U.S. Department of Energy—Grand Junction, Colorado

Calculation Cover Sheet

Calc. No. MOA-01-05-2006-5-22-00 **Discipline:** Engineering Design **No. of Sheets:** 3

Project: Moab UMTRA Project

Site: Moab, Utah

Feature: Cone Penetration Tests

Sources of Data:

ConeTec, Inc., 2006. *Cone Penetration Test Data – Former Atlas Mill Tailings Impoundment – Moab, Utah, December 14–19, 2005*, prepared by ConeTec, Inc., Salt Lake City, Utah, January.

Sources of Formulae and References:

N/A

Preliminary Calc. ☐ **Final Calc.** ☐ **Supersedes Calc. No.**

Author: Kent. Rep for R. Heydenburg 6-14-06
Name Date

Approved by: John E Glenn 6-15-06
Name Date

Checked by: Mark Kantty fo. Greg Lord 6-15-06
Name Date

Gregory M. Smith 6-15-06
Name Date

R H Bill 6/15/06
Name Date

Mark Kantty 6-15-06
Name Date

Problem Statement:

Preliminary site selection performed jointly by the U.S. Department of Energy (DOE) and the Contractor has identified a 2,300 acre withdrawal area in the Crescent Flat area just northeast of Crescent Junction, Utah, as a possible site for final disposal of the Moab uranium mill tailings. The proposed disposal cell would cover approximately 300 acres. Based on the preliminary site-selection process, the suitability of the Crescent Junction Disposal Site is being evaluated from several technical aspects, including geomorphic, geologic, hydrologic, seismic, geochemical, and geotechnical. The objective of this calculation set is to present the cone penetration test data from the Moab tailings site to provide information relevant to the design of the disposal cell at the Crescent Junction Site.

Findings and conclusions from these data will be incorporated into Attachment 1 of the *Remedial Action Plan and Site Design for Stabilization of Moab Title I Uranium Mill Tailings at the Crescent Junction, Utah, Disposal Site* (RAP), and summarized in appropriate sections of the Remedial Action Selection (RAS) Report for the Moab Site.

Method of Solution:

Cone penetration tests were performed at the Moab Processing Site from December 14–19, 2005, under the direction of Golder Associates personnel. The investigation consisted of 17 soundings at 15 locations with resistivity (except in 0382, 0383, 0386, and 0394) and pore-pressure dissipation measurements (Figure 1). Two soundings at location 0395 met shallow refusal, and the location was adjusted. The pore-pressure dissipation tests were conducted at all locations. All cone penetration testing was carried out in accordance with ASTM D-5778-95. Data were analyzed by ConeTec, Inc. of Salt Lake City, Utah. Data are included in the ConeTec report (Appendix A).

Assumptions:

N/A

Calculation:

N/A

Discussion:

Conclusion and Recommendations:

The cone penetration data collected by ConeTec will be used by Golder Associates Inc. for the following:

- Assisting in development of cross-sections through the existing tailings impoundment providing interpretation between various tailings types (i.e., sands, slimes and transitional tailings) for use in volume calculations.
- Interpreting depth to ground water or perched water layers within the tailings deposits based on porewater pressure measurements.
- Interpreting the undrained shear strength (S_u) of the tailings using measured cone resistance. This will be done by developing a site-specific correlation for CPT data to laboratory measurements of S_u from adjacent tailings samples. The values of S_u will be used in the geotechnical model being developed by Golder.
- Interpreting the over-consolidation ratio and sensitivity of the tailings using CPT data to assist in evaluation of material behavior.

Computer Source:

N/A

References:

See Cover Sheet.

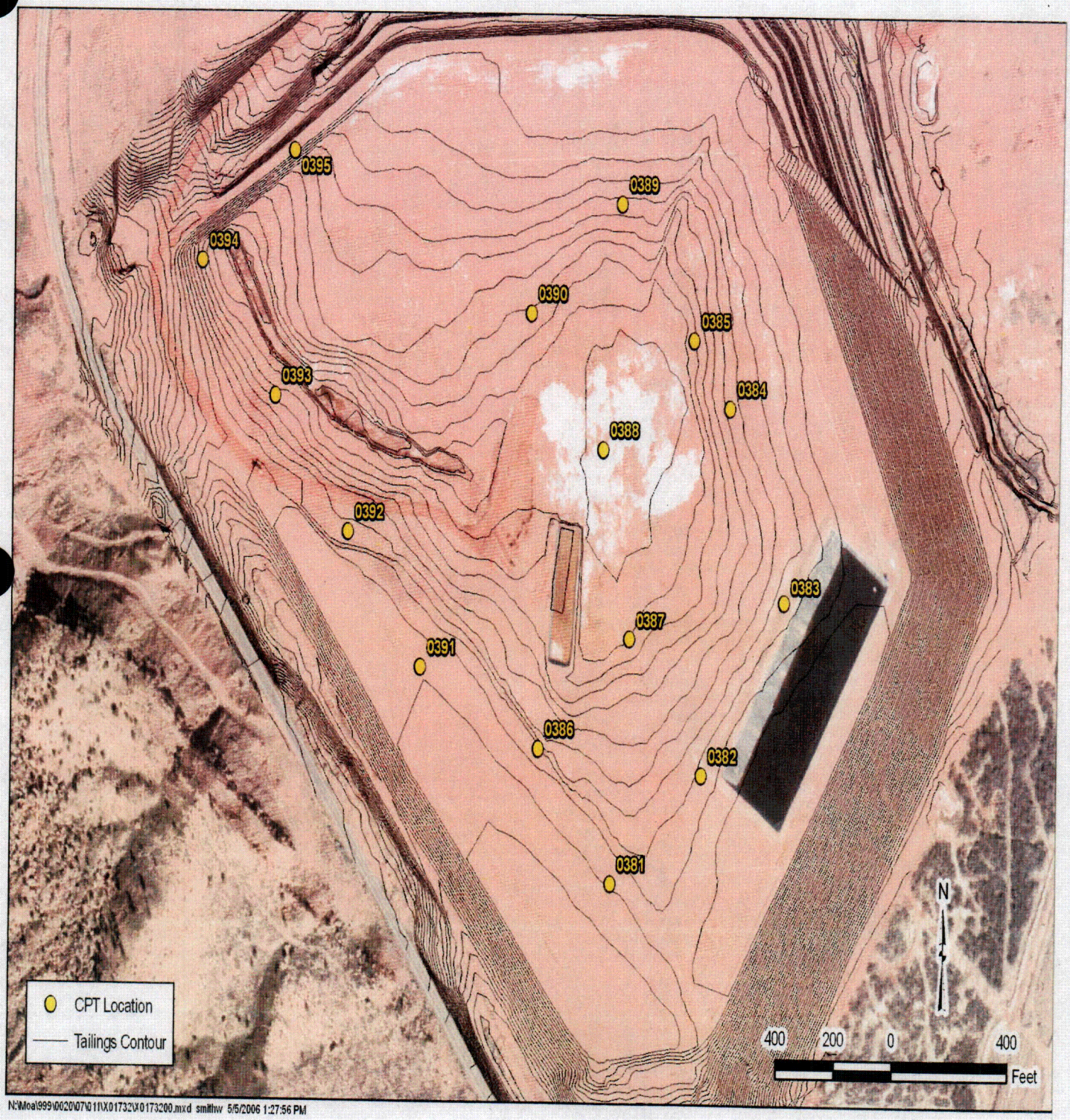


Figure 1. Location of Cone Penetration Tests at the Moab, Utah, Site

Appendix A

Cone Penetration Test Data

Stoller

established 1959

Grand Junction Office

Memorandum

Control Number 1000-T06-N/A

DATE: January 26, 2006

TO: Distribution

FROM: M. Kautsky mk

SUBJECT: Cone Penetration Test Data

Enclosed for your use is a copy of the Cone Penetration Test Data for the Moab UMTRA site, performed under the direction of Golder Associates personnel on December 14-19, 2005. The report contains one set of standard CPT plots, PPD plots, and a data CD. The CD contains the CPT data files (*.cor files) and the PPD data files (*.ppd files). The "cor" and "ppd" files are text files that can be viewed with any text editor or imported into various programs, such as a spreadsheet.

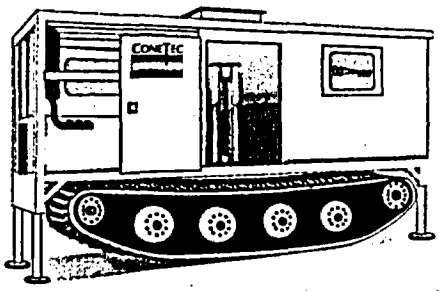
MK/dko

Enclosure

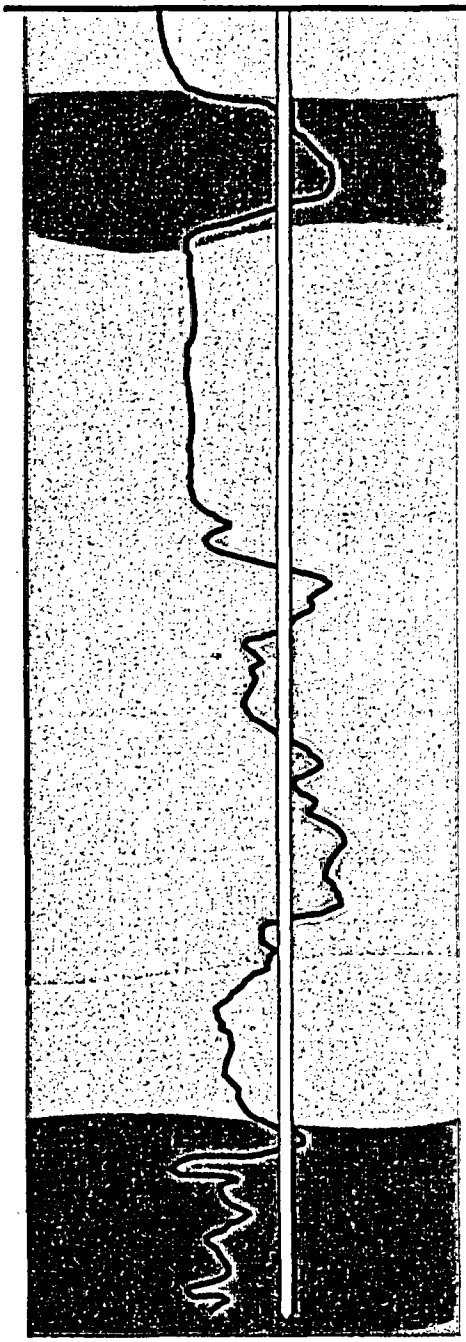
Distribution:

J. Johnson, Golder Assoc.
T. Wright, MFG
G. Lord, Stoller Corp.
Project File - MOA 043.07 (A)

H:\Moab\Transmittal Letters\Kautsky\ConePenetrationTestData.doc



CONETEC



Geotechnical and Environmental Site Investigation Services

Cone Penetration Test Data

Former Atlas Mill Tailings Site
Moab, Utah

December 14 -19, 2005

Prepared for:

S.M. Stoller Corporation
Grand Junction, Colorado

- January 23, 2006 -

Salt Lake City • Vancouver • New Jersey • Los Angeles • San Francisco • Houston • Charleston, SC
Tel: (801) 973-3801 • Fax: (801) 973-3802 • Email: ctecslc@attglobal.net

C11

CONE PENETRATION TEST DATA

Former Atlas Mill Tailings Impoundment
Moab, Utah

December 14 - 19, 2005

Prepared for:

S.M. Stoller Corporation
2597 B ¾ Road
Grand Junction, CO 81503

Prepared by:

ConeTec, Inc.
Salt Lake City, Utah

January 23, 2006

CONETEC

CONETEC

ConeTec, Inc.

Geotechnical and Environmental Site Investigation Contractors

3589 West 500 South, Suite 3, Salt Lake City, UT 84104 • PO Box 22082, Salt Lake City, UT 84122
Tel: (801) 973-3801 • Fax: (801) 973-3802 • Web: www.conetec.com • Email: saltlakecity@conetec.com

January 23, 2006 Job No.: 05-432

Mr. Mark Kautsky
S.M. Stoller Corporation
2597 B ¾ Road
Grand Junction, CO 81503

Tel: (970) 248-6556
Fax: (970) 248-7628

Re: CPT Results
Former Atlas Mill Tailings Impoundment
Moab, Utah

Dear Mr. Kautsky,

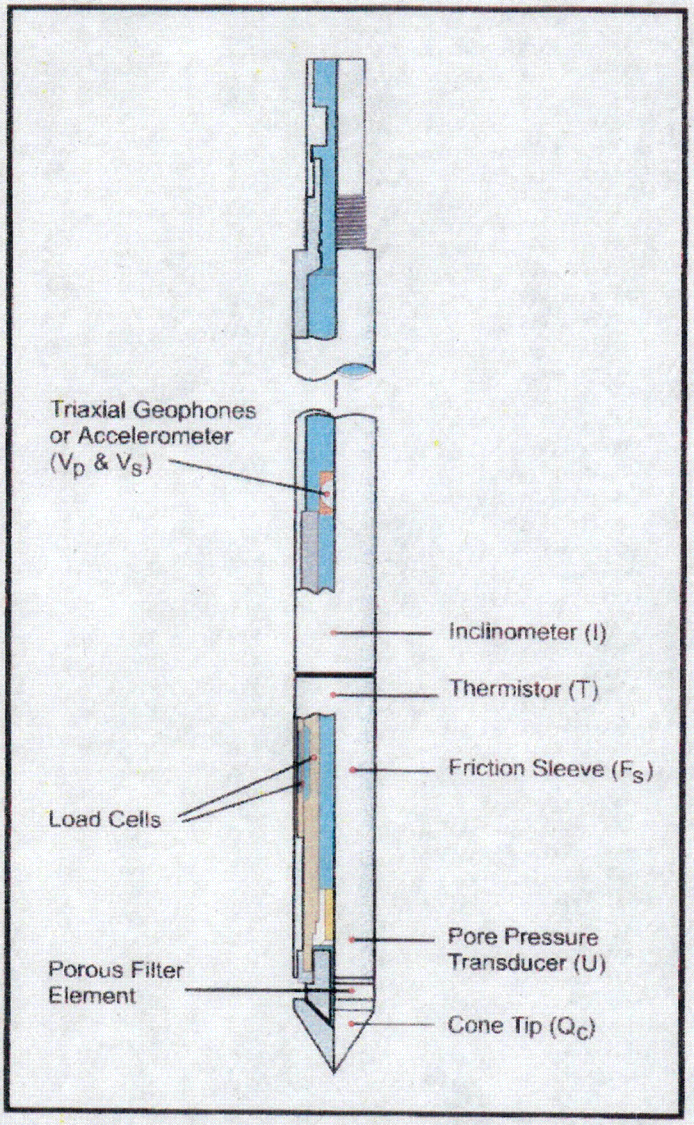
Per your request, we have completed the CPT investigation for the above referenced project. The scope of work consisted of performing fifteen soundings with resistivity and pore pressure measurements. This investigation was conducted as a follow-up to an original investigation completed in the spring of 2000 for SRK Consulting, Inc. The results of that investigation are contained in a report to SRK dated May 12, 2000. This follow-up investigation was performed from December 14-19, 2005, under the direction of Golder Associates personnel.

Enclosed within this report is one set of standard CPT plots, PPD plots and a data CD. The CD contains the CPT data files (*.cor files) and the PPD data files (*.ppd files). The "cor" and "ppd" files are text files that can be viewed with any text editor or imported into various programs, such as a spreadsheet. In addition to the data files, we have included digital copies of the CPT plots and PPD plots in PDF format. The enclosed summary table outlines the work performed at the site.

CONE PENETRATION TESTING

The cone penetration tests (CPTU) with pore pressure measurement were carried out by ConeTec using an integrated electronic cone system. A 20 ton compression type cone, as shown in the following figure, was used for all of the soundings. This cone has a tip area of 15 sq. cm. and a friction sleeve area of 225 sq. cm. The compression cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85. A porewater pressure filter was located directly behind the cone tip. The filter was made of porous plastic and was 5.0 mm thick. Each of the porewater pressure filters was saturated under vacuum pressure prior to penetration.

CONE PENETRATION TESTING, Continued



The cone was capable of recording the following parameters at varying depth intervals:

- Tip Resistance (q_c)
- Sleeve Friction (f_s)
- Dynamic Pore Pressure (u)
- Temperature (T)
- Cone Inclination (I)

During advancement of the cone penetrometer, selected parameters were printed simultaneously on a printer and stored on the data acquisition computer for future analysis and reference. All cone penetration testing was carried out in accordance with ASTM D-5778-95.

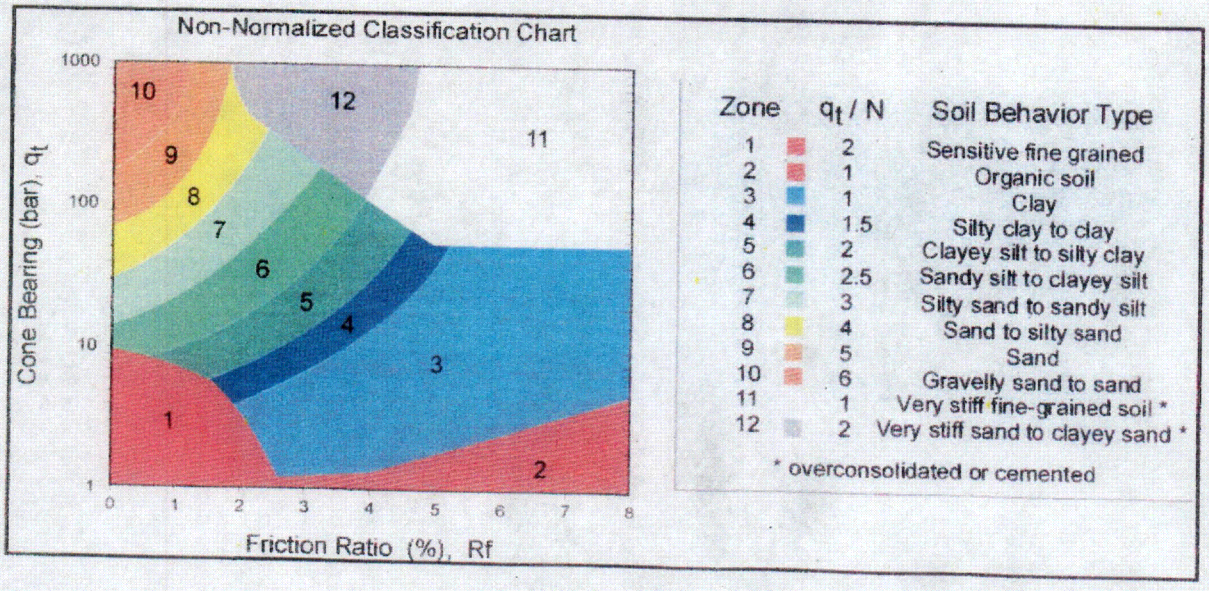
CONETEC

C12

CONE PENETRATION TESTING, Continued

A complete set of baseline readings was taken prior to and at the completion of each sounding to determine temperature shifts and any zero load offsets. Corrections for temperature shifts and zero load offsets can be extremely important, especially when the recorded loads are relatively small. In sandy soils, however, these corrections are generally negligible.

The inferred stratigraphic profile at each CPT test location is included with this report. The stratigraphic interpretations are based on relationships between cone bearing, q_t, sleeve friction, f_s, and dynamic pore pressure, u. The friction ratio, R_f ($100 \times f_s/q_t$), is a calculated parameter which is used to identify the type of soil and hence gives an indication of its behavior. Generally, soft cohesive soils have high friction ratios, low cone bearing pressures and generate large porewater pressures during penetration. Cohesionless soils have lower friction ratios, high cone bearing pressures and generate little in the way of excess porewater pressure during penetration. The classification of soils is based on non-normalized correlations summarized by Robertson (1990), as shown in the following figure. Many correlations have been developed for design parameters based on CPT data. The interpretations are presented only as a guide for geotechnical use and should be carefully scrutinized for consideration in any geotechnical design. Assumptions have been made regarding soil unit weights, groundwater level and interpretational methods, which may or may not apply to this site. Additionally, it is not always possible to clearly identify a soil type based on q_t and f_s alone. Experience, judgment and analyses of porewater pressure generation during penetration and subsequent dissipation tests should be used in arriving at the soil type in these ambiguous situations.



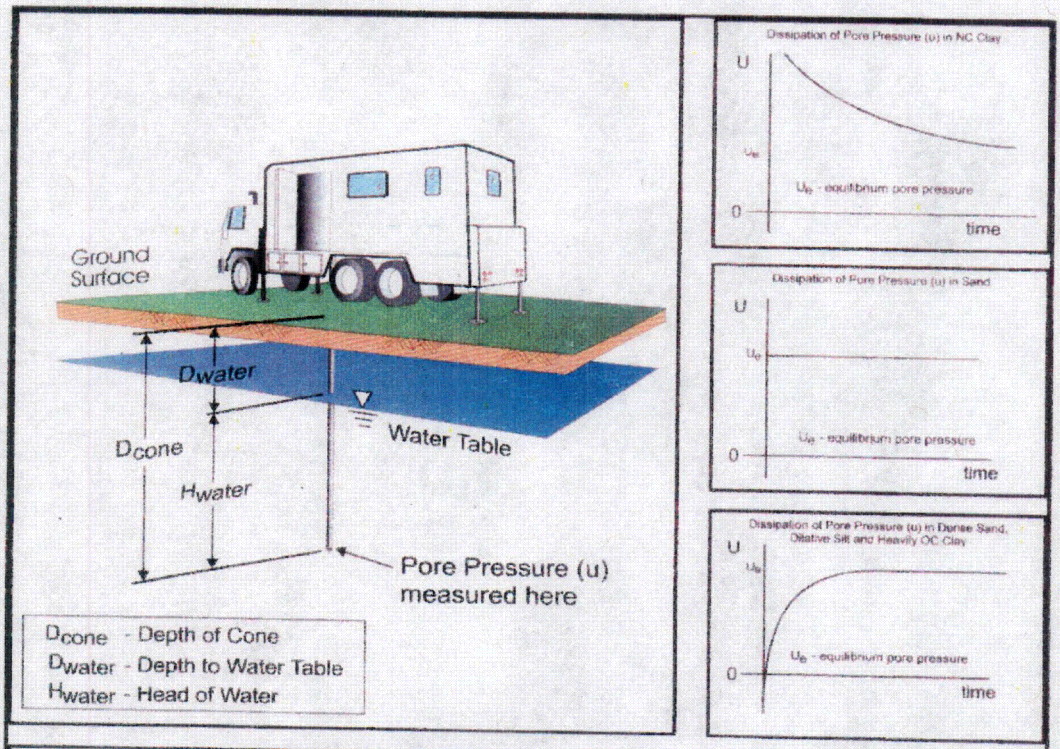
CONETEC

C13

PORE PRESSURE DISSIPATION TESTING

The pore pressure dissipation tests were performed at depths as directed by Golder personnel. Pore pressure dissipation data is automatically recorded during pauses in penetration and is recorded at 5-second intervals. Plots of pore pressure dissipation tests are presented in the appendices. Additionally, the summary table describes the location, depth, equilibrium pore pressure and the duration of each of the dissipation test.

Additionally, static pore pressure measurements were determined by simply pausing during penetration, releasing the load from the push rods and allowing the dynamic pore pressures to come to an equilibrium value, as shown in the following figure.



Water Table Calculation

$$D_{water} = D_{cone} - H_{water}$$

where $H_{water} = U_e$ (depth units)

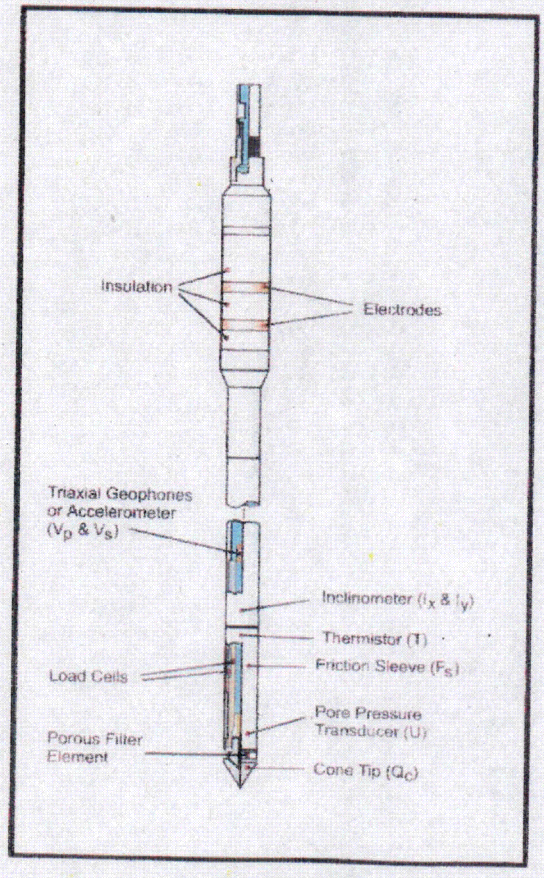
Useful Conversion Factors: 1psi = 0.704m = 2.31 feet (water)
1tsf = 0.958 bar = 13.9 psi
1m = 3.28 feet

CONETEC

C14

RESISTIVITY CONE PENETRATION TEST

The resistivity cone used for this study combines a piezo cone with a resitivity module, as shown in the following figure. The resistivity cone penetration test works on the principle that the measured voltage drop across the electrodes in the soil, at a given excitation current, is proportional to the electrical resistivity of the soil. The stainless steel resistivity electrode is 6 mm in diameter. It is designed to be reasonably wear resistant and have high electrical conductivity. This small electrode provides excellent vertical resolution of resistivity changes. The insulator separating the electrode from the cone is made of Delrin plastic. The probe operates by applying a sinusoidal 1000 Hz current across the electrodes. From the resultant potential difference between the electrodes a resistance is determined. The current is regulated by a downhole microprocessor that adjusts the current when the resistivity changes appreciably to ensure a linear response to the soil. This enables resistivity measurements between 0 and 15,000 ohm-m to be made with an accuracy of +/- 0.2% of full scale. A 1000 Hz source is used to avoid polarization of the electrode. Polarization is the process where ions accumulate at the electrodes thus increasing the measured resistance. This frequency also falls within the range (25 – 3000 Hz) suggested by the ASTM (D1125-82) standard for water conductivity measurements.



CONETEC

C15

RESISTIVITY CONE PENETRATION TEST, Continued

Resistance is not a material property but a function of the electrode spacing and size. To convert from resistance to resistivity, which is a material property, a lab calibration is necessary. The resistivity module was calibrated in a water tank. Solutions of known resistivity were prepared in the tank and the resistance across the electrodes was measured. On the basis of the calibration it was found that resistivity was linearly related to resistance. It is necessary to assume that the calibration factor when the cone is advanced through soil will not vary considerably from that determined in a homogeneous isotropic medium. The resistivity of the soil is for the most part influenced by the resistivity of the pore fluid, which in turn is a measure of the groundwater chemical composition. Electrical conduction in saturated soils is largely by electrolytic conduction in the pore fluid although ion exchange within the soil skeleton contributes significantly in clayey soils. The resistivity cone testing procedures used in this study were no different than for a standard piezocone test. No special preparation of the module was necessary and no manual adjustments are needed during the sounding. The resistivity measurements were carried out and recorded on a continuous basis at the same time as the tip, friction and pore pressure measurements.

CLOSURE

We appreciate the opportunity of providing these services to you. If you have any questions regarding the enclosed material or if, we can be of additional assistance, please contact us.

Sincerely,

ConeTec, Inc.

Shawn D. Steiner, P.E.
Manager

Enclosures

CPT Plots

ConeTec, Inc. • Salt Lake City
Job No: 05-432
Client: S.M. Stoller
Project: Former Atlas Mill Tailings Impoundment

CPT Sounding and Pore Pressure Dissipation Summary

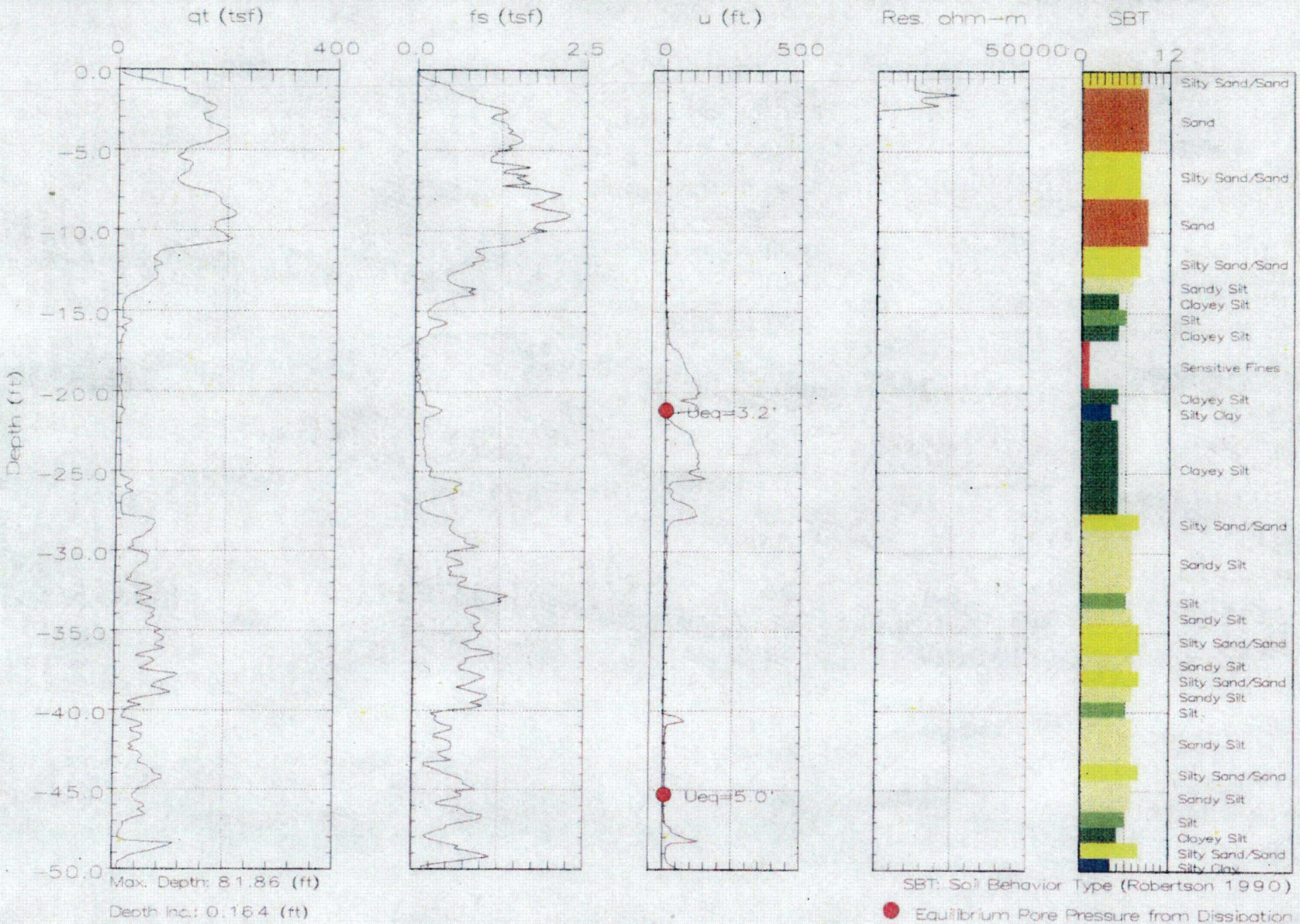
CPT Date	Hole No.	Filename	Sounding Depth (ft)	Dissipation Depth (ft)	Dissipation Time (sec)	Ueq (ft)	Comments
12/15/05	CPT-0381	432CP81	81.86	21.16	300	3.2	Refusal
				45.28	400	5.0	
				66.44	3000	12.5	
12/14/05	CPT-0382	432CP82	80.22	30.51	600	5.0	
				56.43	12000	~14.5	
				72.34	2000	41.0	
12/14/05	CPT-0383	432CP83	76.61	15.58	600	1.1	
				36.25	500	8.5	
				56.76	300	14.6	
12/17/05	CPT-0384	432CP84	66.60	10.17	405	~0.0	Refusal
				18.37	750	0.0	
				41.01	1805	17.5	
12/17/05	CPT-0385	432CP85	61.02	9.35	1500	3.6	
				54.46	4500	6.1	
				59.71	325	~0.0	
12/14/05	CPT-0386	432CP86	65.62	16.08	250	0.0	Refusal
				34.94	200	9.0	
				65.29	500	6.6	
12/16/05	CPT-0387	432CP87	61.35	58.40	9000	46.0	Refusal
12/17/05	CPT-0388	432CP88	54.63	10.33	400	7.4	
				52.99	300	7.7	
12/17/05	CPT-0389	432CP89	61.19	11.81	805	~0.0	Refusal
				54.63	6000	16.5	
				59.55	750	9.0	
12/18/05	CPT-0390	432CP90	59.87	13.12	1010	4.8	
				31.81	5600	15.0	
				50.36	1500	0.5	
12/15/05	CPT-0391	432CP91	69.55	19.85	2000	~0.0	
				52.66	2000	0.8	
				60.04	300	~0.0	
12/15/05	CPT-0392	432CP92	36.58	10.01	305	~0.0	
				20.51	3915	5.2	
				30.02	400	~0.0	
12/15/05	CPT-0393	432CP93	37.24	9.51	1800	3.3	Refusal
				20.01	1200	~0.0	
				30.02	800	~0.0	
12/16/05	CPT-0394	432CP94	42.81	10.01	1000	0.5	
				19.85	1205	0.4	
				30.02	1305	1.1	
12/16/05	CPT-0395A	432CP95A	10.99				Refusal
12/16/05	CPT-0395B	432CP95B	10.66				Refusal
12/16/05	CPT-0395 Toe	432CP95C	50.03	20.67	300	9.3	
				30.02	1000	1.3	
				40.03	1200	1.3	

