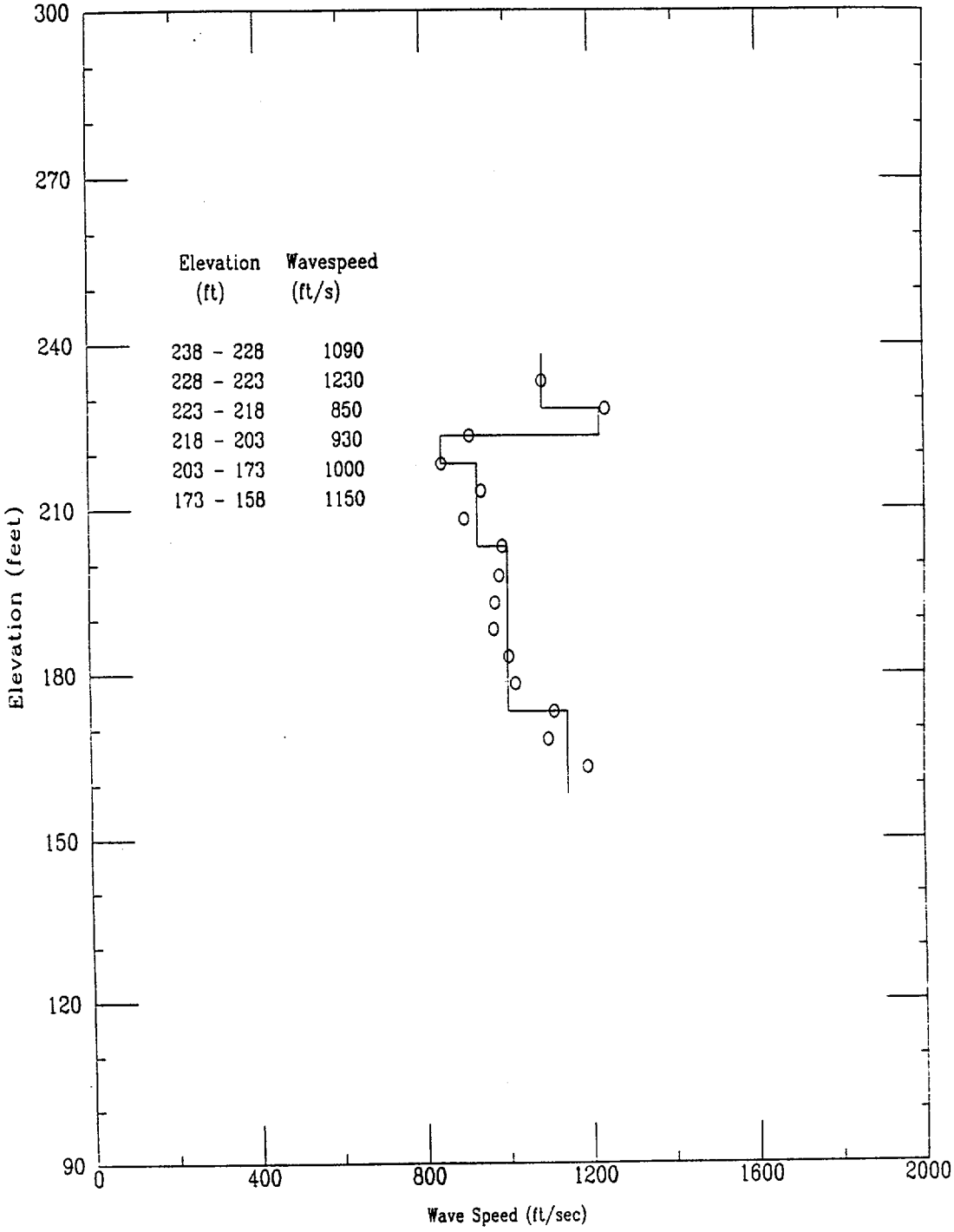
APPENDIX C

SEISMIC DATA

CPT-01S APPLIED RESEARCH ASSOCIATES, INC. 06/09/00

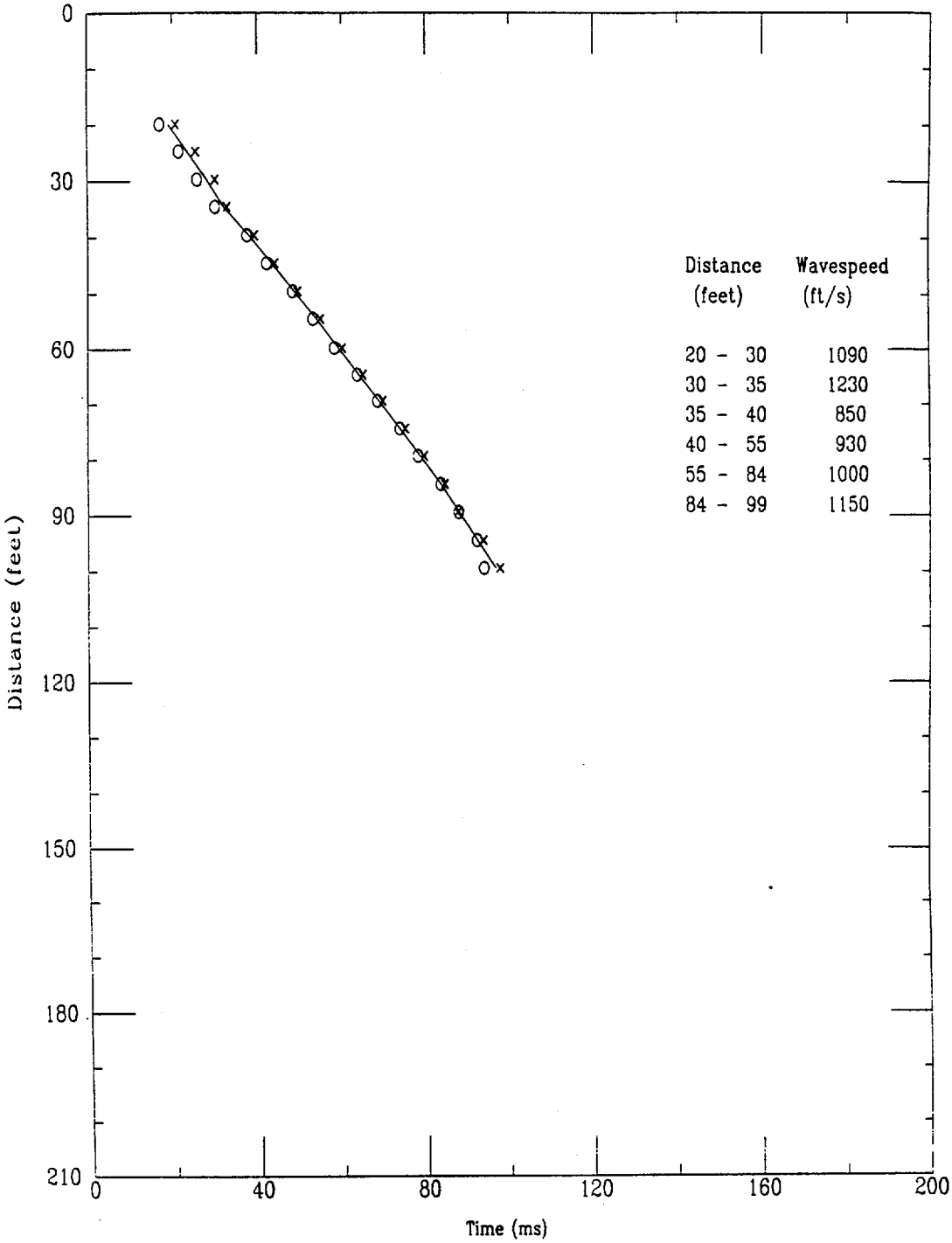
Shear Wave Speeds



File 409U001S

CPT-01S APPLIED RESEARCH ASSOCIATES, INC. 06/09/00

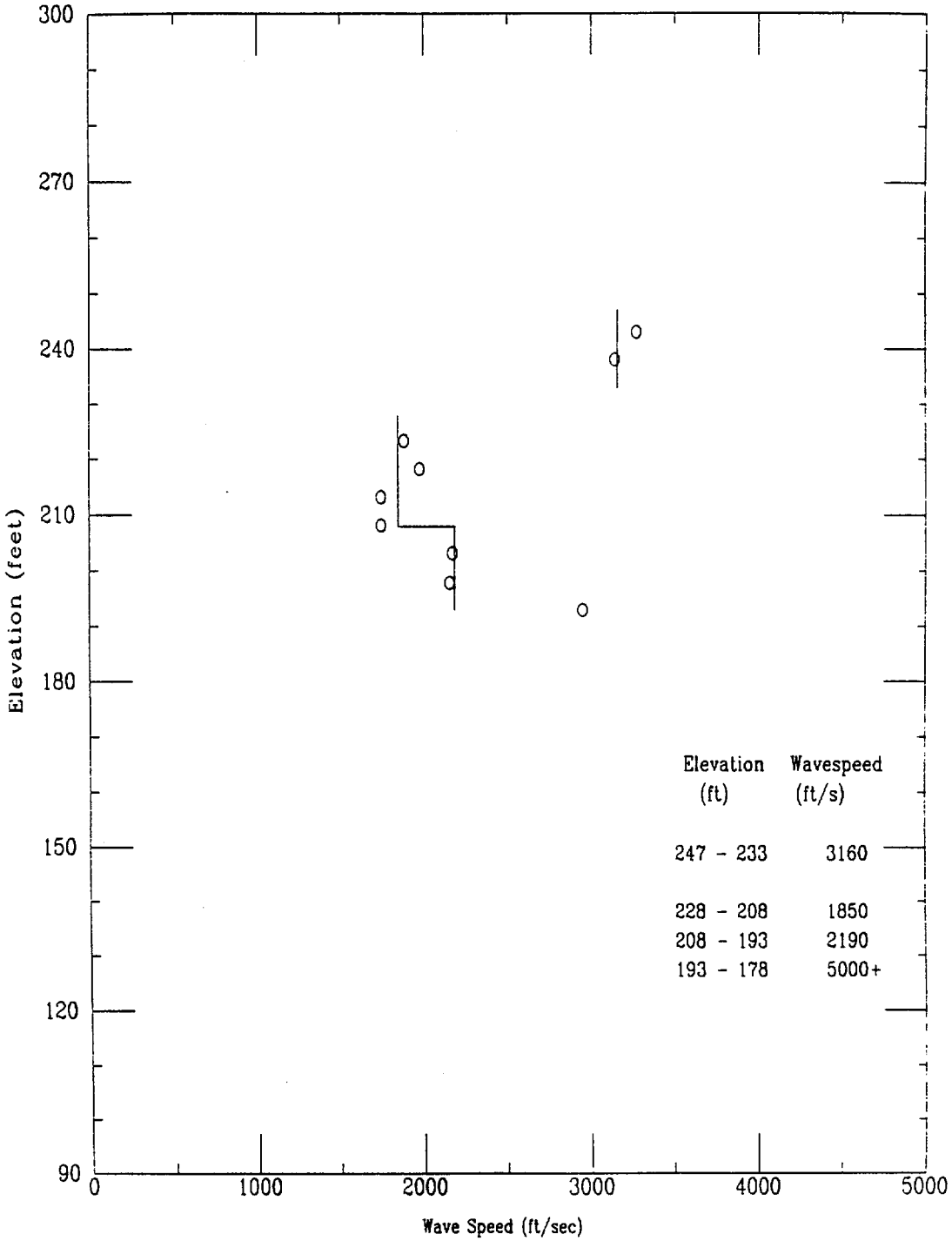
Shear Wave Time of Peak



FILE 409U001S

CPT-01S APPLIED RESEARCH ASSOCIATES, INC. 06/09/00

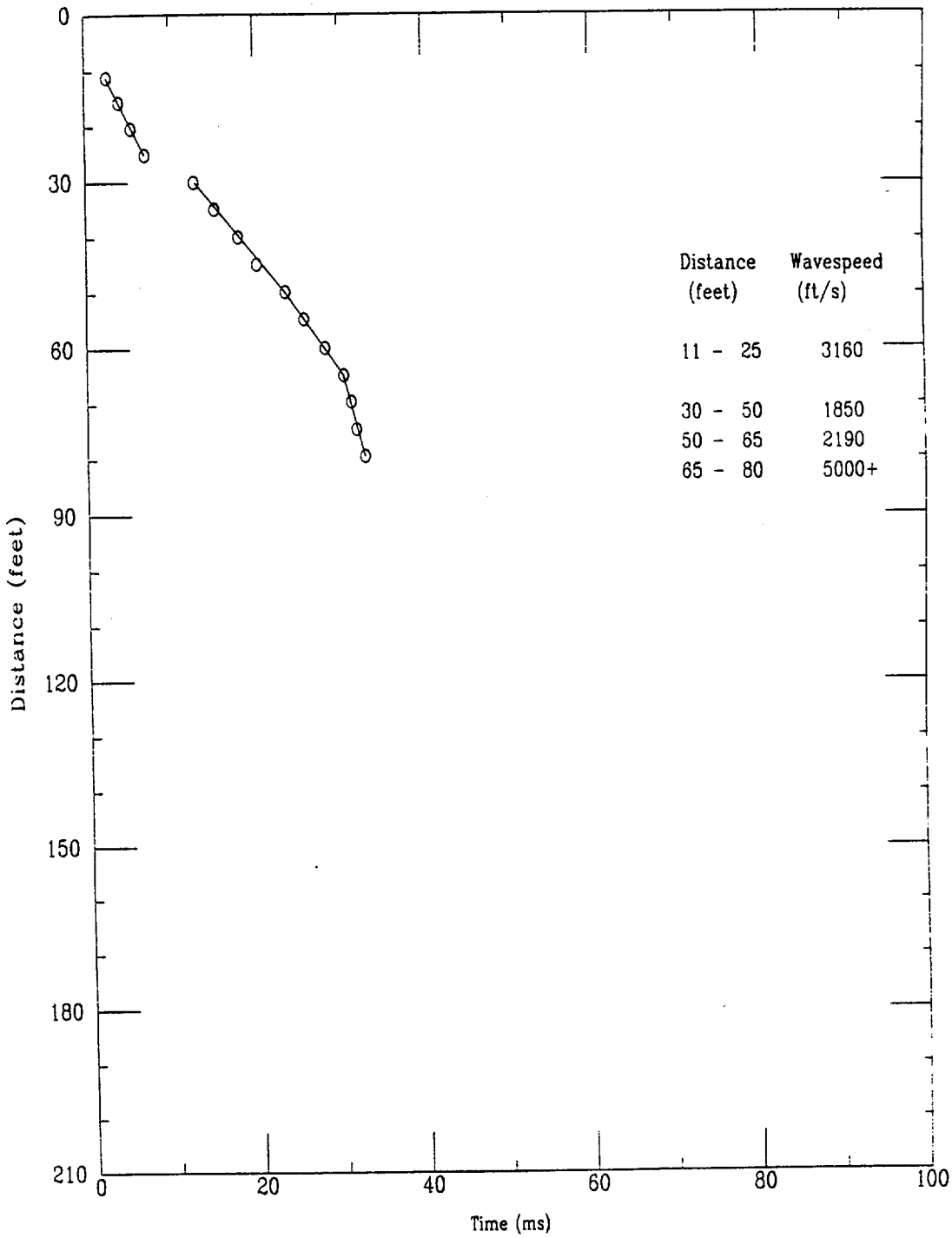
Compression Wave Speeds



File 409u001S

CPT-01S APPLIED RESEARCH ASSOCIATES, INC. 06/09/00

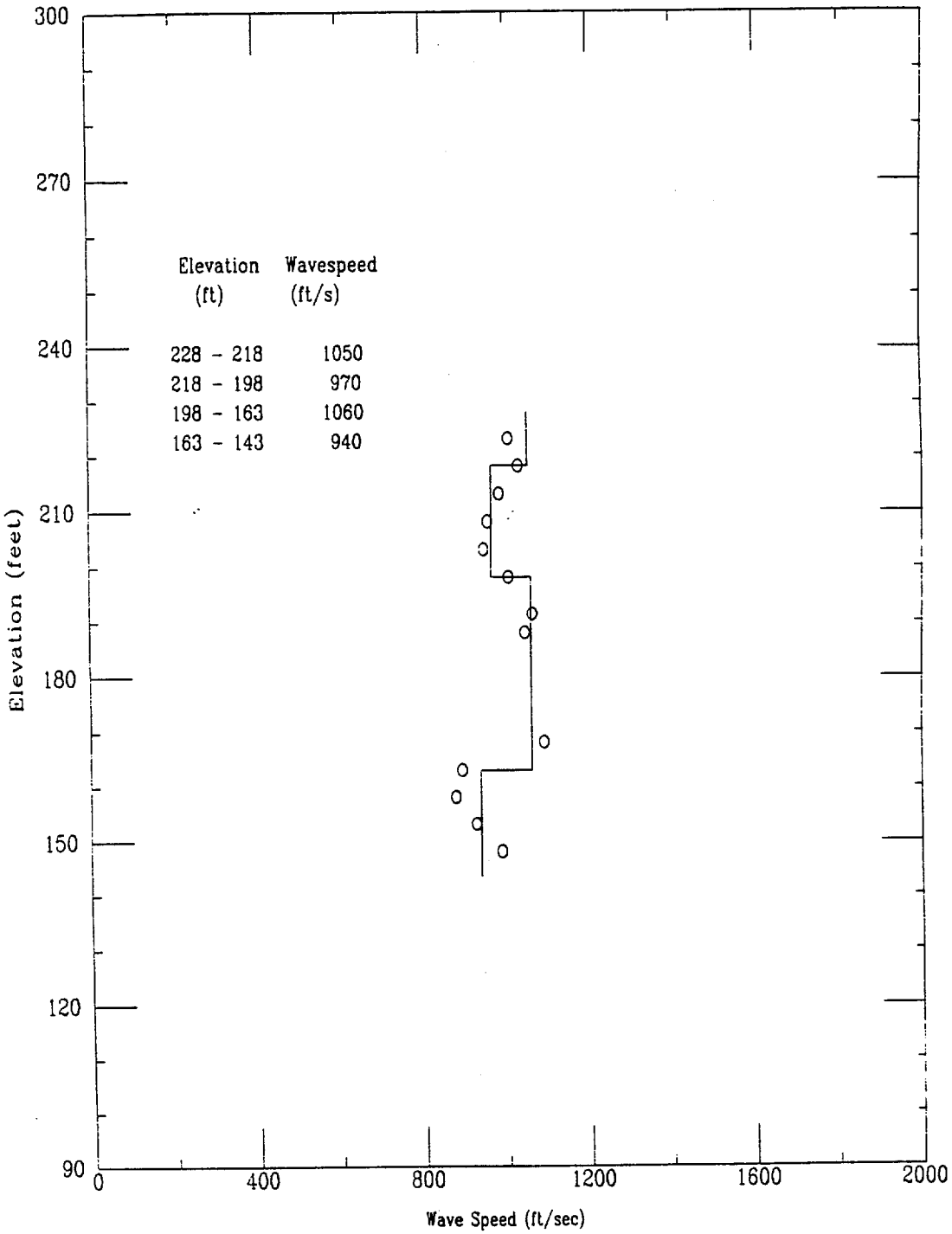
Compression Wave Time of Peak



File 409u001S

CPT-03S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

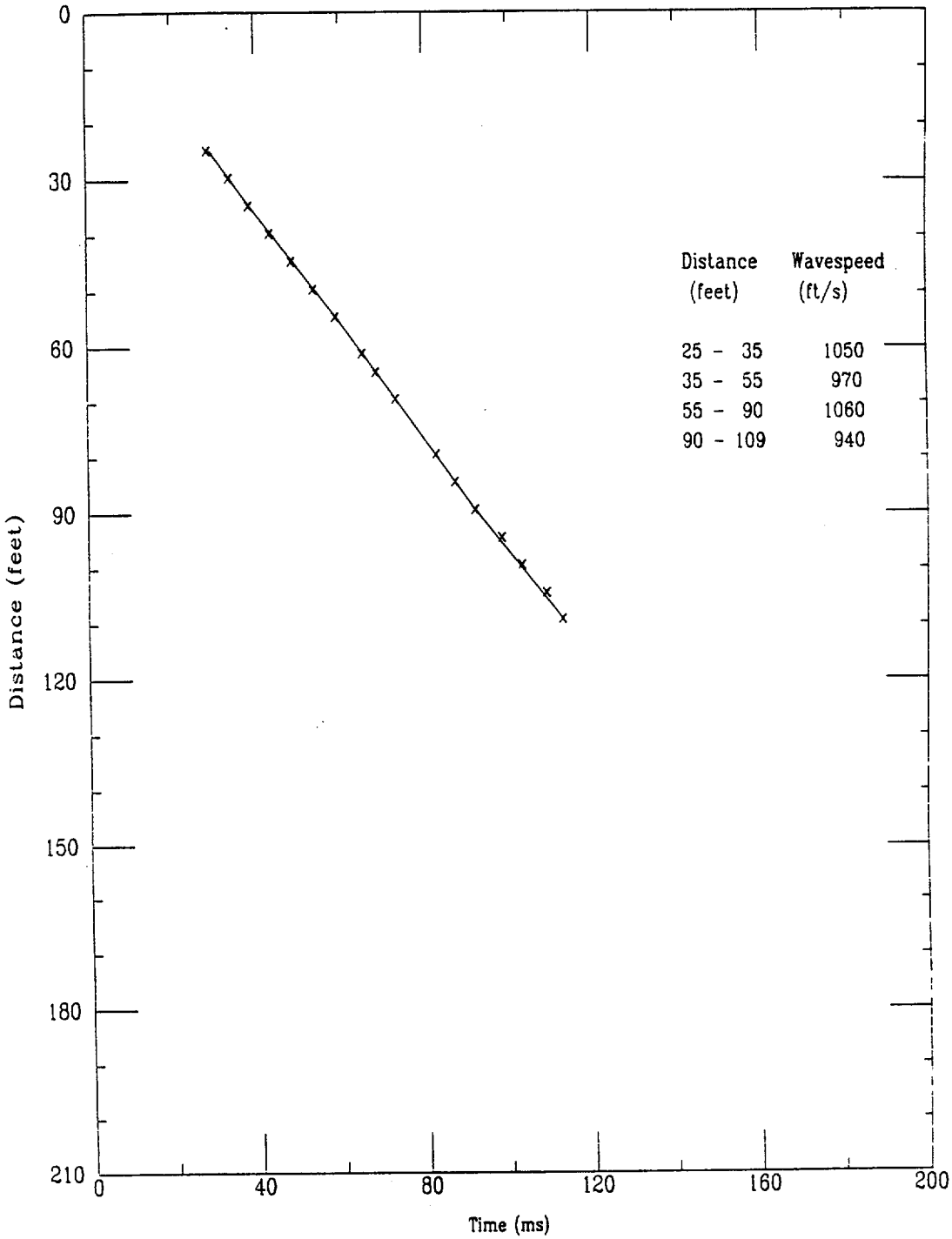
Shear Wave Speeds



File 408u007S

CPT-03S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

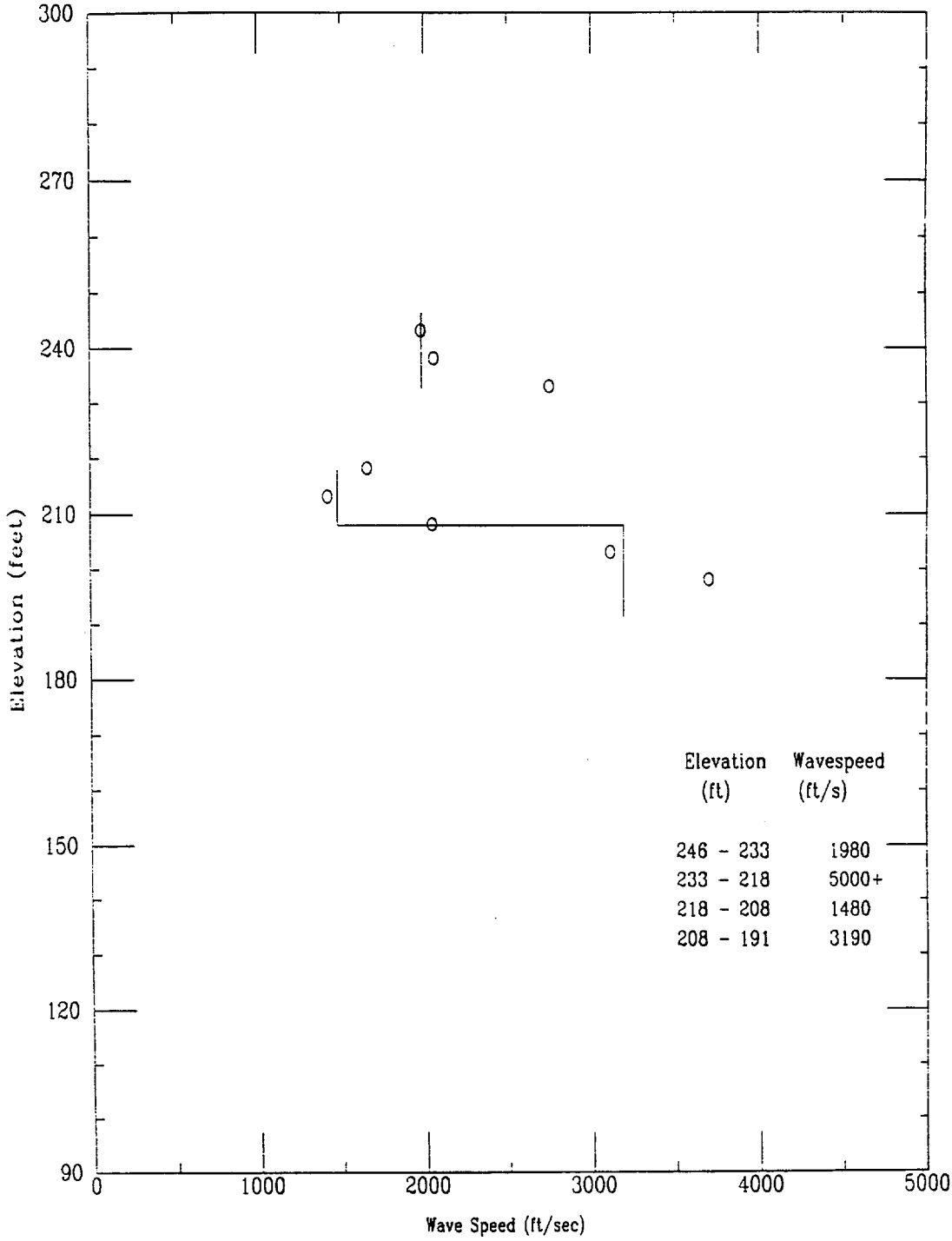
Shear Wave Time of Peak



FILE 408u007S

CPT-03S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

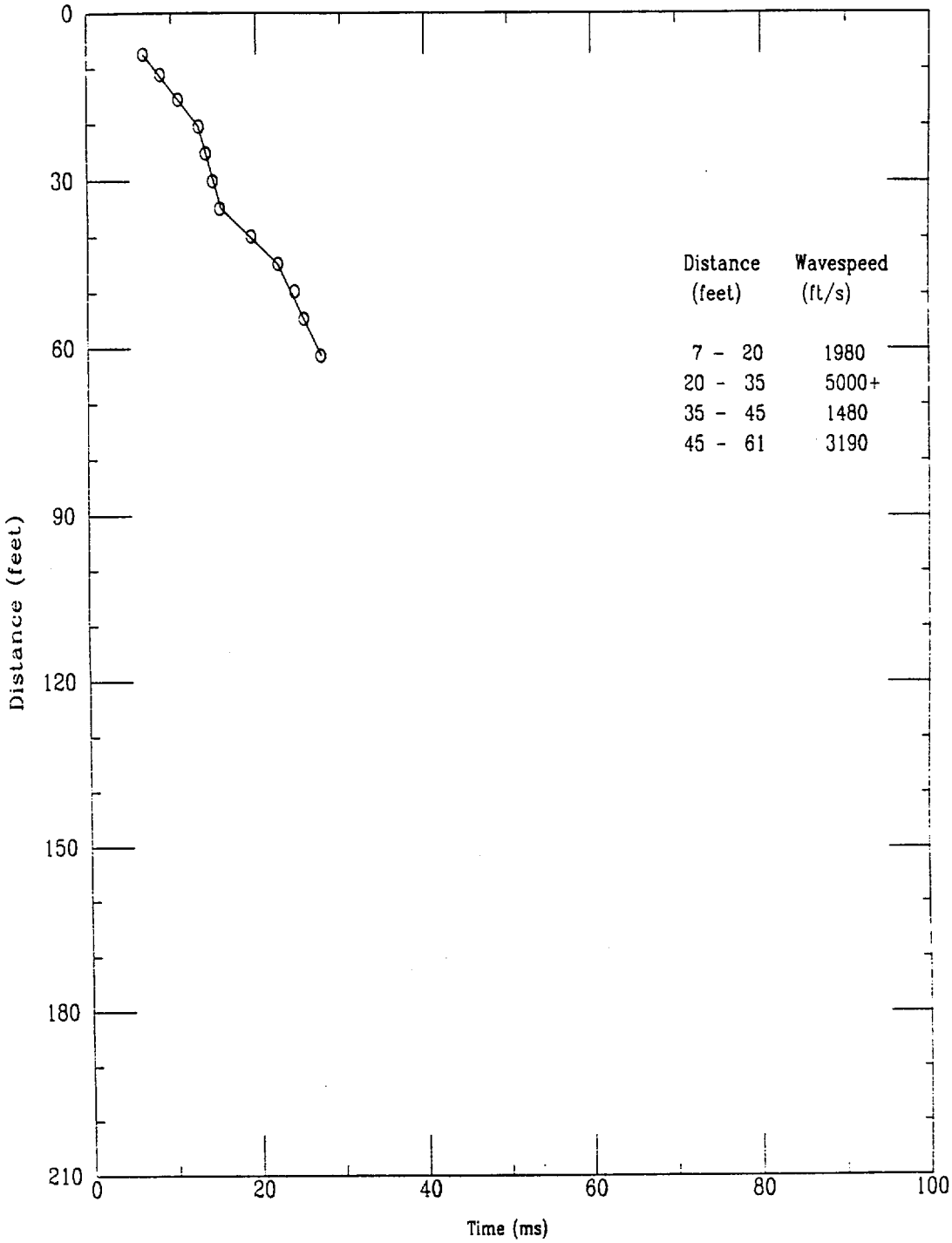
Compression Wave Speeds



File 408u007S

CPT-03S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

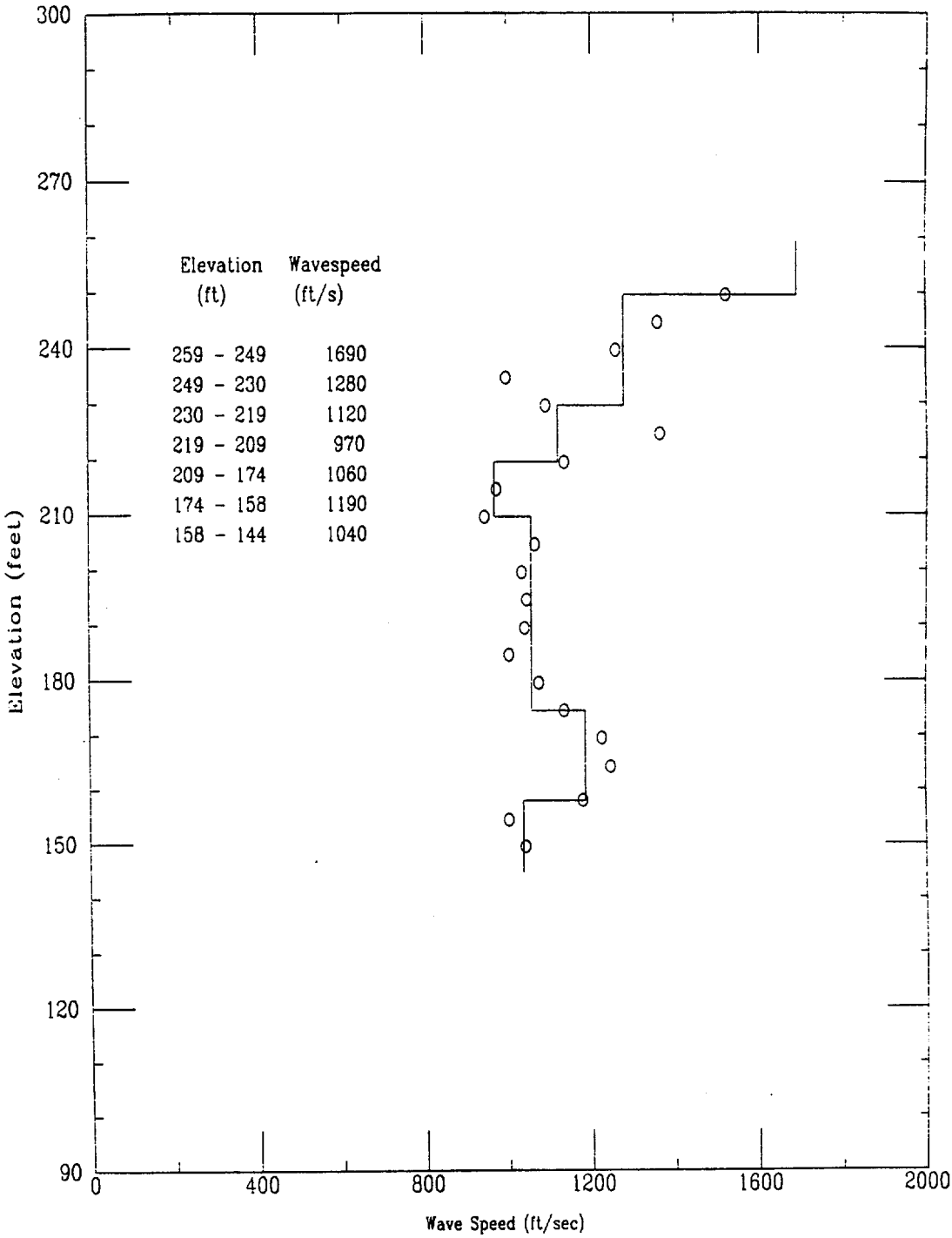
Compression Wave Time of Peak



File 408u007S

CPT-05S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

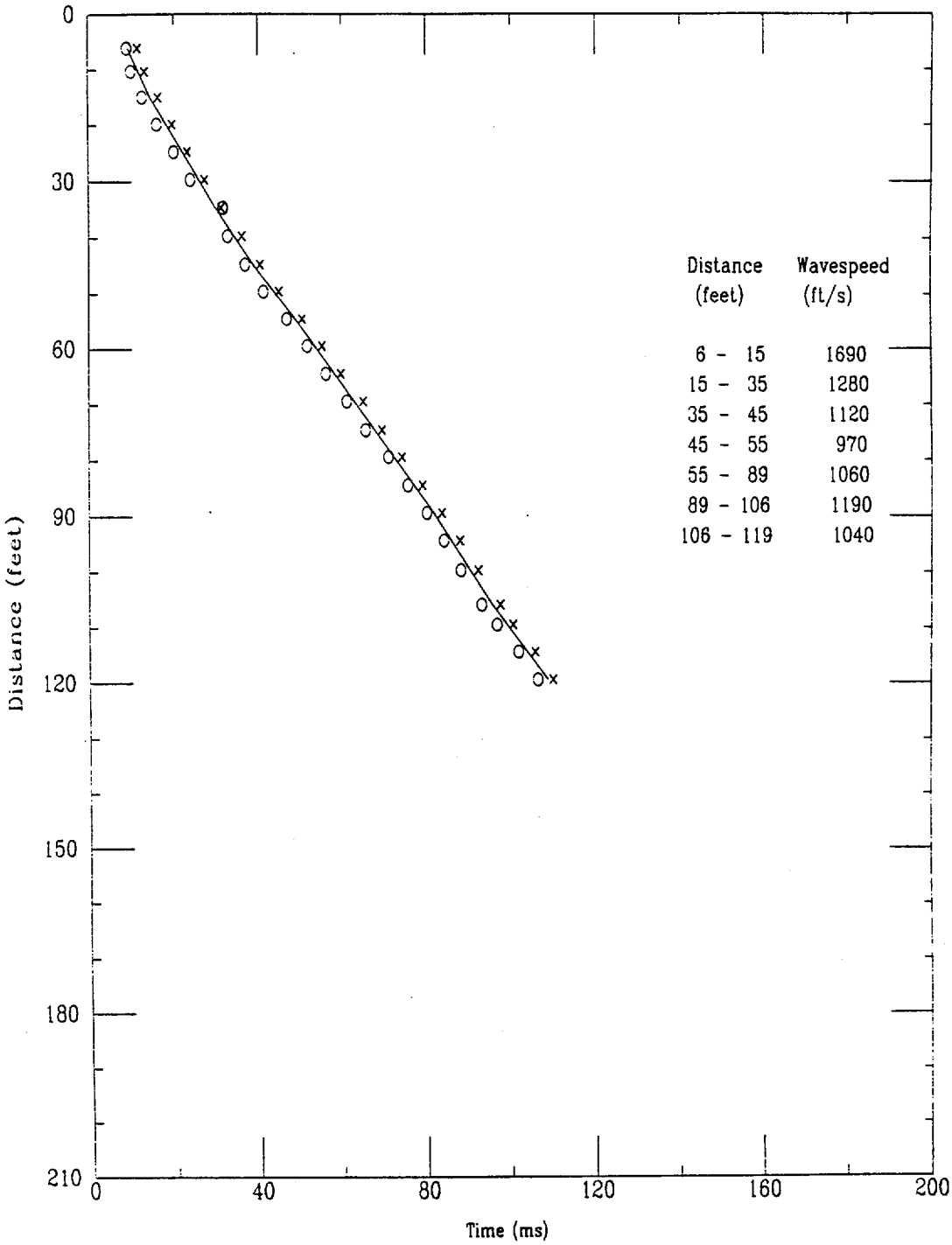
Shear Wave Speeds



File 408u004S

CPT-05S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

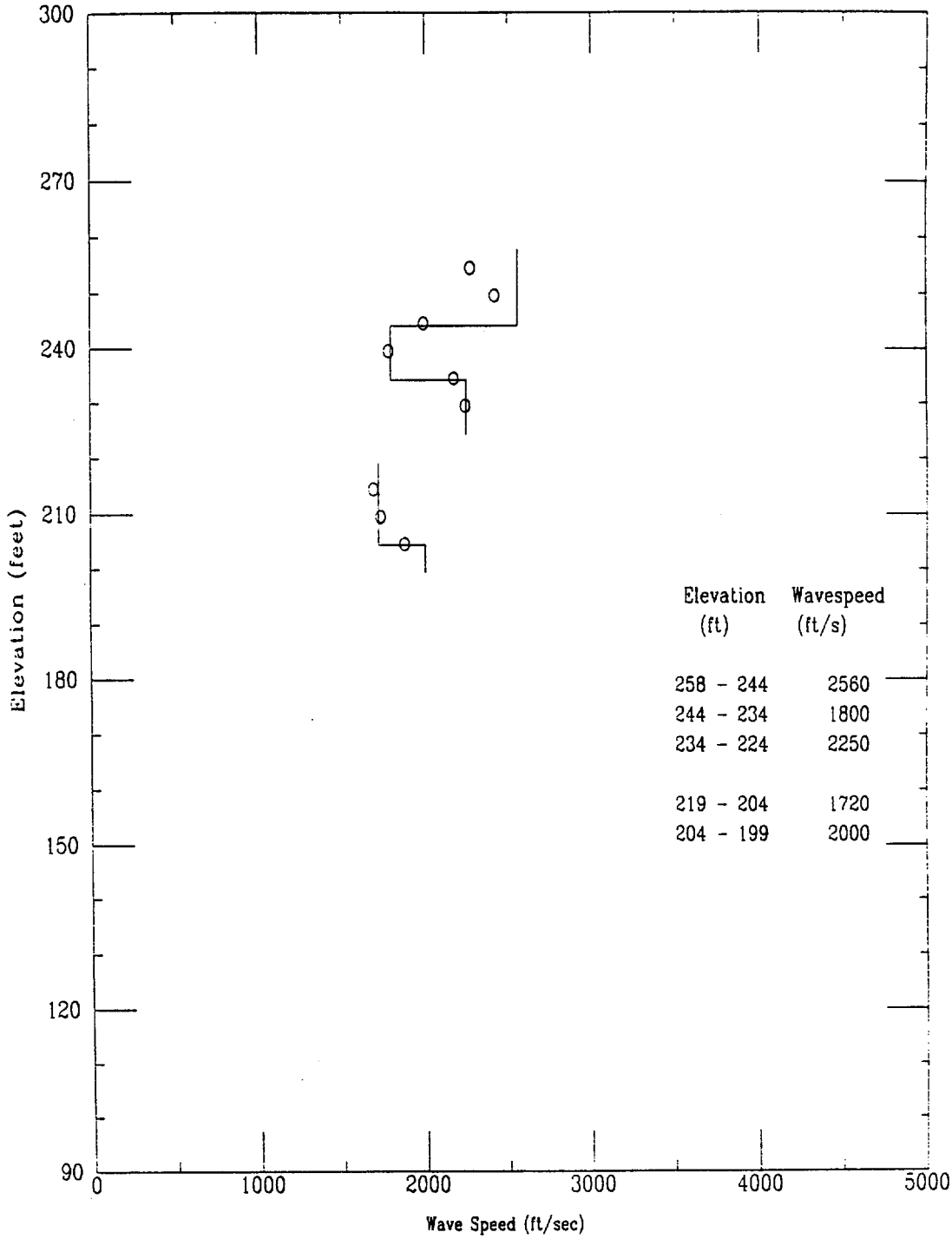
Shear Wave Time of Peak



FILE 408u004S

CPT-05S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

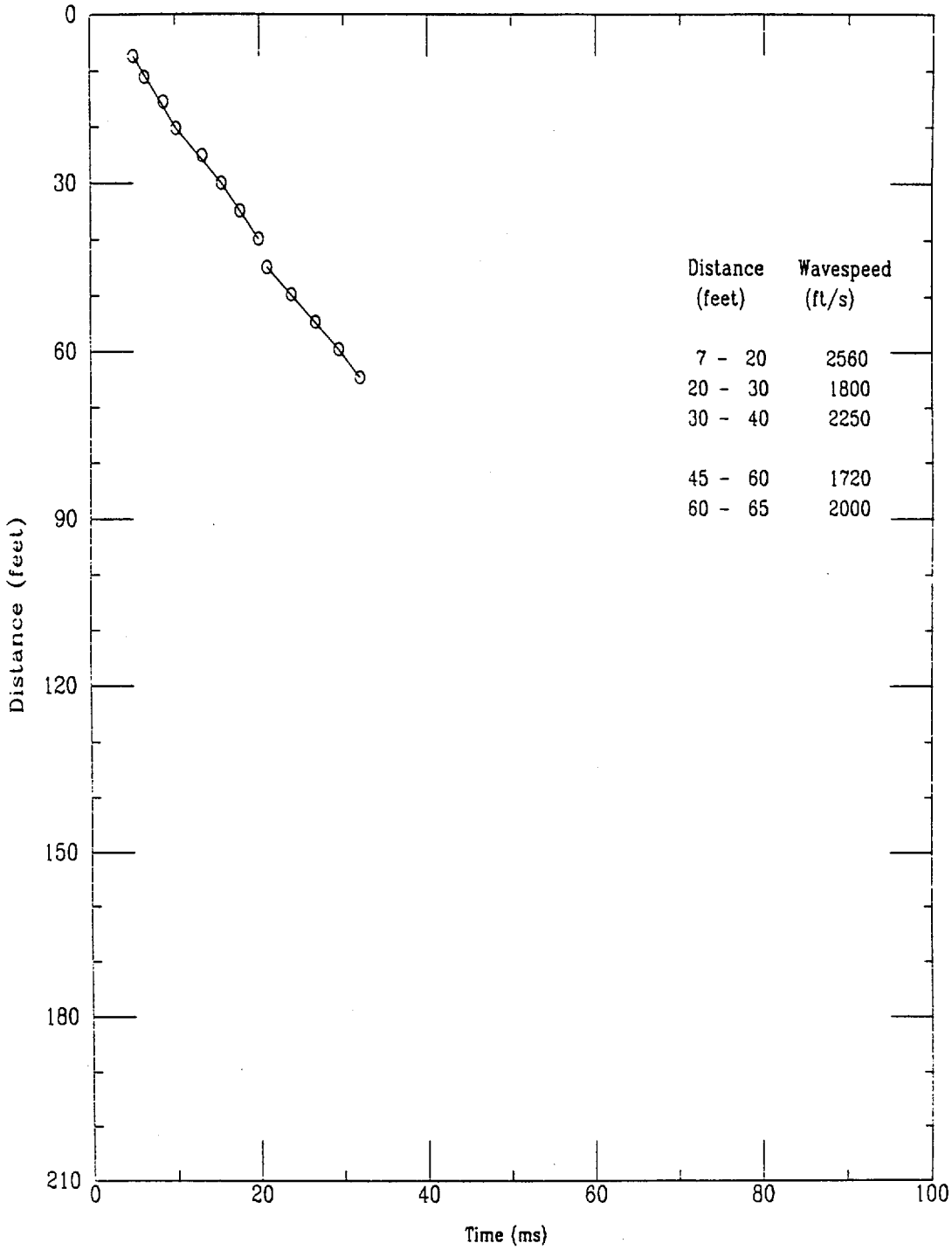
Compression Wave Speeds



File 408u004S

CPT-05S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

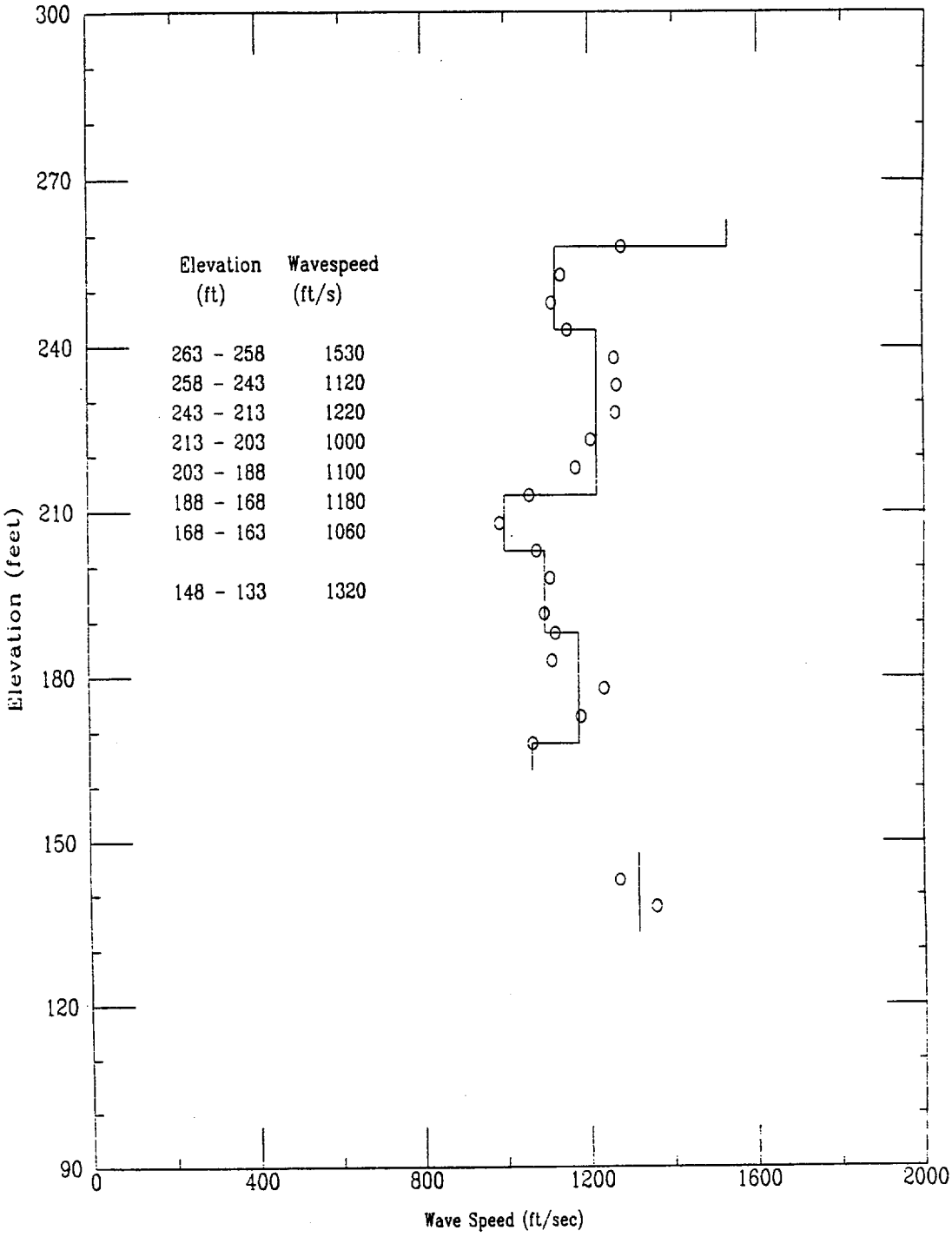
Compression Wave Time of Peak



File 408u004S

CPT-08S APPLIED RESEARCH ASSOCIATES, INC. 06/02/00

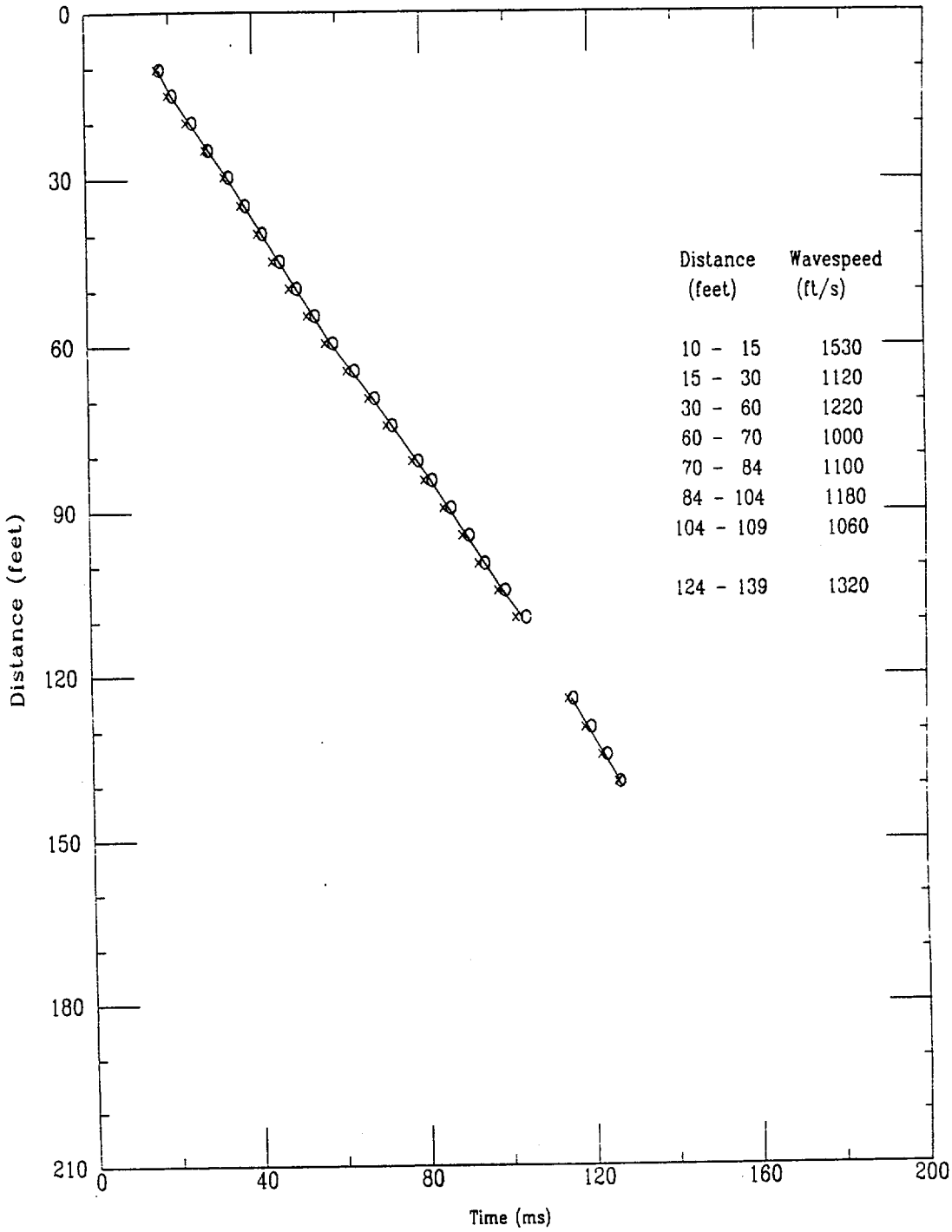
Shear Wave Speeds



File 402u004S

CPT-08S APPLIED RESEARCH ASSOCIATES, INC. 06/02/00

Shear Wave Time of Peak

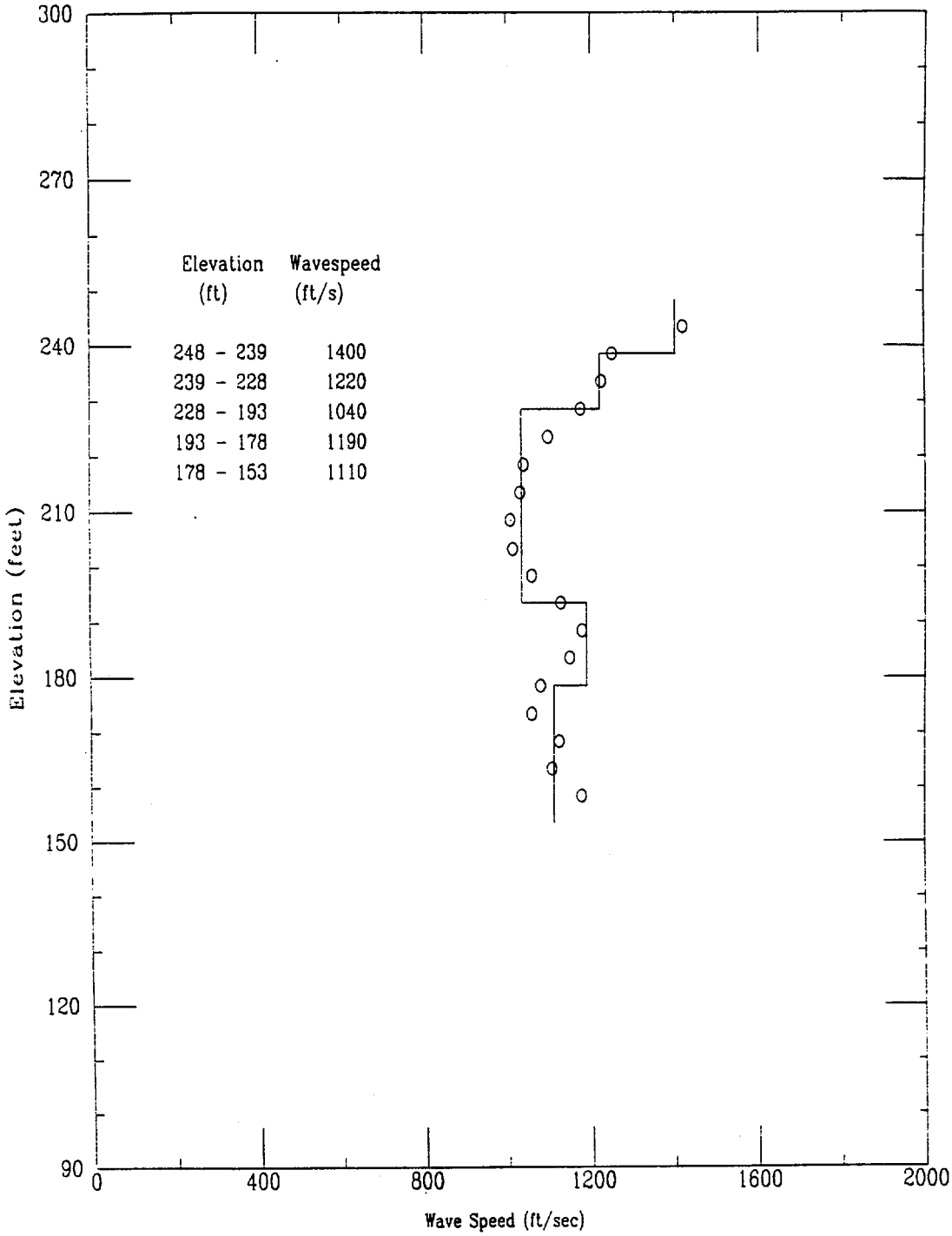


Distance (feet)	Wavespeed (ft/s)
10 - 15	1530
15 - 30	1120
30 - 60	1220
60 - 70	1000
70 - 84	1100
84 - 104	1180
104 - 109	1060
124 - 139	1320

FILE 402u004S

CPT-11S APPLIED RESEARCH ASSOCIATES, INC. 06/02/00

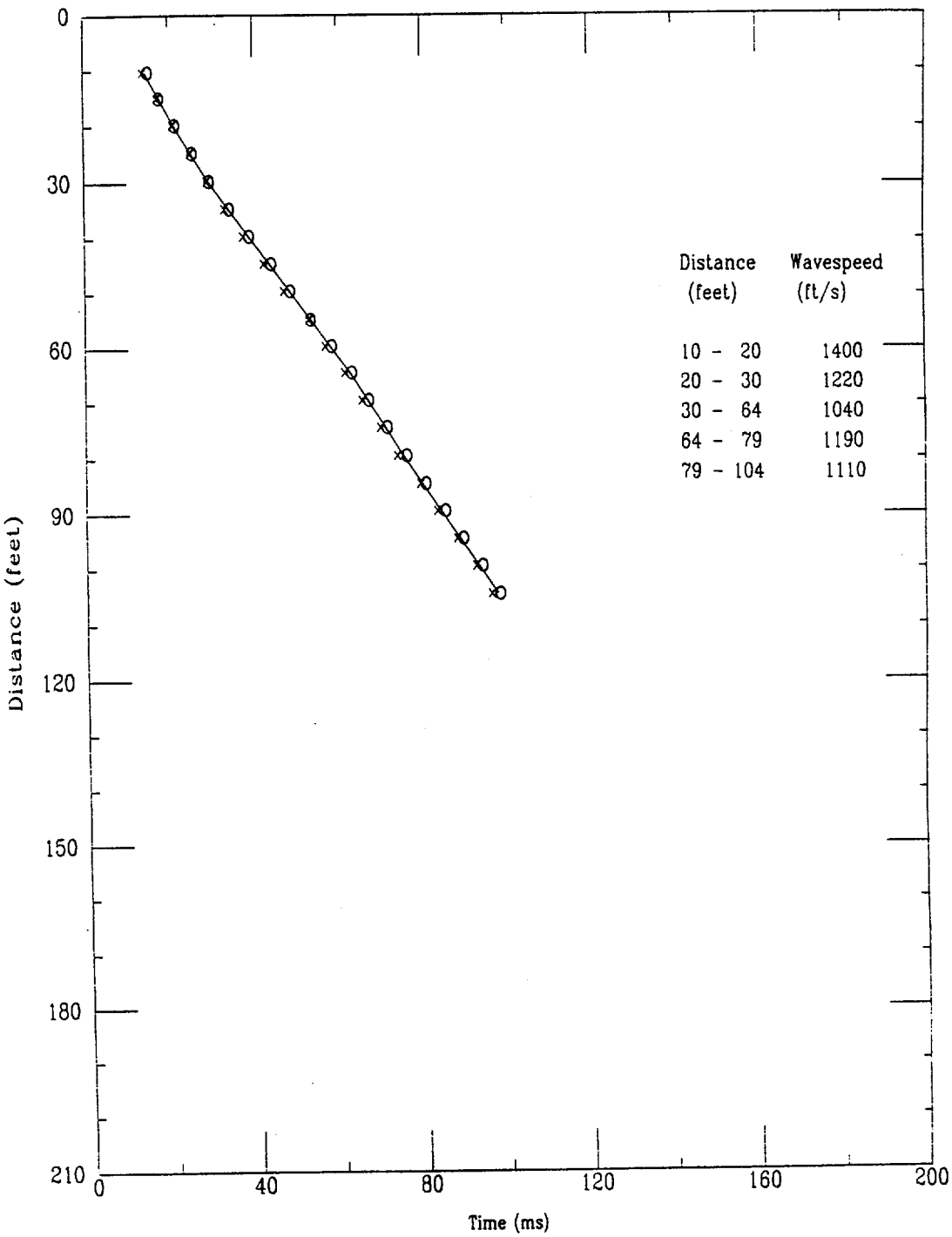
Shear Wave Speeds



File 402u001S

CPT-11S APPLIED RESEARCH ASSOCIATES, INC. 06/02/00

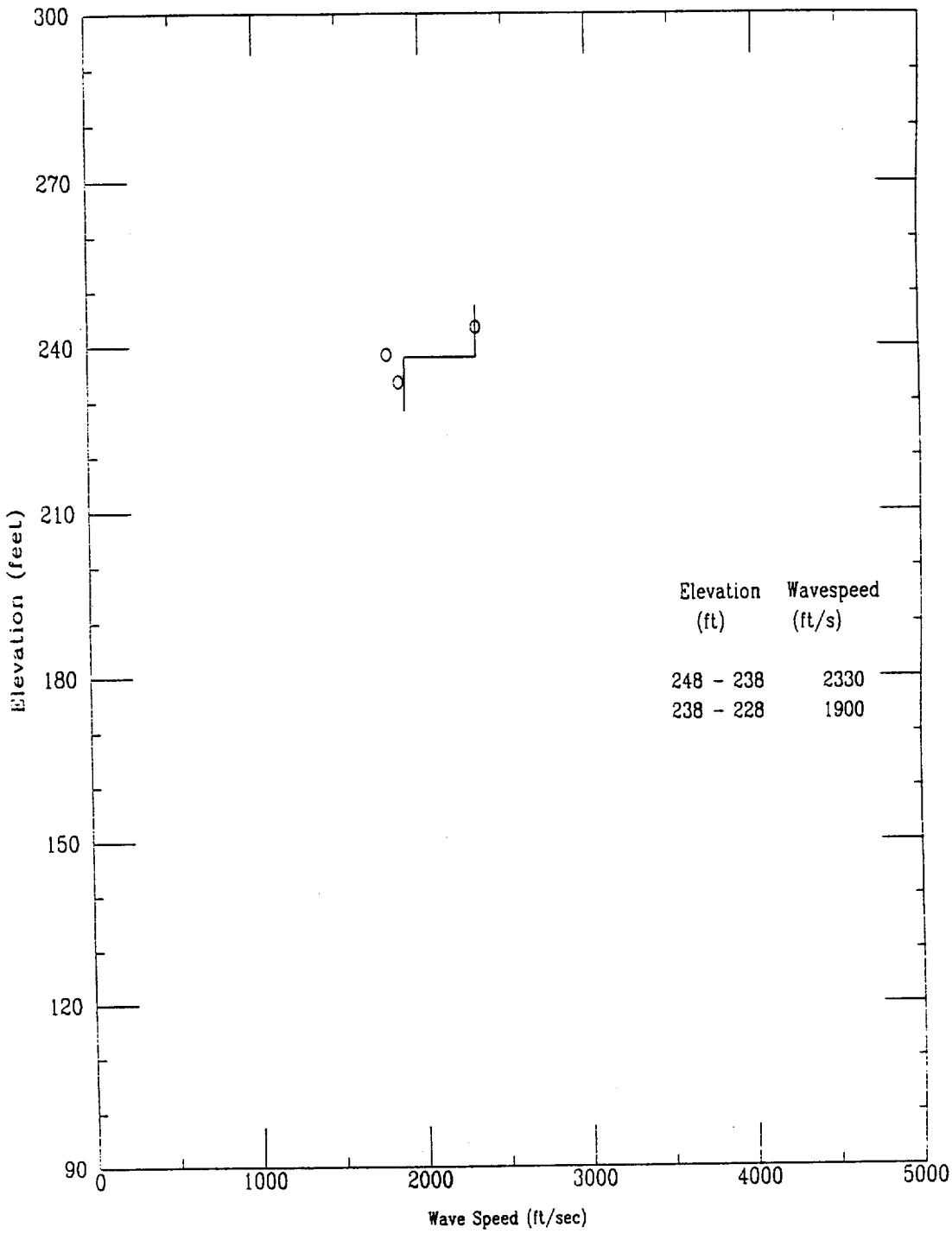
Shear Wave Time of Peak



File 402u001S

CPT-11S APPLIED RESEARCH ASSOCIATES, INC. 06/02/00

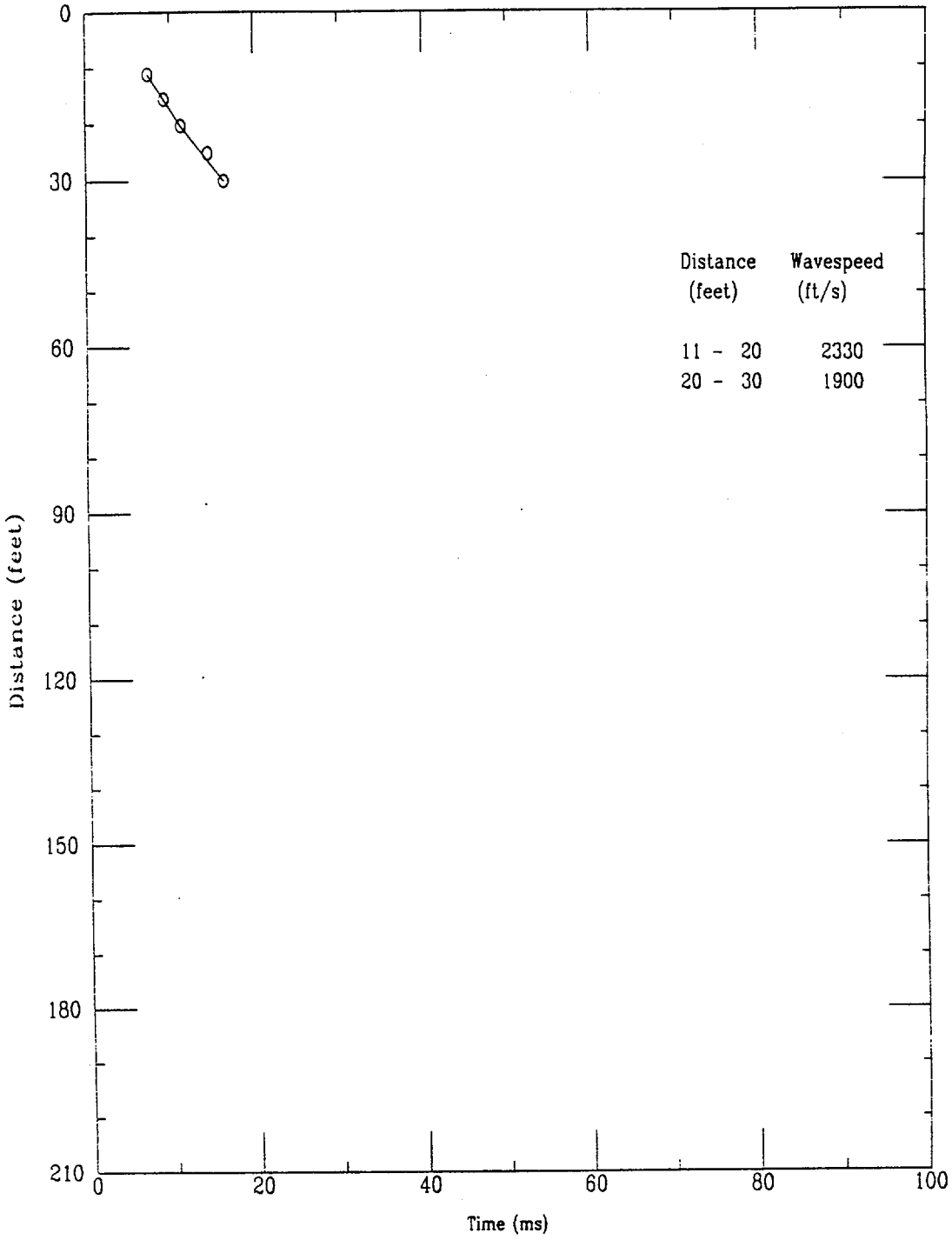
Compression Wave Speeds



File 402u001S

CPT-11S APPLIED RESEARCH ASSOCIATES, INC. 06/02/00

Compression Wave Time of Peak

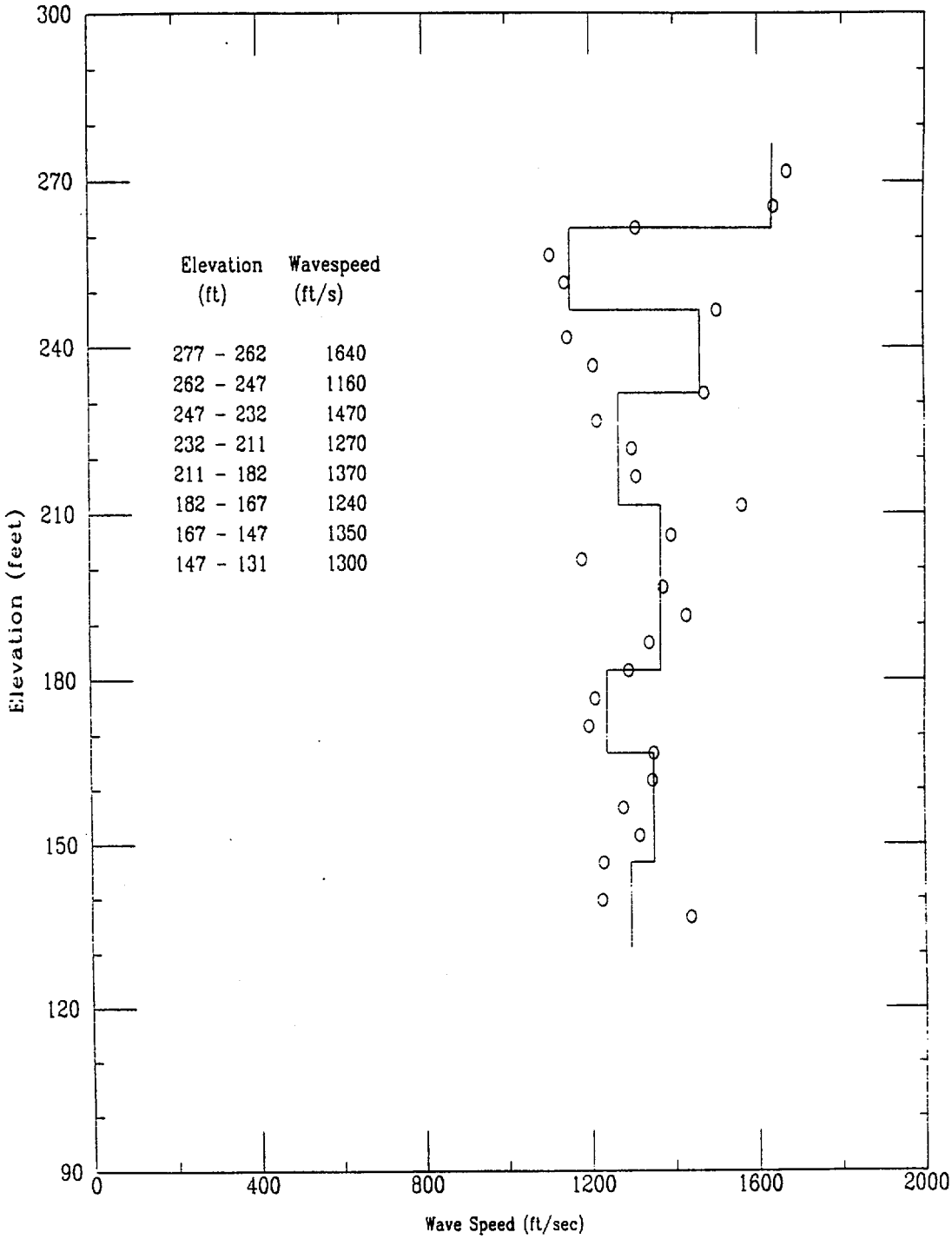


File 402u001S

DCS, MFFF Project No. 08716

CPT-13S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

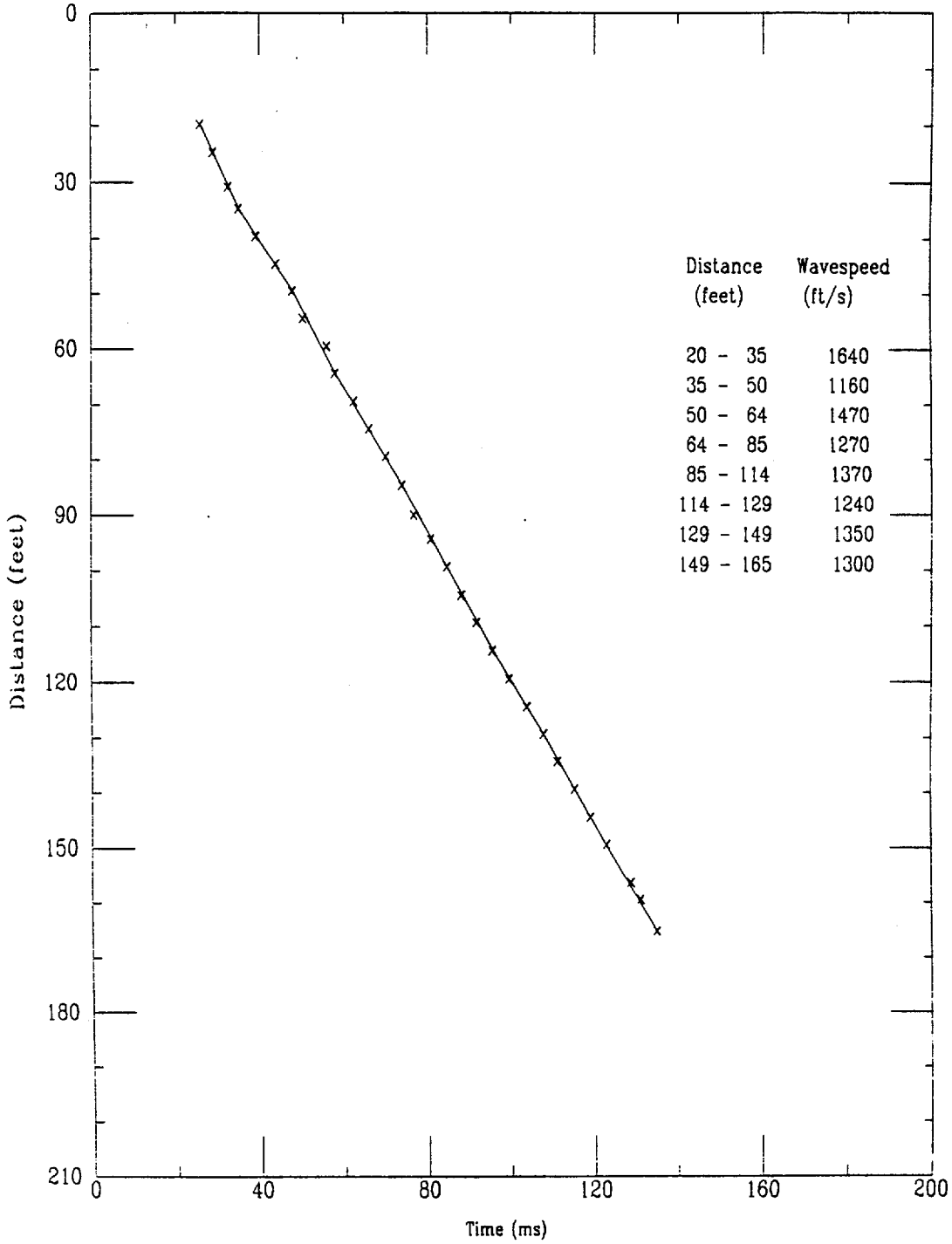
Shear Wave Speeds



File 405u005S

CPT-13S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

Shear Wave Time of Peak

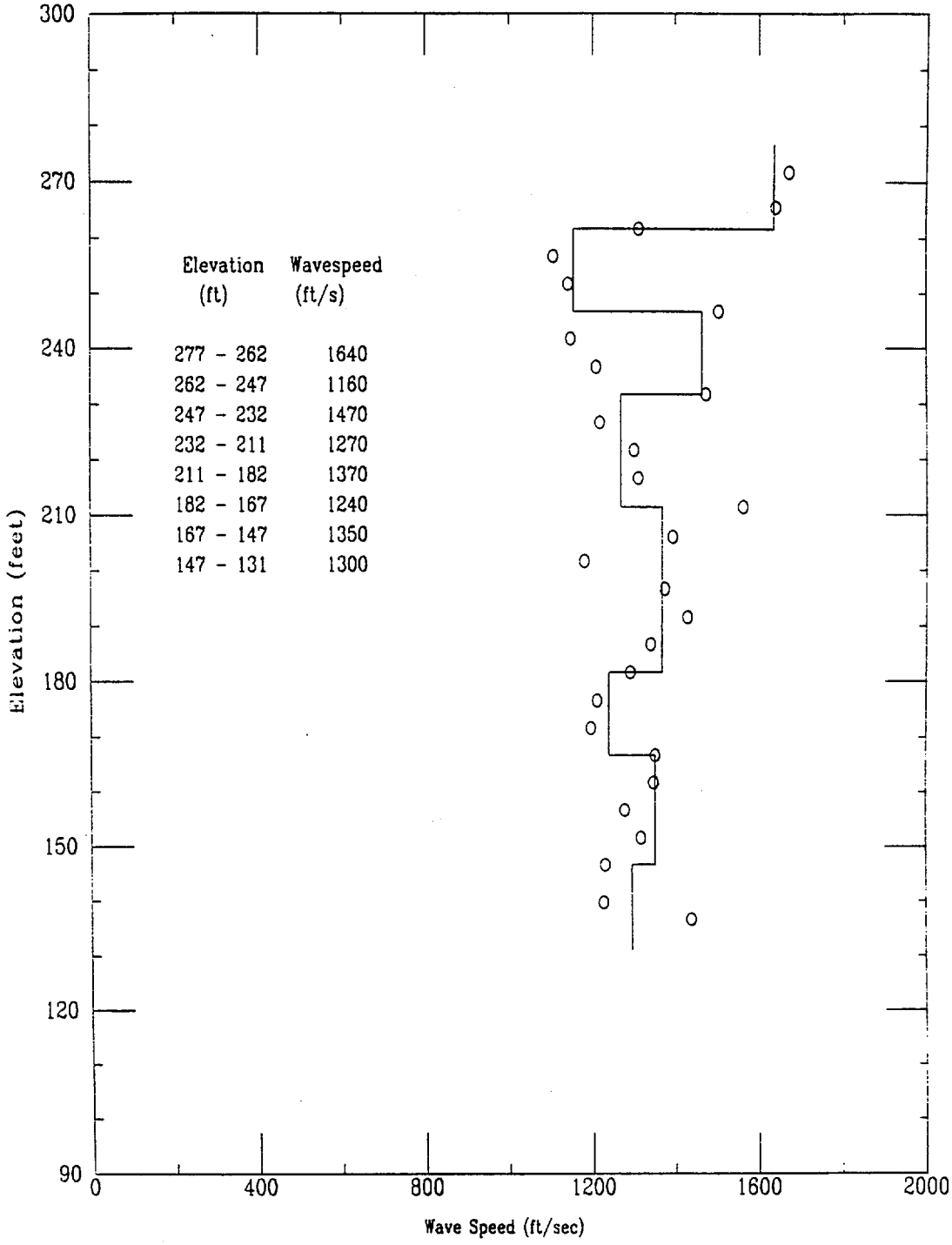


Distance (feet)	Wavespeed (ft/s)
20 - 35	1640
35 - 50	1160
50 - 64	1470
64 - 85	1270
85 - 114	1370
114 - 129	1240
129 - 149	1350
149 - 165	1300

