.181	0	3386	30.281	0.832	2.503	69.7
335	3387	3387	0.469	0.181	0	3387	30.281	0.832	2.502	70.1
336	3385	3385	0.470	0.181	0	3385	30.280	0.833	2.507	70.4
337	3379	3379	0.469	0.181	0	3379	30.281	0.831	2.502	70.7
338	3383	3383	0.470	0.181	0	3383	30.281	0.832	2.503	71.1
339	3408	3408	0.473	0.182	0	3408	30.278	0.836	2.516	71.4
340	3383	3383	0.470	0.181	0	3383	30.280	0.833	2.506	71.7
341	3392	3392	0.472	0.181	0	3392	30.279	0.835	2.514	72.1
342	3384	3384	0.471	0.181	0	3384	30.280	0.834	2.509	72.4
343	3382	3382	0.471	0.181	0	3382	30.280	0.833	2.507	72.7
344	3392	3392	0.473	0.181	0	3392	30.279	0.836	2.515	73.1
345	3389	3389	0.472	0.181	0	3389	30.279	0.835	2.513	73.4
346	3382	3382	0.472	0.181	0	3382	30.279	0.835	2.512	73.7
347	3383	3383	0.472	0.181	0	3383	30.279	0.834	2.511	74.1
348	3332	3332	0.470	0.180	0	3332	30.282	0.829	2.497	74.4
349	3356	3356	0.471	0.180	0	3356	30.281	0.831	2.502	74.7
350	3285	3285	0.467	0.178	0	3285	30.285	0.823	2.480	75.1

SHORT TERM HYDROSTATIC COMPRESSION. SAMPLE #30

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
351	3291	3291	0.468	0.179	0	3291	30.284	0.825	2.488	75.4
352	3293	3293	0.468	0.178	0	3293	30.284	0.825	2.486	75.7
353	3275	3275	0.468	0.178	0	3275	30.285	0.824	2.484	76.1
354	3224	3224	0.465	0.177	0	3224	30.287	0.818	2.469	76.4
355	3225	3225	0.466	0.177	0	3225	30.287	0.819	2.470	76.7
356	3207	3207	0.465	0.176	0	3207	30.288	0.817	2.465	77.1
357	3177	3177	0.465	0.175	0	3177	30.289	0.814	2.458	77.4
358	3169	3169	0.464	0.175	0	3169	30.290	0.813	2.455	77.7
359	3128	3128	0.461	0.173	0	3128	30.293	0.808	2.440	78.1
360	3128	3128	0.461	0.173	0	3128	30.293	0.808	2.441	78.4
361	3085	3085	0.459	0.172	0	3085	30.296	0.802	2.425	78.7
362	3080	3080	0.460	0.172	0	3080	30.295	0.804	2.429	79.1
363	3038	3038	0.456	0.170	0	3038	30.299	0.797	2.411	79.4
364	3025	3025	0.458	0.170	0	3025	30.298	0.798	2.414	79.7
365	2999	2999	0.455	0.169	0	2999	30.301	0.793	2.400	80.1
366	2963	2963	0.454	0.168	0	2963	30.303	0.790	2.391	80.4
367	2961	2961	0.454	0.168	0	2961	30.302	0.791	2.394	80.7
368	2944	2944	0.453	0.167	0	2944	30.304	0.788	2.385	81.1
369	2873	2873	0.450	0.165	0	2873	30.308	0.780	2.363	81.4
370	2849	2849	0.451	0.164	0	2849	30.308	0.780	2.364	81.7
371	2814	2814	0.448	0.163	0	2814	30.311	0.774	2.349	82.1
372	2784	2784	0.447	0.162	0	2784	30.312	0.772	2.342	82.4
373	2777	2777	0.446	0.162	0	2777	30.314	0.770	2.337	82.7
374	2752	2752	0.446	0.161	0	2752	30.315	0.768	2.331	83.1
375	2759	2759	0.447	0.161	0	2759	30.314	0.769	2.336	83.4
376	2736	2736	0.445	0.160	0	2736	30.316	0.766	2.326	83.7
377	2719	2719	0.444	0.160	0	2719	30.317	0.764	2.321	84.1
378	2682	2682	0.443	0.158	0	2682	30.319	0.760	2.309	84.4
379	2670	2670	0.442	0.158	0	2670	30.320	0.758	2.304	84.7
380	2658	2658	0.442	0.157	0	2658	30.321	0.756	2.300	85.1
381	2624	2624	0.439	0.156	0	2624	30.324	0.751	2.286	85.4
382	2616	2616	0.441	0.156	0	2616	30.323	0.752	2.289	85.7
383	2620	2620	0.440	0.155	0	2620	30.324	0.751	2.285	86.1
384	2572	2572	0.437	0.154	0	2572	30.327	0.746	2.271	86.4
385	2584	2584	0.440	0.154	0	2584	30.325	0.748	2.278	86.7
386	2564	2564	0.437	0.154	0	2564	30.327	0.745	2.267	87.1
387	2537	2537	0.436	0.153	0	2537	30.329	0.741	2.258	87.4
388	2496	2496	0.436	0.151	0	2496	30.331	0.738	2.249	87.7
389	2482	2482	0.434	0.151	0	2482	30.333	0.735	2.242	88.1
390	2453	2453	0.433	0.150	0	2453	30.334	0.733	2.235	88.4
391	2439	2439	0.432	0.149	0	2439	30.336	0.730	2.226	88.7
392	2410	2410	0.431	0.148	0	2410	30.337	0.727	2.218	89.1
393	2409	2409	0.432	0.148	0	2409	30.336	0.728	2.222	89.4
394	2383	2383	0.430	0.146	0	2383	30.339	0.723	2.207	89.7
395	2365	2365	0.429	0.146	0	2365	30.340	0.721	2.203	90.1
396	2350	2350	0.429	0.145	0	2350	30.341	0.720	2.199	90.4
397	2294	2294	0.425	0.143	0	2294	30.346	0.711	2.175	90.7
398	2283	2283	0.426	0.143	0	2283	30.345	0.712	2.177	91.1
399	2270	2270	0.426	0.142	0	2270	30.346	0.710	2.173	91.4
400	2236	2236	0.424	0.141	0	2236	30.349	0.705	2.158	91.7

SHORT TERM HYDROSTATIC COMPRESSION. SAMPLE #3B

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
401	2212	2212	0.422	0.140	0	2212	30.350	0.703	2.153	92.1
402	2185	2185	0.420	0.139	0	2185	30.353	0.698	2.139	92.4
403	2189	2189	0.421	0.139	0	2189	30.353	0.698	2.139	92.7
404	2179	2179	0.420	0.138	0	2179	30.354	0.696	2.134	93.1
405	2158	2158	0.419	0.137	0	2158	30.355	0.694	2.128	93.4
406	2143	2143	0.418	0.137	0	2143	30.357	0.692	2.122	93.7
407	2119	2119	0.418	0.136	0	2119	30.358	0.689	2.114	94.1
408	2087	2087	0.414	0.134	0	2087	30.362	0.683	2.095	94.4
409	2069	2069	0.414	0.134	0	2069	30.362	0.682	2.094	94.7
410	2067	2067	0.415	0.134	0	2067	30.362	0.683	2.095	95.1
411	2051	2051	0.414	0.133	0	2051	30.364	0.679	2.085	95.4
412	2042	2042	0.412	0.133	0	2042	30.365	0.678	2.081	95.7
413	2012	2012	0.412	0.132	0	2012	30.366	0.676	2.076	96.1
414	2022	2022	0.413	0.132	0	2022	30.365	0.676	2.078	96.4
415	2018	2018	0.412	0.131	0	2018	30.367	0.674	2.069	96.7
416	1999	1999	0.410	0.130	0	1999	30.369	0.671	2.062	97.1
417	1996	1996	0.412	0.130	0	1996	30.368	0.672	2.065	97.4
418	1985	1985	0.411	0.130	0	1985	30.369	0.670	2.059	97.7
419	2009	2009	0.415	0.130	0	2009	30.366	0.675	2.073	98.1
420	1960	1960	0.410	0.128	0	1960	30.371	0.667	2.050	98.4
421	1960	1960	0.411	0.128	0	1960	30.371	0.667	2.052	98.7
422	1956	1956	0.410	0.128	0	1956	30.372	0.665	2.045	99.1
423	1951	1951	0.411	0.128	0	1951	30.371	0.667	2.051	99.4
424	1942	1942	0.410	0.127	0	1942	30.372	0.665	2.044	99.7
425	1916	1916	0.409	0.127	0	1916	30.373	0.662	2.038	100.1
426	1915	1915	0.409	0.126	0	1915	30.374	0.662	2.036	100.4
427	1901	1901	0.407	0.125	0	1901	30.376	0.658	2.024	100.7
428	1915	1915	0.409	0.126	0	1915	30.375	0.660	2.032	101.1
429	1896	1896	0.407	0.125	0	1896	30.377	0.657	2.023	101.4
430	1866	1866	0.405	0.124	0	1866	30.379	0.653	2.012	101.7
431	1884	1884	0.408	0.124	0	1884	30.377	0.657	2.023	102.1
432	1870	1870	0.405	0.123	0	1870	30.380	0.652	2.008	102.4
433	1860	1860	0.405	0.123	0	1860	30.380	0.652	2.007	102.7
434	1794	1794	0.401	0.121	0	1794	30.384	0.643	1.984	103.1
435	1880	1880	0.406	0.124	0	1880	30.379	0.653	2.011	103.4
436	1877	1877	0.406	0.123	0	1877	30.379	0.653	2.010	103.7
437	1855	1855	0.404	0.123	0	1855	30.381	0.650	2.001	104.1
438	1803	1803	0.402	0.121	0	1803	30.384	0.644	1.984	104.4
439	1807	1807	0.404	0.121	0	1807	30.383	0.645	1.989	104.7
440	1868	1868	0.408	0.122	0	1868	30.379	0.653	2.010	105.1
441	1840	1840	0.406	0.121	0	1840	30.382	0.648	1.997	105.4
442	1830	1830	0.403	0.121	0	1830	30.384	0.645	1.988	105.7
443	1866	1866	0.406	0.122	0	1866	30.381	0.650	2.001	106.1
444	1885	1885	0.408	0.123	0	1885	30.379	0.653	2.010	106.4
445	1854	1854	0.403	0.121	0	1854	30.383	0.646	1.991	106.7
446	1807	1807	0.403	0.120	0	1807	30.384	0.644	1.986	107.1
447	1803	1803	0.403	0.120	0	1803	30.385	0.642	1.979	107.4
448	1787	1787	0.402	0.119	0	1787	30.387	0.640	1.972	107.7
449	1776	1776	0.401	0.118	0	1776	30.388	0.637	1.965	108.1
450	1772	1772	0.401	0.118	0	1772	30.388	0.638	1.967	108.4

SHORT TERM HYDROSTATIC COMPRESSION, SAMPLE 13b

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
451	1763	1763	0.401	0.117	0	1763	30.389	0.636	1.961	108.7
452	1749	1749	0.399	0.117	0	1749	30.391	0.633	1.953	109.1
453	1721	1721	0.397	0.116	0	1721	30.393	0.629	1.942	109.4
454	1729	1729	0.397	0.116	0	1729	30.393	0.629	1.941	109.7
455	1730	1730	0.399	0.116	0	1730	30.392	0.631	1.948	110.1
456	1737	1737	0.399	0.116	0	1737	30.393	0.630	1.945	110.4
457	1715	1715	0.397	0.115	0	1715	30.395	0.627	1.935	110.7
458	1711	1711	0.398	0.115	0	1711	30.394	0.628	1.938	111.1
459	1706	1706	0.398	0.115	0	1706	30.394	0.627	1.937	111.4
460	1706	1706	0.398	0.115	0	1706	30.394	0.627	1.935	111.7
461	1679	1679	0.396	0.113	0	1679	30.397	0.623	1.925	112.1
462	1687	1687	0.397	0.113	0	1687	30.396	0.624	1.926	112.4
463	1668	1668	0.395	0.113	0	1668	30.398	0.621	1.918	112.7
464	1659	1659	0.394	0.113	0	1659	30.398	0.620	1.916	113.1
465	1578	1578	0.389	0.110	0	1578	30.404	0.609	1.886	113.4
466	1499	1499	0.384	0.106	0	1499	30.412	0.596	1.849	113.7
467	1428	1428	0.386	0.105	0	1428	30.410	0.597	1.854	114.1
468	1235	1235	0.374	0.099	0	1235	30.424	0.572	1.785	114.4
469	1128	1128	0.368	0.096	0	1128	30.431	0.559	1.750	114.7
470	1017	1017	0.360	0.092	0	1017	30.440	0.544	1.706	115.1
471	924	924	0.354	0.089	0	924	30.446	0.532	1.674	115.4
472	787	787	0.339	0.084	0	787	30.461	0.507	1.601	115.7
473	639	639	0.323	0.078	0	639	30.479	0.478	1.516	116.1
474	531	531	0.309	0.073	0	531	30.494	0.455	1.445	116.4
475	428	428	0.293	0.067	0	428	30.510	0.428	1.364	116.7
476	307	307	0.270	0.060	0	307	30.535	0.390	1.247	117.1
477	136	136	0.231	0.049	0	136	30.574	0.329	1.059	117.4
478	16	16	0.182	0.037	0	16	30.623	0.255	0.827	117.7
479	14	14	0.177	0.035	0	14	30.628	0.248	0.803	118.1
480	20	20	0.179	0.035	0	20	30.628	0.249	0.806	118.4
481	28	28	0.180	0.035	0	28	30.627	0.250	0.809	118.7