CONETEC

S.M. Stoller

Hole No.:CPT-0381
Location:ATLAS

Cone: 20 Ton St 183
Date: 12:15:05 08:12



Max. Depth: 81.86 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

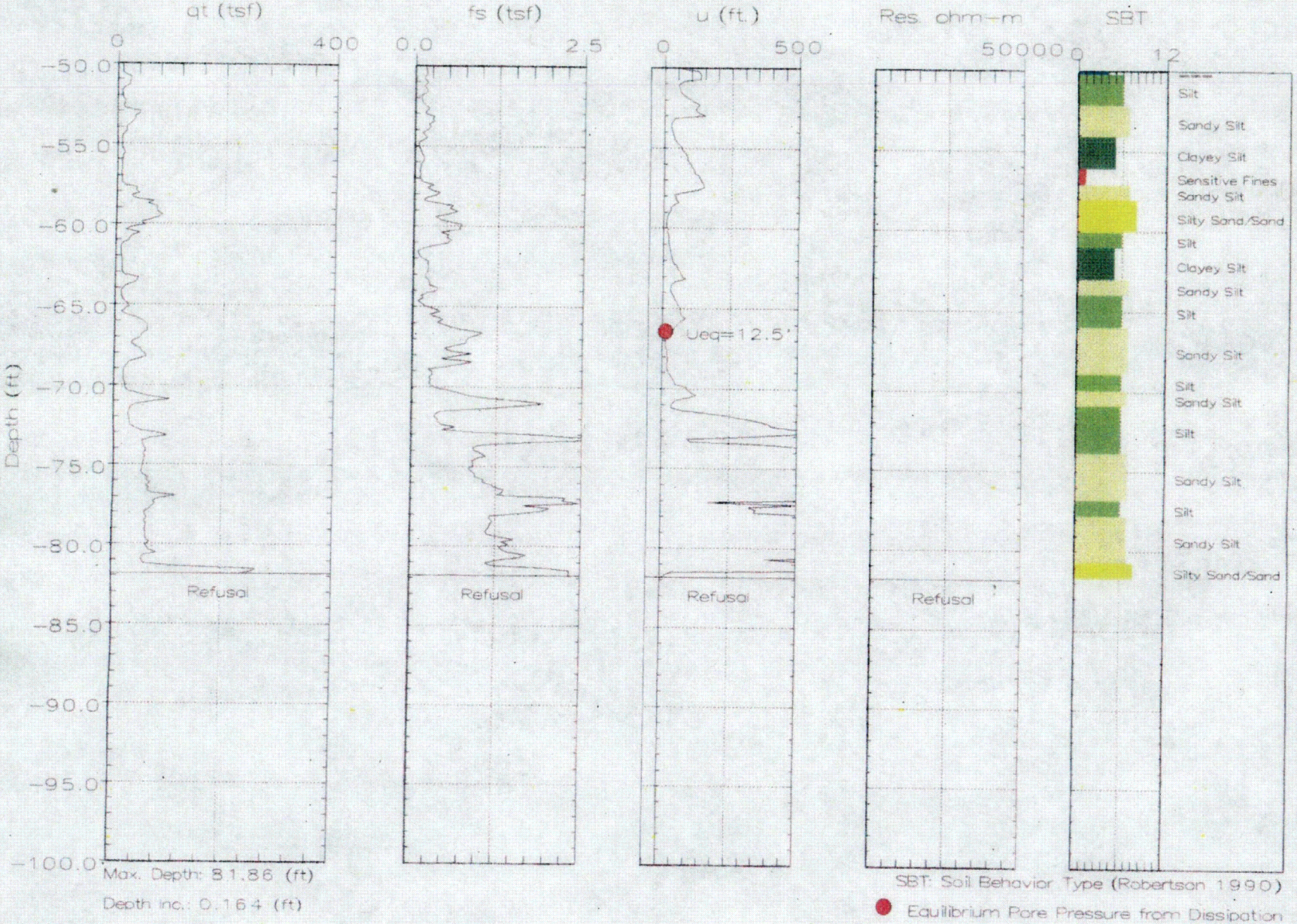
C16

CONETEC

S.M. Stoller

Hole No.:CPT-0381
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 08:12



Max. Depth: 81.86 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

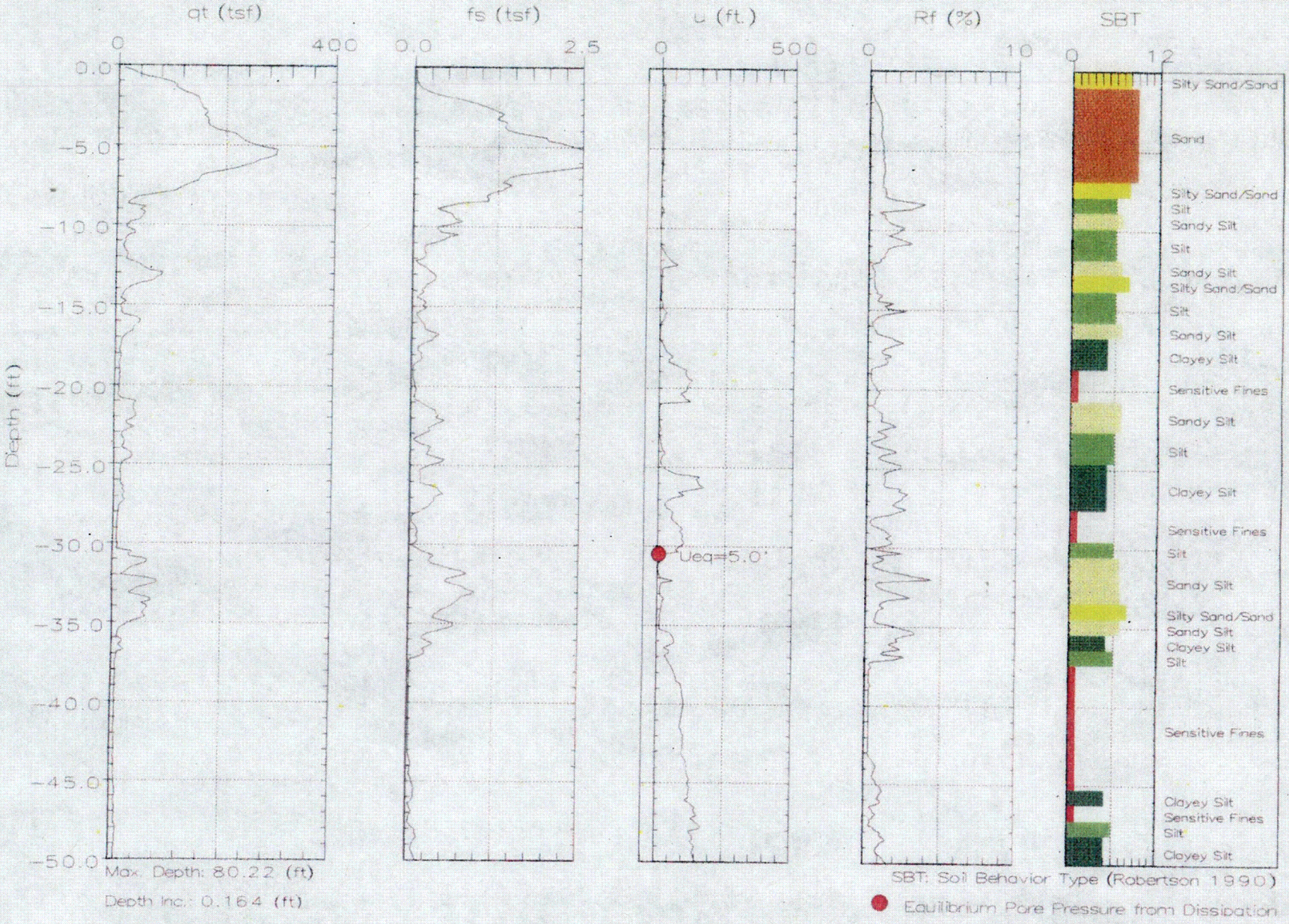
C17

CONETEC

S.M. Stoller

Hole No.:CPT-0382
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 09:43



Max. Depth: 80.22 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

C18

CONETEC

S.M. Stoller

Hole No.:CPT-0382
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 09:43



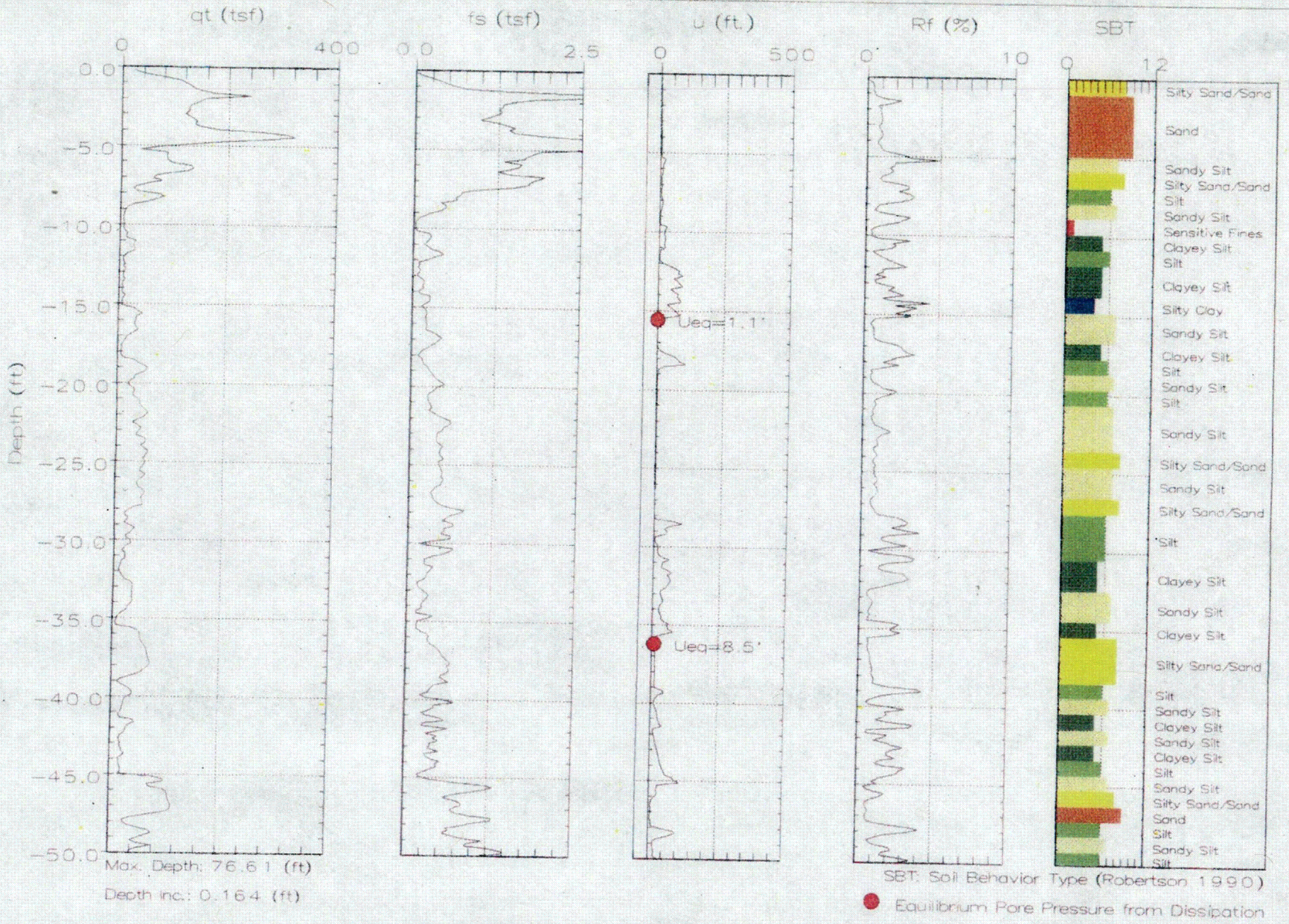
C19

CONETEC

S.M. Stoller

Hole No.:CPT-0383
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 08:16



Max. Depth: 76.61 (ft)
Depth inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