FILE 405u005S

CPT-13S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

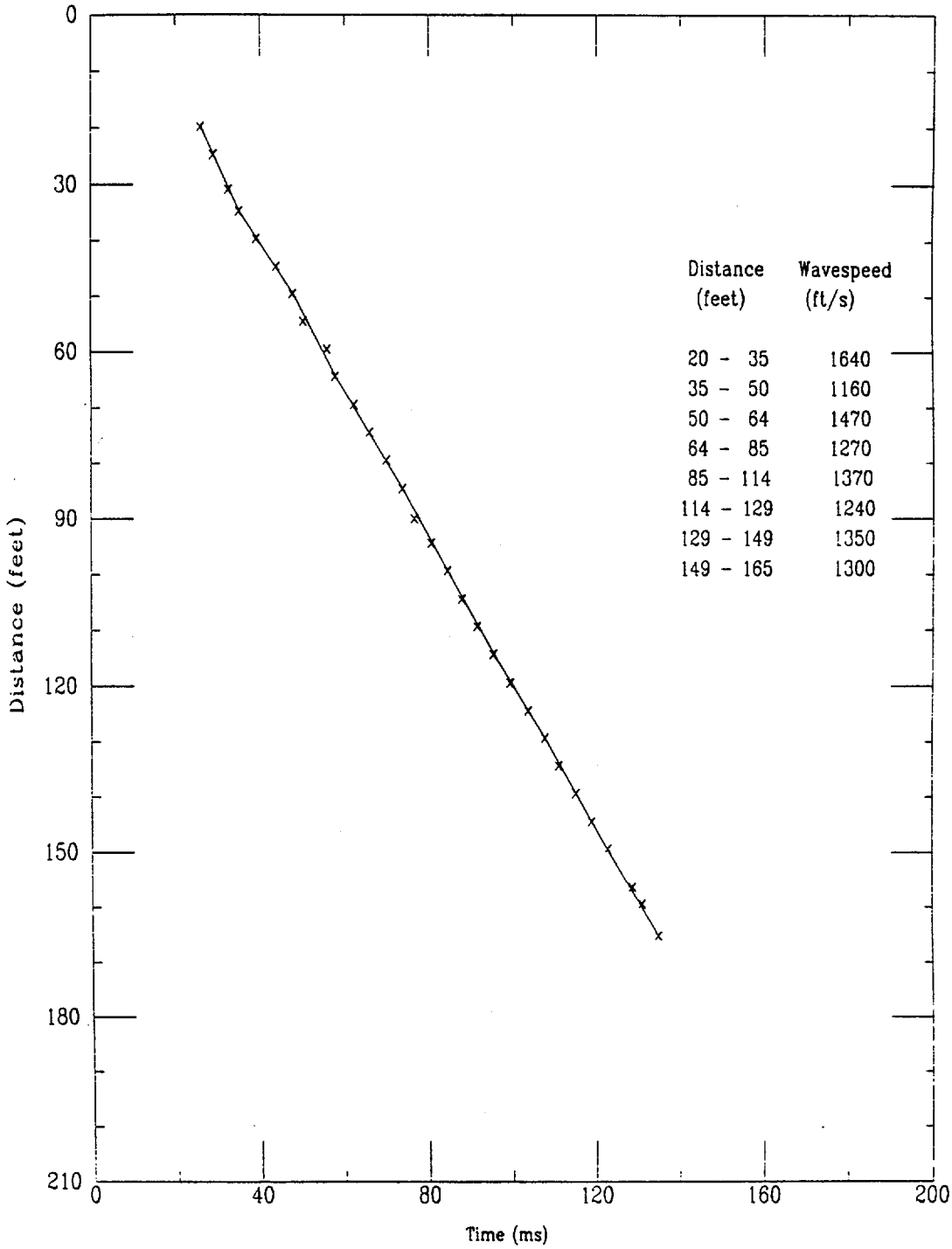
Shear Wave Speeds



File 405u005S

CPT-13S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

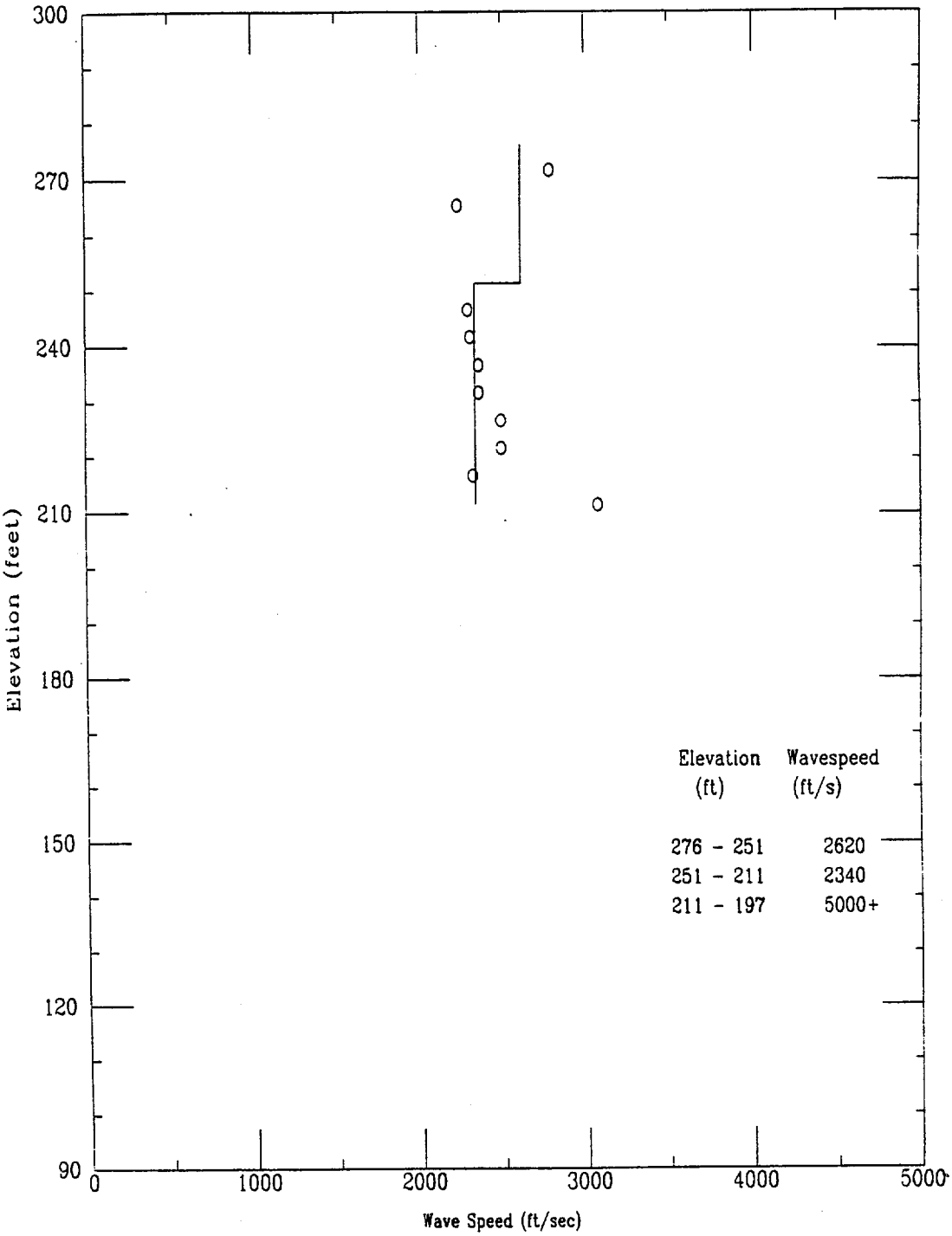
Shear Wave Time of Peak



FILE 405u005S

CPT-13S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

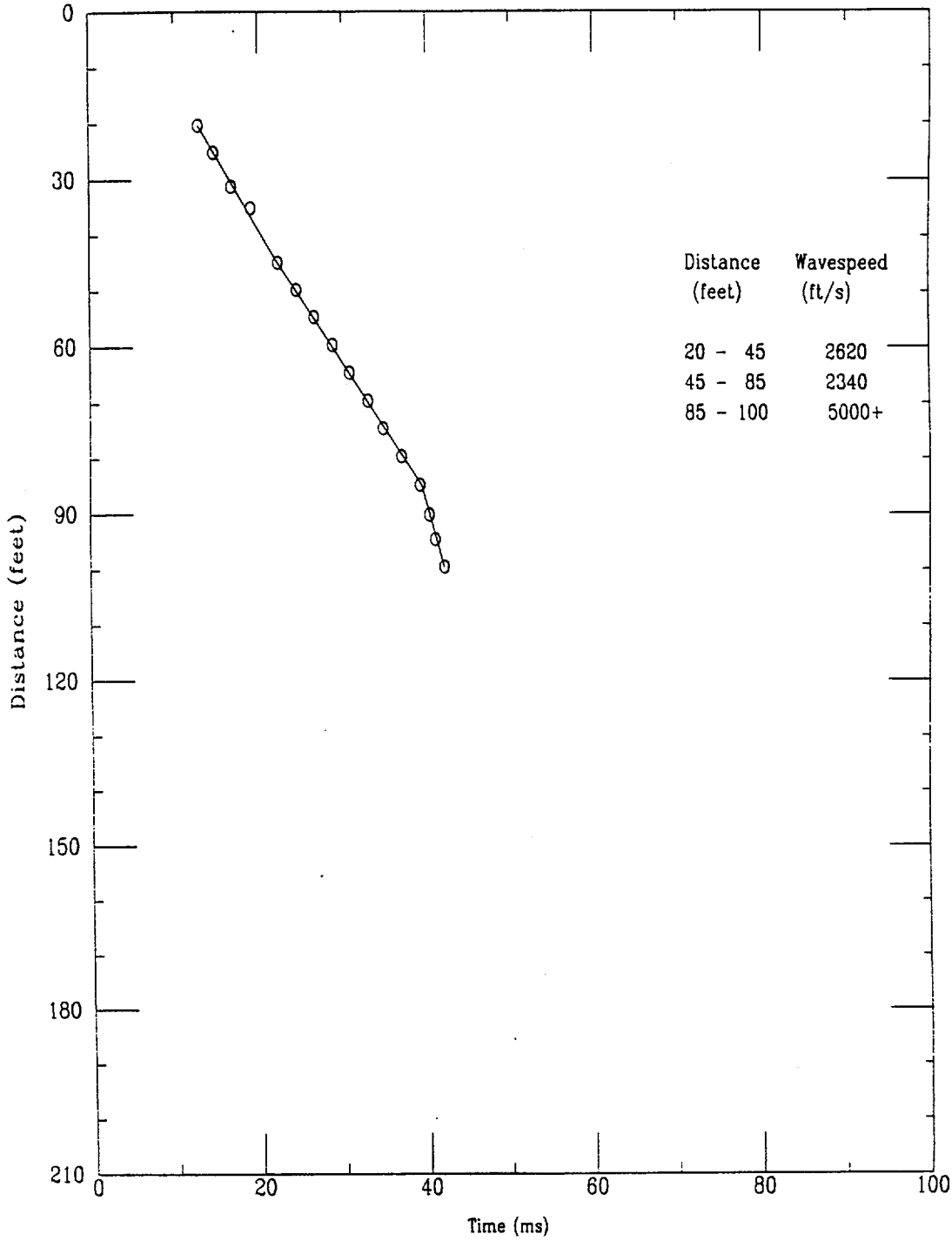
Compression Wave Speeds



File 405u005S

CPT-13S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

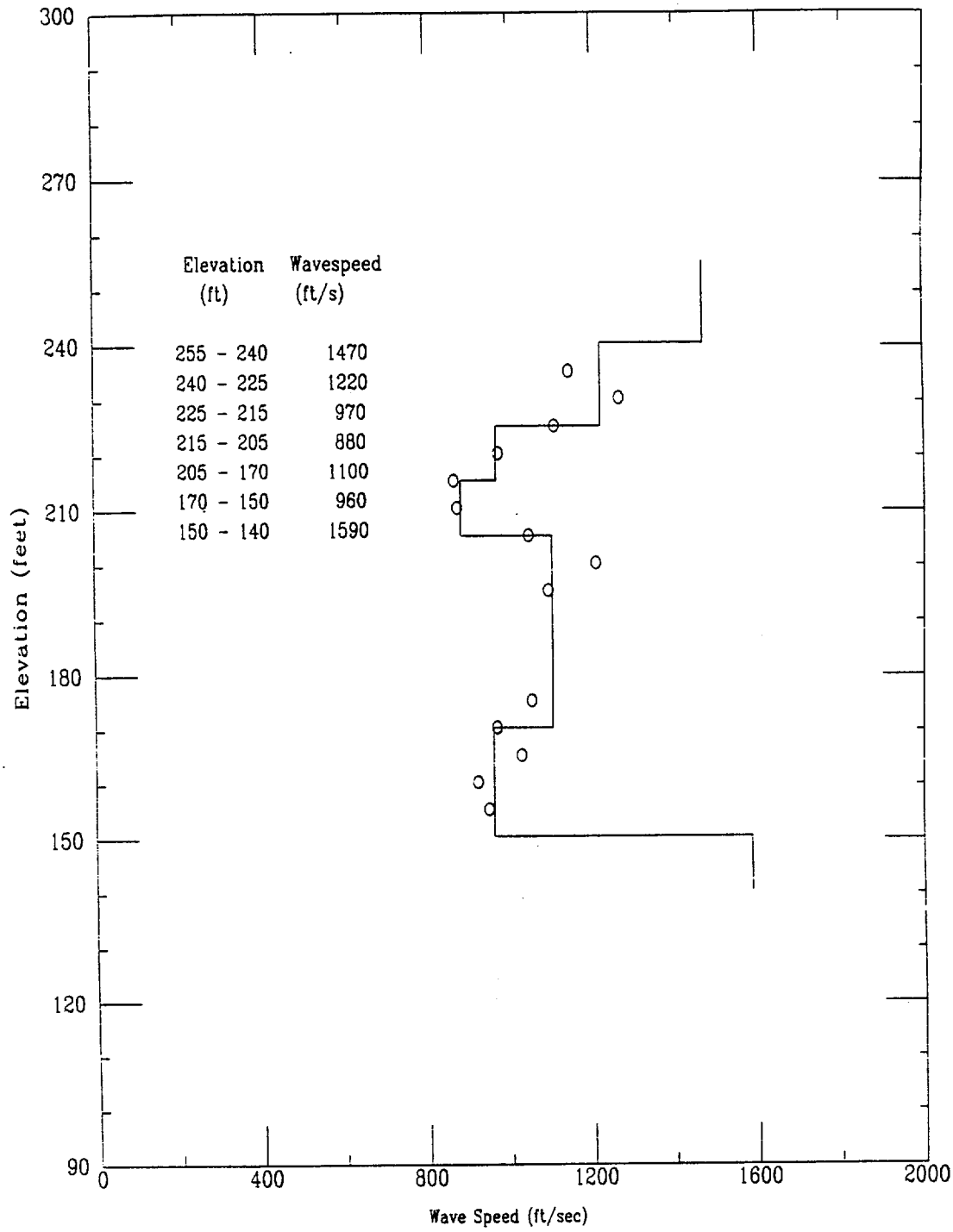
Compression Wave Time of Peak



File 405u005S

CPT-16S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

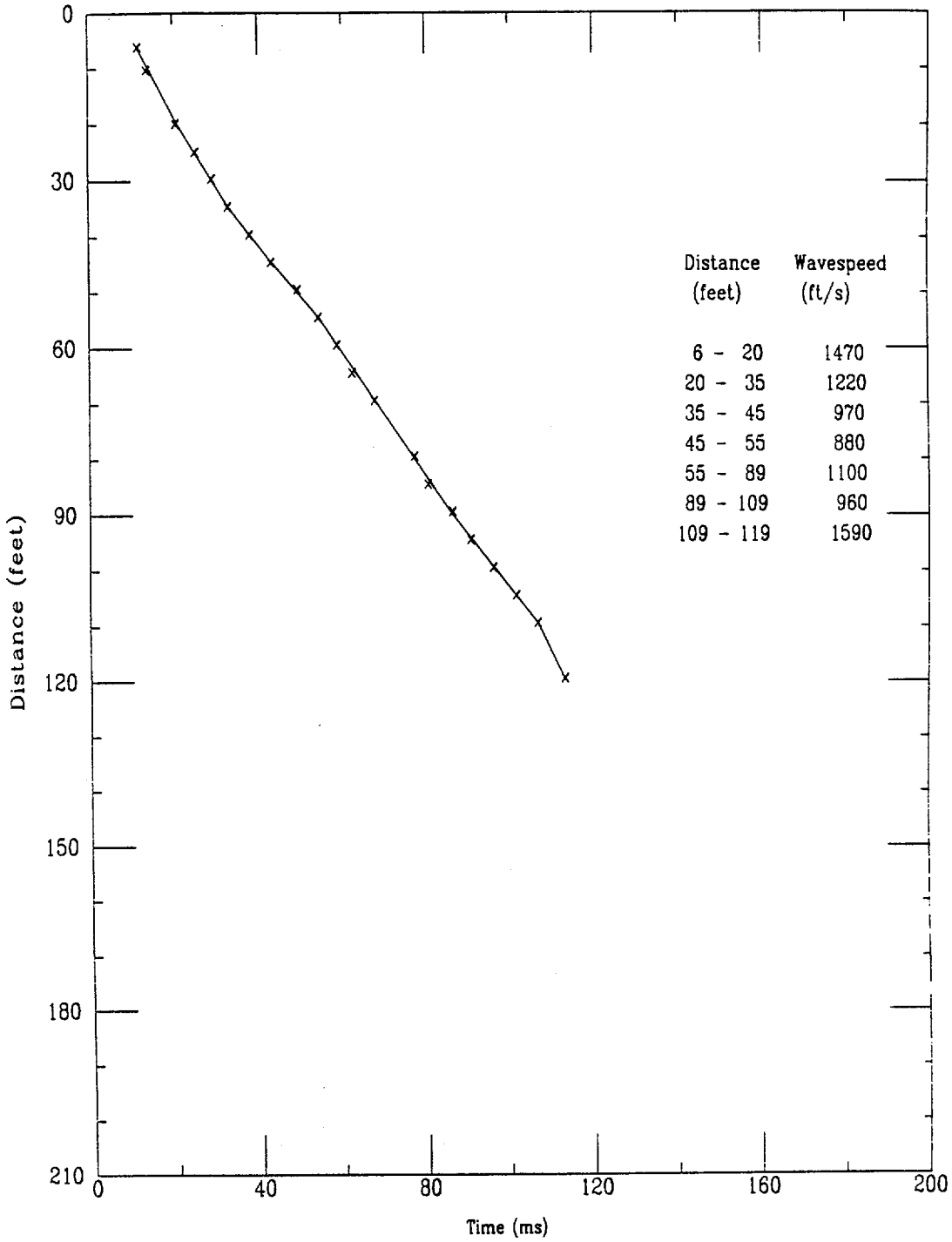
Shear Wave Speeds



File 408u001S

CPT-16S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

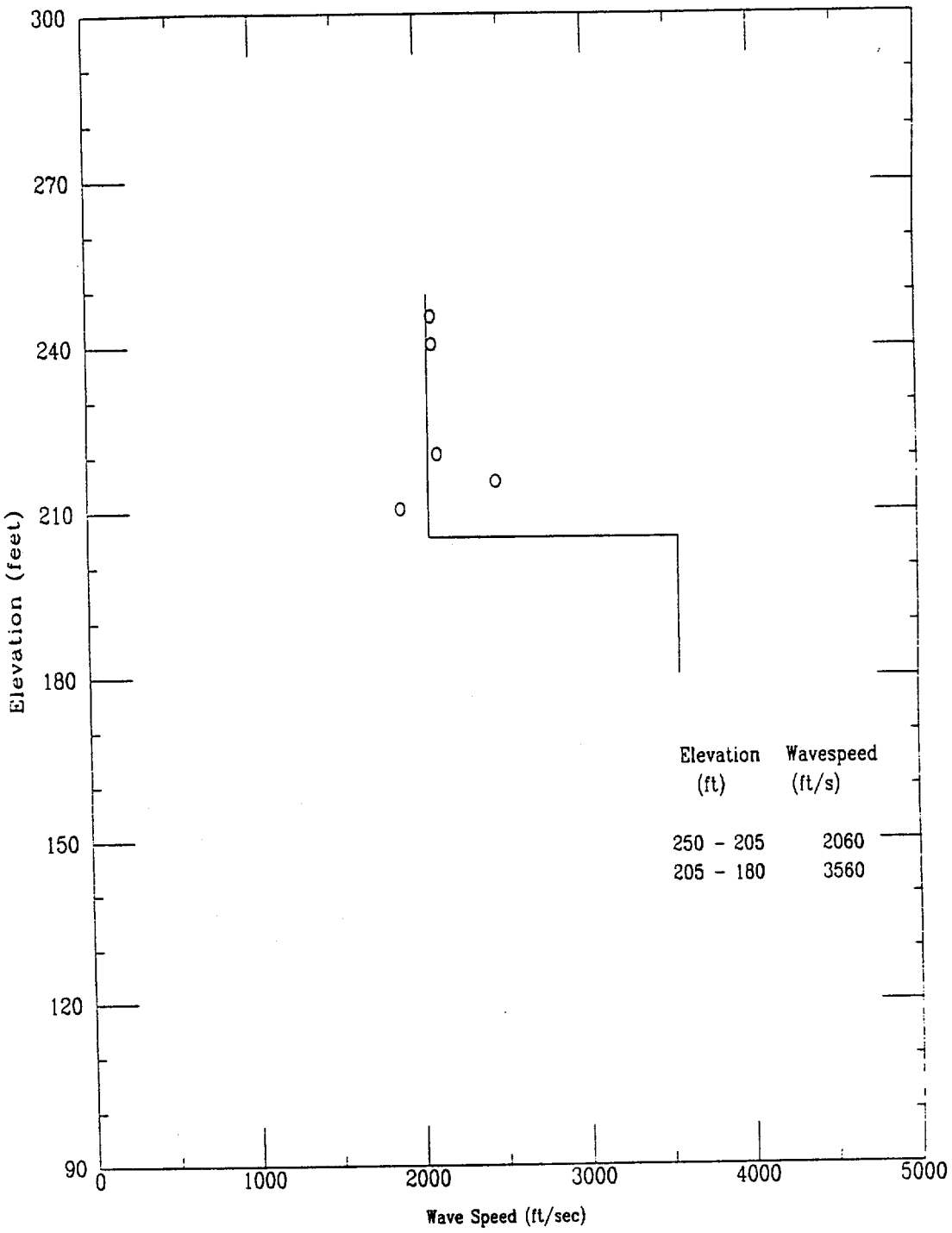
Shear Wave Time of Peak



FILE 408u001S

CPT-16S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

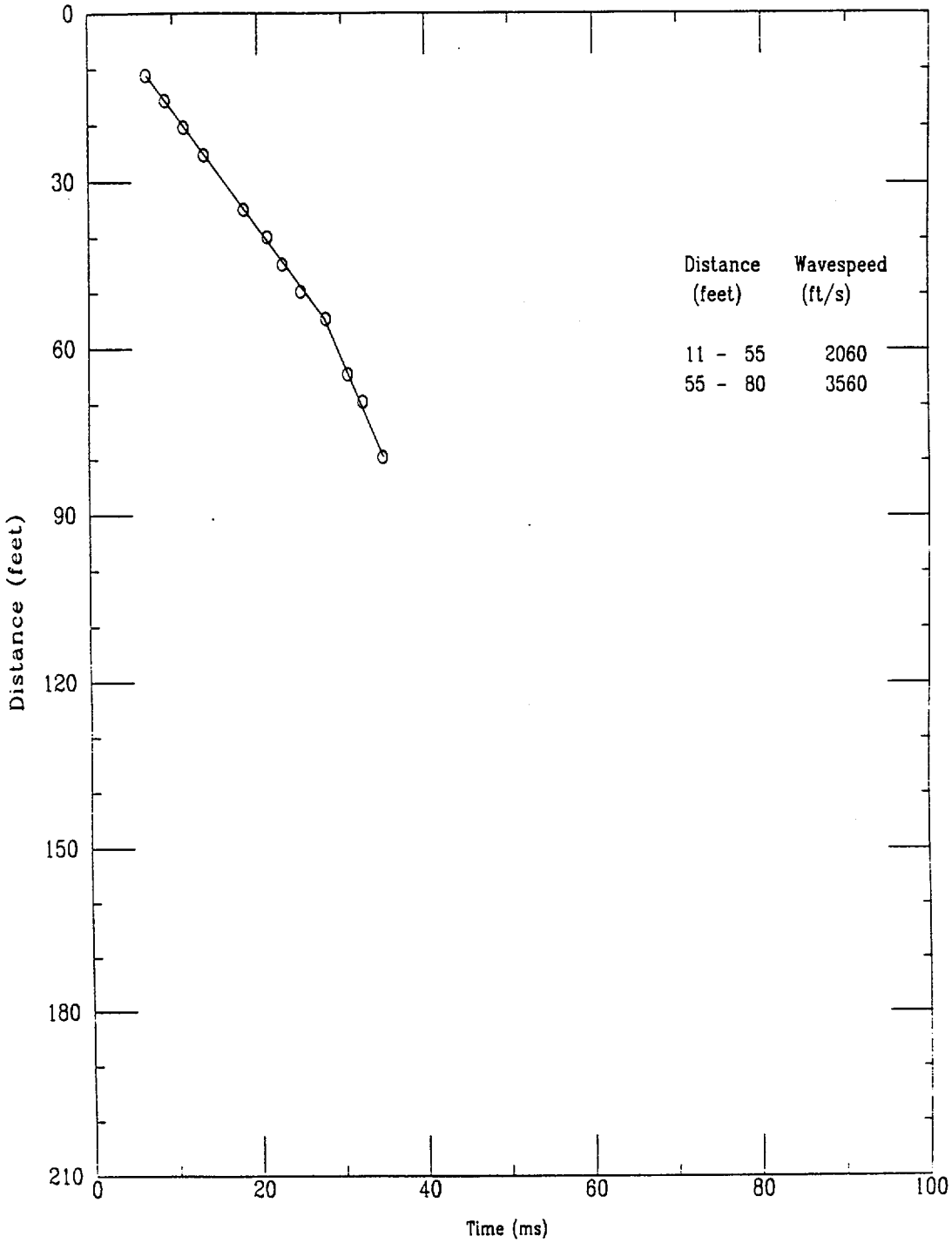
Compression Wave Speeds



File 408u001S

CPT-16S APPLIED RESEARCH ASSOCIATES, INC. 06/08/00

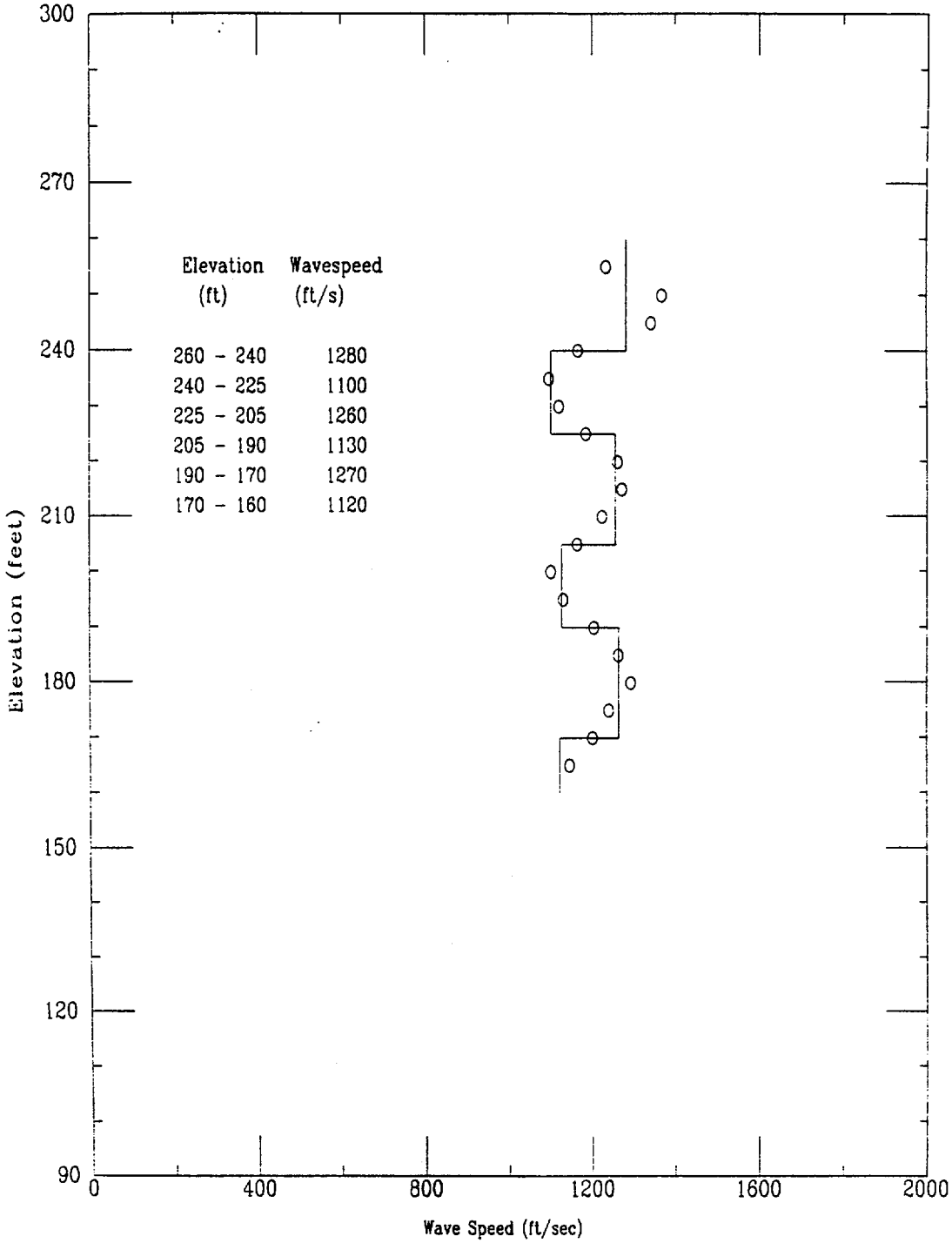
Compression Wave Time of Peak



File 408u001S

CPT-19S APPLIED RESEARCH ASSOCIATES, INC. 06/03/00

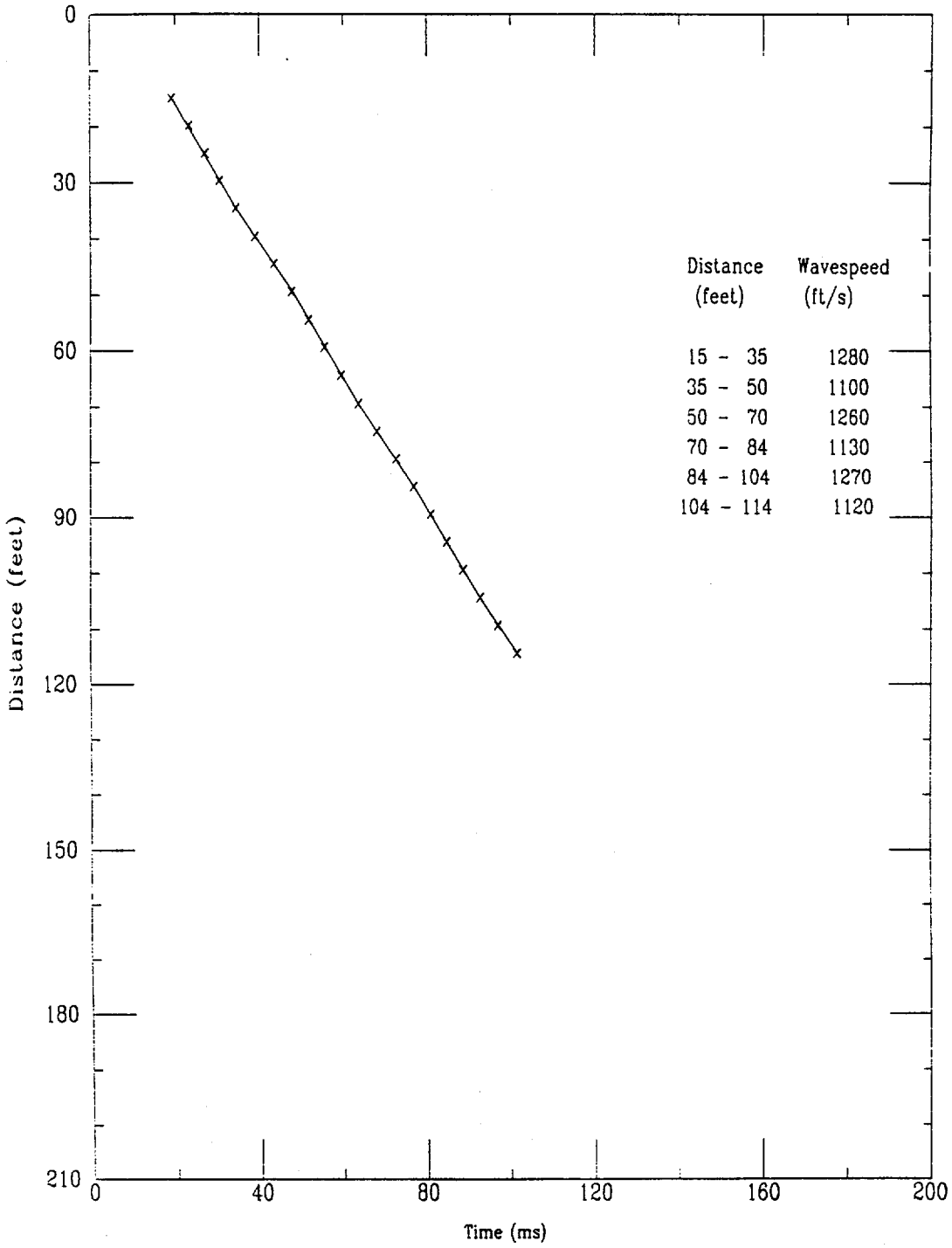
Shear Wave Speeds



File 403u002S

CPT-19S APPLIED RESEARCH ASSOCIATES, INC. 06/03/00

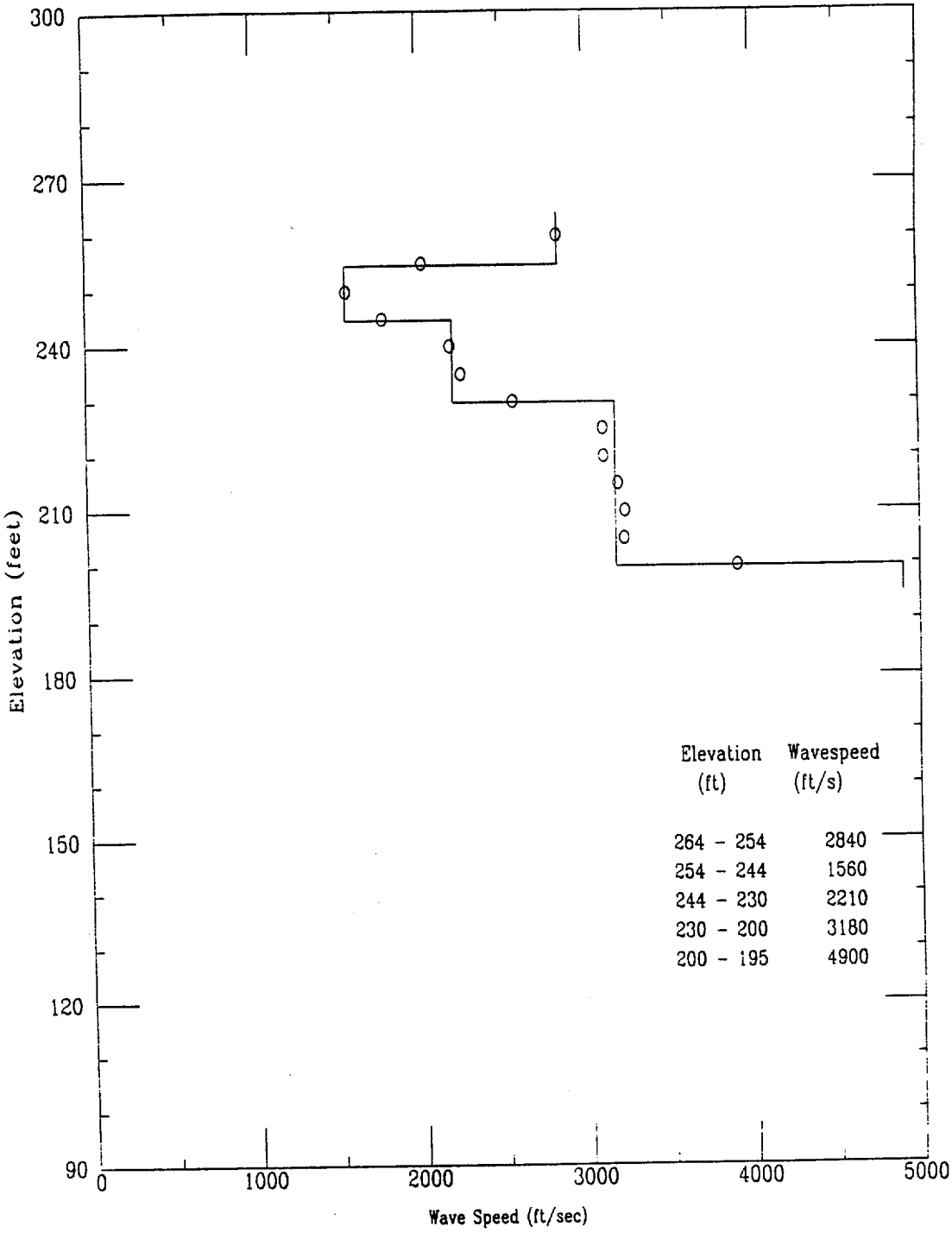
Shear Wave Time of Peak



FILE 403u002S

CPT-19S APPLIED RESEARCH ASSOCIATES, INC. 06/03/00

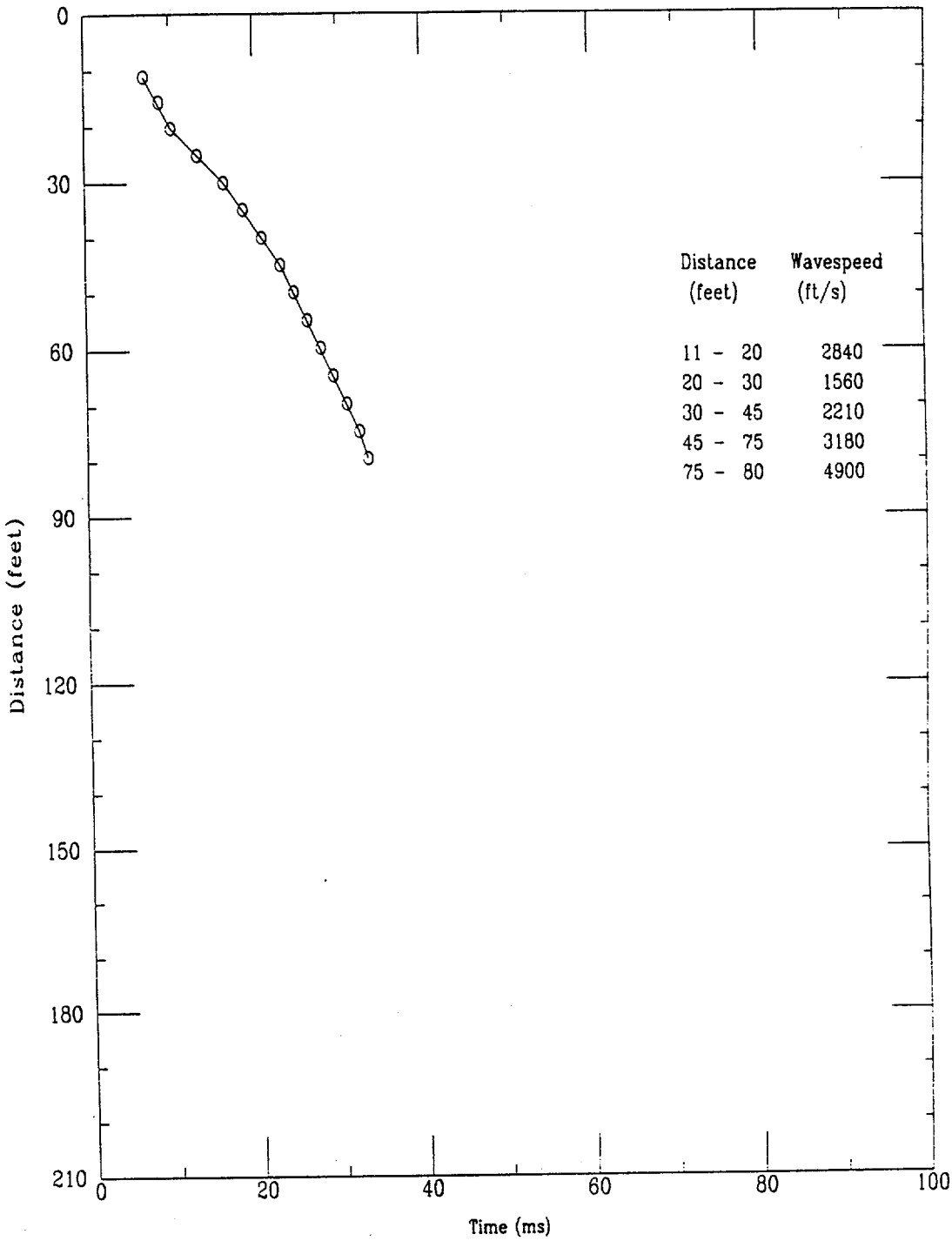
Compression Wave Speeds



File 403u002S

CPT-19S APPLIED RESEARCH ASSOCIATES, INC. 06/03/00

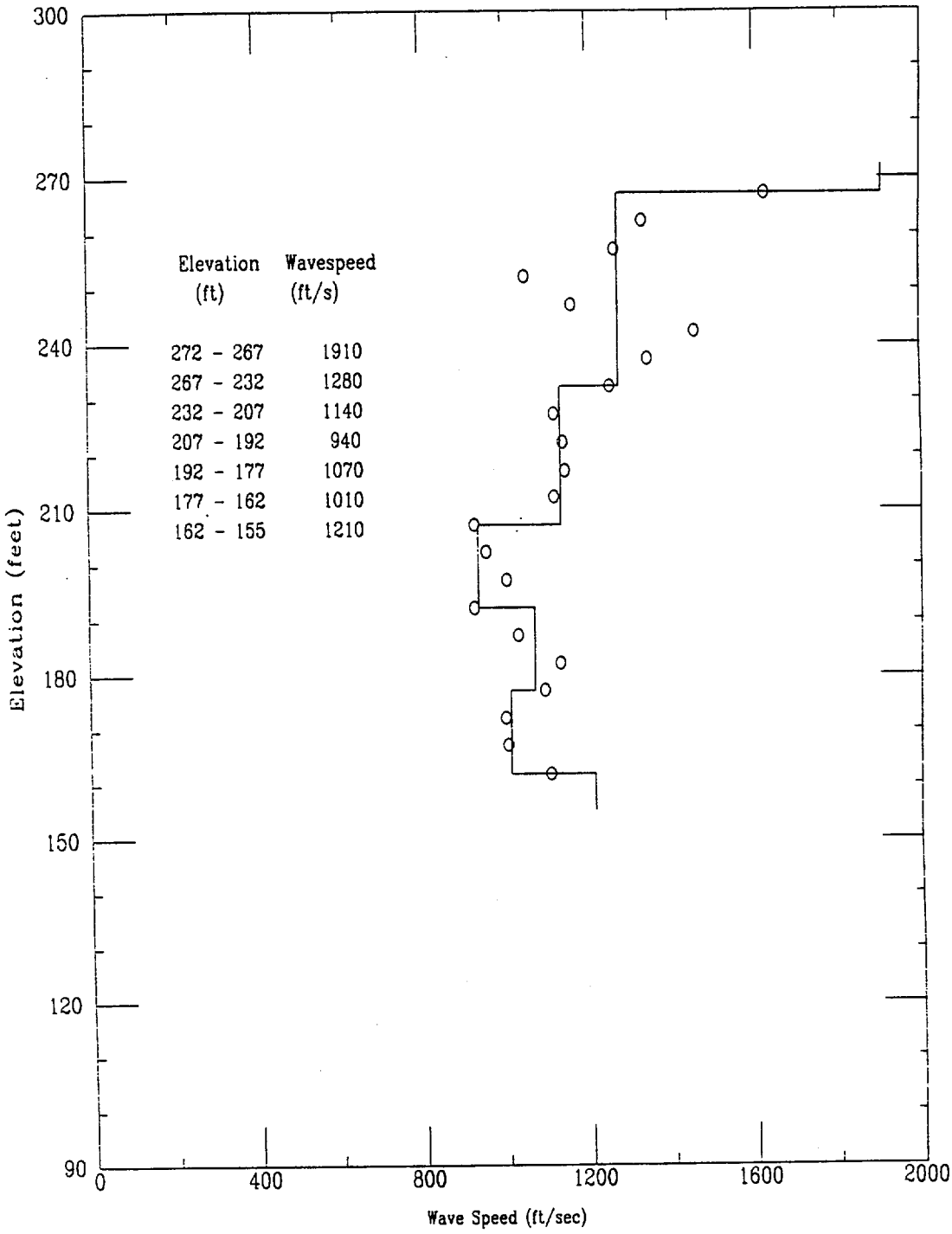
Compression Wave Time of Peak



File 403u002S

CPT-23S APPLIED RESEARCH ASSOCIATES, INC. 06/06/00

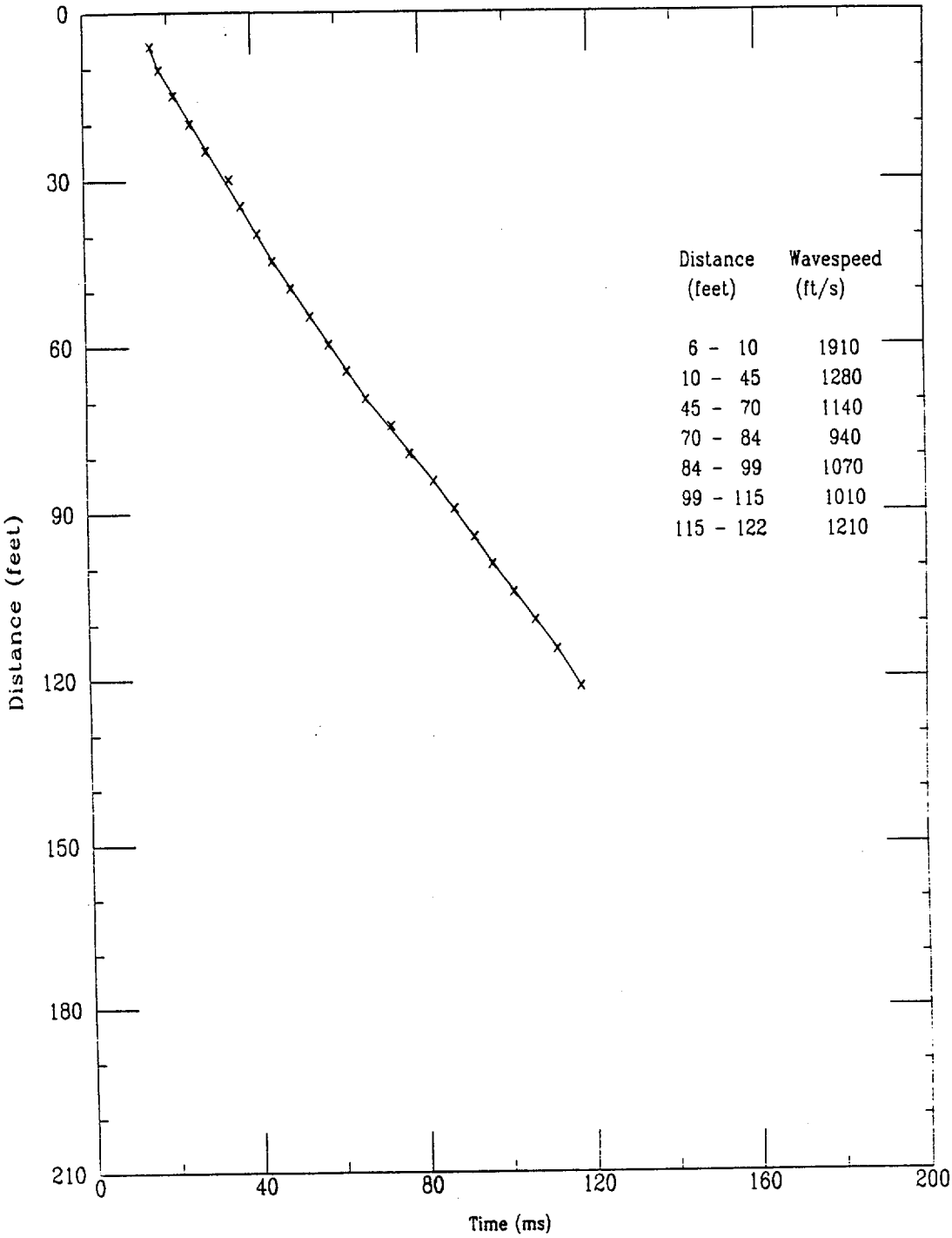
Shear Wave Speeds



File 406u003S

CPT-23S APPLIED RESEARCH ASSOCIATES, INC. 06/06/00

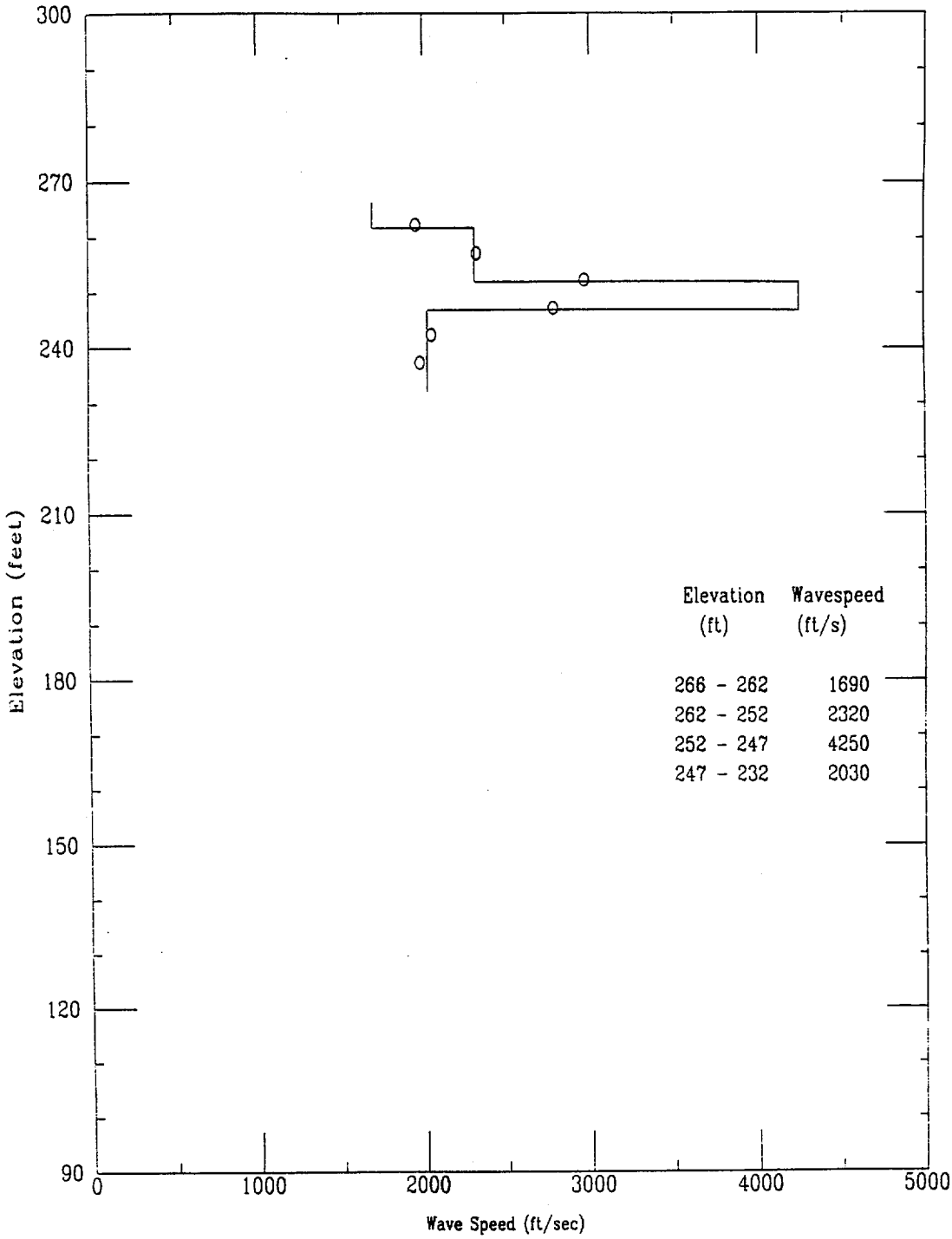
Shear Wave Time of Peak



FILE 406u003S

CPT-23S APPLIED RESEARCH ASSOCIATES, INC. 06/06/00

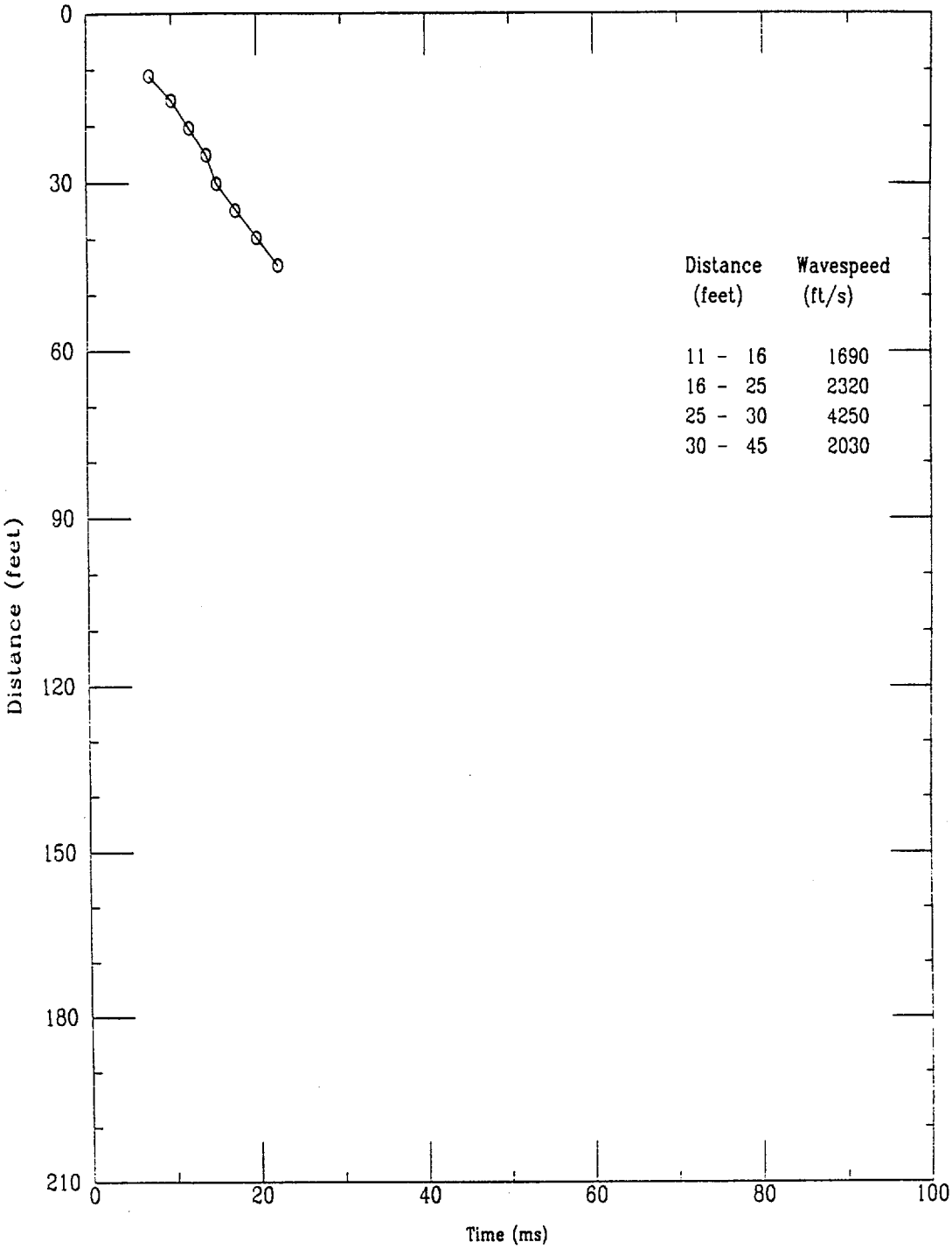
Compression Wave Speeds



File 406u003S

CPT-23S APPLIED RESEARCH ASSOCIATES, INC. 06/06/00

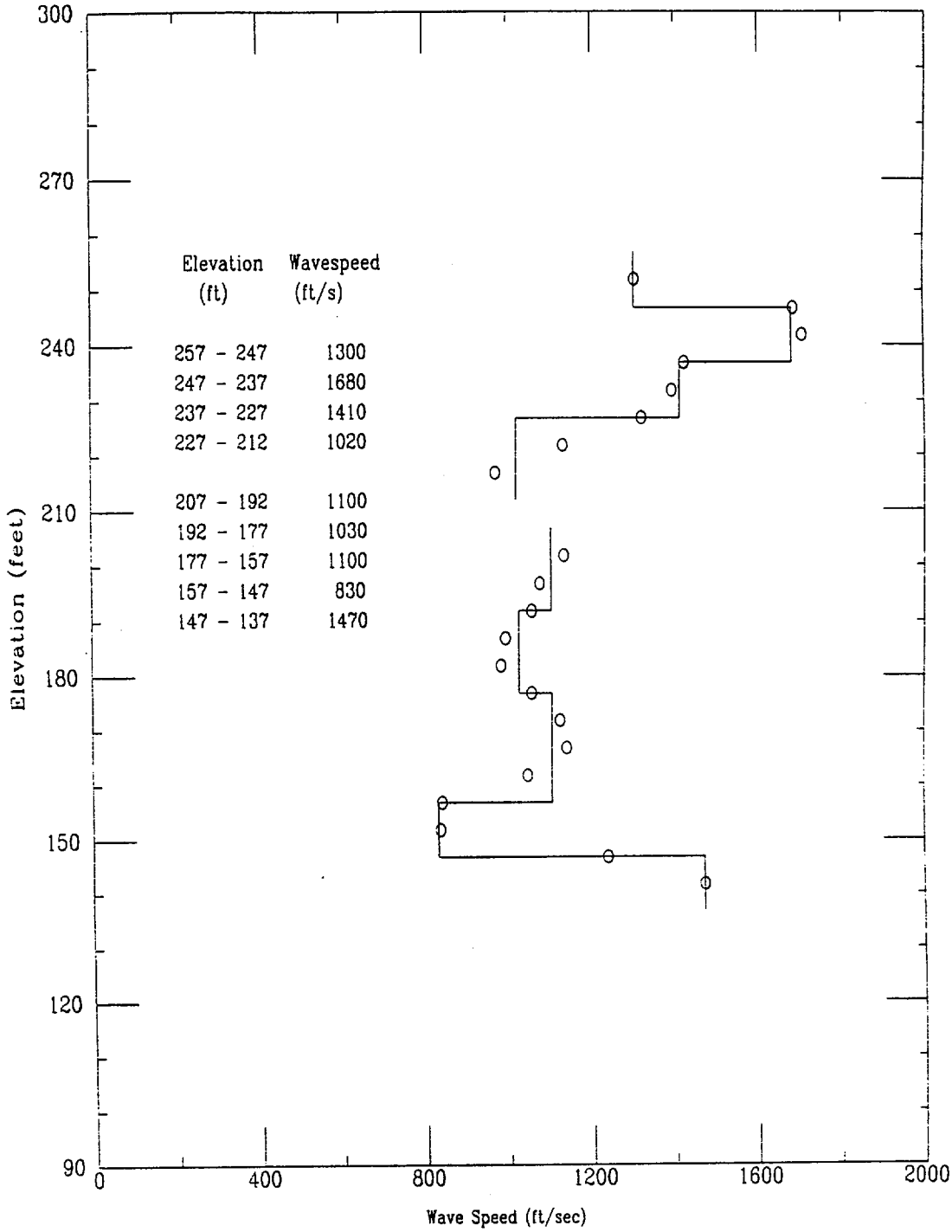
Compression Wave Time of Peak



File 406u003S

CPT-26S APPLIED RESEARCH ASSOCIATES, INC. 06/06/00

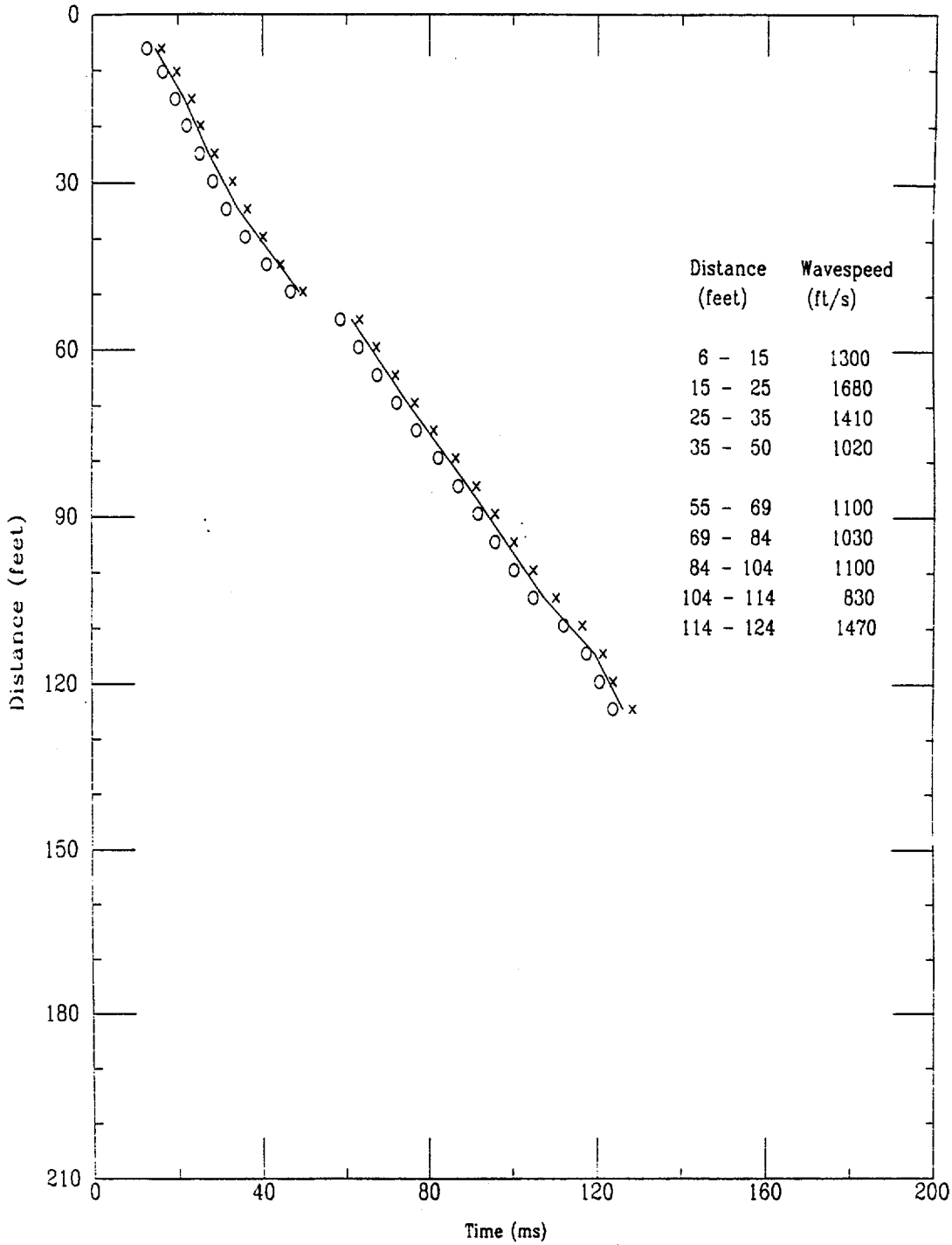
Shear Wave Speeds



File 406u001S

CPT-26S APPLIED RESEARCH ASSOCIATES, INC. 06/06/00

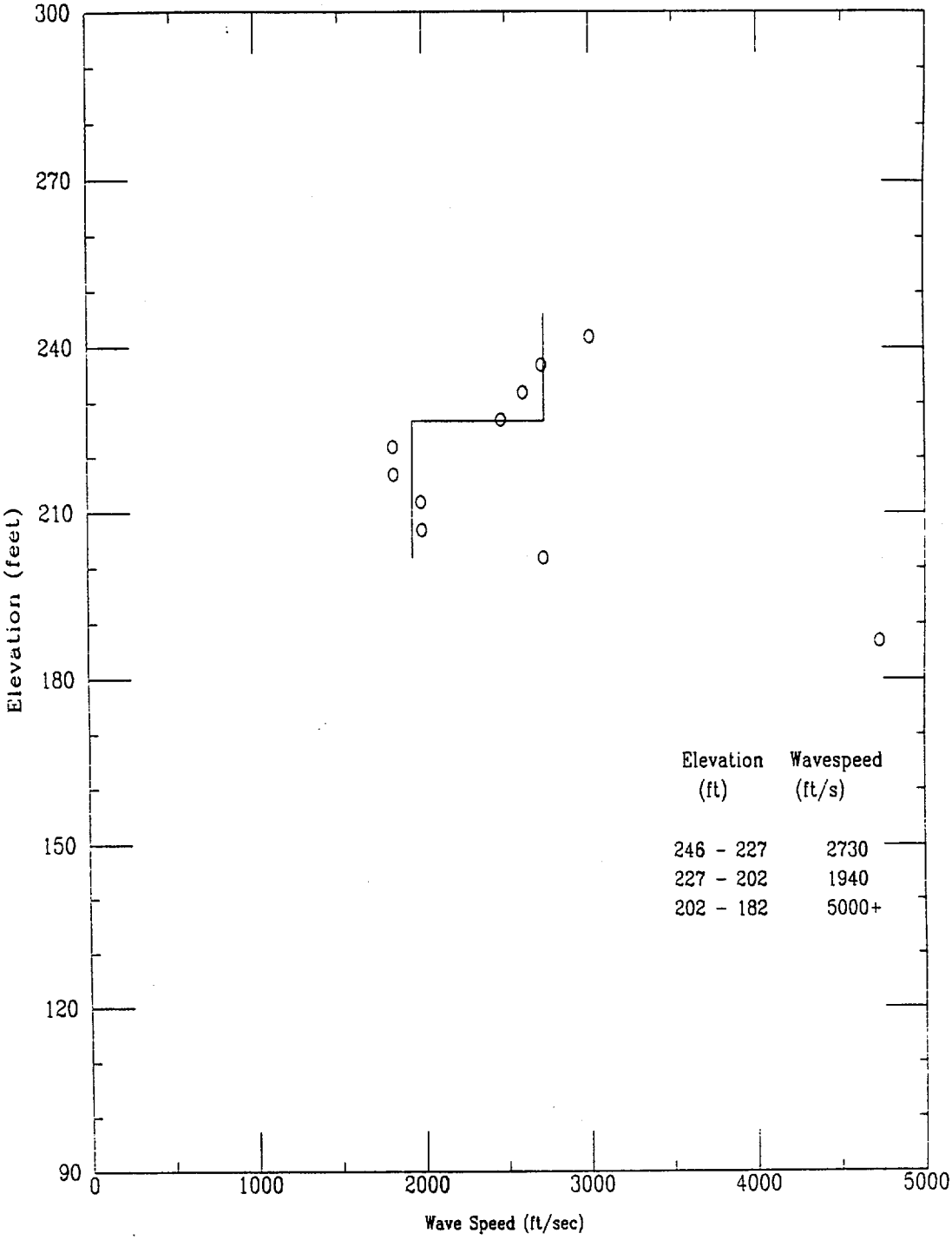
Shear Wave Time of Peak



FILE 406u001S

CPT-26S APPLIED RESEARCH ASSOCIATES, INC. 06/06/00

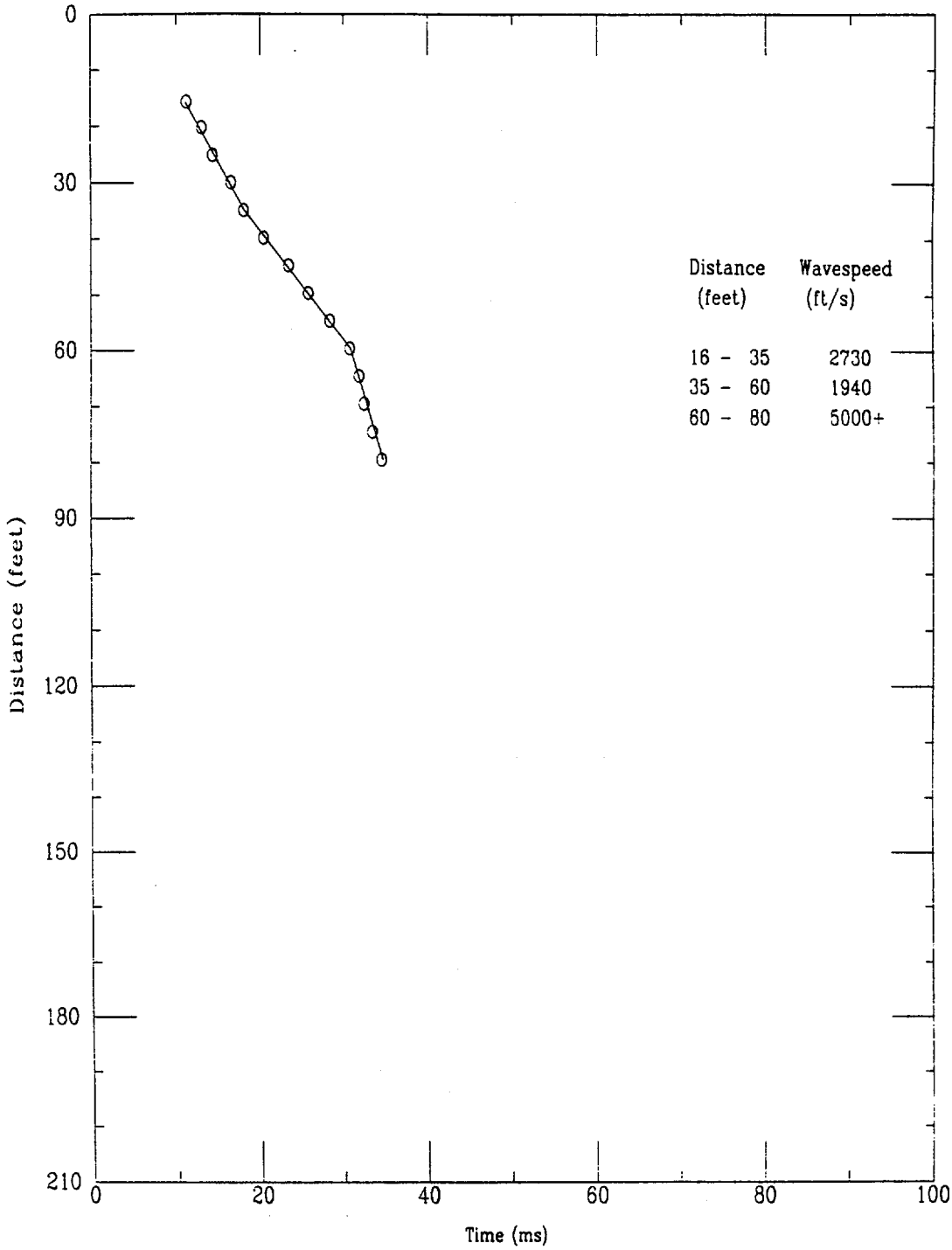
Compression Wave Speeds



File 406u001S

CPT-26S APPLIED RESEARCH ASSOCIATES, INC. 06/06/00