LONG TERM HYDROSTATIC COMPRESSION. SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1	0	0	0.000	0.000	0	0	28.900	0.000	0.000	0.0
2	0	0	0.001	0.001	0	0	28.898	0.002	0.007	0.2
3	18	18	0.001	0.001	0	18	28.898	0.003	0.010	0.5
4	61	61	0.003	0.006	0	61	28.889	0.017	0.053	0.7
5	107	107	0.010	0.012	0	107	28.878	0.034	0.111	1.0
6	169	169	0.017	0.020	0	169	28.863	0.056	0.183	1.3
7	210	210	0.022	0.025	0	210	28.852	0.073	0.239	1.5
8	266	266	0.030	0.034	0	266	28.836	0.097	0.319	1.7
9	326	326	0.038	0.043	0	326	28.818	0.124	0.407	2.0
10	396	396	0.047	0.053	0	396	28.799	0.153	0.503	2.2
11	471	471	0.056	0.062	0	471	28.780	0.180	0.594	2.5
12	550	550	0.066	0.074	0	550	28.758	0.213	0.703	2.7
13	560	560	0.068	0.076	0	560	28.753	0.220	0.727	3.0
14	598	598	0.073	0.081	0	598	28.743	0.235	0.777	3.2
15	635	635	0.076	0.085	0	635	28.737	0.245	0.808	3.5
16	696	696	0.083	0.093	0	696	28.721	0.268	0.885	3.7
17	736	736	0.087	0.097	0	736	28.713	0.280	0.925	4.0
18	762	762	0.091	0.102	0	762	28.704	0.295	0.972	4.2
19	781	781	0.093	0.104	0	781	28.699	0.301	0.994	4.5
20	823	823	0.096	0.108	0	823	28.692	0.312	1.028	4.7
21	845	845	0.099	0.111	0	845	28.686	0.321	1.057	5.0
22	856	856	0.101	0.112	0	856	28.684	0.325	1.072	5.2
23	868	868	0.103	0.115	0	868	28.678	0.334	1.101	5.5
24	894	894	0.105	0.117	0	894	28.674	0.340	1.121	5.7
25	907	907	0.106	0.119	0	907	28.671	0.343	1.132	6.0
26	930	930	0.109	0.121	0	930	28.666	0.351	1.157	6.2
27	957	957	0.111	0.124	0	957	28.662	0.358	1.180	6.5
28	969	969	0.114	0.126	0	969	28.656	0.366	1.208	6.7
29	992	992	0.114	0.127	0	992	28.654	0.369	1.216	7.0
30	1005	1005	0.116	0.129	0	1005	28.651	0.375	1.233	7.2
31	1024	1024	0.119	0.132	0	1024	28.645	0.383	1.261	7.5
32	1035	1035	0.121	0.134	0	1035	28.641	0.390	1.284	7.7
33	1028	1028	0.122	0.135	0	1028	28.639	0.392	1.291	8.0
34	1048	1048	0.122	0.135	0	1048	28.639	0.392	1.292	8.2
35	1123	1123	0.127	0.141	0	1123	28.628	0.410	1.348	8.5
36	1104	1104	0.128	0.143	0	1104	28.625	0.413	1.362	8.7
37	1165	1165	0.131	0.145	0	1165	28.620	0.421	1.386	9.0
38	1201	1201	0.135	0.151	0	1201	28.610	0.436	1.435	9.2
39	1182	1182	0.135	0.150	0	1182	28.611	0.435	1.432	9.5
40	1195	1195	0.135	0.151	0	1195	28.610	0.437	1.437	9.7
41	1223	1223	0.137	0.153	0	1223	28.606	0.443	1.458	10.0
42	1241	1241	0.139	0.155	0	1241	28.601	0.450	1.478	10.2
43	1263	1263	0.140	0.156	0	1263	28.599	0.453	1.488	10.5
44	1255	1255	0.141	0.156	0	1255	28.599	0.453	1.491	10.7
45	1293	1293	0.144	0.160	0	1293	28.593	0.463	1.522	11.0
46	1318	1318	0.146	0.163	0	1318	28.587	0.472	1.550	11.2
47	1349	1349	0.148	0.164	0	1349	28.584	0.476	1.564	11.5
48	1368	1368	0.151	0.167	0	1368	28.578	0.486	1.595	11.7
49	1355	1355	0.149	0.166	0	1355	28.580	0.482	1.582	12.0
50	1359	1359	0.150	0.167	0	1359	28.578	0.485	1.594	12.2

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
51	1347	1347	0.150	0.167	0	1347	28.578	0.485	1.594	12.5
52	1383	1383	0.152	0.169	0	1383	28.575	0.490	1.611	12.7
53	1378	1378	0.154	0.171	0	1378	28.571	0.495	1.626	13.0
54	1386	1386	0.153	0.170	0	1386	28.572	0.494	1.624	13.2
55	1392	1392	0.155	0.172	0	1392	28.568	0.500	1.644	13.5
56	1397	1397	0.155	0.172	0	1397	28.569	0.499	1.640	13.7
57	1401	1401	0.156	0.173	0	1401	28.567	0.502	1.649	14.0
58	1403	1403	0.157	0.174	0	1403	28.564	0.505	1.660	14.2
59	1406	1406	0.157	0.174	0	1406	28.565	0.505	1.659	14.5
60	1408	1408	0.157	0.174	0	1408	28.564	0.506	1.663	14.7
61	1407	1407	0.157	0.174	0	1407	28.565	0.505	1.658	15.0
62	1410	1410	0.157	0.175	0	1410	28.564	0.506	1.664	15.2
63	1418	1418	0.158	0.176	0	1418	28.562	0.509	1.674	15.5
64	1476	1476	0.162	0.180	0	1476	28.554	0.522	1.713	15.7
65	1473	1473	0.163	0.180	0	1473	28.552	0.524	1.720	16.0
66	1473	1473	0.161	0.179	0	1473	28.555	0.519	1.705	16.2
67	1470	1470	0.162	0.179	0	1470	28.555	0.520	1.709	16.5
68	1468	1468	0.164	0.181	0	1468	28.550	0.526	1.730	16.7
69	1468	1468	0.163	0.181	0	1468	28.551	0.525	1.727	17.0
70	1467	1467	0.164	0.182	0	1467	28.550	0.527	1.733	17.2
71	1466	1466	0.163	0.181	0	1466	28.551	0.525	1.726	17.5
72	1465	1465	0.164	0.182	0	1465	28.549	0.528	1.737	17.7
73	1465	1465	0.163	0.181	0	1465	28.551	0.525	1.727	18.0
74	1465	1465	0.164	0.182	0	1465	28.549	0.528	1.736	18.2
75	1464	1464	0.164	0.182	0	1464	28.549	0.528	1.735	18.6
76	1474	1474	0.185	0.203	0	1474	28.505	0.590	1.949	63.6
77	1478	1478	0.191	0.209	0	1478	28.491	0.608	2.013	108.6
78	1481	1481	0.195	0.213	0	1481	28.483	0.620	2.053	153.6
79	1484	1484	0.197	0.215	0	1484	28.478	0.627	2.078	198.6
80	1486	1486	0.200	0.218	0	1486	28.473	0.635	2.105	243.6
81	1489	1489	0.202	0.220	0	1489	28.468	0.641	2.125	288.6
82	1489	1489	0.202	0.220	0	1489	28.467	0.643	2.132	333.6
83	1489	1489	0.204	0.222	0	1489	28.463	0.648	2.150	378.6
84	1491	1491	0.202	0.220	0	1491	28.467	0.643	2.133	423.6
85	1489	1489	0.205	0.223	0	1489	28.462	0.650	2.157	468.6
86	1487	1487	0.205	0.223	0	1487	28.461	0.651	2.160	513.6
87	1487	1487	0.205	0.223	0	1487	28.461	0.651	2.159	558.6
88	1485	1485	0.205	0.223	0	1485	28.461	0.651	2.161	603.6
89	1483	1483	0.205	0.223	0	1483	28.462	0.650	2.157	648.6
90	1482	1482	0.204	0.222	0	1482	28.462	0.649	2.155	693.6
91	1479	1479	0.205	0.223	0	1479	28.462	0.650	2.156	738.6
92	1478	1478	0.203	0.221	0	1478	28.465	0.646	2.142	783.6
93	1475	1475	0.204	0.222	0	1475	28.463	0.648	2.149	828.6
94	1474	1474	0.204	0.222	0	1474	28.463	0.648	2.150	873.6
95	1473	1473	0.204	0.221	0	1473	28.464	0.647	2.145	918.6
96	1471	1471	0.204	0.222	0	1471	28.463	0.648	2.150	963.6
97	1468	1468	0.205	0.223	0	1468	28.462	0.650	2.157	1008.6
98	1467	1467	0.205	0.223	0	1467	28.460	0.652	2.165	1053.6
99	1468	1468	0.206	0.224	0	1468	28.459	0.653	2.169	1098.6
100	1468	1468	0.208	0.226	0	1468	28.455	0.659	2.188	1143.6

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
101	1467	1467	0.208	0.226	0	1467	28.455	0.659	2.189	1188.6
102	1467	1467	0.209	0.227	0	1467	28.452	0.663	2.203	1233.6
103	1469	1469	0.210	0.228	0	1469	28.450	0.666	2.214	1278.6
104	1470	1470	0.212	0.230	0	1470	28.446	0.671	2.231	1323.6
105	1469	1469	0.212	0.230	0	1469	28.446	0.672	2.234	1337.1
106	1470	1470	0.212	0.230	0	1470	28.445	0.673	2.236	1337.2
107	1470	1470	0.212	0.230	0	1470	28.446	0.671	2.230	1337.3
108	1469	1469	0.212	0.230	0	1469	28.445	0.672	2.234	1337.4
109	1469	1469	0.213	0.231	0	1469	28.444	0.675	2.242	1337.5
110	1469	1469	0.213	0.231	0	1469	28.444	0.674	2.240	1337.7
111	1470	1470	0.212	0.230	0	1470	28.445	0.672	2.235	1337.8
112	1469	1469	0.212	0.230	0	1469	28.446	0.672	2.233	1337.9
113	1473	1473	0.213	0.231	0	1473	28.444	0.674	2.241	1338.0
114	1481	1481	0.213	0.231	0	1481	28.444	0.674	2.240	1338.1
115	1495	1495	0.213	0.231	0	1495	28.444	0.674	2.240	1338.2
116	1510	1510	0.214	0.232	0	1510	28.442	0.678	2.252	1338.4
117	1520	1520	0.215	0.233	0	1520	28.440	0.681	2.263	1338.5
118	1545	1545	0.215	0.234	0	1545	28.440	0.682	2.264	1338.7
119	1556	1556	0.216	0.235	0	1556	28.438	0.685	2.273	1338.8
120	1565	1565	0.216	0.235	0	1565	28.437	0.686	2.276	1338.9
121	1575	1575	0.216	0.234	0	1575	28.439	0.684	2.270	1339.1
122	1584	1584	0.216	0.235	0	1584	28.437	0.686	2.276	1339.2
123	1593	1593	0.217	0.236	0	1593	28.436	0.689	2.284	1339.3
124	1602	1602	0.218	0.237	0	1602	28.434	0.691	2.291	1339.4
125	1611	1611	0.218	0.237	0	1611	28.434	0.692	2.294	1339.5
126	1619	1619	0.218	0.238	0	1619	28.433	0.694	2.299	1339.6
127	1628	1628	0.218	0.237	0	1628	28.433	0.693	2.296	1339.8
128	1635	1635	0.219	0.239	0	1635	28.431	0.696	2.307	1339.9
129	1644	1644	0.218	0.237	0	1644	28.434	0.693	2.295	1340.0
130	1652	1652	0.219	0.238	0	1652	28.432	0.696	2.305	1340.1
131	1658	1658	0.220	0.239	0	1658	28.430	0.698	2.313	1340.2
132	1665	1665	0.220	0.240	0	1665	28.429	0.700	2.318	1340.3
133	1673	1673	0.220	0.239	0	1673	28.430	0.699	2.314	1340.5
134	1680	1680	0.220	0.240	0	1680	28.429	0.701	2.319	1340.6
135	1690	1690	0.221	0.241	0	1690	28.427	0.703	2.329	1340.7
136	1700	1700	0.222	0.242	0	1700	28.425	0.706	2.337	1340.8
137	1710	1710	0.222	0.242	0	1710	28.425	0.707	2.340	1340.9
138	1723	1723	0.222	0.242	0	1723	28.425	0.707	2.339	1341.0
139	1738	1738	0.223	0.243	0	1738	28.423	0.710	2.350	1341.1
140	1750	1750	0.224	0.244	0	1750	28.422	0.712	2.353	1341.3
141	1764	1764	0.224	0.244	0	1764	28.422	0.712	2.355	1341.4
142	1776	1776	0.225	0.245	0	1776	28.420	0.715	2.363	1341.5
143	1788	1788	0.226	0.246	0	1788	28.419	0.718	2.371	1341.6
144	1801	1801	0.226	0.246	0	1801	28.418	0.719	2.375	1341.7
145	1813	1813	0.227	0.248	0	1813	28.415	0.722	2.387	1341.8
146	1824	1824	0.227	0.248	0	1824	28.415	0.724	2.391	1342.0
147	1837	1837	0.228	0.249	0	1837	28.413	0.726	2.397	1342.1
148	1847	1847	0.228	0.249	0	1847	28.413	0.727	2.401	1342.2
149	1860	1860	0.229	0.250	0	1860	28.412	0.728	2.404	1342.3
150	1870	1870	0.230	0.251	0	1870	28.409	0.733	2.420	1342.4