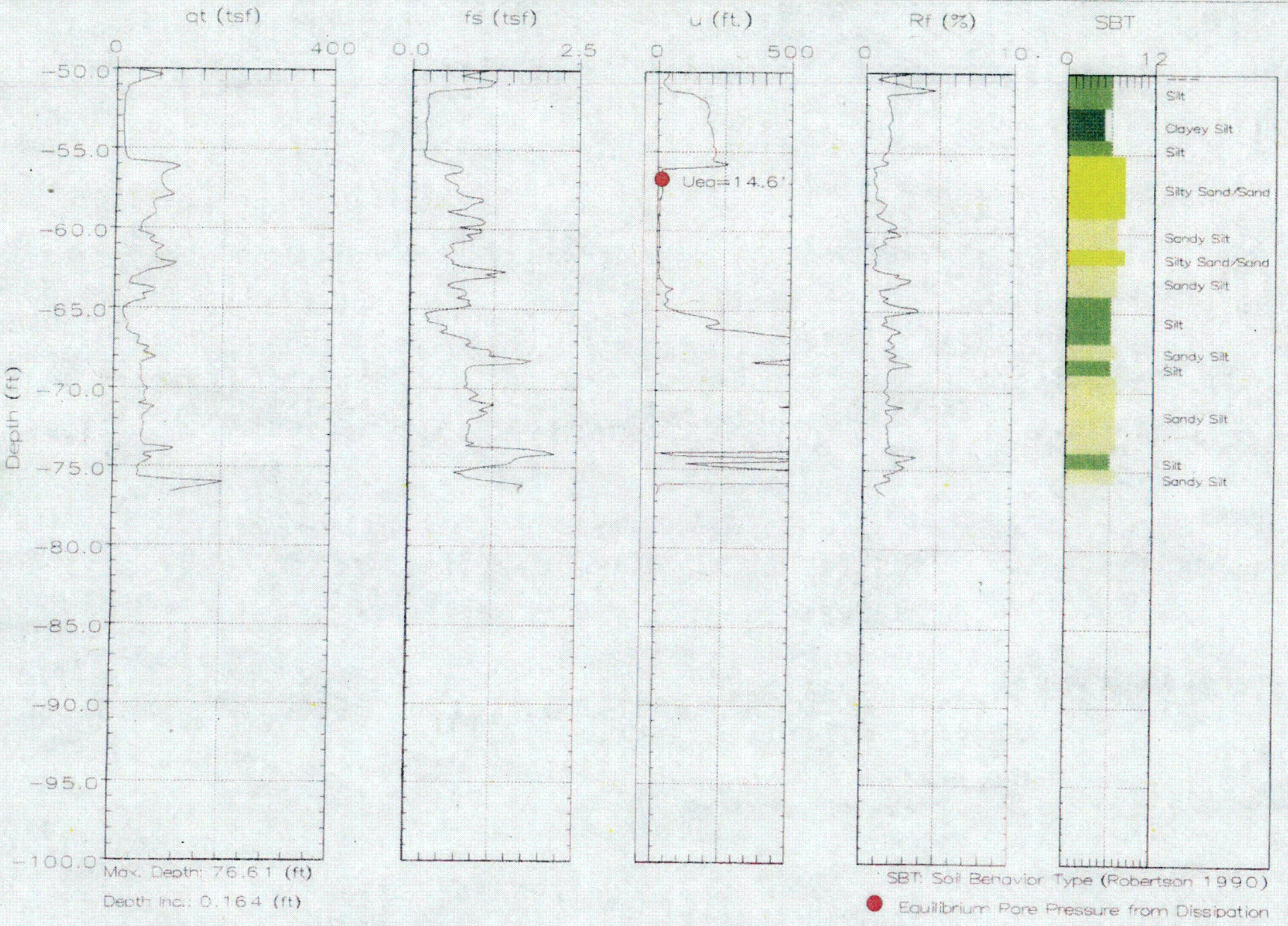
C20

CONETEC

S.M. Stoller

Hole No.:CPT-0383
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 08:16



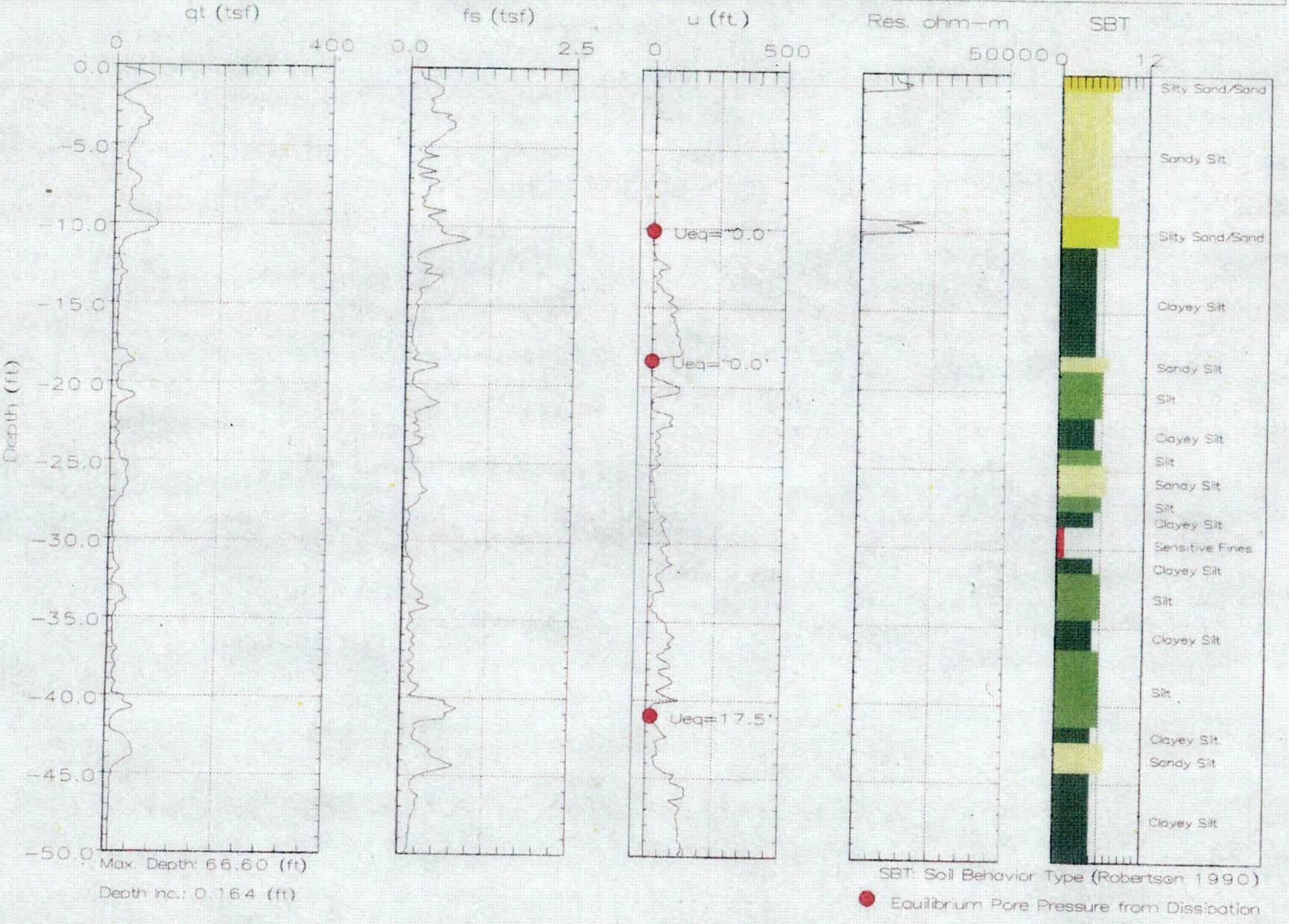
C21

CONETEC

S.M. Stoller

Hole No.:CPT-0384
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 08:55



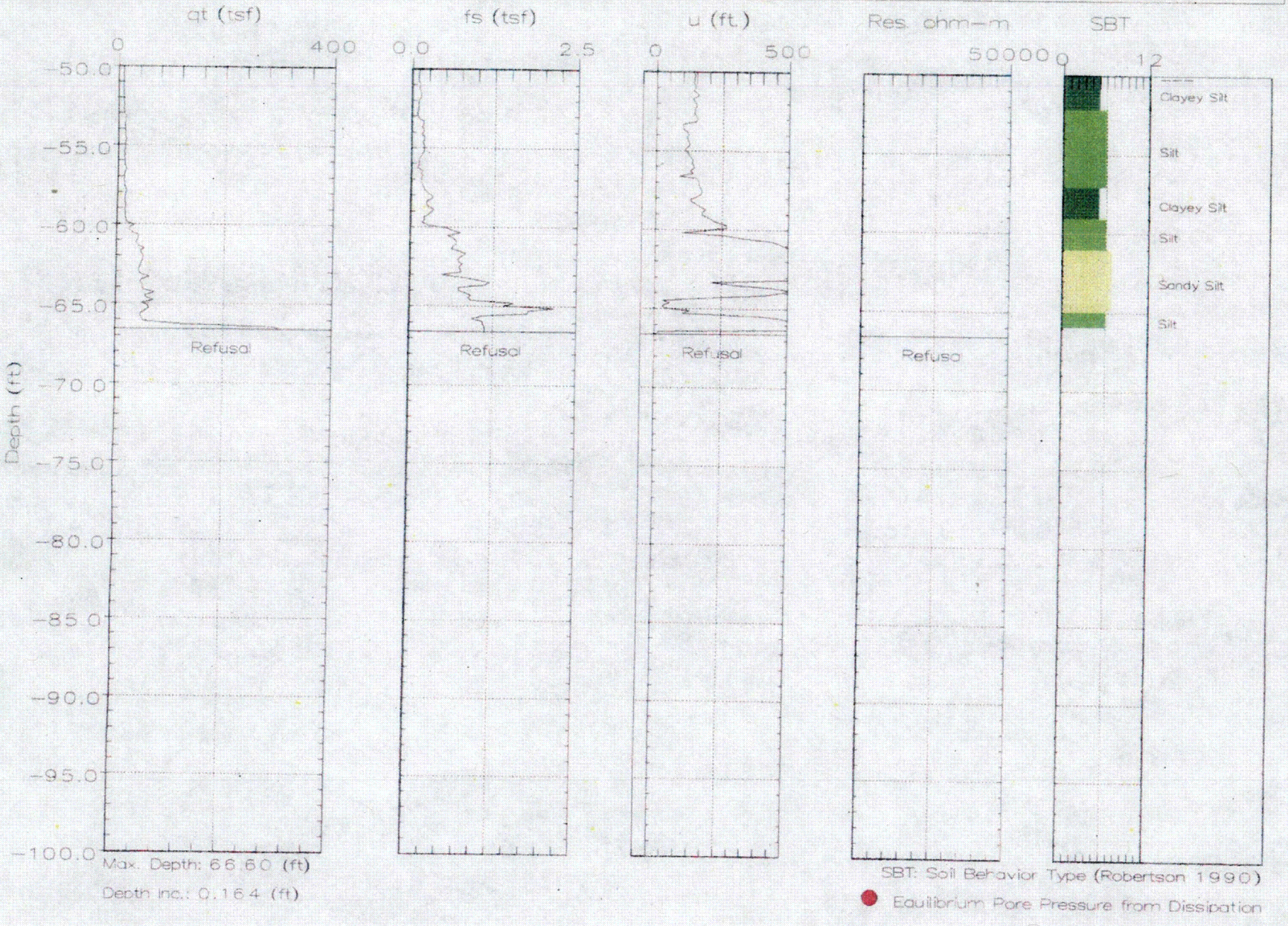
C22

CONETEC

S.M. Stoller

Hole No.:CPT-0384
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 08:55



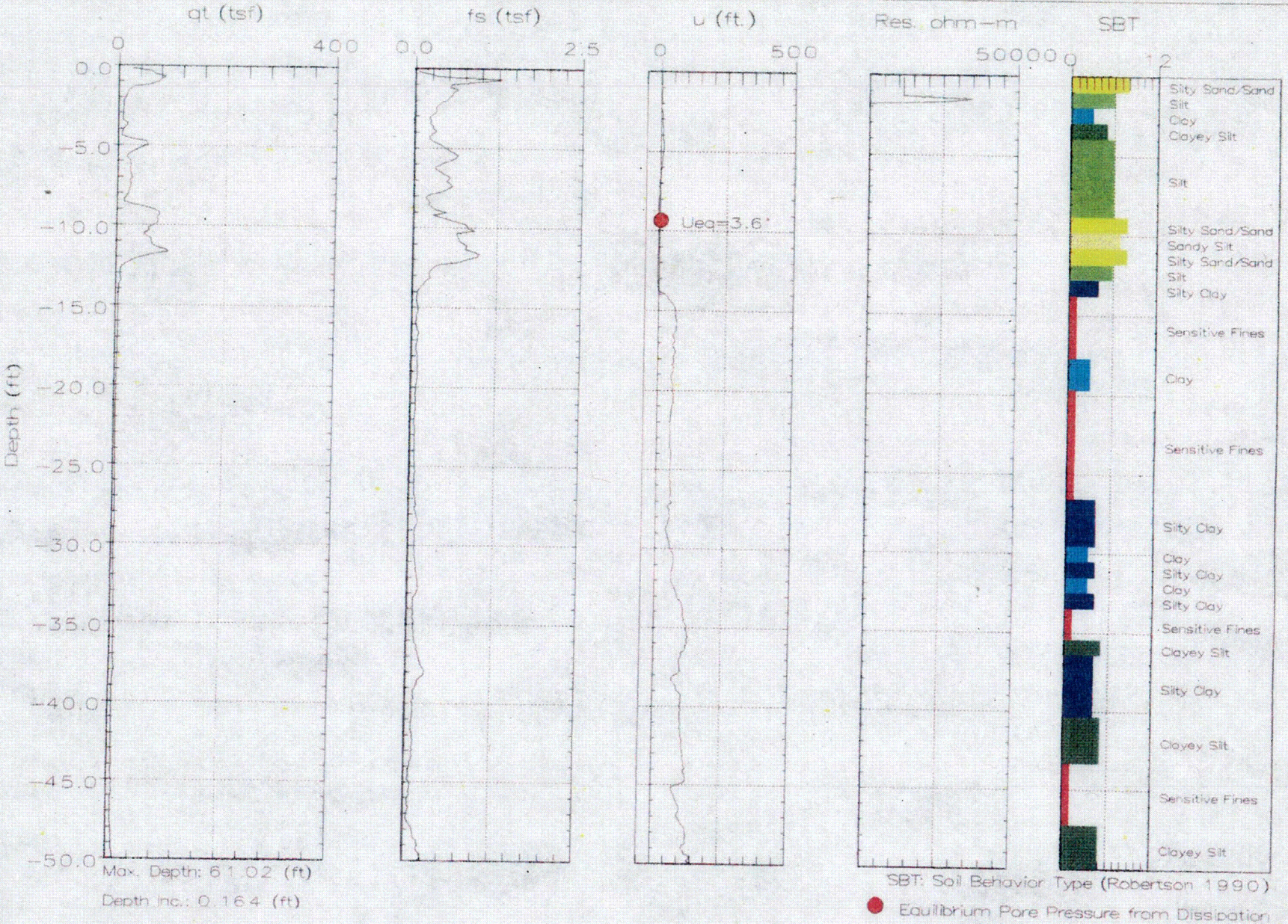
C23

CONETEC

S.M. Stoller

Hole No.:CPT-0385
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 10:37



Max. Depth: 61.02 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

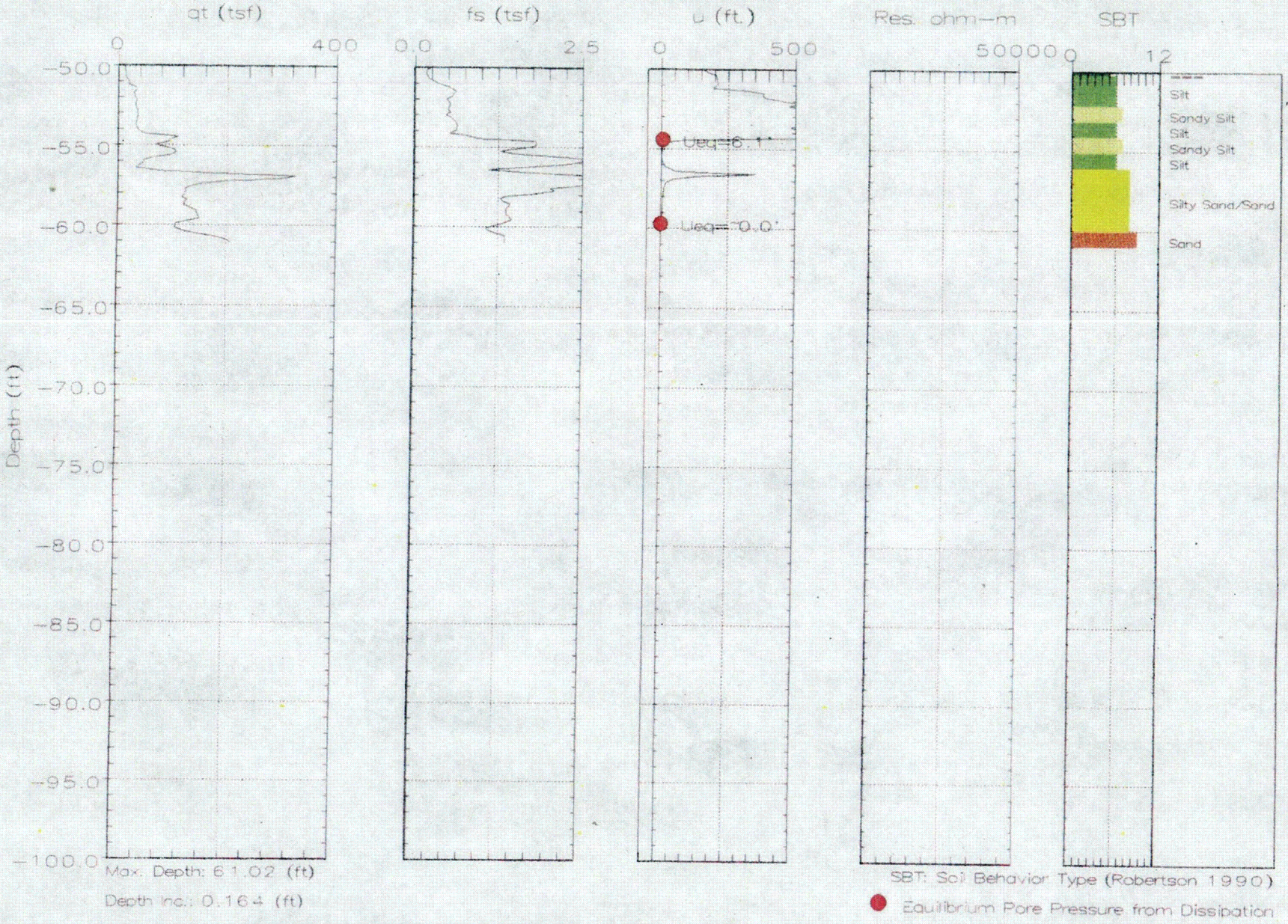
C24

CONETEC

S.M. Stoller

Hole No.:CPT-0385
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 10:37



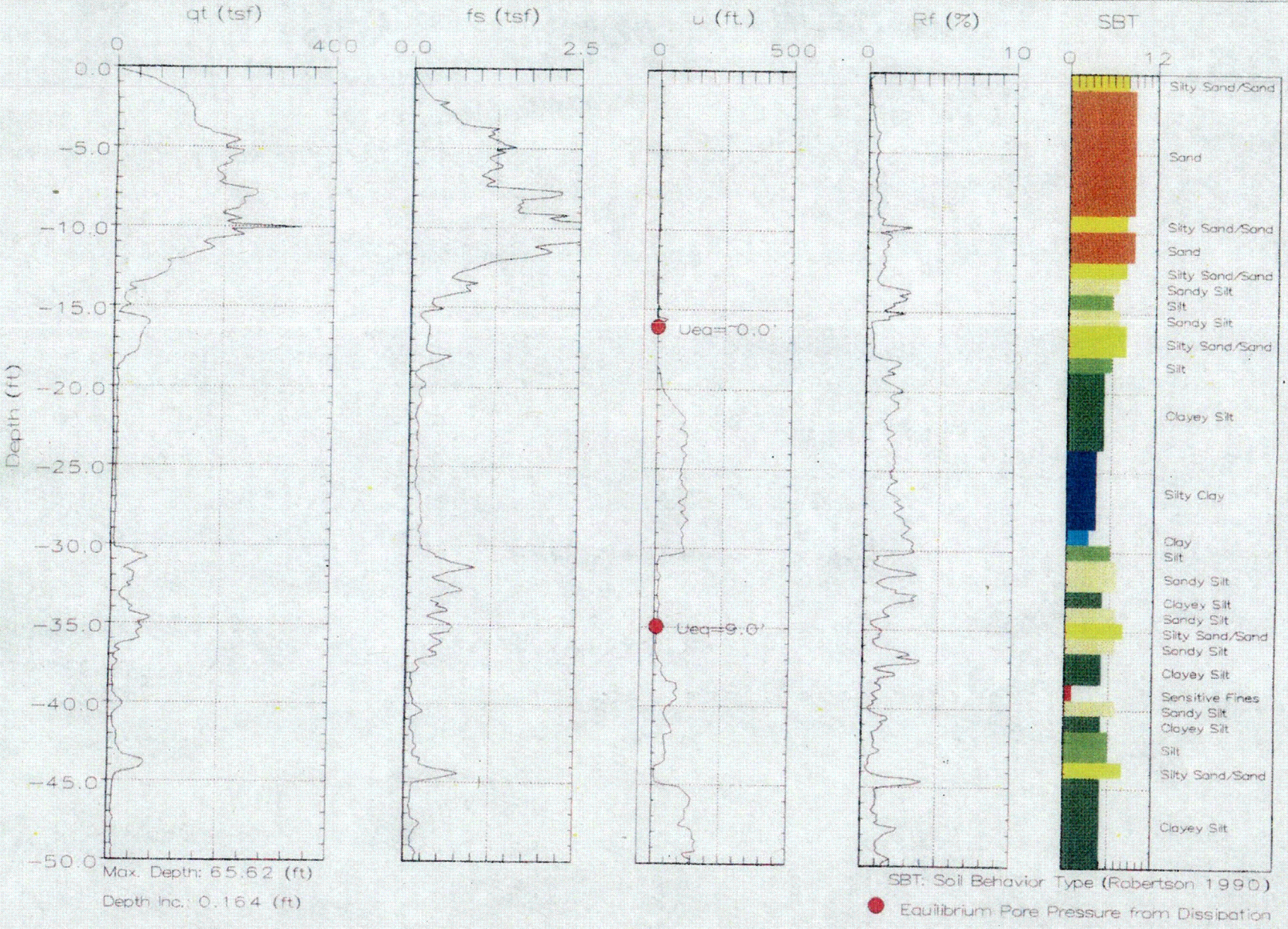
C25

CONETEC

S.M. Stoller

Hole No.:CPT-0386
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 14:53



Max. Depth: 65.62 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

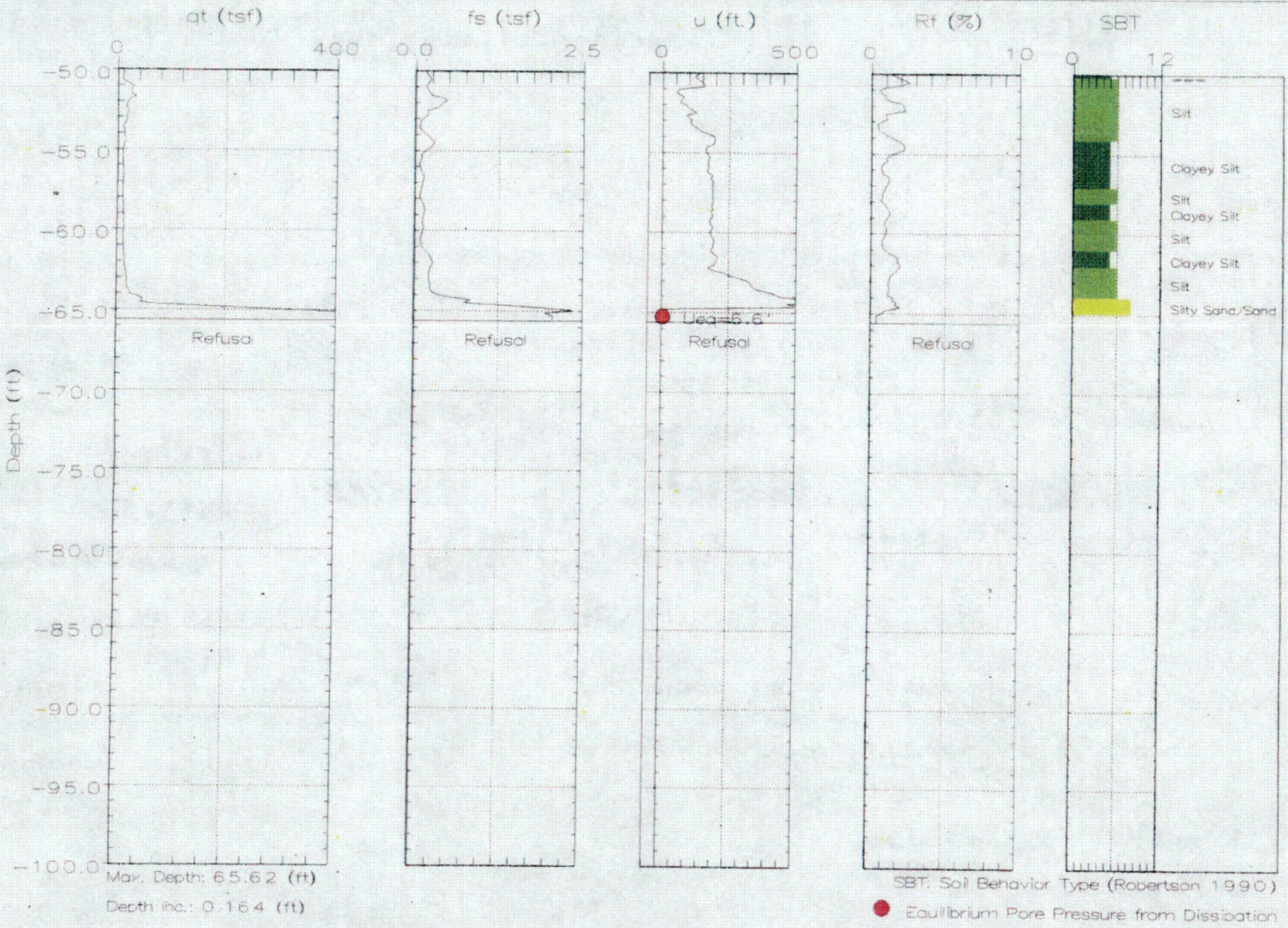
C26

CONETEC

S.M. Stoller

Hole No.:CPT-0386
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 14:53



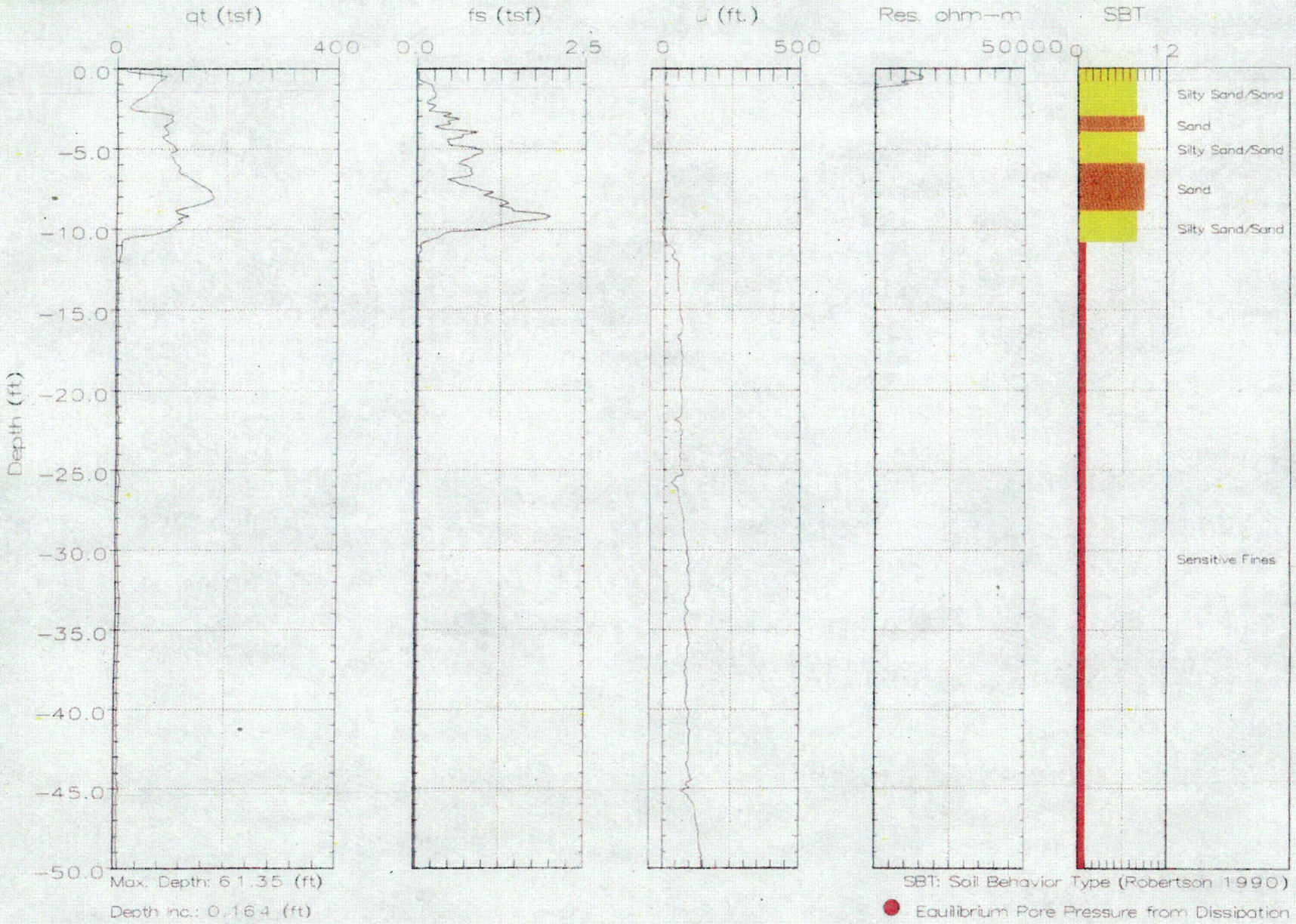
C27

CONETEC

S.M. Stoller

Hole No.:CPT-0387
Location:ATLAS

Cone: 20 Ton St 183
Date: 12:16:05 13:40



Max. Depth: 61.35 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

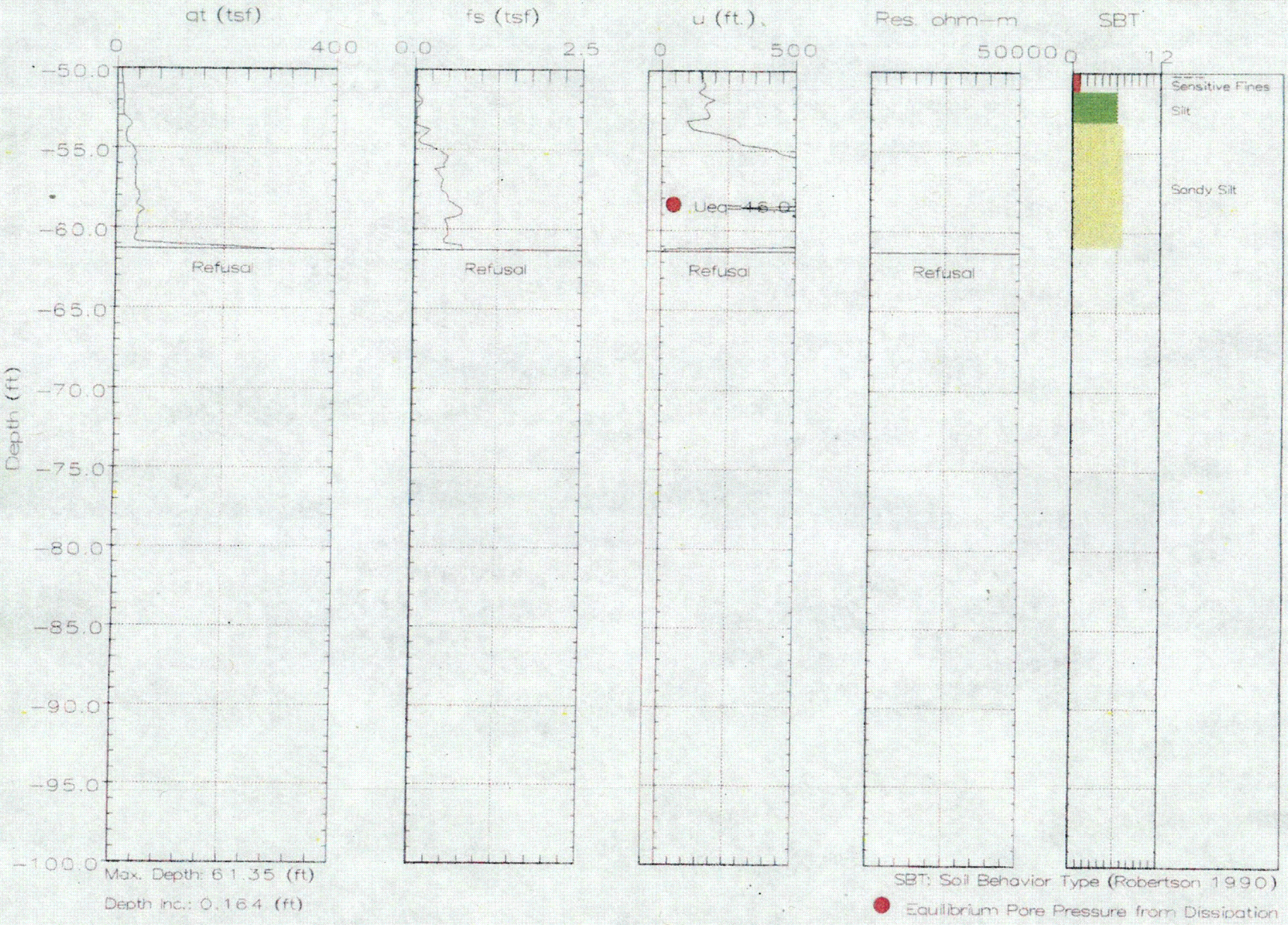
C28

CONETEC

S.M. Stoller

Hole No.:CPT-0387
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 13:40



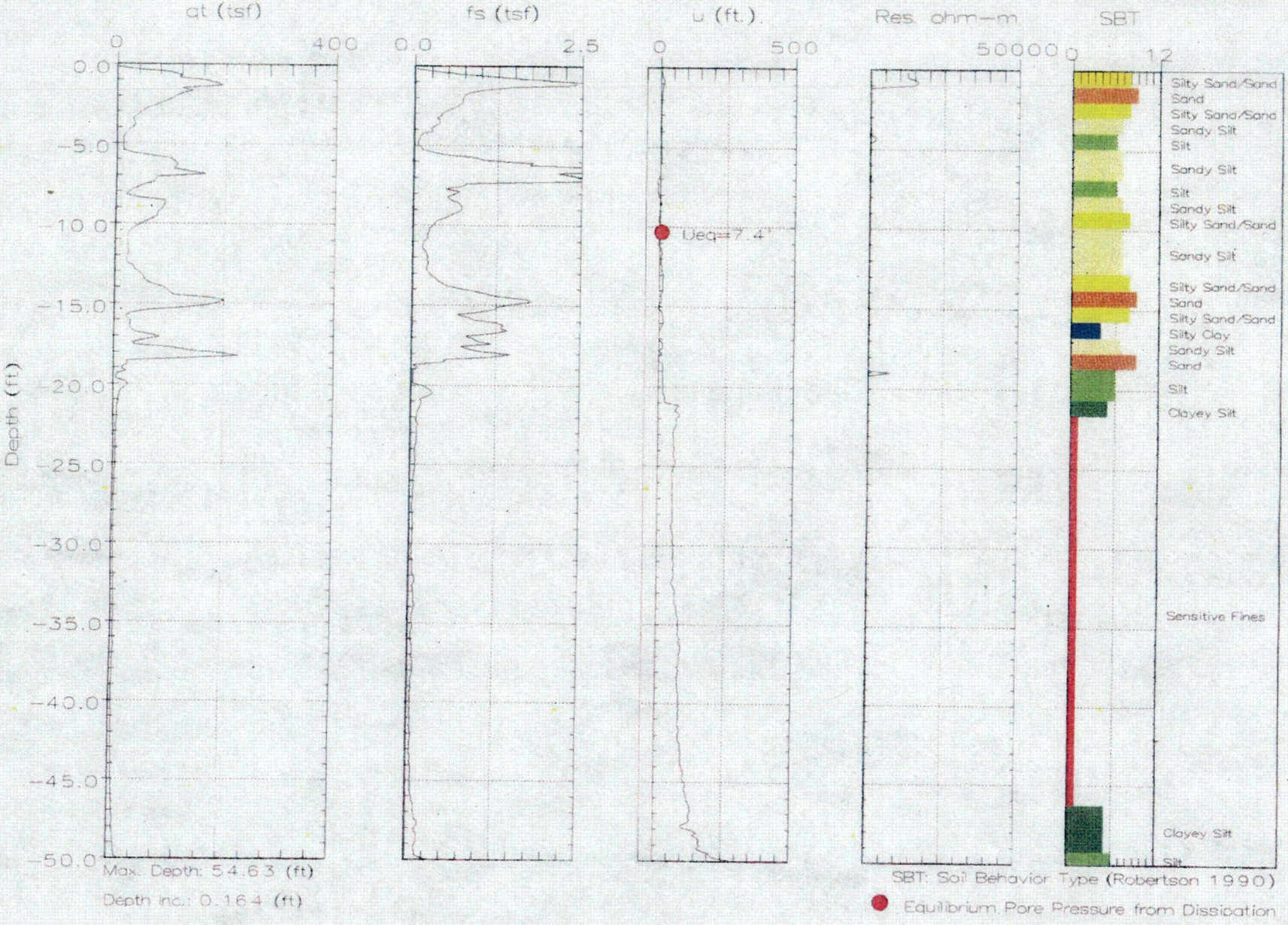
C29

CONETEC

S.M. Stoller

Hole No.:CPT-0388
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 07:45



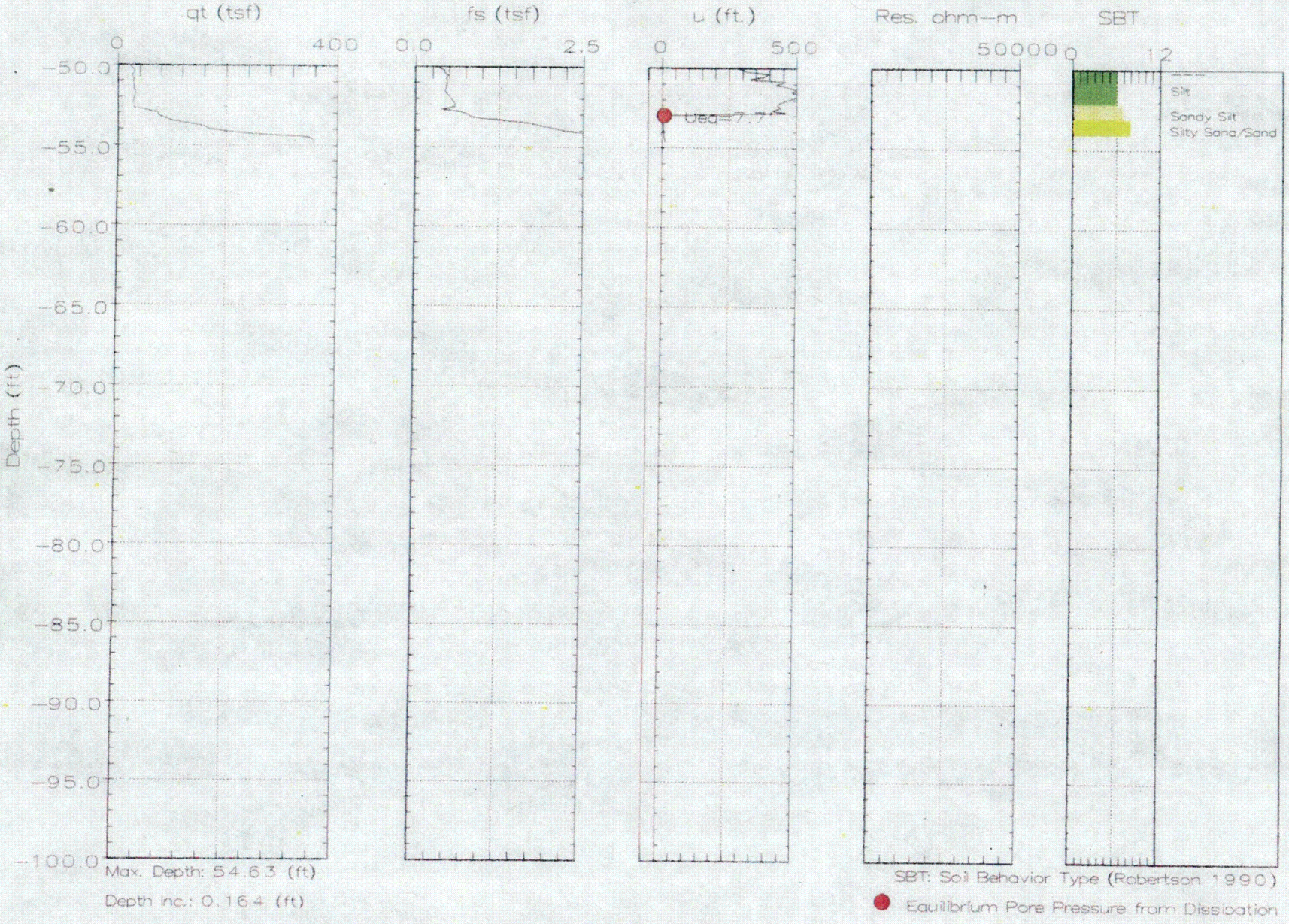
C30

CONETEC

S.M. Stoller

Hole No.:CPT-0388
Location:ATLAS

Cone: 20 Ton St 183
Date:12/17/05 07:45



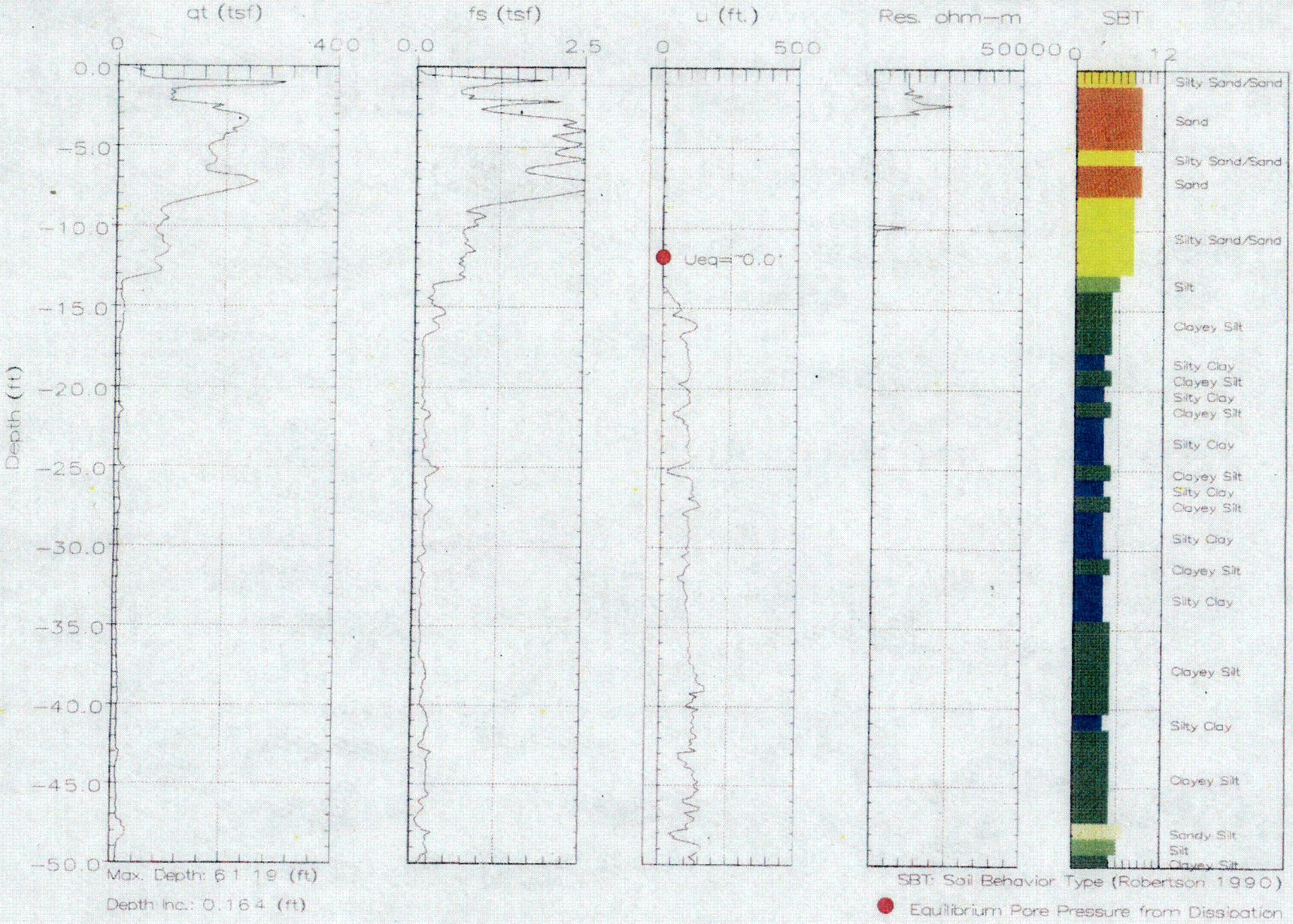
C31

CONETEC

S.M. Stoller

Hole No.:CPT-0389
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 13:19



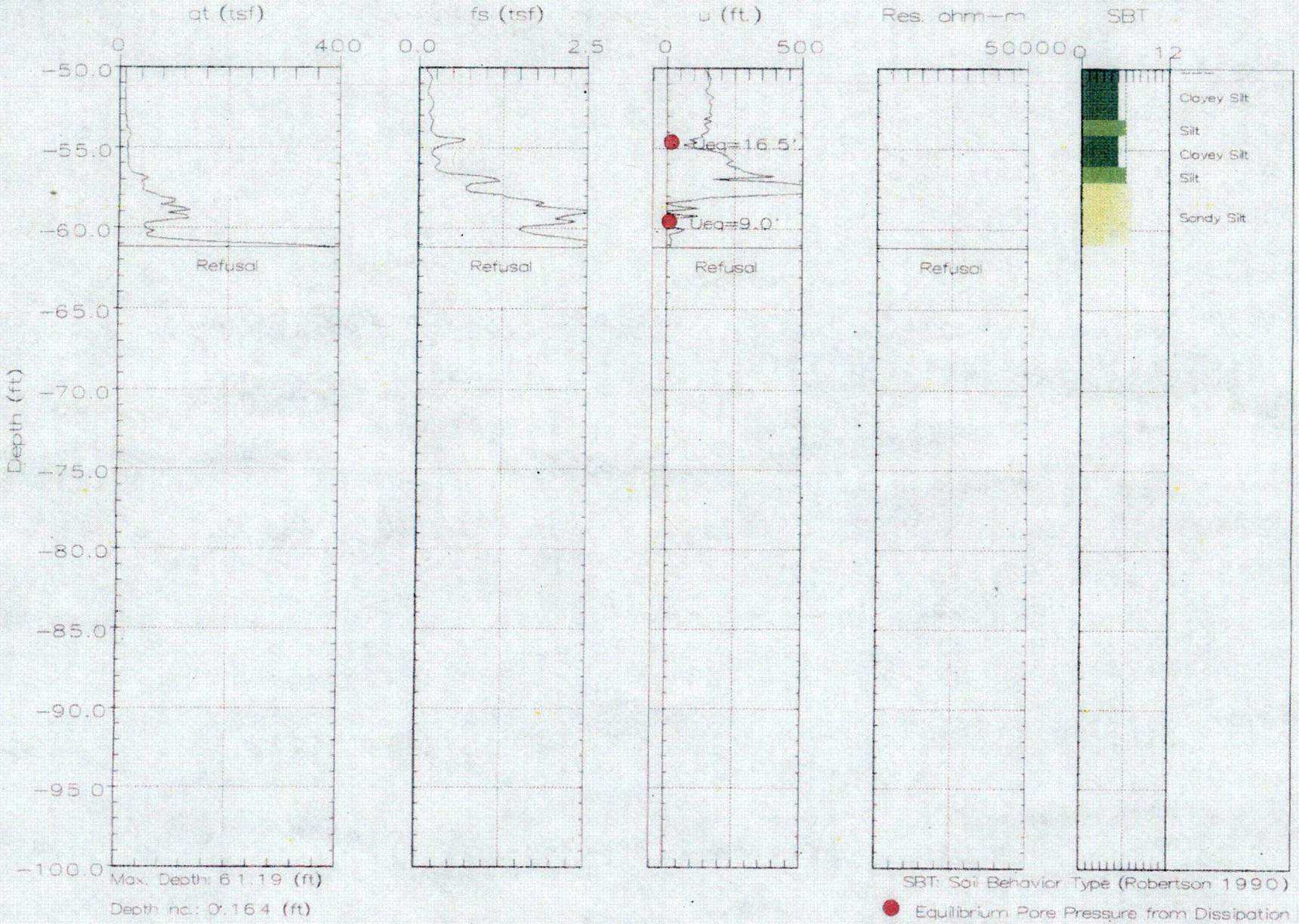
C32

CONETEC

S.M. Stoller

Hole No.:CPT-0389
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 13:19



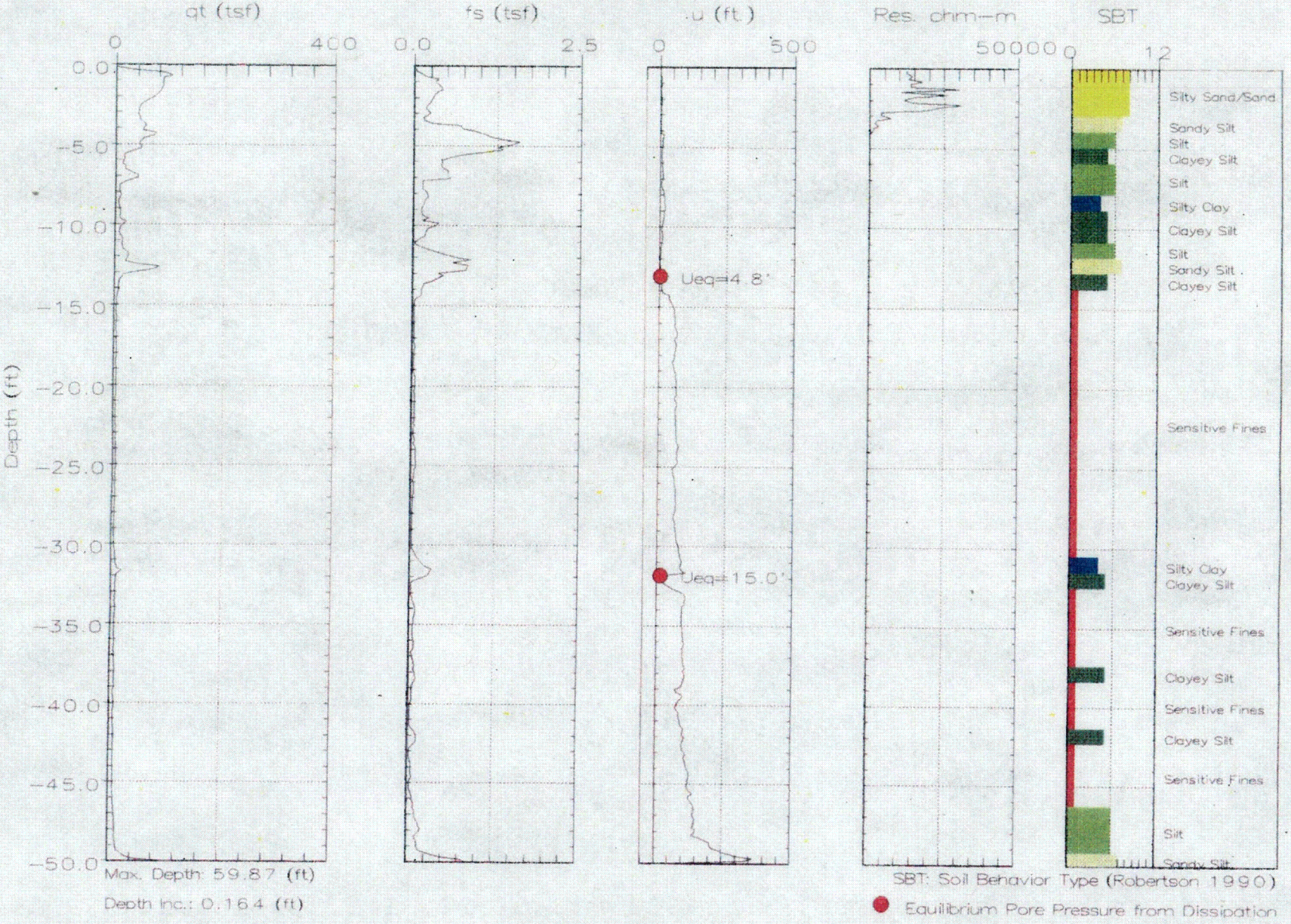
C33

CONETEC

S.M. Stoller

Hole No.:CPT-0390
Location:ATLAS

Cone: 20 Ton St 183
Date:12:18:05 08:29



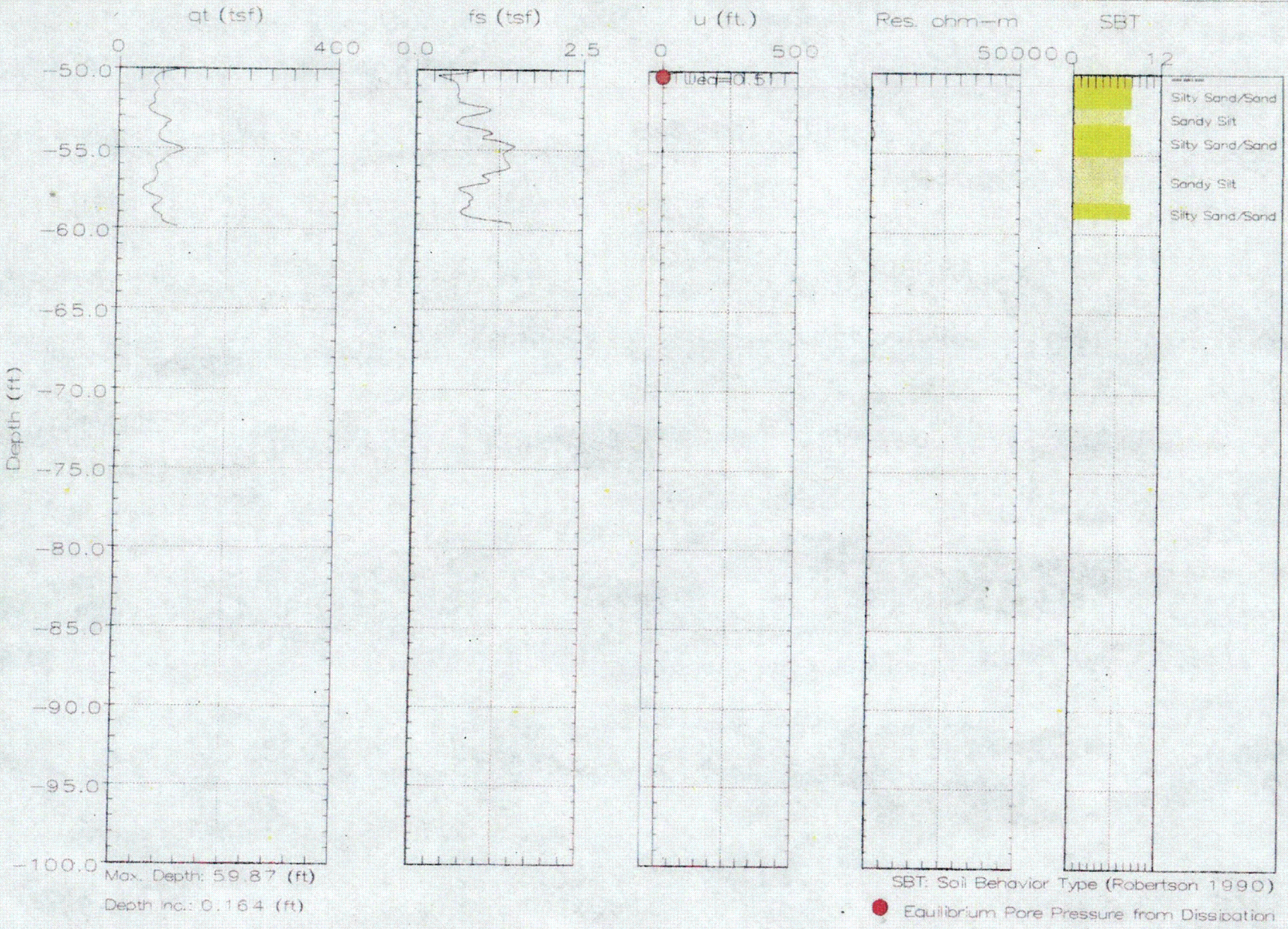
C34

CONETEC

S.M. Stoller

Hole No.:CPT-0390
Location:ATLAS

Cone: 20 Ton St 183
Date:12:18:05 08:29



Max. Depth: 59.87 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Equilibrium Pore Pressure from Dissipation