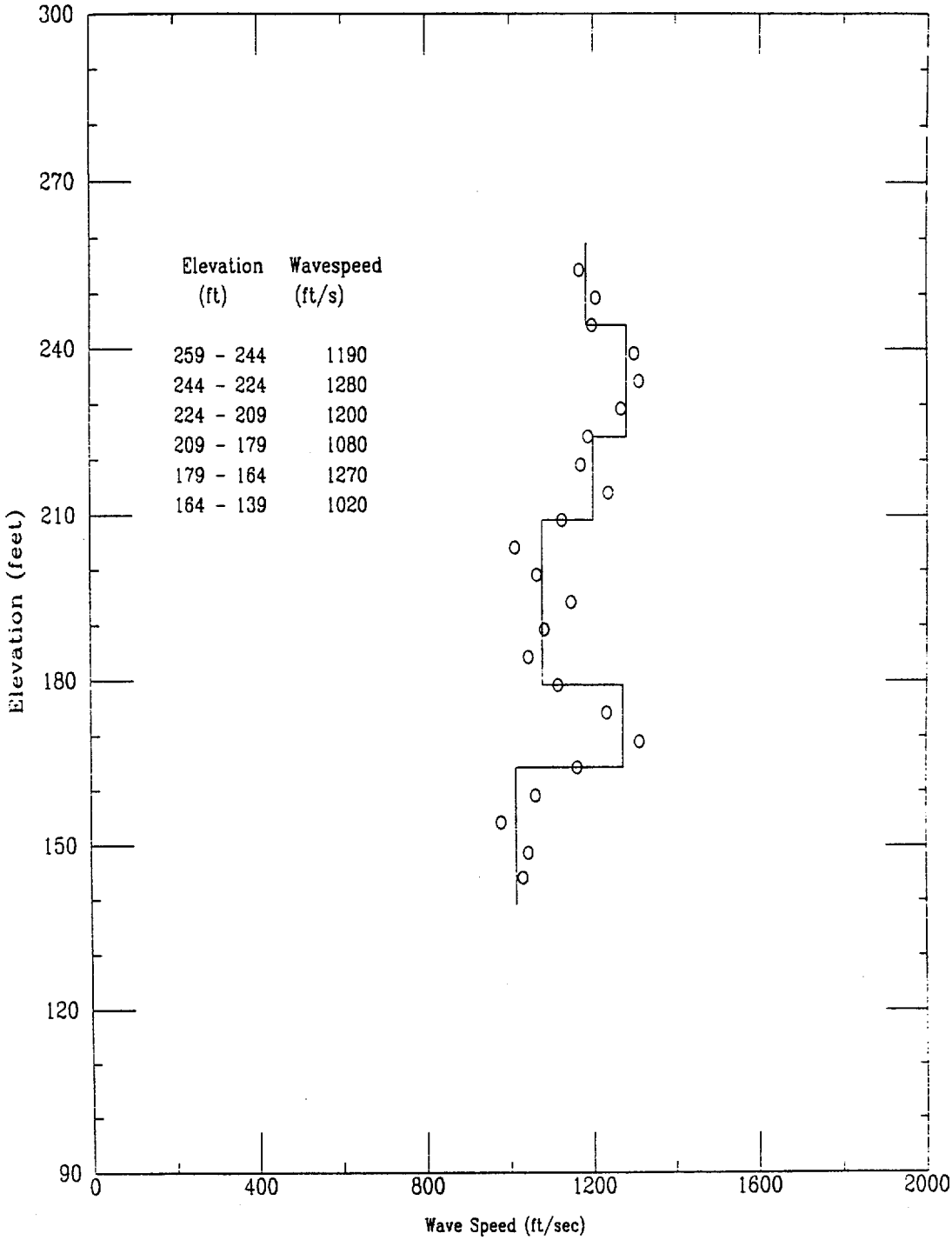
Compression Wave Time of Peak



File 406u001S

SCPT-28S APPLIED RESEARCH ASSOCIATES, INC. 05/31/00

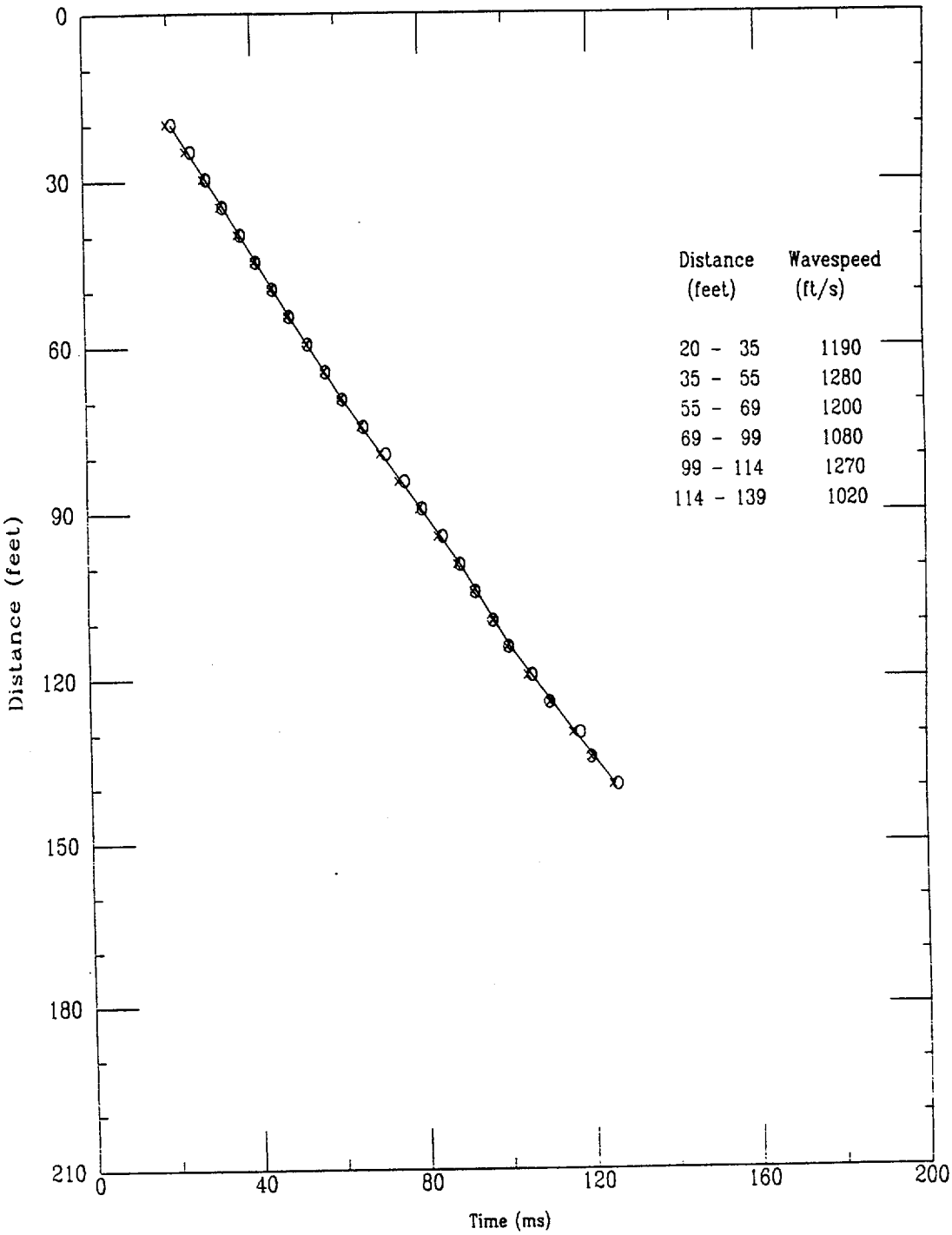
Shear Wave Speeds



File 431y006S

SCPT-28S APPLIED RESEARCH ASSOCIATES, INC. 05/31/00

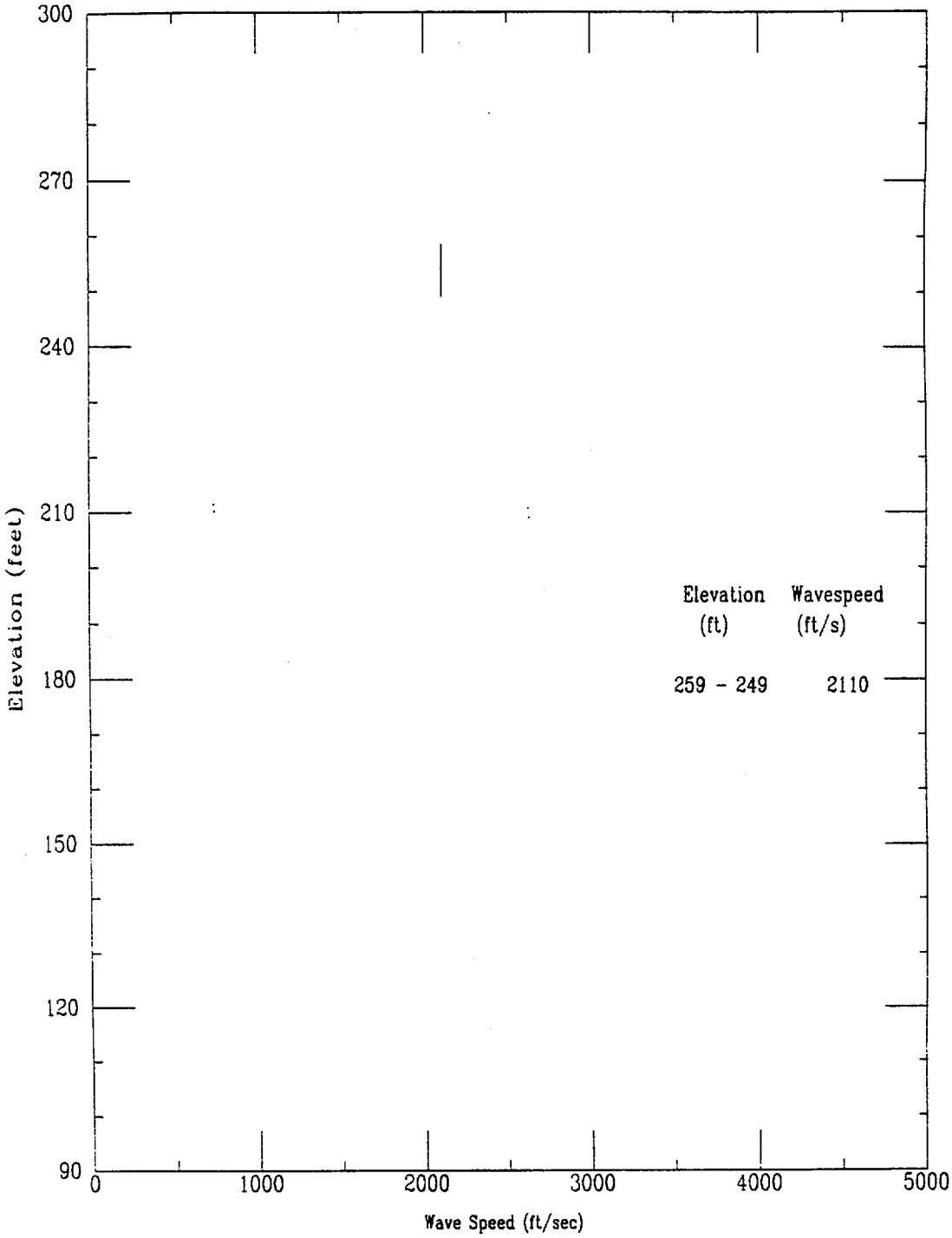
Shear Wave Time of Peak



File 431y006S

SCPT-28S APPLIED RESEARCH ASSOCIATES, INC. 05/31/00

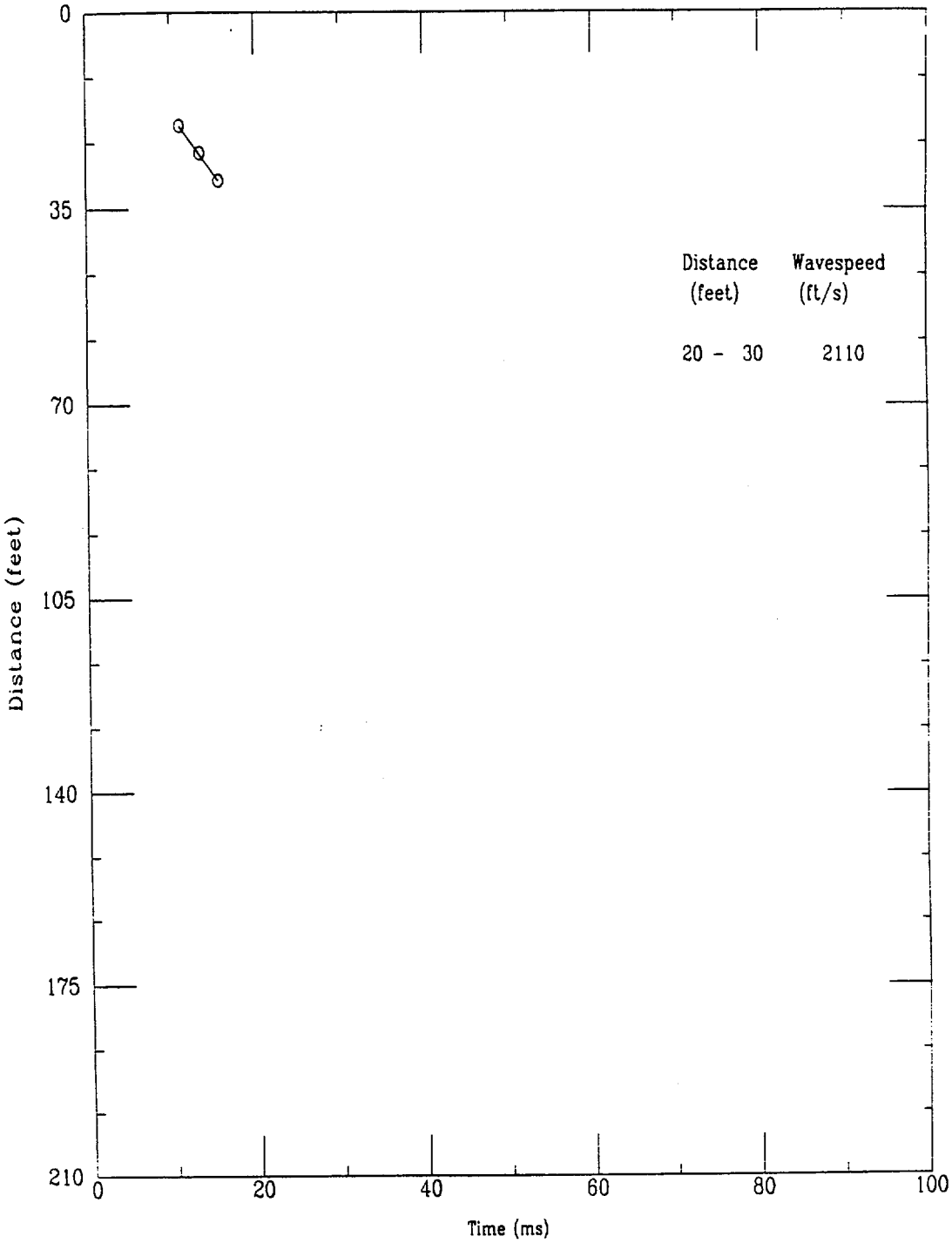
Compression Wave Speeds



File 431y006S

SCPT-28S APPLIED RESEARCH ASSOCIATES, INC. 05/31/00

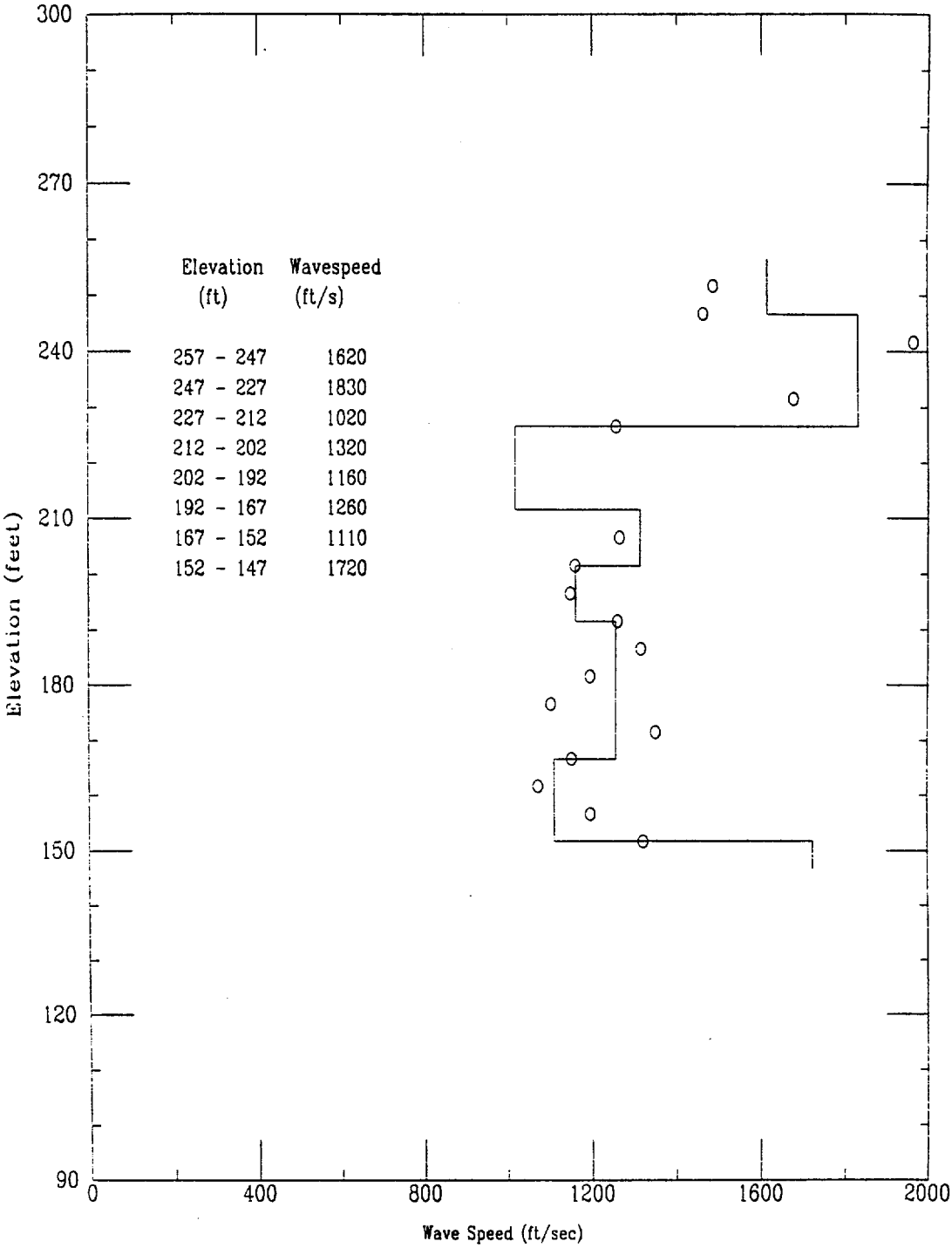
Compression Wave Time of Peak



File 431y006S

CPT-31S APPLIED RESEARCH ASSOCIATES, INC. 06/01/00

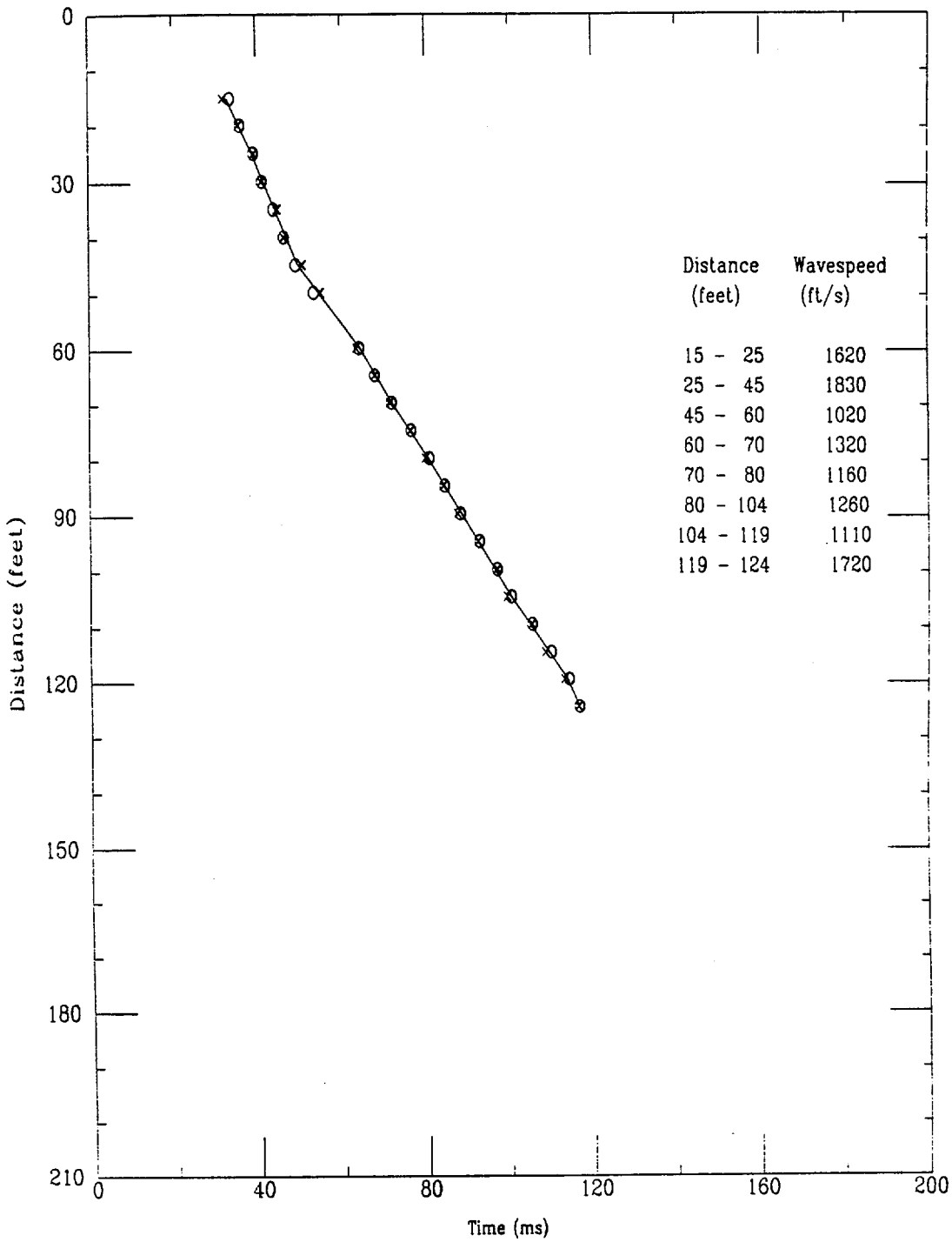
Shear Wave Speeds



File 401u002S

CPT-31S APPLIED RESEARCH ASSOCIATES, INC. 06/01/00

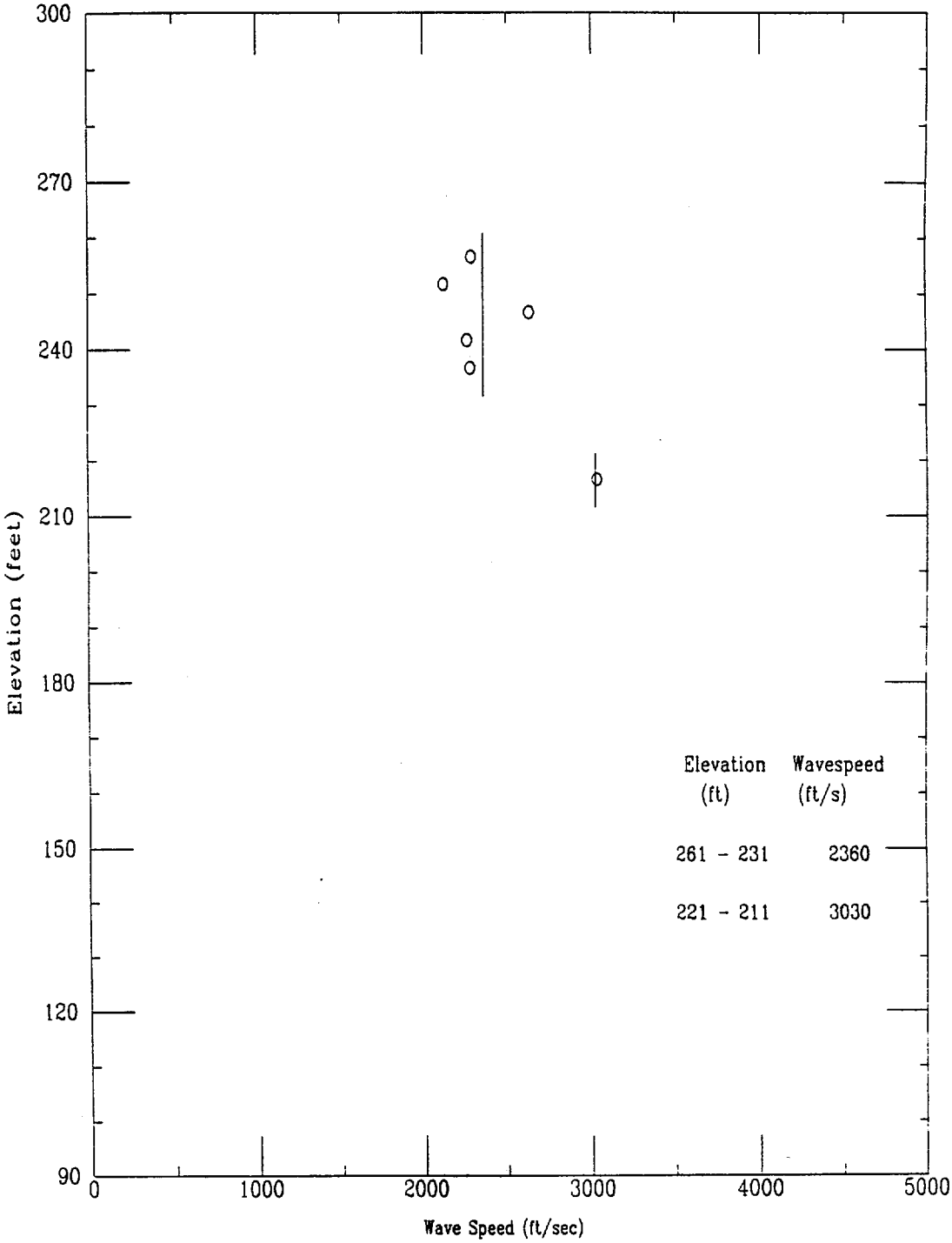
Shear Wave Time of Peak



File 401u002S

CPT-31S APPLIED RESEARCH ASSOCIATES, INC. 06/01/00

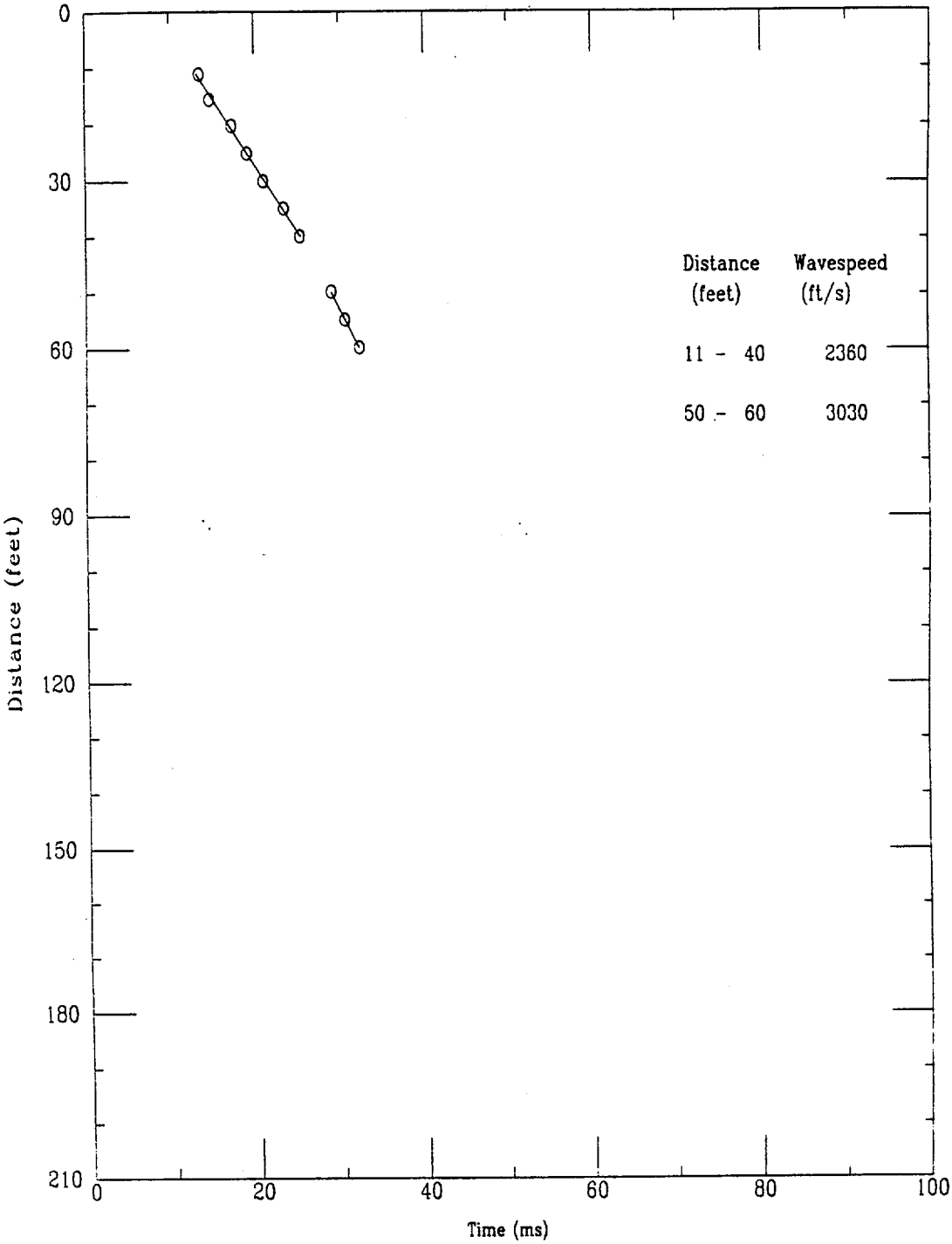
Compression Wave Speeds



File 401u002S

CPT-31S APPLIED RESEARCH ASSOCIATES, INC. 06/01/00

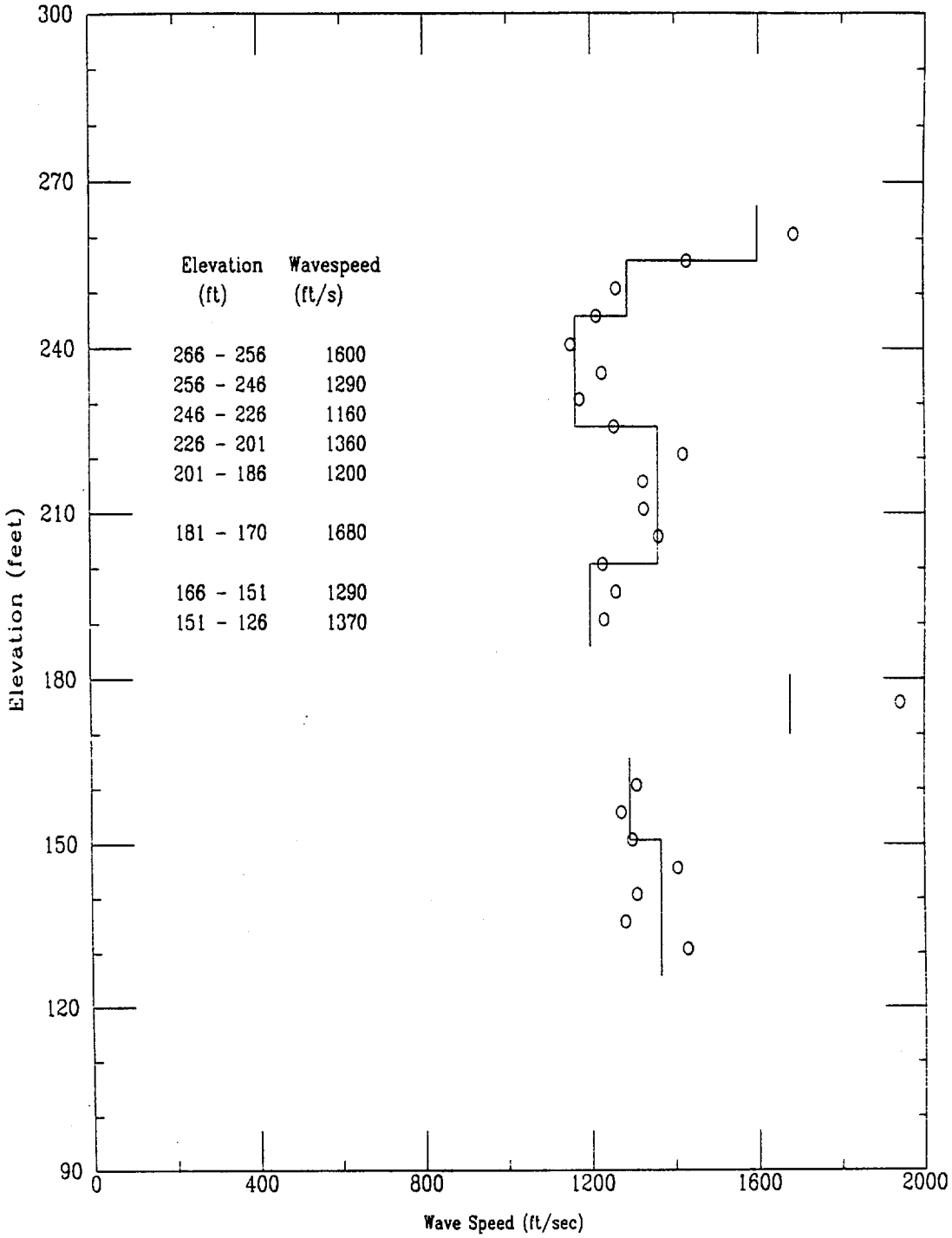
Compression Wave Time of Peak



File 401u002S

CPT-34S APPLIED RESEARCH ASSOCIATES, INC. 06/07/00

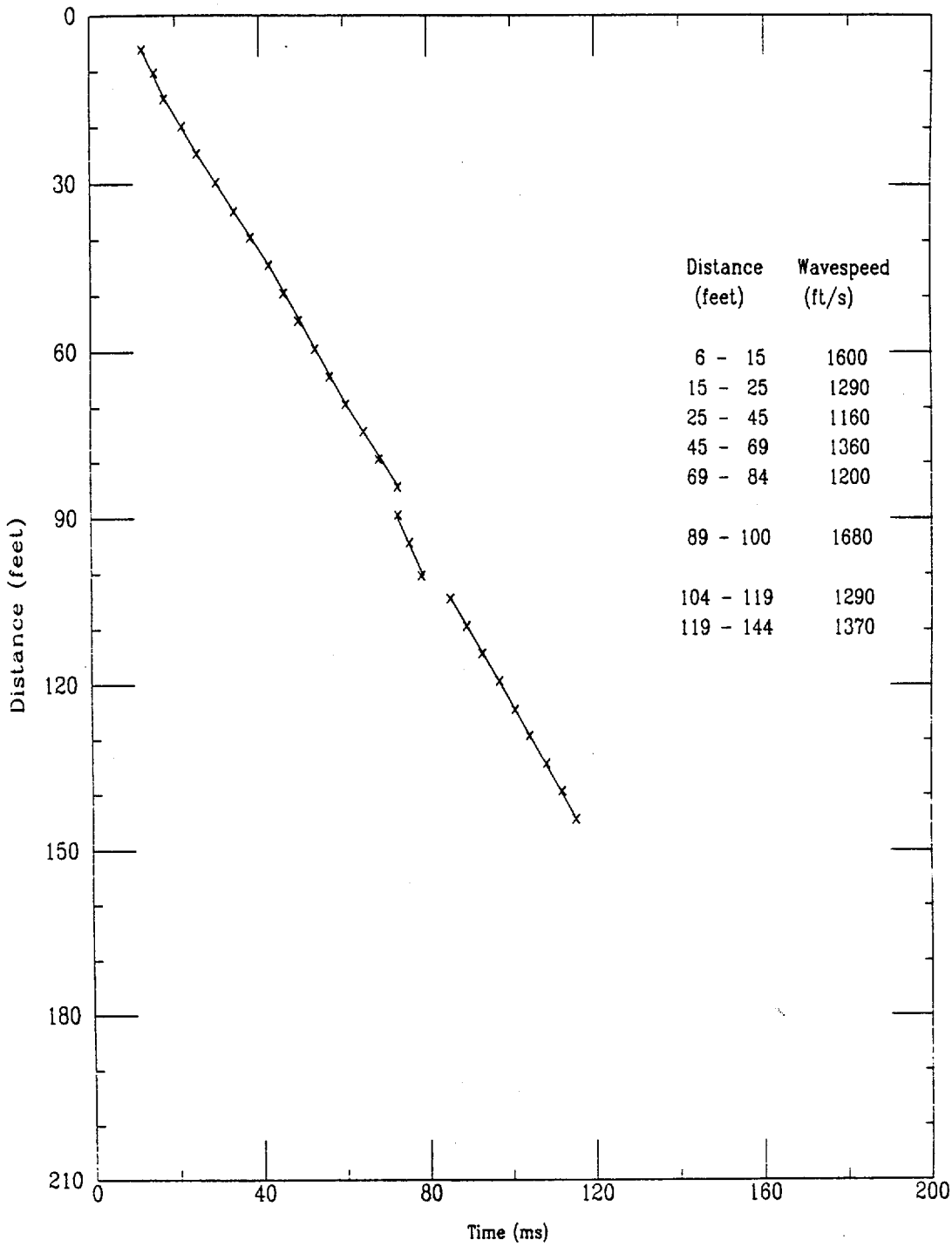
Shear Wave Speeds



File 407U001S

CPT-34S APPLIED RESEARCH ASSOCIATES, INC. 06/07/00

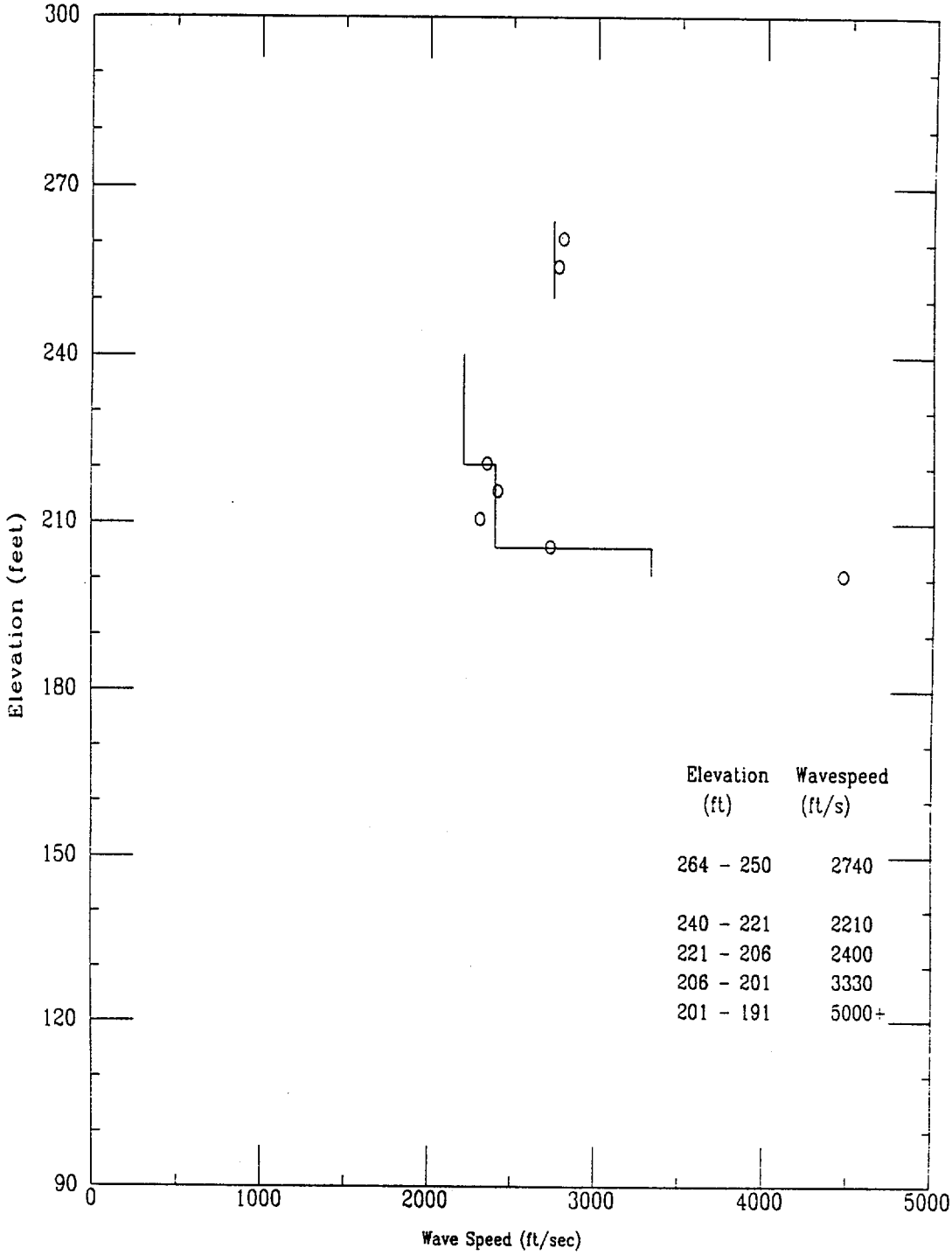
Shear Wave Time of Peak



FILE 407U001S

CPT-34S APPLIED RESEARCH ASSOCIATES, INC. 06/07/00

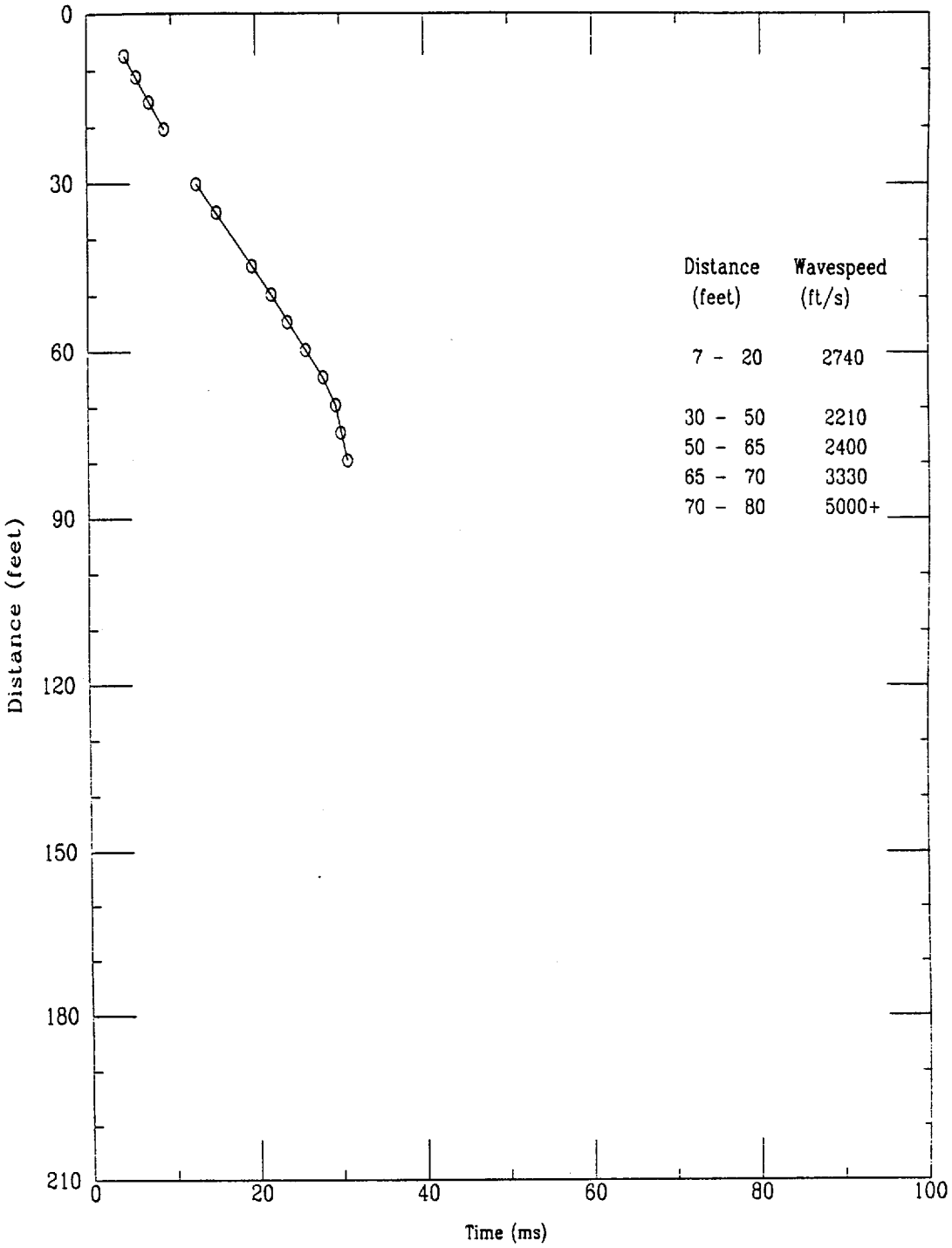
Compression Wave Speeds



File 407u001S

CPT-34S APPLIED RESEARCH ASSOCIATES, INC. 06/07/00

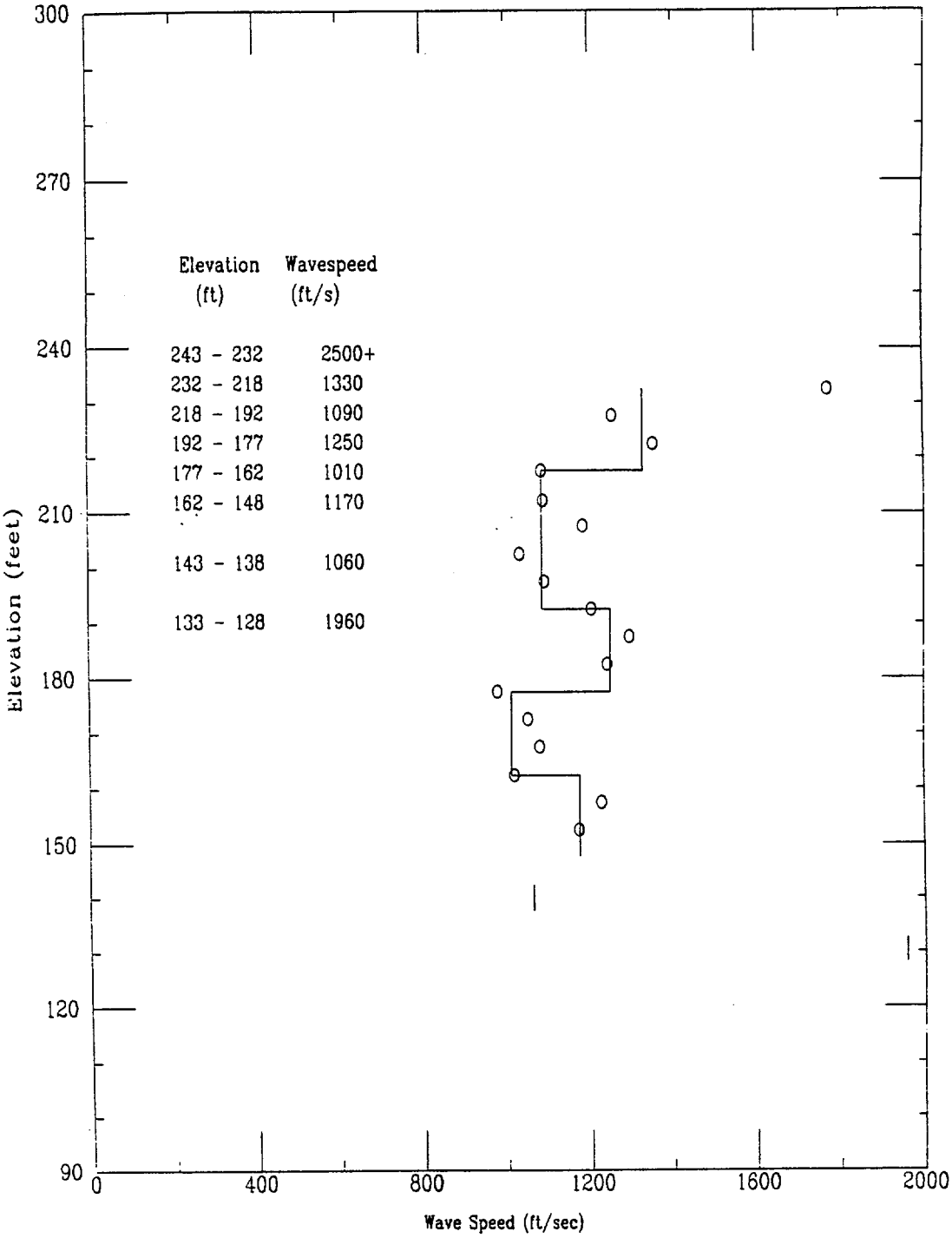
Compression Wave Time of Peak



File 407u001S

CPT-35S APPLIED RESEARCH ASSOCIATES, INC. 06/03/00

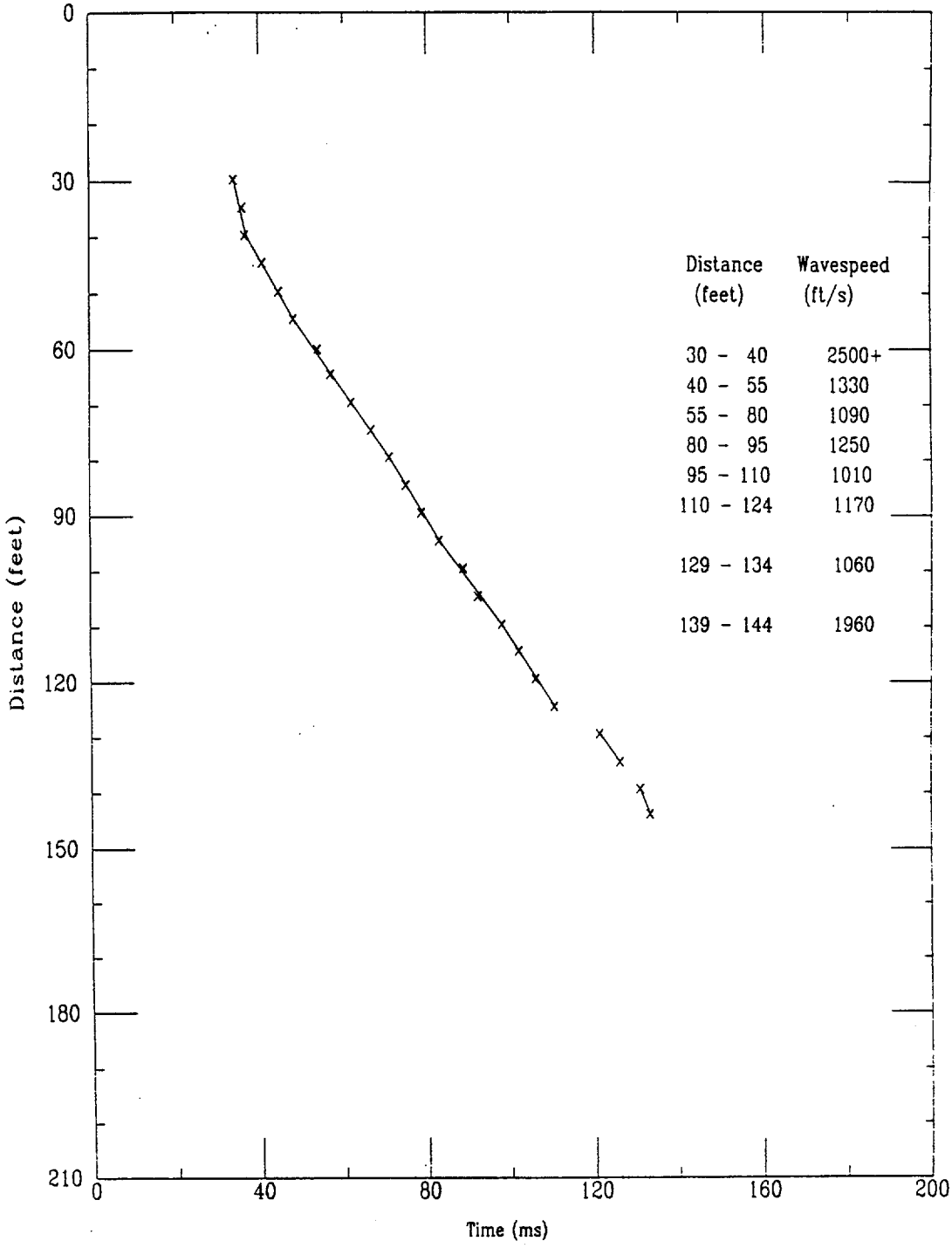
Shear Wave Speeds



File 403u005S

CPT-35S APPLIED RESEARCH ASSOCIATES, INC. 06/03/00

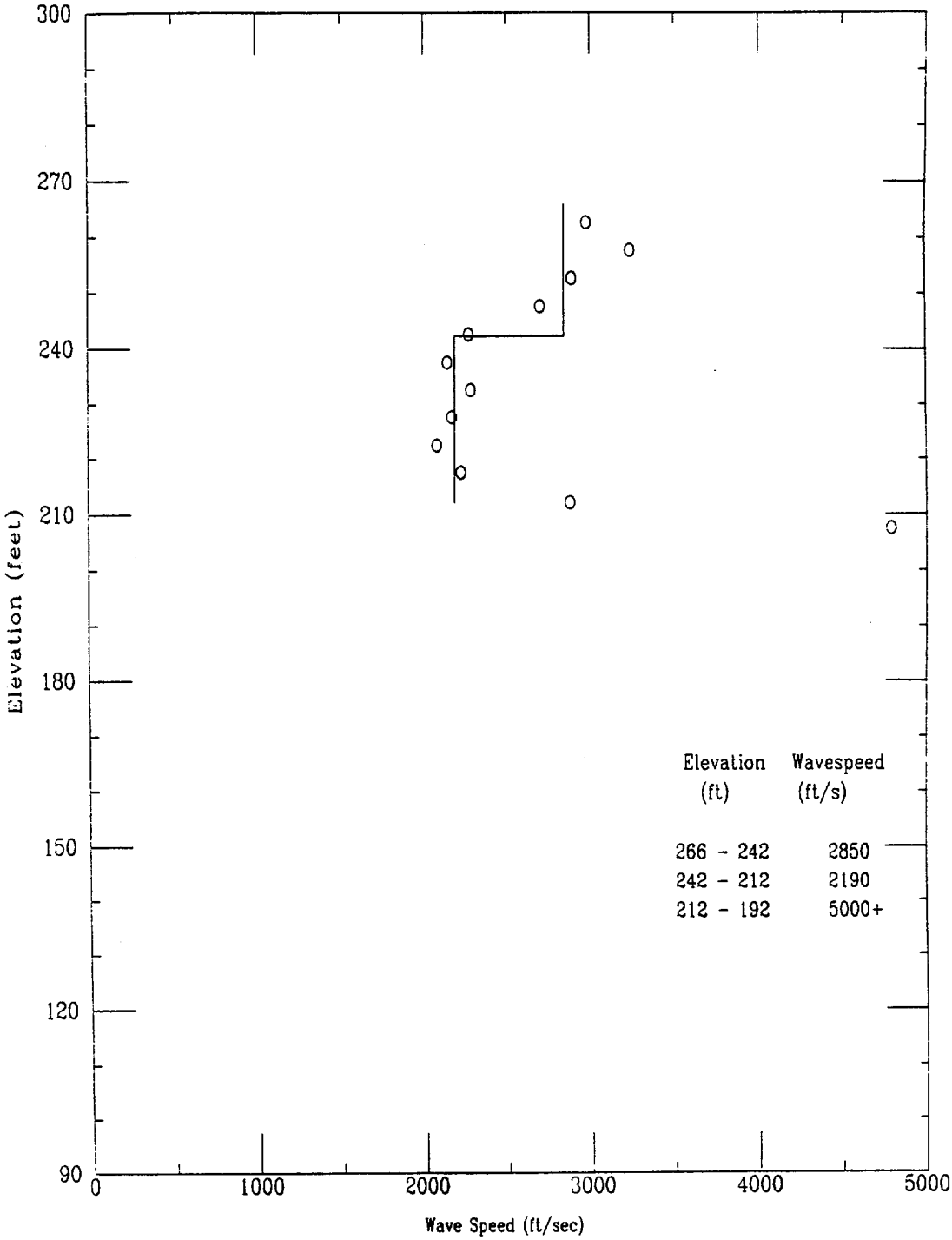
Shear Wave Time of Peak



File 403u005S

CPT-35S APPLIED RESEARCH ASSOCIATES, INC. 06/03/00

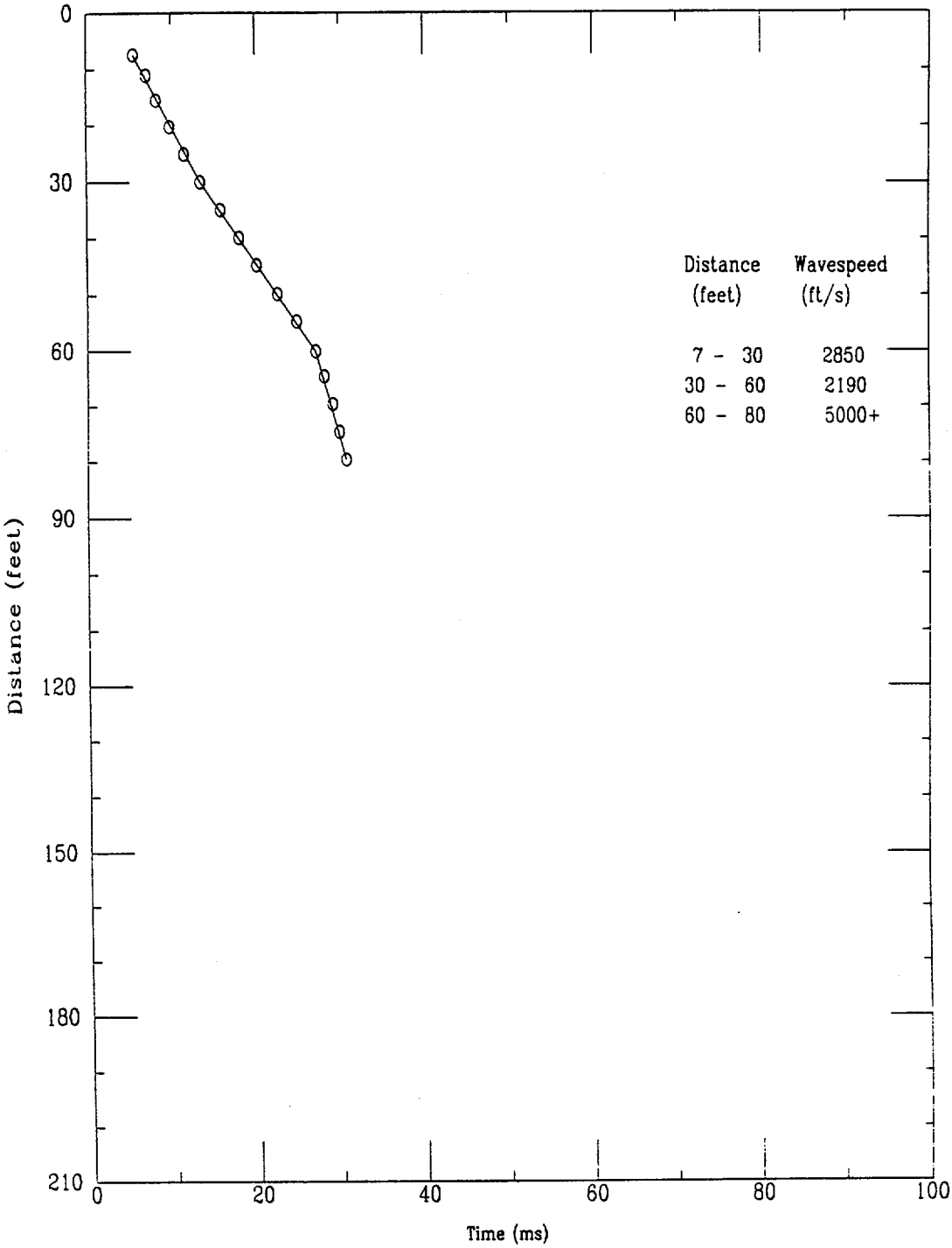
Compression Wave Speeds



File 403U005S

CPT-35S APPLIED RESEARCH ASSOCIATES, INC. 06/03/00

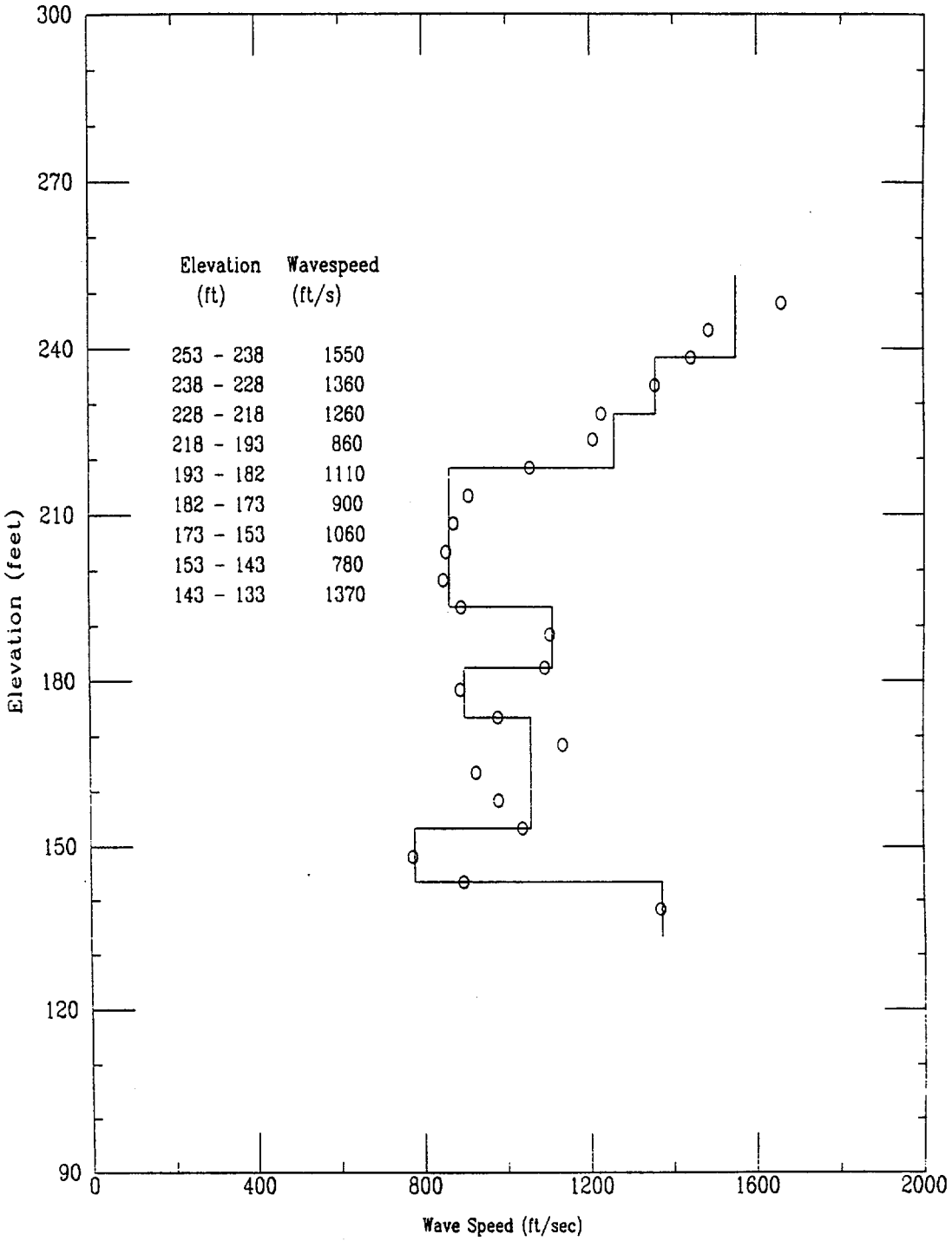
Compression Wave Time of Peak



File 403U005S

CPT-37S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

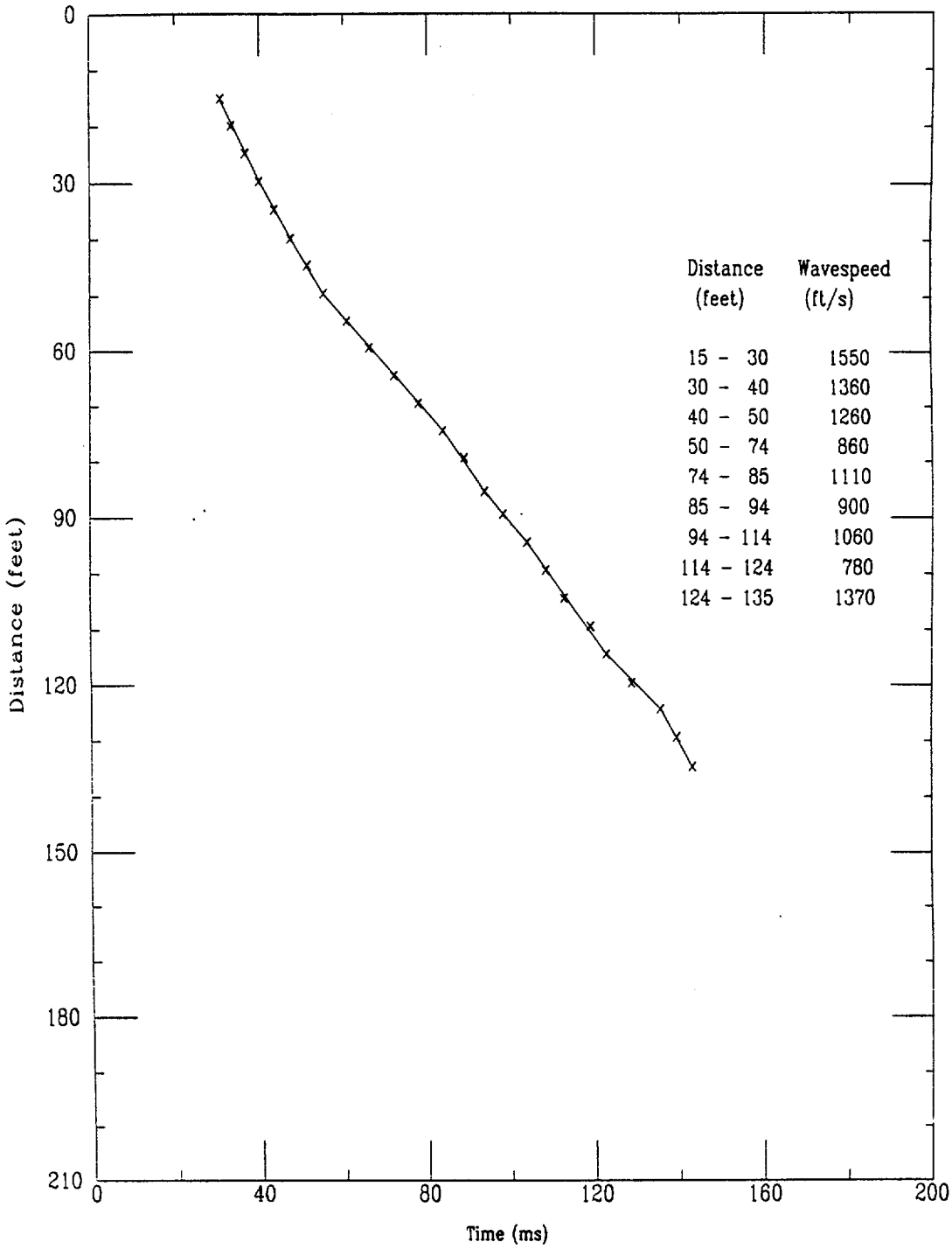
Shear Wave Speeds



File 405u001S

CPT-37S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

Shear Wave Time of Peak

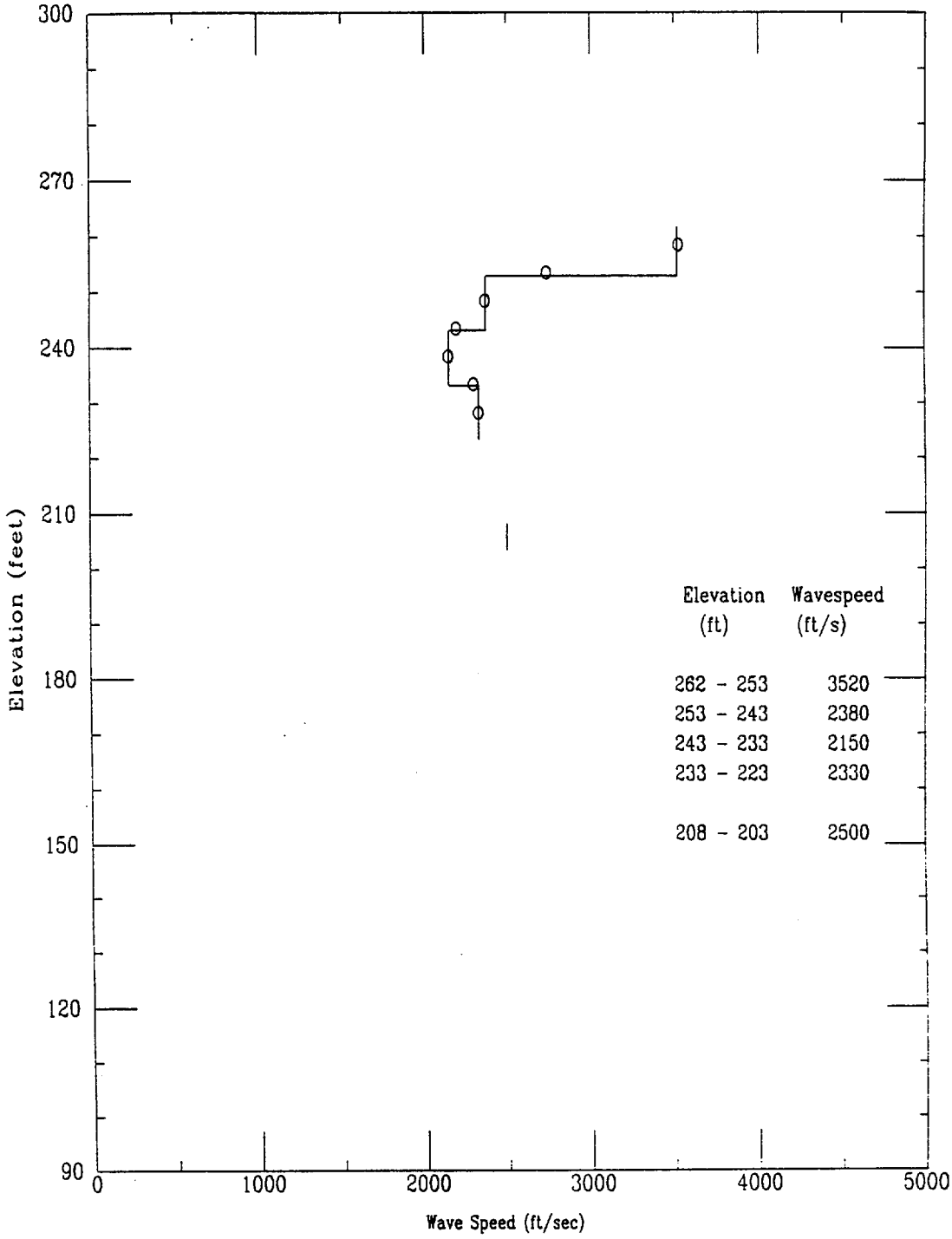


Distance (feet)	Wavespeed (ft/s)
15 - 30	1550
30 - 40	1360
40 - 50	1260
50 - 74	860
74 - 85	1110
85 - 94	900
94 - 114	1060
114 - 124	780
124 - 135	1370