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
151	1878	1878	0.230	0.252	0	1878	28.409	0.734	2.422	1342.5
152	1874	1874	0.231	0.252	0	1874	28.407	0.735	2.427	1342.7
153	1869	1869	0.231	0.252	0	1869	28.407	0.736	2.431	1342.8
154	1864	1864	0.232	0.253	0	1864	28.406	0.737	2.435	1342.9
155	1860	1860	0.231	0.252	0	1860	28.407	0.735	2.428	1343.1
156	1856	1856	0.231	0.252	0	1856	28.406	0.736	2.431	1343.2
157	1854	1854	0.230	0.251	0	1854	28.410	0.731	2.415	1343.4
158	1852	1852	0.230	0.251	0	1852	28.410	0.732	2.416	1343.5
159	1850	1850	0.231	0.252	0	1850	28.408	0.734	2.425	1343.6
160	1850	1850	0.231	0.252	0	1850	28.408	0.734	2.423	1343.7
161	1870	1870	0.231	0.252	0	1870	28.407	0.736	2.430	1343.8
162	1870	1870	0.231	0.252	0	1870	28.408	0.734	2.425	1343.9
163	1868	1868	0.232	0.253	0	1868	28.405	0.739	2.439	1344.1
164	1866	1866	0.231	0.252	0	1866	28.407	0.736	2.431	1344.2
165	1864	1864	0.230	0.252	0	1864	28.408	0.734	2.422	1344.3
166	1863	1863	0.231	0.252	0	1863	28.407	0.735	2.429	1344.4
167	1862	1862	0.231	0.252	0	1862	28.407	0.736	2.430	1344.5
168	1860	1860	0.230	0.251	0	1860	28.409	0.733	2.420	1344.6
169	1859	1859	0.230	0.251	0	1859	28.409	0.733	2.421	1344.8
170	1859	1859	0.232	0.252	0	1859	28.406	0.736	2.433	1344.9
171	1857	1857	0.231	0.252	0	1857	28.407	0.735	2.429	1345.0
172	1856	1856	0.231	0.252	0	1856	28.408	0.734	2.425	1345.1
173	1853	1853	0.230	0.251	0	1853	28.409	0.733	2.420	1346.0
174	1869	1869	0.231	0.252	0	1869	28.407	0.736	2.429	1349.3
175	1870	1870	0.231	0.253	0	1870	28.406	0.737	2.432	1349.4
176	1869	1869	0.232	0.253	0	1869	28.405	0.738	2.438	1349.7
177	1865	1865	0.233	0.254	0	1865	28.402	0.742	2.451	1373.8
178	1864	1864	0.234	0.255	0	1864	28.401	0.743	2.456	1373.9
179	1864	1864	0.234	0.255	0	1864	28.402	0.743	2.454	1374.1
180	1862	1862	0.235	0.256	0	1862	28.398	0.748	2.472	1419.1
181	1859	1859	0.237	0.258	0	1859	28.394	0.753	2.491	1464.1
182	1860	1860	0.238	0.259	0	1860	28.392	0.756	2.500	1509.1
183	1834	1834	0.250	0.271	0	1834	28.367	0.791	2.622	1622.4
184	1833	1833	0.250	0.271	0	1833	28.366	0.791	2.624	1622.5
185	1833	1833	0.250	0.271	0	1833	28.365	0.792	2.628	1622.7
186	1834	1834	0.250	0.271	0	1834	28.366	0.792	2.627	1622.8
187	1833	1833	0.250	0.271	0	1833	28.366	0.791	2.624	1622.9
188	1834	1834	0.250	0.271	0	1834	28.366	0.791	2.623	1623.0
189	1834	1834	0.249	0.270	0	1834	28.367	0.790	2.619	1623.1
190	1836	1836	0.250	0.271	0	1836	28.366	0.791	2.623	1623.2
191	1844	1844	0.250	0.271	0	1844	28.365	0.793	2.629	1623.4
192	1860	1860	0.251	0.272	0	1860	28.364	0.795	2.637	1623.5
193	1874	1874	0.252	0.273	0	1874	28.363	0.797	2.641	1623.6
194	1888	1888	0.251	0.273	0	1888	28.364	0.796	2.638	1623.7
195	1901	1901	0.252	0.273	0	1901	28.362	0.798	2.643	1623.8
196	1914	1914	0.252	0.274	0	1914	28.361	0.800	2.648	1623.9
197	1926	1926	0.253	0.275	0	1926	28.360	0.802	2.656	1624.1
198	1938	1938	0.254	0.276	0	1938	28.357	0.806	2.668	1624.2
199	1949	1949	0.255	0.276	0	1949	28.357	0.807	2.671	1624.3
200	1960	1960	0.254	0.276	0	1960	28.358	0.806	2.669	1624.4

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
201	1972	1972	0.254	0.276	0	1972	28.359	0.805	2.664	1624.5
202	1989	1989	0.255	0.277	0	1989	28.356	0.809	2.674	1624.6
203	2009	2009	0.255	0.277	0	2009	28.356	0.810	2.678	1624.8
204	2029	2029	0.256	0.278	0	2029	28.355	0.812	2.683	1624.9
205	2048	2048	0.257	0.279	0	2048	28.353	0.816	2.695	1625.0
206	2066	2066	0.258	0.281	0	2066	28.350	0.820	2.709	1625.1
207	2084	2084	0.259	0.282	0	2084	28.348	0.823	2.718	1625.2
208	2100	2100	0.260	0.282	0	2100	28.348	0.824	2.719	1625.3
209	2117	2117	0.261	0.284	0	2117	28.345	0.828	2.735	1625.5
210	2133	2133	0.261	0.284	0	2133	28.345	0.828	2.733	1625.6
211	2149	2149	0.261	0.284	0	2149	28.345	0.828	2.733	1625.7
212	2165	2165	0.261	0.284	0	2165	28.345	0.829	2.735	1625.8
213	2179	2179	0.262	0.285	0	2179	28.343	0.832	2.744	1625.9
214	2195	2195	0.263	0.286	0	2195	28.342	0.834	2.750	1626.0
215	2209	2209	0.264	0.287	0	2209	28.340	0.837	2.759	1626.2
216	2223	2223	0.265	0.288	0	2223	28.337	0.841	2.773	1626.3
217	2237	2237	0.266	0.289	0	2237	28.335	0.844	2.782	1626.4
218	2250	2250	0.266	0.290	0	2250	28.334	0.846	2.788	1626.5
219	2265	2265	0.267	0.291	0	2265	28.333	0.848	2.794	1626.6
220	2259	2259	0.267	0.290	0	2259	28.334	0.847	2.791	1626.7
221	2254	2254	0.266	0.290	0	2254	28.335	0.845	2.784	1626.9
222	2249	2249	0.266	0.289	0	2249	28.335	0.845	2.784	1627.0
223	2249	2249	0.266	0.289	0	2249	28.335	0.845	2.782	1627.1
224	2275	2275	0.267	0.291	0	2275	28.333	0.848	2.793	1627.2
225	2271	2271	0.267	0.290	0	2271	28.333	0.848	2.792	1627.3
226	2267	2267	0.267	0.291	0	2267	28.332	0.849	2.797	1627.4
227	2263	2263	0.267	0.291	0	2263	28.332	0.849	2.796	1627.6
228	2270	2270	0.267	0.290	0	2270	28.333	0.848	2.793	1627.7
229	2296	2296	0.268	0.291	0	2296	28.332	0.850	2.800	1627.8
230	2293	2293	0.269	0.292	0	2293	28.330	0.853	2.809	1627.9
231	2289	2289	0.268	0.292	0	2289	28.331	0.852	2.805	1628.0
232	2285	2285	0.268	0.292	0	2285	28.331	0.852	2.805	1628.1
233	2279	2279	0.268	0.291	0	2279	28.332	0.850	2.799	1628.4
234	2244	2244	0.269	0.293	0	2244	28.328	0.855	2.817	1673.4
235	2240	2240	0.271	0.294	0	2240	28.324	0.860	2.835	1718.4
236	2236	2236	0.271	0.294	0	2236	28.325	0.859	2.833	1763.4
237	2234	2234	0.271	0.294	0	2234	28.324	0.860	2.837	1808.4
238	2231	2231	0.270	0.293	0	2231	28.327	0.856	2.823	1853.4
239	2229	2229	0.270	0.293	0	2229	28.327	0.856	2.821	1898.4
240	2227	2227	0.271	0.295	0	2227	28.323	0.861	2.840	1943.4
241	2225	2225	0.272	0.296	0	2225	28.321	0.863	2.849	1988.4
242	2225	2225	0.273	0.296	0	2225	28.320	0.865	2.854	2033.4
243	2225	2225	0.272	0.295	0	2225	28.322	0.862	2.846	2078.4
244	2225	2225	0.271	0.295	0	2225	28.323	0.861	2.840	2123.4
245	2222	2222	0.273	0.296	0	2222	28.320	0.865	2.855	2168.4
246	2223	2223	0.274	0.297	0	2223	28.318	0.868	2.866	2213.4
247	2220	2220	0.274	0.297	0	2220	28.318	0.868	2.865	2258.4
248	2222	2222	0.275	0.299	0	2222	28.315	0.872	2.880	2303.4
249	2220	2220	0.275	0.298	0	2220	28.315	0.871	2.877	2348.4
250	2221	2221	0.275	0.298	0	2221	28.315	0.872	2.877	2393.4

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
251	2222	2222	0.276	0.299	0	2222	28.313	0.875	2.889	2438.4
252	2220	2220	0.277	0.300	0	2220	28.311	0.877	2.896	2483.4
253	2221	2221	0.278	0.301	0	2221	28.310	0.879	2.904	2528.4
254	2221	2221	0.278	0.301	0	2221	28.309	0.880	2.906	2573.4
255	2221	2221	0.279	0.302	0	2221	28.307	0.883	2.918	2618.4
256	2224	2224	0.279	0.302	0	2224	28.306	0.884	2.920	2663.4
257	2224	2224	0.282	0.305	0	2224	28.300	0.892	2.948	2708.4
258	2227	2227	0.282	0.306	0	2227	28.300	0.893	2.953	2753.5
259	2228	2228	0.284	0.307	0	2228	28.295	0.899	2.972	2798.5
260	2234	2234	0.286	0.309	0	2234	28.292	0.904	2.989	2843.4
261	2234	2234	0.286	0.309	0	2234	28.292	0.904	2.988	2888.4
262	2238	2238	0.286	0.310	0	2238	28.291	0.906	2.996	2933.4
263	2240	2240	0.288	0.312	0	2240	28.287	0.911	3.013	2978.5
264	2241	2241	0.290	0.313	0	2241	28.284	0.915	3.028	2986.7
265	2240	2240	0.290	0.313	0	2240	28.284	0.916	3.029	2986.9
266	2239	2239	0.290	0.313	0	2239	28.283	0.916	3.030	2987.1
267	2239	2239	0.289	0.313	0	2239	28.284	0.915	3.025	2987.2
268	2241	2241	0.290	0.314	0	2241	28.282	0.918	3.036	2987.3
269	2241	2241	0.290	0.314	0	2241	28.282	0.918	3.037	2987.4
270	2264	2264	0.290	0.313	0	2264	28.284	0.916	3.029	2987.5
271	2287	2287	0.291	0.314	0	2287	28.282	0.919	3.038	2987.6
272	2315	2315	0.290	0.314	0	2315	28.284	0.918	3.031	2987.8
273	2347	2347	0.292	0.316	0	2347	28.280	0.923	3.048	2987.9
274	2374	2374	0.292	0.316	0	2374	28.280	0.924	3.051	2988.0
275	2404	2404	0.295	0.319	0	2404	28.275	0.932	3.076	2988.1
276	2431	2431	0.295	0.319	0	2431	28.274	0.934	3.080	2988.2
277	2458	2458	0.296	0.320	0	2458	28.273	0.936	3.085	2988.3
278	2481	2481	0.297	0.321	0	2481	28.271	0.939	3.095	2988.5
279	2504	2504	0.299	0.324	0	2504	28.267	0.946	3.117	2988.6
280	2523	2523	0.299	0.324	0	2523	28.267	0.946	3.117	2988.7
281	2517	2517	0.300	0.325	0	2517	28.264	0.950	3.129	2988.8
282	2510	2510	0.299	0.324	0	2510	28.266	0.947	3.122	2988.9
283	2526	2526	0.299	0.324	0	2526	28.265	0.948	3.123	2989.0
284	2562	2562	0.302	0.327	0	2562	28.261	0.955	3.145	2989.2
285	2594	2594	0.303	0.328	0	2594	28.259	0.958	3.155	2989.3
286	2623	2623	0.303	0.328	0	2623	28.260	0.958	3.153	2989.4
287	2625	2625	0.305	0.330	0	2625	28.256	0.964	3.172	2989.5
288	2618	2618	0.304	0.329	0	2618	28.257	0.962	3.166	2989.6
289	2611	2611	0.305	0.330	0	2611	28.255	0.964	3.174	2989.7
290	2605	2605	0.304	0.329	0	2605	28.256	0.963	3.169	2989.9
291	2600	2600	0.304	0.329	0	2600	28.256	0.962	3.168	2990.0
292	2595	2595	0.305	0.330	0	2595	28.255	0.964	3.173	2990.1
293	2591	2591	0.304	0.329	0	2591	28.257	0.961	3.164	2990.2
294	2588	2588	0.303	0.328	0	2588	28.258	0.960	3.161	2990.3
295	2584	2584	0.304	0.329	0	2584	28.255	0.963	3.172	2990.4
296	2582	2582	0.304	0.329	0	2582	28.256	0.963	3.171	2990.6
297	2579	2579	0.304	0.329	0	2579	28.257	0.961	3.164	2990.7
298	2574	2574	0.305	0.330	0	2574	28.254	0.965	3.178	2990.9
299	2653	2653	0.306	0.331	0	2653	28.254	0.967	3.181	2991.1
300	2685	2685	0.307	0.332	0	2685	28.251	0.972	3.195	2991.3