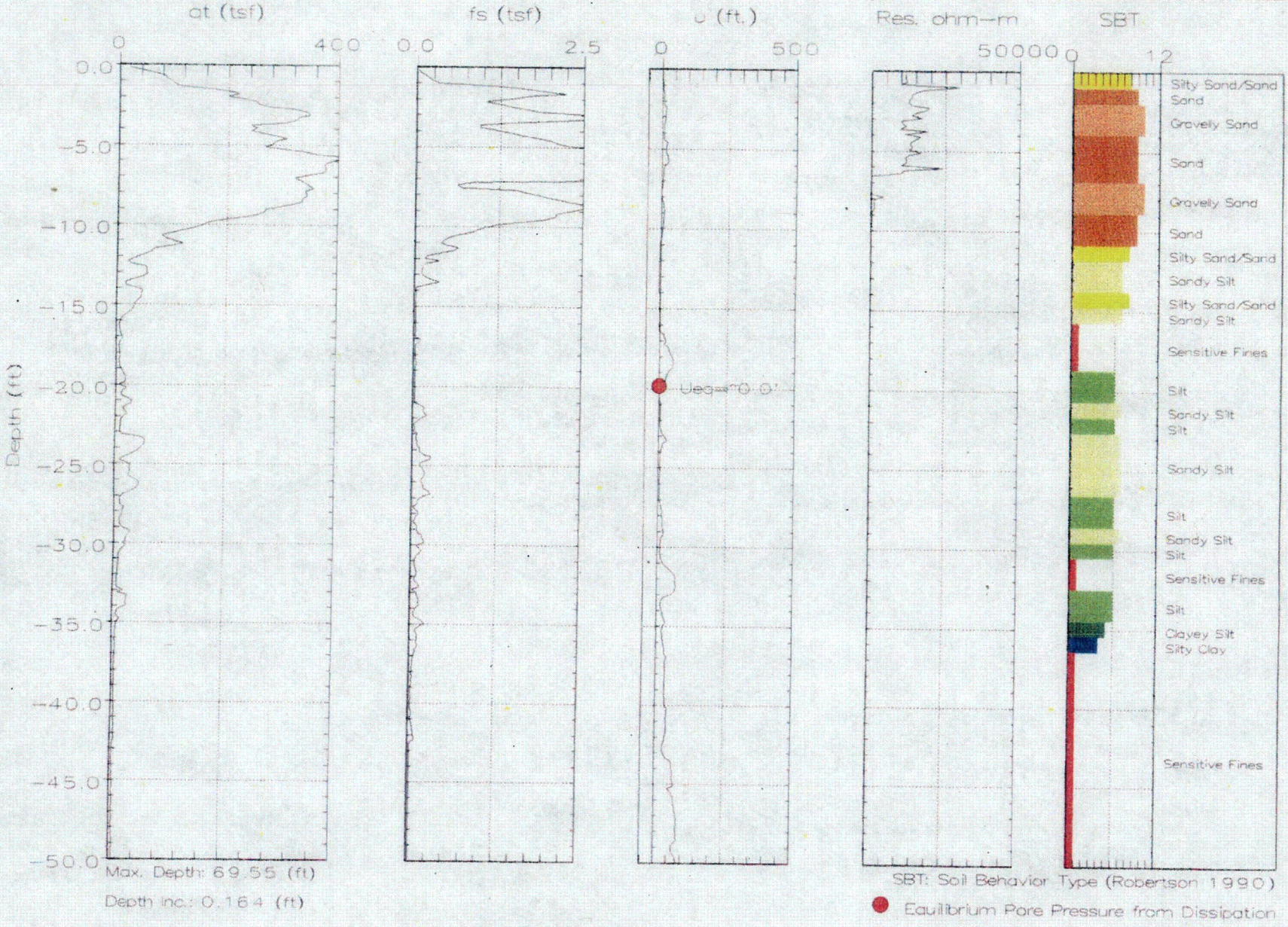
C35

CONETEC

S.M. Stoller

Hole No.:CPT-0391
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 10:21



Max. Depth: 69.55 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

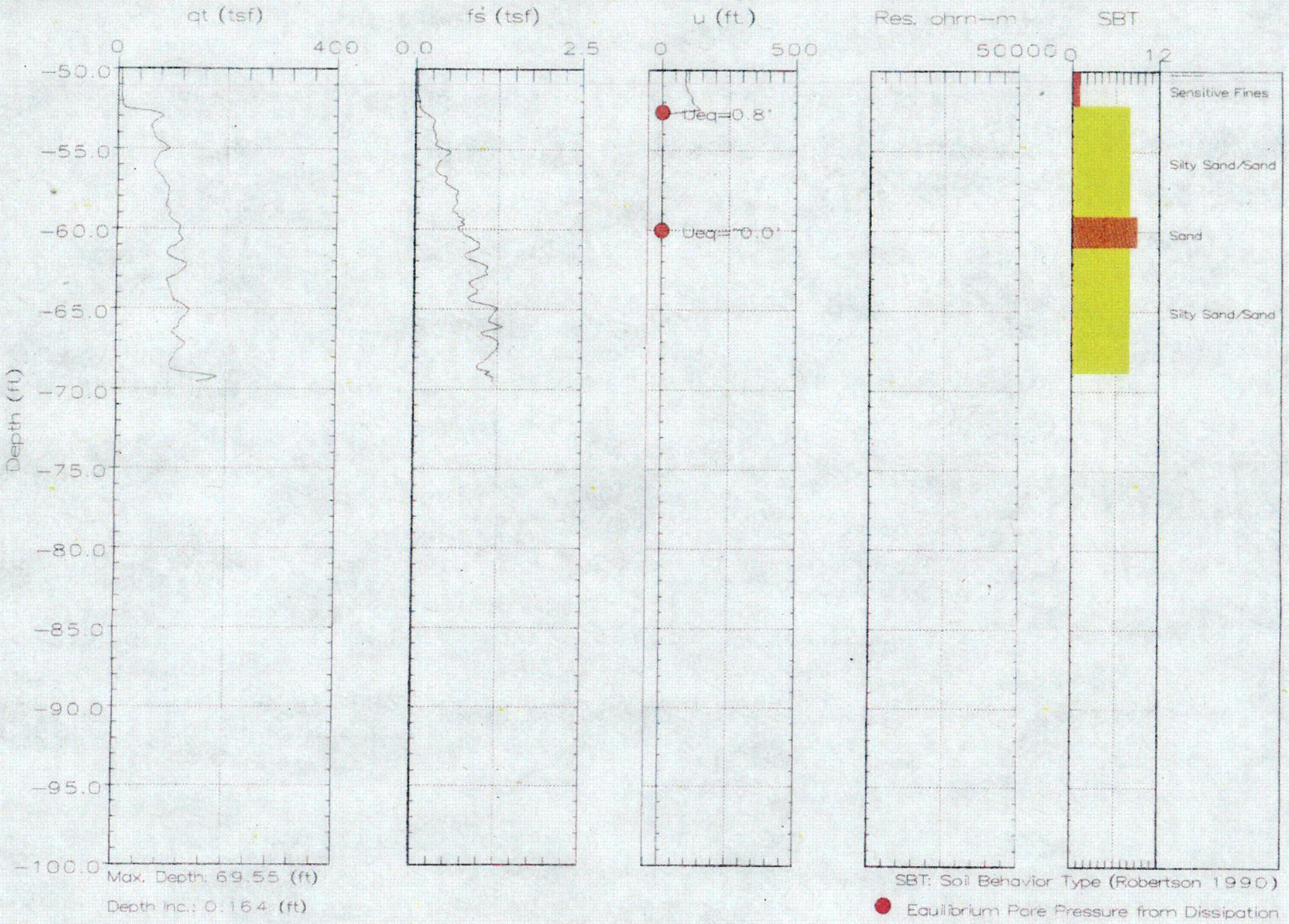
C36

CONETEC

S.M. Stoller

Hole No.:CPT-0391
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 10:21



Max. Depth: 69.55 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

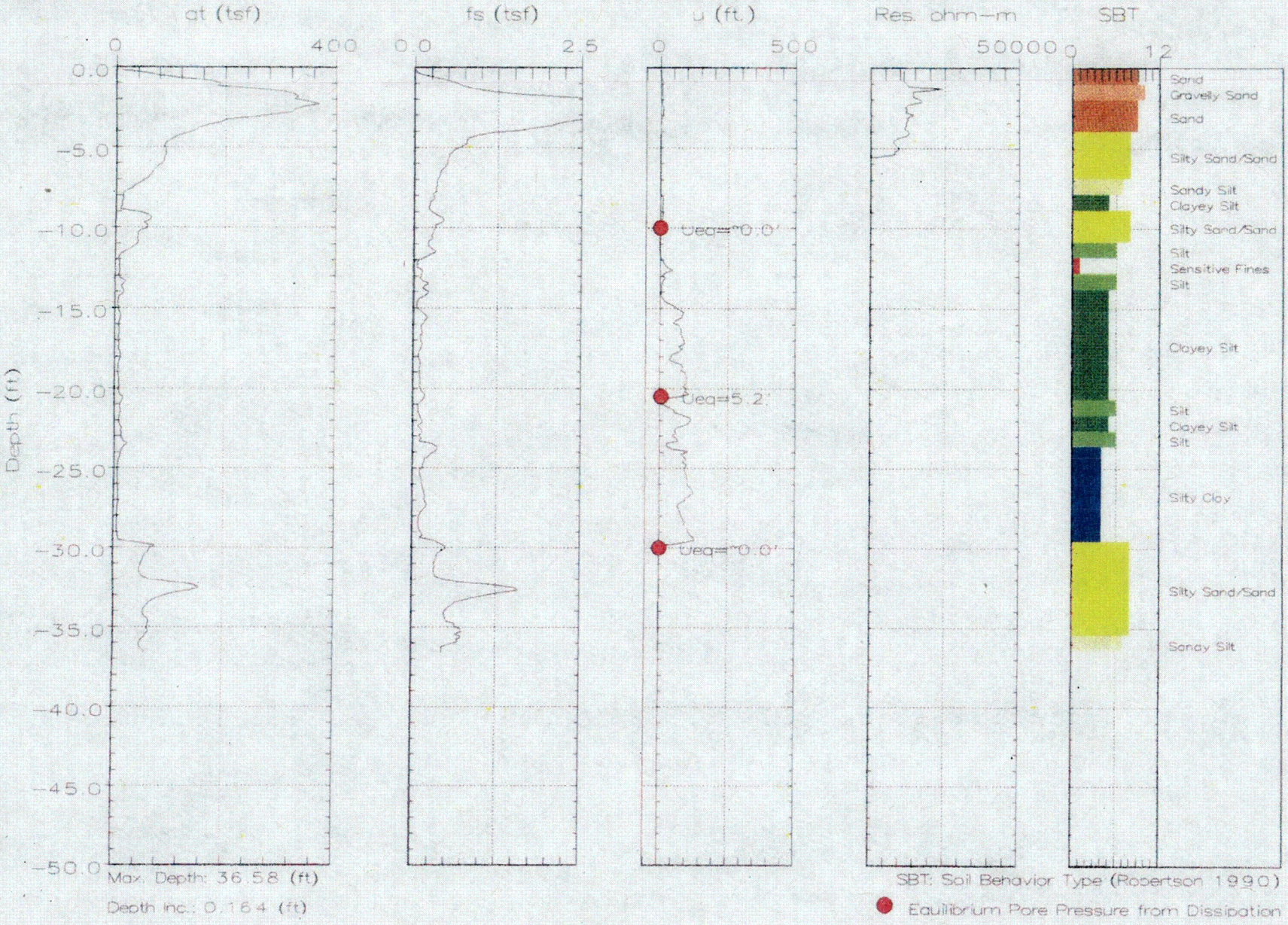
C37

CONETEC

S.M. Stoller

Hole No.:CPT-0392
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 12:38



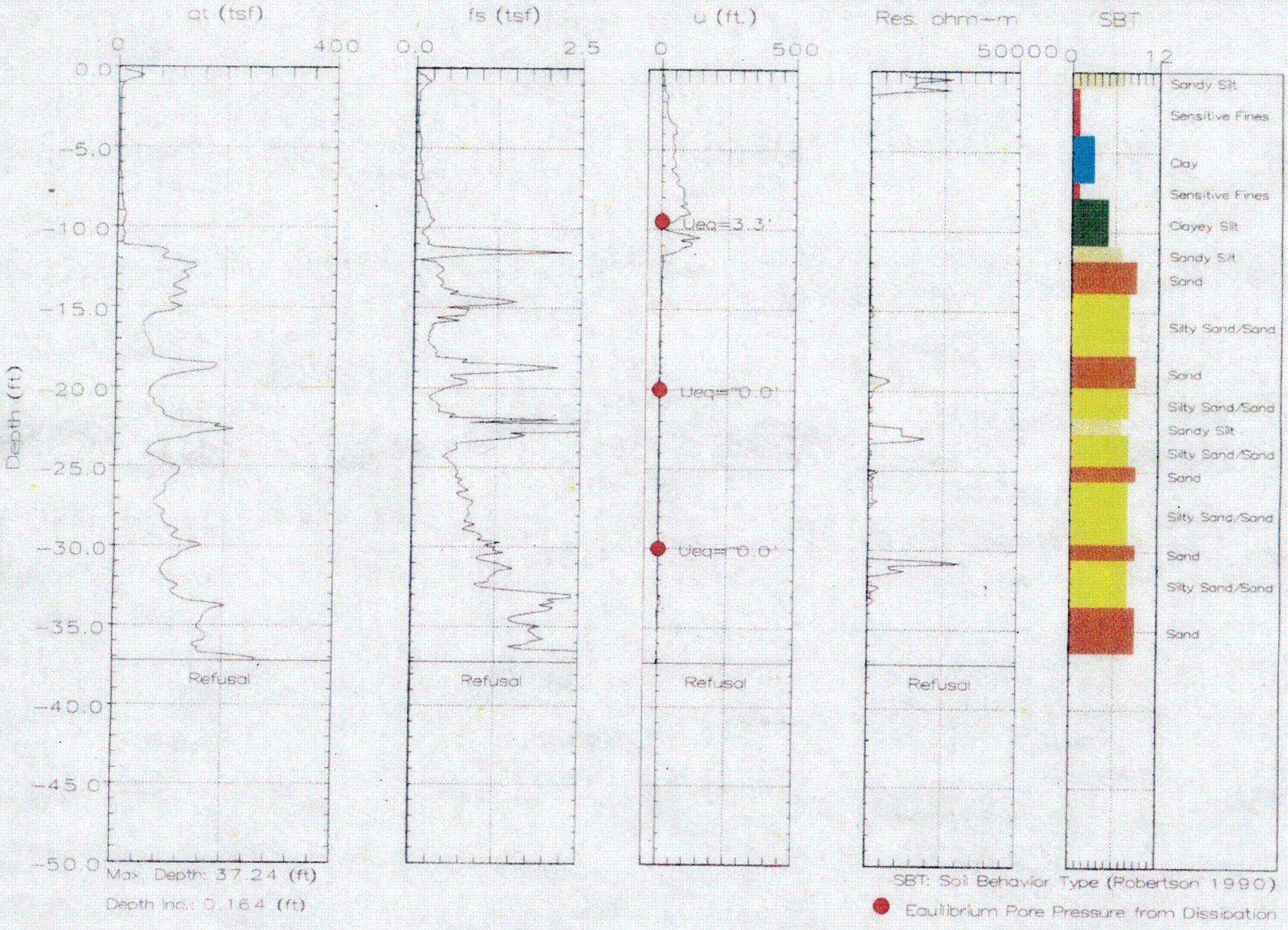
C38

CONETEC

S.M. Stoller

Hole No.:CPT-0393
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 14:40



Max. Depth: 37.24 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson 1990)

● Equilibrium Pore Pressure from Dissipation

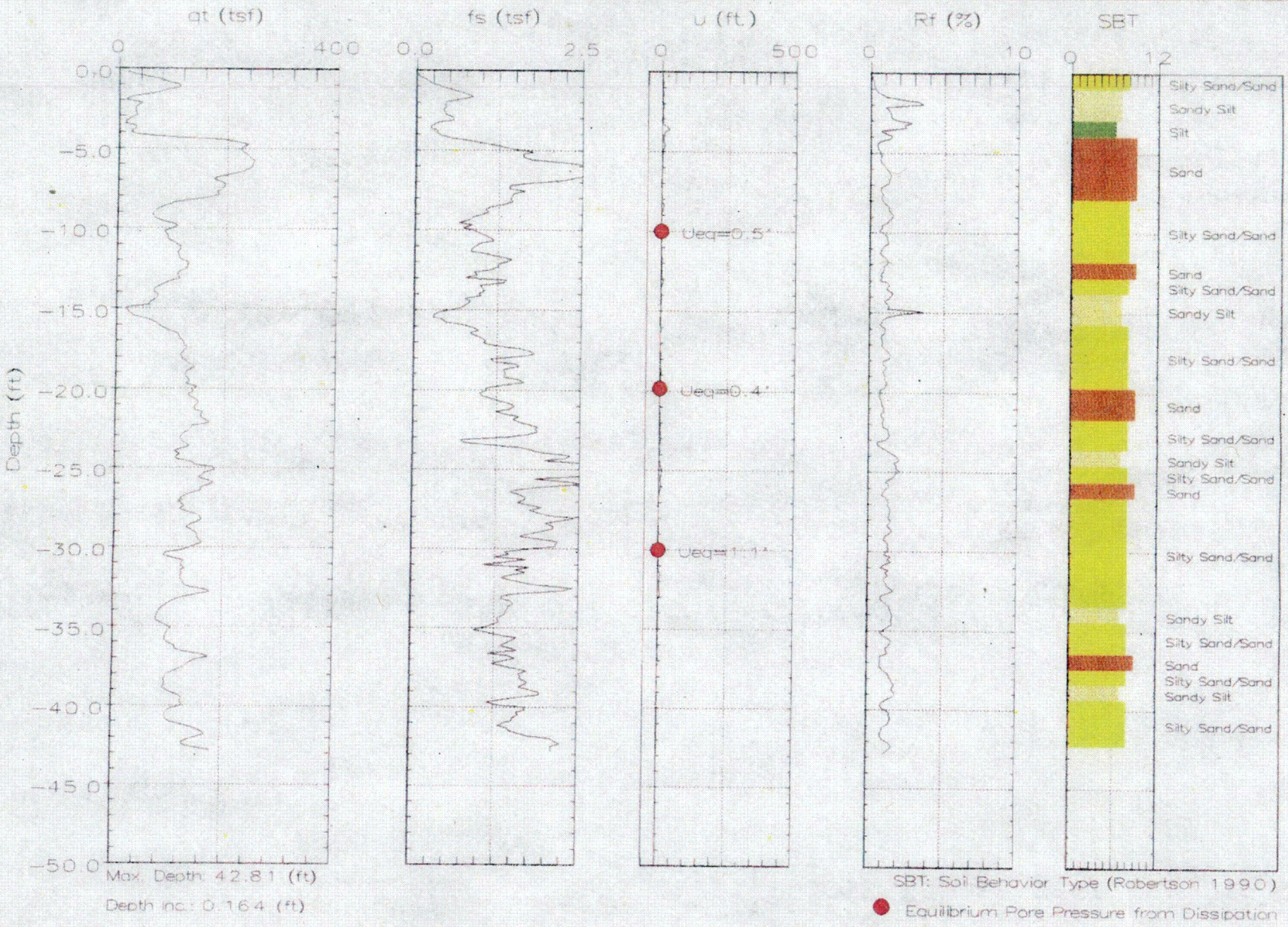
C39

CONETEC

S.M. Stoller

Hole No.:CPT-0394
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 07:50



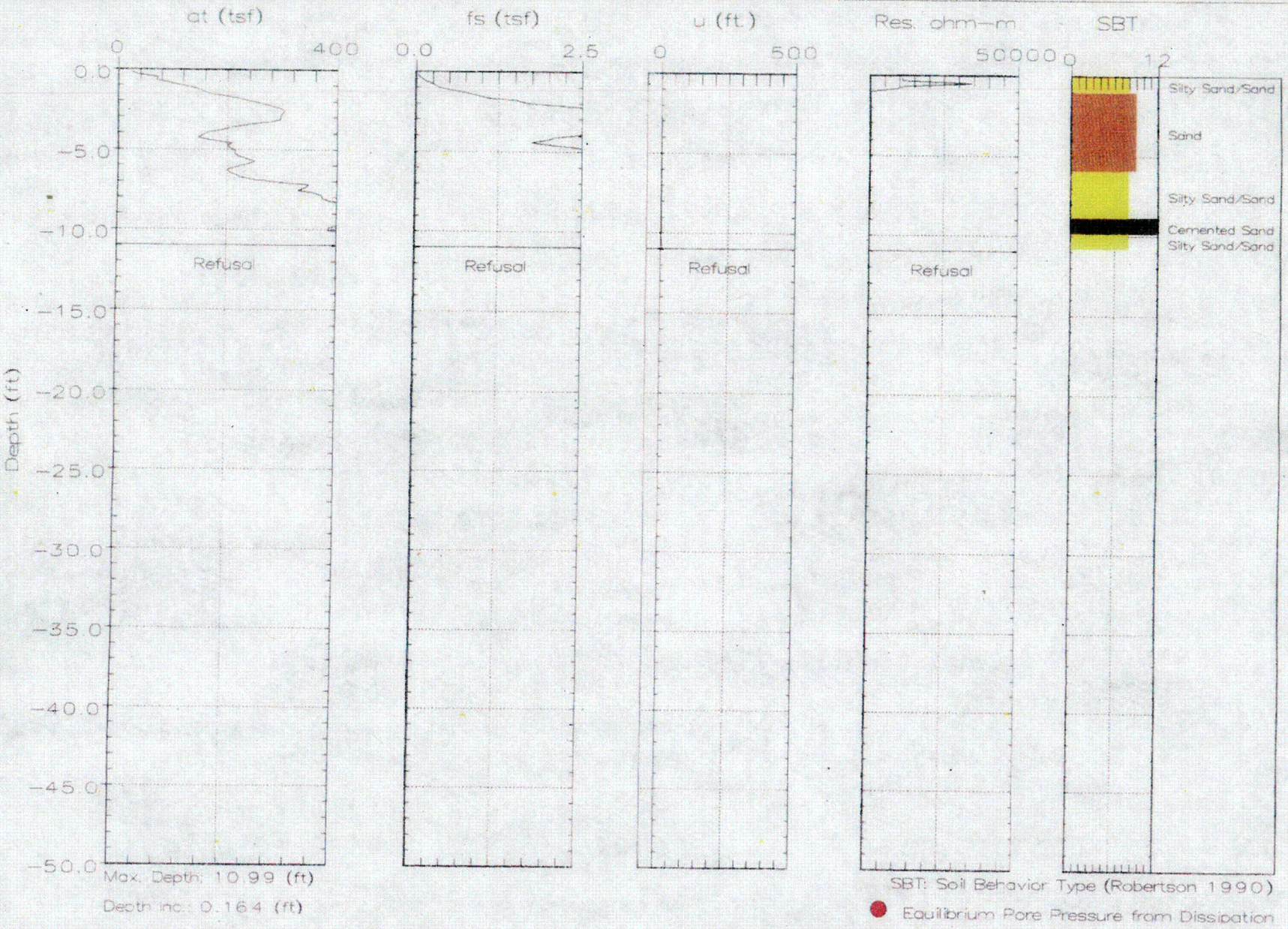
C40

CONETEC

S.M. Stoller

Hole No.:CPT-0395
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 10:20



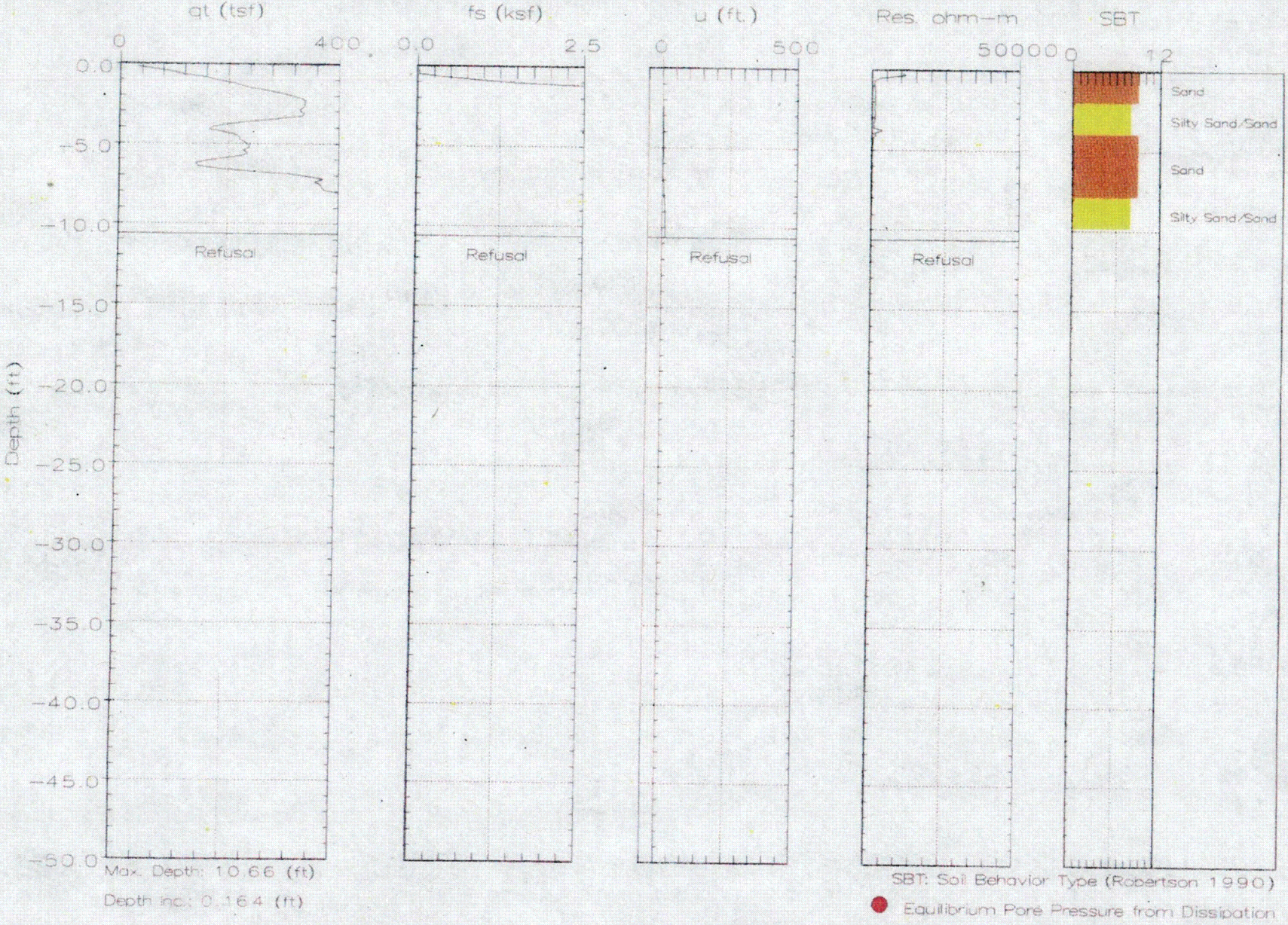
C41

CONETEC

S.M. Stoller

Hole No.:CPT-0395
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 10:37



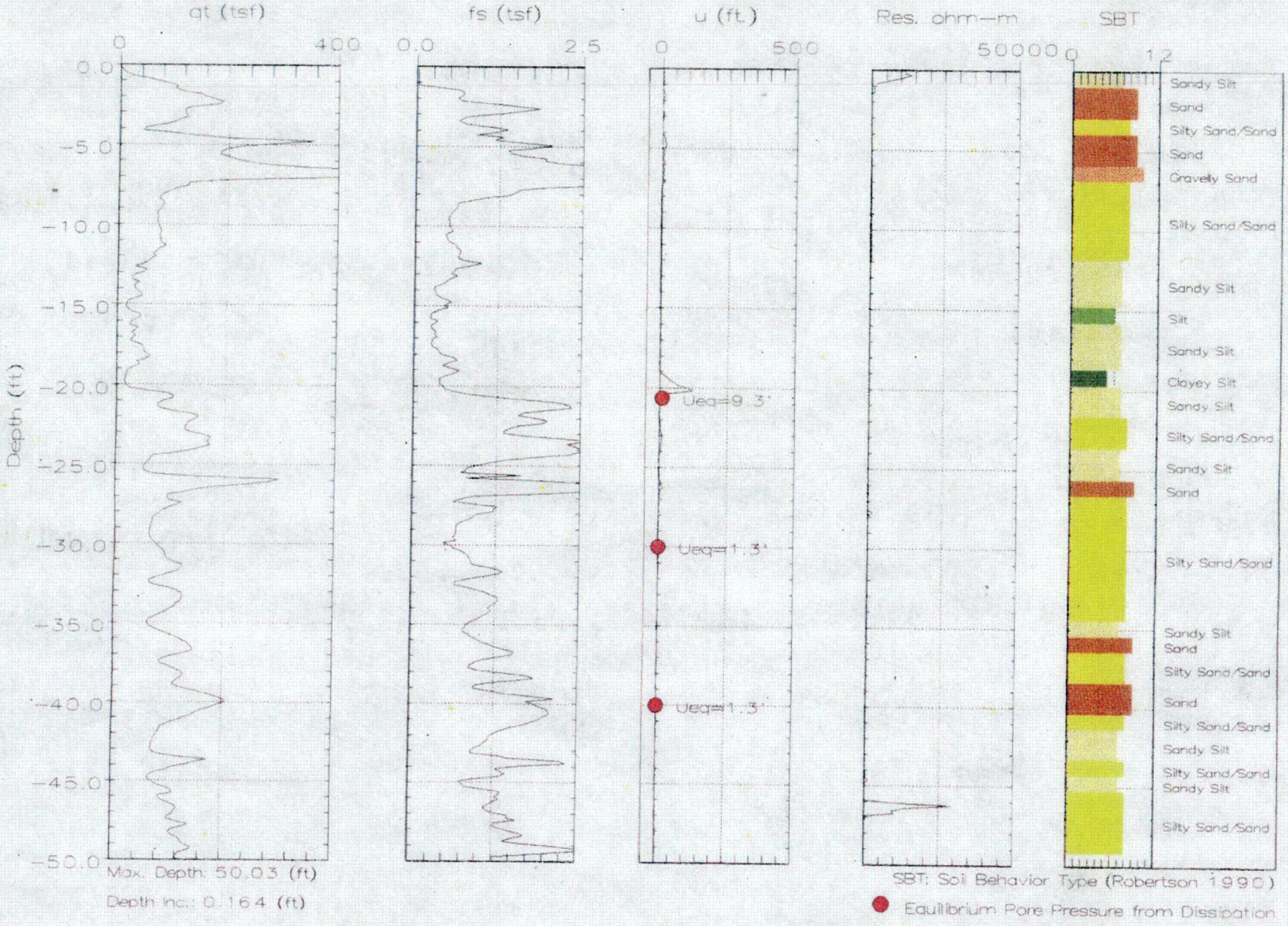
C42

CONETEC

S.M. Stoller

Hole No.:CPT-0395 TOE
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 11:05