File 405u001S

CPT-37S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

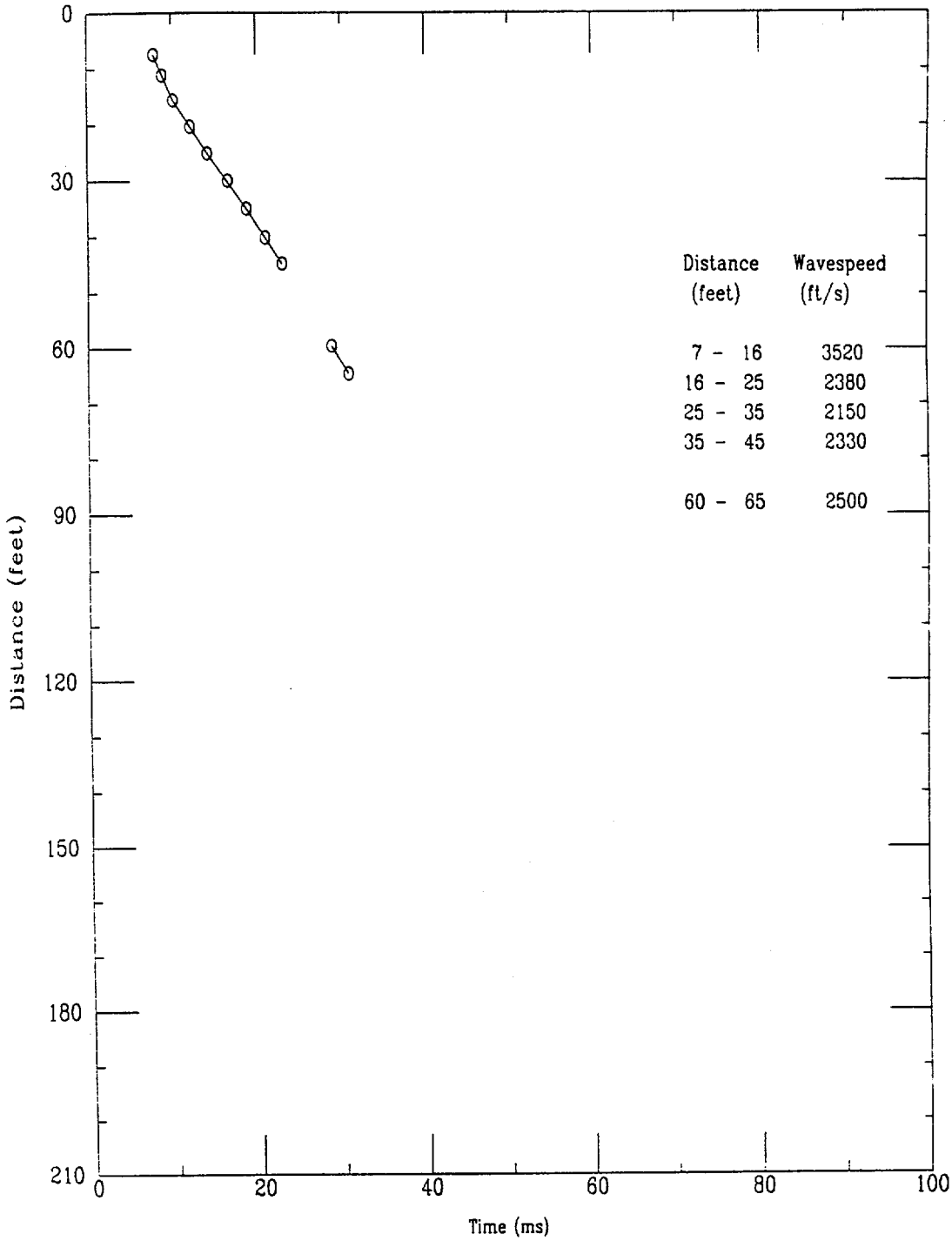
Compression Wave Speeds



File 405u001S

CPT-37S APPLIED RESEARCH ASSOCIATES, INC. 06/05/00

Compression Wave Time of Peak



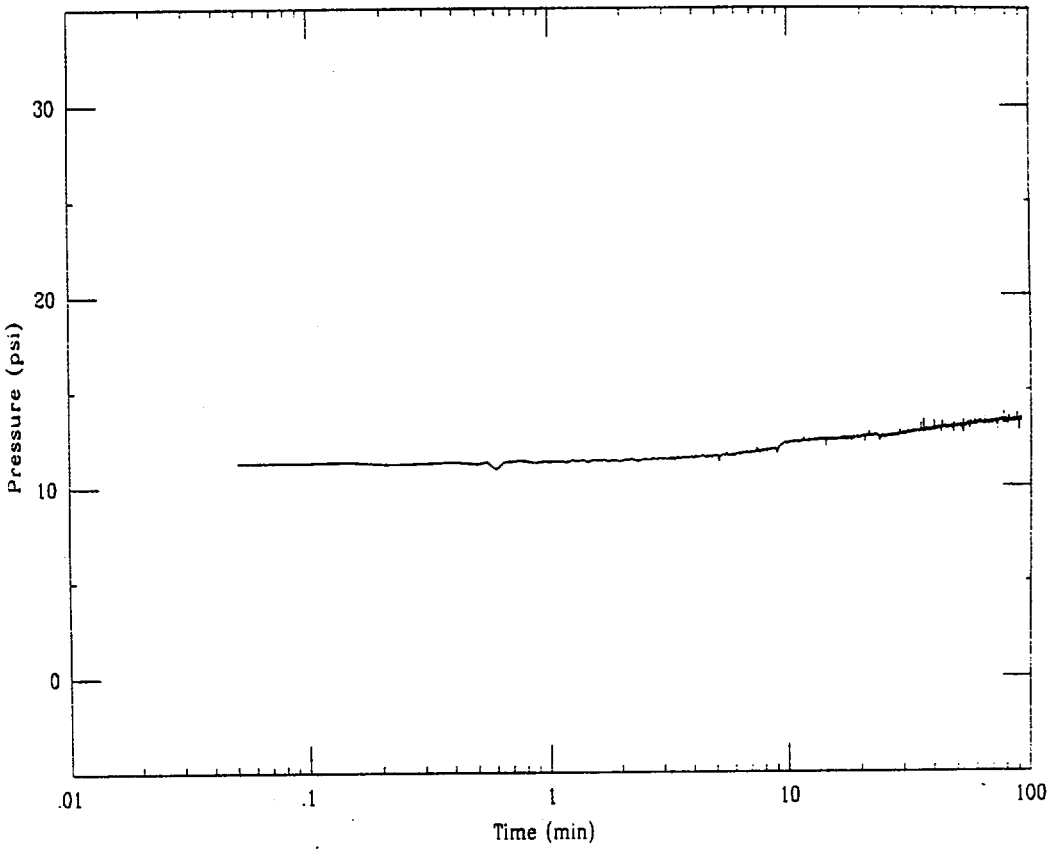
File 405u001S

APPENDIX D

DISSIPATION DATA

CPT-01S Applied Research Associates 06/09/00

Depth = 104.4 ft Max Pressure = 13.86 psi Pn = 13.47 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-01S
Test Date : 6/9/00

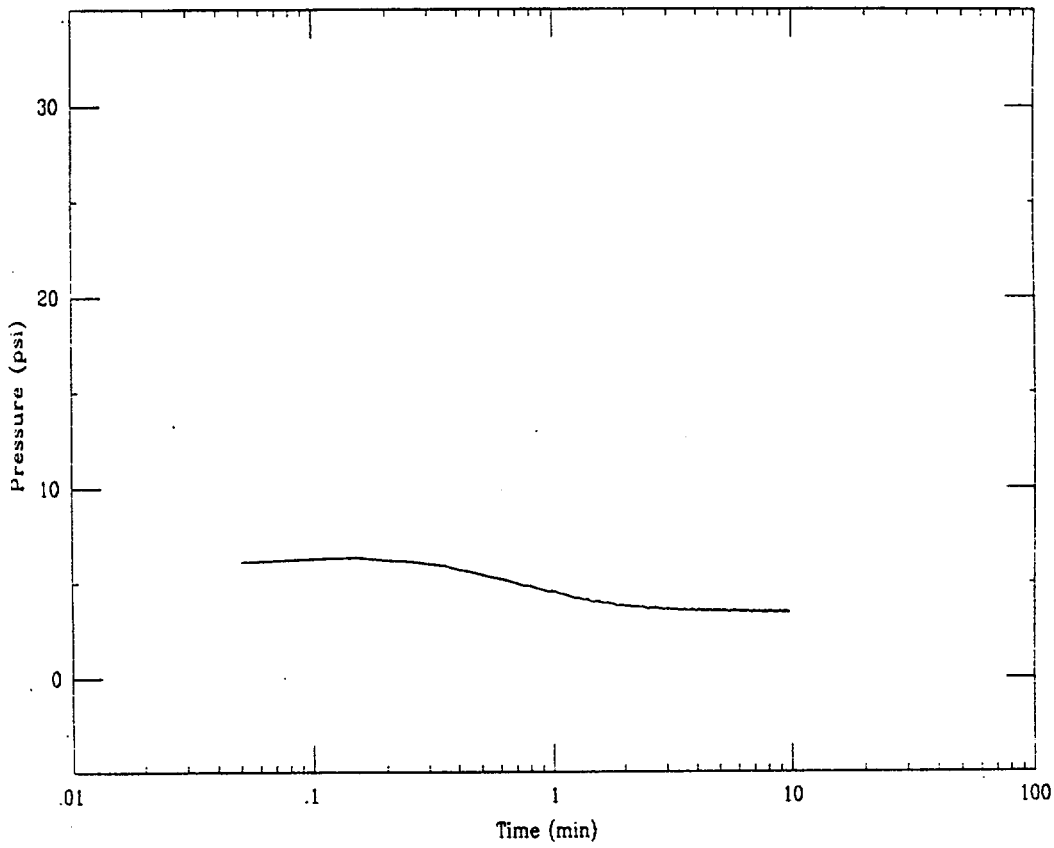
Northing : 80784.9 (ft)
Easting : 55554.0 (ft)
Surface Elevation : 258.2 (ft)
Water Table Elevation : 184.8 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev. (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	104.4	153.8	13.4	13.86								

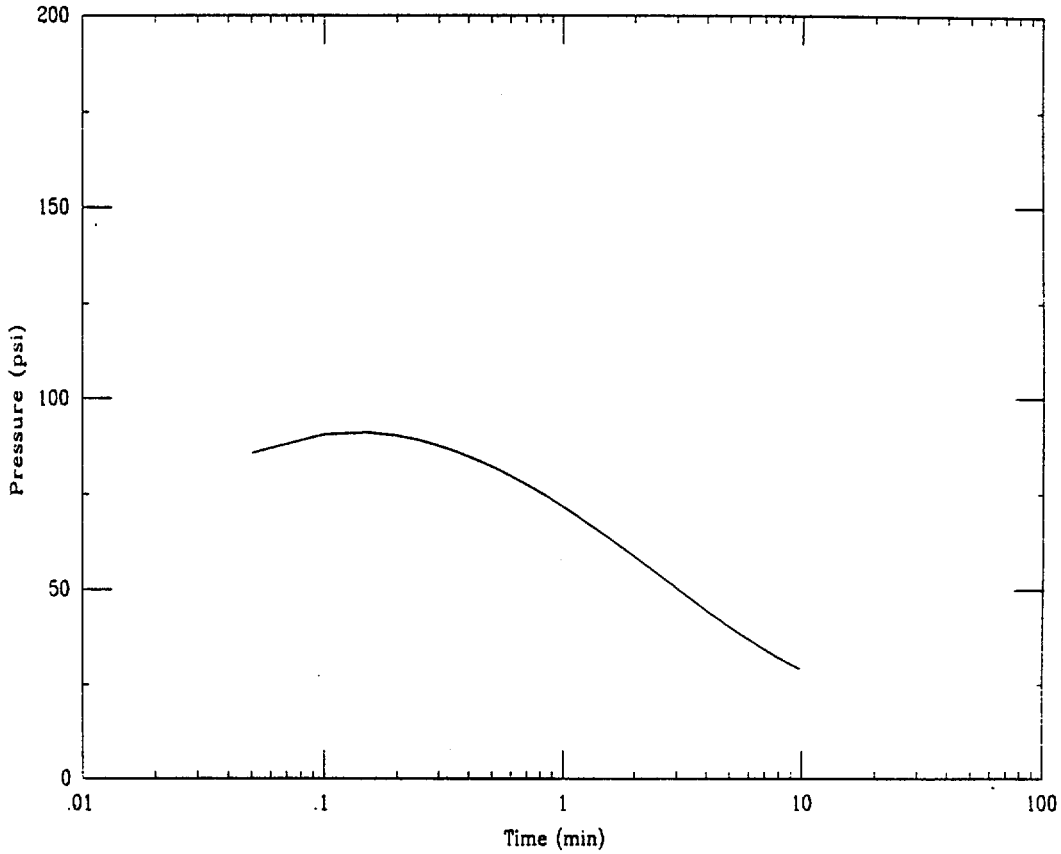
CPT-02R Applied Research Associates 06/14/00

Depth = 65.3 ft Max Pressure = 6.33 psi Pn = 3.46 psi



CPT-02R Applied Research Associates 06/14/00

Depth = 101.6 ft Max Pressure = 91.15 psi Pn = 29.54 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-02R
Test Date : 6/14/00

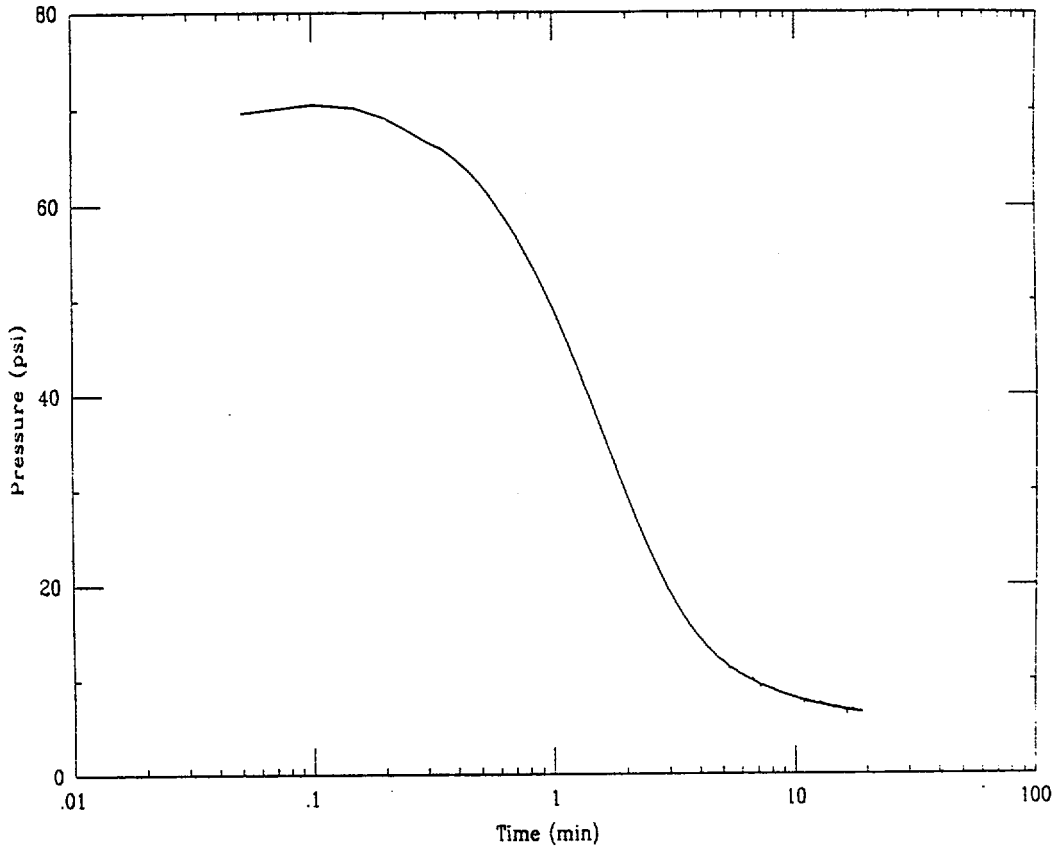
Northing : 80635.0 (ft)
Easting : 55616.4 (ft)
Surface Elevation : 257.8 (ft)
Water Table Elevation : 200.5 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	65.3	192.5	3.5	6.33	4.90	287.5	3.0	862.50	0.70	1.00E-01	6.47E-01	1.07E-05
	101.6	156.2	19.2	91.15	55.17	270.8	3.0	812.50	2.35	2.99E-02	1.93E-01	3.37E-06

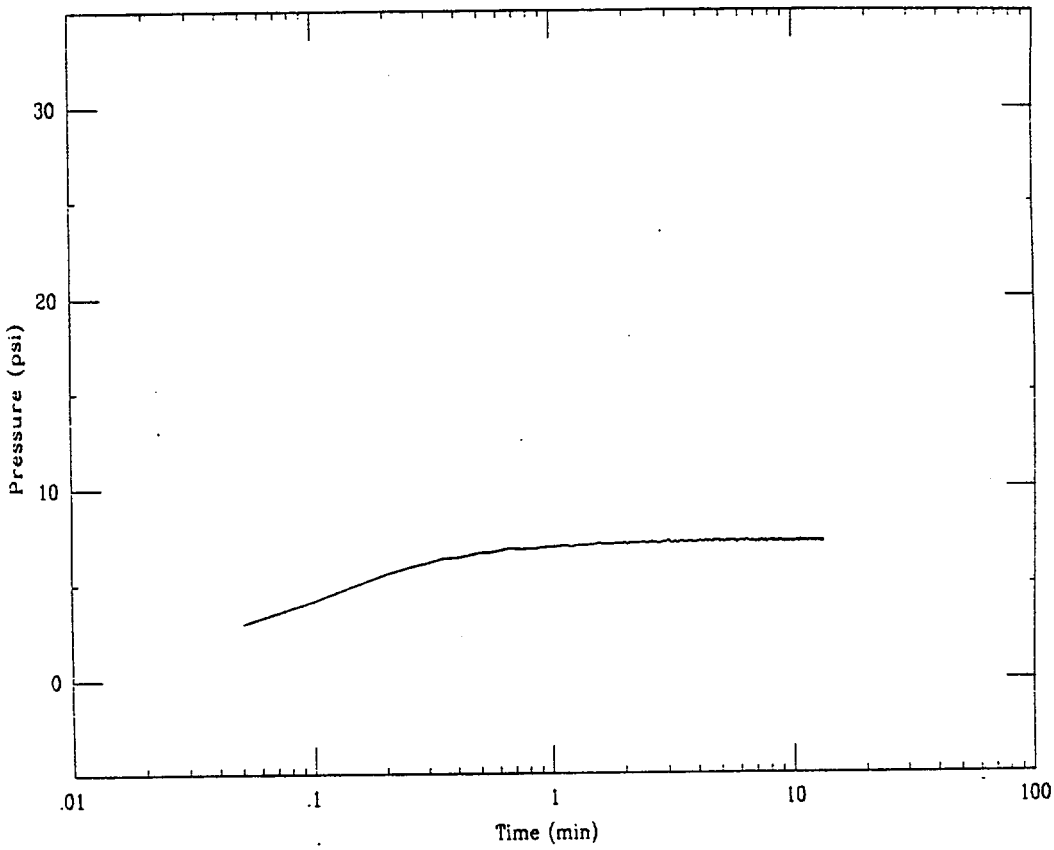
CPT-03S Applied Research Associates 06/08/00

Depth = 64.1 ft Max Pressure = 70.55 psi Pn = 6.61 psi



CPT-03S Applied Research Associates 06/08/00

Depth = 74.1 ft Max Pressure = 7.27 psi Pn = 7.20 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-03S
Test Date : 6/8/00

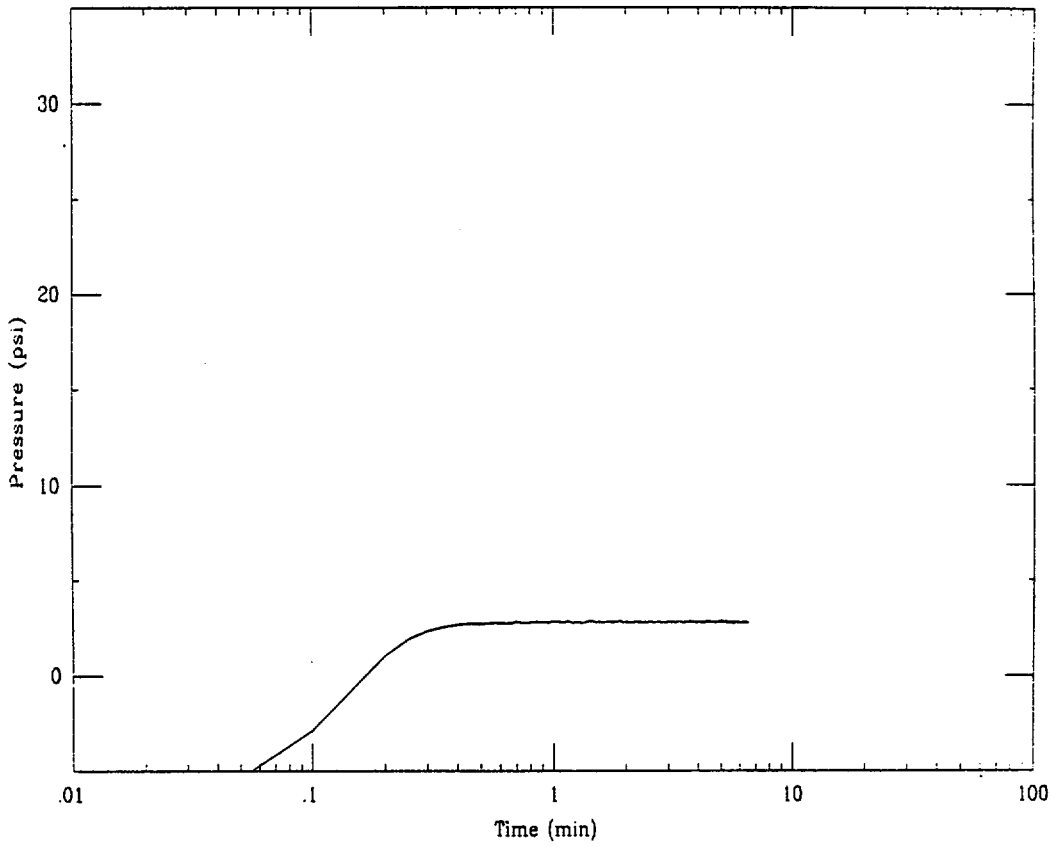
Northing : 80551.4 (ft)
Easting : 55700.8 (ft)
Surface Elevation : 253.2 (ft)
Water Table Elevation : 195.4 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	64.1	189.1	2.7	70.55	36.64	308.3	2.5	770.83	1.60	4.39E-02	2.83E-01	5.22E-06
Soil Dilation	74.1	179.1	7.1	7.27								

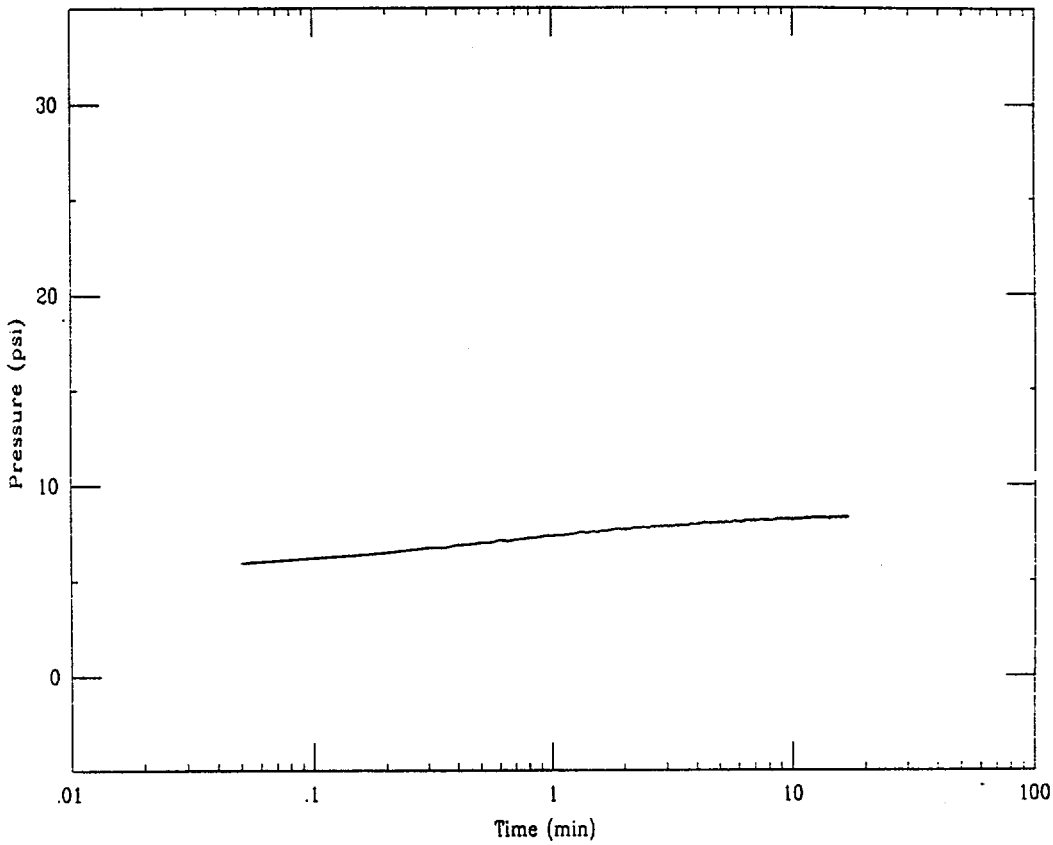
CPT-04R Applied Research Associates 06/17/00

Depth = 80.0 ft Max Pressure = 2.88 psi Pn = 2.76 psi



CPT-04R Applied Research Associates 06/17/00

Depth = 135.5 ft Max Pressure = 8.38 psi Pn = 8.34 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-04R
Test Date : 6/17/00

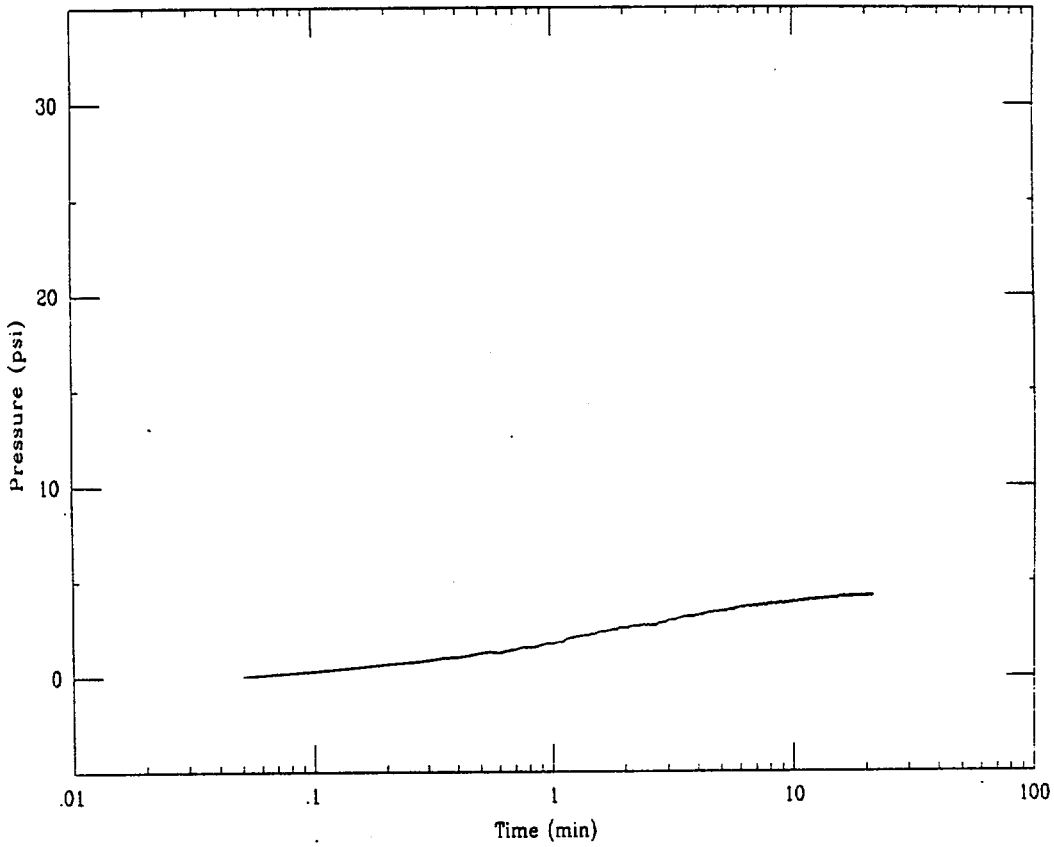
Northing : 80465.4 (ft)
Easting : 55320.8 (ft)
Surface Elevation : 272.6 (ft)
Water Table Elevation : 199.0 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	80.0	192.6	2.8	2.88								
Soil Dilation	135.5	137.1	26.8	8.38								

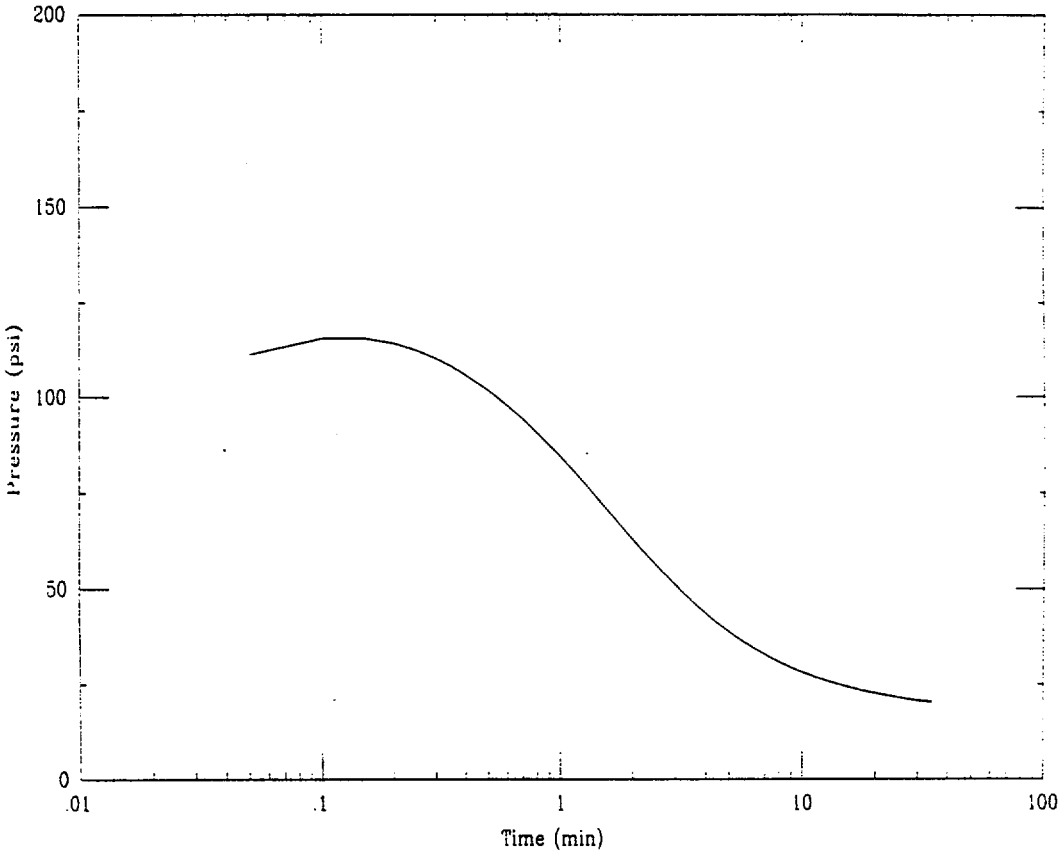
CPT-05S Applied Research Associates 06/08/00

Depth = 71.7 ft Max Pressure = 4.29 psi Pn = 4.29 psi



CPT-05S Applied Research Associates 06/08/00

Depth = 108.5 ft Max Pressure = 115.46 psi Pn = 20.25 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-05S
Test Date : 6/8/00

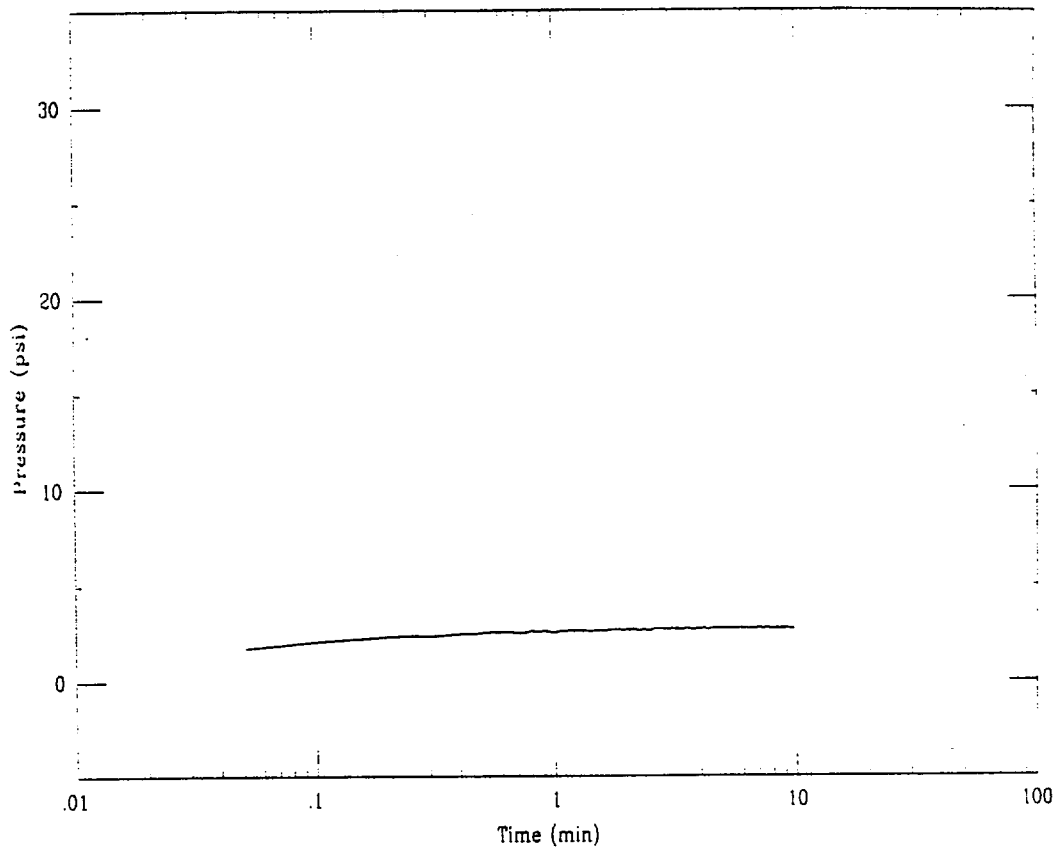
Northing : 80499.7 (ft)
Easting : 55478.5 (ft)
Surface Elevation : 264.5 (ft)
Water Table Elevation : 202.6 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	71.7	192.8	4.2	4.29								
	108.5	156.0	20.2	115.46	67.83	462.5	2.0	925.00	1.70	4.13E-02	2.66E-01	4.09E-06

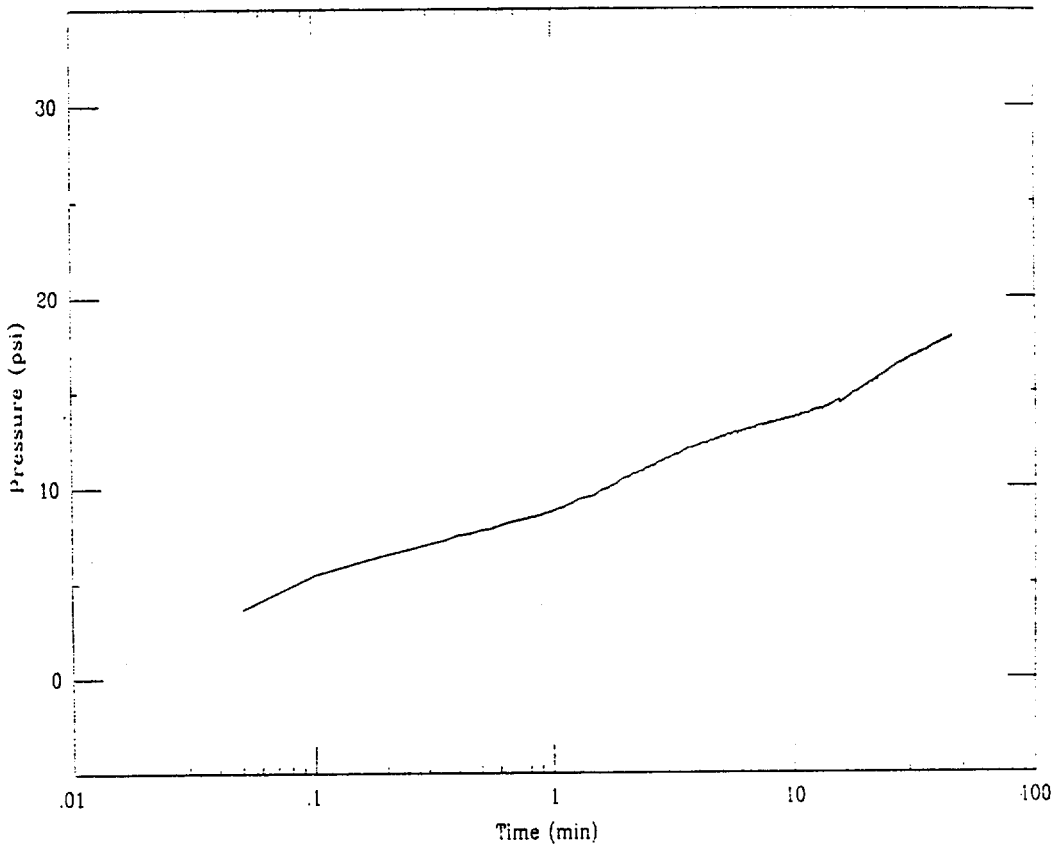
CPT-06R Applied Research Associates 06/15/00

Depth = 64.8 ft Max Pressure = 2.82 psi Pn = 2.75 psi



CPT-06R Applied Research Associates 06/14/00

Depth = 78.6 ft Max Pressure = 17.97 psi Pn = 17.91 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-06R
Test Date : 6/15/00

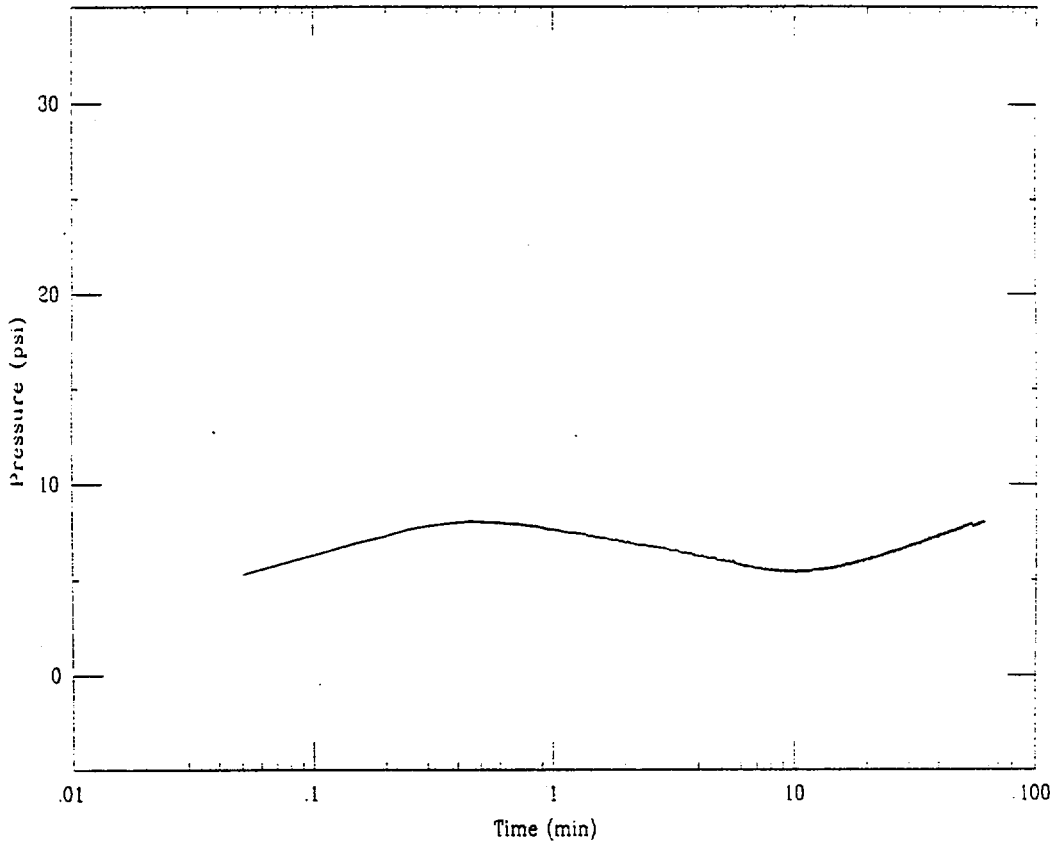
Northing : 80470.7 (ft)
Easting : 55633.2 (ft)
Surface Elevation : 256.9 (ft)
Water Table Elevation : 198.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	64.8	192.1	2.9	2.82								
Soil Dilation	78.6	178.3	8.9	17.97								

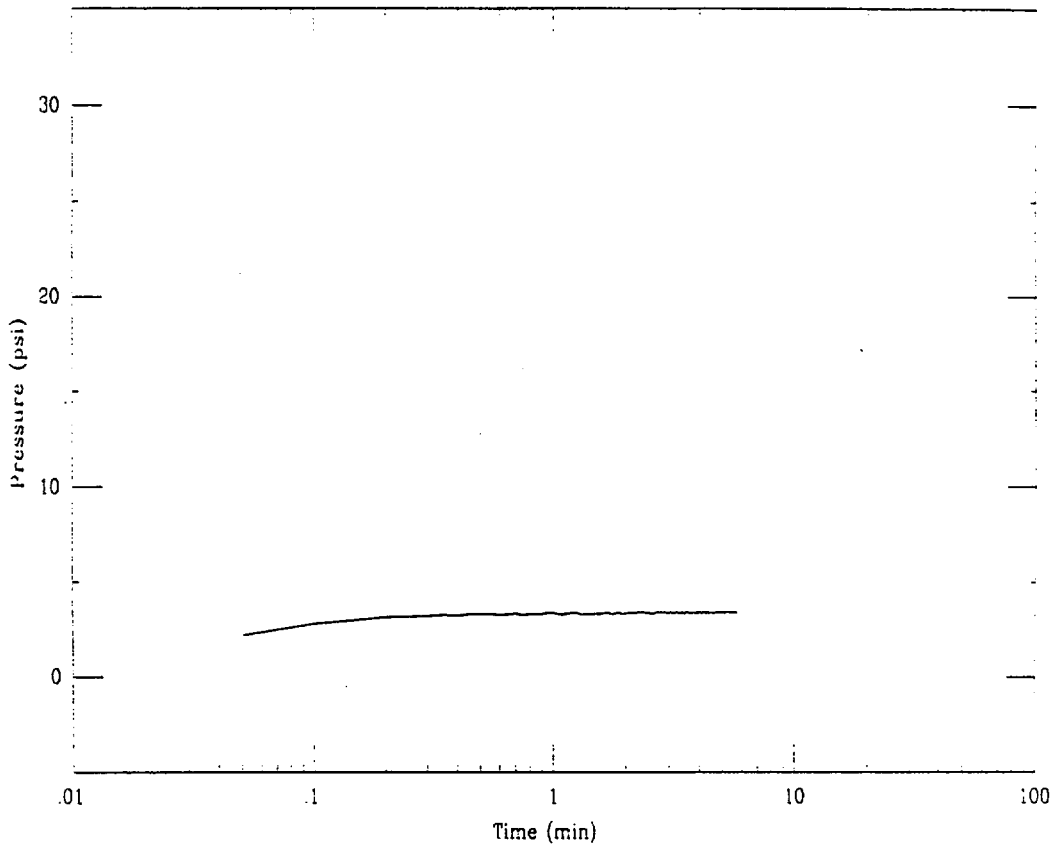
CPT-07R Applied Research Associates 06/19/00

Depth = 78.7 ft Max Pressure = 8.04 psi Pn = 8.01 psi



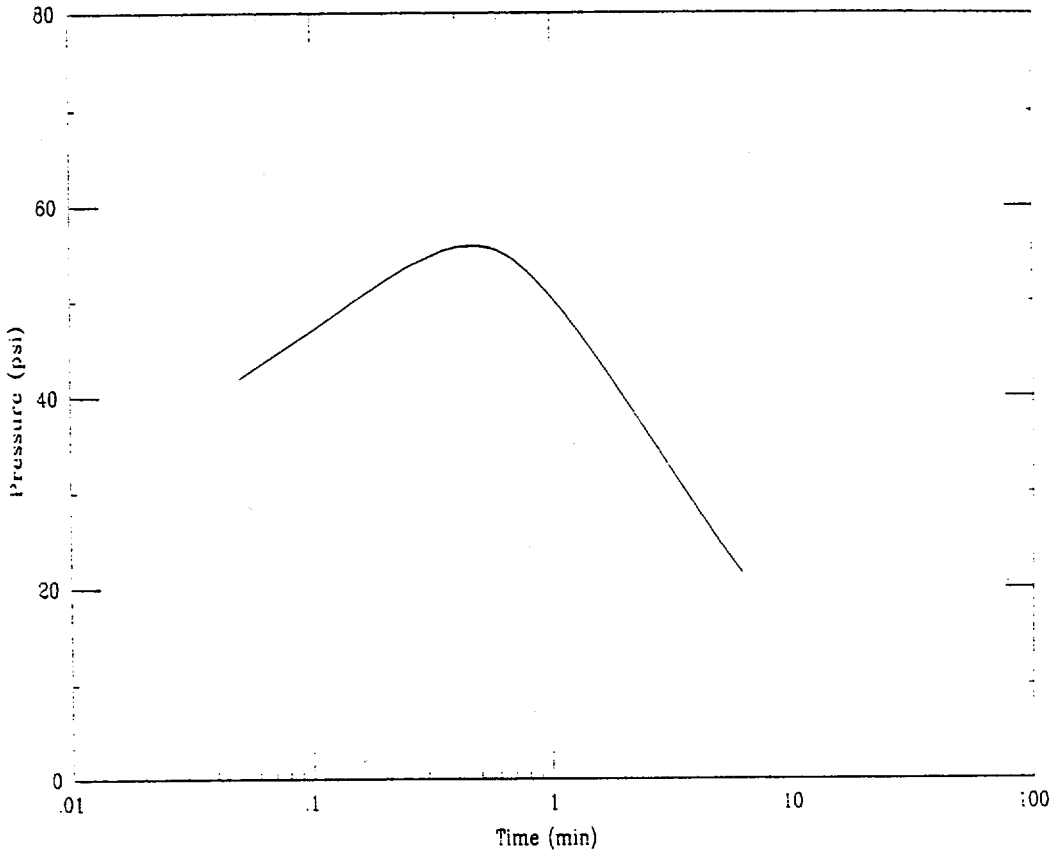
CPT-07R Applied Research Associates 06/19/00

Depth = 87.5 ft Max Pressure = 3.45 psi Pn = 3.42 psi



CPT-07R Applied Research Associates 06/19/00

Depth = 98.1 ft Max Pressure = 55.77 psi Pn = 22.05 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-07R
Test Date : 6/19/00

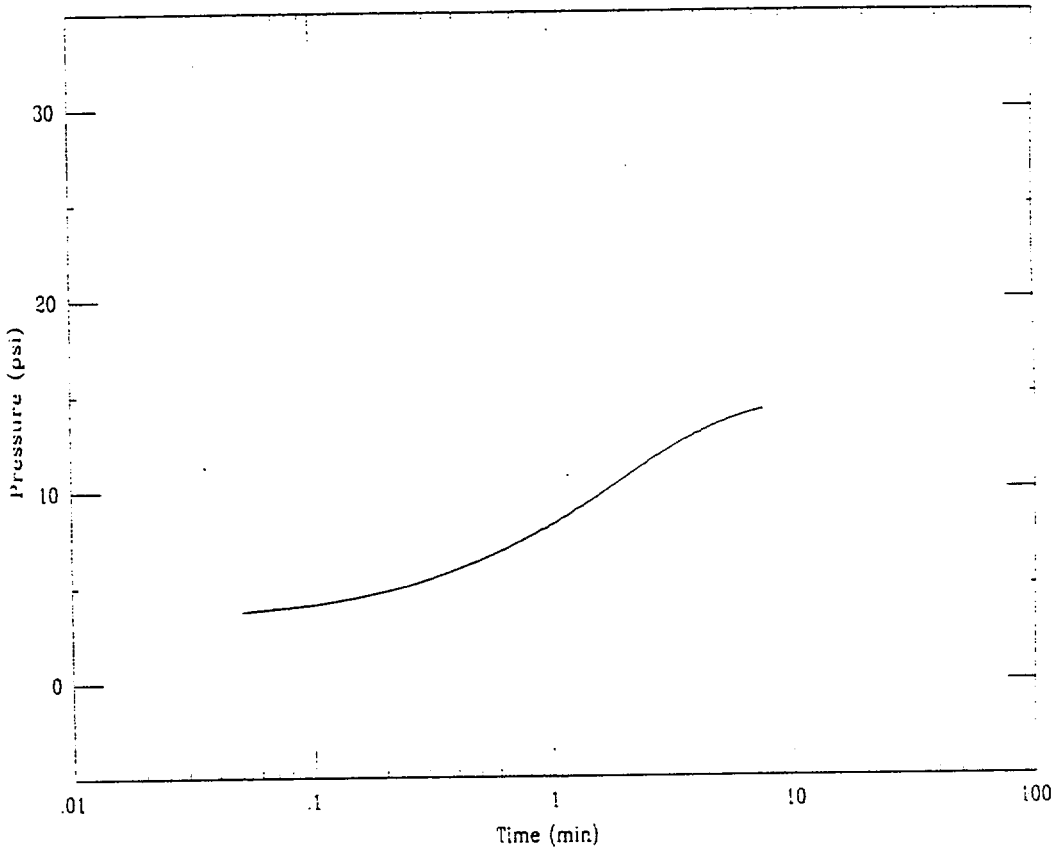
Northing : 80438.0 (ft)
Easting : 55228.2 (ft)
Surface Elevation : 280.2 (ft)
Water Table Elevation : 200.6 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	78.7	201.5	-0.4									
Soil Dilation	87.5	192.7	3.4	3.45								
	98.1	182.1	8.0	55.77	31.89	227.8	3.0	683.33	3.25	2.16E-02	1.39E-01	2.90E-06

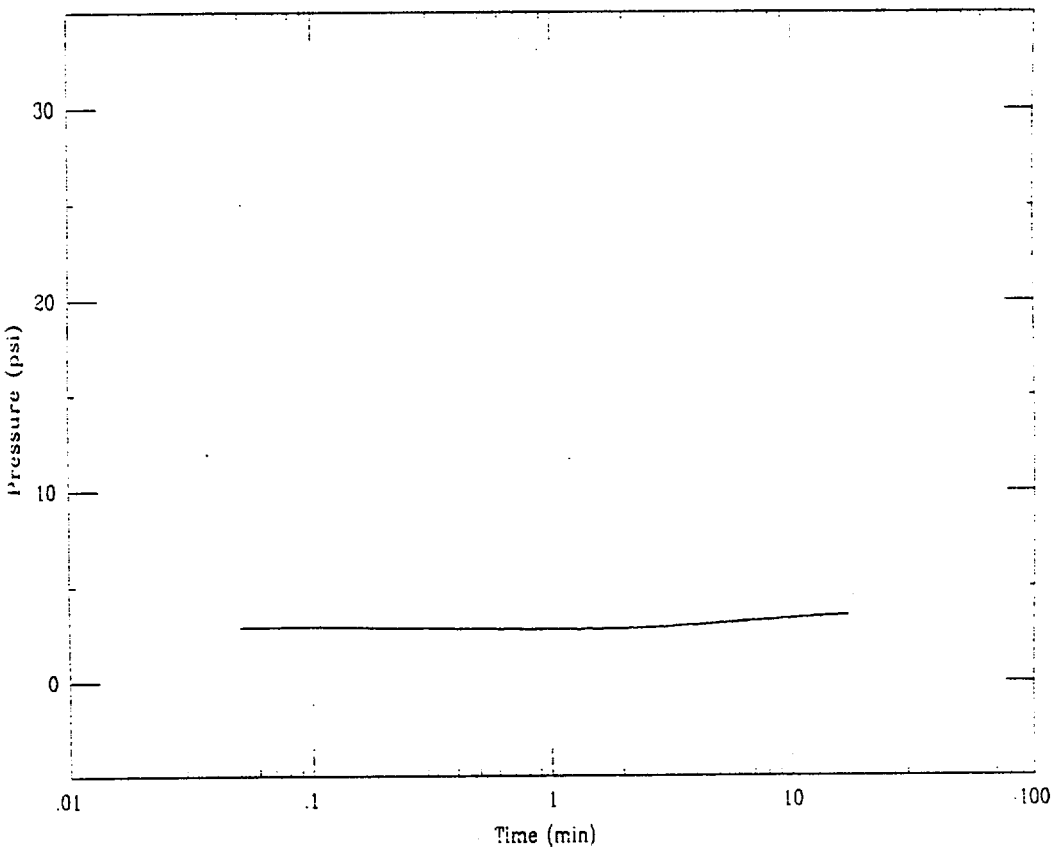
CPT-08S Applied Research Associates 06/02/00

Depth = 111.4 ft Max Pressure = 14.18 psi Pn = 14.13 psi



CPT-08S Applied Research Associates 06/02/00

Depth = 140.1 ft Max Pressure = 3.51 psi Pn = 3.51 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-08S
Test Date : 6/2/00

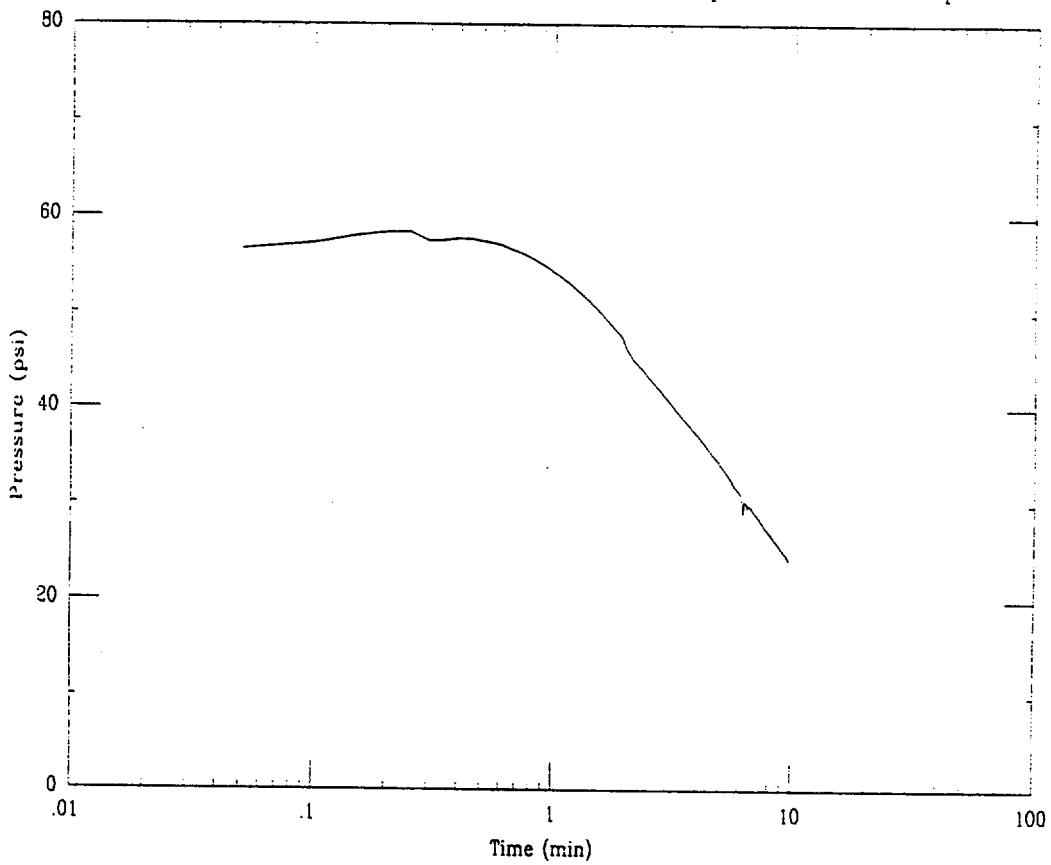
Northing : 80393.7 (ft)
Easting : 55329.1 (ft)
Surface Elevation : 273.0 (ft)
Water Table Elevation : 198.4 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	111.4	161.6	15.9	14.18								
Soil Dilation	140.1	132.9	28.4	3.51								

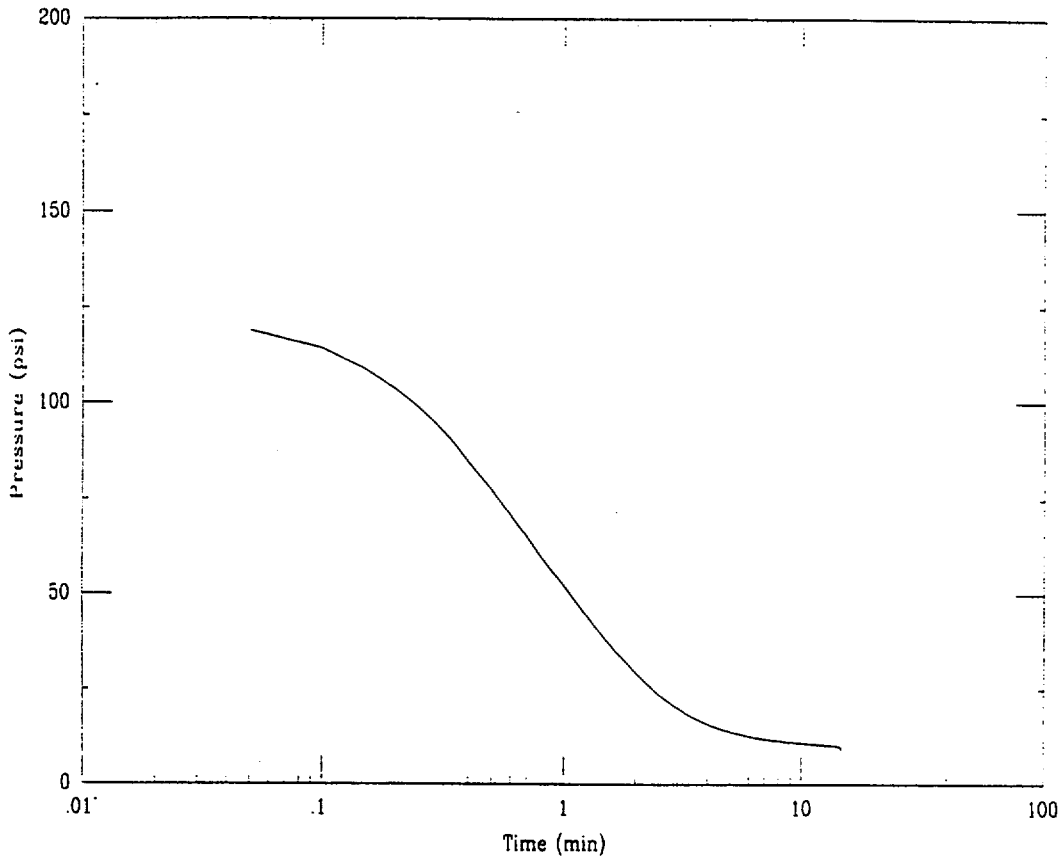
CPT-09R Applied Research Associates 06/20/00

Depth = 50.6 ft Max Pressure = 58.39 psi Pn = 24.66 psi



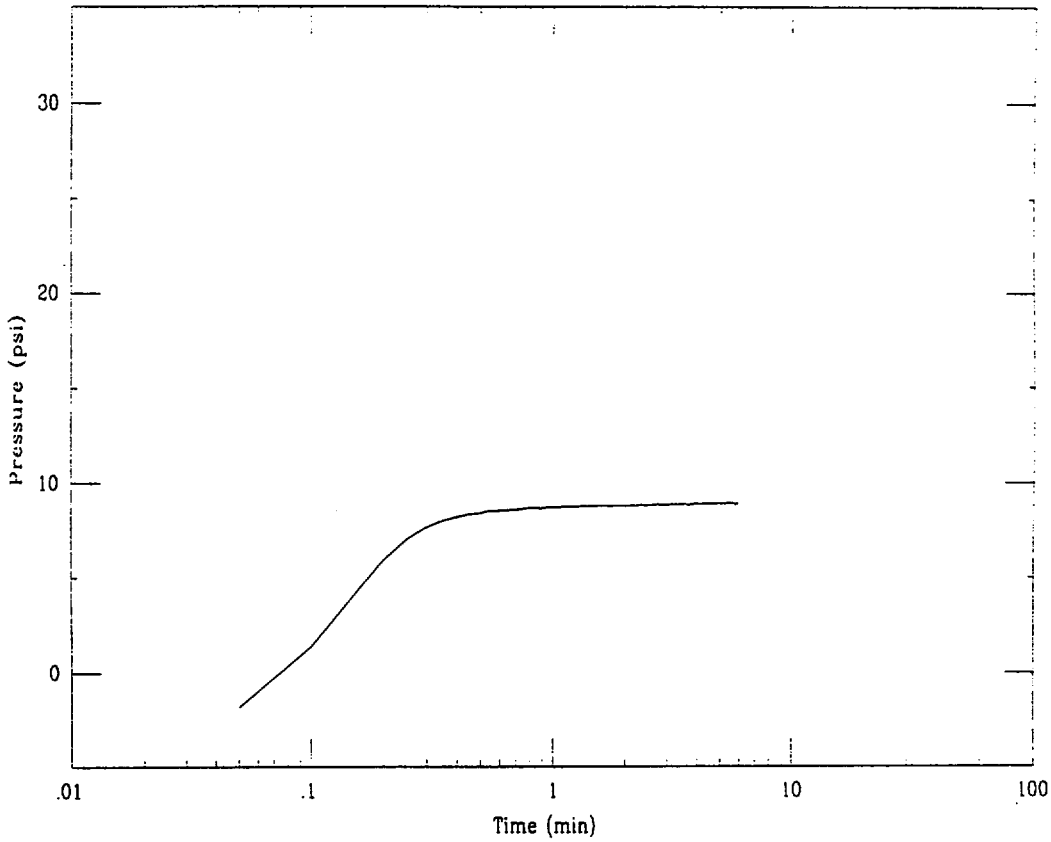
CPT-09R Applied Research Associates 06/20/00

Depth = 80.7 ft Max Pressure = 119.00 psi Pn = 9.70 psi



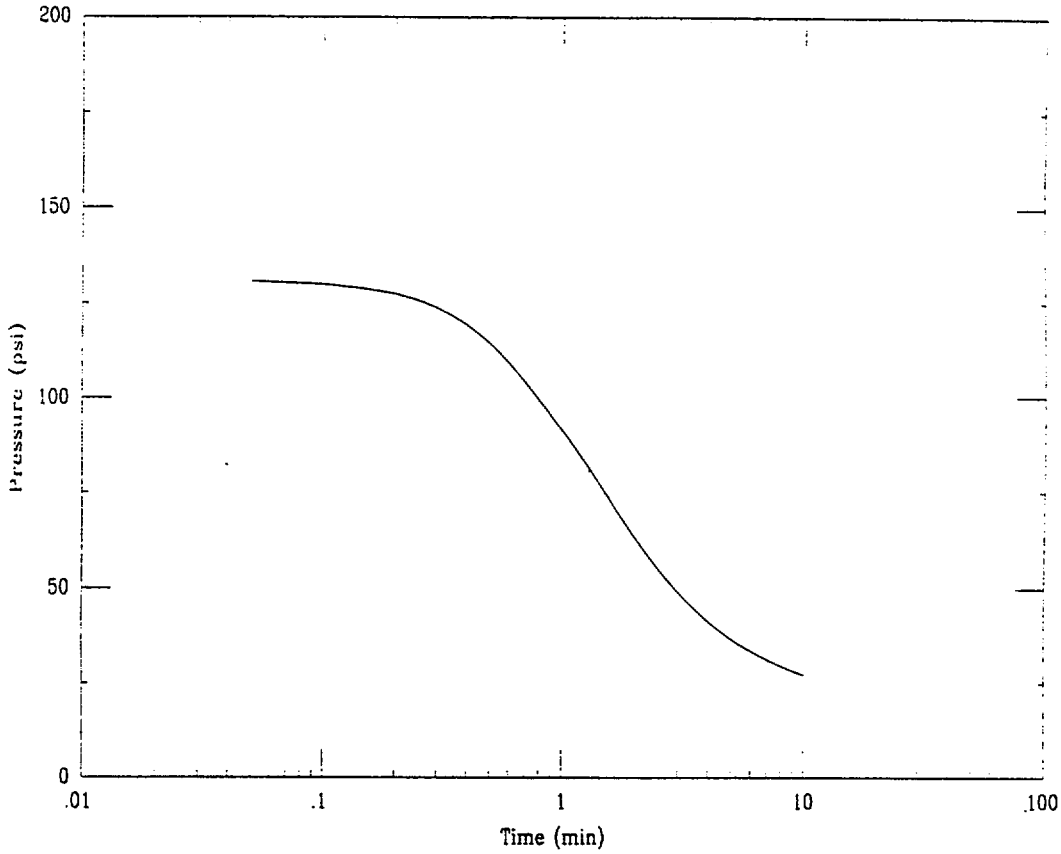
CPT-09R Applied Research Associates 06/21/00