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
301	2712	2712	0.308	0.334	0	2712	28.248	0.976	3.210	2991.4
302	2721	2721	0.307	0.332	0	2721	28.252	0.971	3.192	2991.5
303	2715	2715	0.309	0.334	0	2715	28.247	0.978	3.214	2991.6
304	2710	2710	0.308	0.334	0	2710	28.249	0.976	3.207	2991.7
305	2705	2705	0.308	0.334	0	2705	28.249	0.976	3.207	2991.8
306	2701	2701	0.307	0.332	0	2701	28.252	0.971	3.192	2992.0
307	2693	2693	0.308	0.333	0	2693	28.250	0.974	3.203	2992.2
308	2692	2692	0.309	0.334	0	2692	28.247	0.978	3.215	2992.3
309	2689	2689	0.308	0.333	0	2689	28.250	0.974	3.202	2992.4
310	2685	2685	0.308	0.333	0	2685	28.250	0.973	3.201	2992.5
311	2684	2684	0.307	0.332	0	2684	28.251	0.972	3.196	2992.7
312	2681	2681	0.307	0.332	0	2681	28.252	0.971	3.192	2992.8
313	2680	2680	0.307	0.332	0	2680	28.252	0.971	3.191	2992.9
314	2677	2677	0.307	0.333	0	2677	28.250	0.973	3.199	2993.0
315	2675	2675	0.306	0.332	0	2675	28.253	0.969	3.187	2993.3
316	2708	2708	0.312	0.337	0	2708	28.241	0.987	3.246	3038.3
317	2706	2706	0.315	0.341	0	2706	28.233	0.997	3.281	3083.3
318	2703	2703	0.317	0.343	0	2703	28.229	1.002	3.299	3128.3
319	2699	2699	0.316	0.341	0	2699	28.232	0.998	3.285	3173.3
320	2699	2699	0.317	0.343	0	2699	28.229	1.002	3.300	3218.3
321	2696	2696	0.319	0.344	0	2696	28.226	1.007	3.317	3263.3
322	2696	2696	0.319	0.344	0	2696	28.226	1.006	3.314	3308.3
323	2692	2692	0.320	0.345	0	2692	28.223	1.010	3.327	3353.3
324	2691	2691	0.319	0.345	0	2691	28.224	1.009	3.324	3398.3
325	2687	2687	0.318	0.344	0	2687	28.226	1.006	3.314	3443.3
326	2684	2684	0.319	0.344	0	2684	28.225	1.007	3.319	3488.3
327	2681	2681	0.319	0.344	0	2681	28.226	1.007	3.316	3533.3
328	2676	2676	0.318	0.343	0	2676	28.227	1.005	3.309	3578.3
329	2674	2674	0.318	0.344	0	2674	28.226	1.006	3.314	3623.3
330	2670	2670	0.319	0.345	0	2670	28.224	1.009	3.324	3668.3
331	2669	2669	0.319	0.344	0	2669	28.225	1.008	3.322	3713.3
332	2665	2665	0.319	0.344	0	2665	28.225	1.007	3.319	3758.3
333	2665	2665	0.319	0.344	0	2665	28.225	1.008	3.322	3803.3
334	2662	2662	0.319	0.344	0	2662	28.225	1.007	3.318	3848.3
335	2662	2662	0.319	0.345	0	2662	28.224	1.009	3.325	3893.3
336	2664	2664	0.319	0.345	0	2664	28.224	1.009	3.325	3938.3
337	2695	2695	0.312	0.337	0	2695	28.240	0.987	3.246	3983.3
338	2696	2696	0.313	0.339	0	2696	28.237	0.991	3.261	4028.3
339	2698	2698	0.315	0.341	0	2698	28.233	0.997	3.283	4073.3
340	2699	2699	0.316	0.342	0	2699	28.231	1.000	3.293	4118.3
341	2702	2702	0.319	0.344	0	2702	28.226	1.007	3.316	4163.3
342	2704	2704	0.318	0.343	0	2704	28.228	1.004	3.305	4208.3
343	2707	2707	0.318	0.344	0	2707	28.227	1.006	3.312	4253.3
344	2712	2712	0.321	0.346	0	2712	28.221	1.013	3.338	4298.3
345	2716	2716	0.320	0.346	0	2716	28.222	1.012	3.334	4343.3
					0					
347	2725	2725	0.324	0.350	0	2725	28.214	1.024	3.372	4433.3
348	2728	2728	0.323	0.348	0	2728	28.217	1.019	3.358	4449.2
349	2727	2727	0.326	0.352	0	2727	28.210	1.029	3.391	4449.4
350	2728	2728	0.322	0.347	0	2728	28.219	1.017	3.348	4449.6

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
351	2726	2726	0.325	0.350	0	2726	28.213	1.025	3.376	4449.7
352	2728	2728	0.322	0.348	0	2728	28.218	1.018	3.353	4449.8
353	2752	2752	0.324	0.349	0	2752	28.216	1.022	3.365	4449.9
354	2791	2791	0.326	0.352	0	2791	28.212	1.029	3.387	4450.0
355	2813	2813	0.327	0.353	0	2813	28.209	1.034	3.401	4450.1
356	2825	2825	0.328	0.353	0	2825	28.208	1.034	3.403	4450.3
357	2828	2828	0.327	0.353	0	2828	28.210	1.033	3.397	4450.4
358	2831	2831	0.328	0.353	0	2831	28.208	1.035	3.404	4450.5
359	2836	2836	0.327	0.353	0	2836	28.209	1.034	3.400	4450.6
360	2839	2839	0.327	0.352	0	2839	28.211	1.031	3.392	4450.7
361	2844	2844	0.329	0.354	0	2844	28.206	1.038	3.413	4450.8
362	2846	2846	0.328	0.354	0	2846	28.208	1.036	3.406	4451.0
363	2851	2851	0.326	0.352	0	2851	28.211	1.031	3.390	4451.1
364	2855	2855	0.326	0.352	0	2855	28.212	1.030	3.388	4451.2
365	2859	2859	0.327	0.353	0	2859	28.210	1.033	3.396	4451.3
366	2862	2862	0.328	0.354	0	2862	28.208	1.036	3.405	4451.4
367	2865	2865	0.329	0.355	0	2865	28.206	1.039	3.416	4451.5
368	2868	2868	0.329	0.355	0	2868	28.206	1.038	3.413	4451.7
369	2873	2873	0.327	0.353	0	2873	28.209	1.034	3.399	4451.8
370	2876	2876	0.328	0.354	0	2876	28.208	1.036	3.407	4451.9
371	2879	2879	0.329	0.355	0	2879	28.206	1.039	3.416	4452.0
372	2884	2884	0.328	0.354	0	2884	28.208	1.037	3.408	4452.1
373	2887	2887	0.328	0.354	0	2887	28.208	1.036	3.405	4452.2
374	2891	2891	0.329	0.355	0	2891	28.206	1.040	3.418	4452.4
375	2894	2894	0.329	0.355	0	2894	28.207	1.038	3.410	4452.5
376	2897	2897	0.329	0.355	0	2897	28.205	1.040	3.420	4452.6
377	2900	2900	0.330	0.356	0	2900	28.205	1.041	3.421	4452.7
378	2906	2906	0.329	0.355	0	2906	28.205	1.040	3.418	4452.8
379	2908	2908	0.329	0.355	0	2908	28.206	1.040	3.417	4452.9
380	2912	2912	0.329	0.355	0	2912	28.206	1.039	3.415	4453.1
381	2915	2915	0.329	0.355	0	2915	28.206	1.040	3.418	4453.2
382	2919	2919	0.330	0.356	0	2919	28.204	1.042	3.425	4453.3
383	2922	2922	0.330	0.356	0	2922	28.204	1.043	3.426	4453.4
384	2925	2925	0.330	0.356	0	2925	28.204	1.043	3.426	4453.5
385	2930	2930	0.330	0.356	0	2930	28.205	1.041	3.420	4453.6
386	2956	2956	0.330	0.357	0	2956	28.204	1.043	3.426	4453.8
387	2987	2987	0.333	0.359	0	2987	28.199	1.051	3.450	4453.9
388	3014	3014	0.333	0.359	0	3014	28.199	1.051	3.450	4454.0
389	3040	3040	0.335	0.361	0	3040	28.195	1.058	3.470	4454.1
390	3065	3065	0.335	0.362	0	3065	28.195	1.058	3.471	4454.2
391	3090	3090	0.337	0.363	0	3090	28.192	1.064	3.489	4454.3
392	3113	3113	0.338	0.364	0	3113	28.191	1.066	3.495	4454.5
393	3137	3137	0.338	0.365	0	3137	28.189	1.068	3.501	4454.6
394	3158	3158	0.339	0.365	0	3158	28.189	1.069	3.502	4454.7
395	3179	3179	0.338	0.365	0	3179	28.190	1.068	3.499	4454.8
396	3200	3200	0.341	0.367	0	3200	28.185	1.076	3.523	4454.9
397	3220	3220	0.340	0.367	0	3220	28.187	1.074	3.516	4455.0
398	3221	3221	0.341	0.368	0	3221	28.185	1.077	3.524	4455.2
399	3214	3214	0.343	0.370	0	3214	28.180	1.083	3.546	4455.3
400	3207	3207	0.341	0.367	0	3207	28.186	1.075	3.519	4455.4

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
401	3202	3202	0.340	0.366	0	3202	28.188	1.072	3.511	4455.5
402	3196	3196	0.344	0.371	0	3196	28.178	1.085	3.557	4455.6
403	3191	3191	0.342	0.369	0	3191	28.181	1.081	3.540	4455.7
404	3187	3187	0.340	0.367	0	3187	28.186	1.074	3.519	4455.9
405	3184	3184	0.341	0.367	0	3184	28.185	1.075	3.522	4456.0
406	3180	3180	0.340	0.367	0	3180	28.186	1.074	3.518	4456.1
407	3177	3177	0.340	0.367	0	3177	28.186	1.074	3.518	4456.2
408	3174	3174	0.341	0.367	0	3174	28.185	1.076	3.524	4456.3
409	3172	3172	0.341	0.368	0	3172	28.184	1.077	3.528	4456.4
410	3170	3170	0.340	0.367	0	3170	28.186	1.073	3.516	4456.6
411	3167	3167	0.340	0.367	0	3167	28.186	1.073	3.516	4456.7
412	3166	3166	0.344	0.370	0	3166	28.178	1.085	3.556	4456.8
413	3164	3164	0.340	0.367	0	3164	28.186	1.074	3.519	4456.9
414	3162	3162	0.344	0.370	0	3162	28.178	1.084	3.555	4457.0
415	3161	3161	0.341	0.368	0	3161	28.184	1.077	3.528	4457.1
416	3160	3160	0.341	0.368	0	3160	28.183	1.077	3.531	4457.3
417	3159	3159	0.342	0.368	0	3159	28.183	1.078	3.532	4457.4
418	3157	3157	0.340	0.367	0	3157	28.186	1.073	3.517	4457.5
419	3156	3156	0.341	0.367	0	3156	28.185	1.075	3.523	4457.6
420	3156	3156	0.342	0.368	0	3156	28.182	1.078	3.535	4457.7
421	3155	3155	0.340	0.366	0	3155	28.187	1.072	3.512	4457.8
422	3154	3154	0.341	0.367	0	3154	28.185	1.075	3.522	4458.0
423	3153	3153	0.343	0.370	0	3153	28.179	1.083	3.551	4458.1
424	3183	3183	0.340	0.367	0	3183	28.186	1.074	3.517	4458.2
425	3207	3207	0.342	0.368	0	3207	28.184	1.078	3.530	4458.3
426	3205	3205	0.342	0.369	0	3205	28.182	1.080	3.537	4458.4
427	3202	3202	0.343	0.370	0	3202	28.181	1.082	3.545	4458.5
428	3201	3201	0.343	0.370	0	3201	28.180	1.082	3.546	4458.7
429	3199	3199	0.344	0.370	0	3199	28.179	1.084	3.551	4458.8
430	3198	3198	0.343	0.369	0	3198	28.181	1.081	3.542	4458.9
431	3197	3197	0.342	0.369	0	3197	28.182	1.080	3.539	4459.0
432	3195	3195	0.342	0.368	0	3195	28.183	1.078	3.532	4459.1
433	3194	3194	0.343	0.369	0	3194	28.181	1.082	3.543	4459.2
434	3194	3194	0.343	0.369	0	3194	28.181	1.081	3.541	4459.4
435	3193	3193	0.342	0.369	0	3193	28.182	1.079	3.535	4459.5
436	3191	3191	0.342	0.368	0	3191	28.183	1.078	3.531	4459.6
437	3190	3190	0.343	0.370	0	3190	28.180	1.082	3.547	4459.7
438	3190	3190	0.343	0.369	0	3190	28.181	1.081	3.543	4459.8
439	3190	3190	0.343	0.369	0	3190	28.180	1.082	3.545	4459.9
440	3188	3188	0.343	0.370	0	3188	28.180	1.083	3.548	4460.1
441	3188	3188	0.343	0.369	0	3188	28.181	1.081	3.543	4460.2
442	3187	3187	0.343	0.369	0	3187	28.181	1.081	3.543	4460.3
443	3186	3186	0.343	0.369	0	3186	28.180	1.082	3.545	4460.4
444	3186	3186	0.344	0.370	0	3186	28.178	1.085	3.554	4460.5
445	3186	3186	0.344	0.371	0	3186	28.178	1.085	3.557	4460.6
446	3185	3185	0.344	0.370	0	3185	28.179	1.084	3.552	4460.8
447	3185	3185	0.344	0.370	0	3185	28.179	1.084	3.553	4460.9
448	3185	3185	0.343	0.369	0	3185	28.181	1.081	3.542	4461.0
449	3183	3183	0.344	0.370	0	3183	28.178	1.085	3.555	4461.3
450	3172	3172	0.346	0.373	0	3172	28.173	1.092	3.581	4506.3