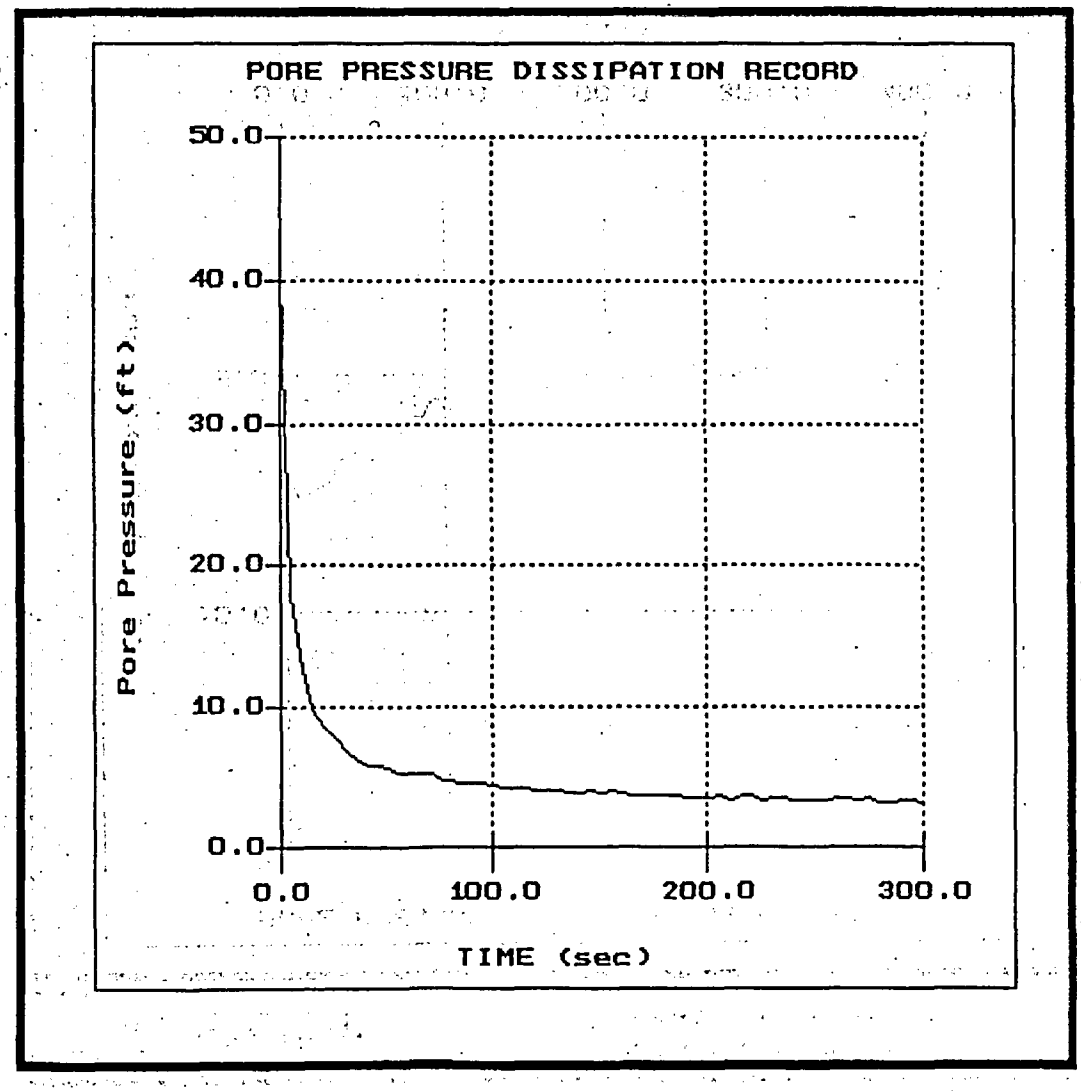
C43

PPD Plots

S.M. Stoller

Hole No.:CPT-0381
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 08:12

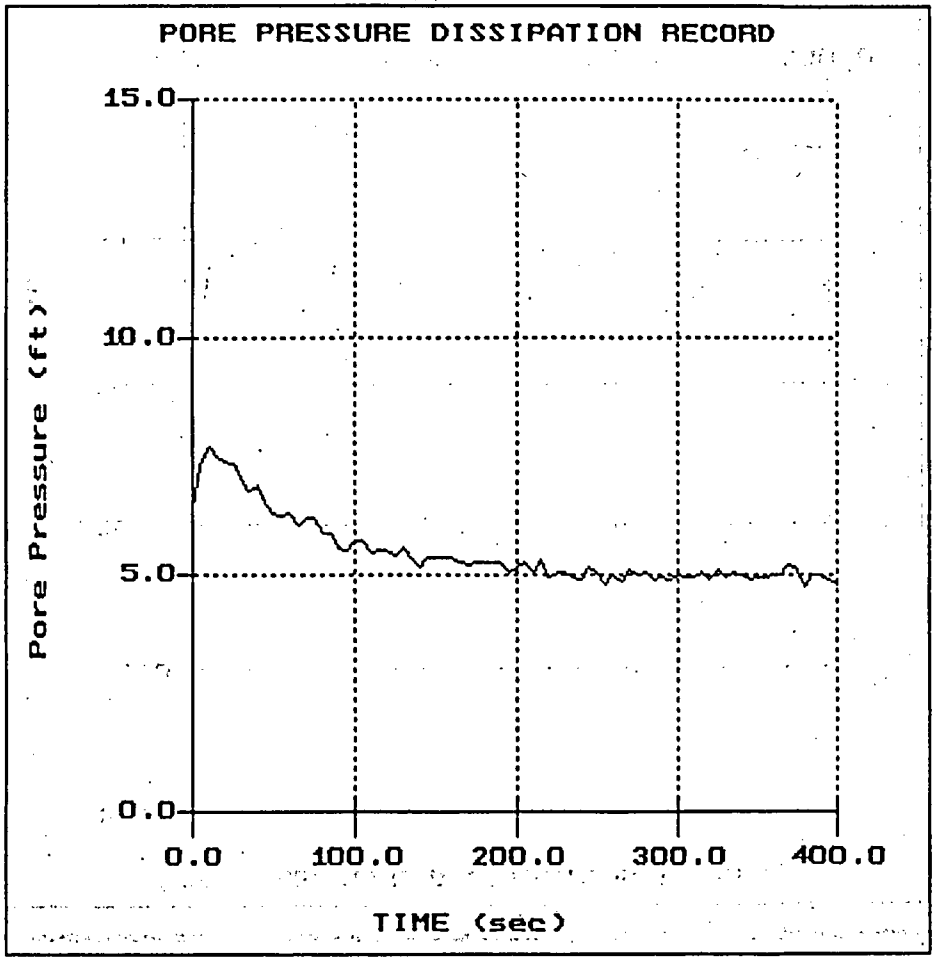


File: 432CP81.PPD
Depth (m): 6.45
(ft): 21.16
Duration : 300.0s
U-min: 3.13 285.0s
U-max: 41.10 0.0s

S.M. Stoller

Hole No.:CPT-0381
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 08:12

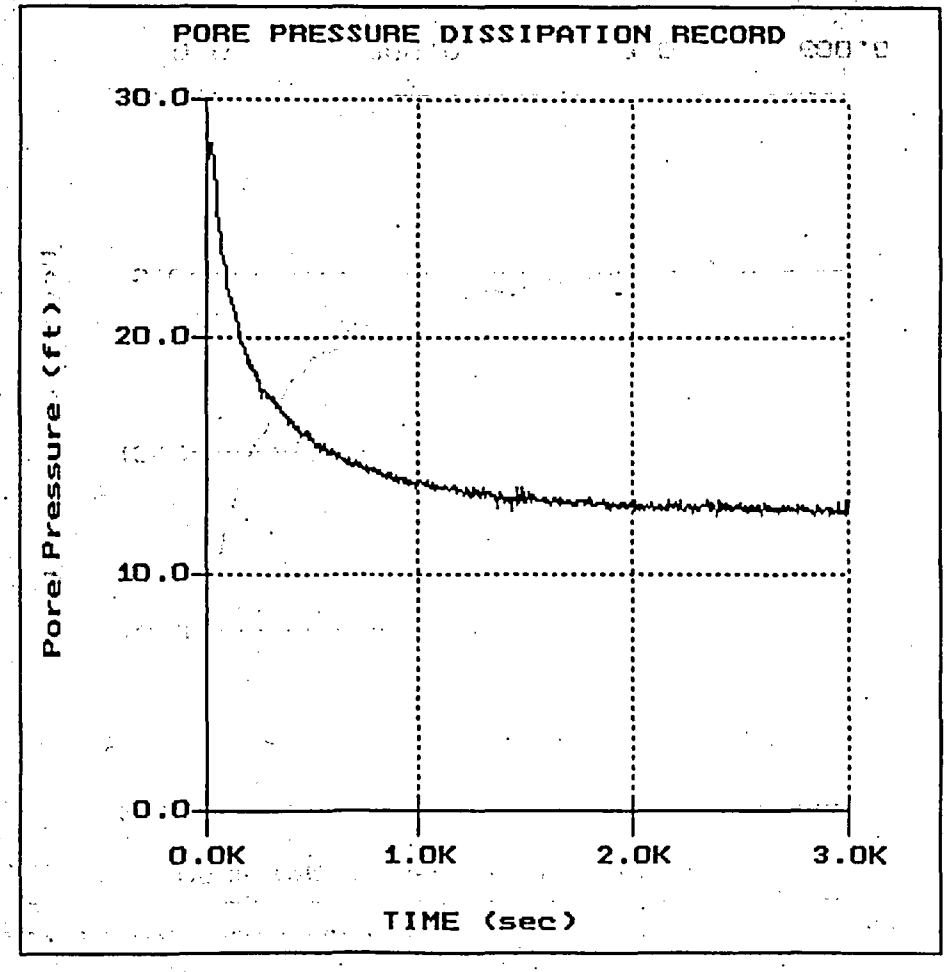


File: 432CP81.PPD
Depth (m): 13.80
(ft): 45.28
Duration : 400.0s
U-min: 4.73 380.0s
U-max: 7.73 10.0s

S.M. Stoller

Hole No.:CPT-0381
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 08:12

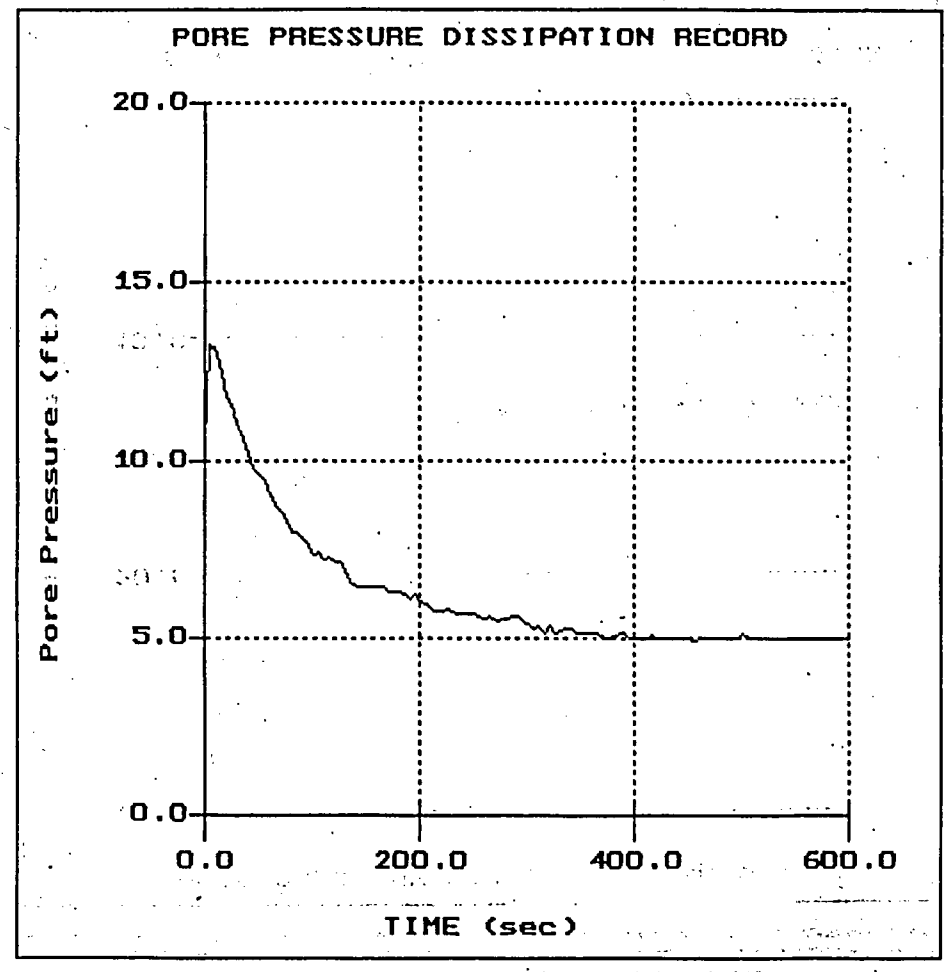


File: 432CP81.PPD
Depth (m): 20.25
(ft): 66.44
Duration : 3000.0s
U-min: 12.47 2840.0s
U-max: 28.90 0.0s

S.M. Stoller

Hole No.:CPT-0382
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 09:43

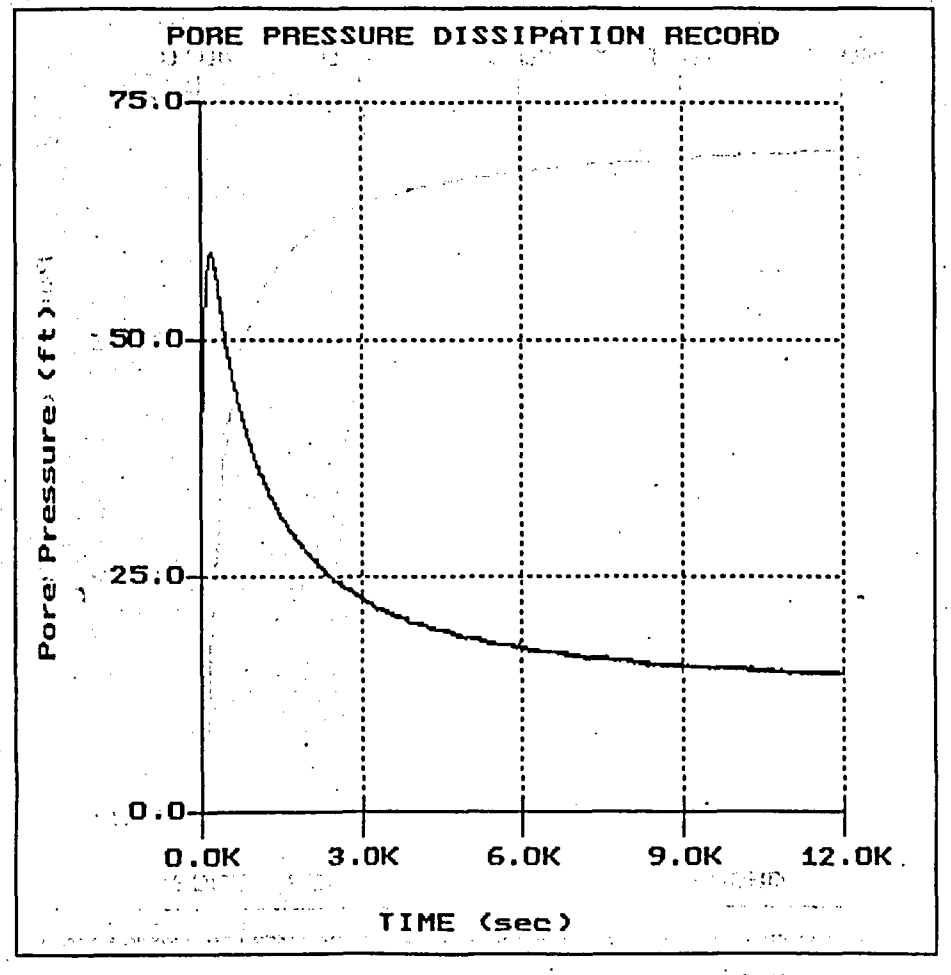


File: 432CP82.PPD
Depth (m): 9.30
(ft): 30.51
Duration : 600.0s
U-min: 4.93 455.0s
U-max: 13.23 5.0s

S.M. Stoller

Hole No.:CPT-0382
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 09:43

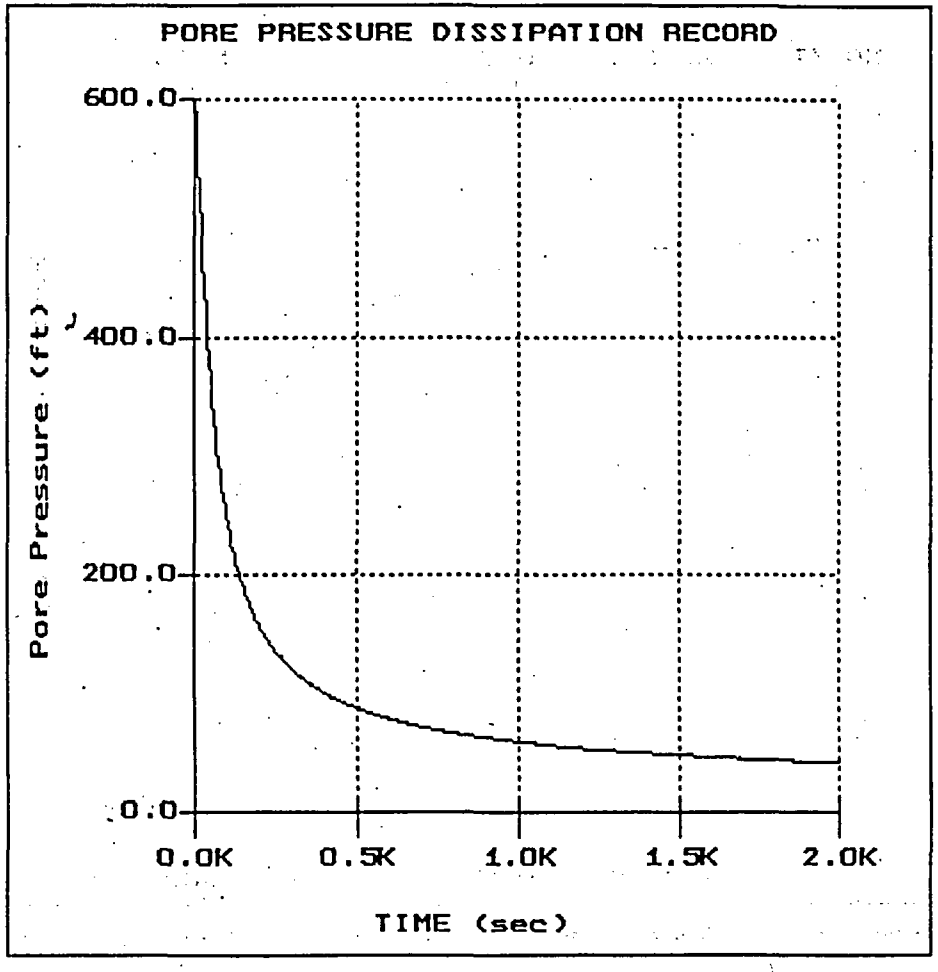


File: 432CP82.PPD
Depth (m): 17.20
(ft): 56.43
Duration : 12000.0s
U-min: 14.50 11795.0s
U-max: 59.08 185.0s

S.M. Stoller

Hole No.:CPT-0382
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 09:43

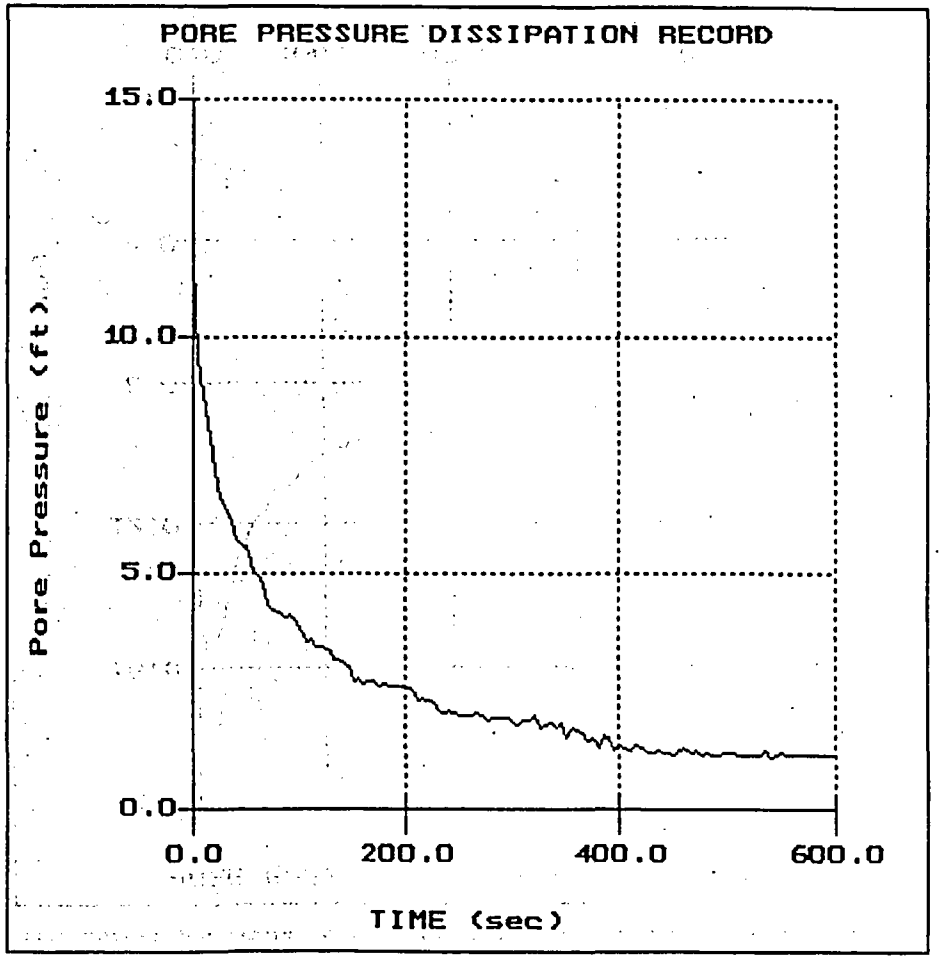


File: 432CP82.PPD
Depth (m): 22.05
(ft): 72.34
Duration : 2000.0s
U-min: 41.02 2000.0s
U-max: 689.52 0.0s

S.M. Stoller

Hole No.:CPT-0383
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 08:16

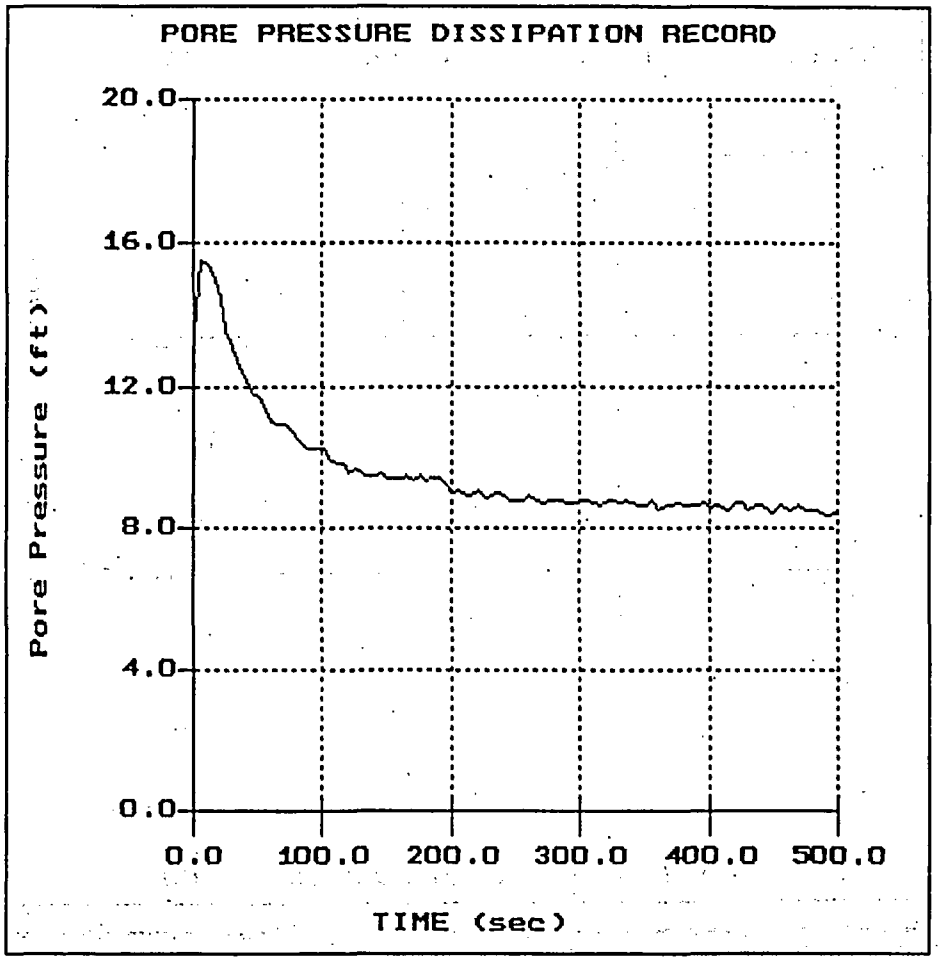


File: 432CP83.PPD
Depth (m): 4.75
(ft): 15.58
Duration : 600.0s
U-min: 1.08 540.0s
U-max: 11.64 0.0s

S.M. Stoller

Hole No.:CPT-0383
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 08:16

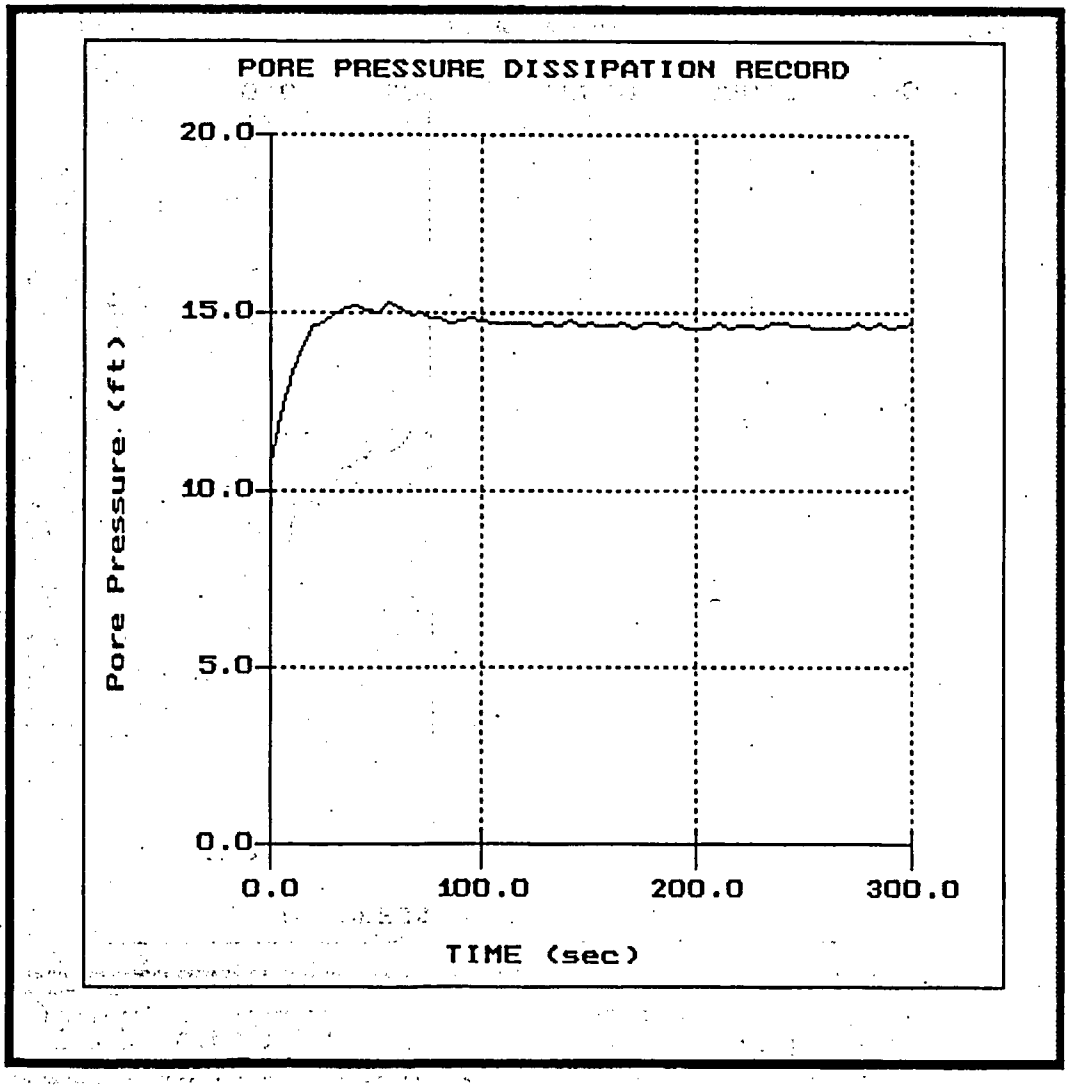


File: 432CP83.PPD
Depth (m): 11.05
(ft): 36.25
Duration : 500.0s
U-min: 8.35 495.0s
U-max: 15.49 5.0s

S.M. Stoller

Hole No.:CPT-0383
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 08:16

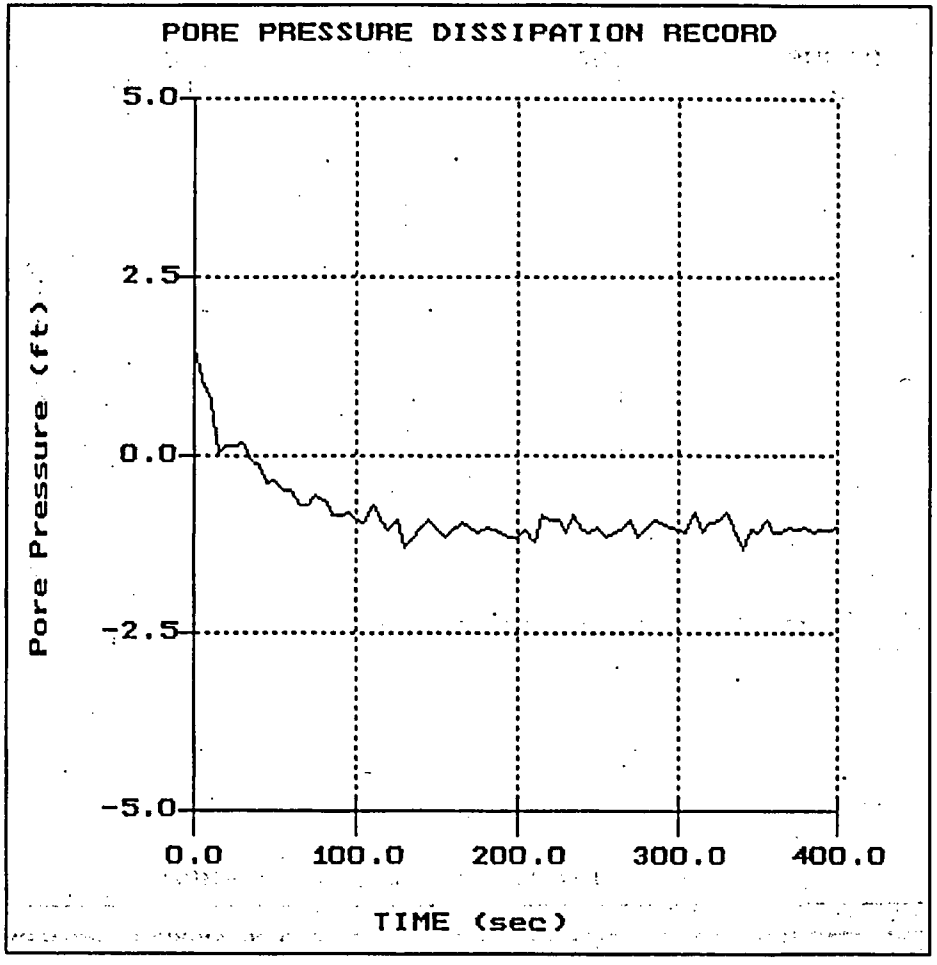


File: 432CP83.PPD
Depth (m): 17.30
(ft): 56.76
Duration : 300.0s
U-min: 10.75 0.0s
U-max: 15.25 55.0s