Depth = 88.0 ft Max Pressure = 8.94 psi Pn = 8.91 psi



CPT-09R Applied Research Associates 06/21/00

Depth = 112.3 ft Max Pressure = 130.69 psi Pn = 27.56 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-09R
Test Date : 6/20/00

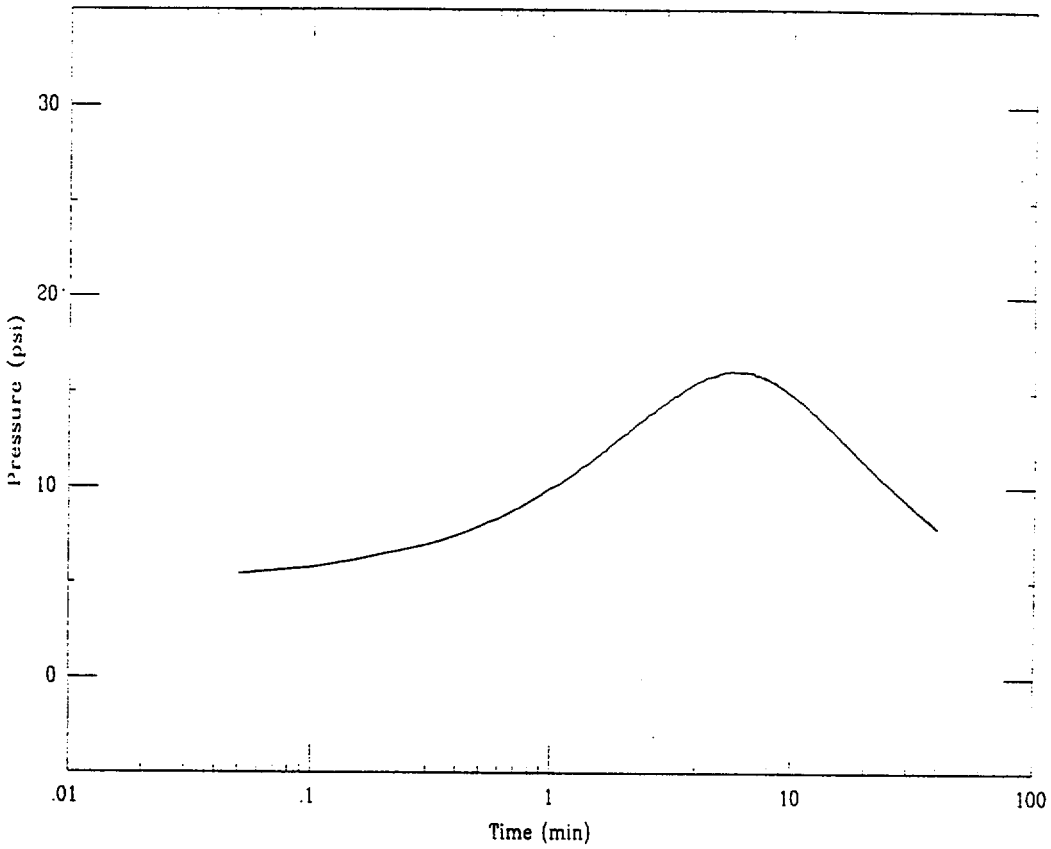
Northing : 80394.0 (ft)
Easting : 55445.7 (ft)
Surface Elevation : 266.2 (ft)
Water Table Elevation : 199.2 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	50.6	215.6	-7.1									
	80.7	185.5	5.9	119.00	62.47	395.8	2.5	989.58	0.78	9.00E-02	5.80E-01	8.34E-06
Soil Dilation	88.1	178.1	9.1	8.94								
	112.3	153.9	19.6	130.69	75.16	336.1	2.5	840.28	1.50	4.68E-02	3.02E-01	5.11E-06

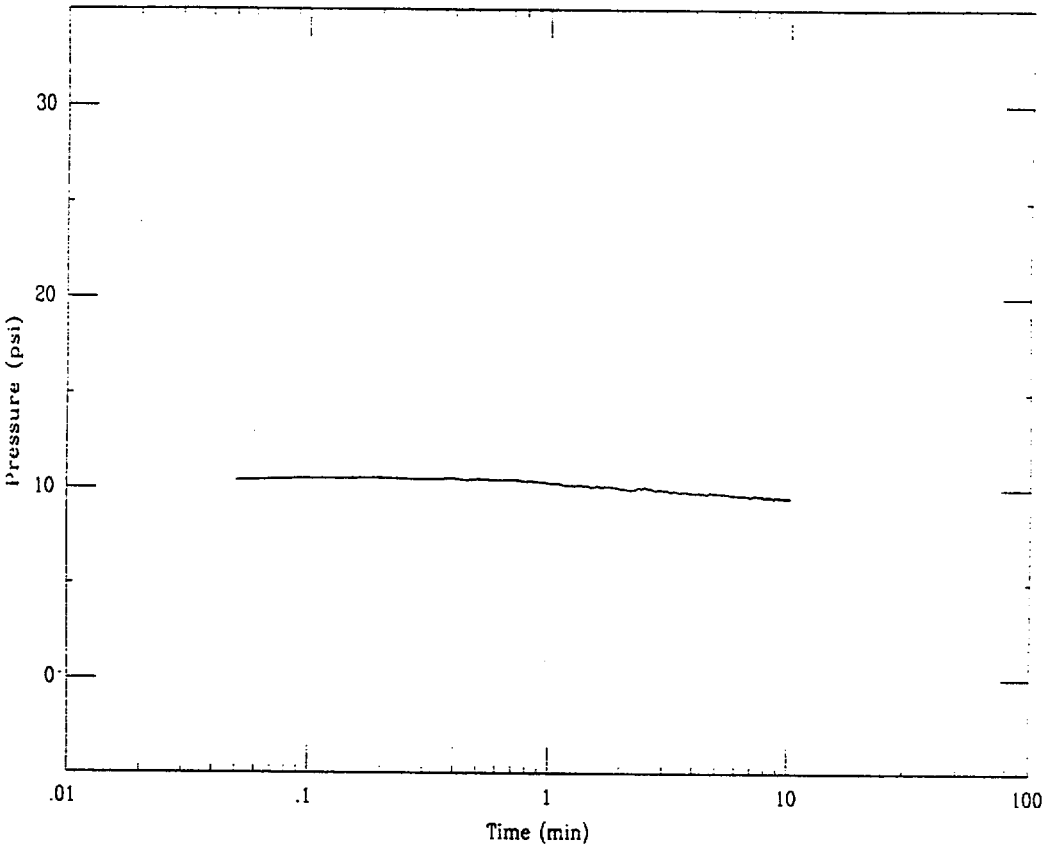
CPT-10R Applied Research Associates 06/20/00

Depth = 45.6 ft Max Pressure = 16.13 psi Pn = 7.91 psi



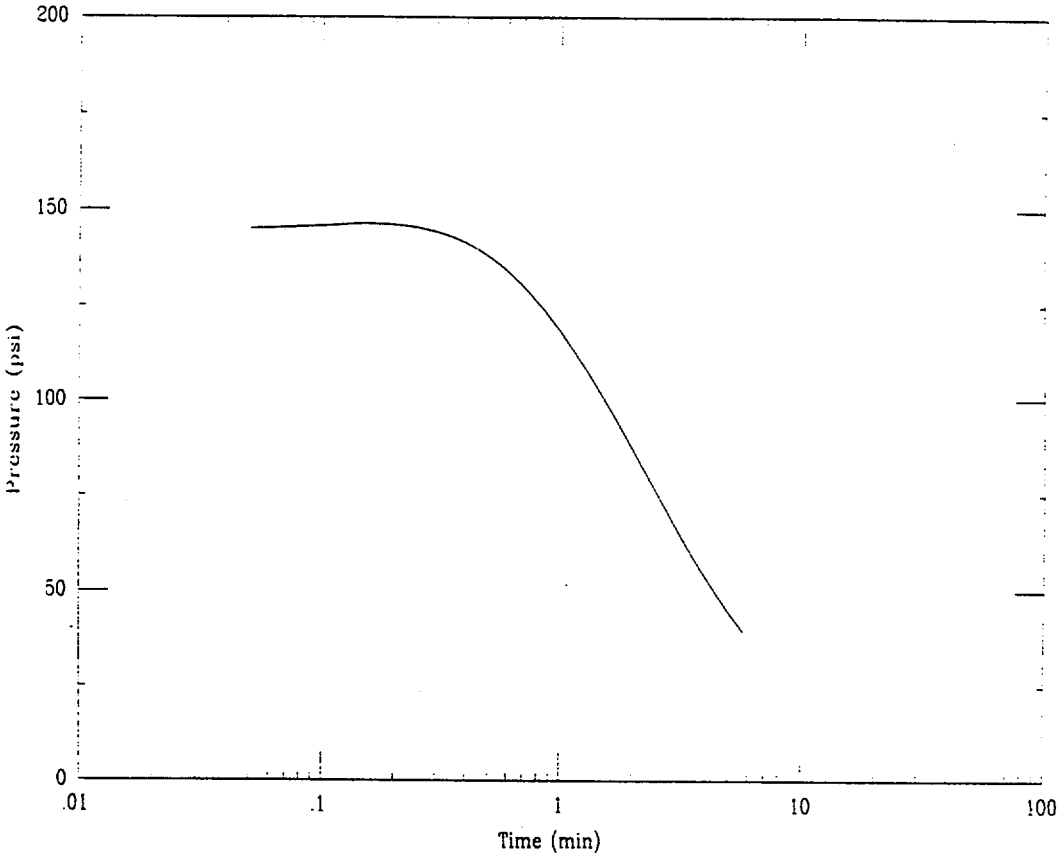
CPT-10R Applied Research Associates 06/20/00

Depth = 85.3 ft Max Pressure = 10.57 psi Pn = 9.55 psi



CPT-10R Applied Research Associates 06/20/00

Depth = 104.9 ft Max Pressure = 146.39 psi Pn = 41.03 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-10R
Test Date : 6/20/00

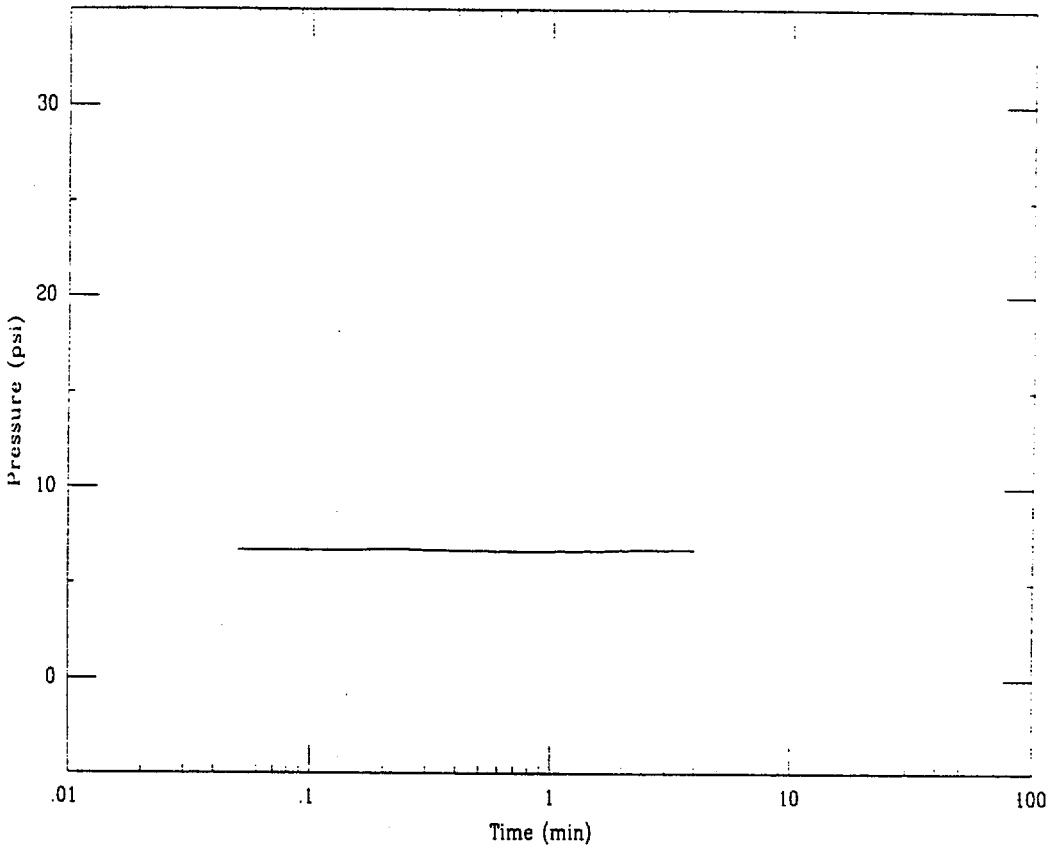
Northing : 80406.7 (ft)
Easting : 55527.1 (ft)
Surface Elevation : 261.9 (ft)
Water Table Elevation : 194.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	45.6	216.3	-9.3									
t 50% not reached	85.3	176.6	7.9	10.57	9.25							
	104.9	157.0	16.4	146.39	81.41	359.7	2.5	899.31	2.25	3.12E-02	2.01E-01	3.18E-06

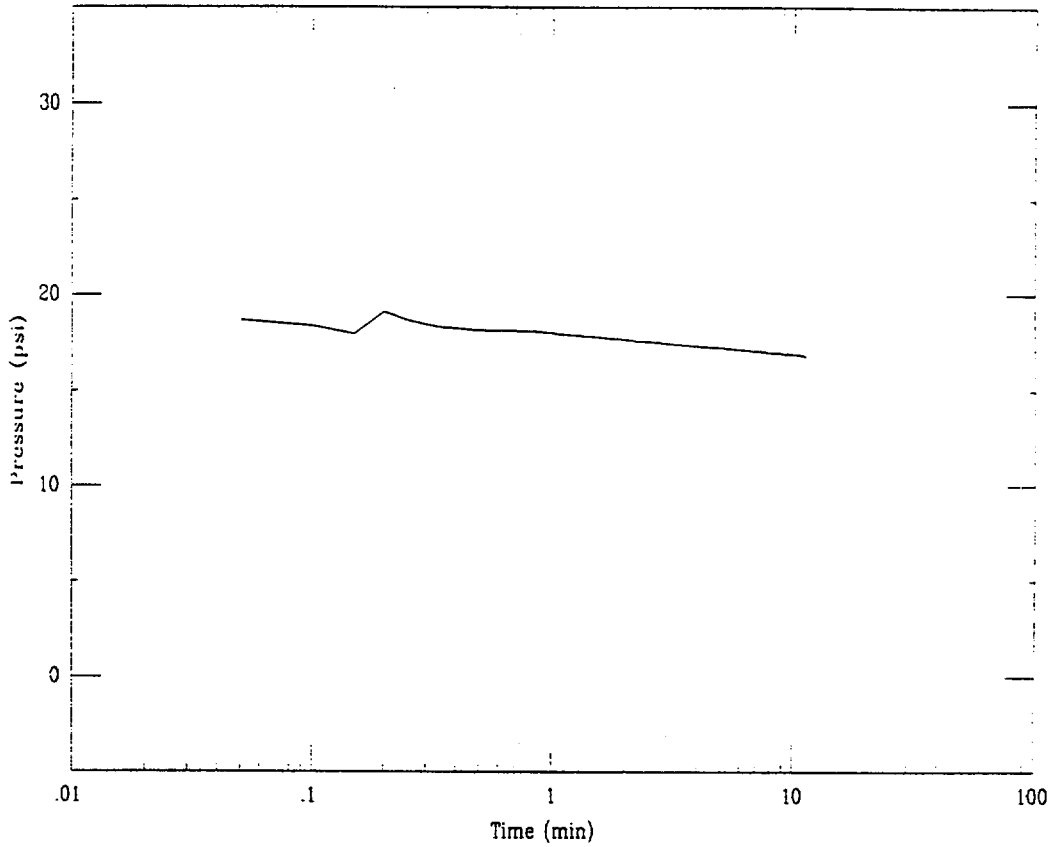
CPT-11S Applied Research Associates 06/02/00

Depth = 78.0 ft Max Pressure = 6.80 psi Pn = 6.78 psi



CPT-11S Applied Research Associates 06/02/00

Depth = 106.4 ft Max Pressure = 19.14 psi Pn = 16.87 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-11S
Test Date : 6/2/00

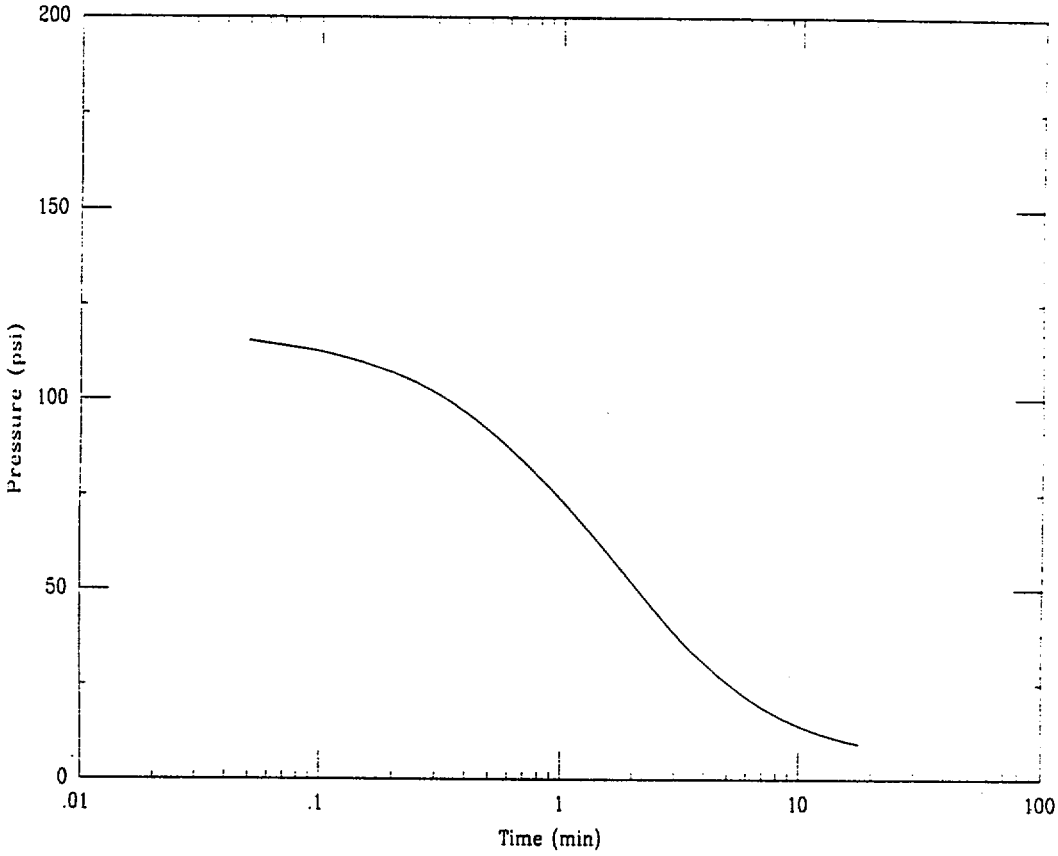
Northing : 80394.0 (ft)
Easting : 55624.1 (ft)
Surface Elevation : 258.5 (ft)
Water Table Elevation : 196.1 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Immediate dissip.	78.0	180.5	6.8	6.80								
	106.4	152.1	19.1	19.14	19.10	2455.6	1.0	2455.56	0.20	3.51E-01	2.26E+00	1.31E-05

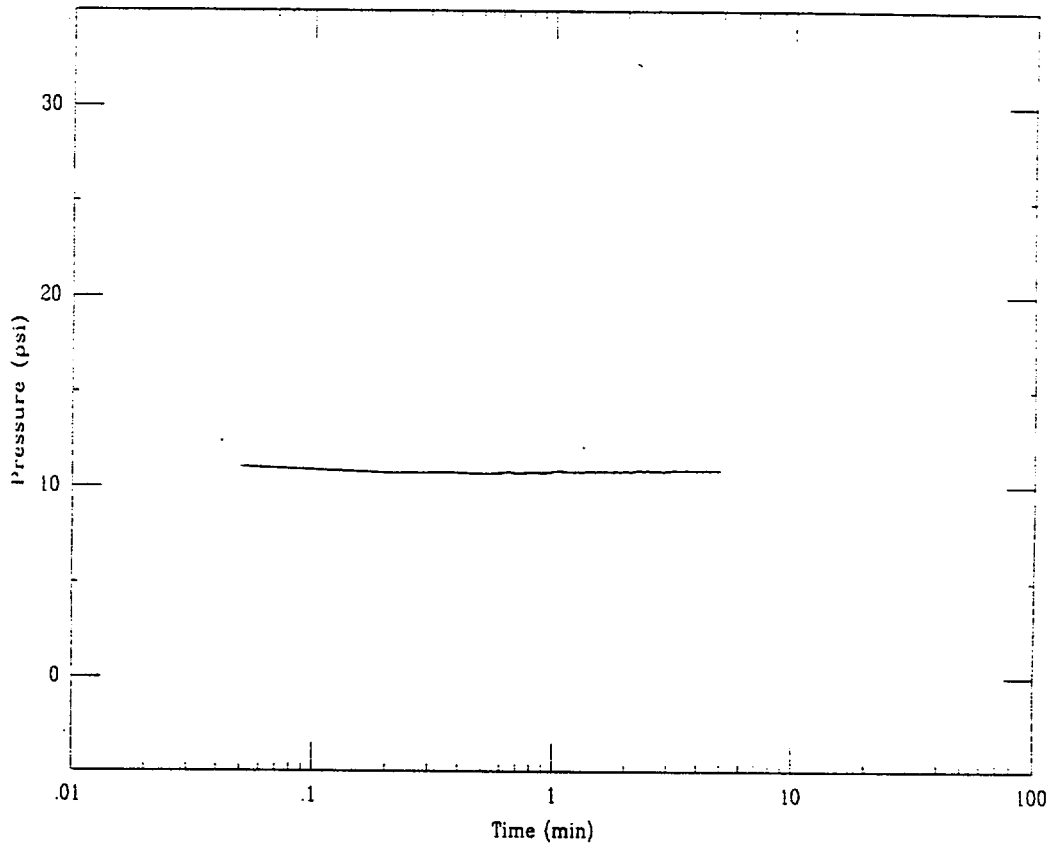
Applied Research Associates 06/23/00

Depth = 67.4 ft Max Pressure = 115.44 psi Pn = 9.53 psi



CPT-12R Applied Research Associates 06/23/00

Depth = 86.0 ft Max Pressure = 11.03 psi Pn = 10.88 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-12R
Test Date : 6/23/00

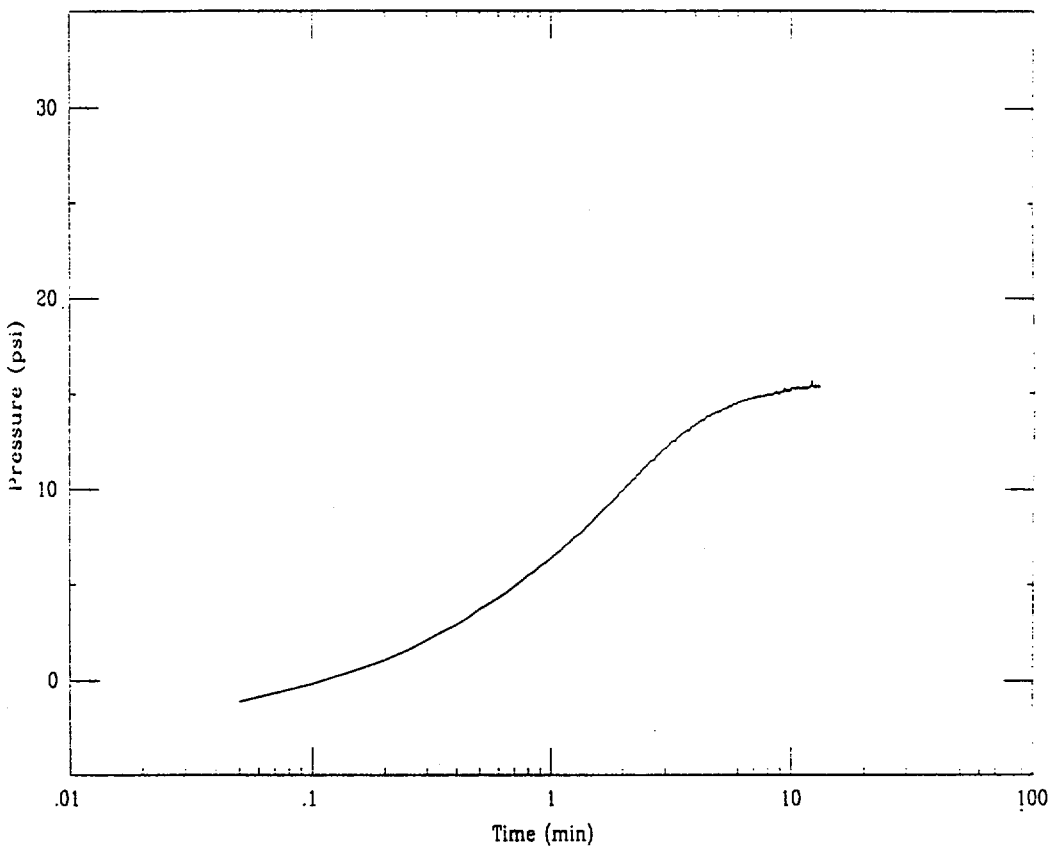
Northing : 80373.1 (ft)
Easting : 55747.5 (ft)
Surface Elevation : 254.5 (ft)
Water Table Elevation : 193.5 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	67.4	187.1	2.8	115.44	59.11	238.9	3.0	716.67	1.60	4.39E-02	2.83E-01	5.61E-06
Immediate dissip.	86.0	168.5	10.8	11.03								

CPT-13S Applied Research Associates 06/05/00

Depth = 135.5 ft Max Pressure = 15.74 psi Pn = 15.74 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-13S
Test Date : 6/5/00

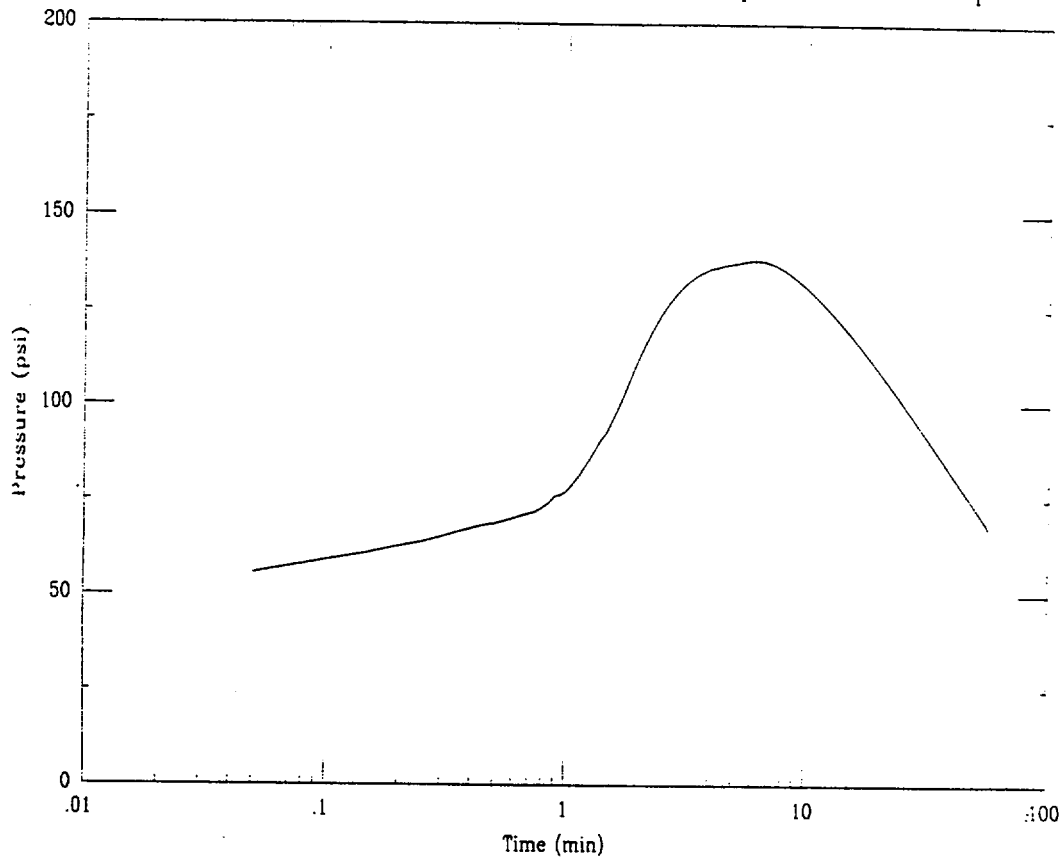
Northing : 80262.2 (ft)
Easting : 55233.6 (ft)
Surface Elevation : 296.7 (ft)
Water Table Elevation : 196.7 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	135.5	161.2	15.4	15.74								

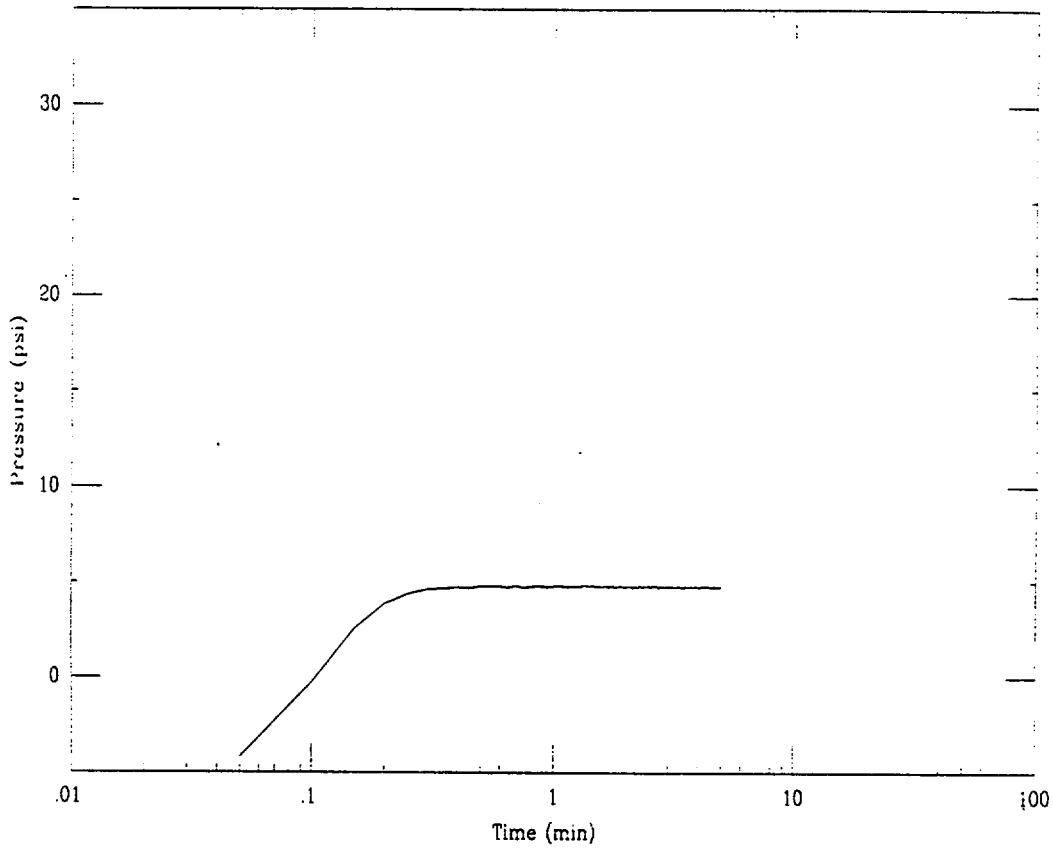
CPT-14R Applied Research Associates 06/19/00

Depth = 68.9 ft Max Pressure = 138.25 psi Pn = 67.91 psi



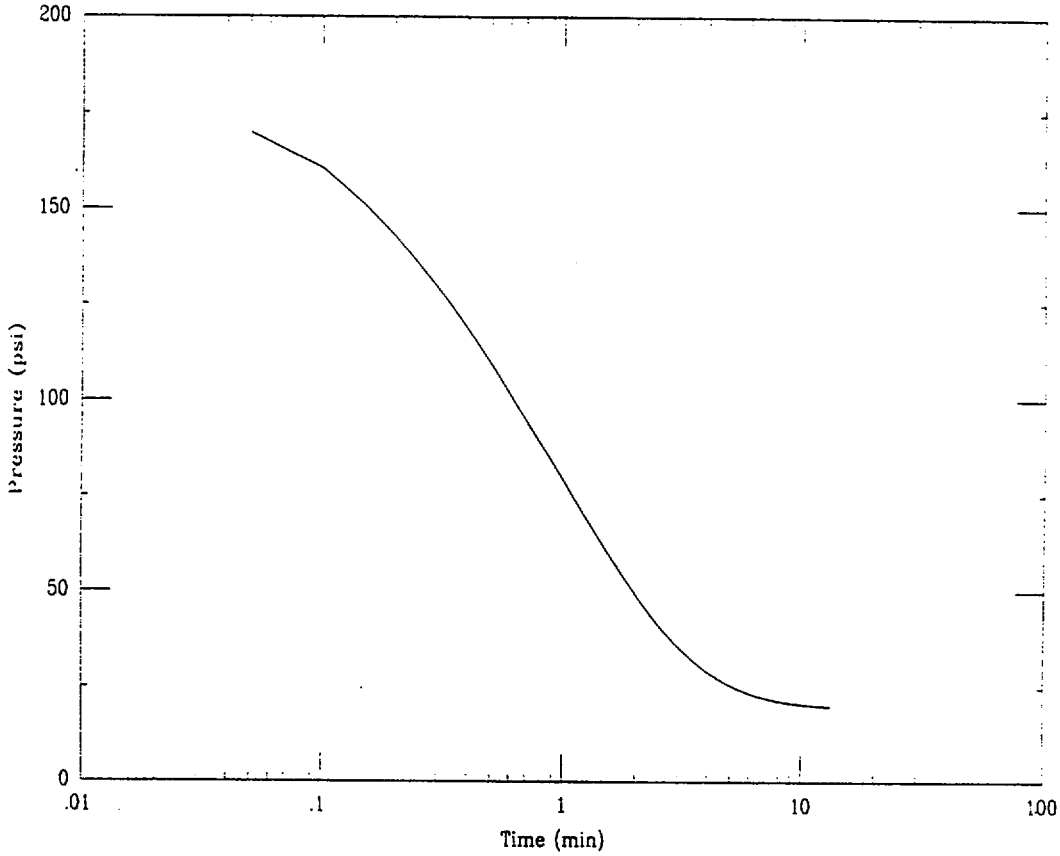
CPT-14R Applied Research Associates 06/19/00

Depth = 85.9 ft Max Pressure = 4.85 psi Pn = 4.76 psi



CPT-14R Applied Research Associates 06/19/00

Depth = 123.7 ft Max Pressure = 169.92 psi Pn = 20.14 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-14R
Test Date : 6/19/00

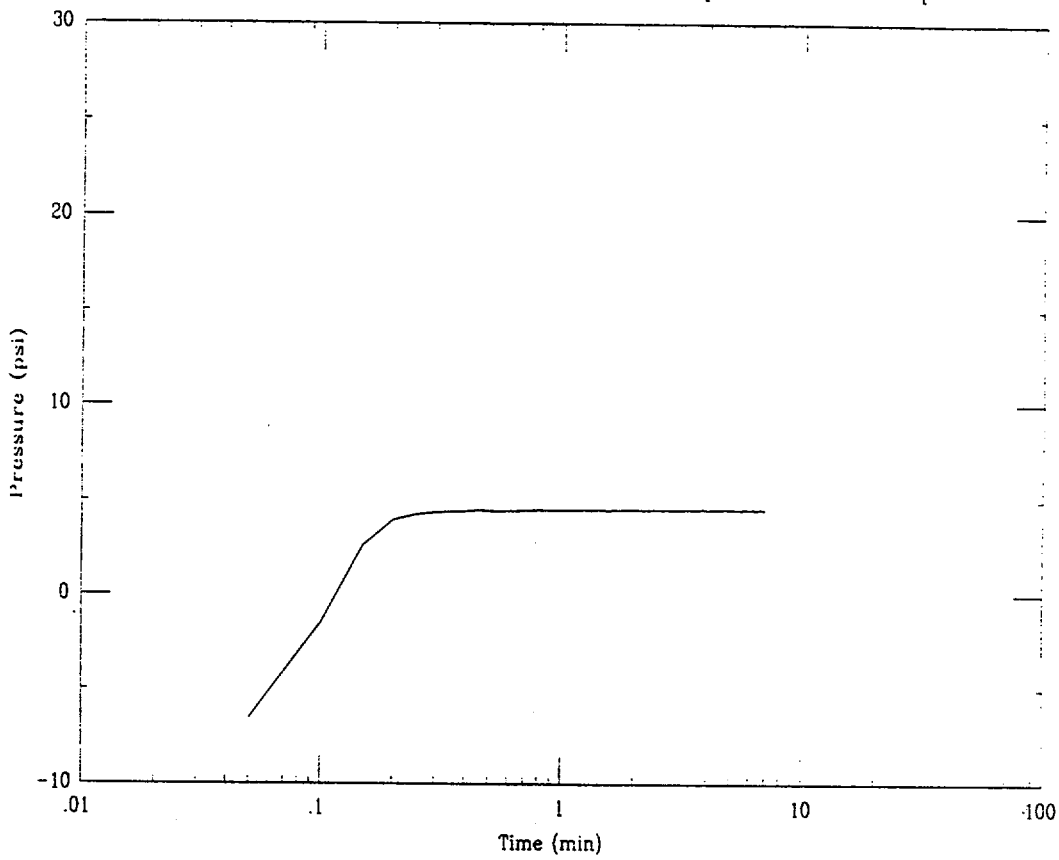
Northing : 80292.7 (ft)
Easting : 55330.8 (ft)
Surface Elevation : 276.0 (ft)
Water Table Elevation : 201.0 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	68.9	207.1	-2.6									
Soil Dilation	85.9	190.1	4.7	4.85								
	123.7	152.3	21.1	169.92	95.51	331.9	2.5	829.86	0.70	1.00E-01	6.47E-01	1.11E-05

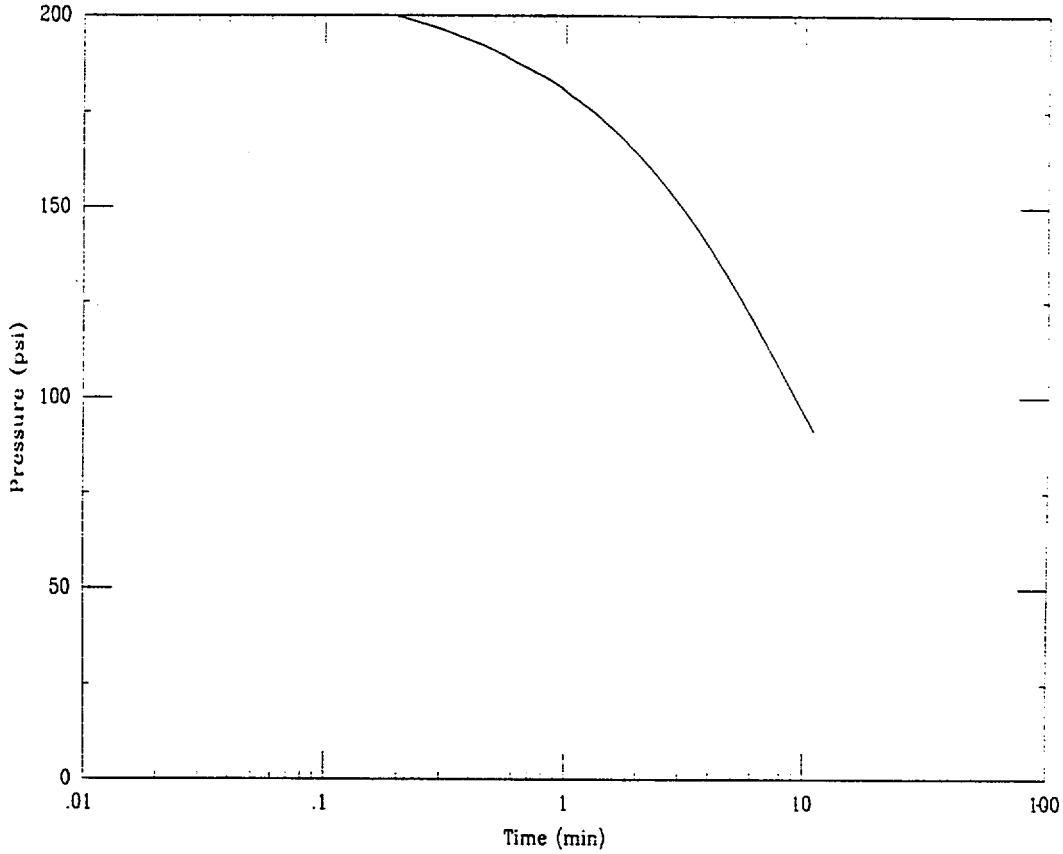
CPT-15R Applied Research Associates 06/22/00

Depth = 79.0 ft Max Pressure = 4.60 psi Pn = 4.55 psi



CPT-15R Applied Research Associates 06/22/00

Depth = 114.9 ft Max Pressure = 205.75 psi Pn = 92.09 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-15R
Test Date : 6/22/00

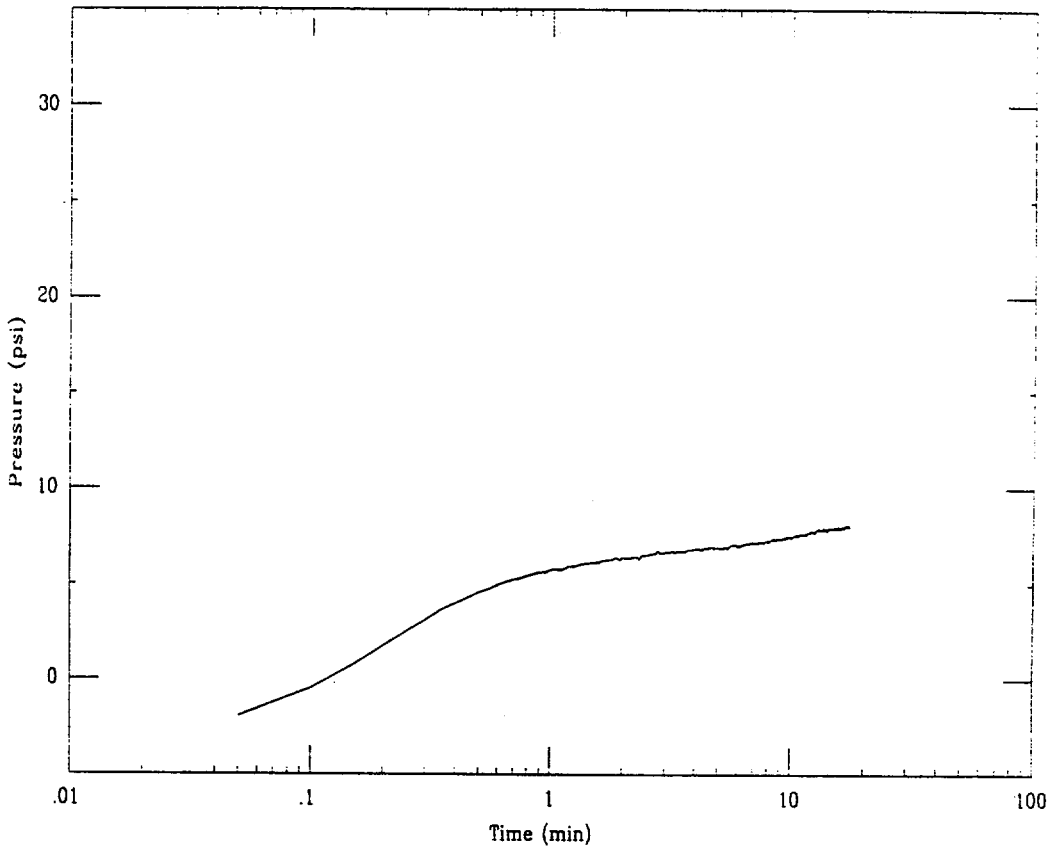
Northing : 80295.0 (ft)
Easting : 55462.7 (ft)
Surface Elevation : 269.1 (ft)
Water Table Elevation : 200.6 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	79.0	190.1	4.6	4.60								
	114.9	154.2	20.1	205.75	112.93	361.1	2.5	902.78	7.11	9.87E-03	6.37E-02	1.00E-06

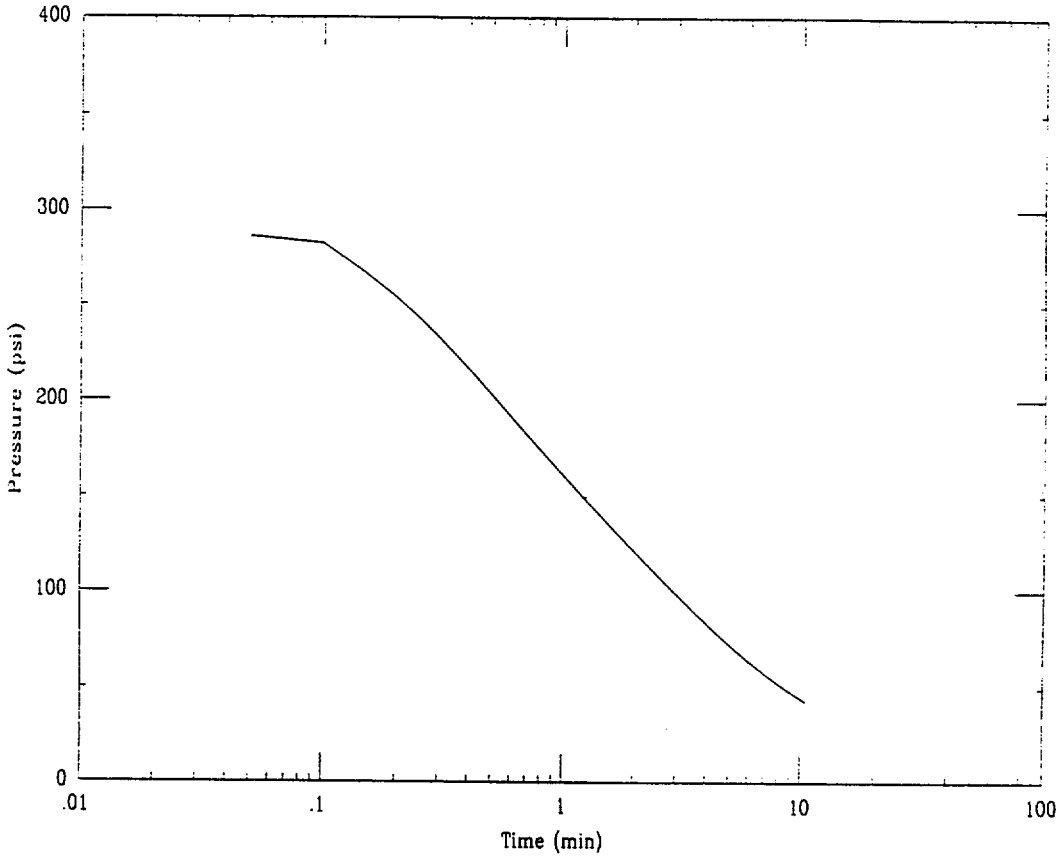
CPT-16S Applied Research Associates 06/08/00

Depth = 84.7 ft Max Pressure = 8.13 psi Pn = 8.13 psi



CPT-16S Applied Research Associates 06/08/00

Depth = 116.1 ft Max Pressure = 286.03 psi Pn = 42.00 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-16S
Test Date : 6/8/00

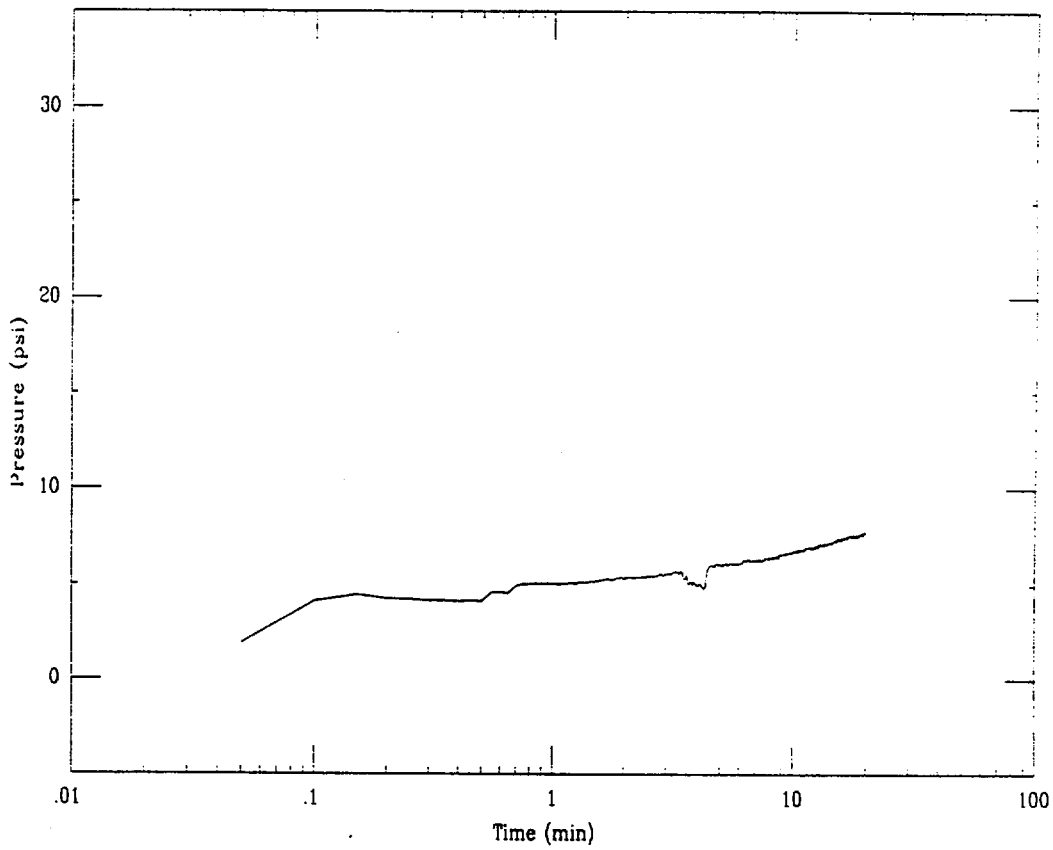
Northing : 80281.0 (ft)
Easting : 55628.6 (ft)
Surface Elevation : 260.5 (ft)
Water Table Elevation : 181.5 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	84.7	175.8	2.5	8.13								
	116.1	144.4	16.1	286.03	151.05	1286.1	1.0	1286.11	1.10	6.38E-02	4.12E-01	4.55E-06

CPT-17 Applied Research Associates 06/10/00

Depth = 80.1 ft Max Pressure = 7.81 psi Pn = 7.81 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-17
Test Date : 6/10/00

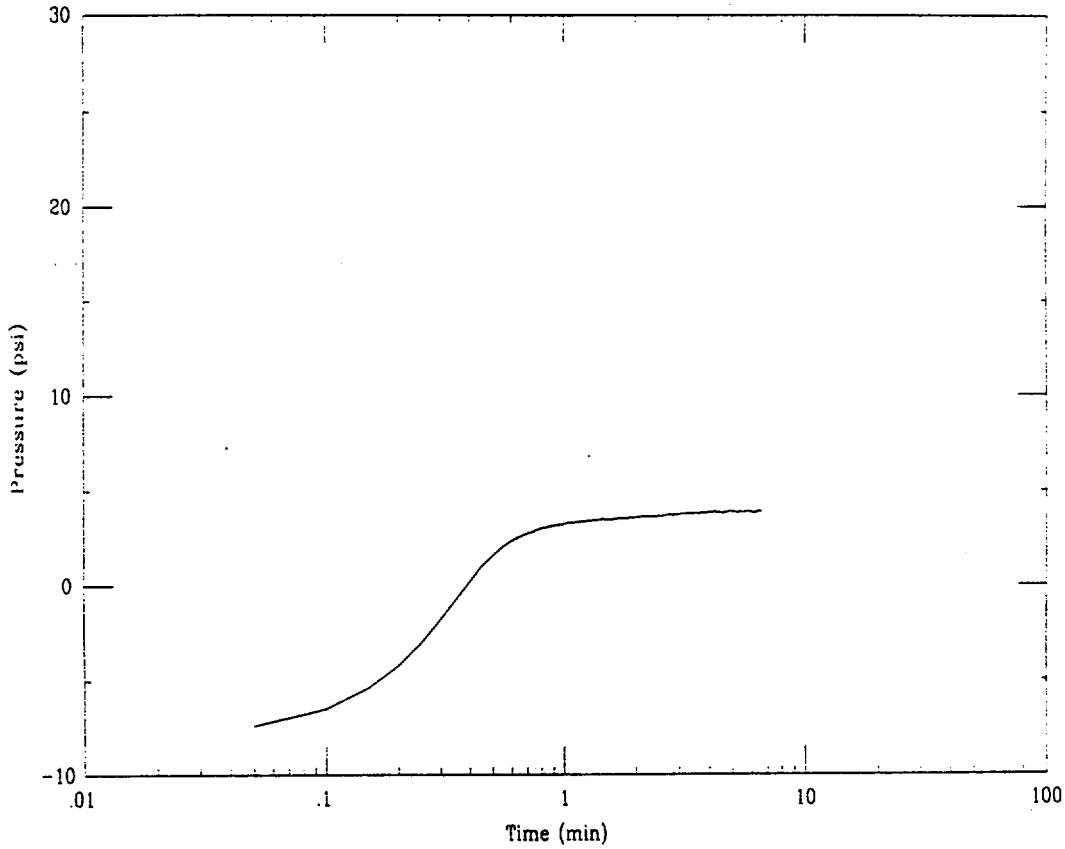
Northing : 80259.4 (ft)
Easting : 55747.7 (ft)
Surface Elevation : 255.9 (ft)
Water Table Elevation : 193.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	80.1	175.8	7.8	7.81								

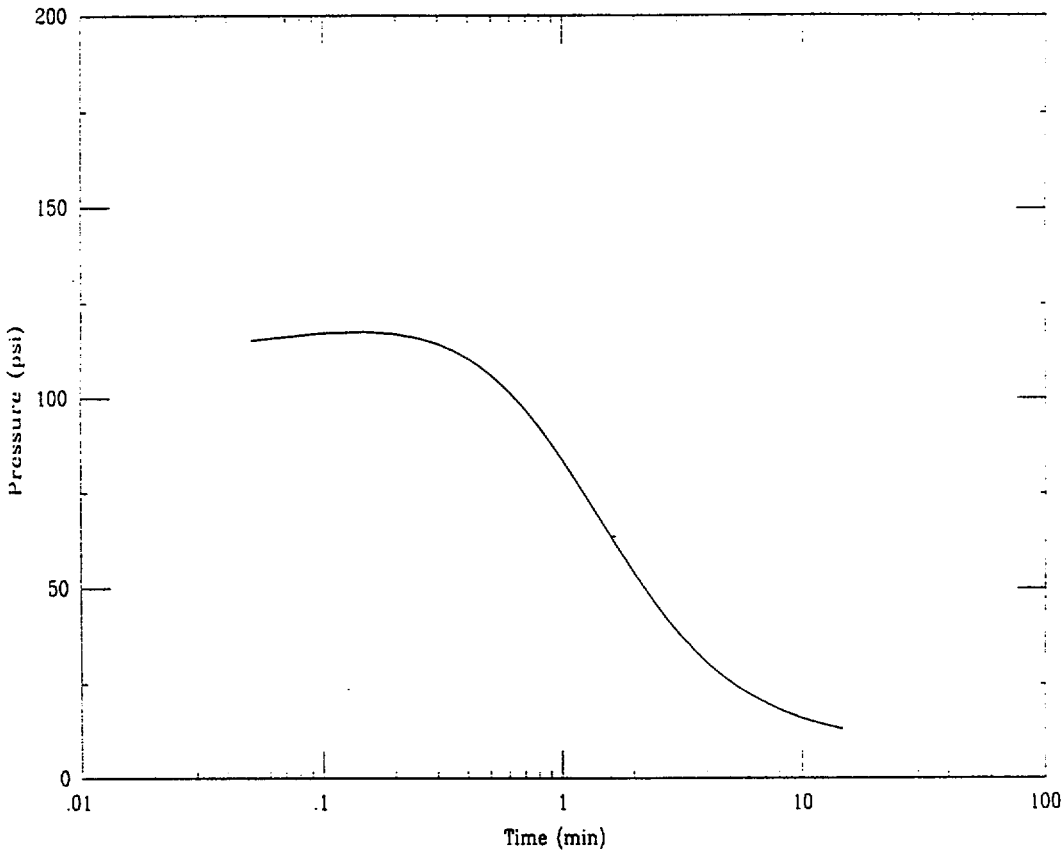
CPT-18R Applied Research Associates 06/22/00

Depth = 82.9 ft Max Pressure = 3.96 psi Pn = 3.95 psi



CPT-18R Applied Research Associates 06/22/00

Depth = 97.2 ft Max Pressure = 117.63 psi Pn = 11.24 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-18R
Test Date : 6/22/00

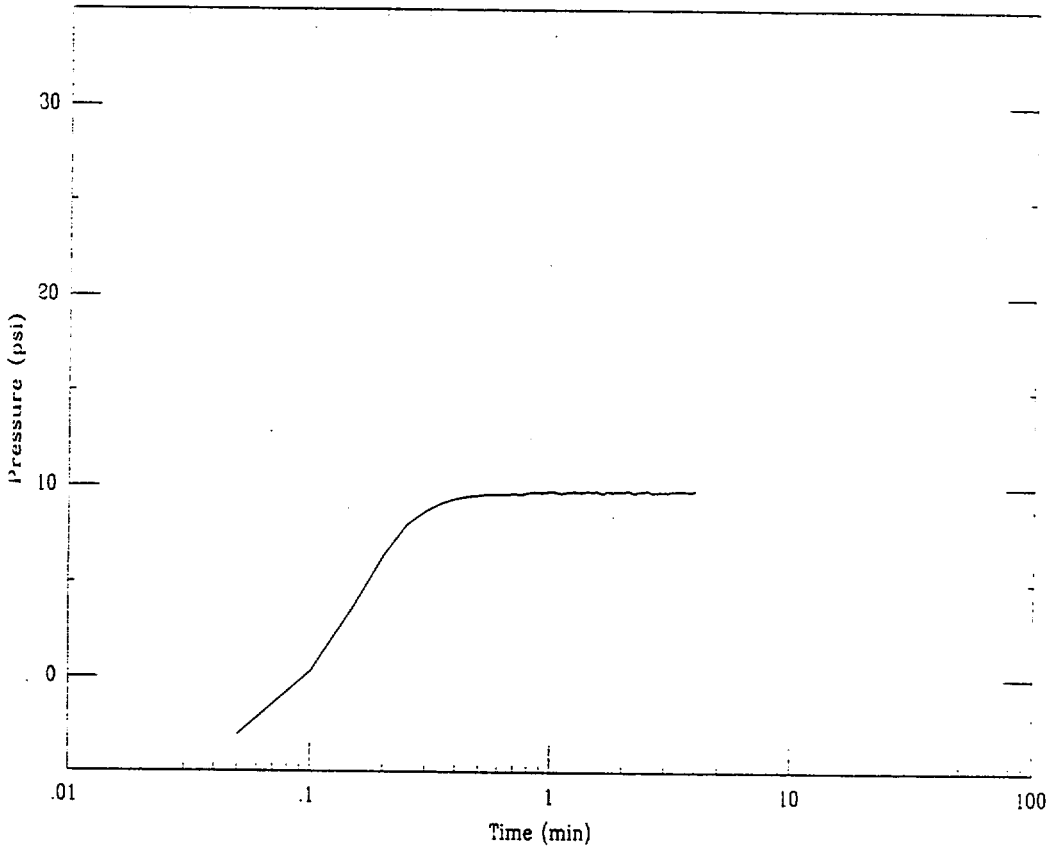
Northing : 80192.1 (ft)
Easting : 55405.9 (ft)
Surface Elevation : 277.0 (ft)
Water Table Elevation : 203.2 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	82.9	194.1	3.9	3.96								
	97.2	179.8	10.1	117.63	63.89	205.6	3.0	616.67	1.48	4.74E-02	3.06E-01	7.05E-06

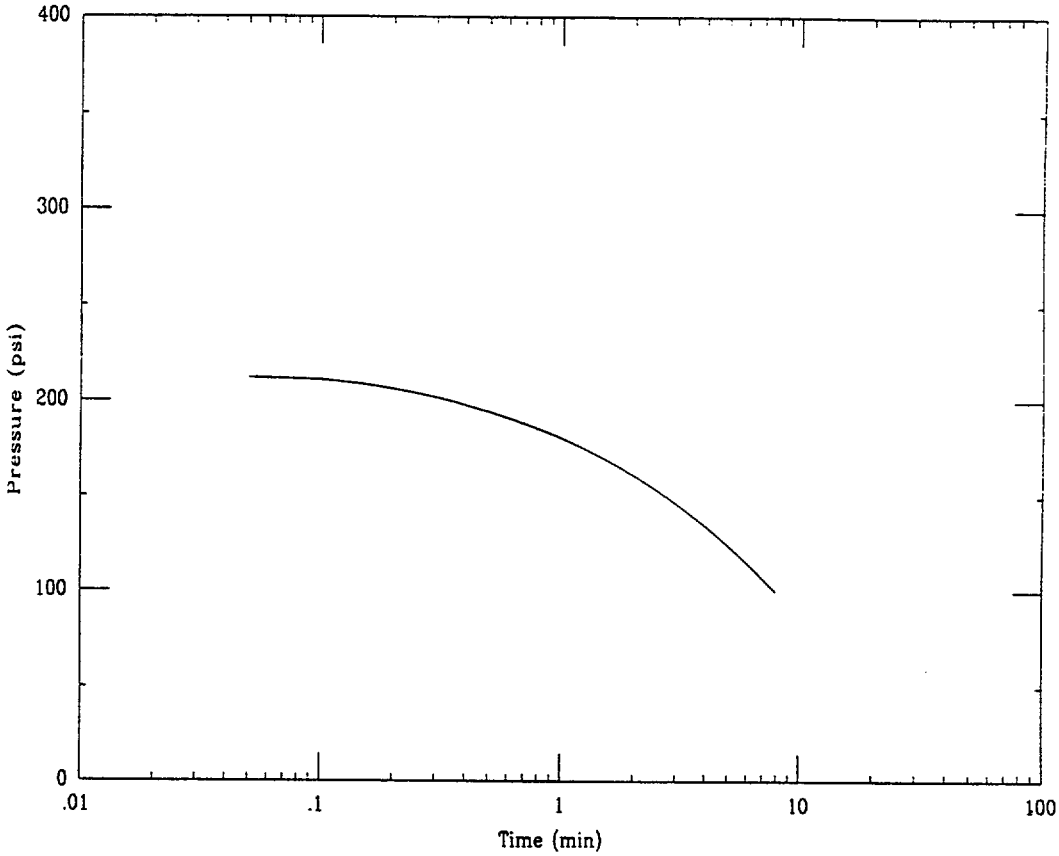
CPT-19S Applied Research Associates 06/03/00

Depth = 98.0 ft Max Pressure = 9.86 psi Pn = 9.81 psi



CPT-19S Applied Research Associates 06/03/00

Depth = 106.1 ft Max Pressure = 212.09 psi Pn = 101.88 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-19S
Test Date : 6/3/00

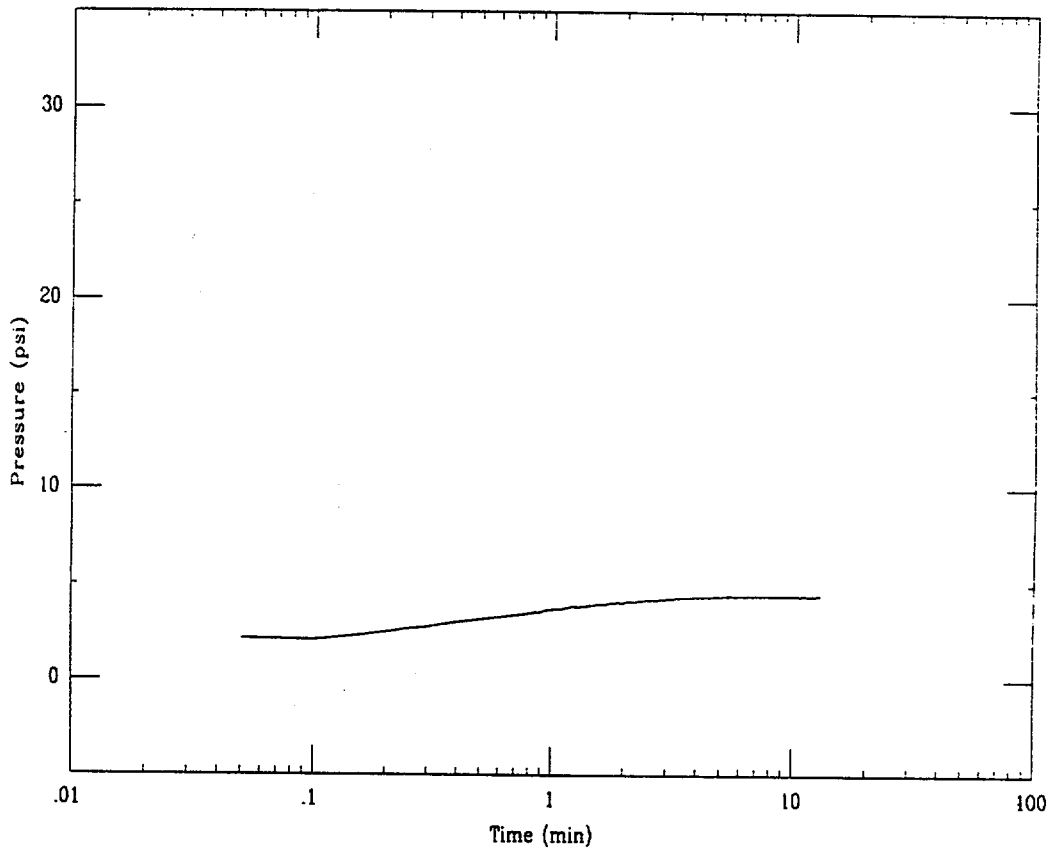
Northing : 80177.3 (ft)
Easting : 55467.5 (ft)
Surface Elevation : 274.8 (ft)
Water Table Elevation : 199.4 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	98.0	176.8	9.8	9.86								
	106.1	168.7	13.3	212.09	112.70	572.2	2.0	1144.44	6.35	1.11E-02	7.13E-02	8.86E-07

CPT-20R Applied Research Associates 06/22/00

Depth = 76.0 ft Max Pressure = 4.48 psi Pn = 4.45 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-20R
Test Date : 6/22/00

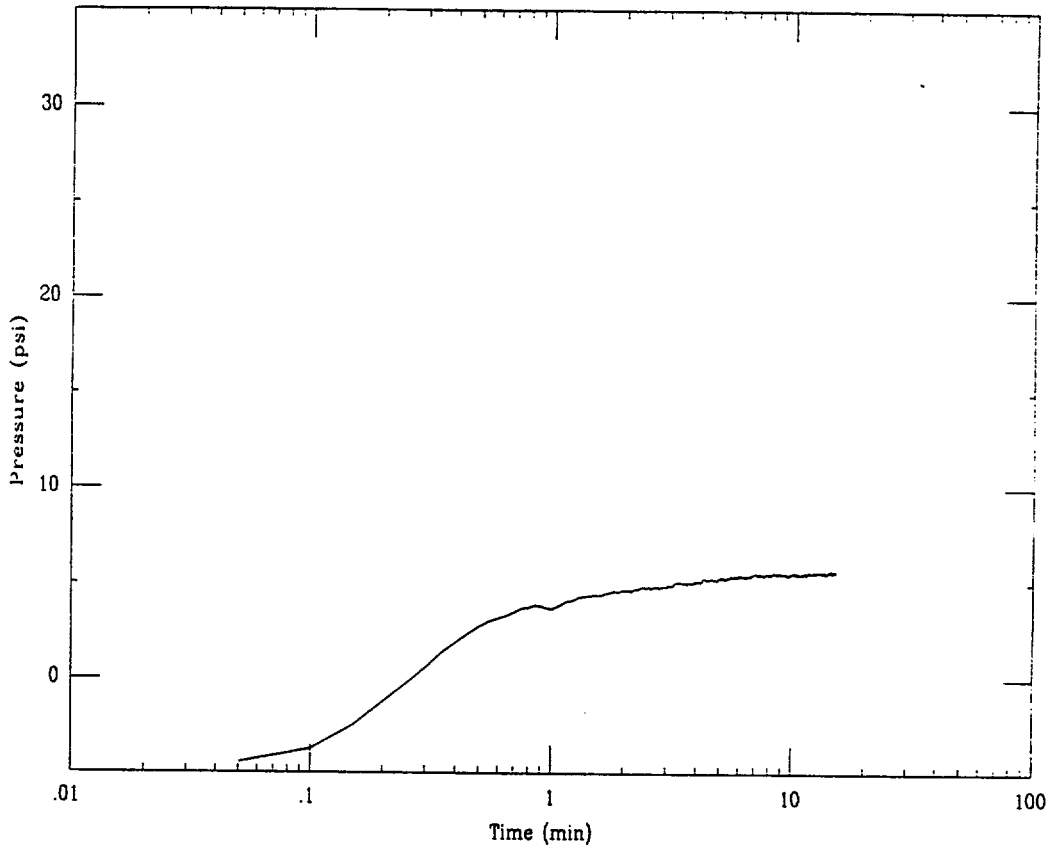
Northing : 80211.3 (ft)
Easting : 55570.4 (ft)
Surface Elevation : 266.9 (ft)
Water Table Elevation : 201.1 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	76.0	190.9	4.4	4.48								

CPT-21 Applied Research Associates 06/12/00

Depth = 110.1 ft Max Pressure = 5.71 psi Pn = 5.63 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-21
Test Date : 6/12/00