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
451	3171	3171	0.349	0.376	0	3171	28.166	1.101	3.613	4551.3
452	3170	3170	0.351	0.378	0	3170	28.161	1.107	3.635	4596.3
453	3170	3170	0.354	0.380	0	3170	28.157	1.114	3.656	4641.3
454	3168	3168	0.354	0.380	0	3168	28.157	1.114	3.657	4686.3
455	3166	3166	0.354	0.381	0	3166	28.155	1.116	3.665	4731.3
456	3164	3164	0.356	0.382	0	3164	28.152	1.120	3.680	4776.3
457	3162	3162	0.356	0.383	0	3162	28.150	1.122	3.687	4821.3
458	3158	3158	0.357	0.383	0	3158	28.150	1.123	3.688	4866.3
459	3155	3155	0.357	0.383	0	3155	28.150	1.123	3.688	4911.3
460	3151	3151	0.356	0.382	0	3151	28.151	1.121	3.683	4956.3
461	3148	3148	0.357	0.383	0	3148	28.149	1.124	3.693	5001.3
462	3145	3145	0.356	0.383	0	3145	28.150	1.122	3.688	5046.3
463	3139	3139	0.356	0.383	0	3139	28.151	1.121	3.683	5091.3
464	3138	3138	0.356	0.383	0	3138	28.150	1.122	3.688	5136.3
465	3135	3135	0.357	0.383	0	3135	28.149	1.124	3.692	5181.3
466	3131	3131	0.357	0.383	0	3131	28.149	1.124	3.694	5226.3
467	3128	3128	0.357	0.383	0	3128	28.150	1.123	3.690	5271.3
468	3127	3127	0.358	0.384	0	3127	28.148	1.126	3.700	5316.3
469	3125	3125	0.360	0.386	0	3125	28.143	1.132	3.723	5361.3
470	3190	3190	0.362	0.389	0	3190	28.138	1.140	3.745	5406.3
471	3190	3190	0.365	0.391	0	3190	28.132	1.148	3.773	5451.3
472	3193	3193	0.366	0.392	0	3193	28.131	1.150	3.781	5496.3
473	3195	3195	0.367	0.394	0	3195	28.127	1.155	3.798	5541.3
474	3198	3198	0.368	0.394	0	3198	28.127	1.156	3.801	5586.3
475	3204	3204	0.370	0.397	0	3204	28.122	1.163	3.825	5631.3
476	3209	3209	0.370	0.397	0	3209	28.121	1.164	3.829	5676.3
477	3213	3213	0.374	0.400	0	3213	28.114	1.174	3.861	5721.3
478	3220	3220	0.373	0.400	0	3220	28.114	1.173	3.860	5766.3
479	3224	3224	0.374	0.401	0	3224	28.113	1.175	3.866	5811.3
480	3231	3231	0.376	0.402	0	3231	28.110	1.180	3.881	5856.3
481	3232	3232	0.376	0.402	0	3232	28.110	1.180	3.882	5871.6
482	3233	3233	0.375	0.402	0	3233	28.111	1.178	3.875	5871.8
483	3233	3233	0.375	0.402	0	3233	28.111	1.178	3.875	5871.9
484	3232	3232	0.376	0.403	0	3232	28.108	1.182	3.889	5872.0
485	3233	3233	0.376	0.403	0	3233	28.109	1.181	3.885	5872.1
486	3233	3233	0.376	0.402	0	3233	28.110	1.180	3.882	5872.2
487	3232	3232	0.377	0.403	0	3232	28.108	1.183	3.892	5872.3
488	3233	3233	0.375	0.402	0	3233	28.111	1.179	3.878	5872.5
489	3233	3233	0.376	0.403	0	3233	28.109	1.181	3.886	5872.6
490	3231	3231	0.376	0.402	0	3231	28.109	1.181	3.884	5872.7
491	3233	3233	0.376	0.403	0	3233	28.109	1.182	3.888	5872.8
492	3233	3233	0.375	0.401	0	3233	28.112	1.177	3.872	5872.9
493	3233	3233	0.376	0.403	0	3233	28.108	1.182	3.890	5873.0
494	3233	3233	0.375	0.402	0	3233	28.111	1.178	3.875	5873.2
495	3233	3233	0.375	0.402	0	3233	28.110	1.179	3.879	5873.3
496	3232	3232	0.377	0.403	0	3232	28.108	1.183	3.892	5873.4
497	3232	3232	0.376	0.402	0	3232	28.110	1.180	3.882	5873.5
498	3231	3231	0.376	0.402	0	3231	28.110	1.180	3.882	5873.6
499	3231	3231	0.375	0.401	0	3231	28.112	1.177	3.873	5873.7
500	3230	3230	0.376	0.403	0	3230	28.108	1.182	3.890	5873.9

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #2

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
501	3230	3230	0.376	0.402	0	3230	28.110	1.180	3.882	5874.0
502	3230	3230	0.377	0.403	0	3230	28.108	1.183	3.891	5874.1
503	3229	3229	0.377	0.404	0	3229	28.107	1.184	3.897	5874.2
504	3228	3228	0.377	0.403	0	3228	28.107	1.184	3.895	5874.3
505	3228	3228	0.379	0.406	0	3228	28.102	1.191	3.919	5874.4
506	3226	3226	0.385	0.412	0	3226	28.089	1.208	3.980	5874.6
507	3224	3224	0.388	0.415	0	3224	28.082	1.218	4.014	5874.7
508	3224	3224	0.391	0.417	0	3224	28.076	1.226	4.040	5874.8
509	3222	3222	0.391	0.418	0	3222	28.076	1.227	4.044	5874.9
510	3079	3079	0.388	0.414	0	3079	28.081	1.216	4.015	5875.0
511	2707	2707	0.378	0.403	0	2707	28.097	1.184	3.928	5875.1
512	2425	2425	0.370	0.394	0	2425	28.111	1.158	3.857	5875.3
513	2199	2199	0.363	0.386	0	2199	28.124	1.135	3.790	5875.4
514	2147	2147	0.361	0.384	0	2147	28.127	1.129	3.774	5875.5
515	2140	2140	0.360	0.383	0	2140	28.129	1.127	3.765	5875.6
516	2033	2033	0.356	0.378	0	2033	28.137	1.112	3.723	5875.7
517	1914	1914	0.352	0.373	0	1914	28.145	1.099	3.682	5875.8
518	1819	1819	0.348	0.369	0	1819	28.152	1.086	3.645	5876.0
519	1748	1748	0.346	0.366	0	1748	28.157	1.078	3.620	5876.1
520	1681	1681	0.342	0.362	0	1681	28.164	1.067	3.586	5876.2
521	1615	1615	0.339	0.358	0	1615	28.172	1.054	3.548	5876.3
522	1563	1563	0.336	0.355	0	1563	28.177	1.046	3.524	5876.4
523	1519	1519	0.334	0.352	0	1519	28.181	1.039	3.501	5876.5
524	1475	1475	0.332	0.350	0	1475	28.186	1.032	3.478	5876.7
525	1436	1436	0.331	0.348	0	1436	28.188	1.027	3.464	5876.8
526	1401	1401	0.329	0.346	0	1401	28.192	1.021	3.447	5876.9
527	1329	1329	0.327	0.343	0	1329	28.197	1.013	3.421	5877.0
528	1260	1260	0.323	0.339	0	1260	28.204	1.001	3.384	5877.1
529	1203	1203	0.321	0.336	0	1203	28.208	0.994	3.364	5877.2
530	1152	1152	0.319	0.334	0	1152	28.213	0.986	3.342	5877.4
531	1105	1105	0.316	0.331	0	1105	28.218	0.978	3.314	5877.5
532	1065	1065	0.314	0.328	0	1065	28.222	0.971	3.293	5877.6
533	1026	1026	0.313	0.326	0	1026	28.226	0.965	3.275	5877.7
534	989	989	0.310	0.323	0	989	28.233	0.955	3.243	5877.8
535	957	957	0.307	0.320	0	957	28.237	0.947	3.218	5877.9
536	925	925	0.307	0.320	0	925	28.237	0.946	3.217	5878.1
537	896	896	0.305	0.317	0	896	28.242	0.940	3.196	5878.2
538	867	867	0.304	0.316	0	867	28.244	0.936	3.186	5878.3
539	840	840	0.302	0.313	0	840	28.249	0.929	3.162	5878.4
540	813	813	0.300	0.311	0	813	28.254	0.921	3.136	5878.5
541	789	789	0.298	0.309	0	789	28.258	0.915	3.117	5878.6
542	764	764	0.296	0.307	0	764	28.261	0.910	3.103	5878.8
543	742	742	0.295	0.305	0	742	28.264	0.906	3.088	5878.9
544	719	719	0.293	0.303	0	719	28.267	0.900	3.070	5879.0
545	697	697	0.293	0.302	0	697	28.269	0.898	3.063	5879.1
546	659	659	0.291	0.300	0	659	28.272	0.892	3.045	5879.2
547	612	612	0.287	0.296	0	612	28.281	0.879	3.003	5879.3
548	562	562	0.284	0.291	0	562	28.289	0.866	2.963	5879.5
549	520	520	0.280	0.288	0	520	28.296	0.856	2.929	5879.6
550	470	470	0.277	0.284	0	470	28.302	0.845	2.896	5879.7

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
551	422	422	0.273	0.280	0	422	28.311	0.833	2.855	5879.8
552	380	380	0.270	0.275	0	380	28.319	0.821	2.816	5879.9
553	342	342	0.268	0.273	0	342	28.324	0.813	2.791	5880.0
554	279	279	0.260	0.264	0	279	28.340	0.789	2.713	5880.3
555	244	244	0.257	0.261	0	244	28.347	0.778	2.678	5880.4
556	211	211	0.252	0.255	0	211	28.357	0.763	2.626	5880.5
557	178	178	0.249	0.251	0	178	28.365	0.751	2.588	5880.6
558	153	153	0.245	0.248	0	153	28.372	0.740	2.553	5880.7
559	125	125	0.242	0.244	0	125	28.380	0.729	2.515	5880.9
560	102	102	0.238	0.239	0	102	28.389	0.716	2.470	5881.0
561	80	80	0.233	0.235	0	80	28.399	0.702	2.425	5881.1
562	61	61	0.230	0.231	0	61	28.406	0.692	2.391	5881.2
563	43	43	0.226	0.227	0	43	28.415	0.679	2.348	5881.3
564	25	25	0.224	0.224	0	25	28.419	0.672	2.325	5881.4
565	11	11	0.221	0.221	0	11	28.426	0.663	2.293	5881.6
566	-33	-33	0.216	0.215	0	-33	28.437	0.646	2.238	5881.7
567	-77	-77	0.208	0.206	0	-77	28.455	0.620	2.152	5881.8
568	-137	-137	0.196	0.194	0	-137	28.480	0.584	2.030	5882.0
569	-158	-158	0.192	0.190	0	-158	28.489	0.571	1.986	5882.1
570	-179	-179	0.187	0.184	0	-179	28.500	0.554	1.930	5882.3
571	-321	-321	0.150	0.145	0	-321	28.579	0.441	1.546	5882.4

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
1	195	195	0.098	0.044	0	195	30.675	0.186	0.591	353.9
2	220	220	0.105	0.047	0	220	30.666	0.198	0.631	354.2
3	234	234	0.109	0.048	0	234	30.662	0.206	0.654	354.4
4	268	268	0.119	0.053	0	268	30.649	0.225	0.714	354.7
5	316	316	0.130	0.058	0	316	30.635	0.246	0.781	354.9
6	405	405	0.145	0.065	0	405	30.616	0.275	0.870	355.2
7	506	506	0.158	0.072	0	506	30.600	0.302	0.950	355.4
8	615	615	0.172	0.078	0	615	30.583	0.329	1.033	355.7
9	733	733	0.182	0.083	0	733	30.571	0.349	1.089	355.9
10	860	860	0.194	0.089	0	860	30.557	0.372	1.158	356.2
11	993	993	0.205	0.095	0	993	30.544	0.395	1.224	356.4
12	1129	1129	0.213	0.099	0	1129	30.535	0.411	1.270	356.7
13	1266	1266	0.222	0.103	0	1266	30.525	0.428	1.316	356.9
14	1399	1399	0.229	0.107	0	1399	30.517	0.443	1.357	357.2
15	1523	1523	0.237	0.111	0	1523	30.509	0.459	1.400	357.4
16	1631	1631	0.244	0.115	0	1631	30.501	0.473	1.440	357.7
17	1723	1723	0.248	0.117	0	1723	30.496	0.481	1.462	357.9
18	1795	1795	0.252	0.119	0	1795	30.491	0.490	1.487	358.2
19	1846	1846	0.256	0.121	0	1846	30.488	0.497	1.505	358.4
20	1924	1924	0.260	0.123	0	1924	30.483	0.505	1.529	358.7
21	1924	1924	0.260	0.123	0	1924	30.484	0.505	1.527	358.9
22	1924	1924	0.260	0.123	0	1924	30.484	0.505	1.526	359.2
23	1924	1924	0.260	0.123	0	1924	30.484	0.505	1.527	359.4
24	1924	1924	0.260	0.123	0	1924	30.483	0.506	1.530	359.7
25	1925	1925	0.261	0.123	0	1925	30.481	0.508	1.537	359.9
26	1925	1925	0.261	0.123	0	1925	30.481	0.508	1.538	360.2
27	1925	1925	0.261	0.123	0	1925	30.482	0.507	1.534	360.4
28	1925	1925	0.261	0.123	0	1925	30.482	0.508	1.537	360.7
29	1926	1926	0.261	0.123	0	1926	30.482	0.508	1.535	361.1
30	1922	1922	0.258	0.122	0	1922	30.486	0.501	1.514	406.1
31	1920	1920	0.259	0.122	0	1920	30.485	0.503	1.520	451.1
32	1919	1919	0.258	0.122	0	1919	30.486	0.502	1.516	496.1
33	1917	1917	0.258	0.122	0	1917	30.485	0.503	1.520	541.1
34	1915	1915	0.262	0.124	0	1915	30.480	0.509	1.542	586.1
35	1914	1914	0.258	0.122	0	1914	30.485	0.502	1.518	631.1
36	1915	1915	0.259	0.122	0	1915	30.484	0.504	1.524	676.1
37	1912	1912	0.259	0.122	0	1912	30.484	0.504	1.526	721.1
38	1911	1911	0.254	0.120	0	1911	30.490	0.495	1.495	766.1
39	1922	1922	0.247	0.117	0	1922	30.499	0.482	1.453	811.1
40	1924	1924	0.245	0.116	0	1924	30.503	0.478	1.438	856.1
41	1926	1926	0.232	0.110	0	1926	30.520	0.452	1.356	901.1
42	1923	1923	0.246	0.117	0	1923	30.501	0.480	1.447	946.1
43	1919	1919	0.269	0.127	0	1919	30.472	0.522	1.582	991.1
44	1916	1916	0.268	0.126	0	1916	30.472	0.521	1.579	1036.1
45	1910	1910	0.265	0.125	0	1910	30.476	0.515	1.560	1081.1
46	1906	1906	0.267	0.126	0	1906	30.474	0.518	1.570	1126.1
47	1900	1900	0.265	0.125	0	1900	30.477	0.514	1.557	1171.1
48	1897	1897	0.263	0.124	0	1897	30.480	0.510	1.545	1216.1
49	1891	1891	0.262	0.123	0	1891	30.481	0.508	1.540	1261.1
50	1888	1888	0.262	0.123	0	1888	30.480	0.509	1.541	1306.1