S.M. Stoller

Hole No.:CPT-0384
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 08:55

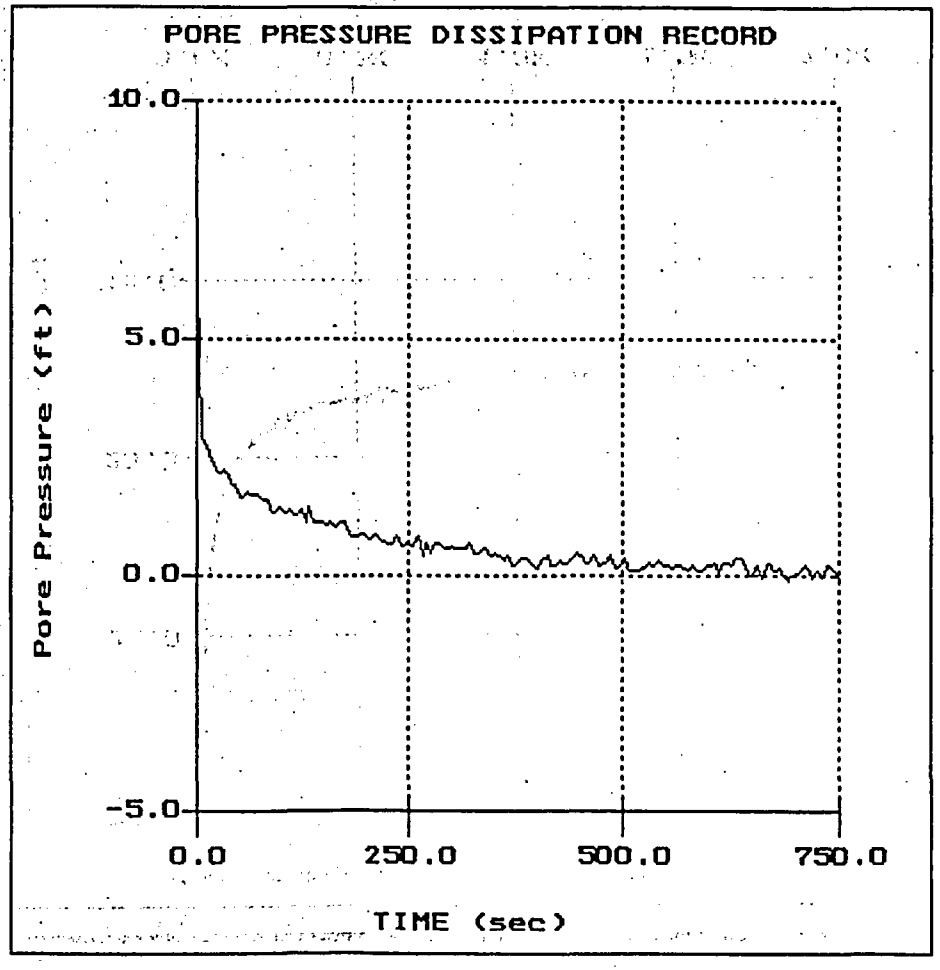


File: 432CP84.PPD
Depth (m): 3.10
(ft): 10.17
Duration : 405.0s
U-min: -1.31 340.0s
U-max: 1.50 0.0s

S.M. Stoller

Hole No.:CPT-0384
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 08:55

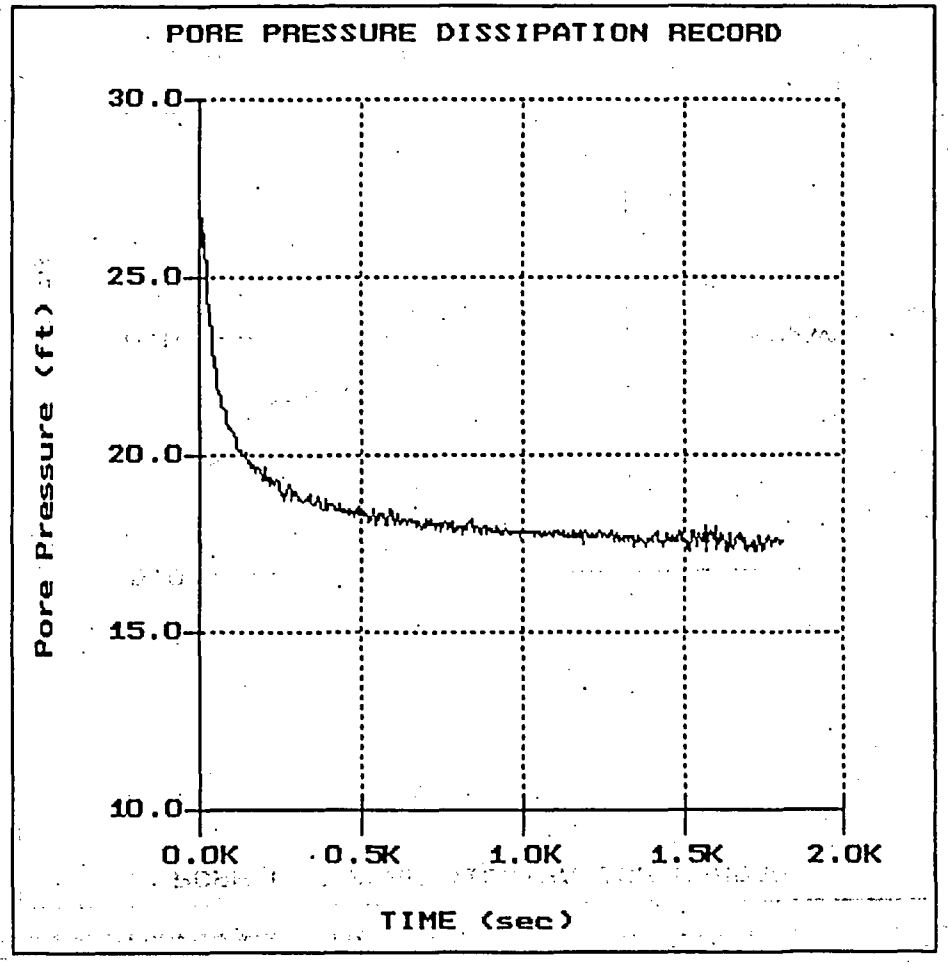


File: 432CP84.PPD
Depth (m): 5.60
(ft): 18.37
Duration : 750.0s
U-min: -0.09 750.0s
U-max: 6.24 0.0s

S.M. Stoller

Hole No.:CPT-0384
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 08:55

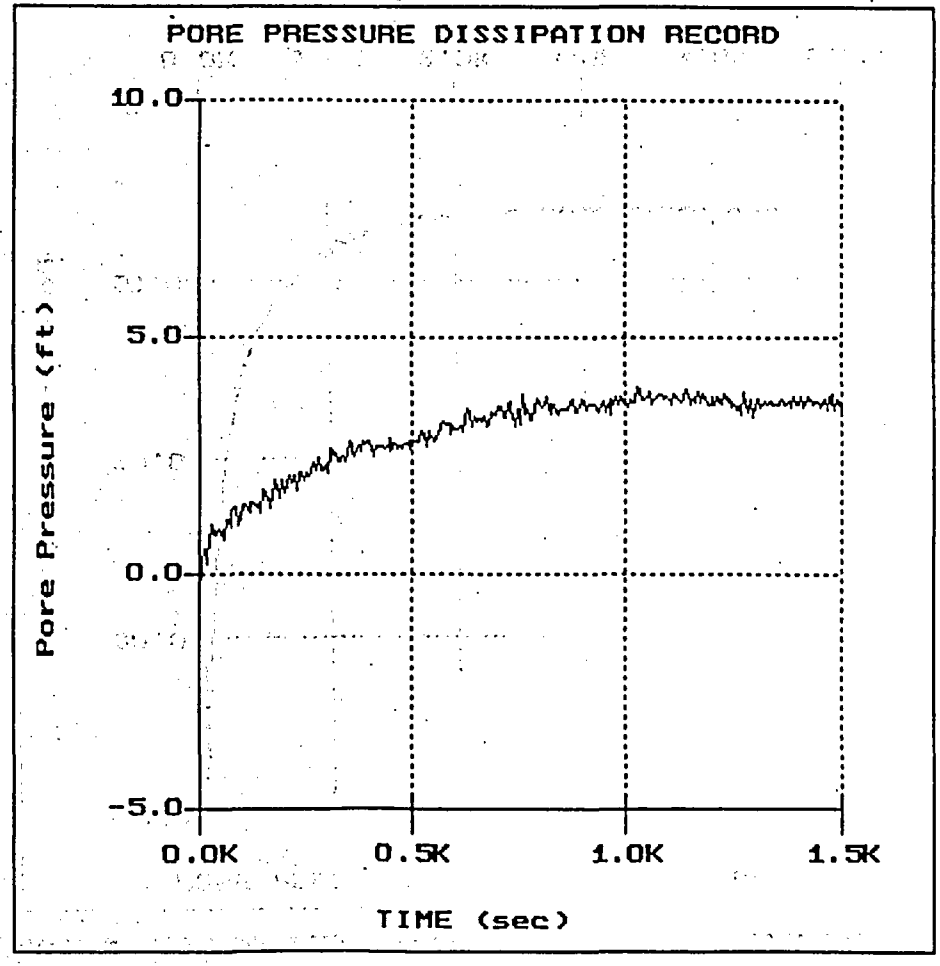


File: 432CP84.PPD
Depth (m): 12.50
(ft): 41.01
Duration : 1805.0s
U-min: 17.27 1630.0s
U-max: 26.66 10.0s

S.M. Stoller

Hole No.:CPT-0385
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 10:37

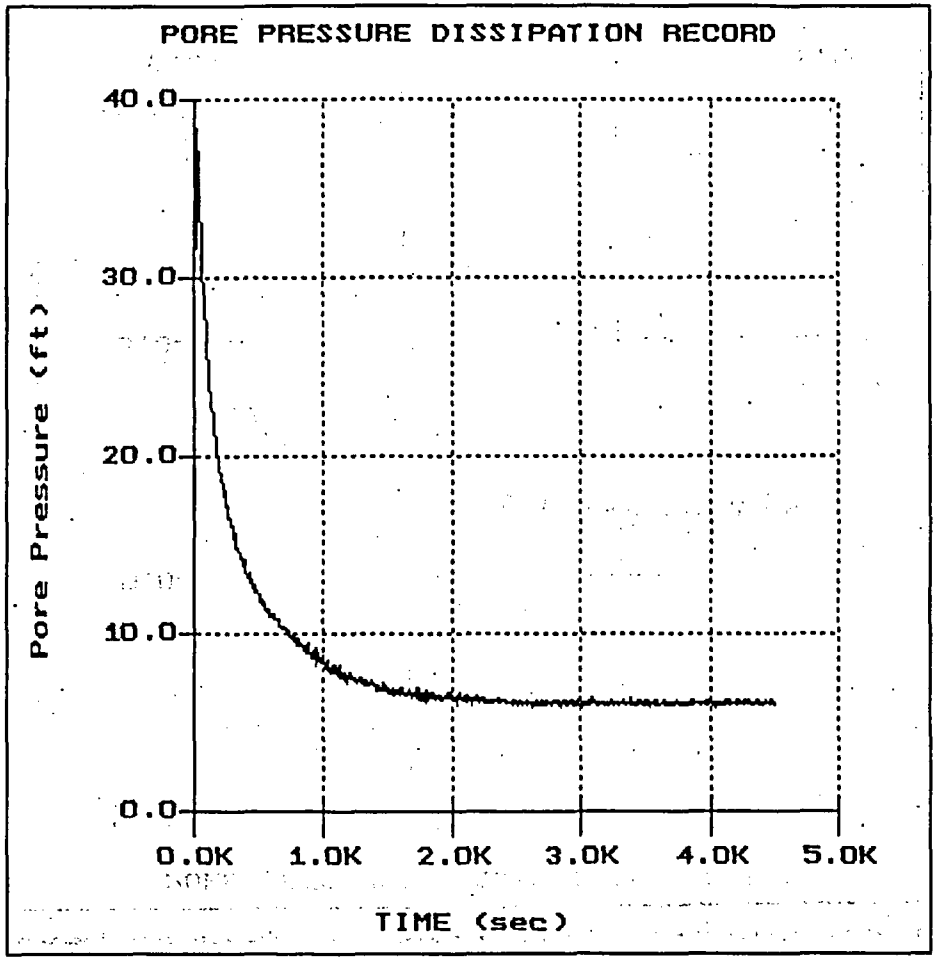


File: 432CP85.PPD
Depth (m): 2.85
(ft): 9.35
Duration : 1500.0s
U-min: -0.52 0.0s
U-max: 3.94 1025.0s

S.M. Stoller

Hole No.:CPT-0385
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 10:37

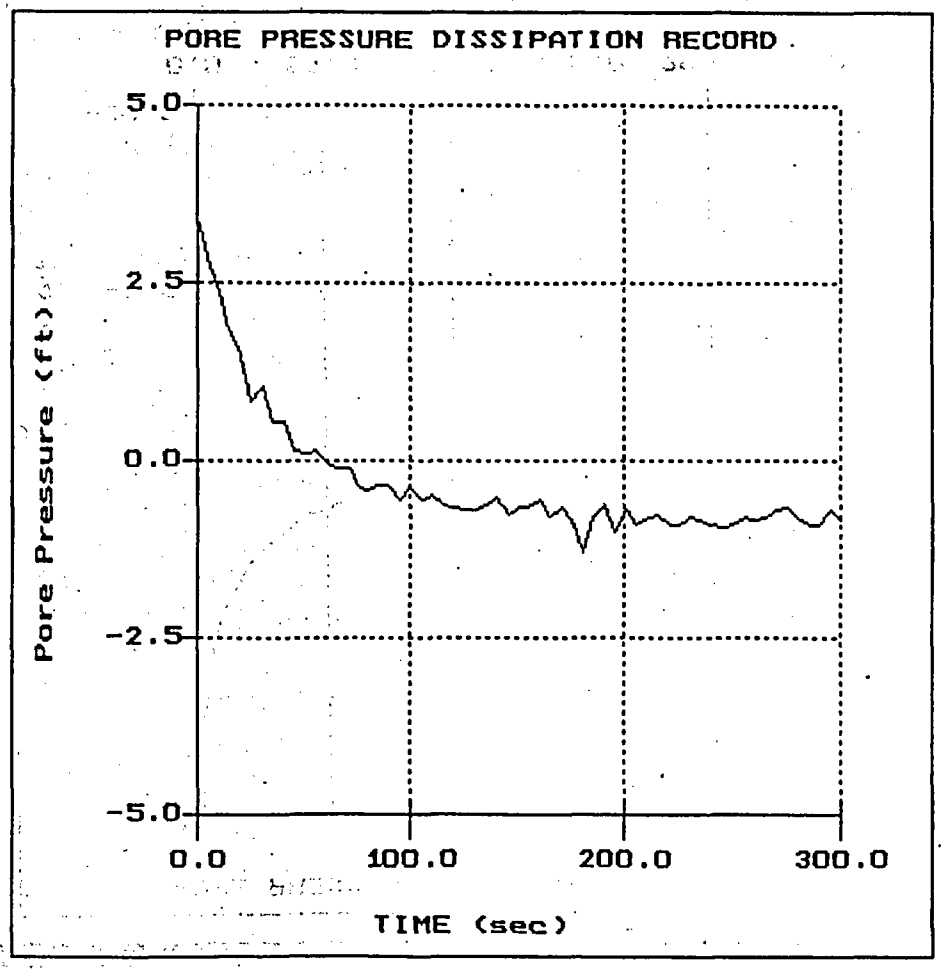


File: 432CP85.PPD
Depth (m): 16.60
(ft): 54.46
Duration : 4500.0s
U-min: 5.82 2845.0s
U-max: 38.39 20.0s

S.M. Stoller

Hole No.:CPT-0385
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 10:37

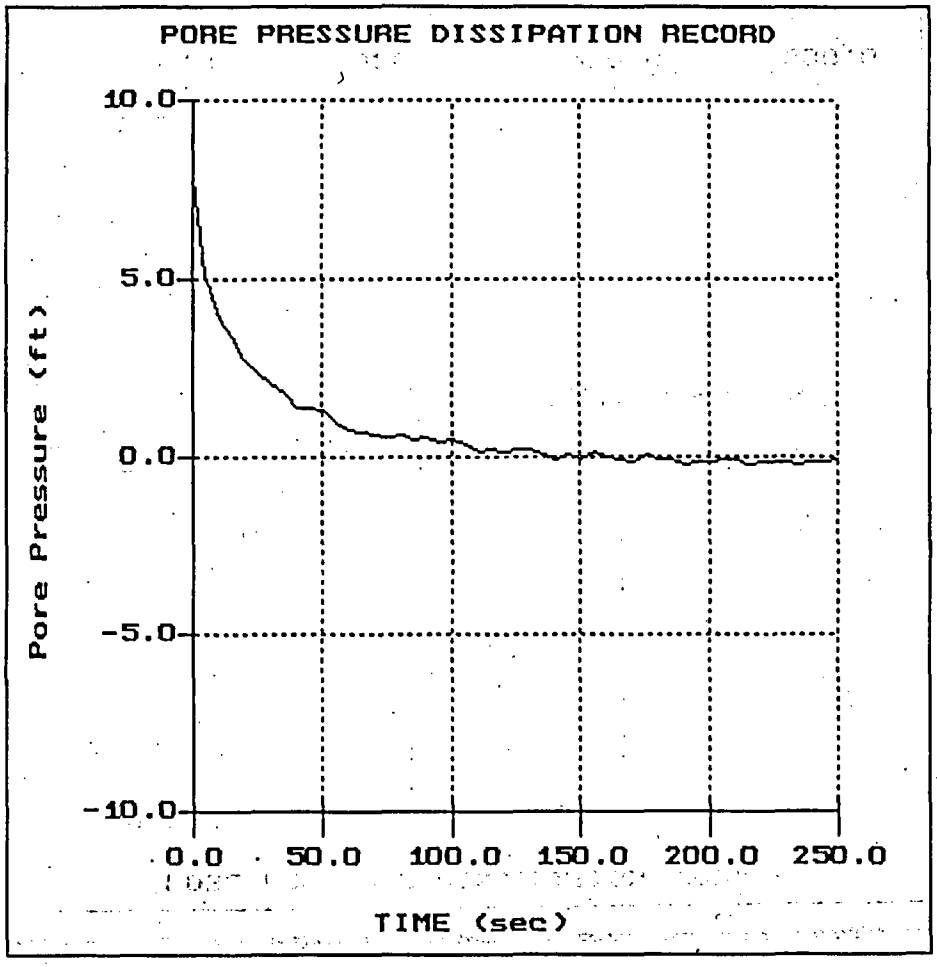


File: 432CP85.PPD
Depth (m): 18.20
(ft): 59.71
Duration : 325.0s
U-min: -1.27 180.0s
U-max: 3.43 0.0s

S.M. Stoller

Hole No.:CPT-0386
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 14:53

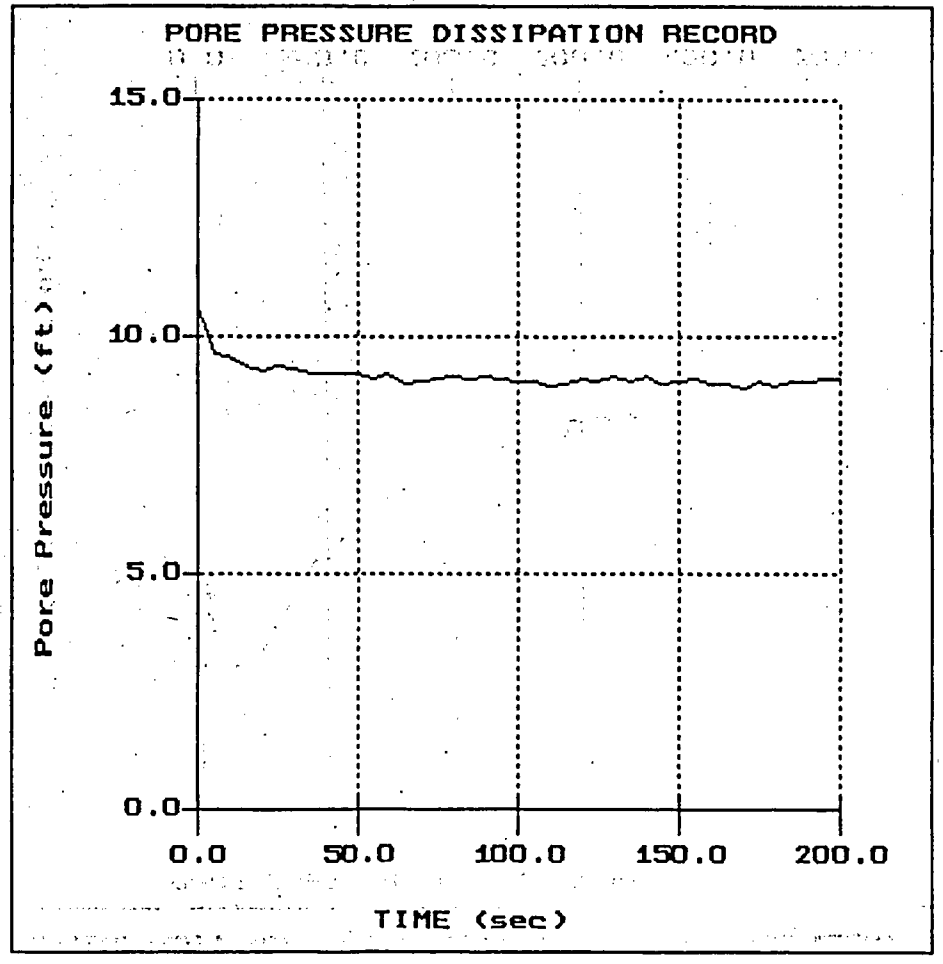


File: 432CP86.PPD
Depth (m): 4.90
(ft): 16.08
Duration : 250.0s
U-min: -0.23 235.0s
U-max: 7.84 0.0s

S.M. Stoller

Hole No.:CPT-0386
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 14:53

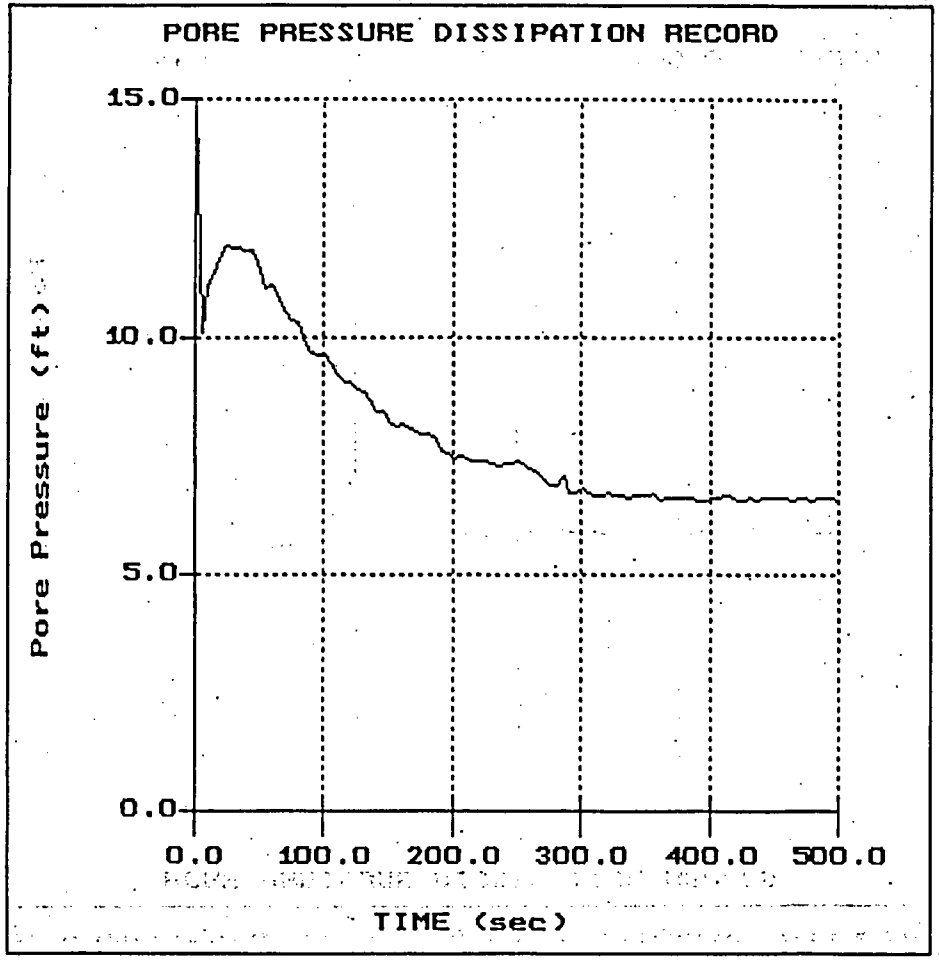


File: 432CP86.PPD
Depth (m): 10.65
(ft): 34.94
Duration : 200.0s
U-min: 8.92 170.0s
U-max: 10.61 0.0s

S.M. Stoller

Hole No.:CPT-0386
Location:ATLAS

Cone: 20 Ton St 183
Date:12:14:05 14:53

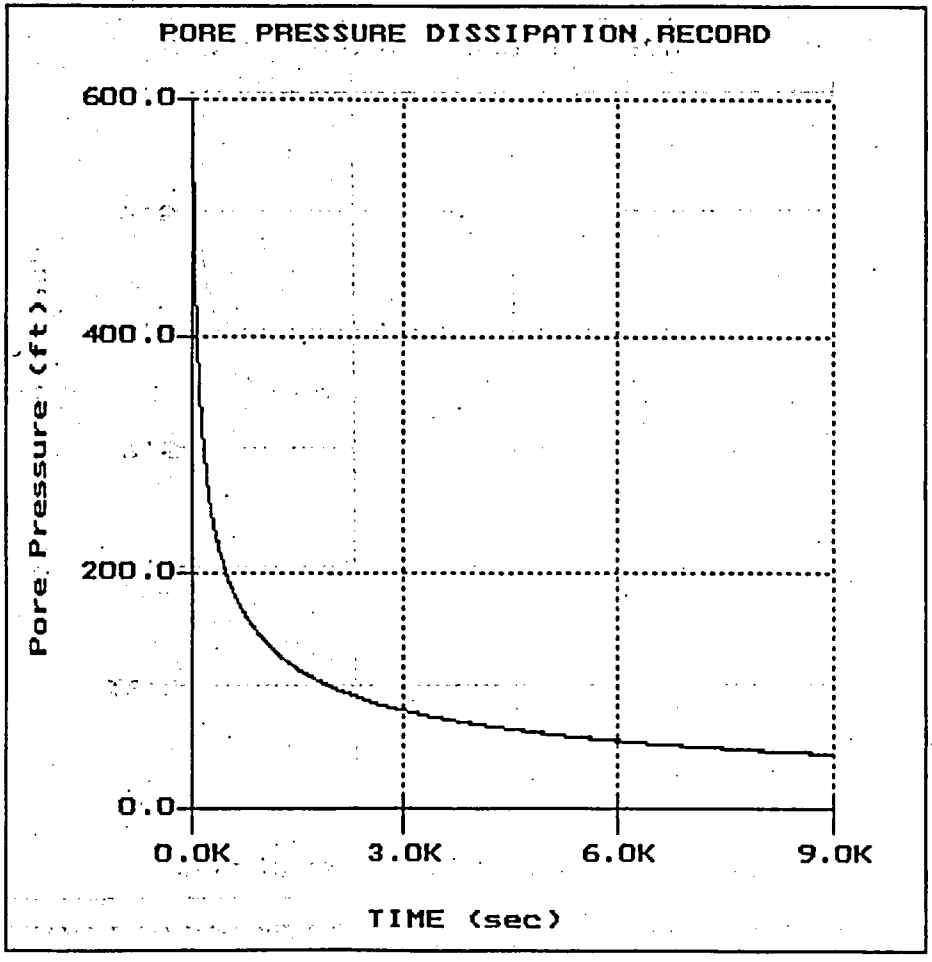


File: 432CP86.PPD
Depth (m): 19.90
(ft): 65.29
Duration : 500.0s
U-min: 6.57 500.0s
U-max: 16.38 0.0s

S.M. Stoller

Hole No.:CPT-0387
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 13:40

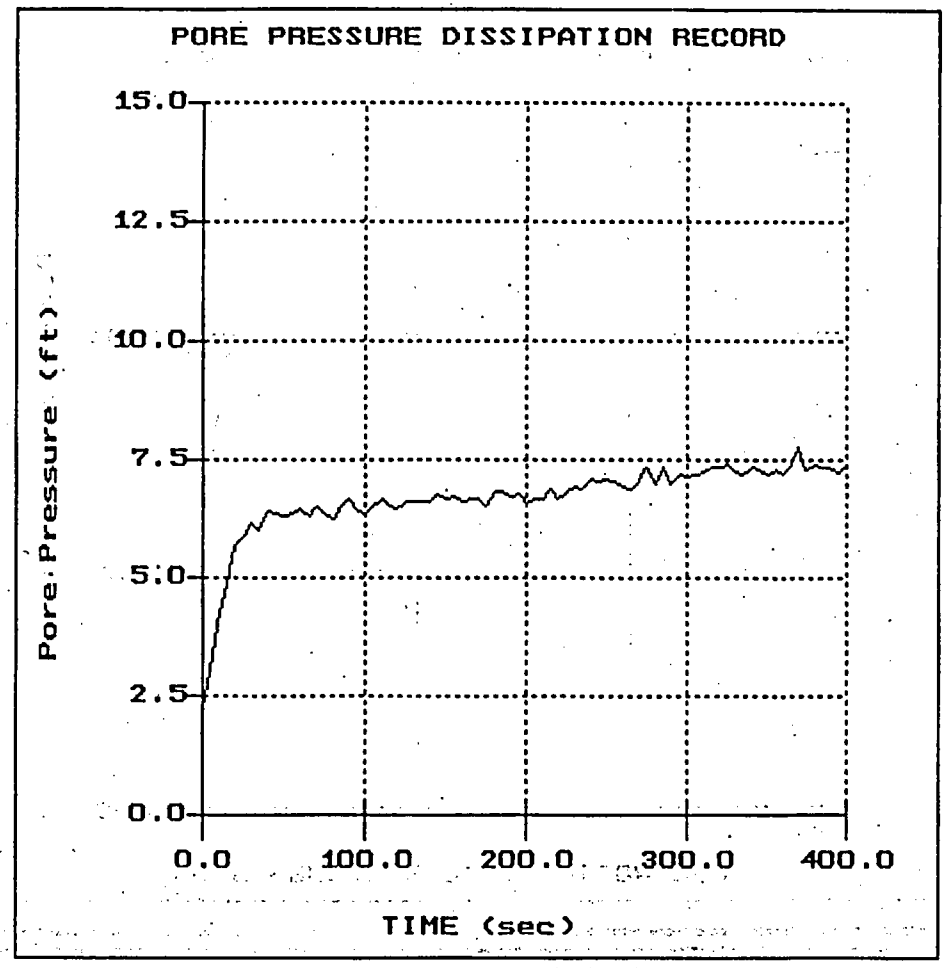


File: 432CP87.PPD
Depth (m): 17.80
(ft): 58.40
Duration : 9000.0s
U-min: 45.90 8995.0s
U-max: 632.93 0.0s

S.M. Stoller

Hole No.:CPT-0388
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 07:45

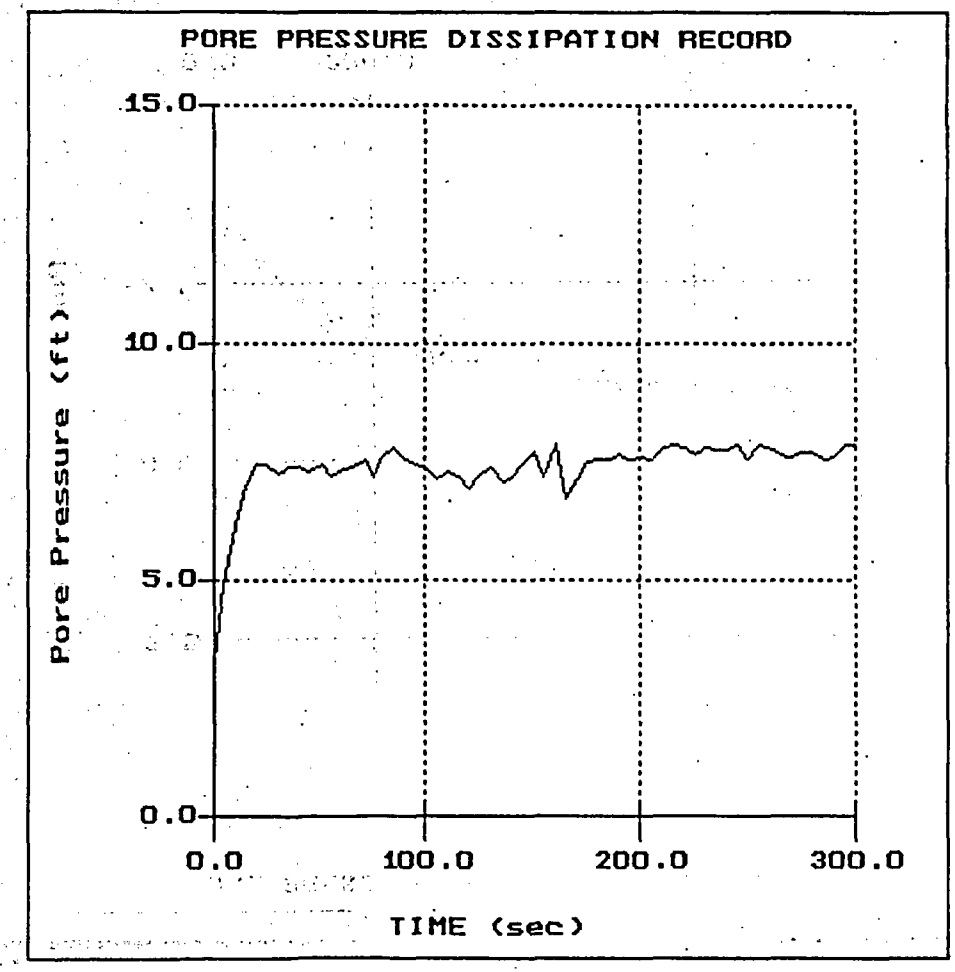


File: 432CP88.PPD
Depth (m): 3.15
(ft): 10.33
Duration : 400.0s
U-min: 2.25 0.0s
U-max: 7.74 370.0s