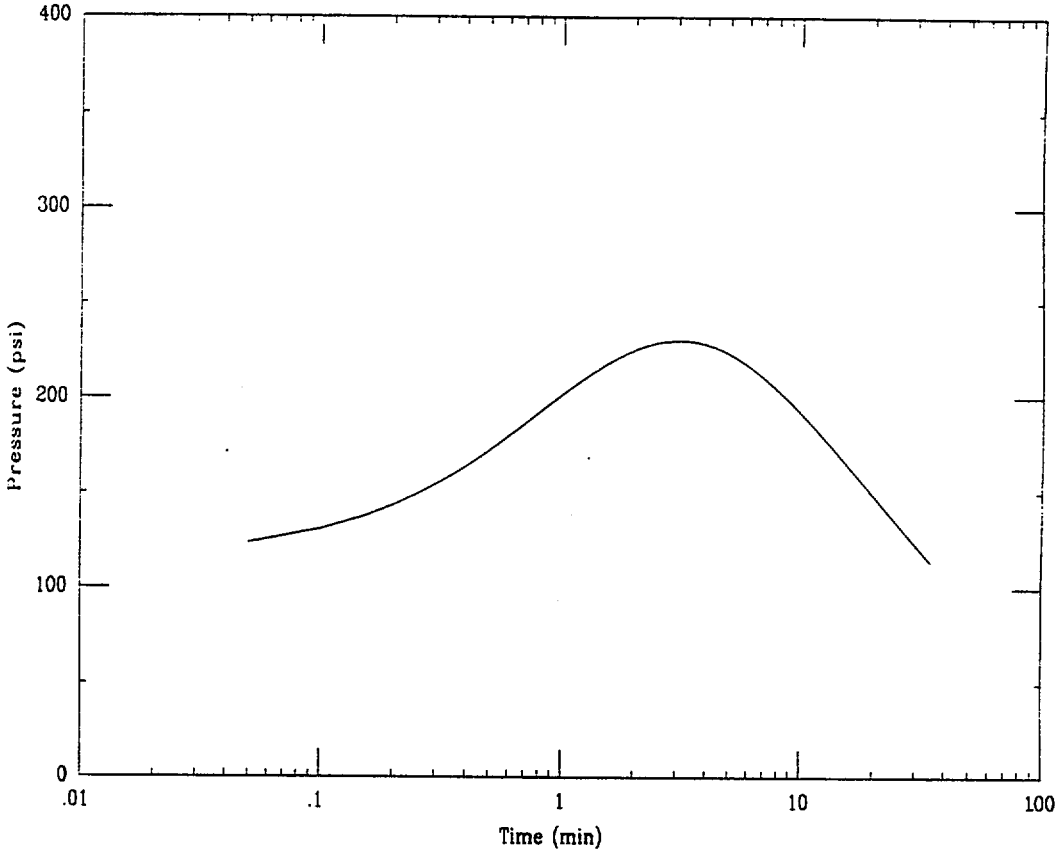
Northing : 80148.4 (ft)
Easting : 55060.1 (ft)
Surface Elevation : 295.4 (ft)
Water Table Elevation : 198.4 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	110.1	185.3	5.7	5.71								

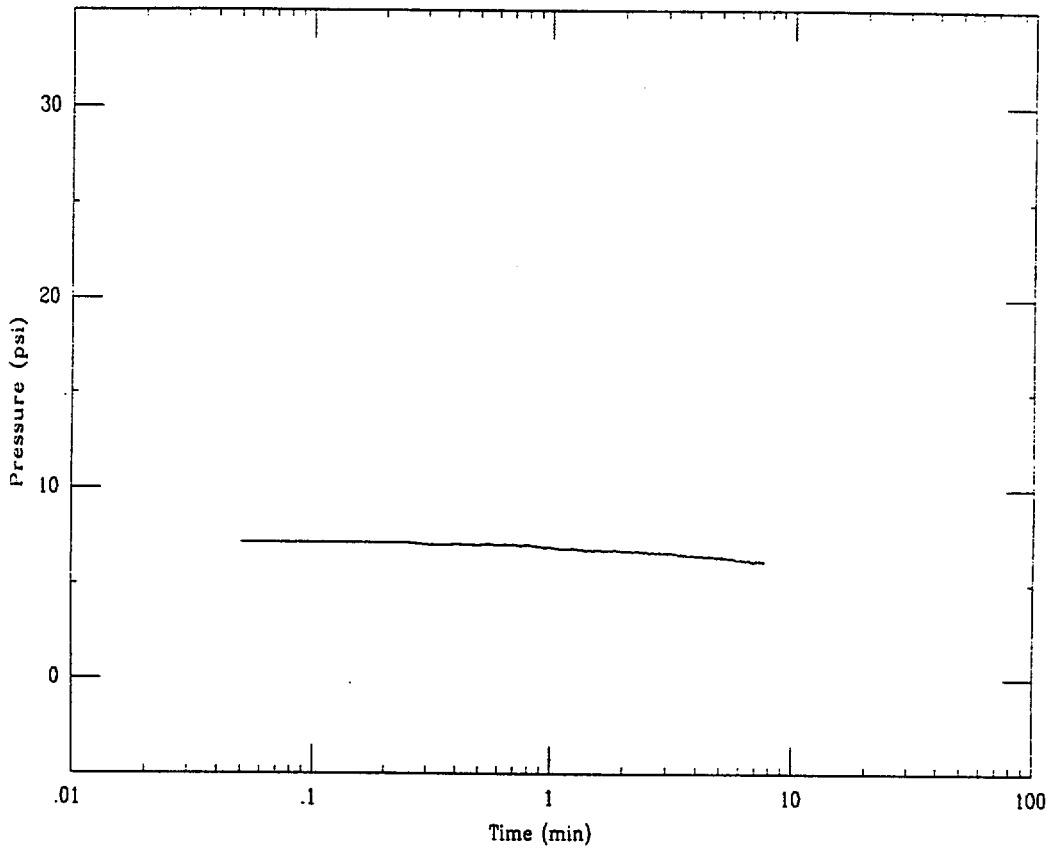
CPT-22 Applied Research Associates 06/12/00

Depth = 104.4 ft Max Pressure = 230.32 psi Pn = 114.27 psi



CPT-22 Applied Research Associates 06/12/00

Depth = 114.6 ft Max Pressure = 7.16 psi Pn = 6.20 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-22
Test Date : 6/12/00

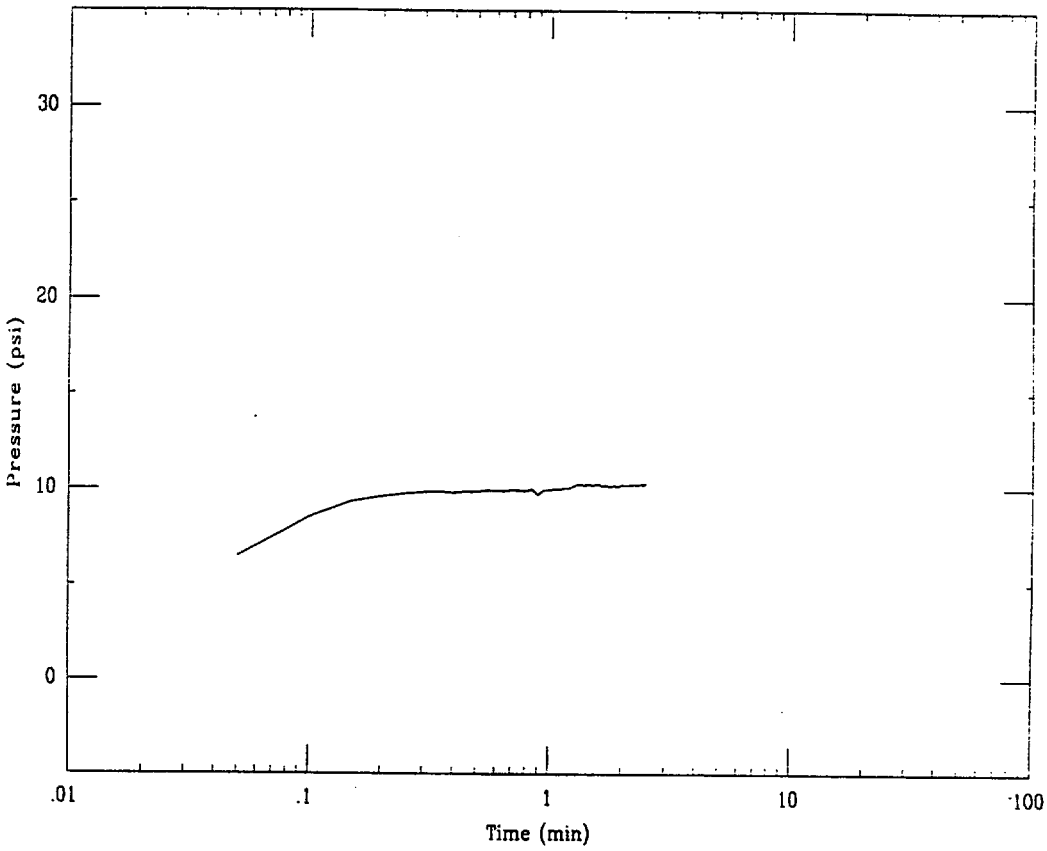
Northing : 80143.8 (ft)
Easting : 55221.9 (ft)
Surface Elevation : 297.3 (ft)
Water Table Elevation : 197.3 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	104.4	192.9	1.9	230.32	116.11	748.6	1.5	1122.92	33.78	2.08E-03	1.34E-02	1.70E-07
	114.6	182.7	6.3	7.16	6.74	1266.7	1.0	1266.67	2.20	3.19E-02	2.06E-01	2.31E-06

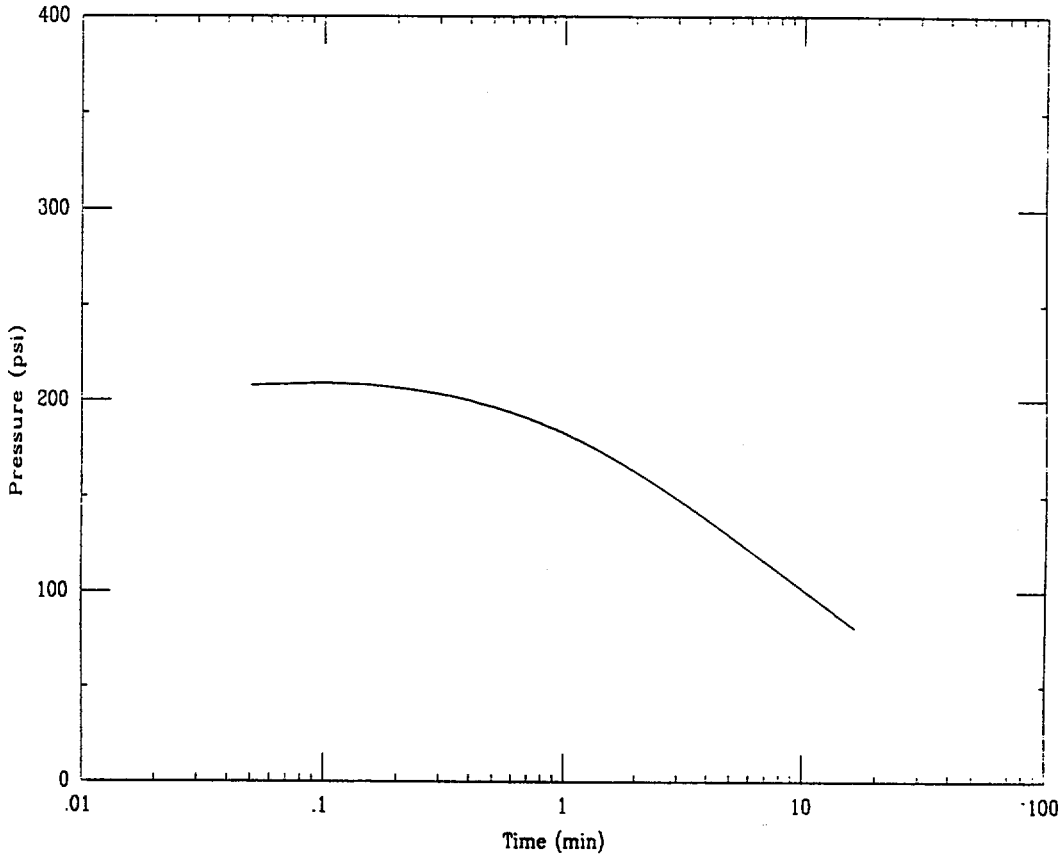
CPT-23S Applied Research Associates 06/06/00

Depth = 92.9 ft Max Pressure = 10.29 psi Pn = 10.23 psi



CPT-23S Applied Research Associates 06/06/00

Depth = 104.6 ft Max Pressure = 209.11 psi Pn = 81.63 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-23S
Test Date : 6/6/00

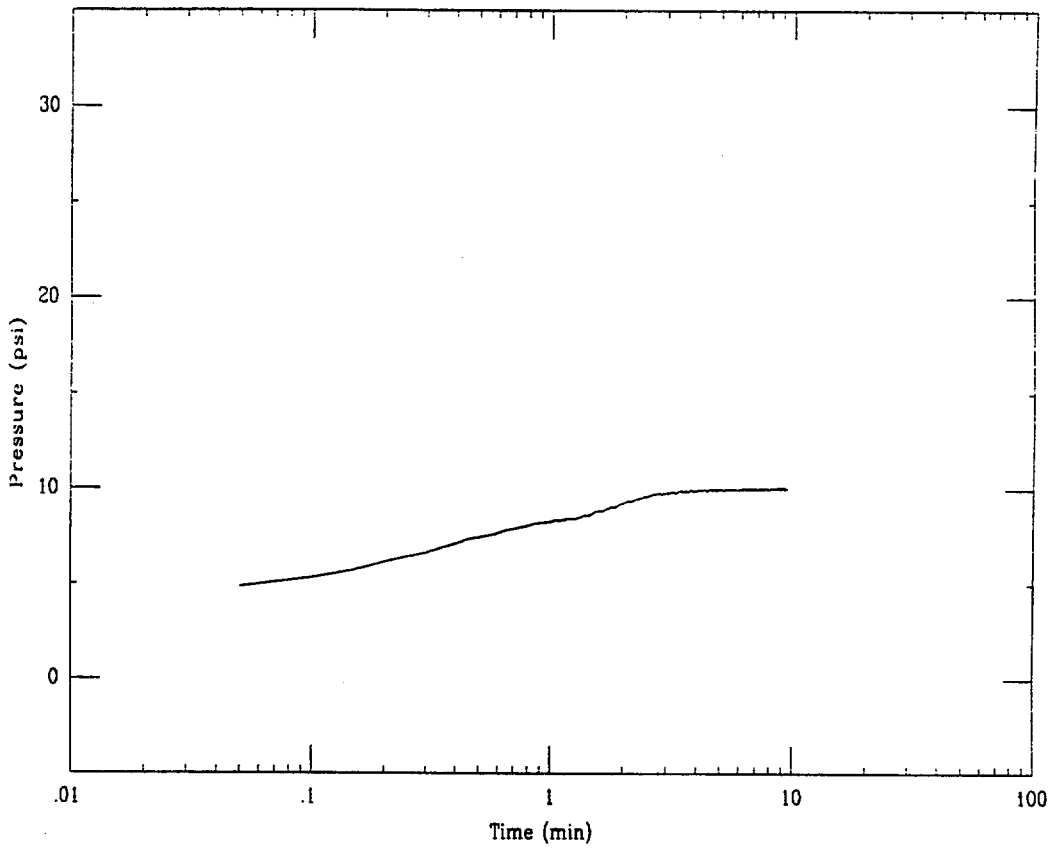
Northing : 80088.9 (ft)
Easting : 55379.4 (ft)
Surface Elevation : 277.3 (ft)
Water Table Elevation : 207.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	92.9	184.4	10.2	10.29								
	104.6	172.7	15.3	209.11	112.18	431.9	2.0	863.89	7.75	9.06E-03	5.84E-02	9.61E-07

CPT-24A Applied Research Associates 06/10/00

Depth = 102.0 ft Max Pressure = 10.11 psi Pn = 10.07 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-24A
Test Date : 6/10/00

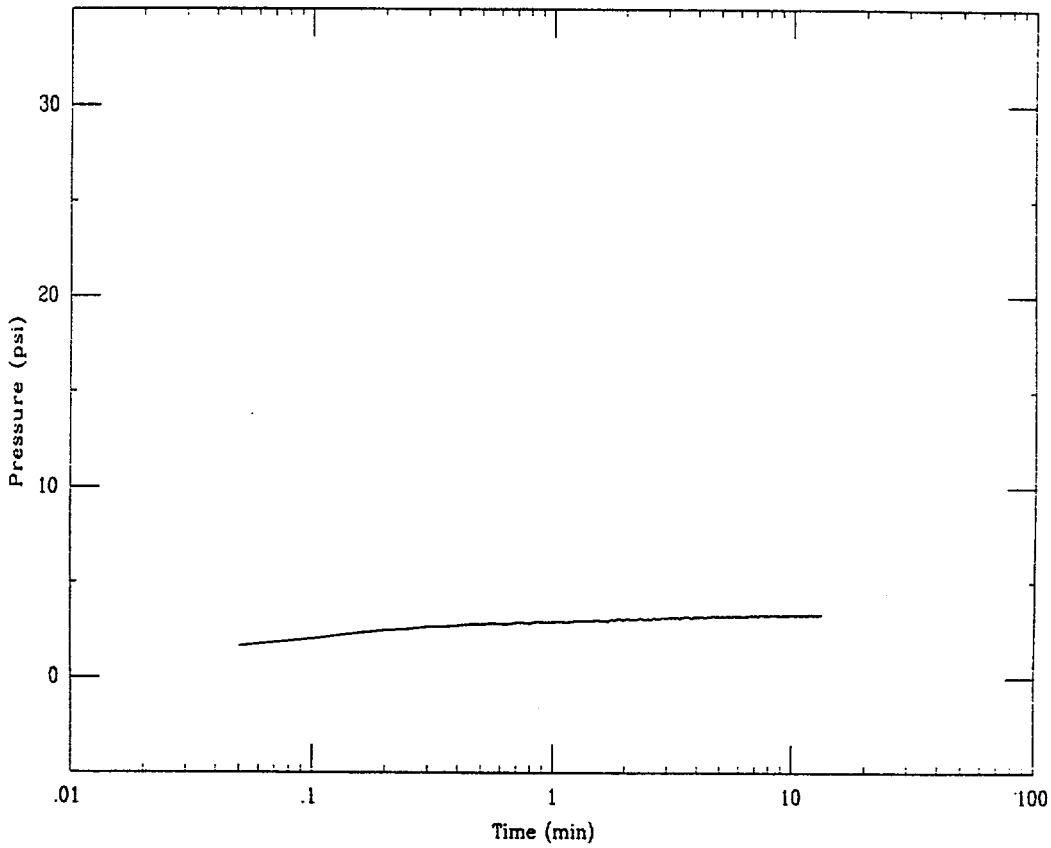
Northing : 80115.0 (ft)
Easting : 55548.5 (ft)
Surface Elevation : 272.6 (ft)
Water Table Elevation : 193.8 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	102.0	170.6	10.1	10.11								

CPT-25 Applied Research Associates 06/12/00

Depth = 76.4 ft Max Pressure = 3.33 psi Pn = 3.28 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-25
Test Date : 6/12/00

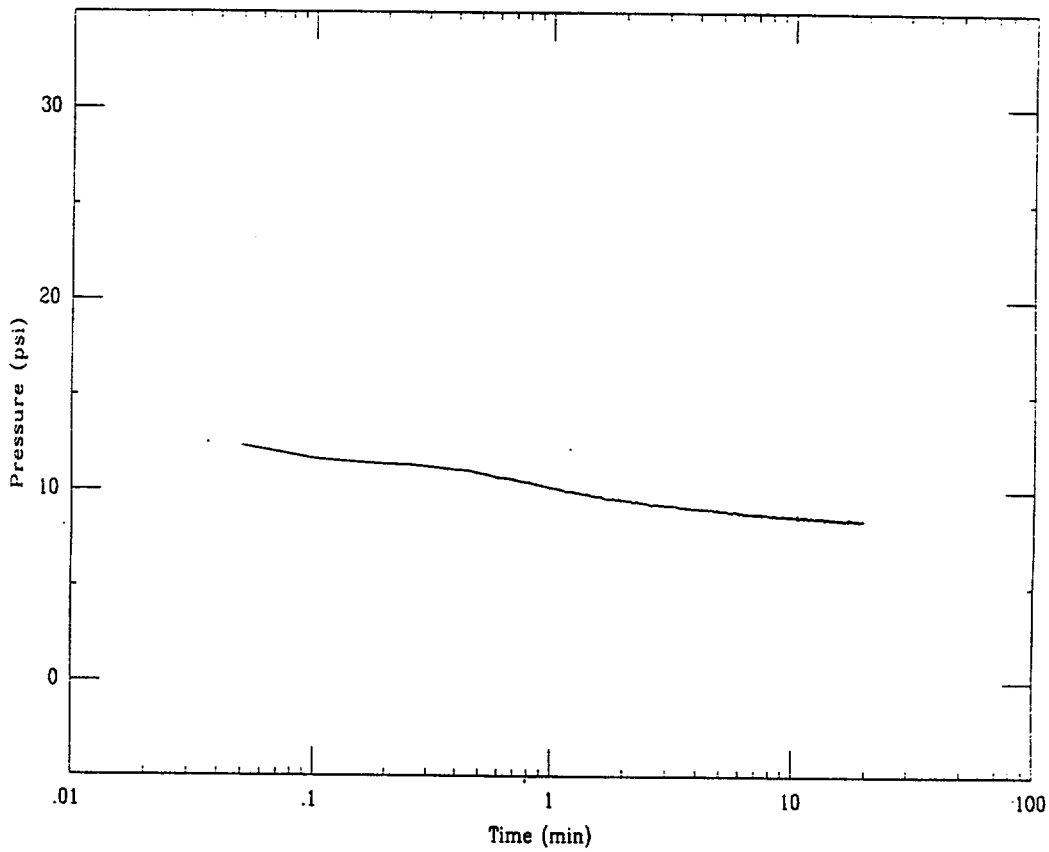
Northing : 80104.7 (ft)
Easting : 55621.7 (ft)
Surface Elevation : 268.9 (ft)
Water Table Elevation : 200.1 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	76.4	192.5	3.3	3.33								

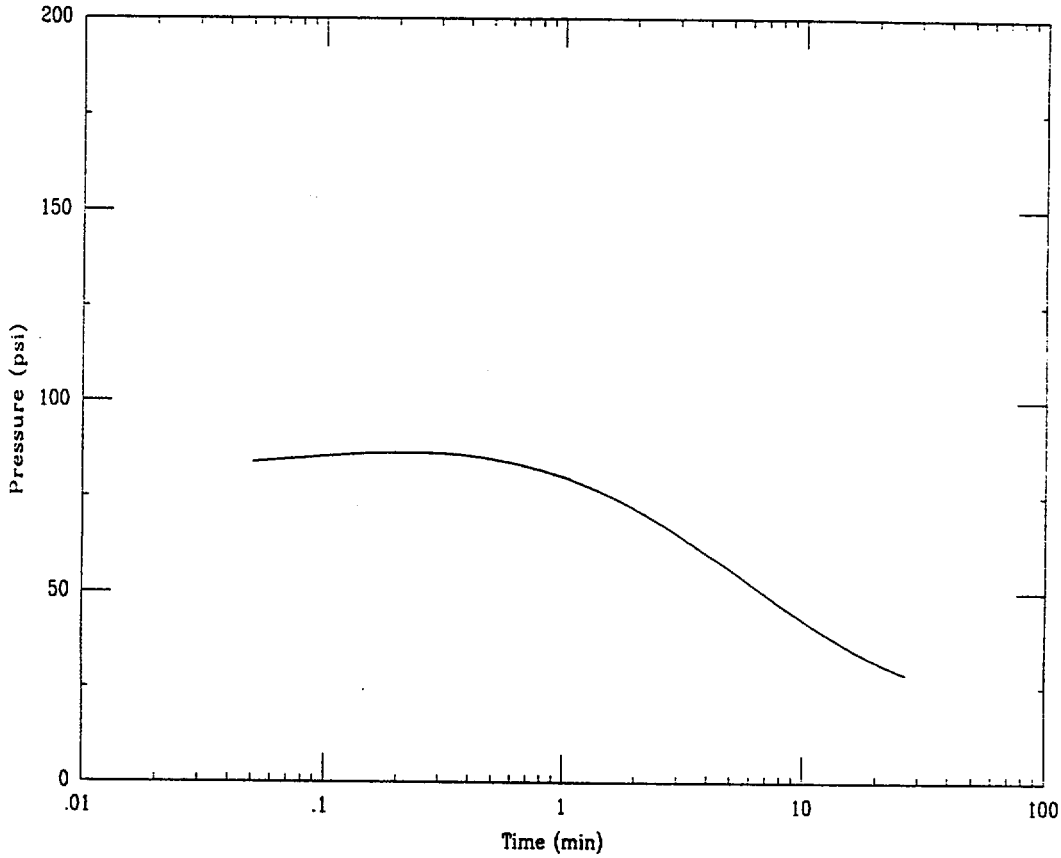
CPT-26S Applied Research Associates 06/06/00

Depth = 85.1 ft Max Pressure = 12.33 psi Pn = 8.50 psi



CPT-26S Applied Research Associates 06/06/00

Depth = 112.7 ft Max Pressure = 86.37 psi Pn = 28.62 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-26S
Test Date : 6/6/00

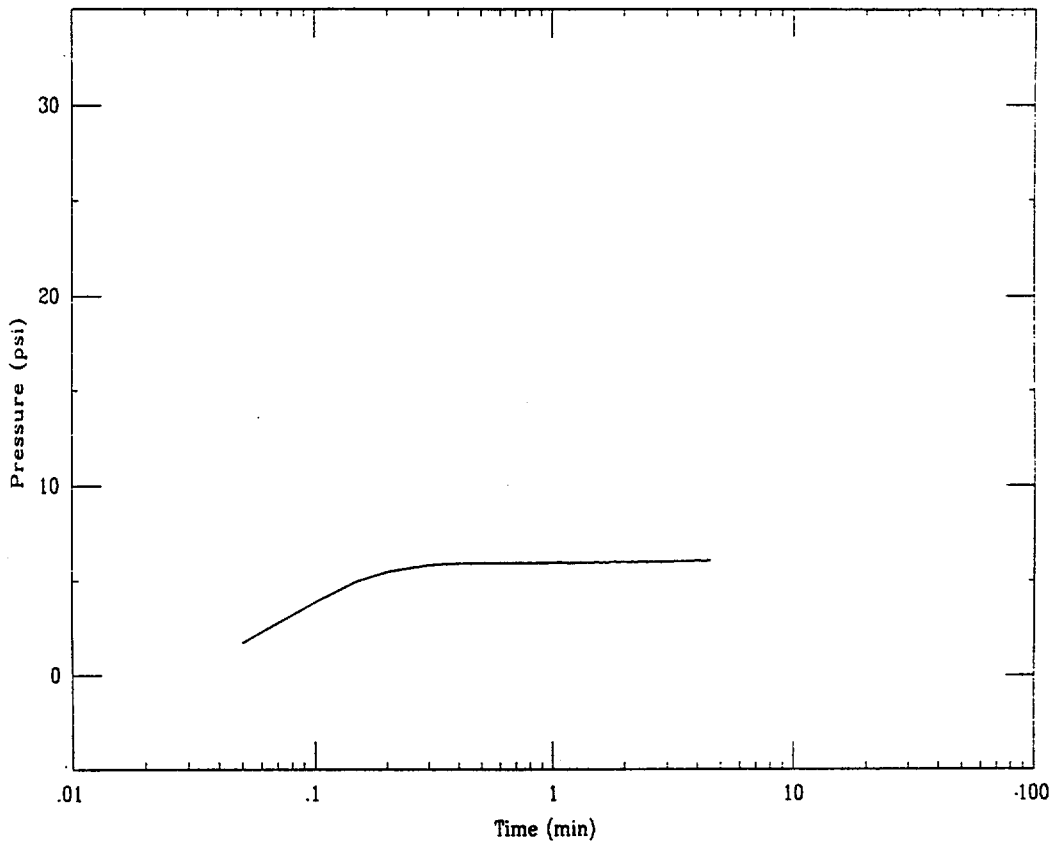
Northing : 80116.2 (ft)
Easting : 55726.7 (ft)
Surface Elevation : 261.9 (ft)
Water Table Elevation : 196.4 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	85.1	176.8	8.5	12.33	10.41	3234.7	1.0	3234.72	0.80	8.77E-02	5.66E-01	2.49E-06
	112.7	149.2	20.5	86.37	53.41	244.4	3.0	733.33	5.76	1.22E-02	7.86E-02	1.52E-06

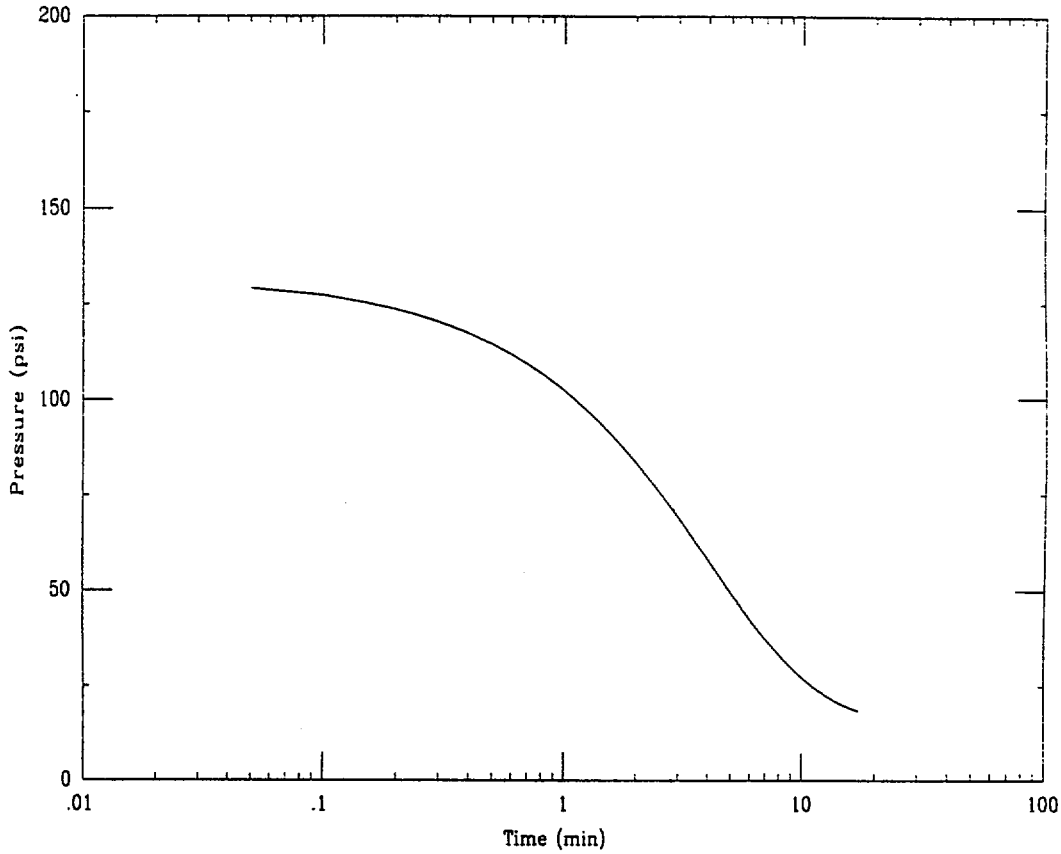
CPT-27R Applied Research Associates 06/22/00

Depth = 86.0 ft Max Pressure = 6.11 psi Pn = 6.11 psi



CPT-27R Applied Research Associates 06/22/00

Depth = 104.5 ft Max Pressure = 129.09 psi Pn = 18.30 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-27R
Test Date : 6/22/00

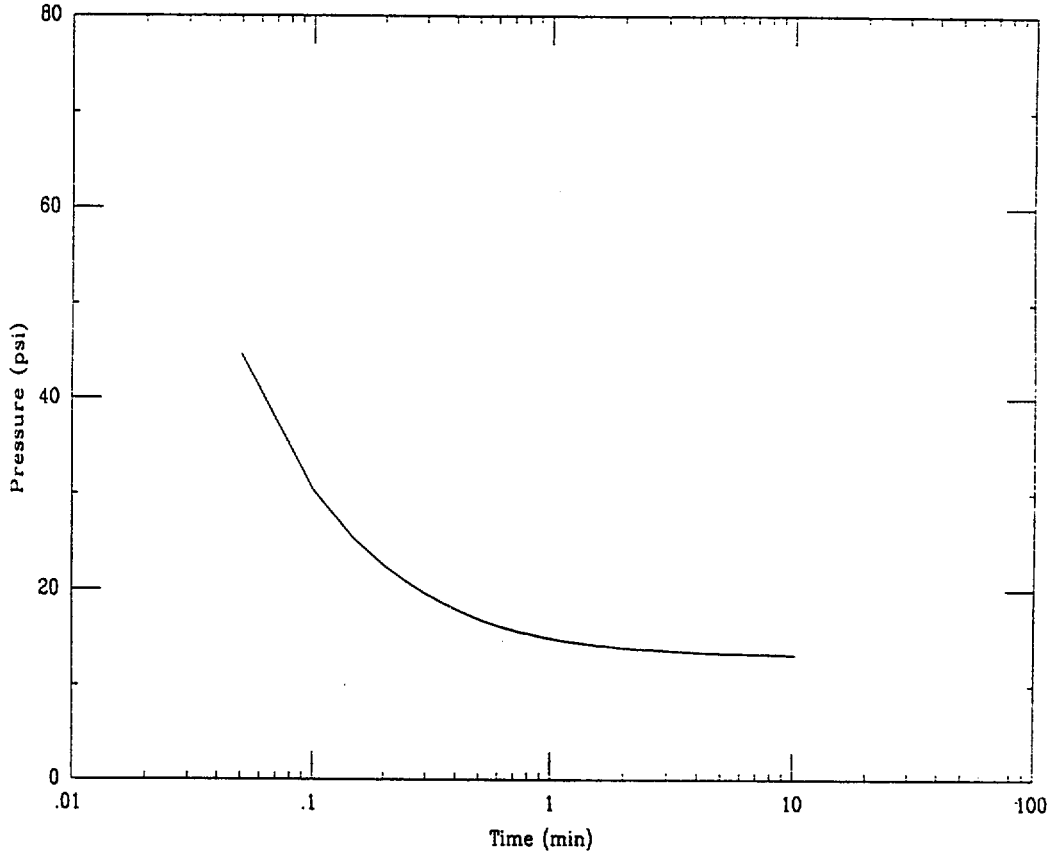
Northing : 80001.4 (ft)
Easting : 55254.2 (ft)
Surface Elevation : 277.5 (ft)
Water Table Elevation : 205.5 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	86.0	191.5	6.1	6.11								
	104.5	173.0	14.1	129.09	71.59	197.2	3.0	591.67	2.80	2.51E-02	1.62E-01	3.89E-06

CPT-28S Applied Research Associates 05/31/00

Depth = 107.0 ft Max Pressure = 44.70 psi Pn = 13.26 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-28S
Test Date : 5/31/00

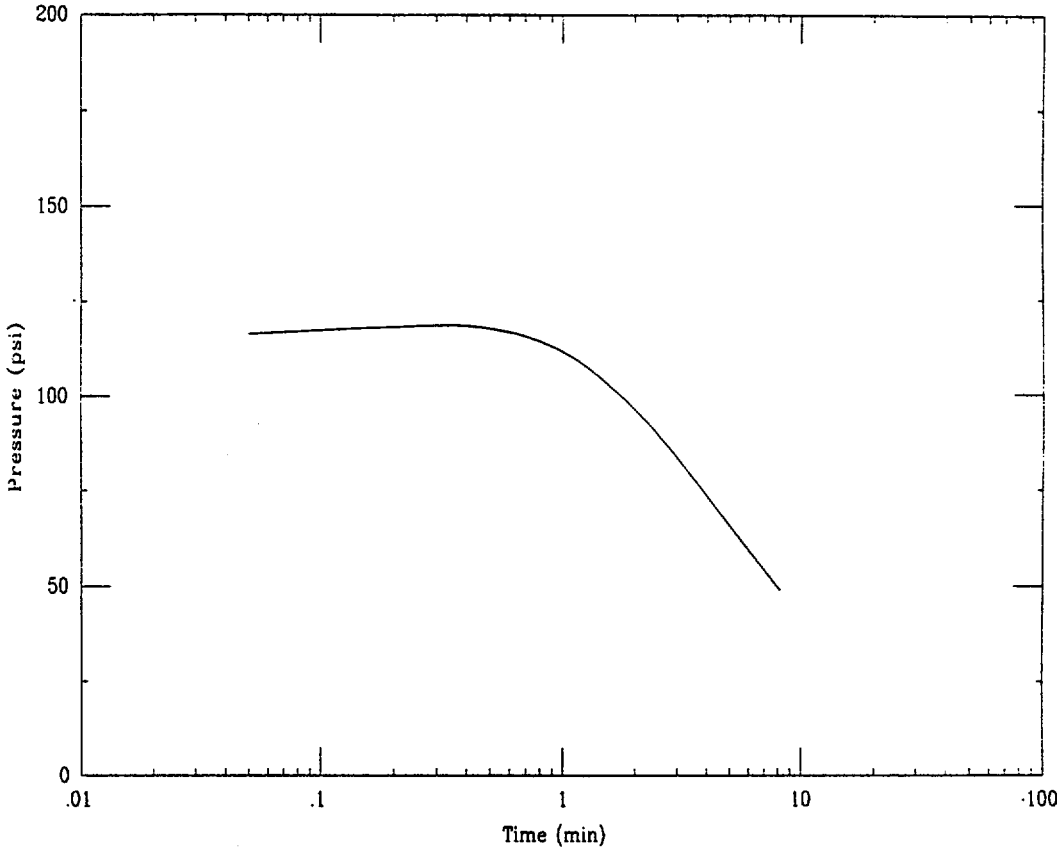
Northing : 80001.8 (ft)
Easting : 55332.0 (ft)
Surface Elevation : 279.2 (ft)
Water Table Elevation : 202.7 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	107.0	172.2	13.2	44.70	28.96	1073.6	1.0	1073.61	0.10	7.02E-01	4.53E+00	6.00E-05

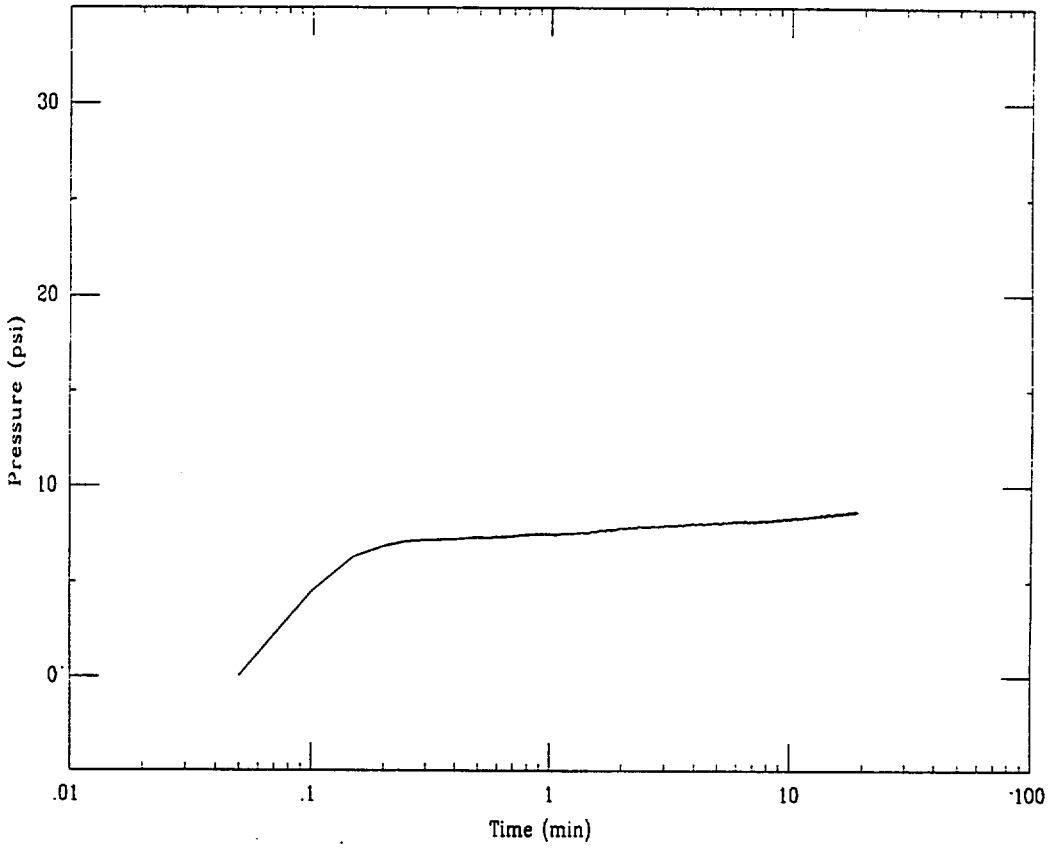
CPT-29R Applied Research Associates 06/13/00

Depth = 66.8 ft Max Pressure = 118.62 psi Pn = 49.85 psi



CPT-29R Applied Research Associates 06/13/00

Depth = 89.1 ft Max Pressure = 8.74 psi Pn = 8.68 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-29R
Test Date : 6/13/00

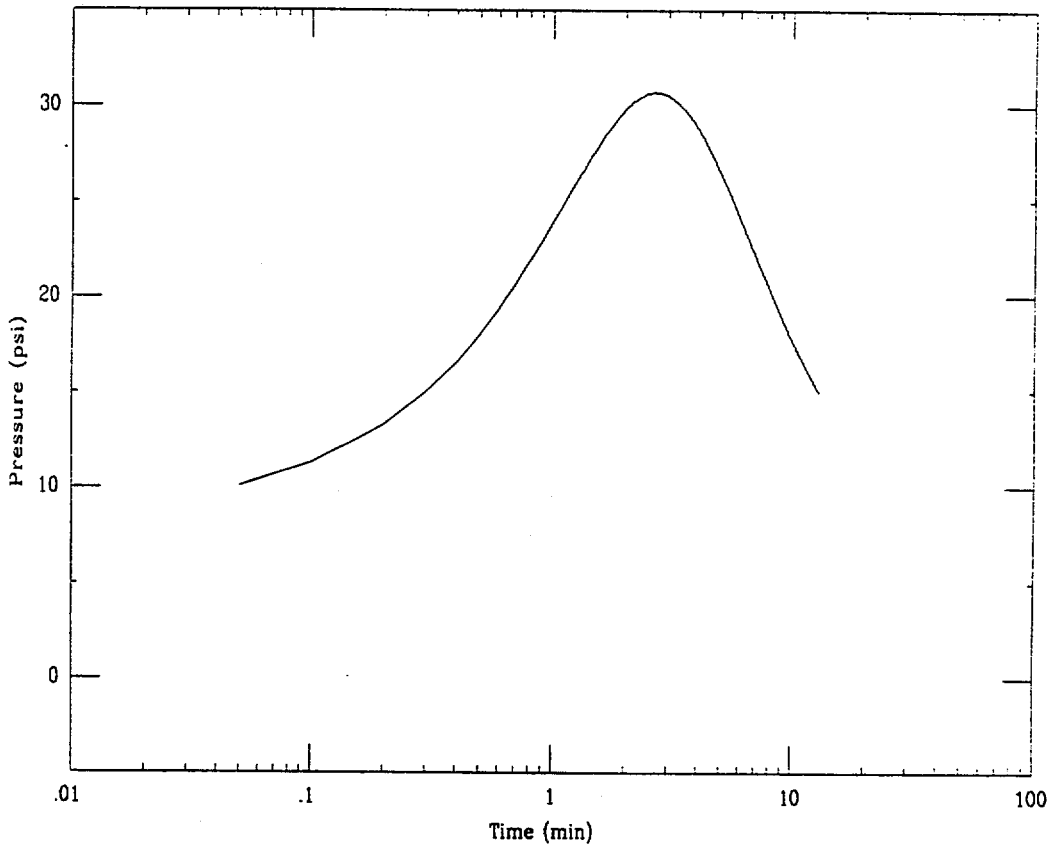
Northing : 79985.8 (ft)
Easting : 55422.4 (ft)
Surface Elevation : 276.4 (ft)
Water Table Elevation : 207.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	66.8	209.6	-0.7									
Soil Dilation	89.1	187.3	8.9	8.74								

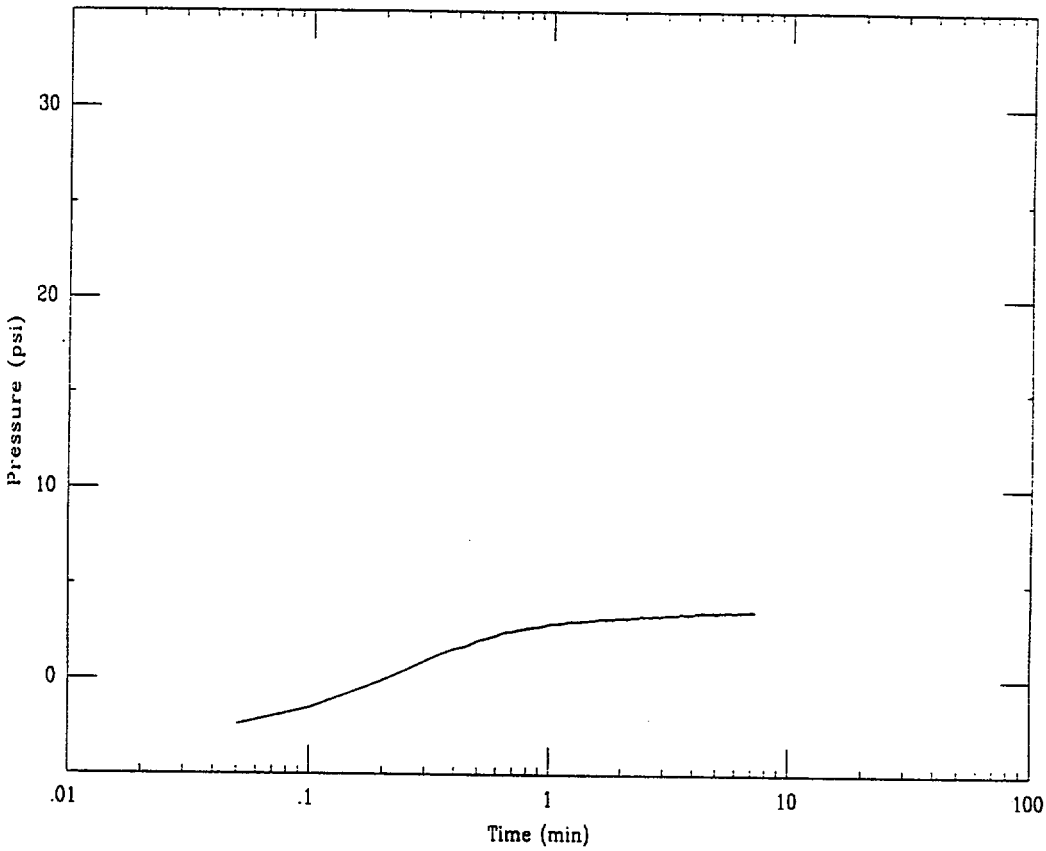
CPT-30R Applied Research Associates 06/14/00

Depth = 60.8 ft Max Pressure = 30.74 psi Pn = 15.17 psi



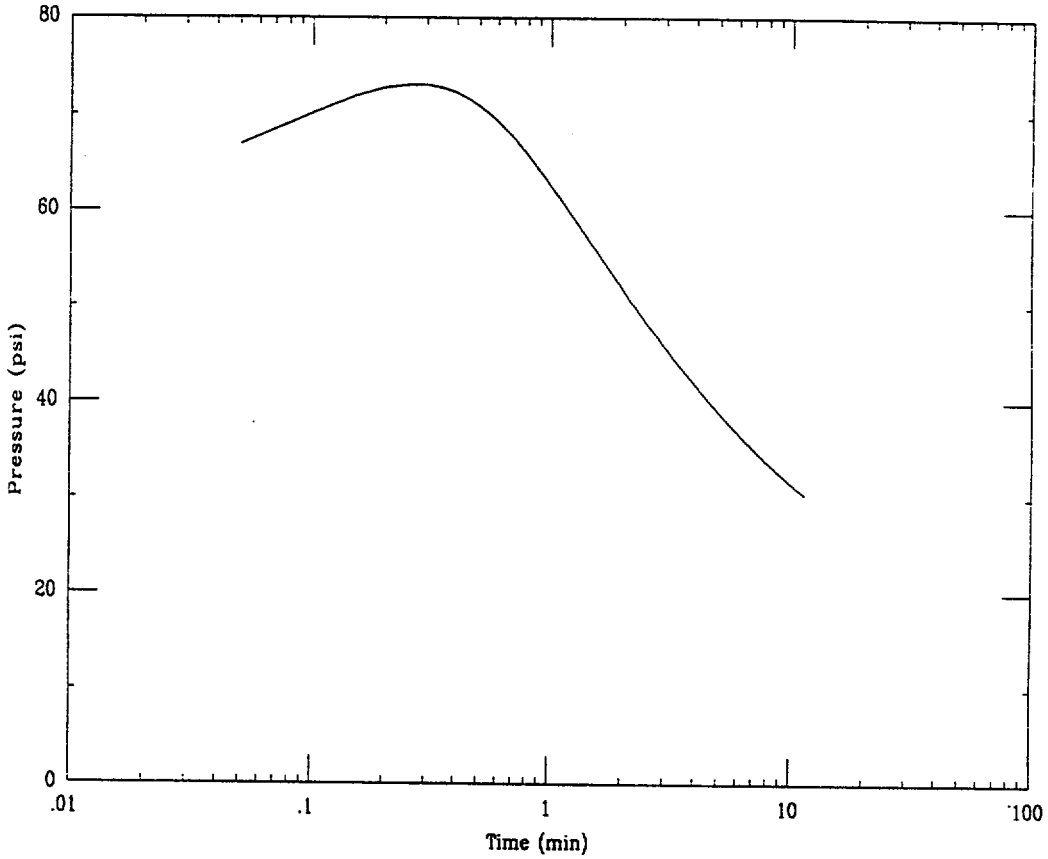
CPT-30R Applied Research Associates 06/14/00

Depth = 79.3 ft Max Pressure = 3.63 psi Pn = 3.59 psi



CPT-30R Applied Research Associates 06/14/00

Depth = 125.3 ft Max Pressure = 73.07 psi Pn = 30.56 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-30R
Test Date : 6/14/00

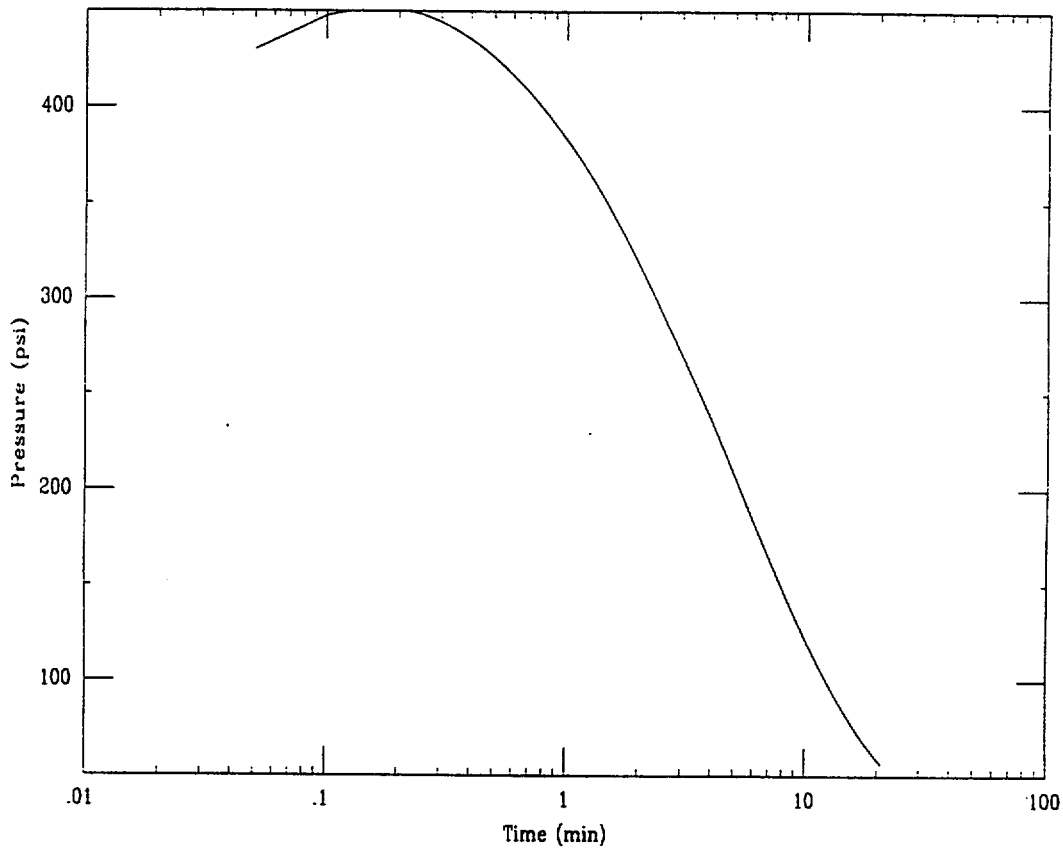
Northing : 79973.4 (ft)
Easting : 55538.3 (ft)
Surface Elevation : 274.2 (ft)
Water Table Elevation : 203.2 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	60.8	213.4	-4.4									
Soil Dilation	79.3	194.9	3.6	3.63								
	125.3	148.9	23.5	73.07	48.30	183.3	3.0	550.00	2.55	2.75E-02	1.78E-01	4.59E-06

CPT-31S Applied Research Associates 06/01/00

Depth = 126.1 ft Max Pressure = 451.84 psi Pn = 56.98 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-31S
Test Date : 6/1/00

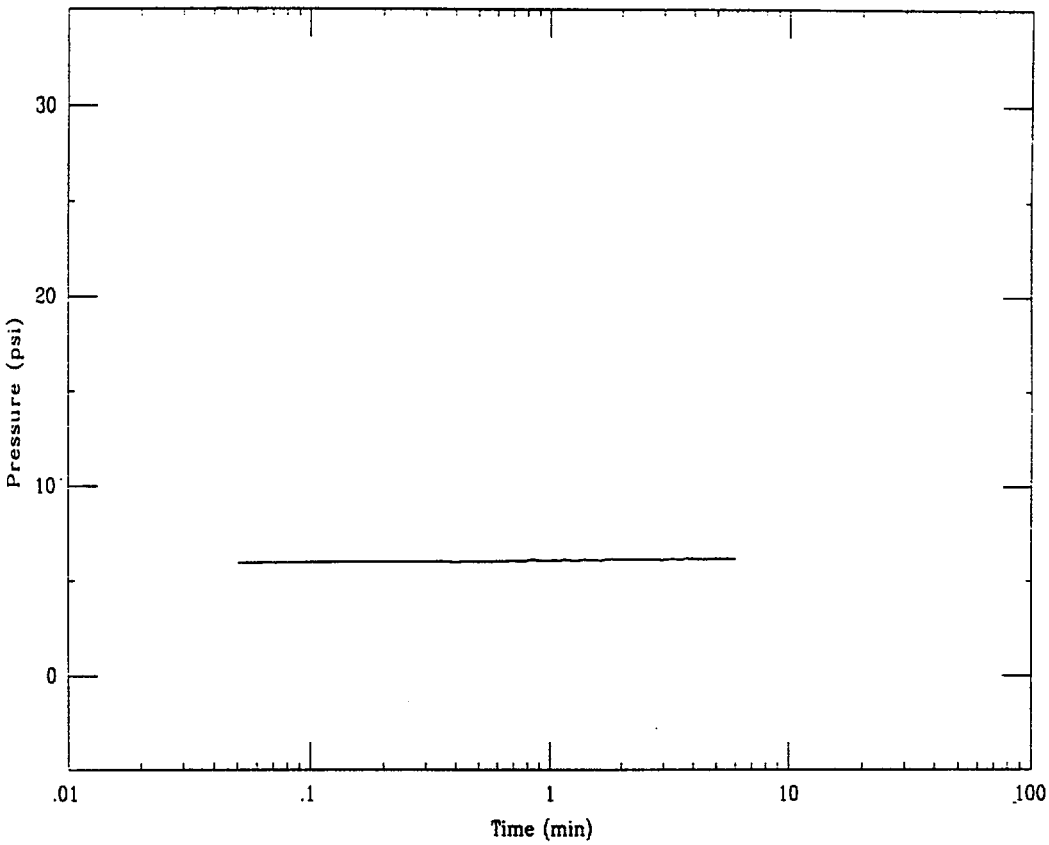
Northing : 79977.3 (ft)
Easting : 55610.3 (ft)
Surface Elevation : 271.7 (ft)
Water Table Elevation : 204.7 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	126.1	145.6	25.6	451.84	238.73	1800.0	1.0	1800.00	3.95	1.78E-02	1.15E-01	9.05E-07

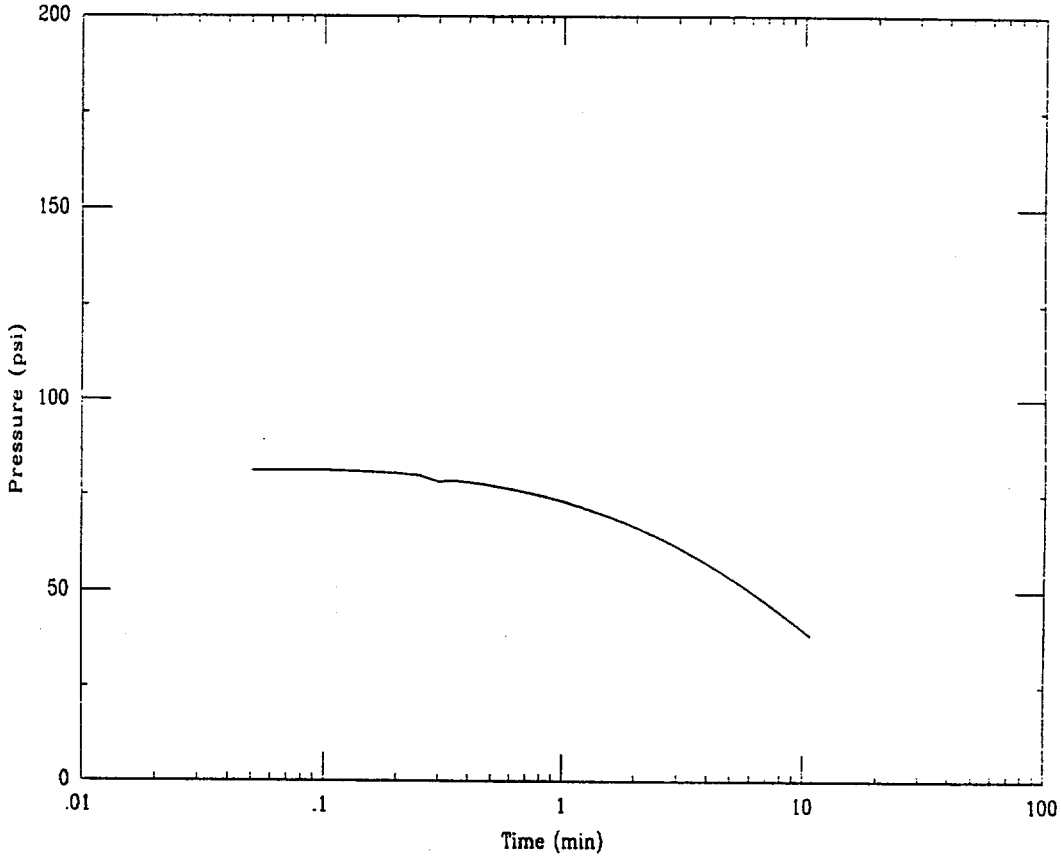
CPT-32R Applied Research Associates 06/24/00

Depth = 78.0 ft Max Pressure = 6.21 psi Pn = 6.17 psi



CPT-32R Applied Research Associates 06/24/00

Depth = 82.6 ft Max Pressure = 81.44 psi Pn = 38.96 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-32R
Test Date : 6/24/00

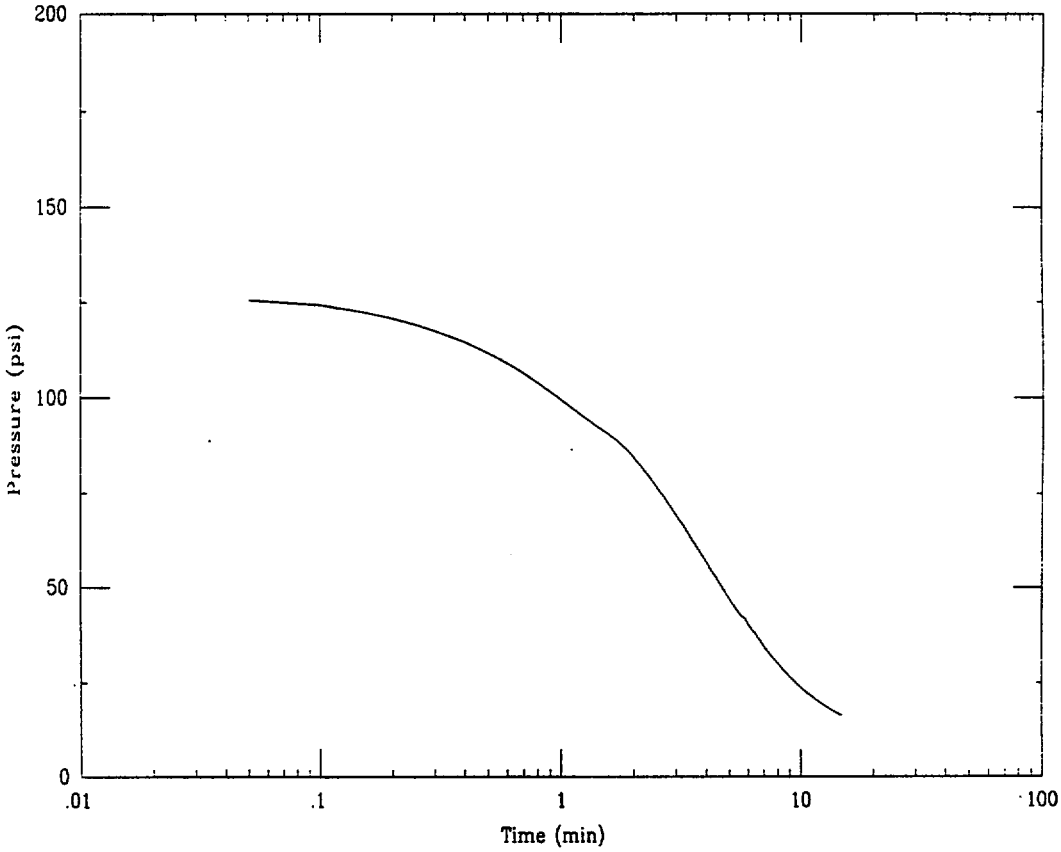
Northing : 80005.4 (ft)
Easting : 55755.6 (ft)
Surface Elevation : 264.7 (ft)
Water Table Elevation : 200.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Immediate dissip.	78.0	186.7	6.2	6.21								
	82.6	182.1	8.1	81.44	44.79	161.1	3.0	483.33	7.95	8.83E-03	5.70E-02	1.68E-06

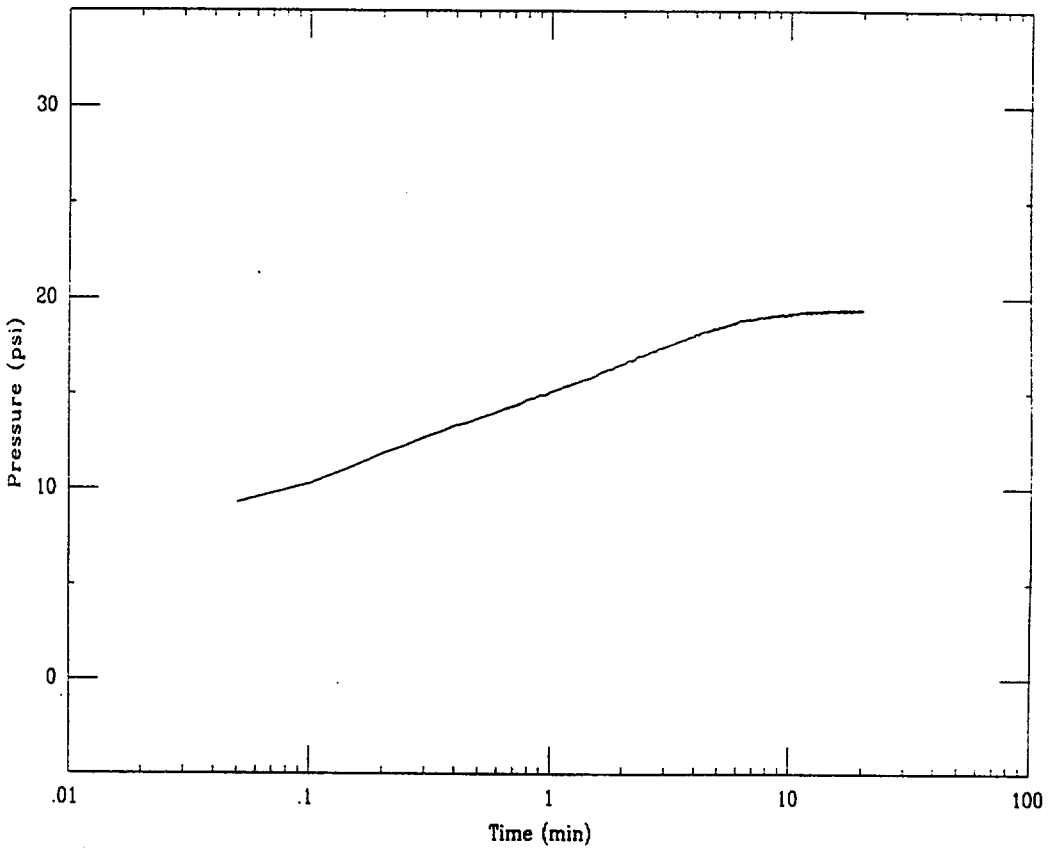
CPT-33R Applied Research Associates 06/13/00

Depth = 81.0 ft Max Pressure = 125.53 psi Pn = 16.63 psi



CPT-33R Applied Research Associates 06/13/00

Depth = 116.2 ft Max Pressure = 19.46 psi Pn = 19.39 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-33R
Test Date : 6/13/00

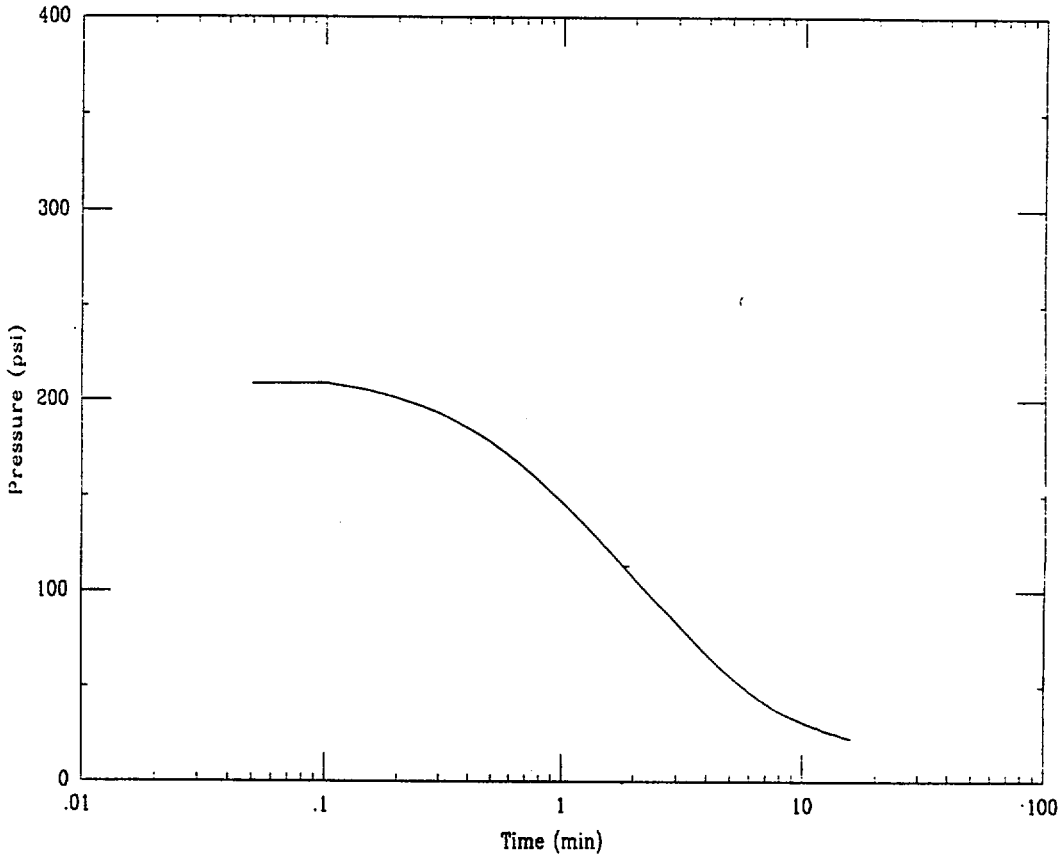
Northing : 79842.0 (ft)
Easting : 54922.7 (ft)
Surface Elevation : 274.6 (ft)
Water Table Elevation : 203.0 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	81.0	193.6	4.1	125.30	64.69	262.5	3.0	787.50	3.35	2.09E-02	1.35E-01	2.44E-06
Soil Dilation	116.2	158.4	19.3	19.46								

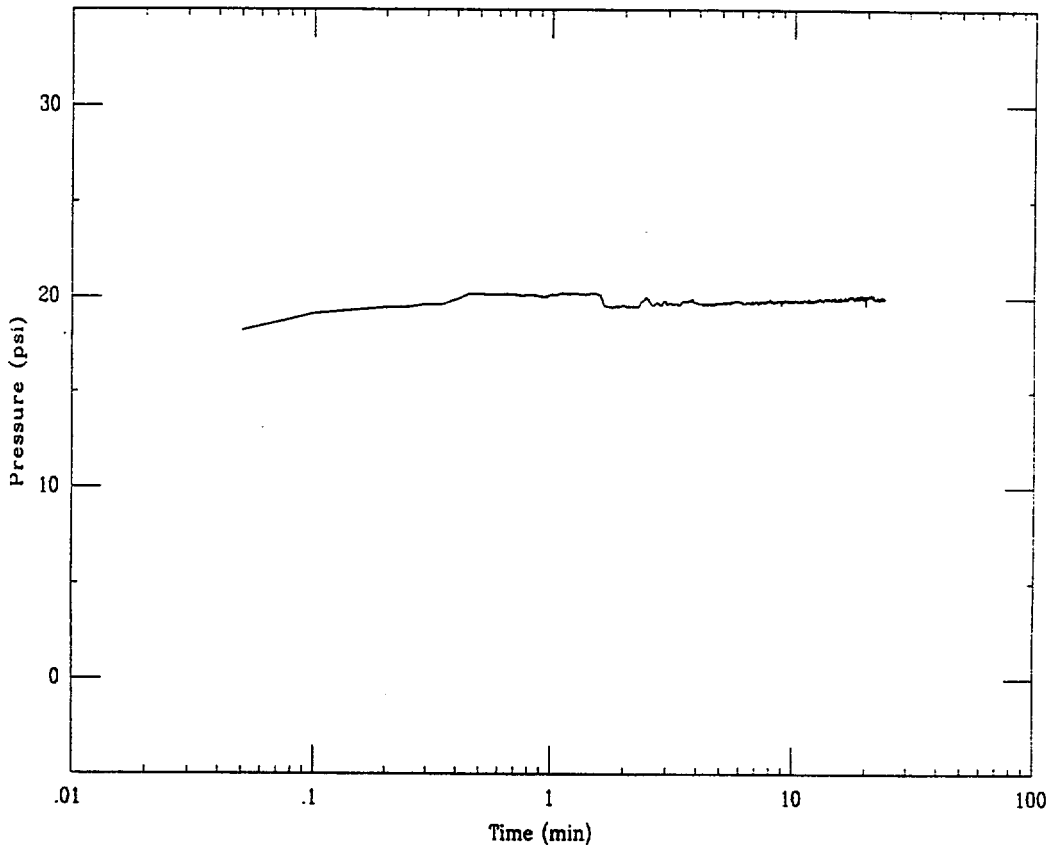
CPT-34S Applied Research Associates 06/07/00

Depth = 111.8 ft Max Pressure = 209.14 psi Pn = 20.2 psi



CPT-34S Applied Research Associates 06/07/00

Depth = 118.2 ft Max Pressure = 20.21 psi Pn = 20.21 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-34S
Test Date : 6/7/00