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
51	1883	1883	0.262	0.123	0	1883	30.481	0.508	1.539	1351.1
52	1879	1879	0.261	0.123	0	1879	30.482	0.506	1.534	1396.1
53	1874	1874	0.261	0.123	0	1874	30.481	0.507	1.538	1441.1
54	1871	1871	0.262	0.123	0	1871	30.480	0.508	1.540	1486.1
55	1867	1867	0.261	0.123	0	1867	30.481	0.507	1.538	1531.1
56	1863	1863	0.261	0.123	0	1863	30.482	0.506	1.534	1576.1
57	1859	1859	0.259	0.122	0	1859	30.484	0.503	1.526	1621.1
58	1908	1908	0.265	0.125	0	1908	30.477	0.514	1.558	1666.1
59	1921	1921	0.266	0.125	0	1921	30.476	0.516	1.564	1711.1
60	1919	1919	0.266	0.125	0	1919	30.475	0.517	1.568	1756.1
61	1924	1924	0.267	0.126	0	1924	30.474	0.519	1.571	1801.1
62	1922	1922	0.265	0.125	0	1922	30.477	0.515	1.559	1849.8
63	1922	1922	0.266	0.125	0	1922	30.476	0.516	1.563	1850.0
64	1921	1921	0.266	0.125	0	1921	30.475	0.517	1.565	1850.3
65	1921	1921	0.266	0.125	0	1921	30.475	0.517	1.567	1850.5
66	1920	1920	0.265	0.125	0	1920	30.476	0.515	1.560	1850.8
67	1921	1921	0.266	0.125	0	1921	30.476	0.516	1.564	1851.0
68	1920	1920	0.264	0.125	0	1920	30.477	0.514	1.556	1851.3
69	1920	1920	0.265	0.125	0	1920	30.477	0.514	1.558	1851.5
70	1920	1920	0.265	0.125	0	1920	30.477	0.515	1.559	1851.8
71	1920	1920	0.266	0.125	0	1920	30.476	0.516	1.563	1852.0
72	1920	1920	0.264	0.124	0	1920	30.478	0.513	1.553	1852.3
73	1922	1922	0.266	0.125	0	1922	30.475	0.517	1.565	1852.5
74	1922	1922	0.264	0.125	0	1922	30.477	0.514	1.555	1852.8
75	1920	1920	0.265	0.125	0	1920	30.477	0.515	1.559	1853.0
76	1921	1921	0.265	0.125	0	1921	30.476	0.516	1.562	1853.3
77	1921	1921	0.264	0.125	0	1921	30.478	0.513	1.554	1853.5
78	1921	1921	0.266	0.125	0	1921	30.475	0.517	1.566	1853.8
79	1921	1921	0.265	0.125	0	1921	30.477	0.514	1.558	1854.0
80	1921	1921	0.266	0.125	0	1921	30.476	0.516	1.562	1854.3
81	1921	1921	0.266	0.125	0	1921	30.476	0.516	1.563	1854.5
82	1922	1922	0.266	0.125	0	1922	30.476	0.516	1.562	1854.8
83	1919	1919	0.265	0.125	0	1919	30.477	0.515	1.559	1855.0
84	1918	1918	0.265	0.125	0	1918	30.477	0.515	1.558	1855.3
85	1918	1918	0.264	0.125	0	1918	30.478	0.513	1.555	1855.5
86	1917	1917	0.264	0.125	0	1917	30.477	0.514	1.556	1855.8
87	1919	1919	0.265	0.125	0	1919	30.476	0.515	1.560	1856.0
88	1919	1919	0.266	0.125	0	1919	30.476	0.516	1.563	1856.3
89	1919	1919	0.267	0.126	0	1919	30.474	0.518	1.569	1856.5
90	1918	1918	0.266	0.125	0	1918	30.476	0.516	1.564	1856.8
91	1919	1919	0.264	0.124	0	1919	30.478	0.513	1.553	1862.6
92	1919	1919	0.266	0.125	0	1919	30.475	0.517	1.566	1862.9
93	1920	1920	0.265	0.125	0	1920	30.477	0.514	1.557	1863.1
94	1928	1928	0.266	0.125	0	1928	30.476	0.516	1.563	1863.4
95	1940	1940	0.266	0.125	0	1940	30.476	0.517	1.565	1863.6
96	1939	1939	0.267	0.126	0	1939	30.474	0.519	1.573	1863.9
97	1949	1949	0.266	0.125	0	1949	30.476	0.516	1.562	1864.1
98	1982	1982	0.268	0.126	0	1982	30.474	0.520	1.573	1864.4
99	2014	2014	0.270	0.127	0	2014	30.472	0.524	1.583	1864.6
100	2041	2041	0.271	0.128	0	2041	30.471	0.526	1.590	1864.9

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

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101	2065	2065	0.271	0.128	0	2065	30.470	0.527	1.592	1865.1
102	2089	2089	0.272	0.129	0	2089	30.470	0.529	1.597	1865.4
103	2110	2110	0.274	0.129	0	2110	30.467	0.533	1.607	1865.6
104	2132	2132	0.275	0.130	0	2132	30.466	0.536	1.615	1865.9
105	2152	2152	0.275	0.130	0	2152	30.466	0.535	1.613	1866.1
106	2169	2169	0.276	0.131	0	2169	30.465	0.538	1.619	1866.4
107	2187	2187	0.277	0.131	0	2187	30.465	0.539	1.621	1866.6
108	2204	2204	0.277	0.131	0	2204	30.465	0.539	1.621	1866.9
109	2222	2222	0.278	0.132	0	2222	30.463	0.542	1.629	1867.1
110	2238	2238	0.280	0.132	0	2238	30.461	0.545	1.639	1867.4
111	2255	2255	0.281	0.133	0	2255	30.460	0.547	1.645	1867.6
112	2270	2270	0.281	0.133	0	2270	30.461	0.546	1.640	1867.9
113	2286	2286	0.282	0.133	0	2286	30.460	0.549	1.647	1868.1
114	2302	2302	0.282	0.134	0	2302	30.459	0.550	1.651	1868.4
115	2317	2317	0.284	0.134	0	2317	30.457	0.553	1.660	1868.6
116	2331	2331	0.284	0.135	0	2331	30.457	0.553	1.660	1868.9
117	2346	2346	0.285	0.135	0	2346	30.456	0.555	1.665	1869.1
118	2361	2361	0.287	0.136	0	2361	30.455	0.558	1.673	1869.4
119	2356	2356	0.286	0.135	0	2356	30.455	0.557	1.670	1869.6
120	2351	2351	0.285	0.135	0	2351	30.457	0.554	1.662	1869.9
121	2344	2344	0.285	0.135	0	2344	30.456	0.555	1.666	1870.3
122	2317	2317	0.283	0.134	0	2317	30.459	0.550	1.651	1915.3
123	2320	2320	0.281	0.133	0	2320	30.462	0.547	1.639	1960.3
124	2315	2315	0.282	0.133	0	2315	30.460	0.549	1.646	2005.3
125	2312	2312	0.282	0.133	0	2312	30.460	0.548	1.645	2050.3
126	2309	2309	0.283	0.134	0	2309	30.458	0.551	1.655	2095.3
127	2324	2324	0.285	0.135	0	2324	30.456	0.555	1.667	2140.3
128	2324	2324	0.285	0.135	0	2324	30.456	0.555	1.667	2185.3
129	2324	2324	0.286	0.135	0	2324	30.455	0.556	1.670	2197.5
130	2324	2324	0.285	0.135	0	2324	30.456	0.556	1.668	2198.0
131	2320	2320	0.283	0.134	0	2320	30.458	0.552	1.656	2243.0
132	2318	2318	0.281	0.133	0	2318	30.462	0.547	1.640	2288.0
133	2315	2315	0.281	0.133	0	2315	30.461	0.548	1.643	2333.0
134	2311	2311	0.281	0.133	0	2311	30.461	0.548	1.644	2378.0
135	2306	2306	0.281	0.133	0	2306	30.462	0.546	1.639	2423.0
136	2301	2301	0.281	0.133	0	2301	30.461	0.548	1.643	2468.0
137	2297	2297	0.281	0.133	0	2297	30.461	0.547	1.641	2513.0
138	2293	2293	0.279	0.132	0	2293	30.463	0.544	1.631	2558.0
139	2289	2289	0.279	0.132	0	2289	30.464	0.543	1.628	2603.0
140	2284	2284	0.278	0.132	0	2284	30.464	0.542	1.625	2648.0
141	2279	2279	0.280	0.132	0	2279	30.462	0.545	1.636	2693.0
142	2275	2275	0.279	0.132	0	2275	30.463	0.544	1.632	2738.0
143	2270	2270	0.278	0.132	0	2270	30.464	0.542	1.628	2783.0
144	2265	2265	0.279	0.132	0	2265	30.464	0.542	1.628	2828.0
145	2261	2261	0.278	0.132	0	2261	30.464	0.542	1.627	2873.0
146	2257	2257	0.280	0.132	0	2257	30.462	0.544	1.636	2918.0
147	2252	2252	0.277	0.131	0	2252	30.466	0.539	1.619	2963.0
148	2247	2247	0.278	0.132	0	2247	30.464	0.541	1.626	3008.0
149	2244	2244	0.278	0.131	0	2244	30.465	0.540	1.623	3053.0
150	2240	2240	0.277	0.131	0	2240	30.465	0.539	1.620	3098.0

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

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151	2236	2236	0.278	0.131	0	2236	30.464	0.541	1.624	3143.0
152	2231	2231	0.277	0.131	0	2231	30.465	0.539	1.620	3188.0
153	2228	2228	0.276	0.131	0	2228	30.466	0.538	1.617	3233.0
154	2223	2223	0.277	0.131	0	2223	30.466	0.538	1.618	3276.5
155	2223	2223	0.276	0.131	0	2223	30.466	0.538	1.617	3276.7
156	2224	2224	0.276	0.131	0	2224	30.466	0.538	1.615	3277.0
157	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.613	3277.2
158	2224	2224	0.275	0.130	0	2224	30.467	0.536	1.611	3277.5
159	2224	2224	0.276	0.130	0	2224	30.467	0.537	1.612	3277.7
160	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.613	3278.0
161	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.614	3278.2
162	2224	2224	0.275	0.130	0	2224	30.467	0.536	1.610	3278.5
163	2223	2223	0.275	0.130	0	2223	30.467	0.536	1.611	3278.7
164	2223	2223	0.275	0.130	0	2223	30.467	0.536	1.611	3279.0
165	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.613	3279.2
166	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.613	3279.5
167	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.613	3279.7
168	2223	2223	0.275	0.130	0	2223	30.467	0.536	1.611	3280.0
169	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.613	3280.2
170	2223	2223	0.276	0.130	0	2223	30.467	0.536	1.612	3280.5
171	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.614	3280.7
172	2223	2223	0.276	0.131	0	2223	30.466	0.538	1.616	3281.0
173	2224	2224	0.275	0.130	0	2224	30.467	0.536	1.611	3281.2
174	2224	2224	0.275	0.130	0	2224	30.468	0.535	1.607	3281.5
175	2224	2224	0.276	0.130	0	2224	30.467	0.536	1.612	3281.7
176	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.612	3282.0
177	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.613	3282.2
178	2224	2224	0.275	0.130	0	2224	30.467	0.536	1.610	3282.5
179	2224	2224	0.275	0.130	0	2224	30.467	0.536	1.611	3282.7
180	2223	2223	0.276	0.131	0	2223	30.466	0.538	1.616	3283.0
181	2223	2223	0.275	0.130	0	2223	30.468	0.536	1.609	3283.2
182	2224	2224	0.275	0.130	0	2224	30.468	0.535	1.608	3283.5
183	2224	2224	0.275	0.130	0	2224	30.467	0.536	1.610	3283.7
184	2224	2224	0.275	0.130	0	2224	30.467	0.536	1.610	3284.0
185	2224	2224	0.275	0.130	0	2224	30.467	0.536	1.610	3284.2
186	2223	2223	0.275	0.130	0	2223	30.467	0.536	1.611	3284.5
187	2224	2224	0.276	0.131	0	2224	30.467	0.537	1.613	3284.7
188	2494	2494	0.285	0.135	0	2494	30.458	0.556	1.658	3285.0
189	2687	2687	0.293	0.139	0	2687	30.451	0.572	1.699	3285.2
190	2656	2656	0.293	0.139	0	2656	30.450	0.572	1.701	3285.5
191	2635	2635	0.292	0.139	0	2635	30.452	0.569	1.694	3285.7
192	2619	2619	0.292	0.139	0	2619	30.451	0.570	1.696	3286.0
193	2635	2635	0.292	0.139	0	2635	30.452	0.569	1.693	3286.2
194	2754	2754	0.297	0.141	0	2754	30.447	0.579	1.718	3286.5
195	2847	2847	0.302	0.143	0	2847	30.442	0.589	1.744	3286.7
196	2843	2843	0.301	0.143	0	2843	30.443	0.587	1.741	3287.0
197	2824	2824	0.301	0.143	0	2824	30.443	0.587	1.741	3287.2
198	2804	2804	0.300	0.143	0	2804	30.443	0.585	1.736	3287.7
199	2747	2747	0.297	0.141	0	2747	30.447	0.579	1.720	3332.7
200	2737	2737	0.297	0.141	0	2737	30.446	0.580	1.723	3377.7