S.M. Stoller

Hole No :CPT-0388
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 07:45

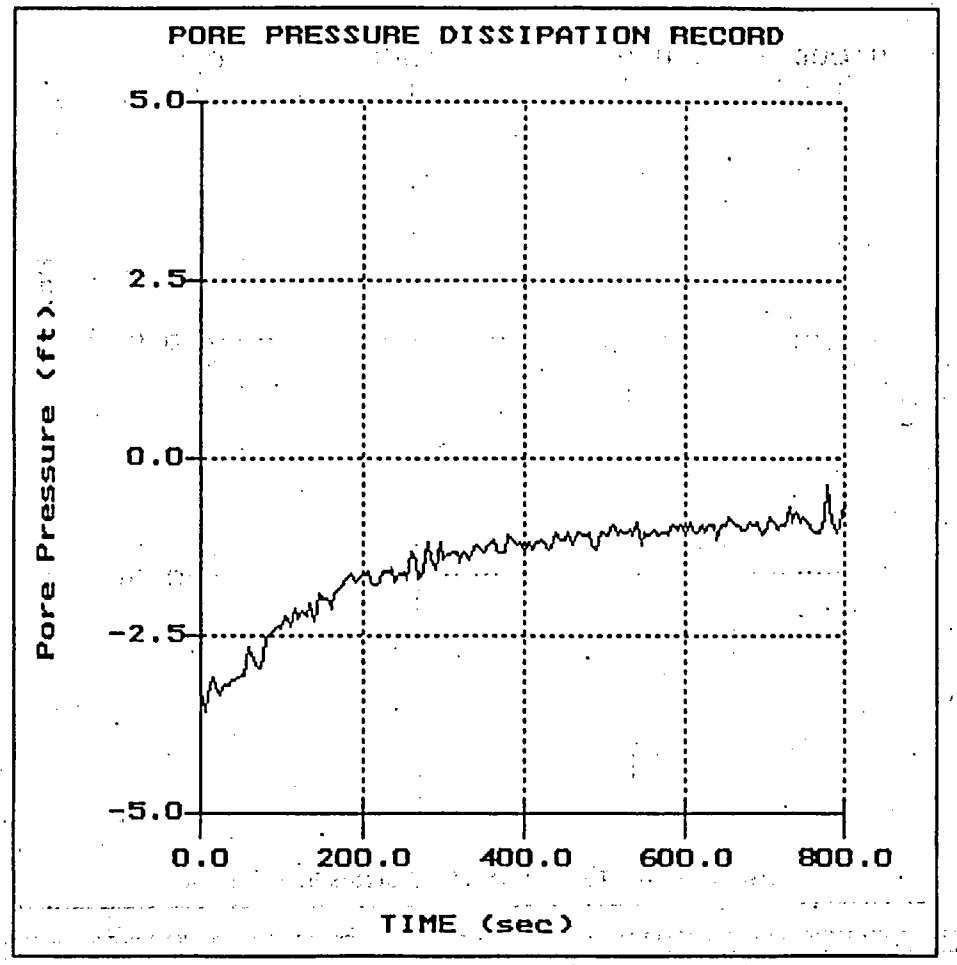


File: 432CP88.PPD
Depth (m): 16.15
(ft): 52.99
Duration : 300.0s
U-min: 3.24 0.0s
U-max: 7.88 295.0s

S.M. Stoller

Hole No.:CPT-0389
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 13:19

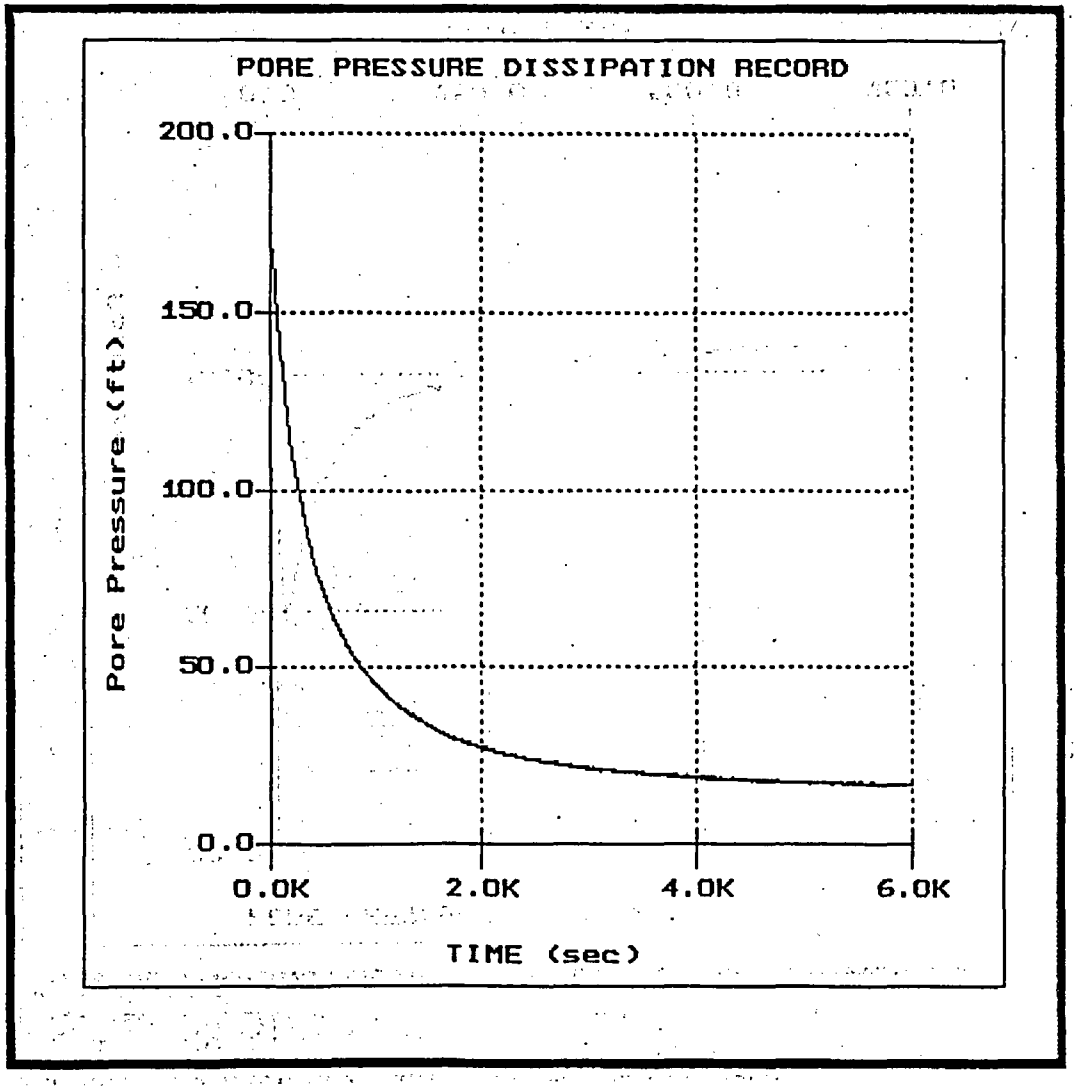


File: 432CP89.PPD
Depth (m): 3.60
(ft): 11.81
Duration : 805.0s
U-min: -3.57 5.0s
U-max: -0.38 780.0s

S.M. Stoller

Hole No.:CPT-0389
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 13:19

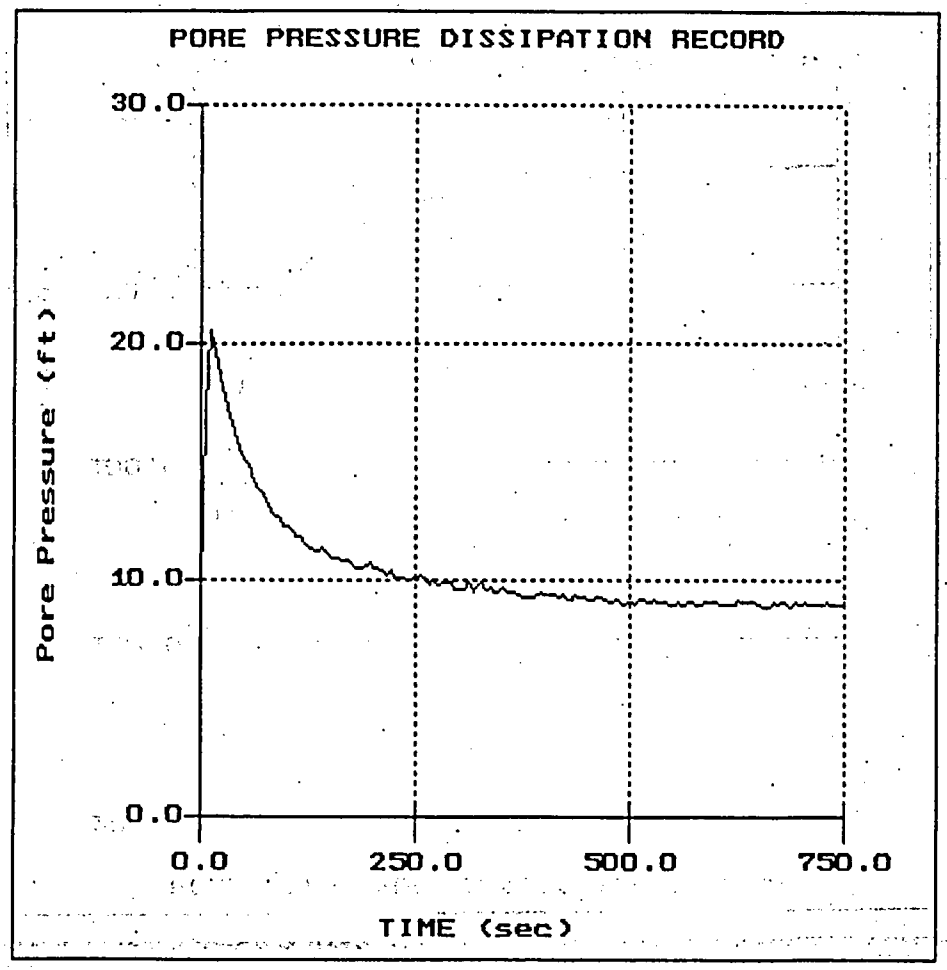


File: 432CP89.PPD
Depth (m): 16.65
(ft): 54.63
Duration : 6000.0s
U-min: 16.43 5880.0s
U-max: 167.07 15.0s

S.M. Stoller

Hole No.:CPT-0389
Location:ATLAS

Cone: 20 Ton St 183
Date:12:17:05 13:19

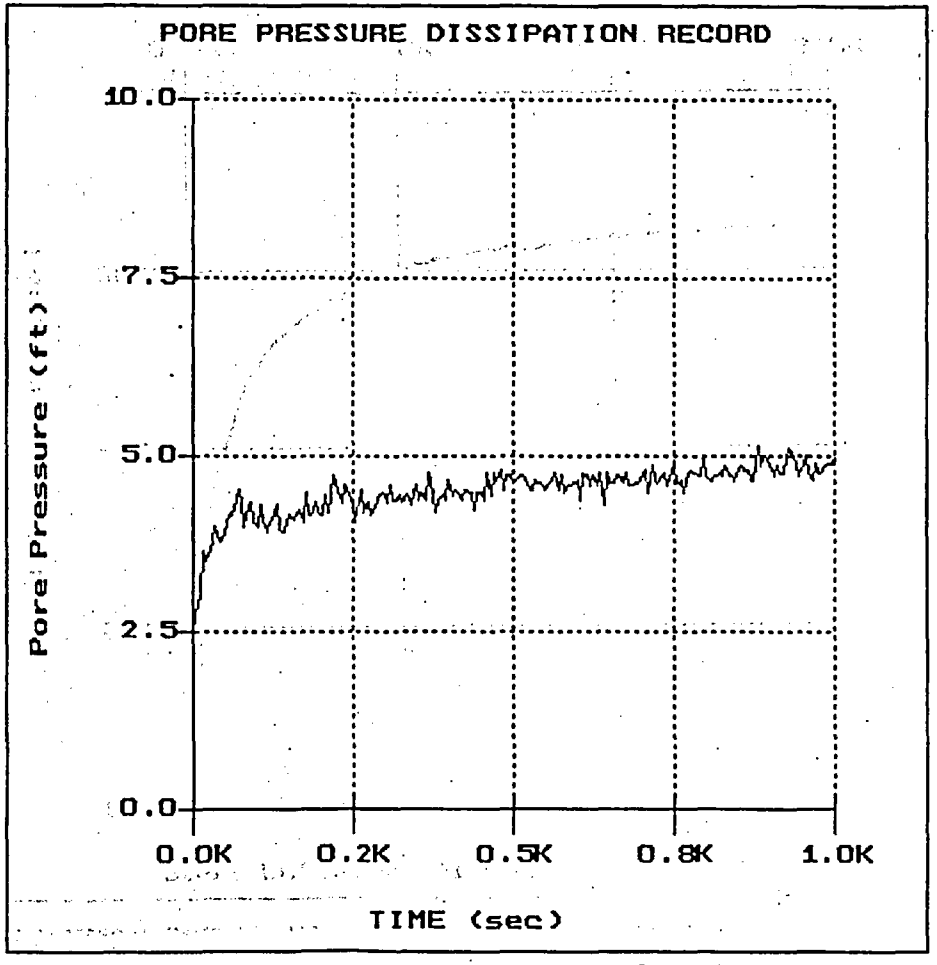


File: 432CP89.PPD
Depth (m): 18.15
(ft): 59.55
Duration : 750.0s
U-min: 8.82 660.0s
U-max: 20.51 10.0s

S.M. Stoller

Hole No.:CPT-0390
Location:ATLAS

Cone: 20 Ton St 183
Date:12:18:05 08:29

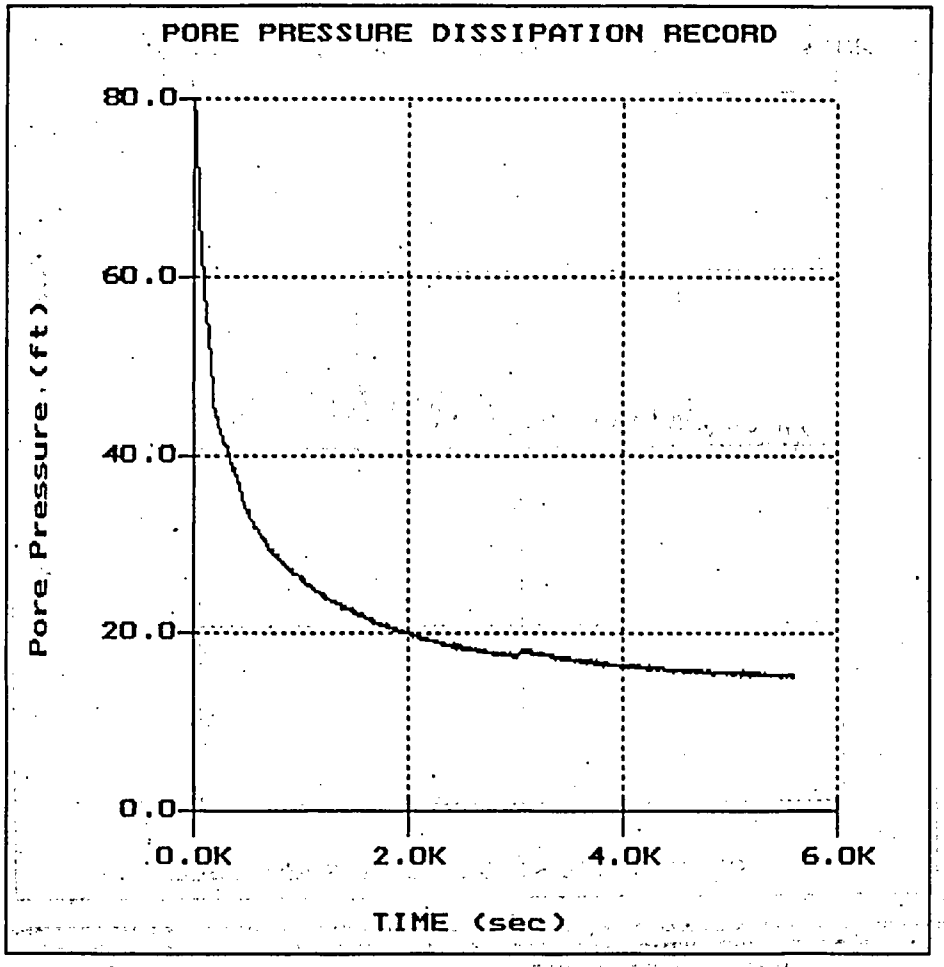


File: 432CP90.PPD
Depth (m): 4.00
(ft): 13.12
Duration : 1010.0s
U-min: 2.51 0.0s
U-max: 5.13 880.0s

S.M. Stoller

Hole No.:CPT-0390
Location:ATLAS

Cone: 20 Ton St 183
Date:12:18:05 08:29

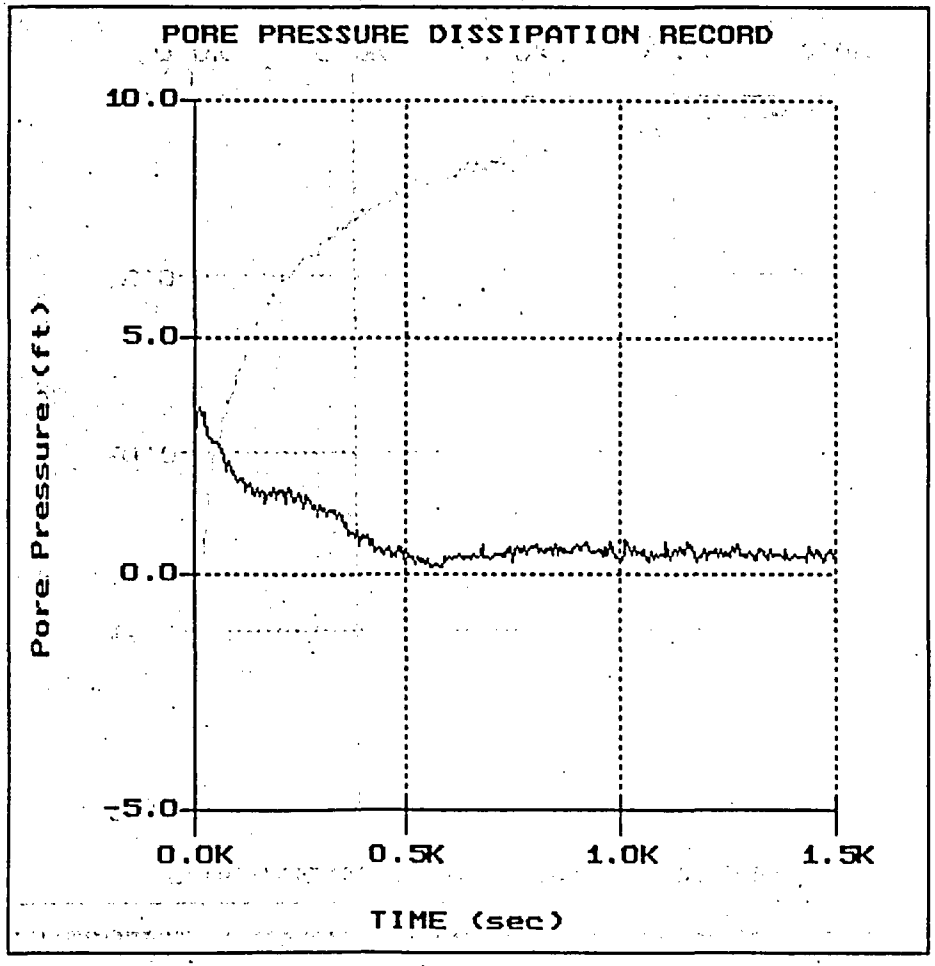


File: 432CP90.PPD
Depth (m): 9.70
(ft): 31.82
Duration : 5600.0s
U-min: 15.08 5600.0s
U-max: 78.53 15.0s

S.M. Stoller

Hole No.:CPT-0390
Location:ATLAS

Cone: 20 Ton St 183
Date:12:18:05 08:29

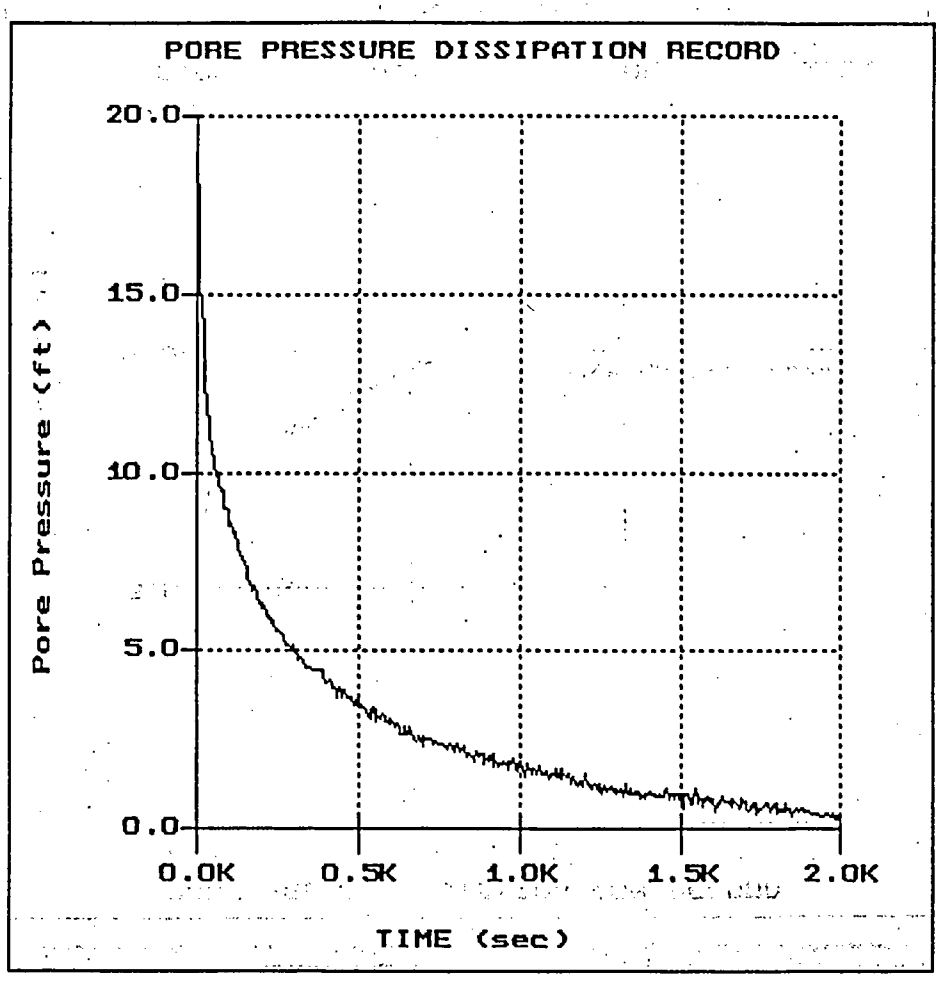


File: 432CP90.PPD
Depth (m): 15.35
(ft): 50.36
Duration : 1500.0s
U-min: 0.16 580.0s
U-max: 3.54 10.0s

S.M. Stoller

Hole No.:CPT-0391
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 10:21

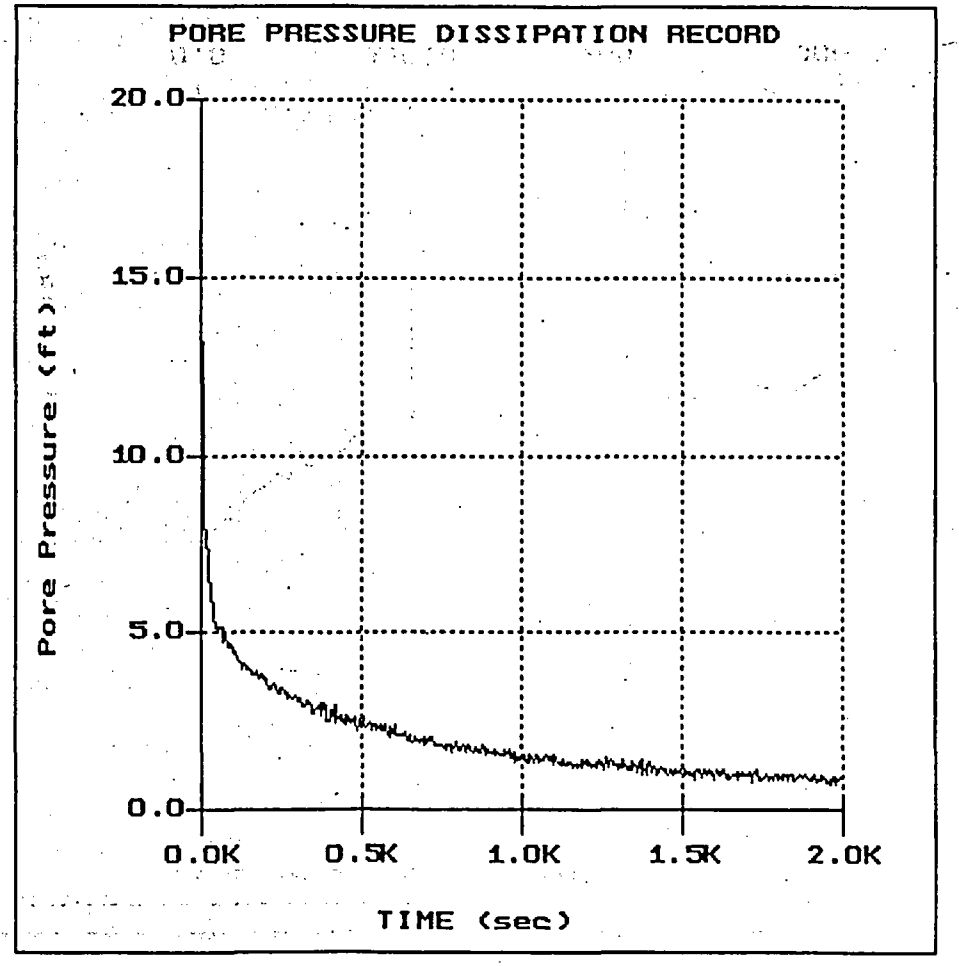


File: 432CP91.PPD
Depth (m): 6.05
(ft): 19.85
Duration : 2000.0s
U-min: 0.30 1995.0s
U-max: 18.72 0.0s

S.M. Stoller

Hole No :oCPT-0391
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 10:21

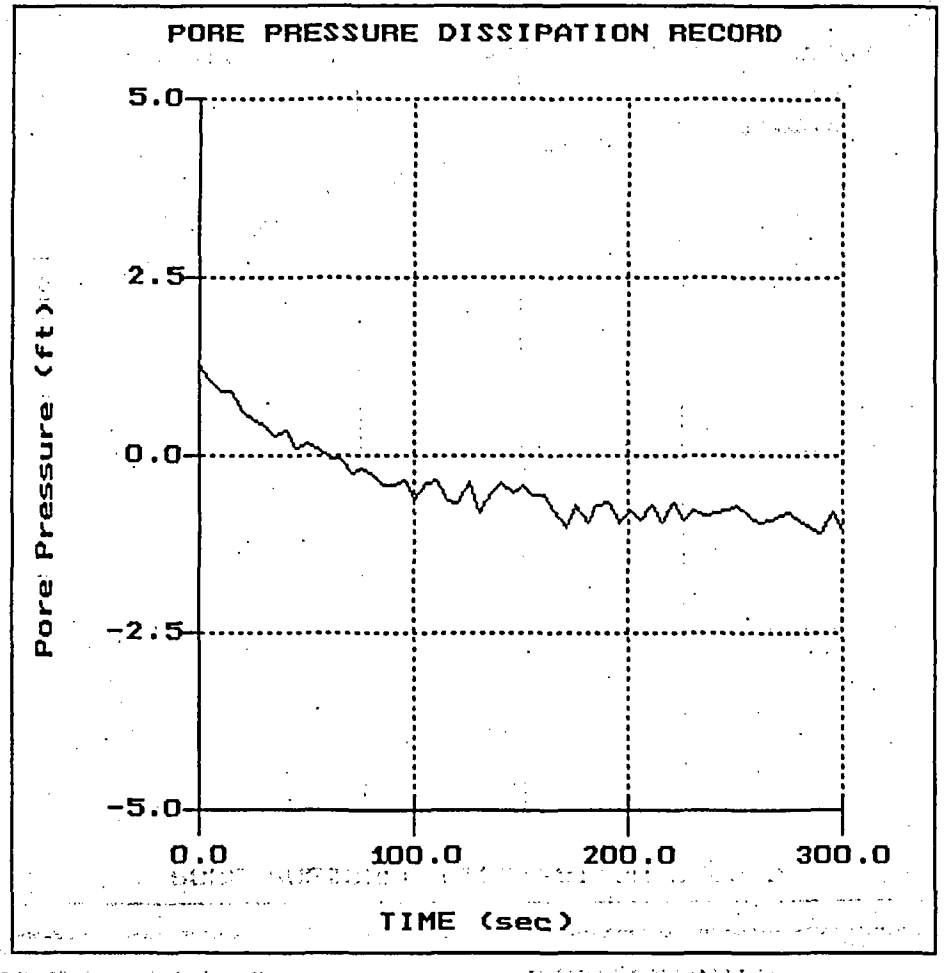


File: 432CP91.PPD
Depth (m): 16.05
(ft): 52.66
Duration : 2000.0s
U-min: 0.66 1975.0s
U-max: 17.88 0.0s

S.M. Stoller

Hole No.:oCPT-0391
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 10:21

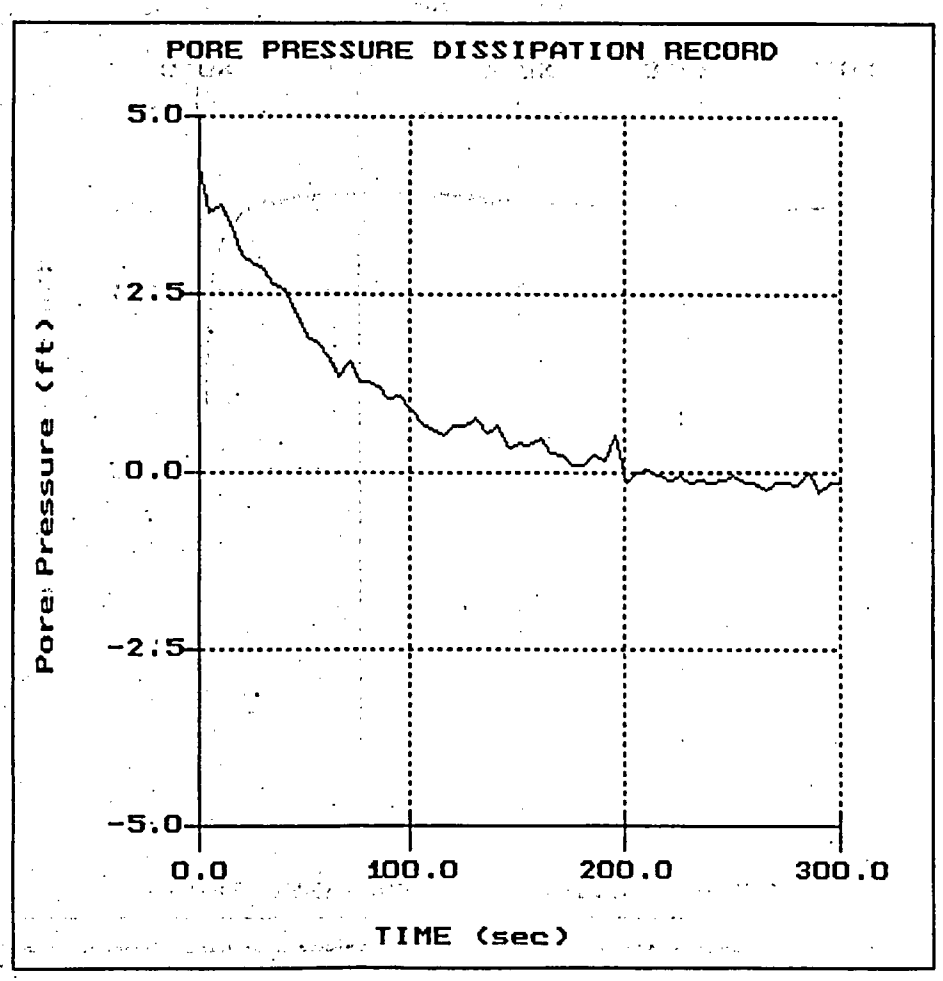


File: 432CP91.PPD
Depth (m): 18.30
(ft): 60.04
Duration : 300.0s
U-min: -1.08 290.0s
U-max: 1.27 0.0s