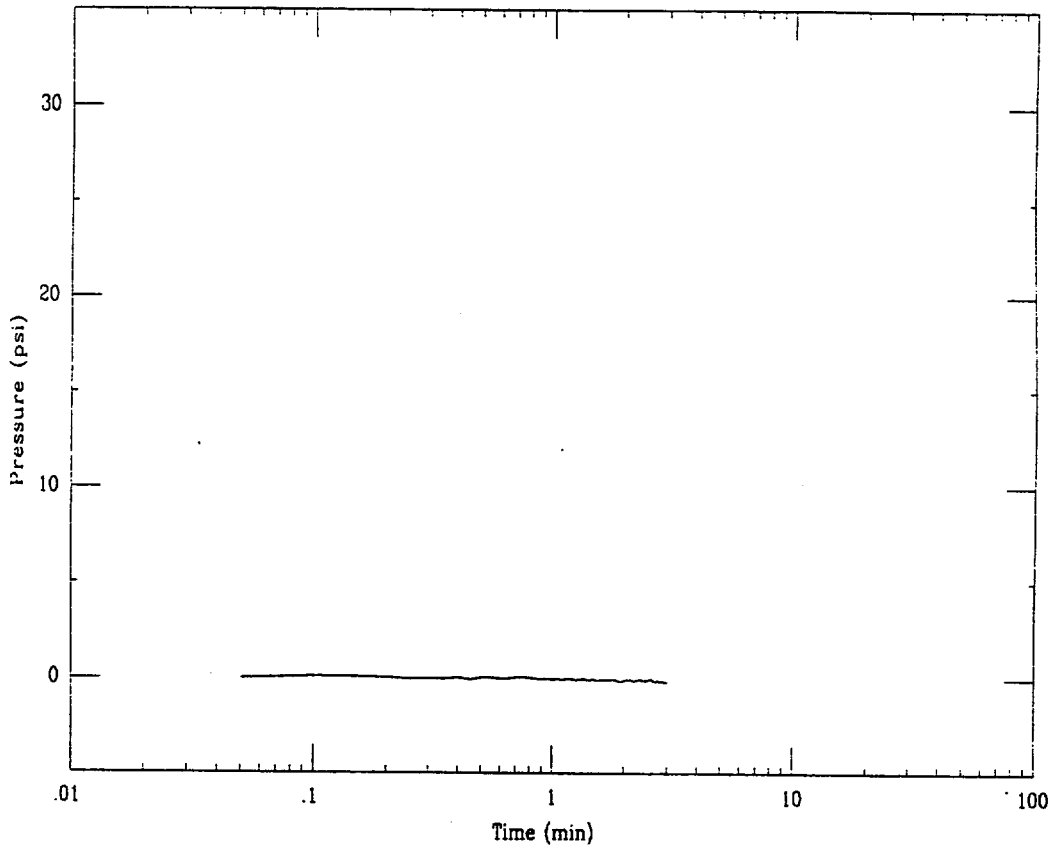
Northing : 79826.9 (ft)
Easting : 55323.2 (ft)
Surface Elevation : 270.8 (ft)
Water Table Elevation : 198.8 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	111.8	159.0	17.2	209.14	113.19	718.1	1.5	1077.08	1.75	4.01E-02	2.59E-01	3.42E-06
Soil Dilation	118.2	152.6	20.0	20.21								

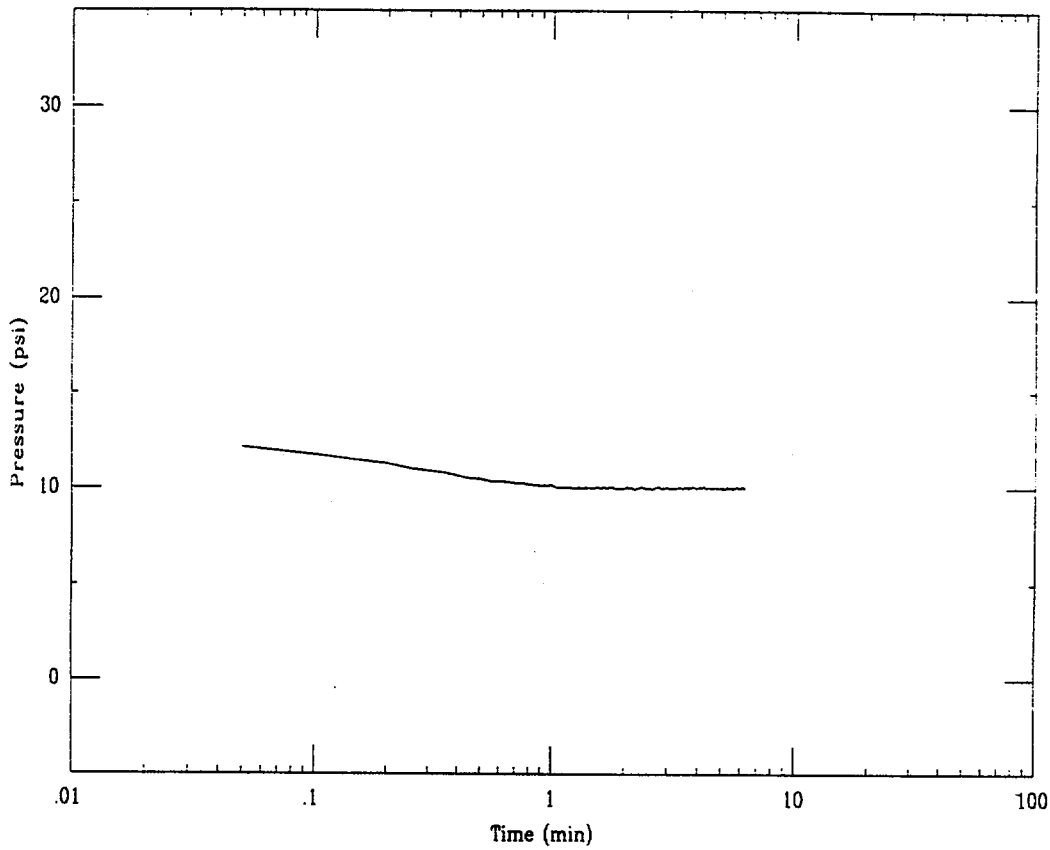
CPT-35S Applied Research Associates 06/03/00

Depth = 24.8 ft Max Pressure = 0.10 psi Pn = -0.12 psi



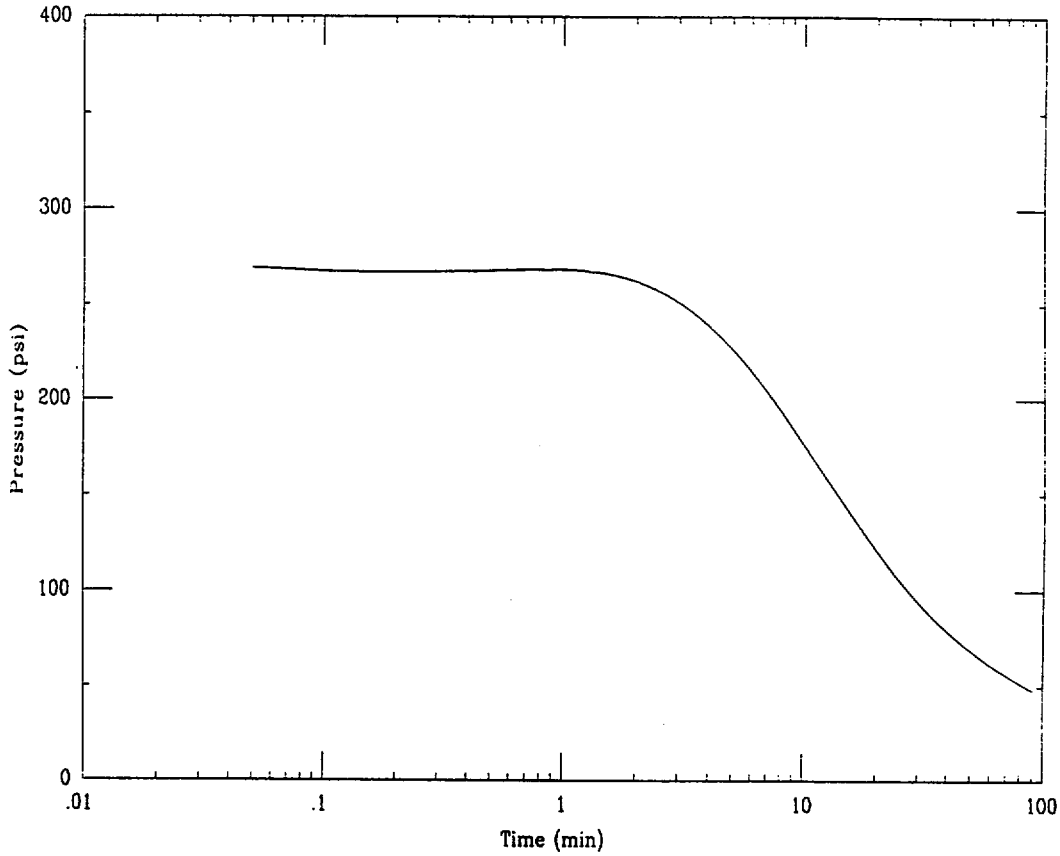
CPT-35S Applied Research Associates 06/03/00

Depth = 94.9 ft Max Pressure = 12.15 psi Pn = 10.05 psi



CPT-35S Applied Research Associates 06/03/00

Depth = 141.0 ft Max Pressure = 268.92 psi Pn = 48.28 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-35S
Test Date : 6/3/00

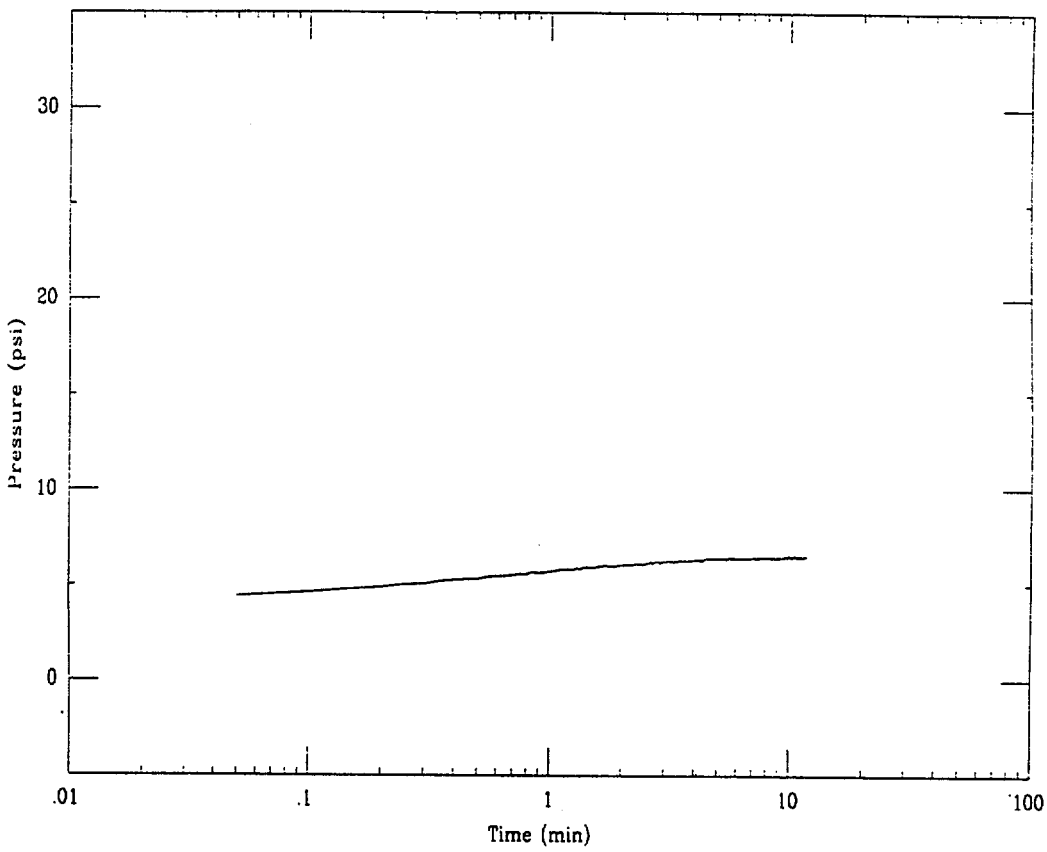
Northing : 79888.6 (ft)
Easting : 55389.0 (ft)
Surface Elevation : 272.6 (ft)
Water Table Elevation : 200.8 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	24.8	247.8	-20.4									
	94.9	177.7	10.0	12.15	11.08	1901.4	1.0	1901.39	0.10	7.02E-01	4.53E+00	3.39E-05
	141.0	131.6	30.0	268.92	149.45	980.6	1.0	980.56	14.11	4.97E-03	3.21E-02	4.65E-07

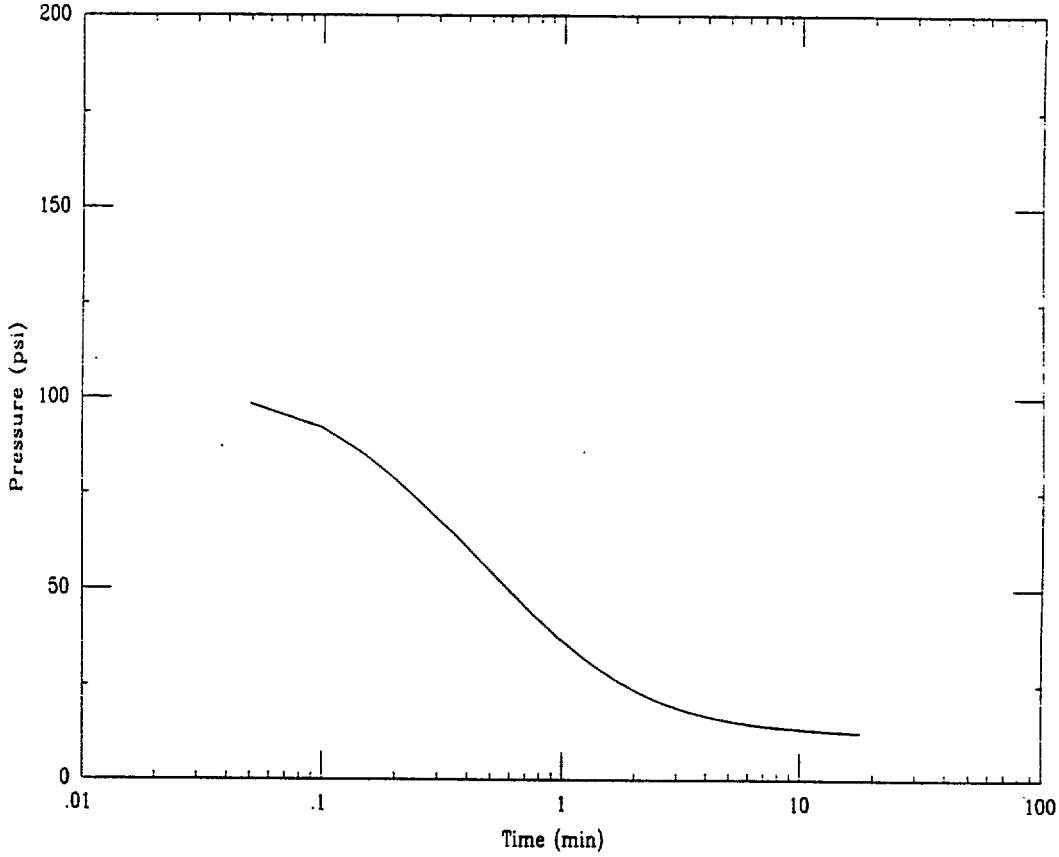
CPT-36R Applied Research Associates 06/13/00

Depth = 84.5 ft Max Pressure = 6.53 psi Pn = 6.47 psi



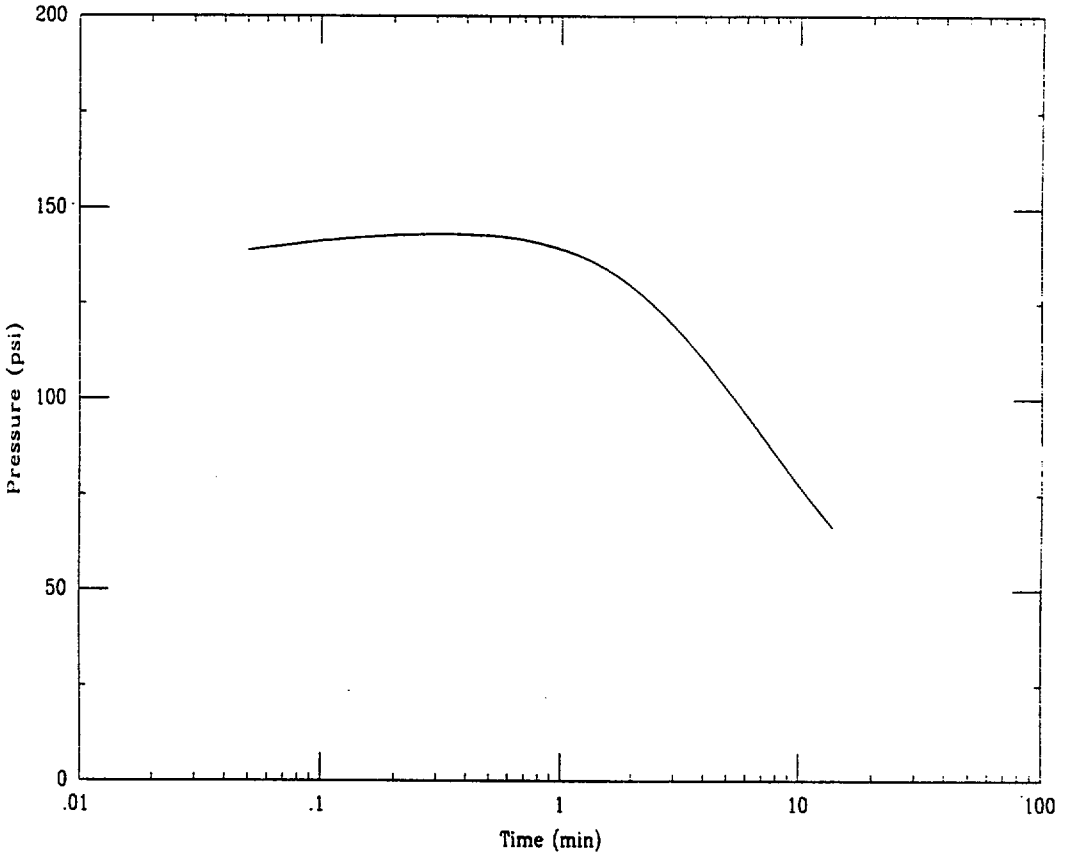
CPT-36R Applied Research Associates 06/13/00

Depth = 97.9 ft Max Pressure = 98.32 psi Pn = 12.49 psi



CPT-36R Applied Research Associates 06/13/00

Depth = 119.9 ft Max Pressure = 143.15 psi Pn = 67.09 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-36R
Test Date : 6/13/00

Northing : 79898.9 (ft)
Easting : 55478.3 (ft)
Surface Elevation : 273.4 (ft)
Water Table Elevation : 203.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	84.5	188.9	6.5	6.53								
	97.9	175.5	12.3	98.32	55.31	213.9	3.0	641.67	0.50	1.40E-01	9.06E-01	2.01E-05
	119.9	153.5	21.8	143.15	82.50	262.5	3.0	787.50	8.76	8.01E-03	5.17E-02	9.33E-07

Project : Duke Cogema Stone & Webster

Test Id : CPT-37S
Test Date : 6/5/00

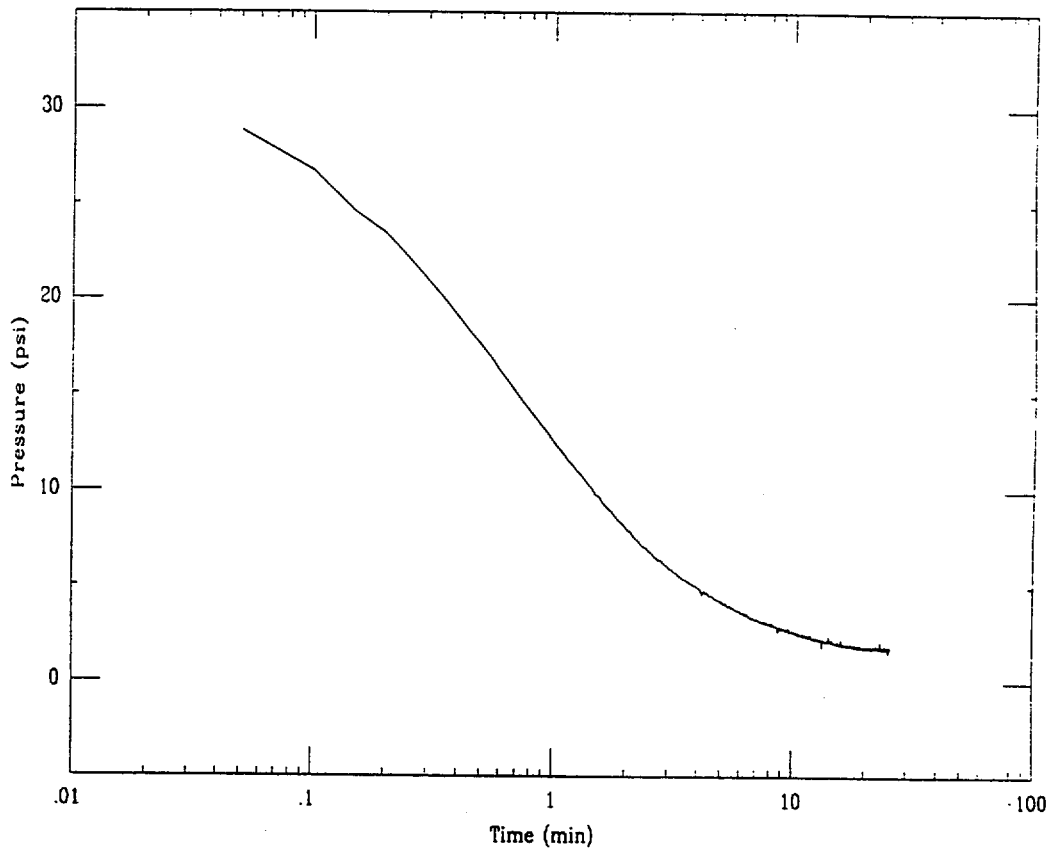
Northing : 79886.1 (ft)
Easting : 55629.4 (ft)
Surface Elevation : 268.4 (ft)
Water Table Elevation : 201.4 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	66.6	201.8	-0.2									
t 50% not reached	124.0	144.4	24.7	89.38	57.04							

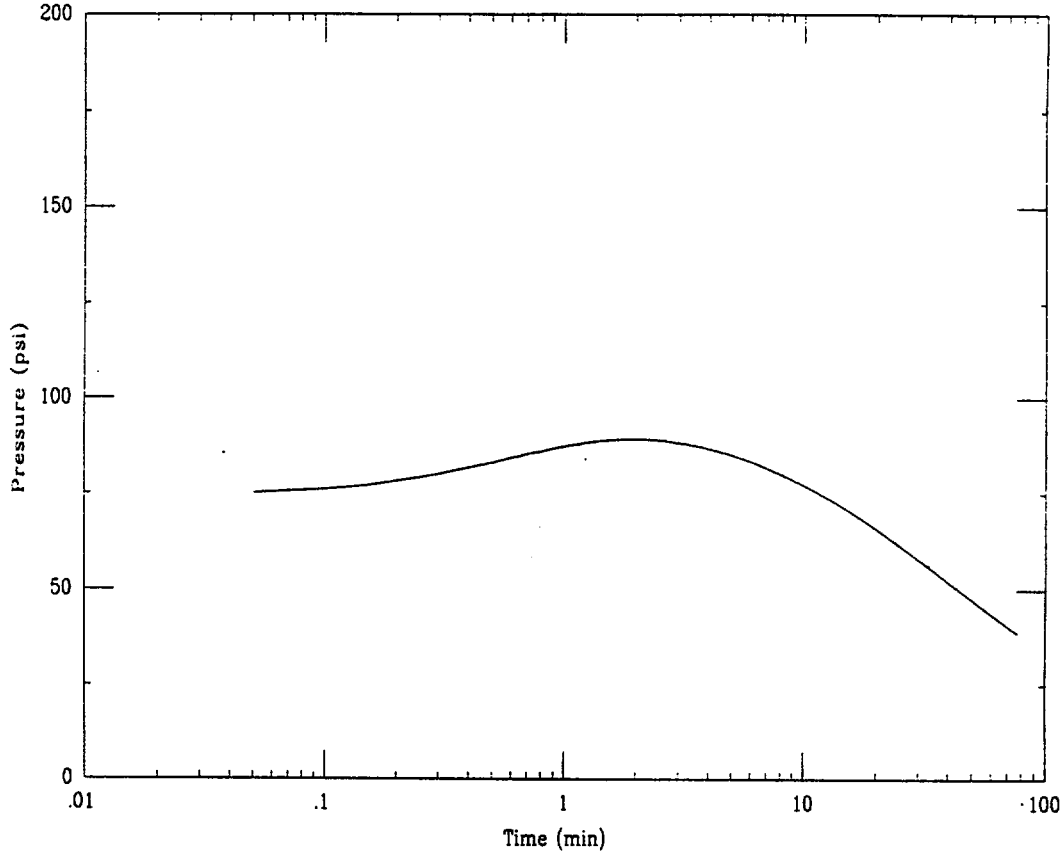
CPT-37S Applied Research Associates 06/05/00

Depth = 66.6 ft Max Pressure = 28.82 psi Pn = 1.78 psi



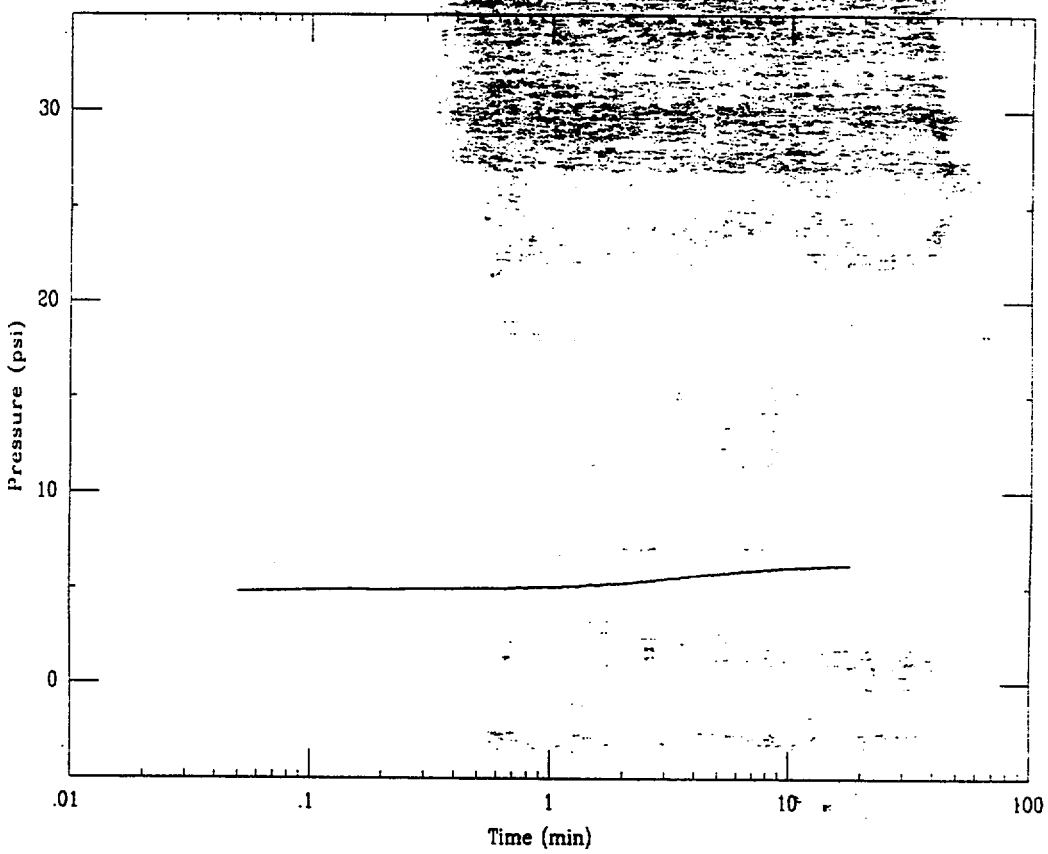
CPT-37S Applied Research Associates 06/05/00

Depth = 124.0 ft Max Pressure = 89.38 psi Pn = 38.76 psi



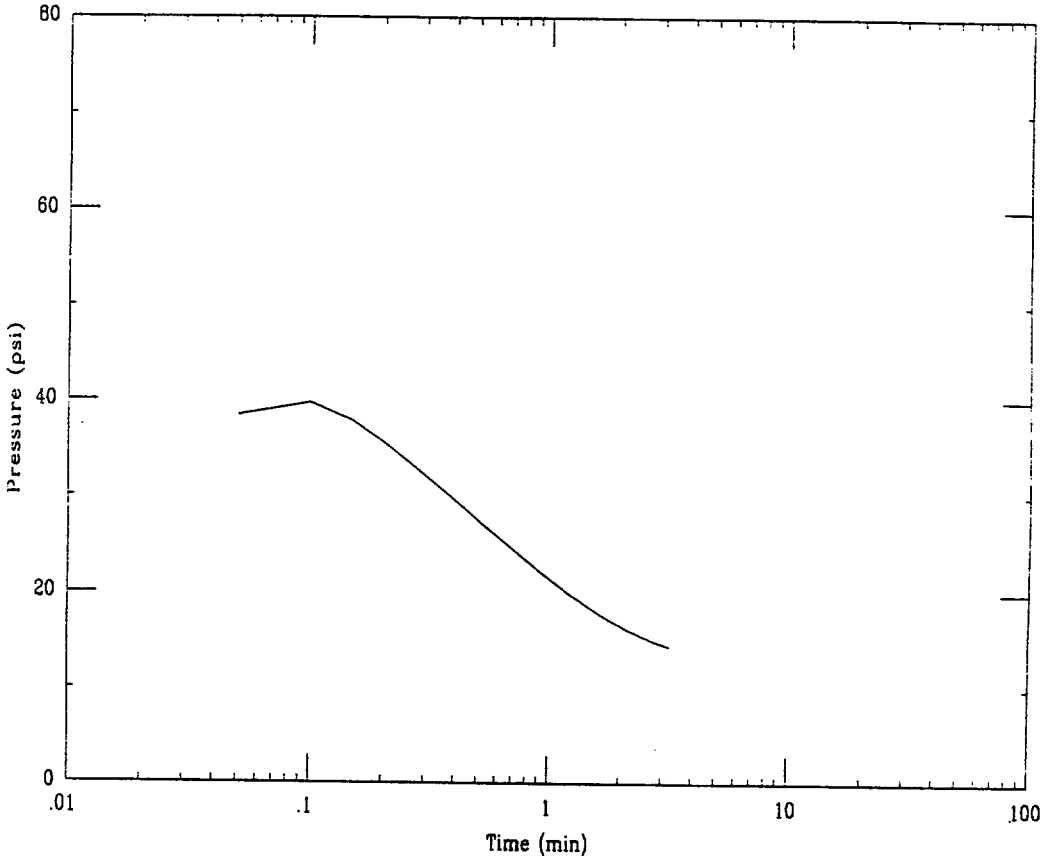
CPT-38R Applied Research Associates 06/23/00

Depth = 81.7 ft Max Pressure = 6.23 psi Pn = 6.20 psi



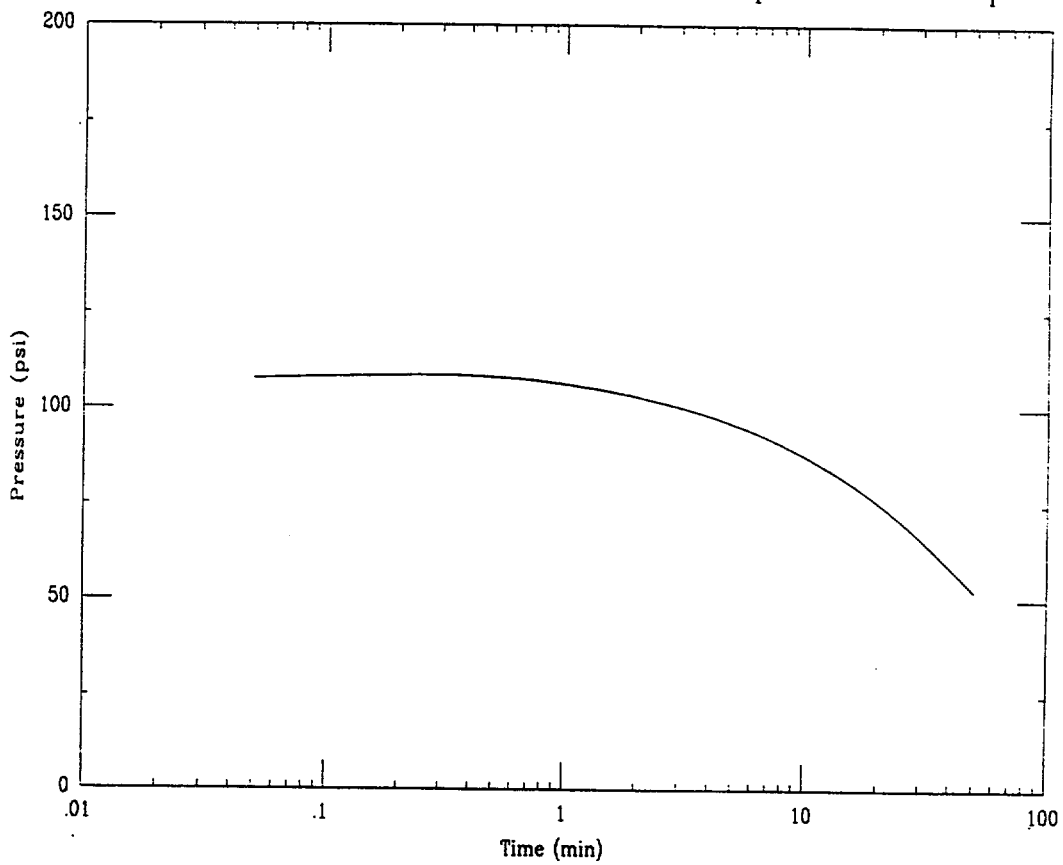
CPT-38R Applied Research Associates 06/23/00

Depth = 93.5 ft Max Pressure = 39.74 psi Pn = 14.73 psi



CPT-38R Applied Research Associates 06/23/00

Depth = 121.8 ft Max Pressure = 108.65 psi Pn = 52.54 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-38R
Test Date : 6/23/00

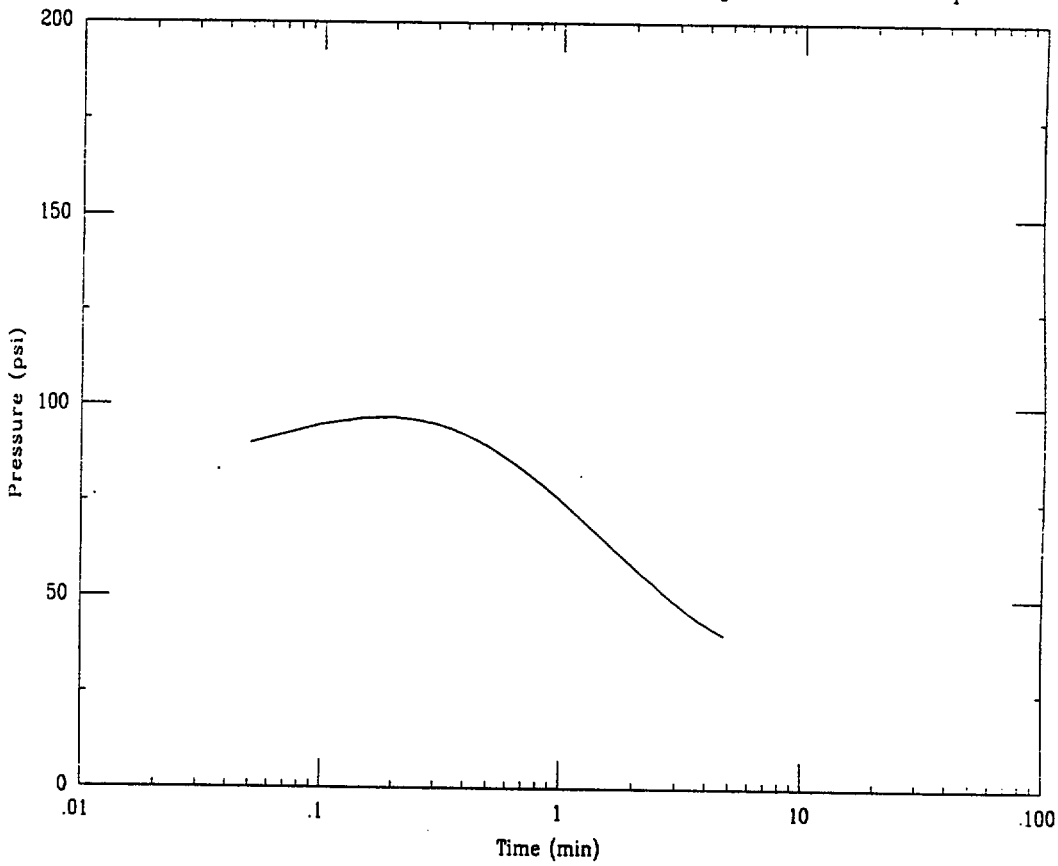
Northing : 79899.9 (ft)
Easting : 55568.6 (ft)
Surface Elevation : 271.3 (ft)
Water Table Elevation : 203.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	81.7	189.6	6.2	6.23								
	93.5	177.8	11.3	39.74	25.53	115.3	3.0	345.83	0.65	1.08E-01	6.97E-01	2.86E-05
	121.8	149.5	23.6	108.65	66.11	243.1	3.0	729.17	30.38	2.31E-03	1.49E-02	2.91E-07

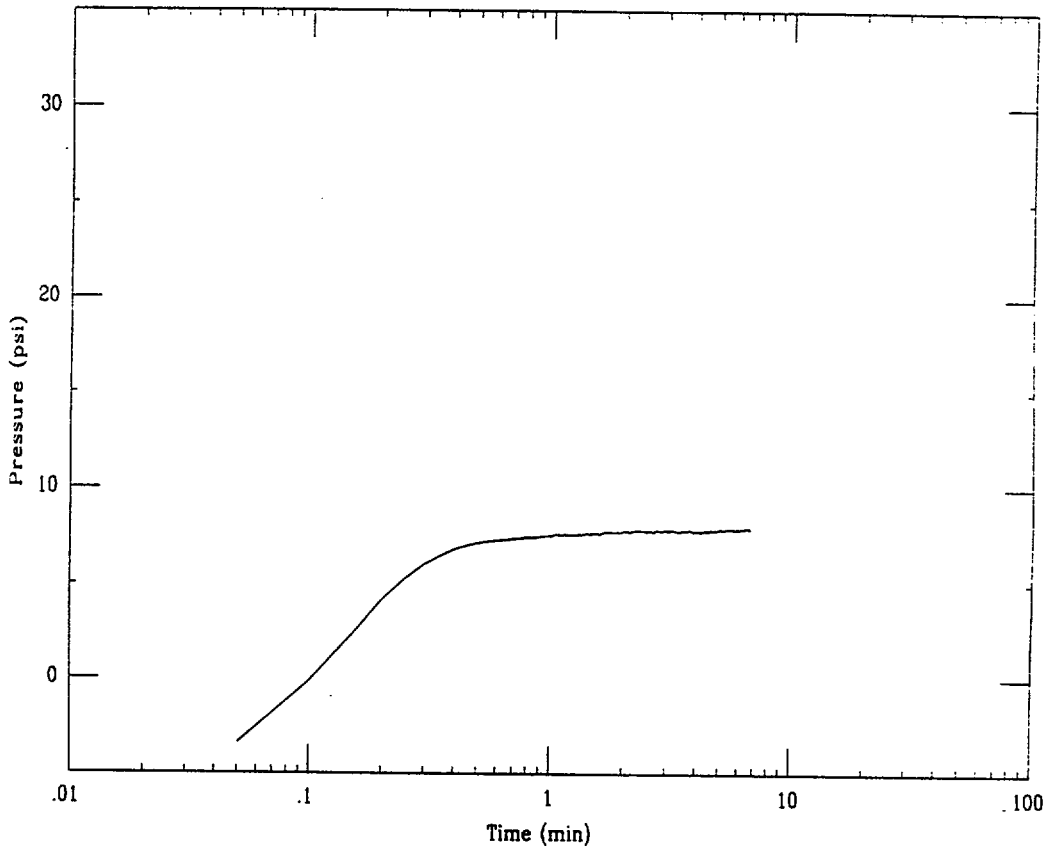
CPT-39R Applied Research Associates 06/24/00

Depth = 56.2 ft Max Pressure = 96.80 psi Pn = 41.05 psi



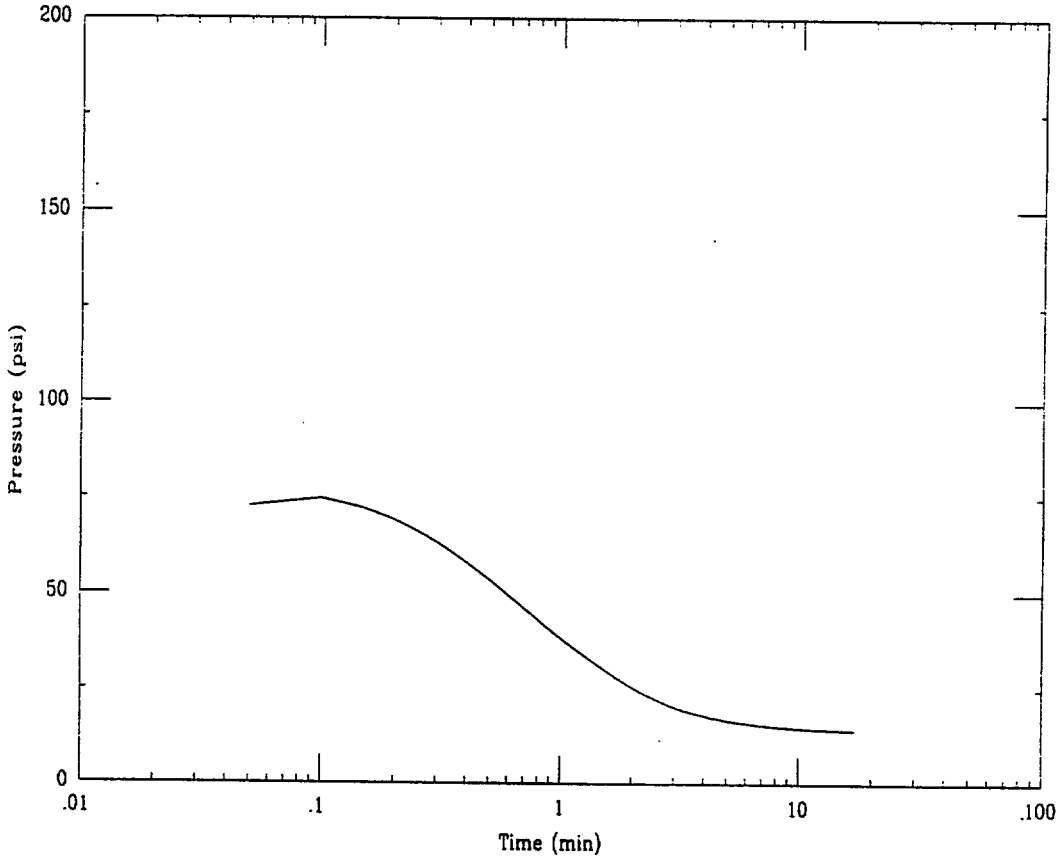
CPT-39R Applied Research Associates 06/24/00

Depth = 82.1 ft Max Pressure = 7.95 psi Pn = 7.93 psi



CPT-39R Applied Research Associates 06/24/00

Depth = 99.1 ft Max Pressure = 74.62 psi Pn = 14.24 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-39R
Test Date : 6/24/00

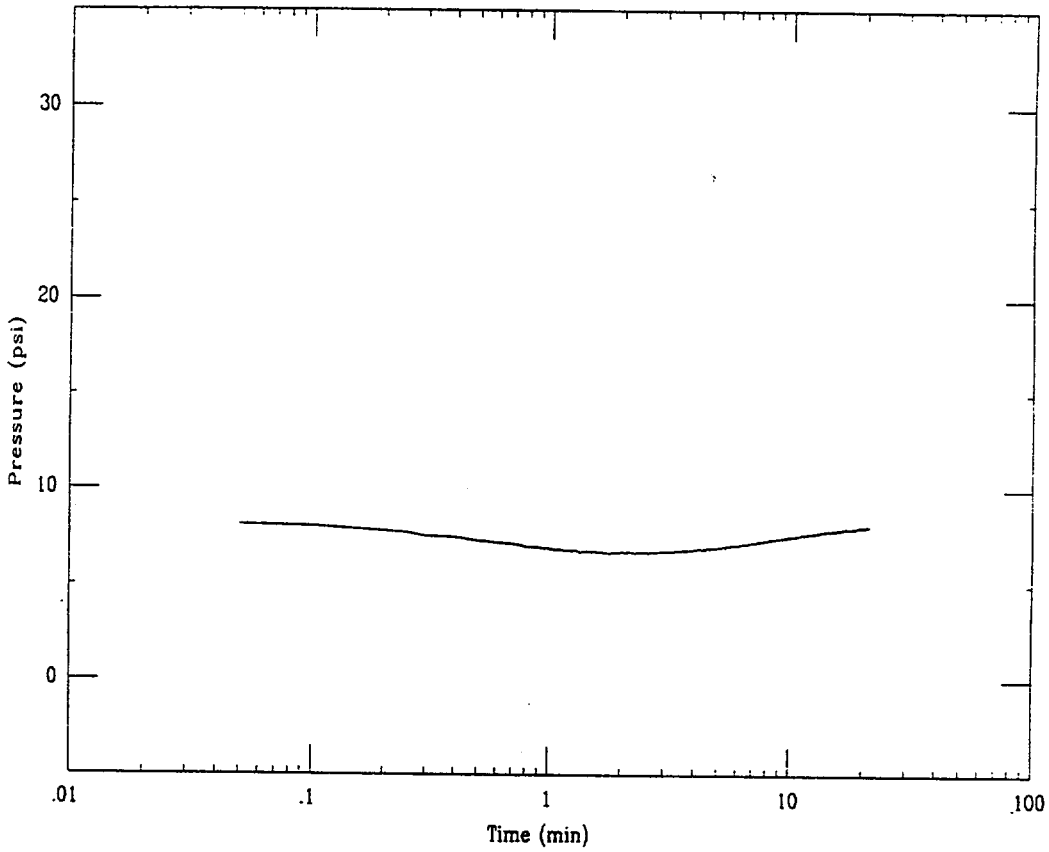
Northing : 80206.6 (ft)
Easting : 55646.9 (ft)
Surface Elevation : 262.1 (ft)
Water Table Elevation : 198.1 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	56.2	205.9	-3.4									
Soil Dilation	82.1	180.0	7.8	7.95								
	99.1	163.0	15.2	74.62	44.92	169.4	3.0	508.33	0.75	9.36E-02	6.04E-01	1.69E-05

CPT-40R Applied Research Associates 06/24/00

Depth = 91.0 ft Max Pressure = 8.13 psi Pn = 8.11 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-40R
Test Date : 6/24/00

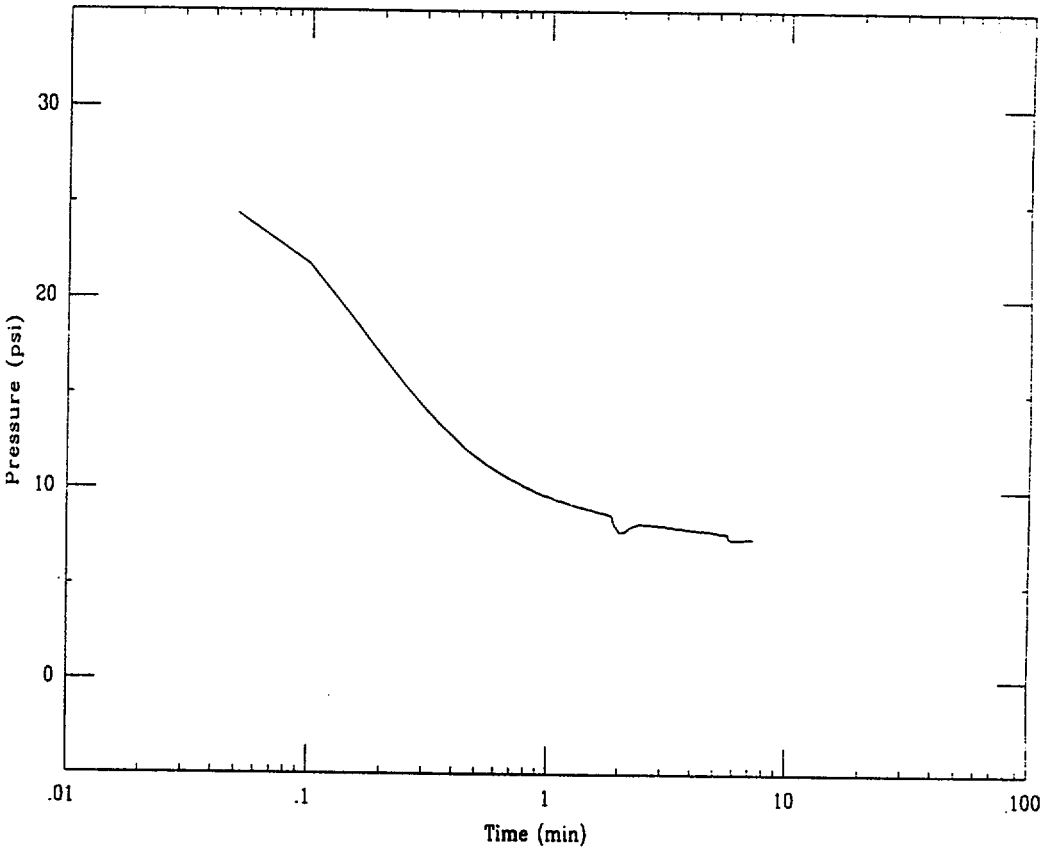
Northing : 79941.1 (ft)
Easting : 55448.0 (ft)
Surface Elevation : 275.0 (ft)
Water Table Elevation : 202.7 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	91.0	184.0	8.1	8.13								

CPT-42 Applied Research Associates 07/08/00

Depth = 87.1 ft Max Pressure = 24.42 psi Pn = 7.47 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-42
Test Date : 7/8/00

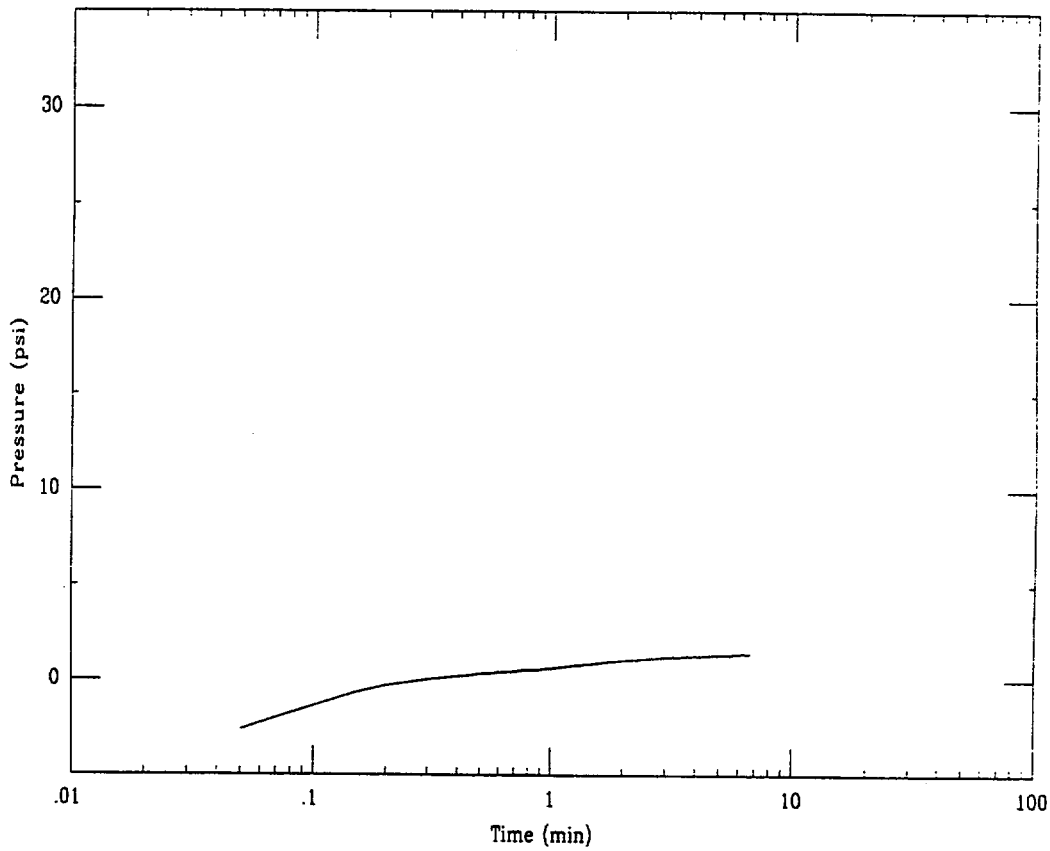
Northing : 80169.8 (ft)
Easting : 55591.7 (ft)
Surface Elevation : 267.5 (ft)
Water Table Elevation : 197.6 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	87.1	180.4	7.5	24.42	15.94	638.9	1.5	958.33	0.25	2.81E-01	1.81E+00	2.69E-05

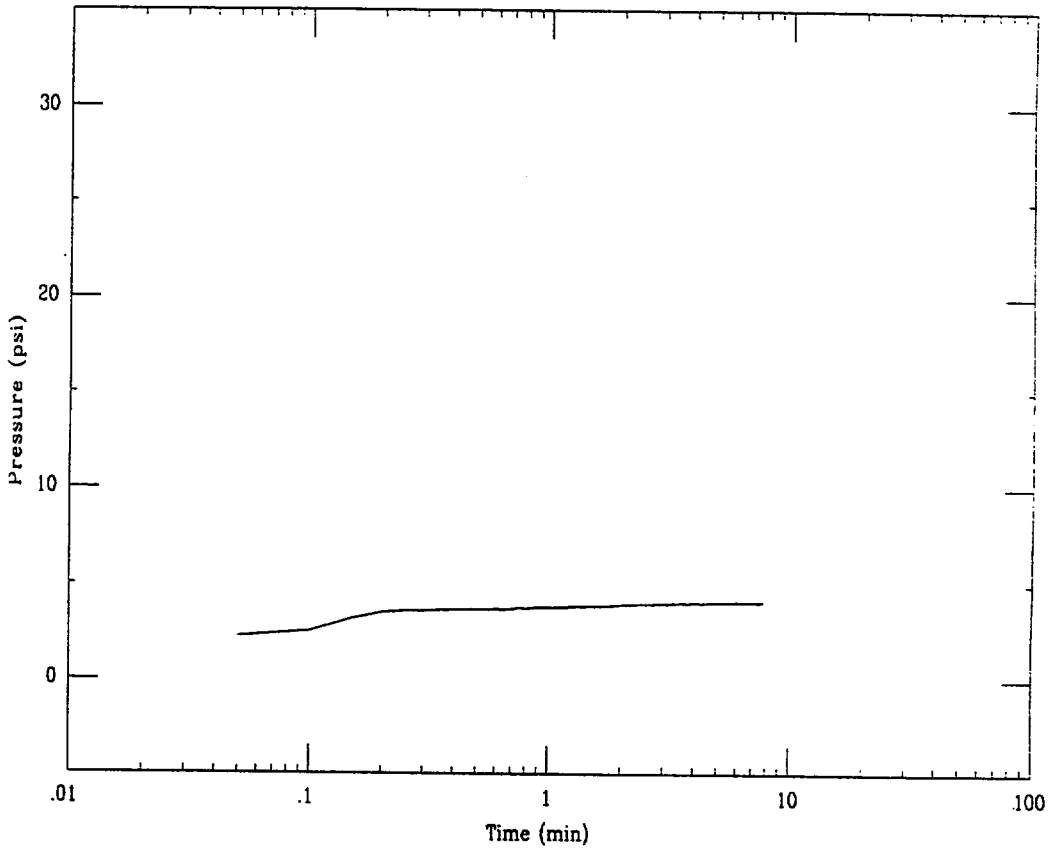
CPT-44 Applied Research Associates 07/20/00

Depth = 85.2 ft Max Pressure = 1.44 psi Pn = 1.42 psi



CPT-44 Applied Research Associates 07/20/00

Depth = 95.3 ft Max Pressure = 4.12 psi Pn = 4.11 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-44
Test Date : 7/20/00

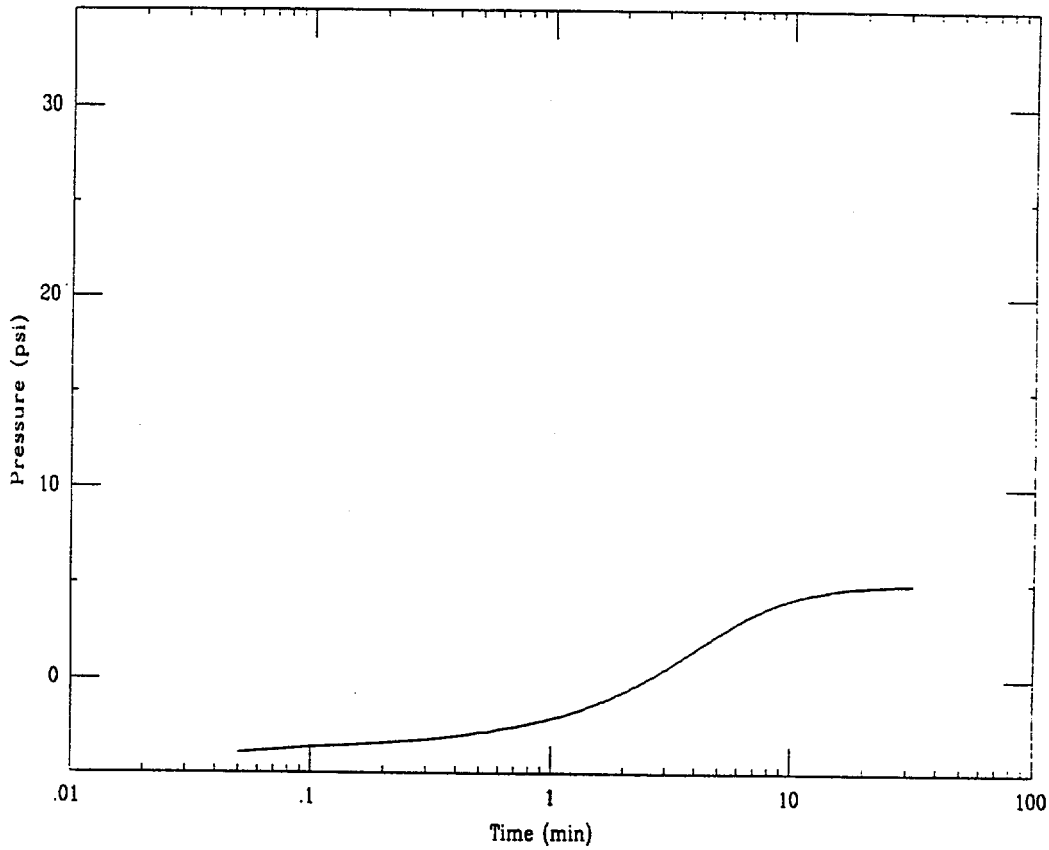
Northing : 80530.3 (ft)
Easting : 55109.3 (ft)
Surface Elevation : 284.7 (ft)
Water Table Elevation : 198.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	85.2	199.5	-0.3									
Soil Dilation	95.3	189.4	4.1	4.12								

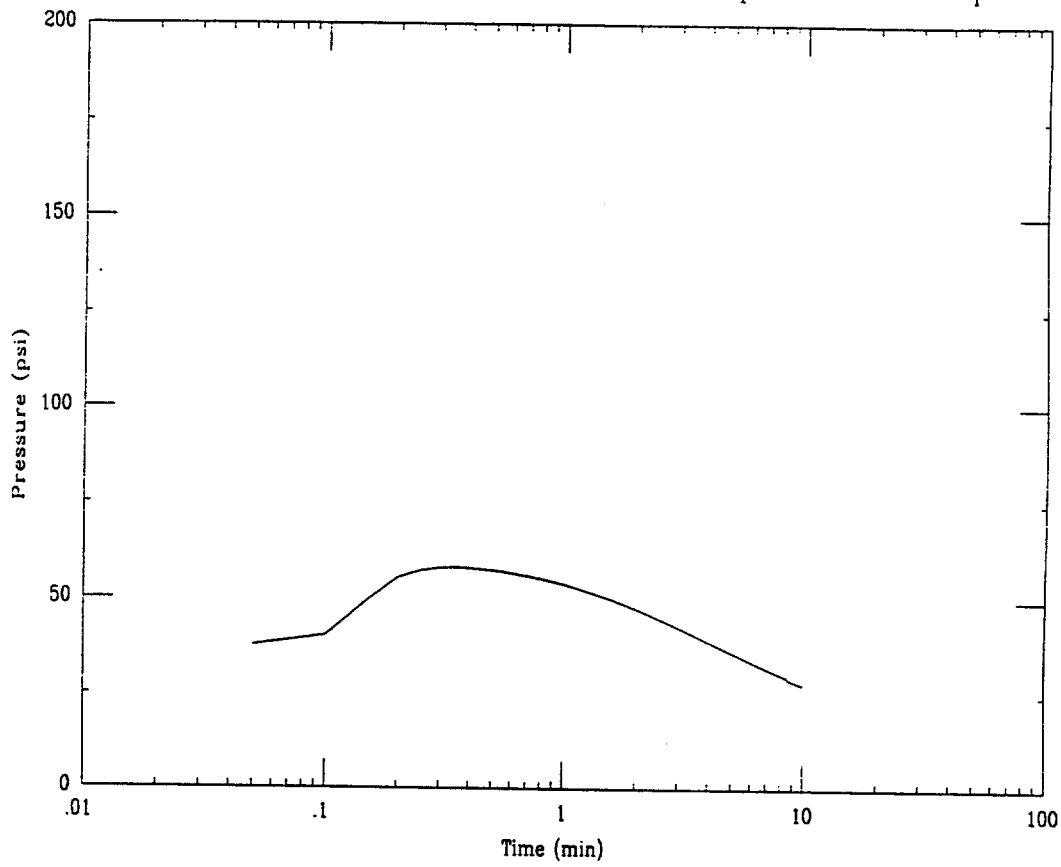
CPT-45 Applied Research Associates 07/21/00

Depth = 94.0 ft Max Pressure = 4.98 psi Pn = 4.97 psi



CPT-45 Applied Research Associates 07/21/00

Depth = 130.0 ft Max Pressure = 58.34 psi Pn = 28.15 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-45
Test Date : 7/21/00

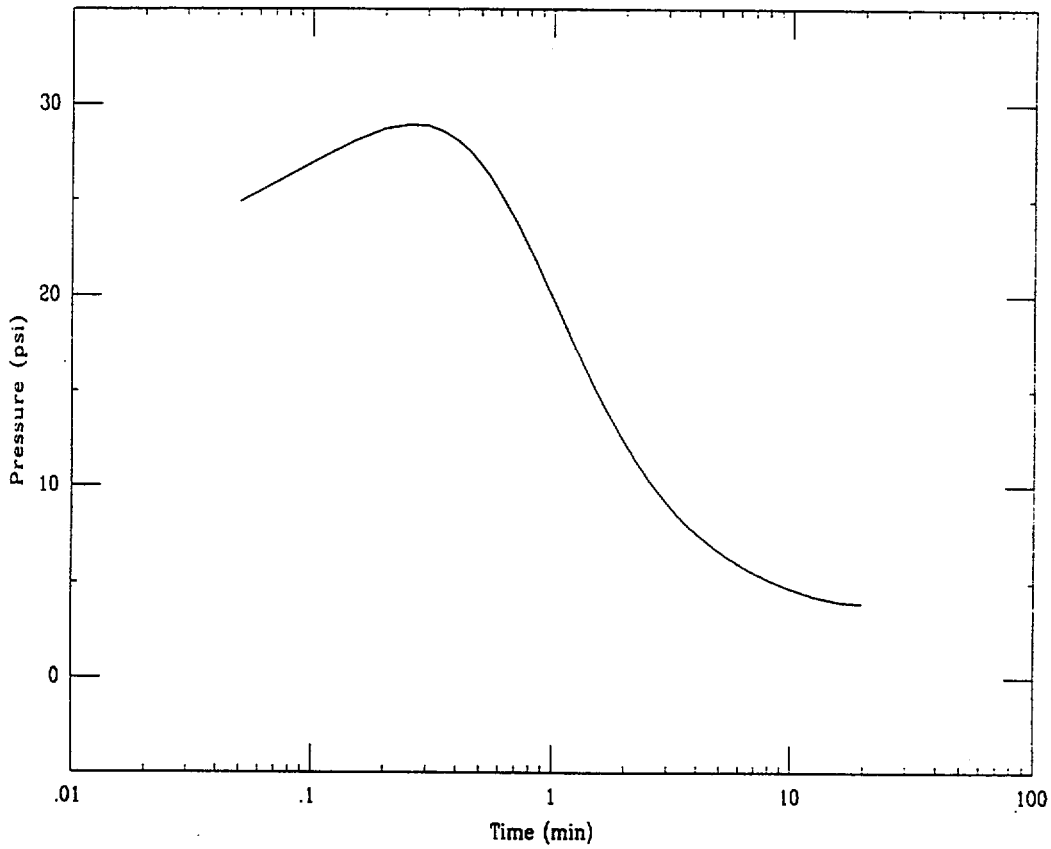
Northing : 80531.1 (ft)
Easting : 55194.0 (ft)
Surface Elevation : 280.5 (ft)
Water Table Elevation : 198.0 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	94.0	186.5	5.0	4.98								
	130.0	150.5	20.6	58.34	39.46	155.6	3.0	466.67	3.95	1.78E-02	1.15E-01	3.49E-06

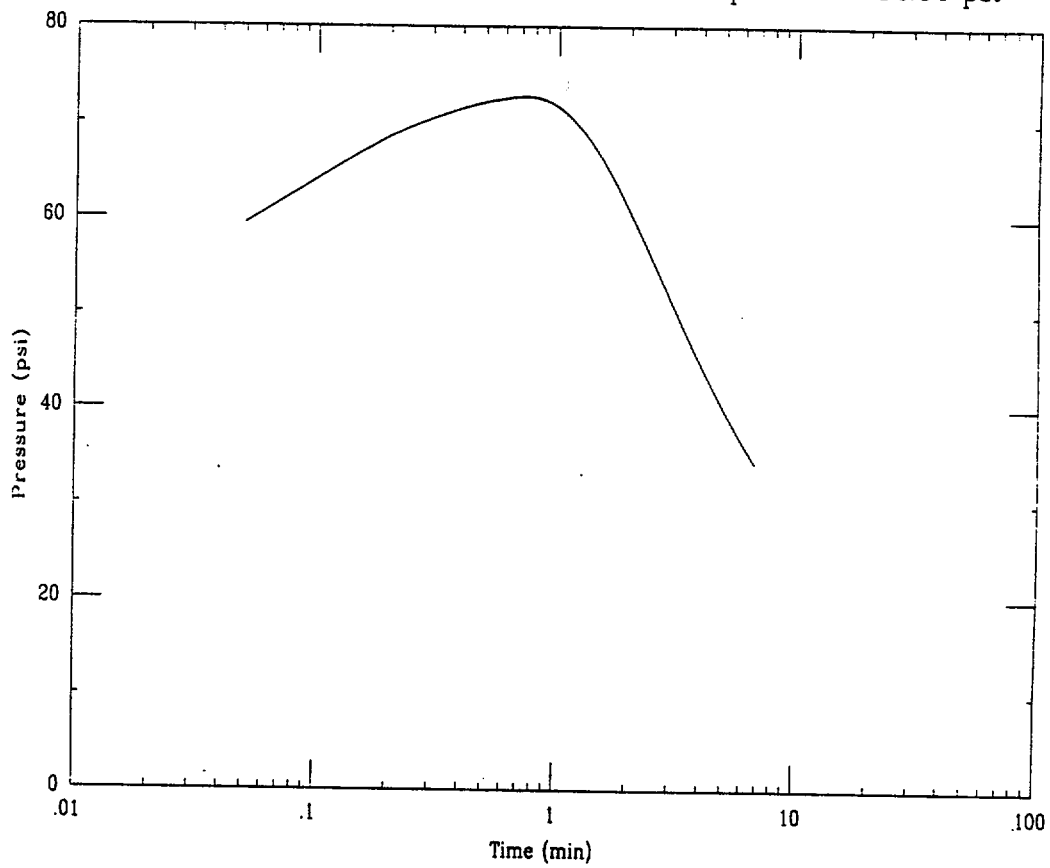
CPT-46 Applied Research Associates 07/20/00

Depth = 83.1 ft Max Pressure = 28.91 psi Pn = 3.94 psi



CPT-46 Applied Research Associates 07/20/00

Depth = 129.1 ft Max Pressure = 72.70 psi Pn = 34.84 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-46
Test Date : 7/20/00

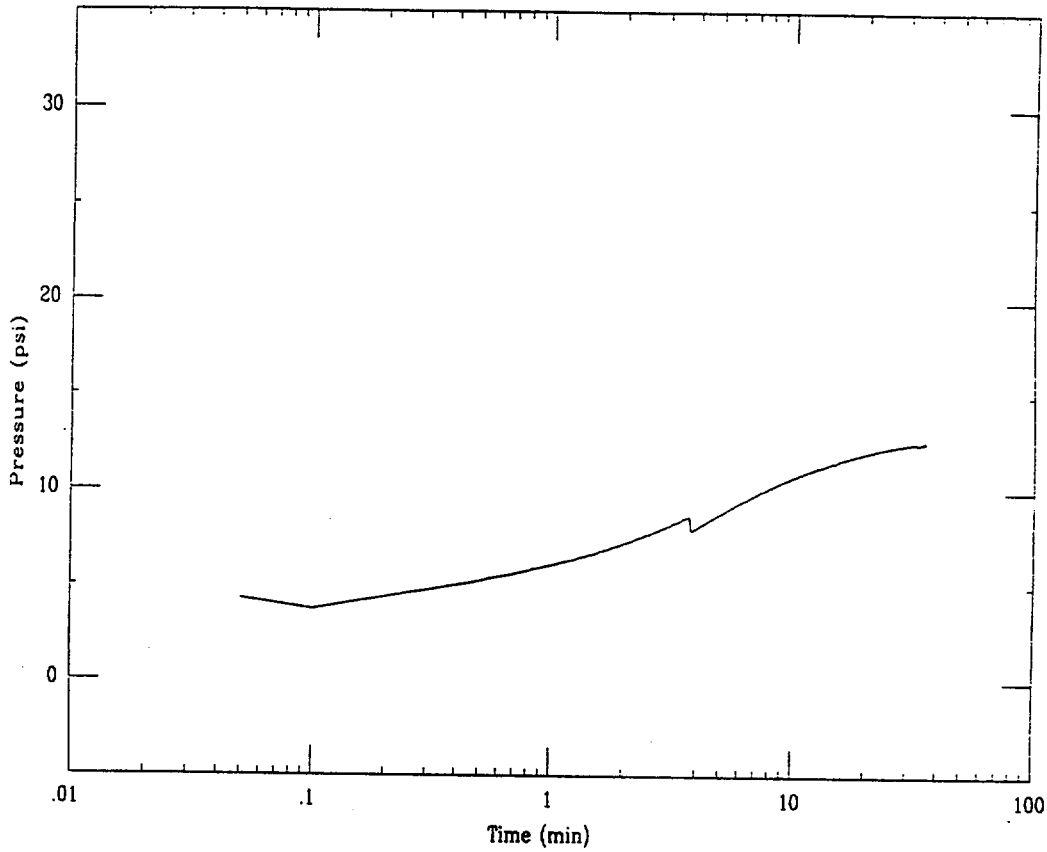
Northing : 80482.0 (ft)
Easting : 55032.8 (ft)
Surface Elevation : 284.5 (ft)
Water Table Elevation : 210.5 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	83.1	201.4	3.9	28.91	16.43	131.9	3.0	395.83	1.35	5.20E-02	3.35E-01	1.20E-05
	129.1	155.4	23.9	72.70	48.29	202.8	3.0	608.33	3.40	2.06E-02	1.33E-01	3.11E-06

CPT-47 Applied Research Associates 07/20/00

Depth = 116.0 ft Max Pressure = 12.69 psi Pn = 12.64 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-47
Test Date : 7/20/00