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

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201	2729	2729	0.297	0.141	0	2729	30.446	0.580	1.723	3422.7
202	2722	2722	0.297	0.141	0	2722	30.446	0.580	1.724	3467.7
203	2717	2717	0.297	0.141	0	2717	30.446	0.580	1.724	3512.7
204	2712	2712	0.298	0.141	0	2712	30.445	0.581	1.727	3557.7
205	2708	2708	0.297	0.141	0	2708	30.445	0.580	1.725	3602.7
206	2704	2704	0.298	0.141	0	2704	30.445	0.580	1.726	3647.7
207	2701	2701	0.298	0.141	0	2701	30.445	0.580	1.727	3692.7
208	2698	2698	0.308	0.146	0	2698	30.431	0.600	1.790	3737.7
209	2693	2693	0.307	0.145	0	2693	30.432	0.598	1.785	3782.7
210	2690	2690	0.308	0.146	0	2690	30.431	0.600	1.791	3827.7
211	2685	2685	0.307	0.146	0	2685	30.432	0.599	1.786	3872.7
212	2681	2681	0.307	0.145	0	2681	30.432	0.598	1.785	3917.7
213	2675	2675	0.306	0.145	0	2675	30.434	0.596	1.778	3962.7
214	2671	2671	0.304	0.144	0	2671	30.436	0.592	1.766	4007.7
215	2664	2664	0.304	0.144	0	2664	30.436	0.592	1.765	4052.7
216	2659	2659	0.303	0.143	0	2659	30.438	0.589	1.757	4097.7
217	2654	2654	0.304	0.144	0	2654	30.436	0.591	1.765	4142.7
218	2649	2649	0.302	0.143	0	2649	30.439	0.588	1.755	4187.7
219	2644	2644	0.302	0.143	0	2644	30.438	0.589	1.758	4232.7
220	2639	2639	0.303	0.143	0	2639	30.438	0.589	1.758	4277.7
221	2636	2636	0.301	0.143	0	2636	30.439	0.587	1.751	4322.7
222	2631	2631	0.302	0.143	0	2631	30.438	0.588	1.756	4367.7
223	2627	2627	0.301	0.143	0	2627	30.439	0.587	1.751	4412.7
224	2622	2622	0.301	0.142	0	2622	30.440	0.585	1.748	4457.7
225	2619	2619	0.302	0.143	0	2619	30.439	0.587	1.754	4502.7
226	2614	2614	0.301	0.143	0	2614	30.439	0.586	1.750	4547.7
227	2611	2611	0.301	0.142	0	2611	30.440	0.585	1.747	4592.7
228	2606	2606	0.301	0.143	0	2606	30.439	0.586	1.751	4637.7
229	2603	2603	0.301	0.143	0	2603	30.439	0.586	1.751	4682.7
230	2601	2601	0.301	0.142	0	2601	30.439	0.586	1.749	4727.7
231	2596	2596	0.302	0.143	0	2596	30.437	0.588	1.758	4772.7
232	2594	2594	0.302	0.143	0	2594	30.438	0.587	1.754	4817.7
233	2590	2590	0.303	0.144	0	2590	30.436	0.590	1.765	4862.7
234	2588	2588	0.303	0.143	0	2588	30.436	0.590	1.765	4907.7
235	2585	2585	0.303	0.143	0	2585	30.436	0.590	1.764	4952.7
236	2583	2583	0.304	0.144	0	2583	30.434	0.592	1.772	4997.7
237	2584	2584	0.304	0.144	0	2584	30.435	0.592	1.771	5004.8
238	2583	2583	0.303	0.143	0	2583	30.436	0.590	1.765	5005.1
239	2582	2582	0.304	0.144	0	2582	30.435	0.591	1.768	5005.3
240	2837	2837	0.313	0.148	0	2837	30.427	0.609	1.813	5005.6
241	2908	2908	0.316	0.150	0	2908	30.424	0.616	1.829	5005.8
242	3036	3036	0.320	0.152	0	3036	30.421	0.624	1.847	5006.1
243	3047	3047	0.321	0.152	0	3047	30.419	0.626	1.854	5006.3
244	3253	3253	0.330	0.156	0	3253	30.412	0.642	1.894	5006.6
245	3218	3218	0.331	0.156	0	3218	30.410	0.643	1.901	5006.8
246	3194	3194	0.328	0.155	0	3194	30.413	0.638	1.885	5007.1
247	3254	3254	0.331	0.156	0	3254	30.411	0.644	1.899	5007.3
248	3337	3337	0.334	0.158	0	3337	30.408	0.650	1.915	5007.6
249	3345	3345	0.336	0.159	0	3345	30.405	0.654	1.927	5007.8
250	3323	3323	0.334	0.158	0	3323	30.407	0.650	1.917	5008.1

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
251	3310	3310	0.334	0.158	0	3310	30.408	0.649	1.915	5008.3
252	3298	3298	0.334	0.158	0	3298	30.407	0.649	1.915	5008.6
253	3289	3289	0.334	0.158	0	3289	30.407	0.650	1.919	5008.8
254	3281	3281	0.334	0.158	0	3281	30.407	0.649	1.916	5009.1
255	3275	3275	0.334	0.158	0	3275	30.407	0.649	1.917	5009.3
256	3270	3270	0.333	0.157	0	3270	30.408	0.648	1.912	5009.6
257	3267	3267	0.334	0.158	0	3267	30.407	0.650	1.918	5009.8
258	3264	3264	0.333	0.158	0	3264	30.408	0.648	1.914	5010.1
259	3261	3261	0.333	0.158	0	3261	30.408	0.648	1.914	5010.3
260	3259	3259	0.333	0.157	0	3259	30.408	0.648	1.912	5010.6
261	3257	3257	0.332	0.157	0	3257	30.408	0.647	1.910	5010.8
262	3255	3255	0.332	0.157	0	3255	30.409	0.646	1.908	5011.1
263	3254	3254	0.333	0.157	0	3254	30.408	0.647	1.912	5011.3
264	3252	3252	0.332	0.157	0	3252	30.409	0.646	1.908	5011.6
265	3252	3252	0.332	0.157	0	3252	30.409	0.646	1.908	5011.8
266	3251	3251	0.331	0.157	0	3251	30.410	0.645	1.904	5012.1
267	3250	3250	0.331	0.157	0	3250	30.410	0.645	1.903	5012.3
268	3250	3250	0.332	0.157	0	3250	30.409	0.646	1.906	5012.6
269	3249	3249	0.332	0.157	0	3249	30.409	0.645	1.906	5012.8
270	3247	3247	0.332	0.157	0	3247	30.409	0.646	1.907	5013.1
271	3248	3248	0.332	0.157	0	3248	30.409	0.646	1.908	5013.3
272	3246	3246	0.332	0.157	0	3246	30.409	0.646	1.908	5013.6
273	3247	3247	0.332	0.157	0	3247	30.409	0.645	1.905	5013.8
274	3247	3247	0.330	0.156	0	3247	30.411	0.643	1.898	5014.1
275	3247	3247	0.331	0.157	0	3247	30.410	0.644	1.903	5014.3
276	3247	3247	0.331	0.156	0	3247	30.411	0.643	1.899	5014.6
277	3246	3246	0.330	0.156	0	3246	30.412	0.642	1.895	5014.8
278	3246	3246	0.331	0.157	0	3246	30.410	0.644	1.900	5015.1
279	3245	3245	0.331	0.157	0	3245	30.410	0.644	1.902	5015.3
280	3246	3246	0.330	0.156	0	3246	30.411	0.643	1.898	5015.6
281	3245	3245	0.332	0.157	0	3245	30.408	0.647	1.910	5015.8
282	3245	3245	0.330	0.156	0	3245	30.411	0.643	1.898	5016.1
283	3245	3245	0.331	0.157	0	3245	30.410	0.644	1.902	5016.3
284	3245	3245	0.331	0.157	0	3245	30.410	0.645	1.903	5016.6
285	3244	3244	0.331	0.156	0	3244	30.411	0.644	1.900	5016.8
286	3245	3245	0.331	0.157	0	3245	30.410	0.644	1.901	5017.1
287	3244	3244	0.331	0.157	0	3244	30.410	0.645	1.903	5017.3
288	3244	3244	0.330	0.156	0	3244	30.411	0.643	1.898	5017.6
289	3244	3244	0.330	0.156	0	3244	30.412	0.642	1.895	5018.0
290	3229	3229	0.330	0.156	0	3229	30.411	0.642	1.895	5063.0
291	3217	3217	0.330	0.156	0	3217	30.411	0.642	1.897	5108.0
292	3208	3208	0.329	0.156	0	3208	30.412	0.641	1.894	5153.0
293	3202	3202	0.330	0.156	0	3202	30.410	0.643	1.901	5198.0
294	3195	3195	0.330	0.156	0	3195	30.410	0.643	1.899	5243.0
295	3188	3188	0.330	0.156	0	3188	30.411	0.642	1.898	5288.0
296	3181	3181	0.330	0.156	0	3181	30.411	0.641	1.896	5333.0
297	3175	3175	0.330	0.156	0	3175	30.411	0.642	1.897	5378.0
298	3169	3169	0.329	0.156	0	3169	30.411	0.641	1.895	5423.0
299	3161	3161	0.329	0.156	0	3161	30.411	0.640	1.894	5468.0
300	3155	3155	0.329	0.156	0	3155	30.411	0.641	1.896	5513.0

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
301	3150	3150	0.329	0.156	0	3150	30.411	0.641	1.897	5558.0
302	3144	3144	0.329	0.156	0	3144	30.411	0.640	1.895	5603.0
303	3140	3140	0.328	0.155	0	3140	30.412	0.638	1.888	5648.0
304	3134	3134	0.329	0.156	0	3134	30.411	0.640	1.896	5693.0
305	3129	3129	0.327	0.155	0	3129	30.413	0.637	1.884	5738.0
306	3125	3125	0.328	0.155	0	3125	30.412	0.638	1.890	5783.0
307	3119	3119	0.329	0.155	0	3119	30.411	0.640	1.894	5828.0
308	3113	3113	0.328	0.155	0	3113	30.412	0.639	1.892	5873.0
309	3110	3110	0.328	0.155	0	3110	30.412	0.638	1.890	5918.0
310	3104	3104	0.328	0.155	0	3104	30.411	0.639	1.893	5963.0
311	3100	3100	0.329	0.155	0	3100	30.411	0.640	1.896	6008.0
312	3097	3097	0.328	0.155	0	3097	30.411	0.639	1.893	6053.0
313	3091	3091	0.327	0.155	0	3091	30.413	0.636	1.886	6098.0
314	3089	3089	0.328	0.155	0	3089	30.411	0.639	1.893	6143.0
315	3085	3085	0.329	0.155	0	3085	30.410	0.640	1.897	6188.0
316	3082	3082	0.328	0.155	0	3082	30.411	0.638	1.892	6233.0
317	3078	3078	0.329	0.155	0	3078	30.410	0.639	1.896	6278.0
318	3074	3074	0.329	0.156	0	3074	30.410	0.641	1.900	6323.0
319	3072	3072	0.330	0.156	0	3072	30.409	0.641	1.902	6350.2
320	3073	3073	0.329	0.155	0	3073	30.410	0.640	1.898	6350.5
321	3073	3073	0.330	0.156	0	3073	30.409	0.641	1.903	6350.7
322	3073	3073	0.329	0.156	0	3073	30.410	0.640	1.898	6351.0
323	3073	3073	0.330	0.156	0	3073	30.409	0.642	1.905	6351.2
324	3196	3196	0.334	0.158	0	3196	30.405	0.650	1.922	6351.5
325	3242	3242	0.336	0.159	0	3242	30.404	0.653	1.932	6351.7
326	3339	3339	0.340	0.160	0	3339	30.400	0.660	1.949	6352.0
327	3371	3371	0.341	0.161	0	3371	30.399	0.663	1.956	6352.2
328	3385	3385	0.341	0.161	0	3385	30.399	0.663	1.956	6352.5
329	3386	3386	0.341	0.161	0	3386	30.399	0.663	1.955	6352.7
330	3386	3386	0.341	0.161	0	3386	30.399	0.664	1.957	6353.0
331	3388	3388	0.341	0.161	0	3388	30.399	0.664	1.958	6353.2
332	3381	3381	0.342	0.161	0	3381	30.398	0.664	1.960	6353.5
333	3385	3385	0.341	0.161	0	3385	30.399	0.664	1.958	6353.7
334	3385	3385	0.342	0.161	0	3385	30.398	0.665	1.960	6354.0
335	3380	3380	0.342	0.162	0	3380	30.398	0.665	1.962	6354.2
336	3381	3381	0.342	0.162	0	3381	30.398	0.665	1.963	6354.5
337	3382	3382	0.342	0.161	0	3382	30.398	0.664	1.960	6354.7
338	3380	3380	0.342	0.161	0	3380	30.398	0.665	1.961	6355.0
339	3383	3383	0.342	0.162	0	3383	30.398	0.665	1.962	6355.2
340	3382	3382	0.341	0.161	0	3382	30.399	0.664	1.957	6355.5
341	3379	3379	0.341	0.161	0	3379	30.399	0.663	1.955	6355.7
342	3381	3381	0.341	0.161	0	3381	30.399	0.664	1.958	6356.0
343	3380	3380	0.342	0.162	0	3380	30.398	0.665	1.962	6356.2
344	3379	3379	0.341	0.161	0	3379	30.399	0.663	1.957	6356.5
345	3378	3378	0.341	0.161	0	3378	30.399	0.664	1.958	6356.7
346	3379	3379	0.342	0.162	0	3379	30.398	0.665	1.962	6357.0
347	3381	3381	0.341	0.161	0	3381	30.399	0.664	1.959	6357.2
348	3382	3382	0.341	0.161	0	3382	30.399	0.664	1.958	6357.5
349	3381	3381	0.342	0.162	0	3381	30.398	0.665	1.962	6357.7
350	3382	3382	0.342	0.161	0	3382	30.398	0.665	1.960	6358.0