S.M. Stoller

Hole No.:CPT-0392
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 12:38

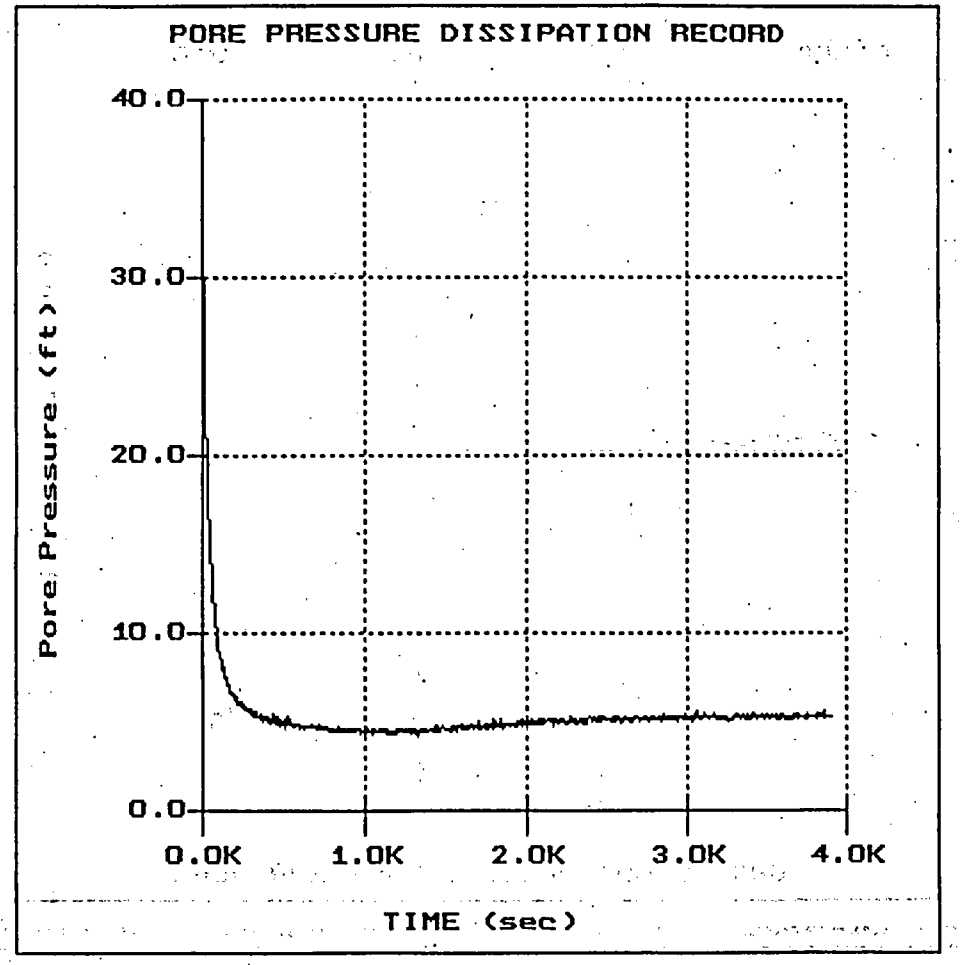


File: 432CP92.PPD
Depth (m): 3.05
(ft): 10.01
Duration : 305.0s
U-min: -0.28 290.0s
U-max: 4.32 0.0s

S.M. Stoller

Hole No.:CPT-0392
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 12:38

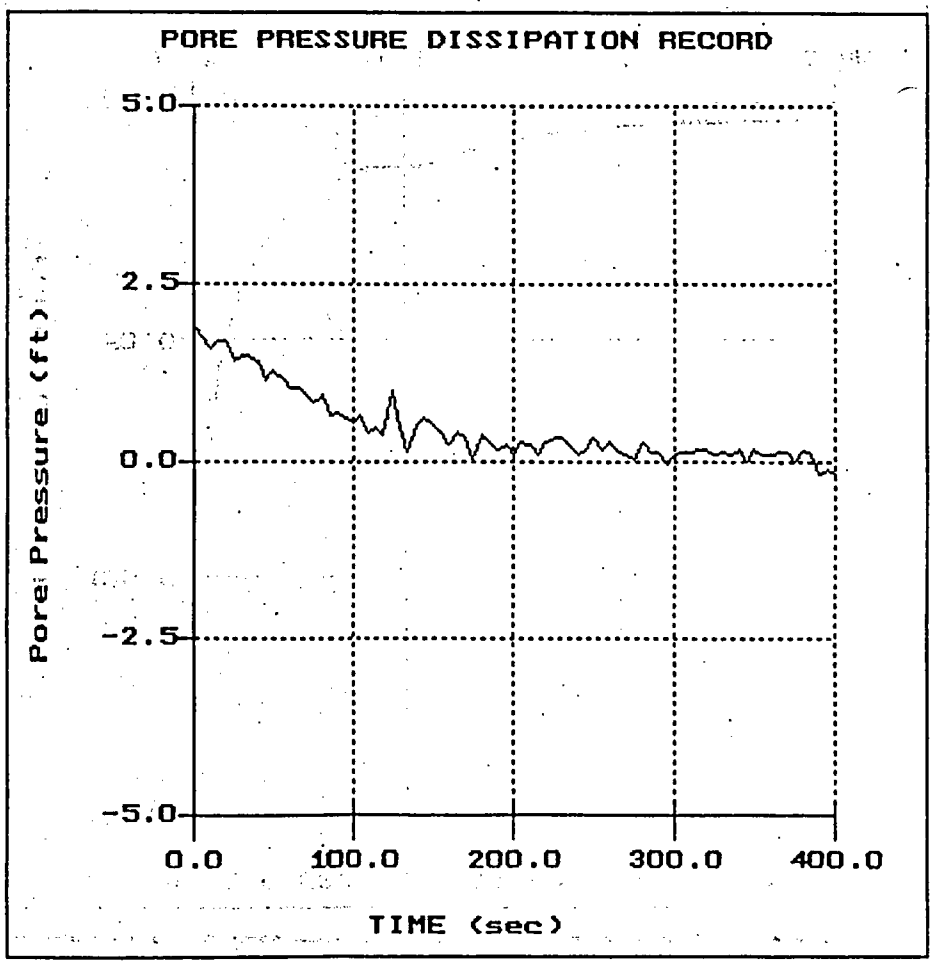


File: 432CP92.PPD
Depth (m): 6.25
(ft): 20.51
Duration : 3915.0s
U-min: 4.22 1330.0s
U-max: 30.74 5.0s

S.M. Stoller

Hole No.:CPT-0392
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 12:38

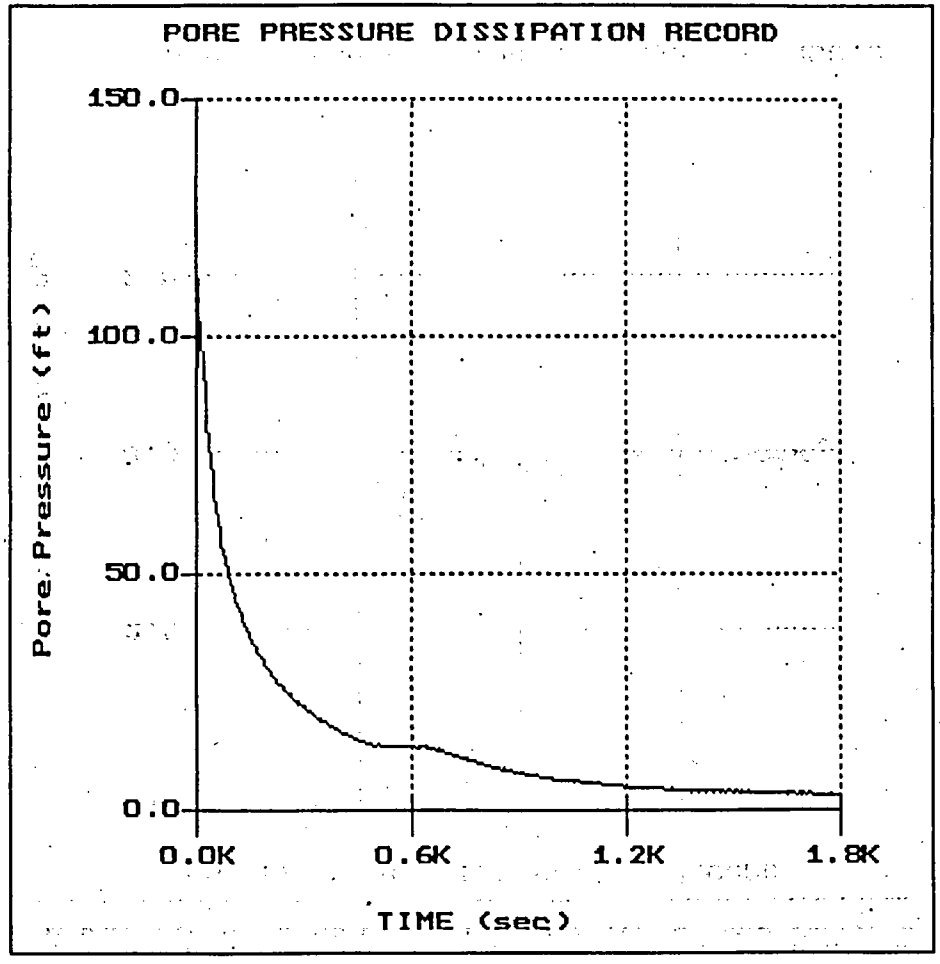


File: 432CP92.PPD
Depth (m): 9.15
(ft): 30.02
Duration : 400.0s
U-min: -0.19 400.0s
U-max: 1.92 0.0s

S.M. Stoller

Hole No.:CPT-0393
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 14:40

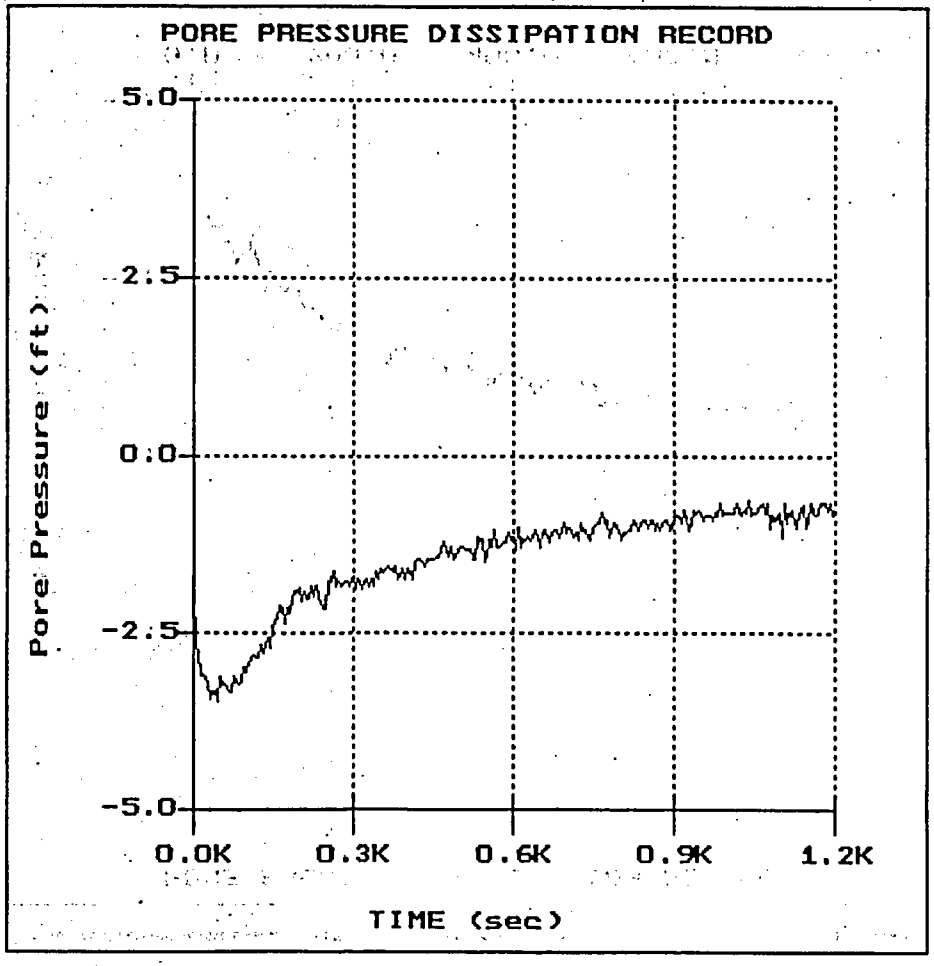


File: 432CP93.PPD
Depth (m): 2.90
(ft): 9.51
Duration : 1800.0s
U-min: 3.19 1735.0s
U-max: 112.11 5.0s

S.M. Stoller

Hole No.:CPT-0393
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 14:40

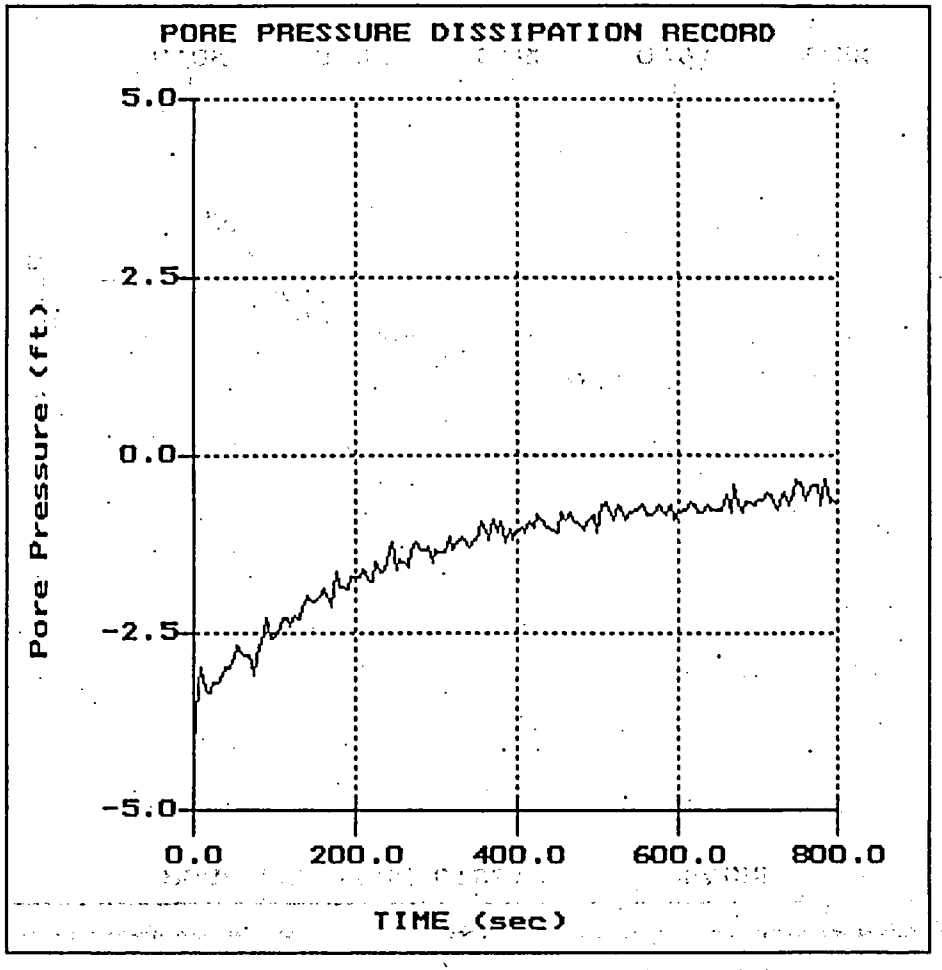


File: 432CP93.PPD
Depth (m): 6.10
(ft): 20.01
Duration : 1200.0s
U-min: -3.47 45.0s
U-max: -0.61 1040.0s

S.M. Stoller

Hole No.:CPT-0393
Location:ATLAS

Cone: 20 Ton St 183
Date:12:15:05 14:40

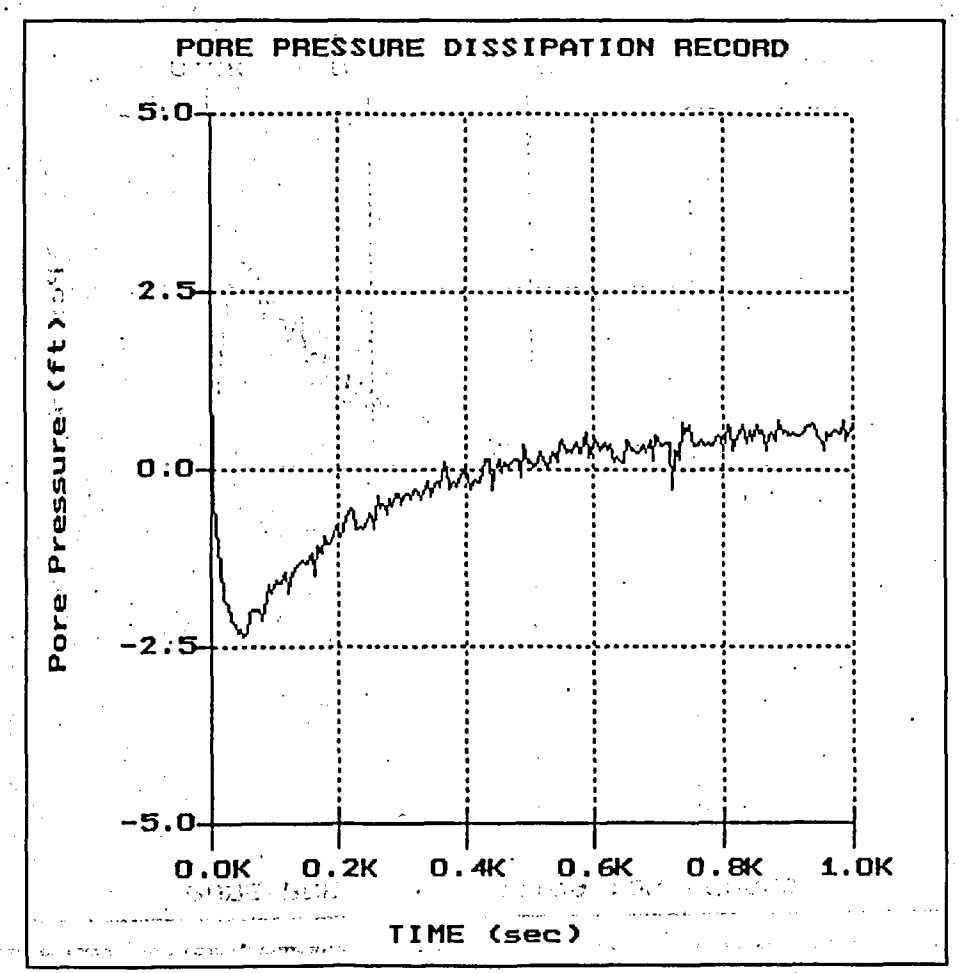


File: 432CP93.PPD
Depth (m): 9.15
(ft): 30.02
Duration : 800.0s
U-min: -4.13 0.0s
U-max: -0.33 785.0s

S.M. Stoller

Hole No :CPT-0394
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 07:50

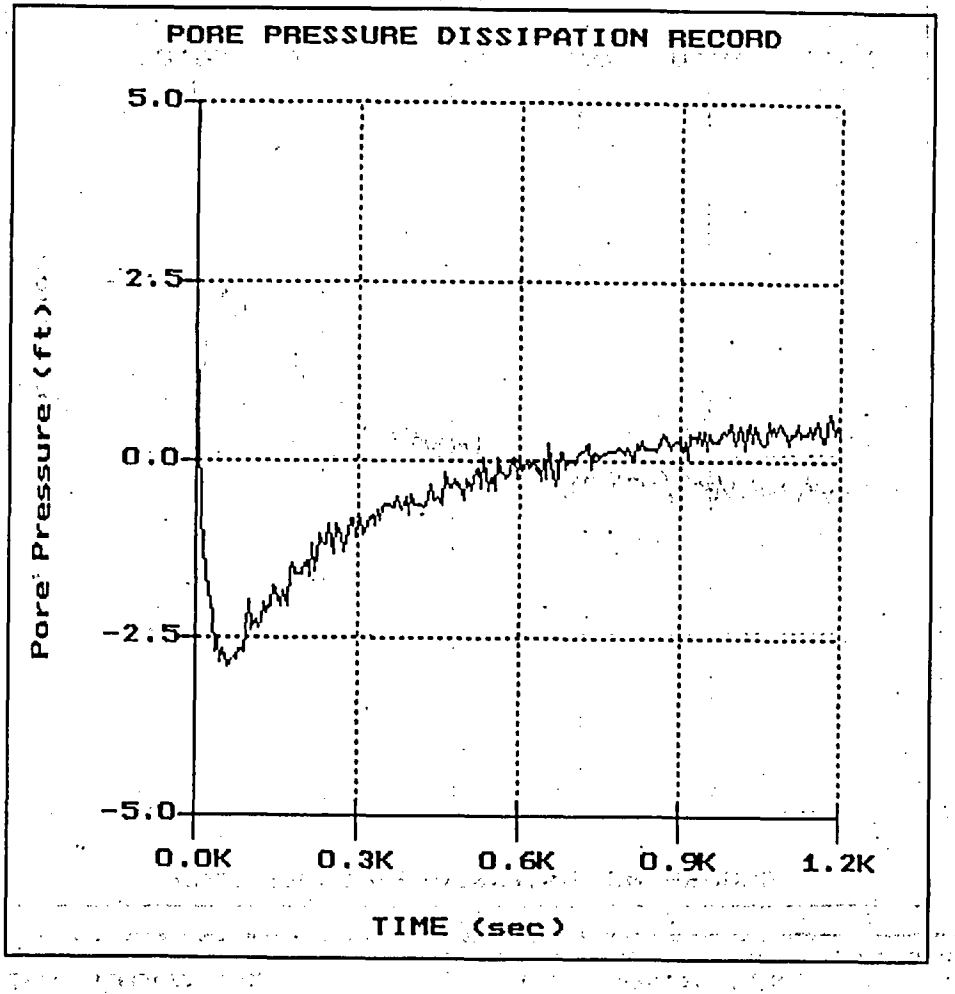


File: 432CP94.PPD
Depth (m): 3.05
(ft): 10.01
Duration : 1000.0s
U-min: -2.35 50.0s
U-max: 1.97 0.0s

S.M. Stoller

Hole No.:CPT-0394
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 07:50

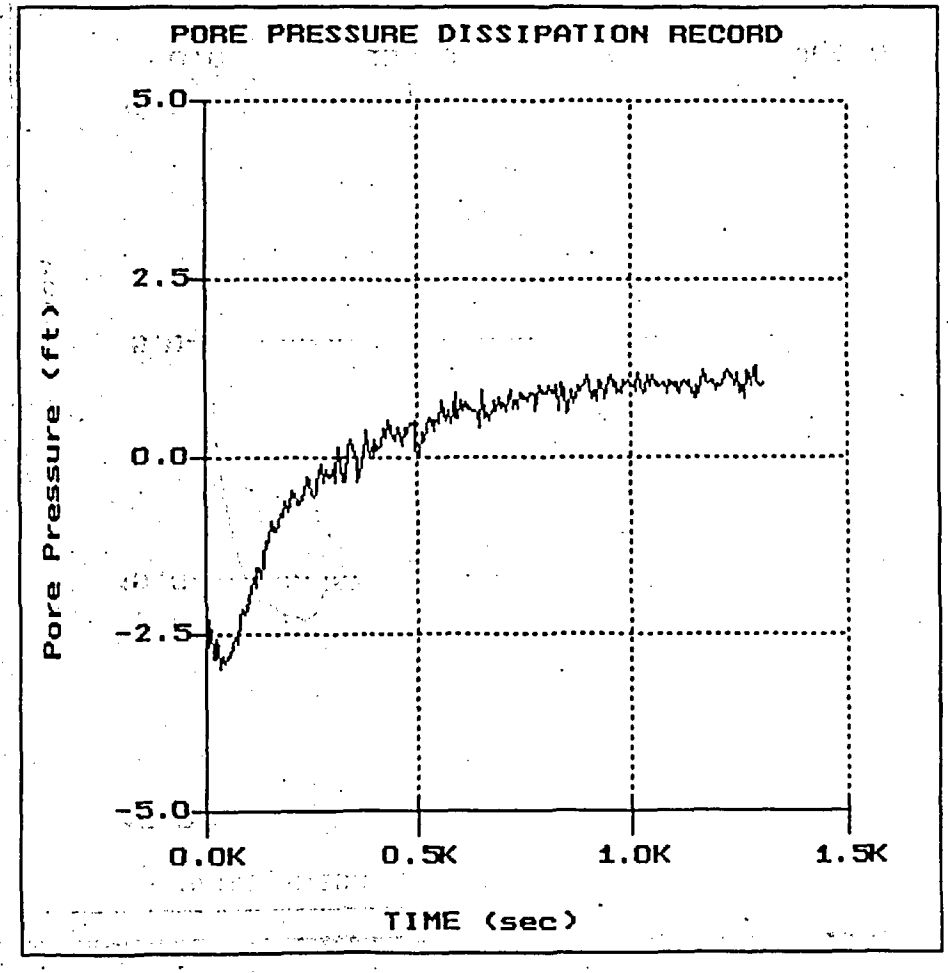


File: 432CP94.PPD
Depth (m): 6.05
(ft): 19.85
Duration : 1205.0s
U-min: -2.91 60.0s
U-max: 1.97 0.0s

S.M. Stoller

Hole No.:CPT-0394
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 07:50

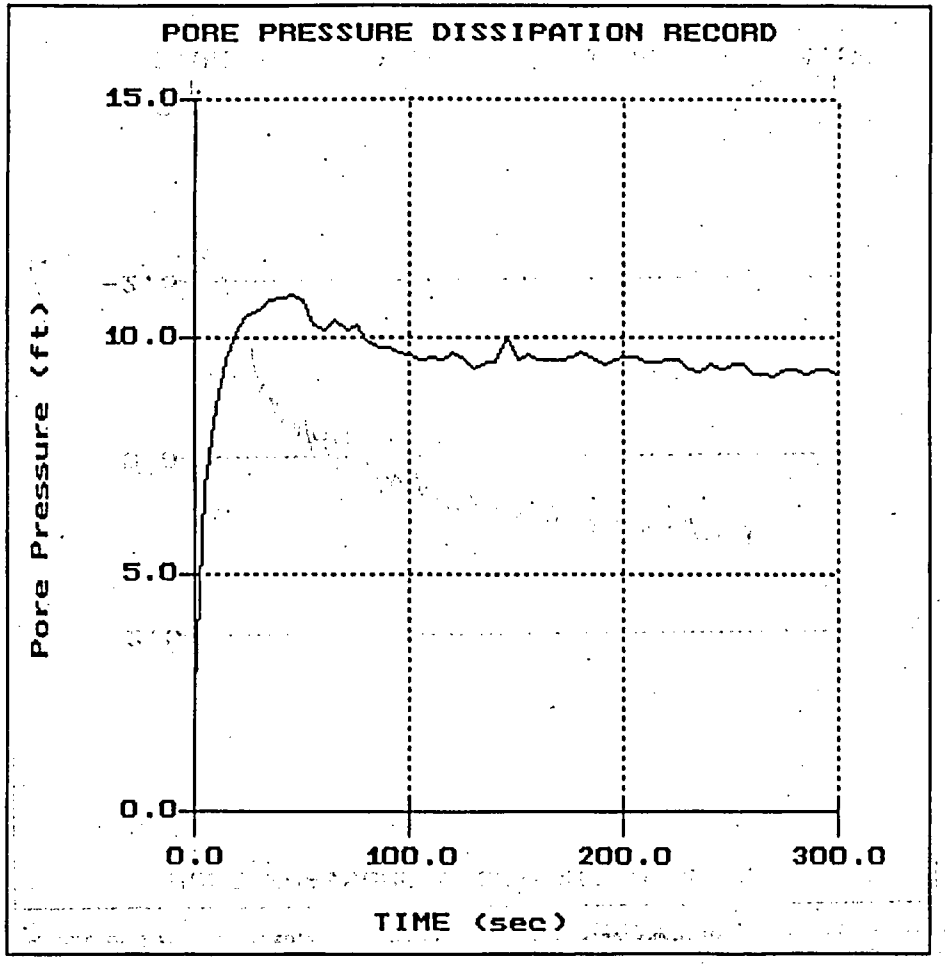


File: 432CP94.PPD
Depth (m): 9.15
(ft): 30.02
Duration : 1305.0s
U-min: -3.00 35.0s
U-max: 1.27 1285.0s

S.M. Stoller

Hole No.:CPT-0395 TOE
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 11:05

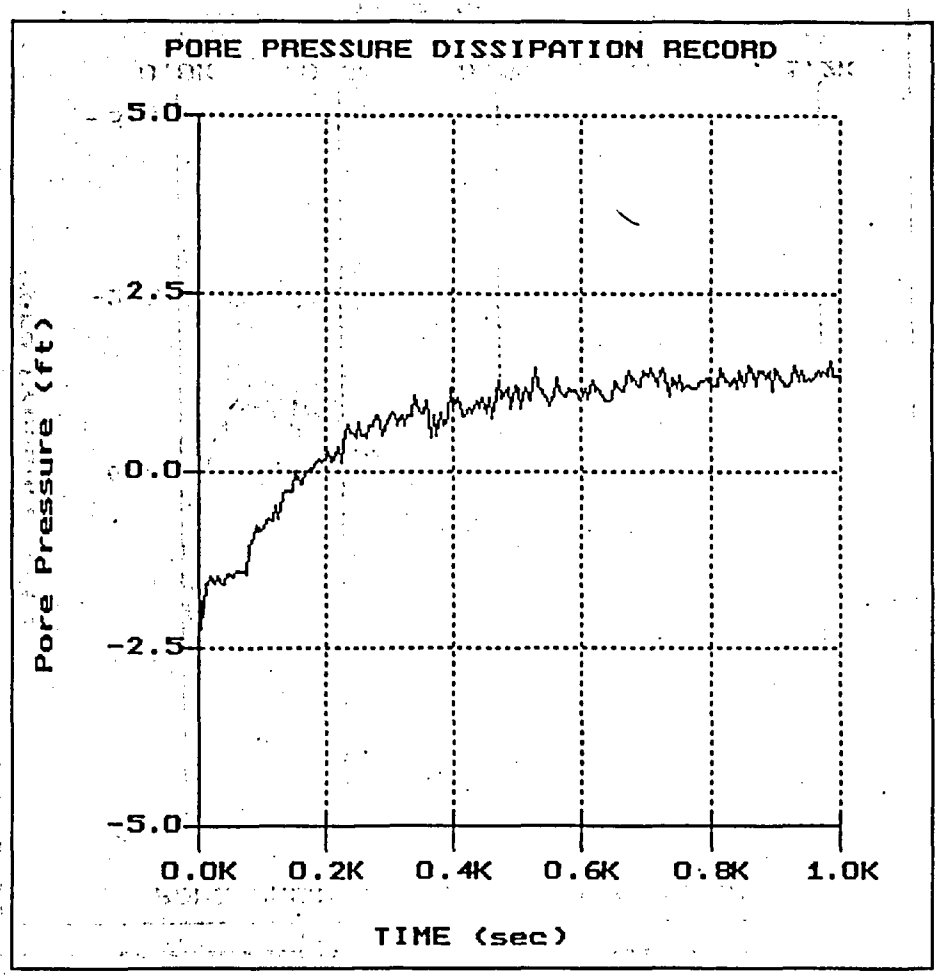


File: 432CP95C.PPD
Depth (m): 6.30
(ft): 20.67
Duration : 300.0s
U-min: 2.39 0.0s
U-max: 10.89 45.0s

S.M. Stoller

Hole No.:CPT-0395 TOE
Location:ATLAS

Cone: 20 Ton St 183
Date:12:16:05 11:05

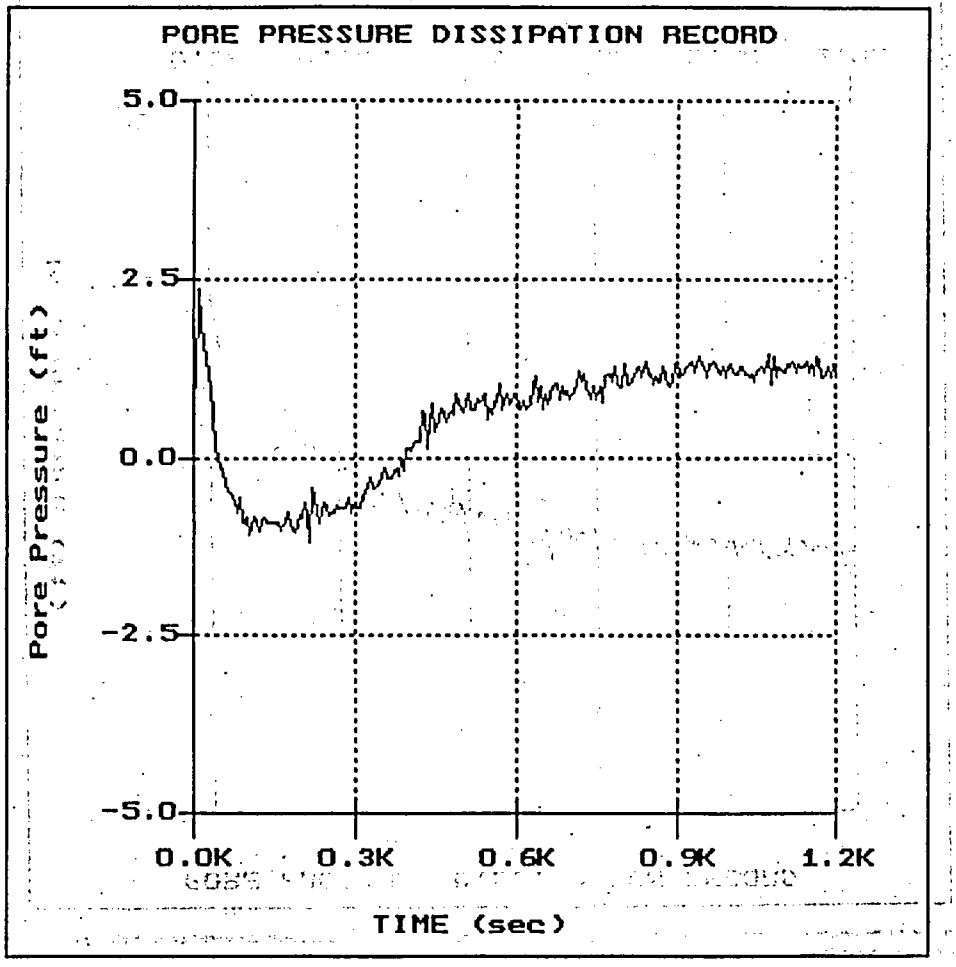


File: 432CP95C.PPD
Depth (m): 9.15
(ft): 30.02
Duration : 1000.0s
U-min: -2.21 5.0s
U-max: 1.55 985.0s

S.M. Stoller

Hole No.:CPT-0395 TOE
Location 'ATLAS

Cone: 20 Ton St 183
Date:12:16:05 11:05



File: 432CP95C.PPD
Depth (m): 12.20
(ft): 40.03
Duration : 1200.0s
U-min: -1.17 215.0s
U-max: 2.35 10.0s