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
351	3381	3381	0.342	0.162	0	3381	30.398	0.665	1.961	6358.2
352	3380	3380	0.342	0.162	0	3380	30.398	0.665	1.962	6358.5
353	3379	3379	0.342	0.162	0	3379	30.398	0.665	1.962	6358.7
354	3379	3379	0.342	0.161	0	3379	30.399	0.664	1.959	6359.0
355	3378	3378	0.341	0.161	0	3378	30.399	0.663	1.957	6359.4
356	3363	3363	0.341	0.161	0	3363	30.400	0.662	1.954	6404.4
357	3358	3358	0.340	0.161	0	3358	30.400	0.662	1.954	6449.4
358	3352	3352	0.341	0.161	0	3352	30.399	0.662	1.955	6494.4
359	3348	3348	0.342	0.161	0	3348	30.398	0.665	1.962	6539.4
360	3344	3344	0.342	0.161	0	3344	30.398	0.665	1.963	6584.4
361	3340	3340	0.341	0.161	0	3340	30.398	0.664	1.961	6629.4
362	3337	3337	0.341	0.161	0	3337	30.399	0.663	1.958	6674.4
363	3332	3332	0.341	0.161	0	3332	30.399	0.662	1.956	6719.4
364	3327	3327	0.342	0.161	0	3327	30.398	0.664	1.962	6764.4
365	3322	3322	0.341	0.161	0	3322	30.398	0.663	1.960	6809.4
366	3317	3317	0.339	0.160	0	3317	30.400	0.660	1.948	6854.4
367	3311	3311	0.339	0.160	0	3311	30.400	0.660	1.949	6899.4
368	3305	3305	0.338	0.160	0	3305	30.401	0.658	1.944	6944.4
369	3300	3300	0.338	0.160	0	3300	30.401	0.658	1.944	6989.4
370	3293	3293	0.339	0.160	0	3293	30.401	0.659	1.947	7034.4
371	3286	3286	0.337	0.159	0	3286	30.403	0.656	1.936	7079.4
372	3281	3281	0.337	0.159	0	3281	30.403	0.656	1.937	7124.4
373	3275	3275	0.336	0.159	0	3275	30.404	0.654	1.931	7169.4
374	3269	3269	0.337	0.159	0	3269	30.403	0.655	1.936	7214.4
375	3263	3263	0.337	0.159	0	3263	30.403	0.655	1.935	7259.4
376	3259	3259	0.335	0.158	0	3259	30.405	0.651	1.925	7304.4
377	3255	3255	0.336	0.159	0	3255	30.404	0.654	1.932	7349.4
378	3250	3250	0.335	0.158	0	3250	30.405	0.652	1.926	7394.4
379	3247	3247	0.337	0.159	0	3247	30.403	0.655	1.936	7439.4
380	3243	3243	0.336	0.159	0	3243	30.404	0.653	1.931	7476.5
381	3242	3242	0.336	0.159	0	3242	30.404	0.654	1.932	7476.7
382	3242	3242	0.336	0.159	0	3242	30.403	0.654	1.933	7477.0
383	3242	3242	0.336	0.159	0	3242	30.404	0.653	1.931	7477.2
384	3242	3242	0.336	0.159	0	3242	30.403	0.654	1.934	7477.5
385	3242	3242	0.337	0.159	0	3242	30.402	0.655	1.938	7477.7
386	3243	3243	0.337	0.159	0	3243	30.402	0.655	1.938	7478.0
387	3241	3241	0.338	0.159	0	3241	30.401	0.657	1.942	7523.0
388	3237	3237	0.339	0.160	0	3237	30.400	0.658	1.948	7568.0
389	3236	3236	0.340	0.160	0	3236	30.399	0.660	1.955	7613.0
390	3235	3235	0.340	0.161	0	3235	30.398	0.661	1.958	7658.0
391	3235	3235	0.342	0.161	0	3235	30.396	0.664	1.966	7703.0
392	3237	3237	0.343	0.162	0	3237	30.394	0.666	1.974	7748.0
393	3239	3239	0.346	0.163	0	3239	30.391	0.671	1.990	7793.0
394	3241	3241	0.345	0.163	0	3241	30.392	0.670	1.985	7838.0
395	3243	3243	0.347	0.164	0	3243	30.389	0.674	1.999	7883.0
396	3246	3246	0.348	0.164	0	3246	30.388	0.675	2.003	7928.0
397	3246	3246	0.347	0.163	0	3246	30.389	0.674	1.998	7973.0
398	3247	3247	0.347	0.164	0	3247	30.389	0.675	2.001	8018.0
399	3250	3250	0.349	0.164	0	3250	30.387	0.678	2.011	8039.4
400	3250	3250	0.349	0.164	0	3250	30.387	0.677	2.009	8039.7

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

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401	3267	3267	0.349	0.164	0	3267	30.387	0.677	2.008	8039.9
402	3282	3282	0.349	0.165	0	3282	30.387	0.679	2.012	8040.2
403	3313	3313	0.350	0.165	0	3313	30.386	0.680	2.014	8040.4
404	3340	3340	0.352	0.166	0	3340	30.384	0.683	2.023	8040.7
405	3366	3366	0.352	0.166	0	3366	30.385	0.683	2.021	8040.9
406	3389	3389	0.353	0.166	0	3389	30.384	0.686	2.028	8041.2
407	3408	3408	0.353	0.166	0	3408	30.384	0.685	2.026	8041.4
408	3427	3427	0.356	0.168	0	3427	30.381	0.691	2.043	8041.7
409	3445	3445	0.355	0.167	0	3445	30.382	0.689	2.037	8041.9
410	3462	3462	0.357	0.168	0	3462	30.379	0.694	2.051	8042.2
411	3477	3477	0.357	0.168	0	3477	30.380	0.693	2.046	8042.4
412	3492	3492	0.358	0.169	0	3492	30.378	0.696	2.055	8042.7
413	3505	3505	0.357	0.168	0	3505	30.380	0.694	2.049	8042.9
414	3520	3520	0.359	0.169	0	3520	30.378	0.697	2.057	8043.2
415	3533	3533	0.359	0.169	0	3533	30.379	0.696	2.054	8043.4
416	3545	3545	0.360	0.169	0	3545	30.378	0.698	2.060	8043.7
417	3557	3557	0.360	0.170	0	3557	30.377	0.700	2.064	8043.9
418	3568	3568	0.362	0.170	0	3568	30.375	0.702	2.072	8044.2
419	3580	3580	0.362	0.170	0	3580	30.376	0.702	2.069	8044.4
420	3592	3592	0.362	0.170	0	3592	30.376	0.702	2.071	8044.7
421	3602	3602	0.363	0.171	0	3602	30.375	0.704	2.075	8044.9
422	3612	3612	0.362	0.170	0	3612	30.375	0.703	2.072	8045.2
423	3622	3622	0.363	0.171	0	3622	30.375	0.705	2.076	8045.4
424	3632	3632	0.362	0.171	0	3632	30.376	0.704	2.072	8045.7
425	3642	3642	0.363	0.171	0	3642	30.374	0.705	2.077	8045.9
426	3650	3650	0.364	0.171	0	3650	30.374	0.707	2.081	8046.2
427	3645	3645	0.363	0.171	0	3645	30.374	0.705	2.077	8046.4
428	3640	3640	0.364	0.171	0	3640	30.373	0.707	2.083	8046.7
429	3636	3636	0.364	0.171	0	3636	30.374	0.706	2.079	8046.9
430	3633	3633	0.364	0.171	0	3633	30.373	0.707	2.082	8047.2
431	3629	3629	0.364	0.171	0	3629	30.374	0.706	2.081	8047.4
432	3627	3627	0.363	0.171	0	3627	30.375	0.704	2.074	8047.7
433	3625	3625	0.363	0.171	0	3625	30.375	0.704	2.074	8047.9
434	3623	3623	0.364	0.171	0	3623	30.374	0.706	2.079	8048.2
435	3622	3622	0.363	0.171	0	3622	30.375	0.704	2.075	8048.4
436	3623	3623	0.363	0.171	0	3623	30.375	0.705	2.077	8048.7
437	3623	3623	0.363	0.171	0	3623	30.375	0.704	2.075	8048.9
438	3624	3624	0.363	0.171	0	3624	30.375	0.705	2.076	8049.2
439	3623	3623	0.363	0.171	0	3623	30.375	0.704	2.074	8049.4
440	3634	3634	0.363	0.171	0	3634	30.375	0.705	2.075	8049.7
441	3645	3645	0.364	0.171	0	3645	30.374	0.707	2.081	8049.9
442	3657	3657	0.365	0.172	0	3657	30.373	0.708	2.086	8050.2
443	3655	3655	0.364	0.171	0	3655	30.374	0.706	2.079	8050.4
444	3653	3653	0.364	0.171	0	3653	30.374	0.707	2.081	8050.7
445	3651	3651	0.364	0.171	0	3651	30.374	0.707	2.082	8050.9
446	3649	3649	0.363	0.171	0	3649	30.376	0.704	2.072	8051.2
447	3648	3648	0.363	0.171	0	3648	30.375	0.705	2.075	8051.4
448	3648	3648	0.364	0.171	0	3648	30.374	0.707	2.081	8051.7
449	3647	3647	0.364	0.171	0	3647	30.374	0.706	2.078	8051.9
450	3646	3646	0.364	0.171	0	3646	30.374	0.707	2.081	8052.2

LONG TERM HYDROSTATIC COMPRESSION, SAMPLE #3

NUMBER	CONFINING PRESSURE (PSI)	TOTAL AXIAL STRESS (PSI)	AXIAL STRAIN (%)	RADIAL STRAIN (%)	PORE PRESSURE (PSI)	MEAN EFFECTIVE STRESS (PSI)	POROSITY (%)	BULK VOLUME STRAIN (%)	PORE VOLUME STRAIN (%)	TIME (MIN)
451	3645	3645	0.364	0.171	0	3645	30.373	0.707	2.082	8052.4
452	3645	3645	0.364	0.171	0	3645	30.374	0.707	2.081	8052.7
453	3644	3644	0.364	0.171	0	3644	30.374	0.706	2.079	8052.9
454	3644	3644	0.363	0.171	0	3644	30.375	0.705	2.076	8053.2
455	3643	3643	0.364	0.171	0	3643	30.374	0.706	2.081	8053.4
456	3643	3643	0.364	0.171	0	3643	30.374	0.707	2.082	8053.7
457	3643	3643	0.364	0.171	0	3643	30.374	0.706	2.079	8053.9
458	3641	3641	0.364	0.171	0	3641	30.373	0.707	2.082	8054.2
459	3641	3641	0.363	0.171	0	3641	30.375	0.704	2.074	8054.4
460	3641	3641	0.363	0.171	0	3641	30.374	0.705	2.077	8054.7
461	3642	3642	0.363	0.171	0	3642	30.375	0.705	2.077	8054.9
462	3640	3640	0.363	0.171	0	3640	30.375	0.704	2.074	8055.2
463	3641	3641	0.363	0.171	0	3641	30.375	0.704	2.073	8055.4
464	3640	3640	0.363	0.171	0	3640	30.375	0.704	2.073	8055.7
465	3640	3640	0.363	0.171	0	3640	30.375	0.705	2.075	8055.9
466	3641	3641	0.363	0.171	0	3641	30.375	0.705	2.075	8056.2
467	3641	3641	0.363	0.171	0	3641	30.374	0.705	2.077	8056.4
468	3640	3640	0.363	0.171	0	3640	30.375	0.705	2.075	8056.7
469	3640	3640	0.364	0.171	0	3640	30.374	0.706	2.080	8056.9
470	3639	3639	0.363	0.171	0	3639	30.375	0.704	2.074	8057.2
471	3640	3640	0.364	0.171	0	3640	30.374	0.706	2.079	8057.4
472	3640	3640	0.363	0.171	0	3640	30.375	0.704	2.074	8057.7
473	3639	3639	0.363	0.171	0	3639	30.375	0.705	2.076	8057.9
474	3640	3640	0.363	0.171	0	3640	30.375	0.705	2.077	8058.2
475	3638	3638	0.363	0.171	0	3638	30.375	0.705	2.076	8058.4
476	3638	3638	0.363	0.171	0	3638	30.374	0.705	2.078	8058.7
477	3639	3639	0.363	0.171	0	3639	30.375	0.704	2.073	8058.9
478	3638	3638	0.363	0.171	0	3638	30.375	0.704	2.073	8059.2
479	3639	3639	0.363	0.171	0	3639	30.374	0.705	2.078	8059.4
480	3639	3639	0.363	0.171	0	3639	30.375	0.704	2.074	8059.7
481	3638	3638	0.363	0.171	0	3638	30.375	0.705	2.076	8059.9
482	3638	3638	0.363	0.171	0	3638	30.375	0.704	2.074	8060.2
483	3638	3638	0.363	0.171	0	3638	30.375	0.704	2.074	8060.4
484	3638	3638	0.363	0.171	0	3638	30.376	0.704	2.072	8060.7
485	3638	3638	0.362	0.170	0	3638	30.376	0.703	2.070	8060.9
486	3638	3638	0.363	0.171	0	3638	30.375	0.705	2.076	8061.2
487	3638	3638	0.362	0.170	0	3638	30.376	0.703	2.071	8061.4
488	3638	3638	0.363	0.171	0	3638	30.374	0.705	2.077	8061.7
489	3638	3638	0.363	0.171	0	3638	30.375	0.704	2.074	8061.9
490	3638	3638	0.363	0.171	0	3638	30.375	0.704	2.074	8062.2
491	3638	3638	0.363	0.171	0	3638	30.375	0.704	2.074	8062.4
492	3637	3637	0.363	0.171	0	3637	30.375	0.704	2.074	8062.7
493	3636	3636	0.363	0.171	0	3636	30.375	0.704	2.072	8063.0
494	3629	3629	0.362	0.170	0	3629	30.377	0.702	2.067	8108.0
495	3621	3621	0.362	0.170	0	3621	30.376	0.703	2.070	8153.0
496	3612	3612	0.362	0.170	0	3612	30.376	0.702	2.068	8198.0
497	3603	3603	0.361	0.170	0	3603	30.377	0.701	2.065	8243.0
498	3647	3647	0.360	0.169	0	3647	30.380	0.698	2.054	8288.0
499	3634	3634	0.358	0.169	0	3634	30.381	0.696	2.047	8333.0
500	3622	3622	0.358	0.169	0	3622	30.381	0.696	2.046	8378.0