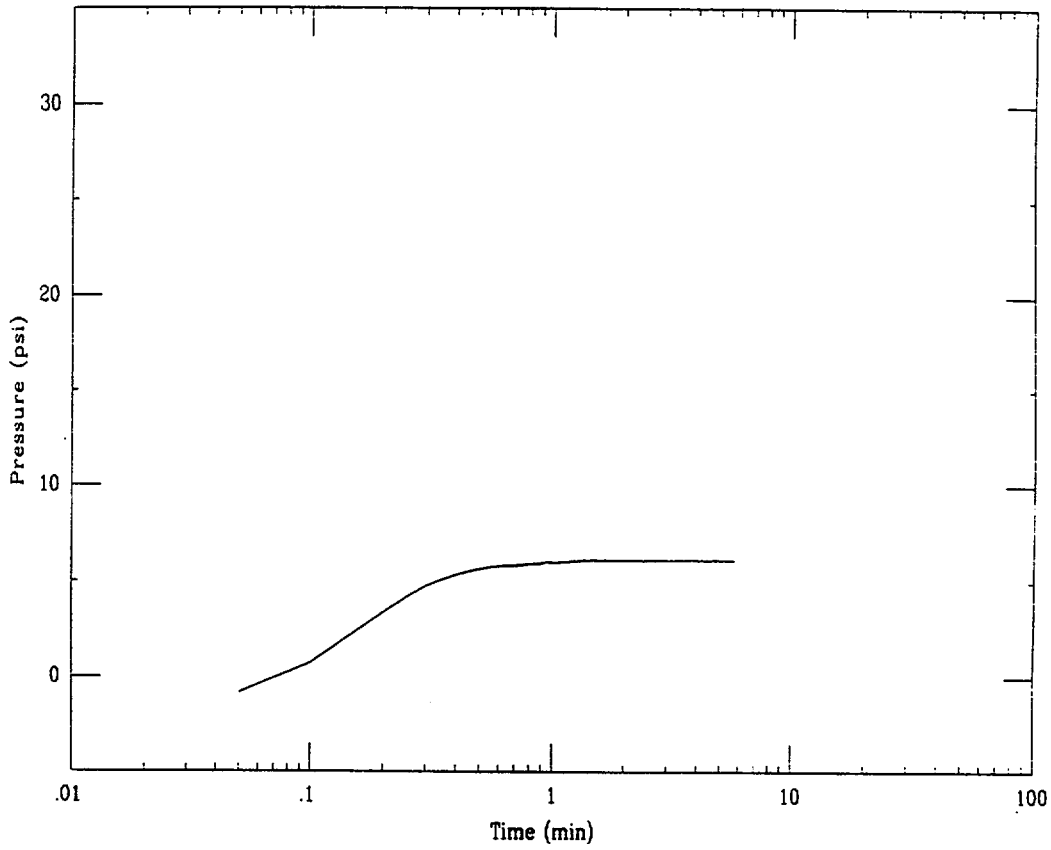
Northing : 80456.7 (ft)
Easting : 55146.5 (ft)
Surface Elevation : 284.1 (ft)
Water Table Elevation : 198.0 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	116.0	168.1	13.0	12.69								

CPT-48 Applied Research Associates 07/22/00

Depth = 96.5 ft Max Pressure = 6.16 psi Pn = 6.12 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-48
Test Date : 7/22/00

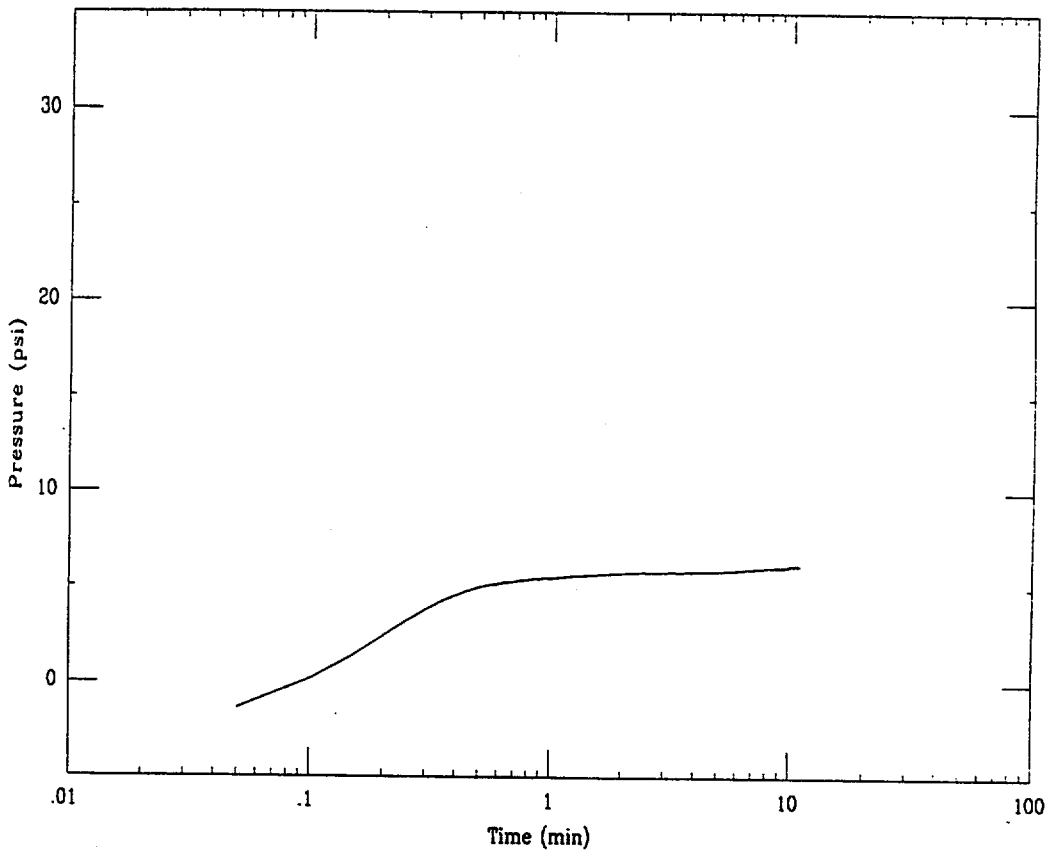
Northing : 80463.6 (ft)
Easting : 54964.1 (ft)
Surface Elevation : 281.2 (ft)
Water Table Elevation : 198.8 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	96.5	184.7	6.1	6.16								

CPT-49 Applied Research Associates 07/19/00

Depth = 105.8 ft Max Pressure = 6.23 psi Pn = 6.20 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-49
Test Date : 7/19/00

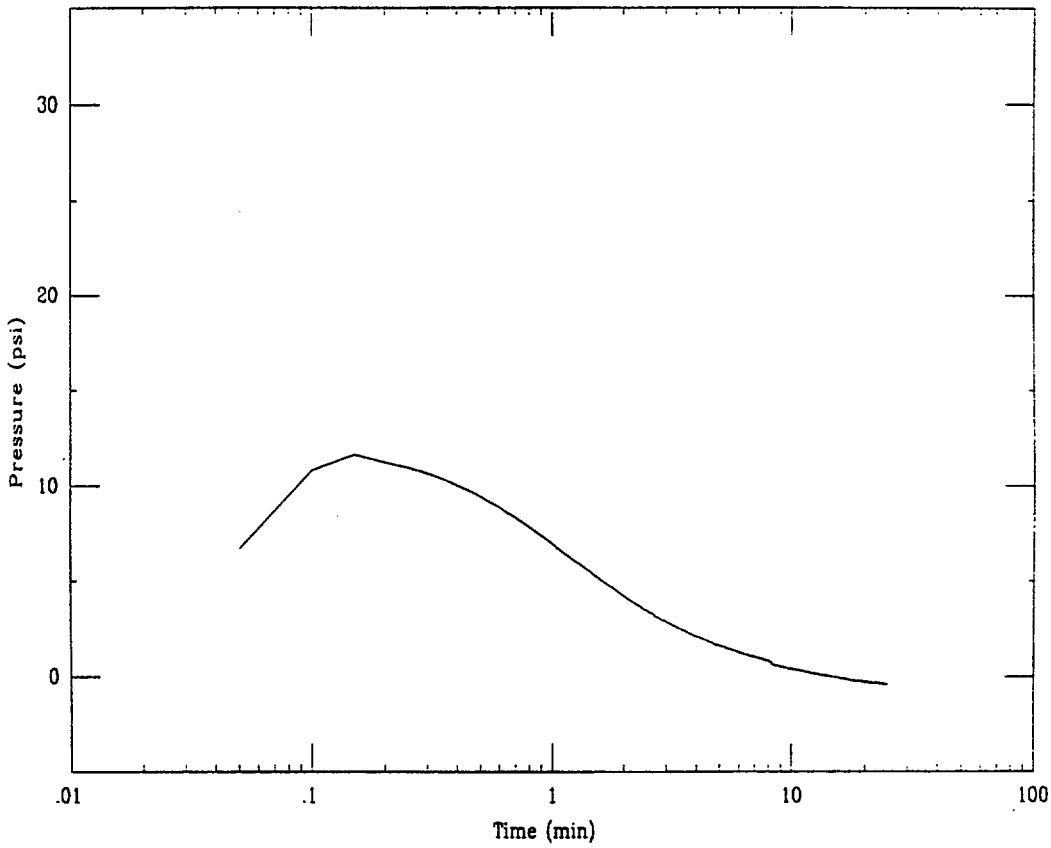
Northing : 80332.7 (ft)
Easting : 54931.1 (ft)
Surface Elevation : 292.4 (ft)
Water Table Elevation : 200.9 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	105.8	186.6	6.2	6.23								

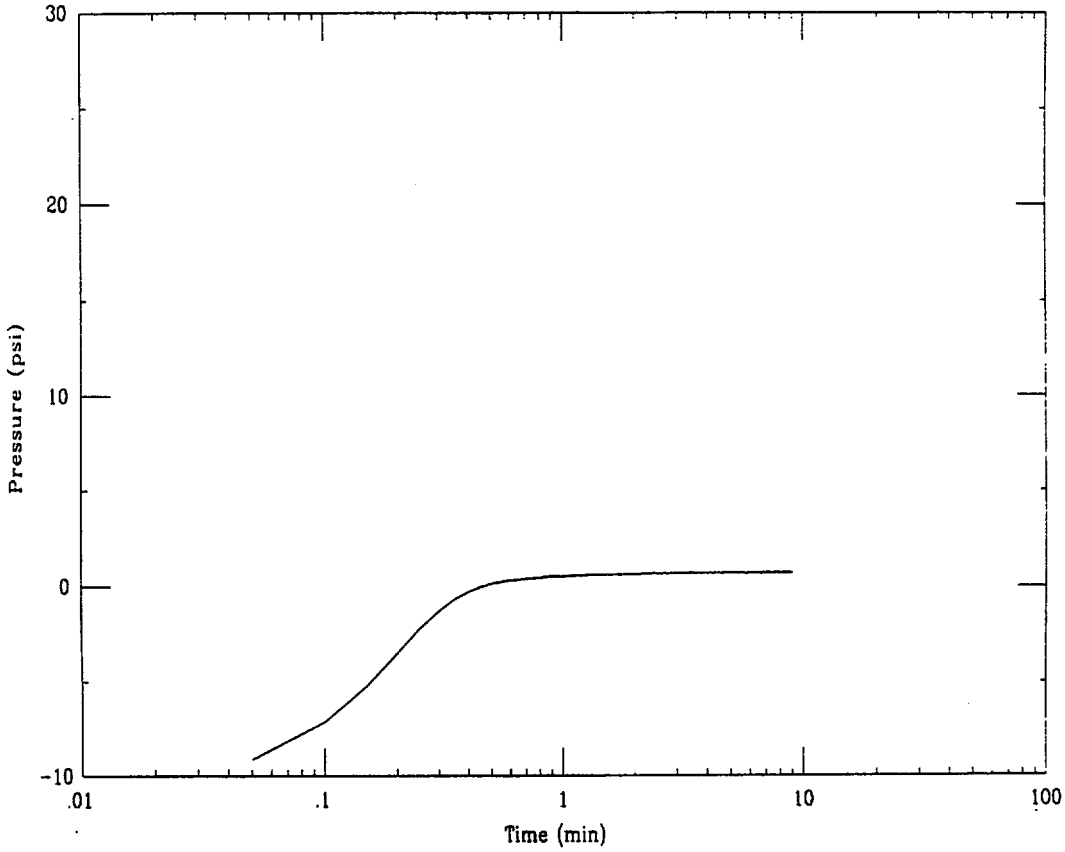
CPT-50 Applied Research Associates 07/19/00

Depth = 102.5 ft Max Pressure = 11.65 psi Pn = -0.41 psi



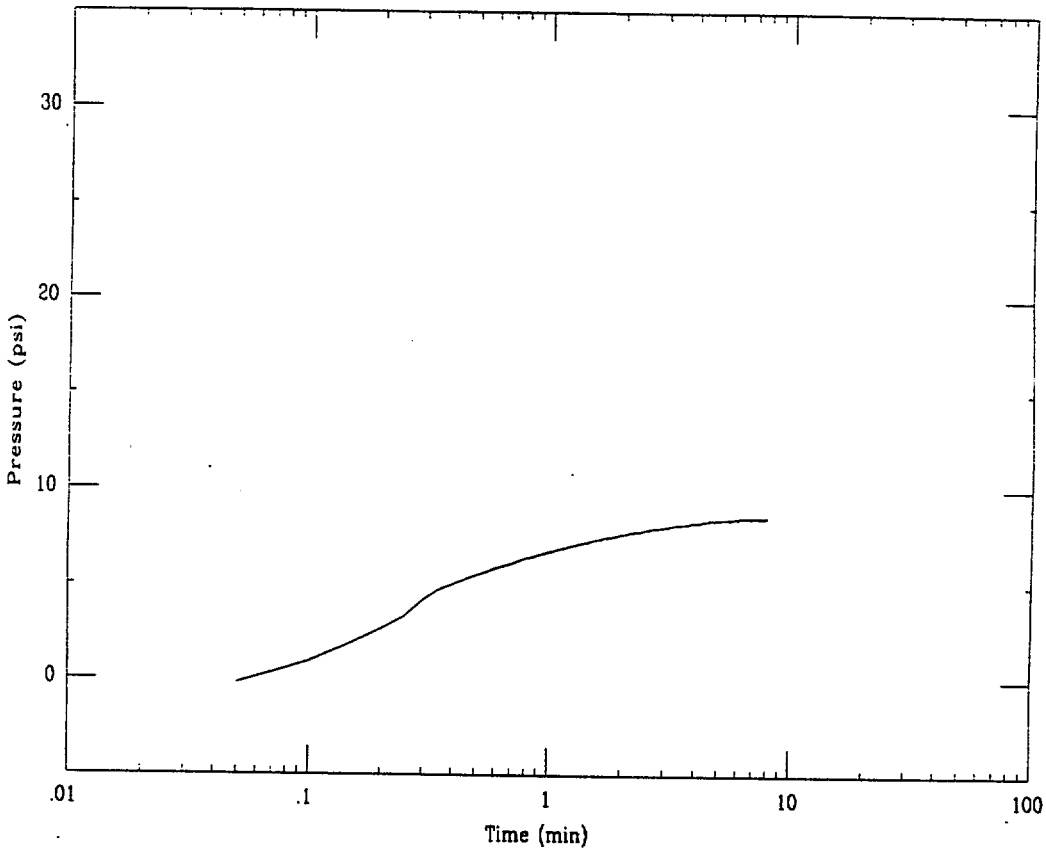
CPT-50 Applied Research Associates 07/19/00

Depth = 108.6 ft Max Pressure = 0.76 psi Pn = 0.73 psi



CPT-50 Applied Research Associates 07/19/00

Depth = 127.6 ft Max Pressure = 8.63 psi Pn = 8.59 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-50
Test Date : 7/19/00

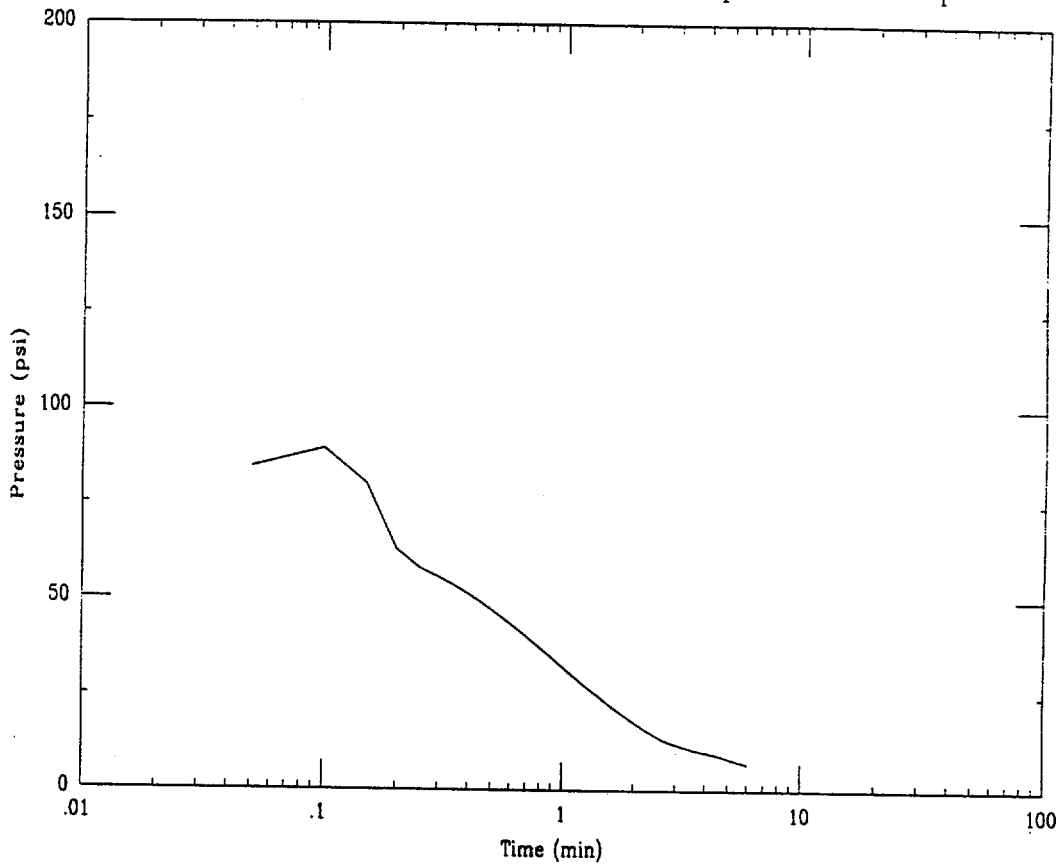
Northing : 80370.9 (ft)
Easting : 55140.0 (ft)
Surface Elevation : 294.4 (ft)
Water Table Elevation : 186.6 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	102.5	191.9	-2.3									
Soil Dilation	108.6	185.8	0.3	0.76								
Soil Dilation	127.6	166.8	8.6	8.63								

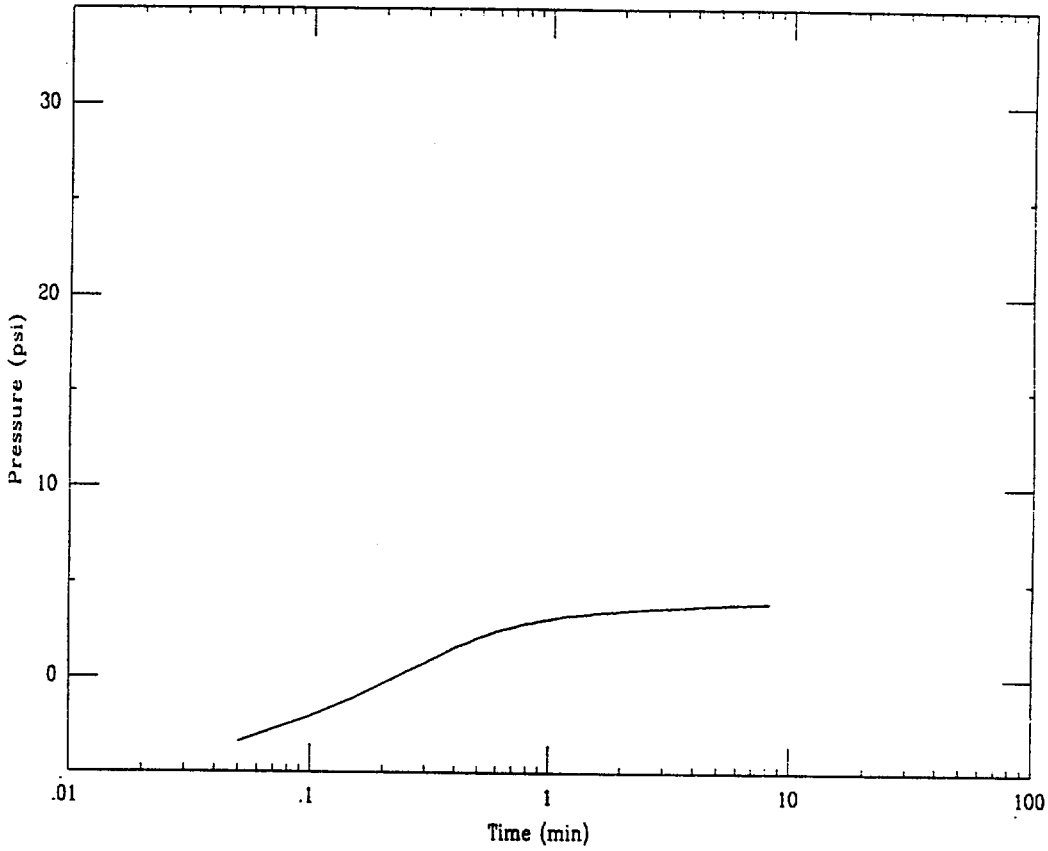
CPT-51 Applied Research Associates 07/18/00

Depth = 95.3 ft Max Pressure = 89.40 psi Pn = 7.36 psi



CPT-51 Applied Research Associates 07/18/00

Depth = 104.1 ft Max Pressure = 4.03 psi Pn = 3.99 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-51
Test Date : 7/18/00

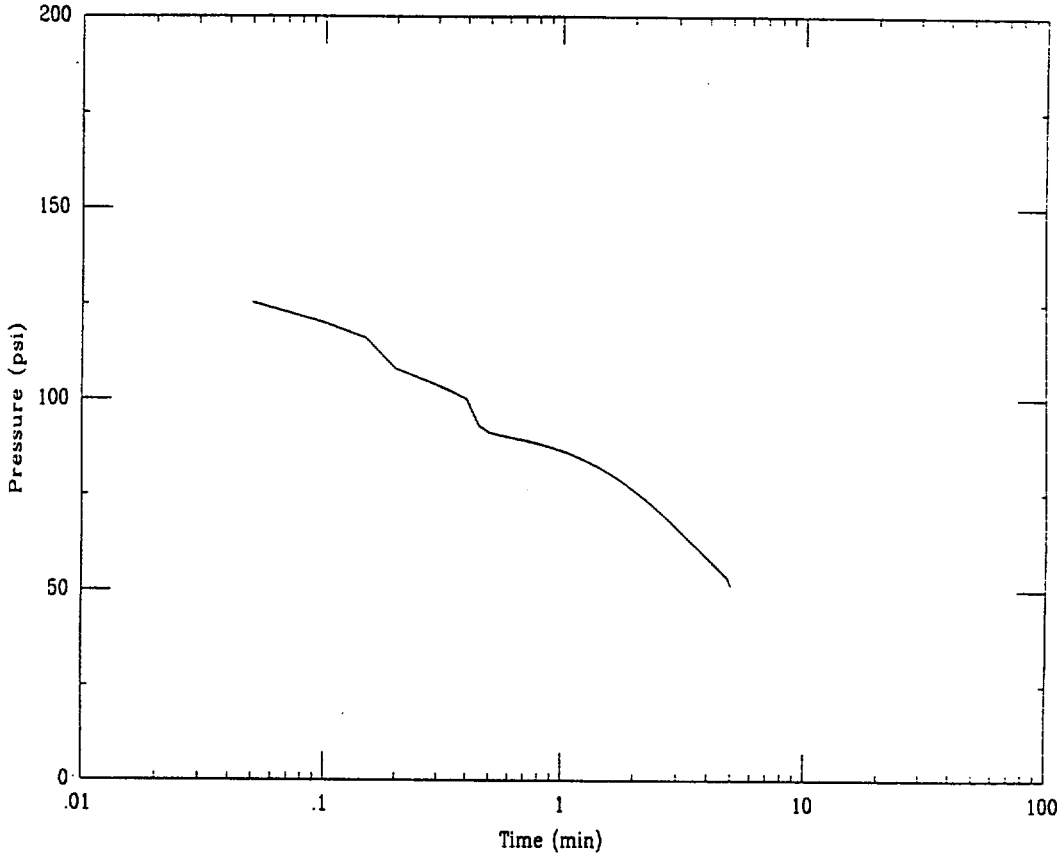
Northing : 80318.7 (ft)
Easting : 55198.3 (ft)
Surface Elevation : 295.5 (ft)
Water Table Elevation : 200.5 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
At GWT	95.3	200.2	0.1									
Soil Dilation	104.1	191.4	3.9	4.03								

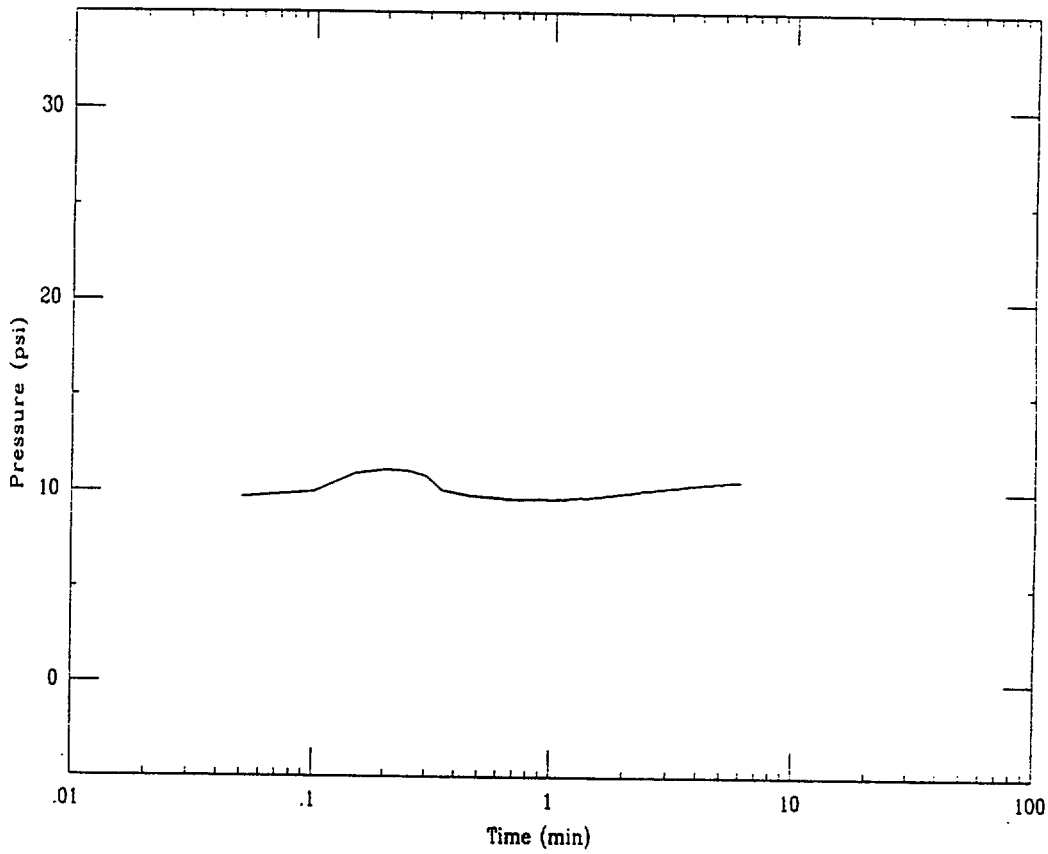
CPT-52 Applied Research Associates 07/19/00

Depth = 114.2 ft Max Pressure = 125.16 psi Pn = 53.38 psi



CPT-52 Applied Research Associates 07/19/00

Depth = 119.1 ft Max Pressure = 11.11 psi Pn = 10.54 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-52
Test Date : 7/19/00

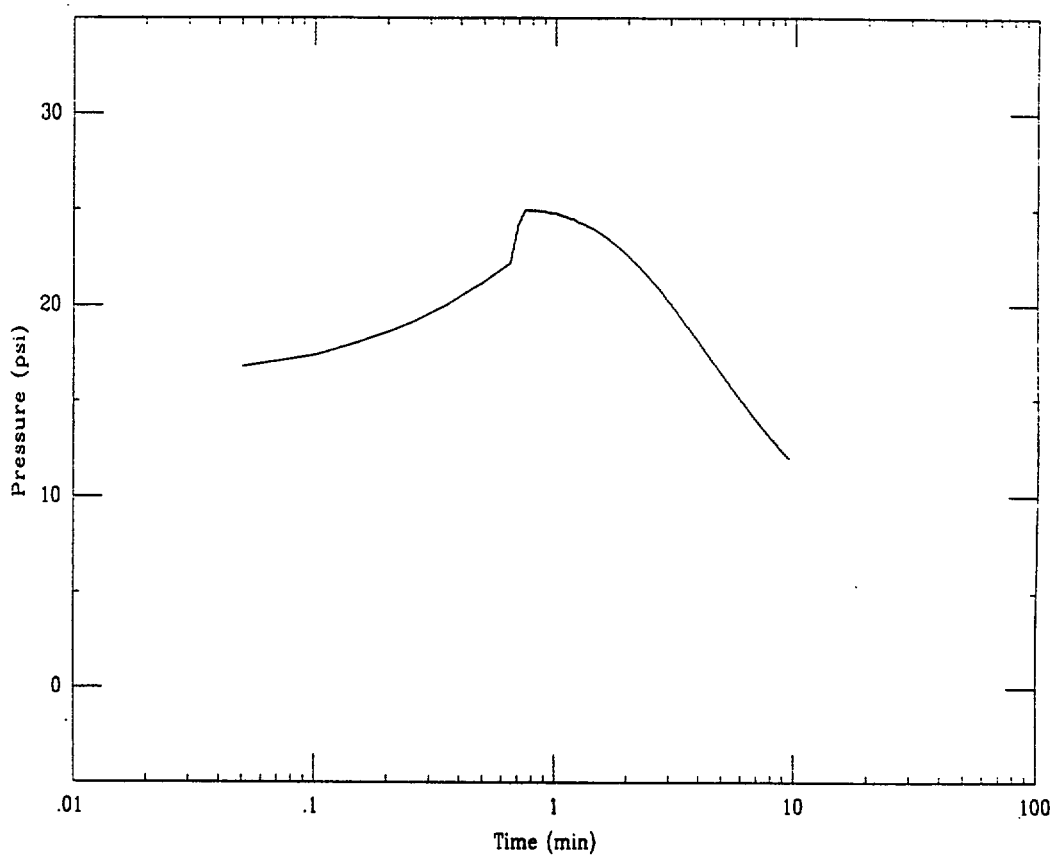
Northing : 80277.0 (ft)
Easting : 54867.3 (ft)
Surface Elevation : 293.4 (ft)
Water Table Elevation : 198.7 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	114.2	179.2	8.5	125.16	66.81	225.0	3.0	675.00	2.95	2.38E-02	1.53E-01	3.23E-06
Soil Dilation	119.1	174.3	10.6	11.11								

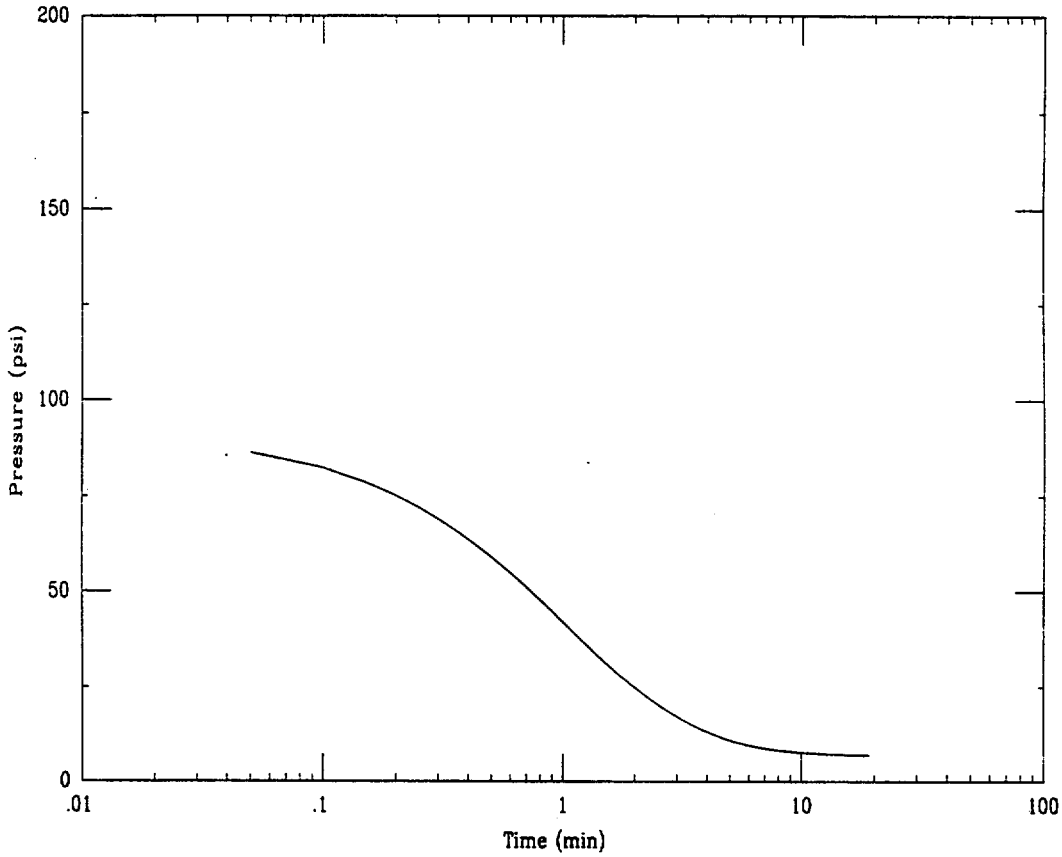
CPT-53 Applied Research Associates 07/15/00

Depth = 89.0 ft Max Pressure = 24.99 psi Pn = 12.12 psi



CPT-53 Applied Research Associates 07/15/00

Depth = 106.4 ft Max Pressure = 86.38 psi Pn = 7.06 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-53
Test Date : 7/15/00

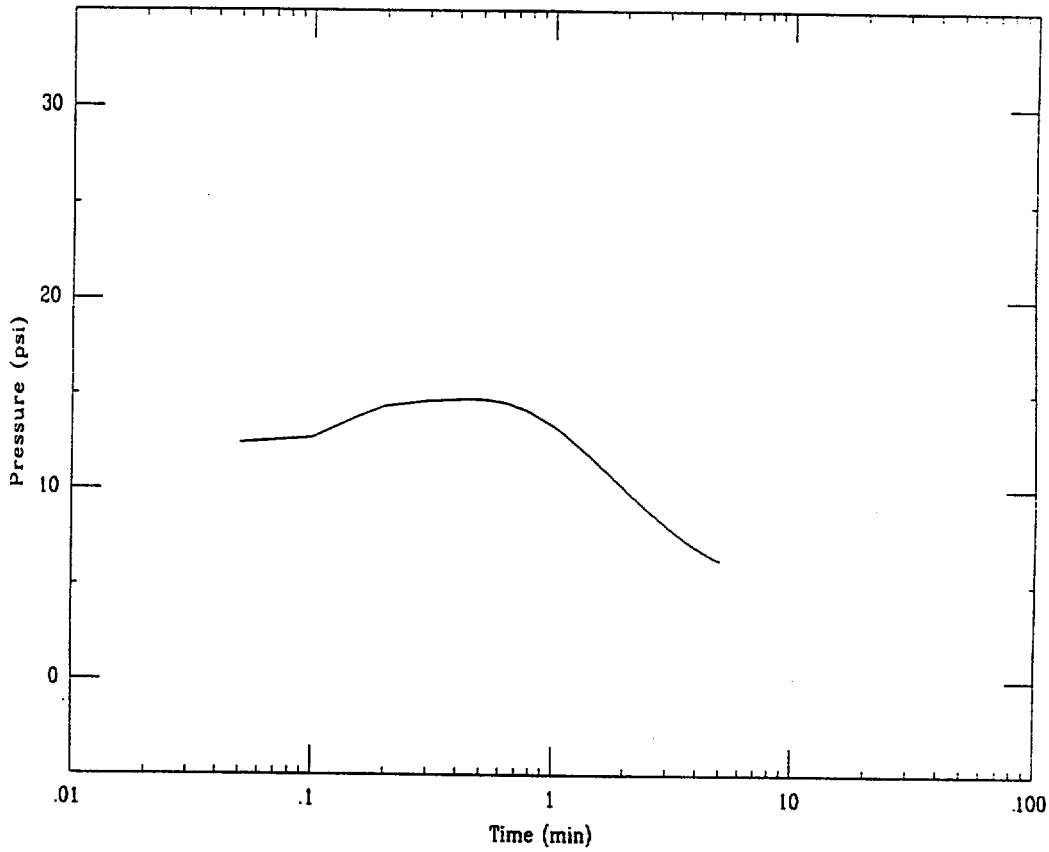
Northing : 80309.5 (ft)
Easting : 55059.9 (ft)
Surface Elevation : 292.8 (ft)
Water Table Elevation : 202.6 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	89.0	203.8	-0.5									
	106.4	186.4	7.0	86.38	46.70	152.8	3.0	458.33	0.85	8.26E-02	5.33E-01	1.65E-05

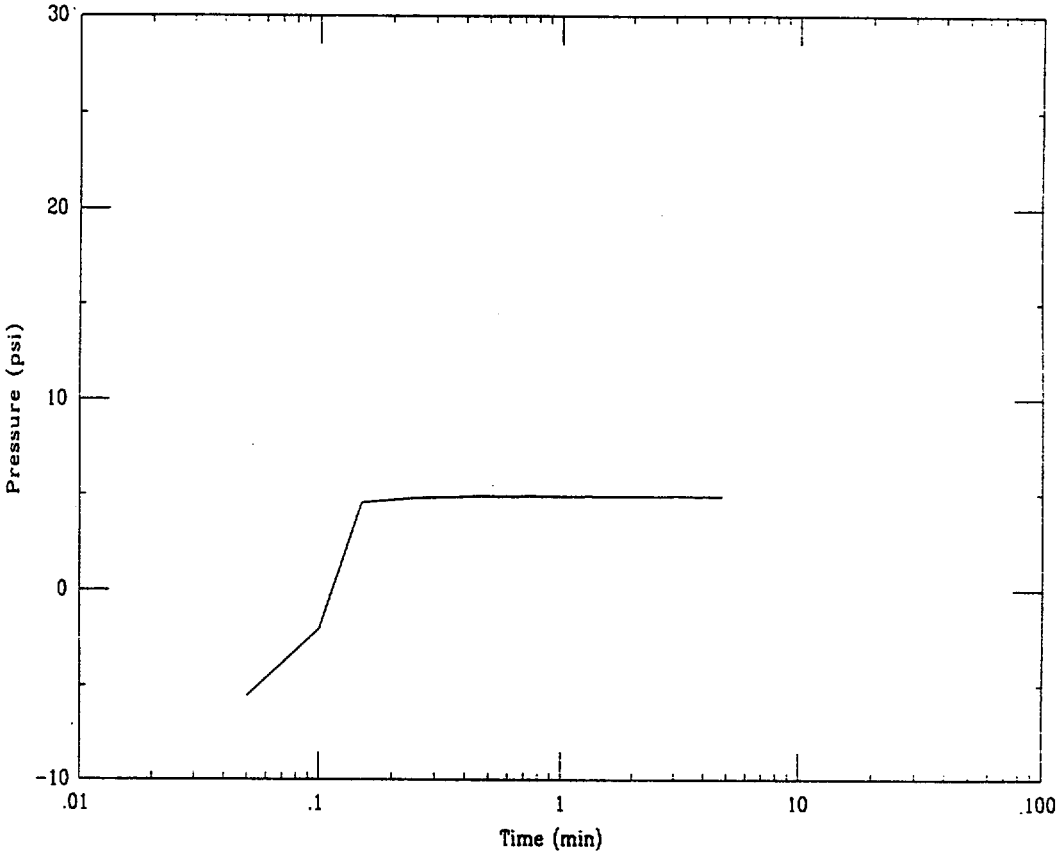
CPT-54 Applied Research Associates 07/20/00

Depth = 96.4 ft Max Pressure = 14.72 psi Pn = 6.43 psi



CPT-54 Applied Research Associates 07/20/00

Depth = 104.2 ft Max Pressure = 4.95 psi Pn = 4.91 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-54
Test Date : 7/20/00

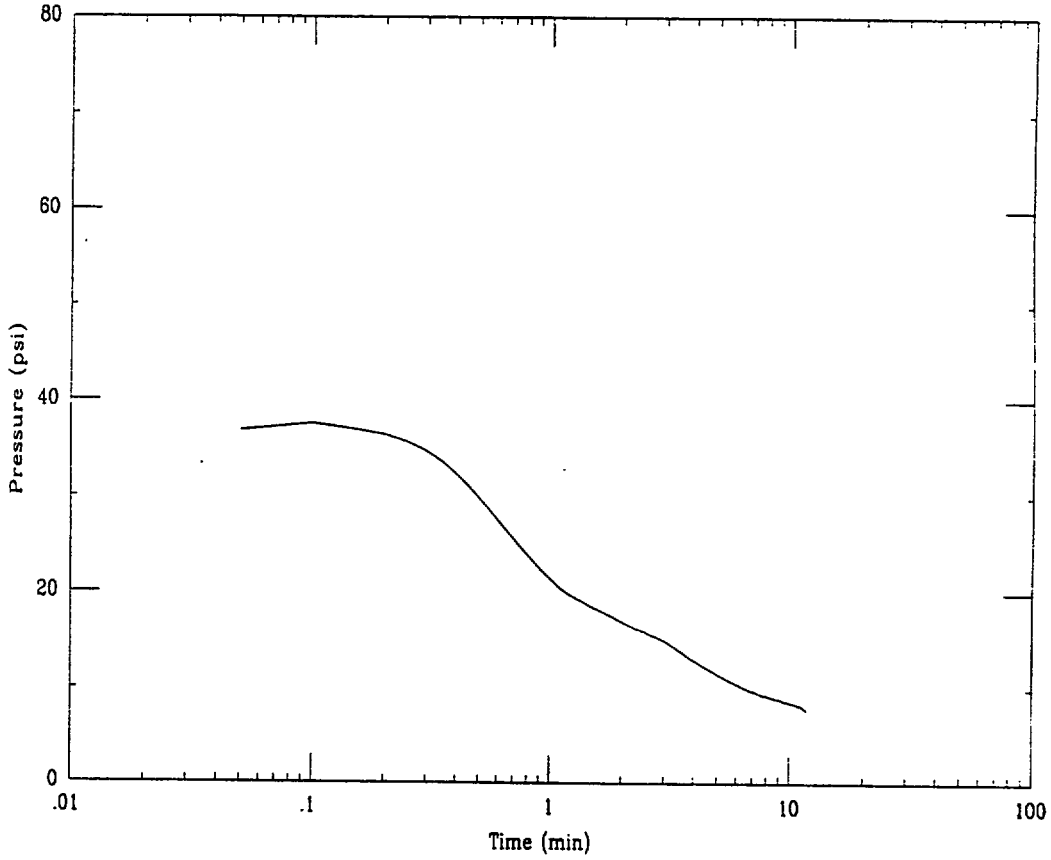
Northing : 80243.1 (ft)
Easting : 54940.0 (ft)
Surface Elevation : 293.7 (ft)
Water Table Elevation : 200.8 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	96.4	197.3	1.5	14.72	8.12	147.2	3.0	441.67	2.95	2.38E-02	1.53E-01	4.94E-06
Soil Dilation	104.2	189.5	4.9	4.95								

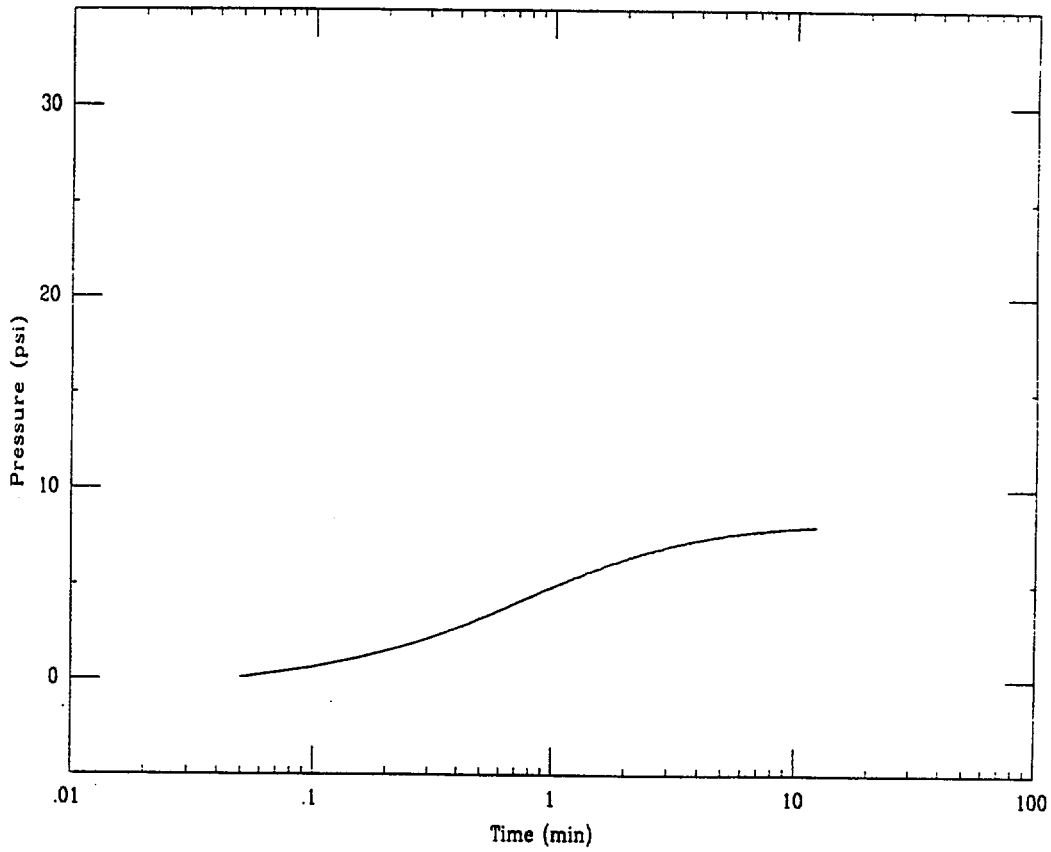
CPT-55 Applied Research Associates 07/18/00

Depth = 96.3 ft Max Pressure = 37.55 psi Pn = 7.98 psi



CPT-55 Applied Research Associates 07/18/00

Depth = 113.0 ft Max Pressure = 8.10 psi Pn = 8.09 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-55
Test Date : 7/18/00

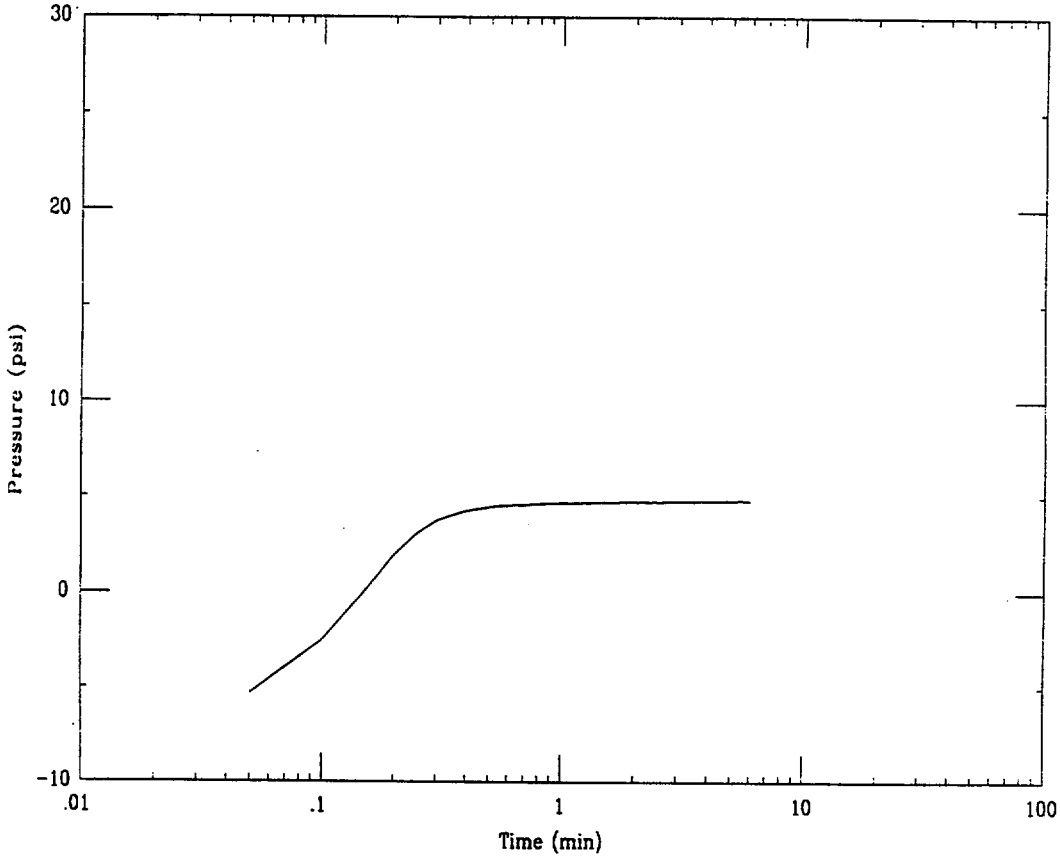
Northing : 80259.6 (ft)
Easting : 55141.9 (ft)
Surface Elevation : 294.4 (ft)
Water Table Elevation : 200.3 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	96.3	198.1	1.0	37.55	19.25	193.1	3.0	579.17	1.35	5.20E-02	3.35E-01	8.23E-06
Soil Dilation	113.0	181.4	8.2	8.11								

CPT-56 Applied Research Associates 07/18/00

Depth = 103.5 ft Max Pressure = 4.83 psi Pn = 4.80 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-56
Test Date : 7/18/00

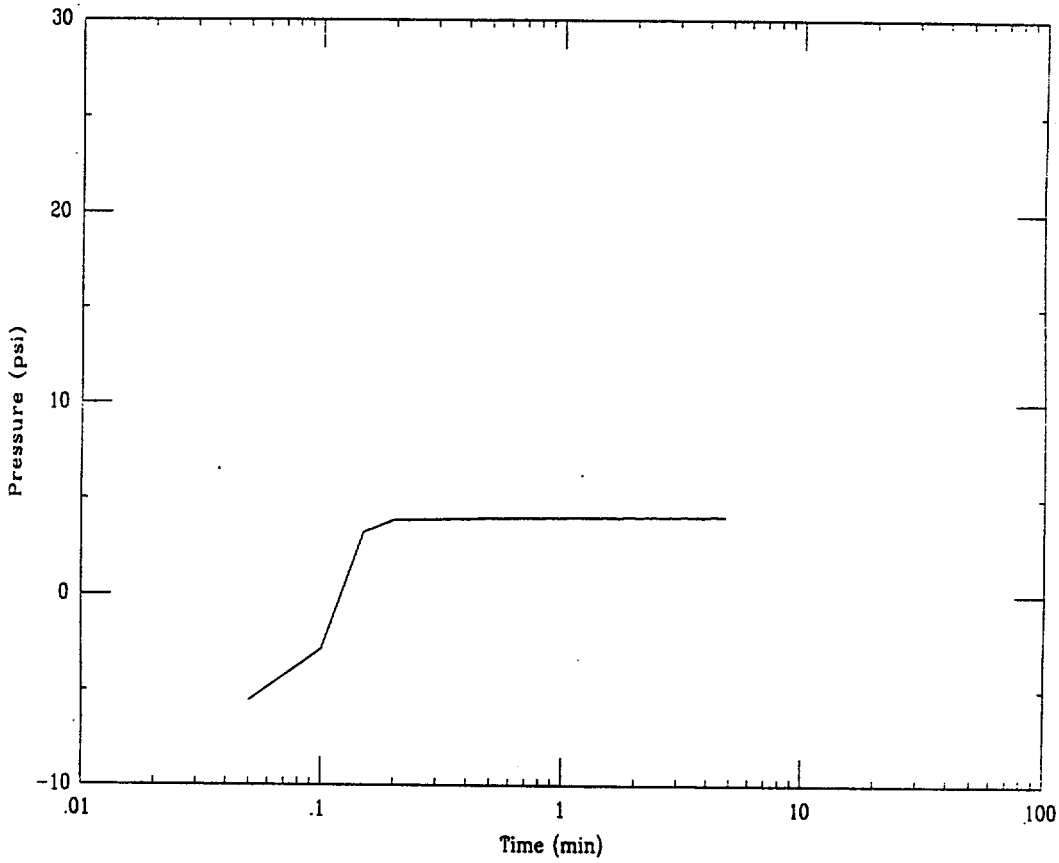
Northing : 80207.0 (ft)
Easting : 54866.7 (ft)
Surface Elevation : 294.2 (ft)
Water Table Elevation : 201.7 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	103.5	190.7	4.8	4.83								

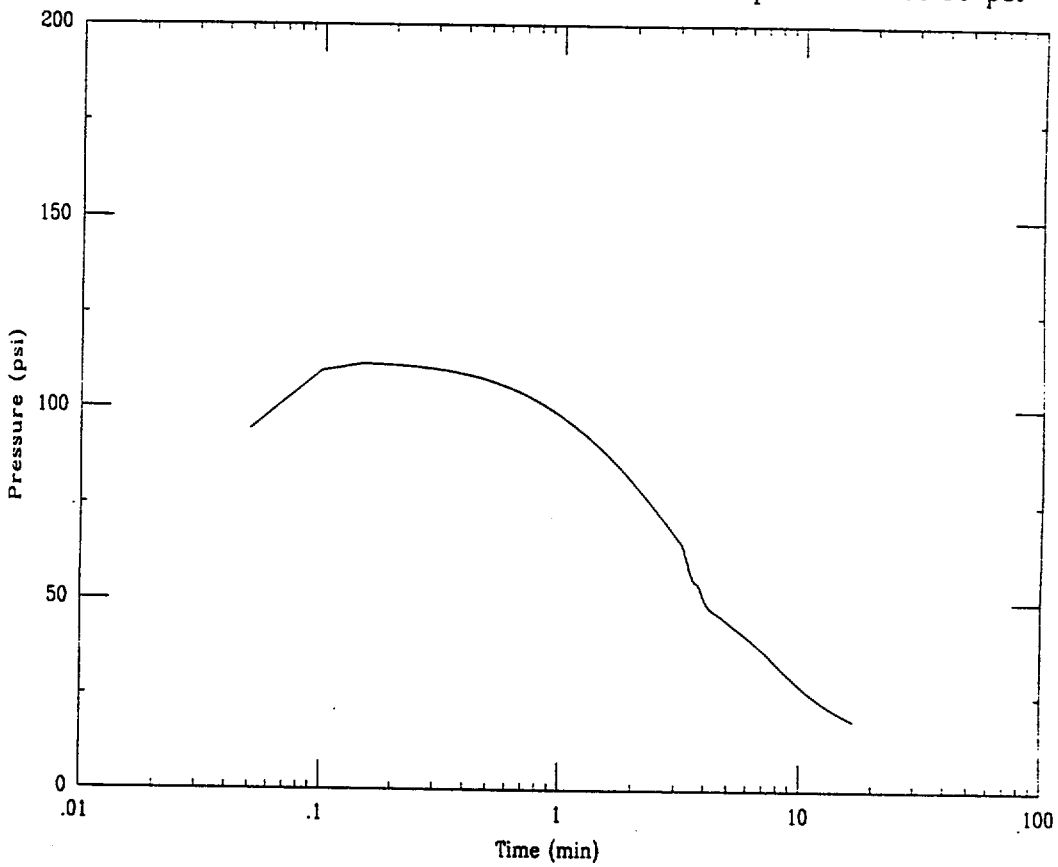
CPT-57 Applied Research Associates 07/18/00

Depth = 101.2 ft Max Pressure = 4.09 psi Pn = 4.07 psi



CPT-57 Applied Research Associates 07/18/00

Depth = 115.1 ft Max Pressure = 111.64 psi Pn = 18.80 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-57
Test Date : 7/18/00

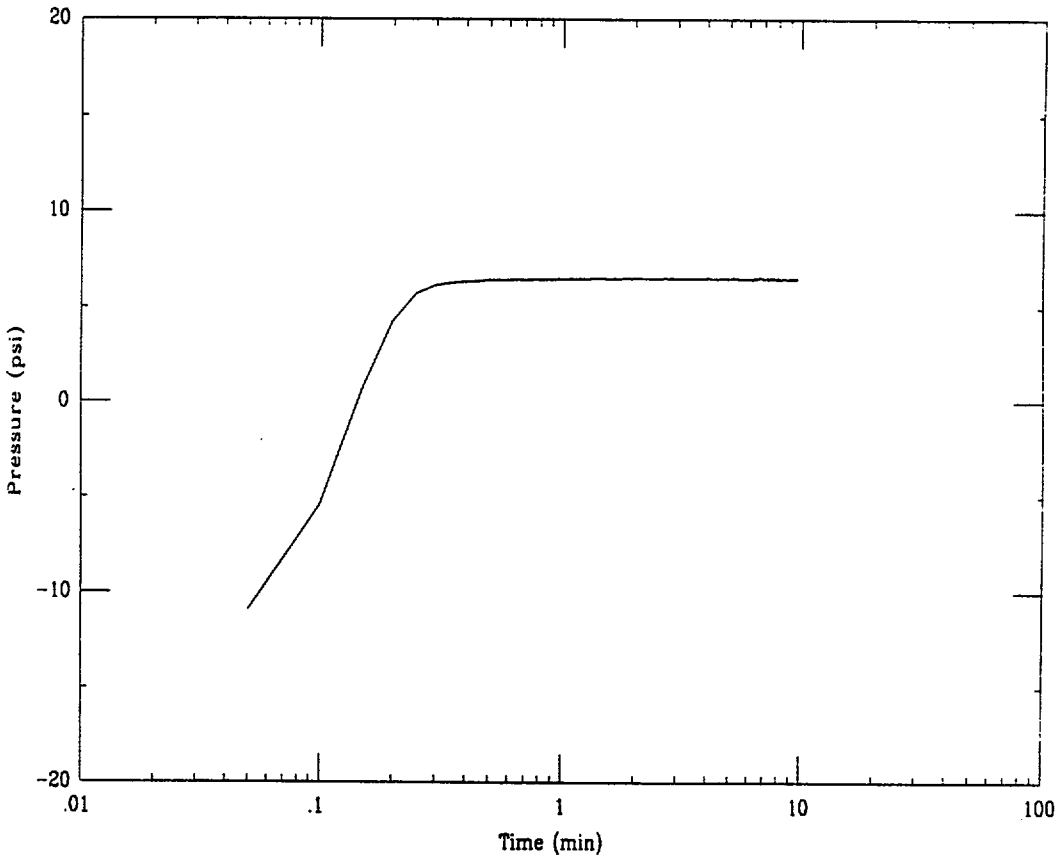
Northing : 80229.2 (ft)
Easting : 55058.2 (ft)
Surface Elevation : 293.6 (ft)
Water Table Elevation : 201.8 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	101.2	192.4	4.1	4.09								
	115.1	178.5	10.1	111.64	60.87	327.8	2.5	819.44	3.35	2.09E-02	1.35E-01	2.34E-06

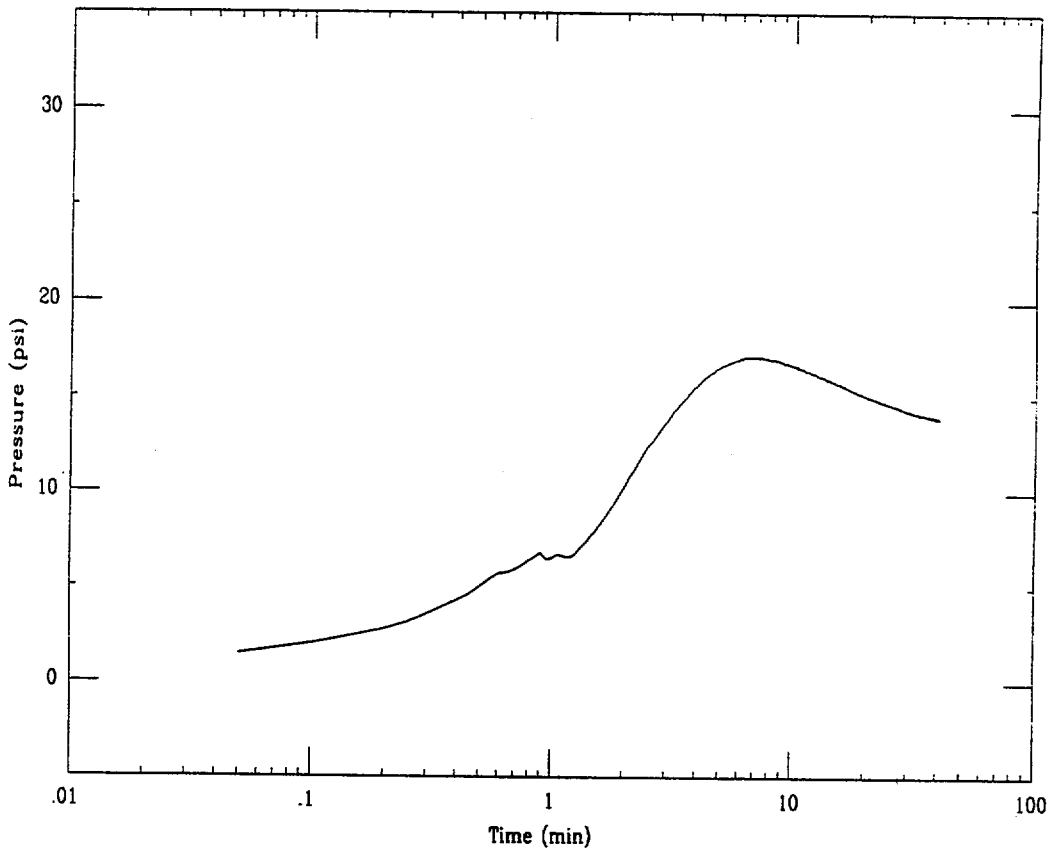
CPT-58 Applied Research Associates 07/17/00

Depth = 103.0 ft Max Pressure = 6.60 psi Pn = 6.51 psi



CPT-58 Applied Research Associates 07/17/00

Depth = 114.1 ft Max Pressure = 17.17 psi Pn = 17.17 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-58
Test Date : 7/17/00

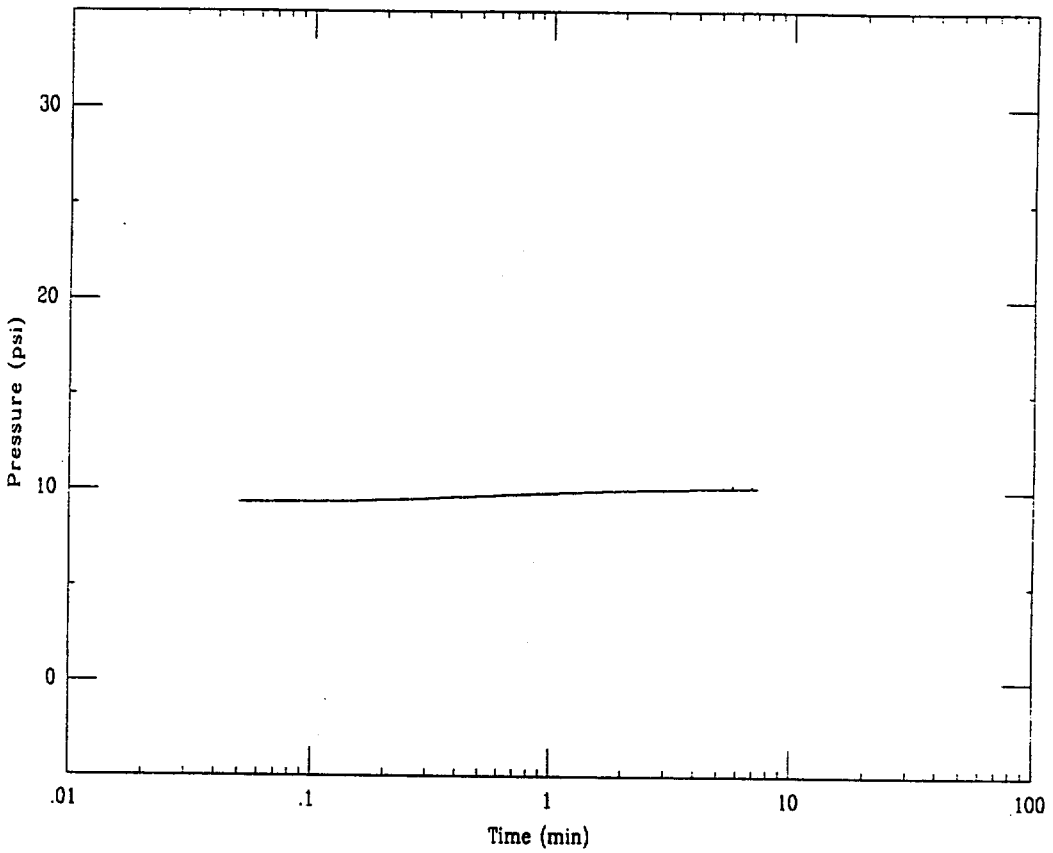
Northing : 80135.1 (ft)
Easting : 54866.9 (ft)
Surface Elevation : 295.1 (ft)
Water Table Elevation : 207.1 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	103.0	192.1	6.5	6.60								
	114.1	181.0	11.3	17.17	14.24	81.9	4.0	327.78	27.00	2.60E-03	1.68E-02	7.27E-07

CPT-59 Applied Research Associates 07/15/00

Depth = 99.1 ft Max Pressure = 10.33 psi Pn = 10.17 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-59
Test Date : 7/15/00

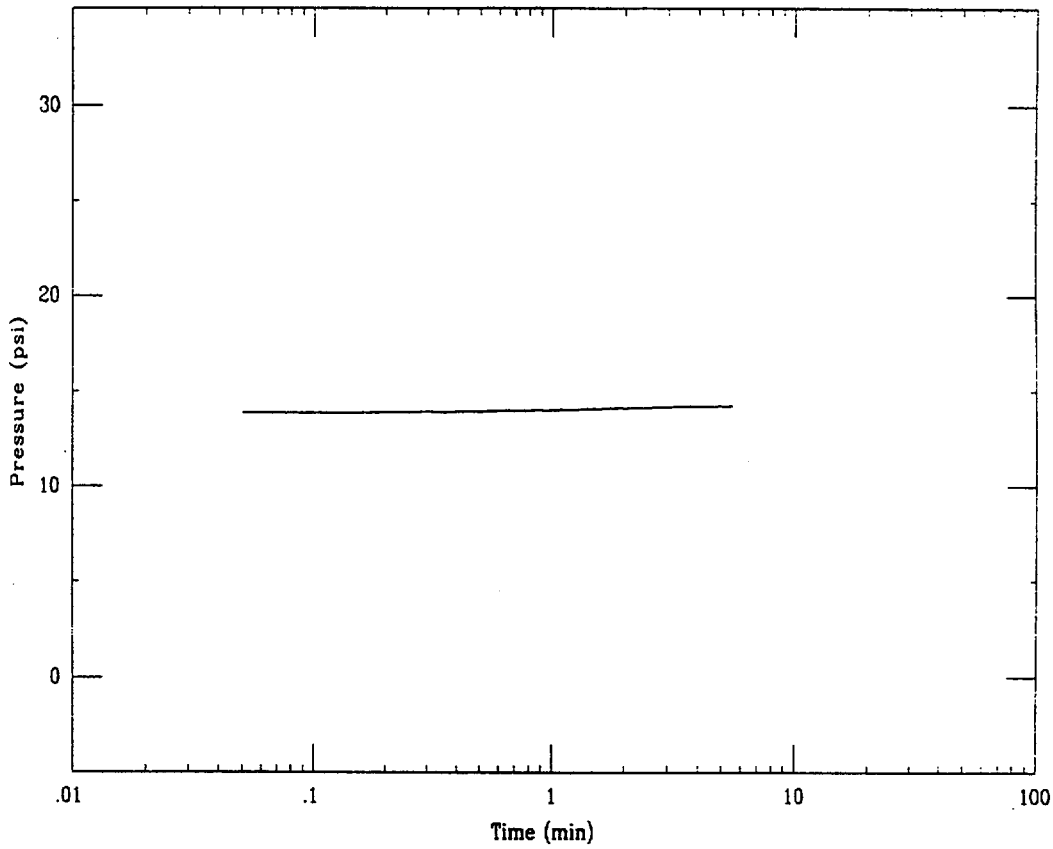
Northing : 80152.7 (ft)
Easting : 54956.9 (ft)
Surface Elevation : 295.5 (ft)
Water Table Elevation : 219.8 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Immediate dissip.	99.1	196.4	10.1	10.33								

CPT-60 Applied Research Associates 07/15/00

Depth = 99.4 ft Max Pressure = 14.27 psi Pn = 14.23 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-60
Test Date : 7/15/00

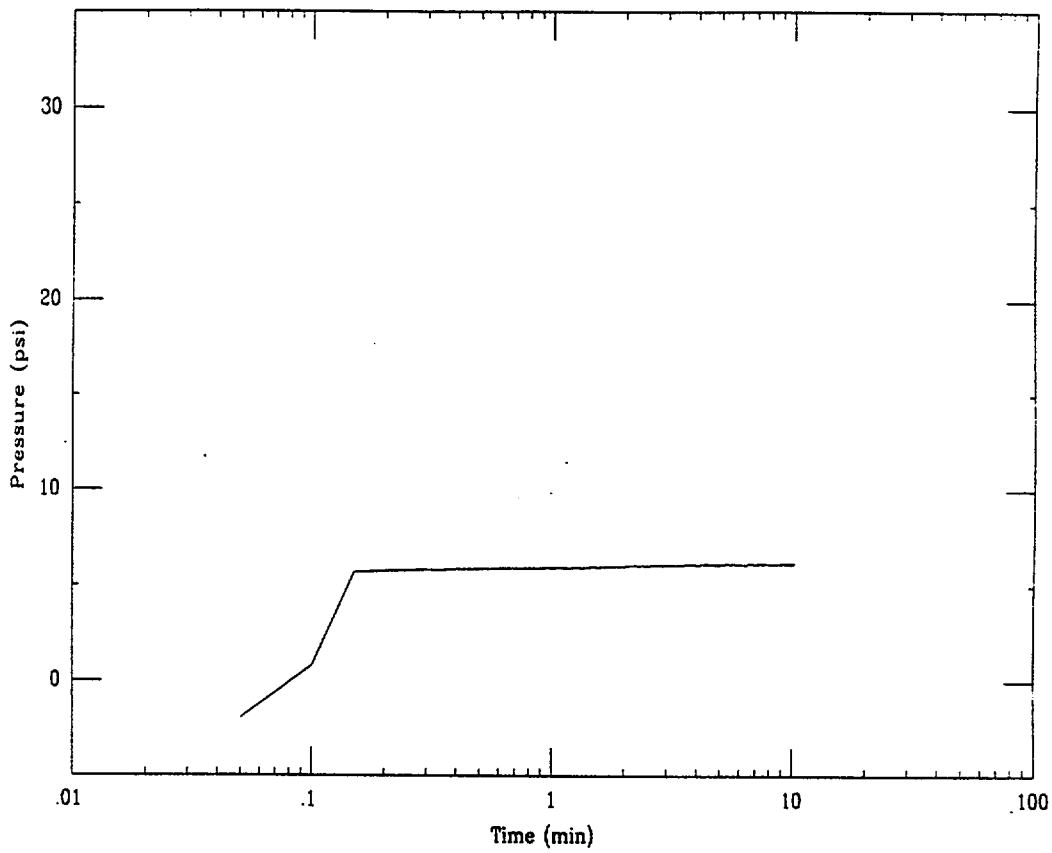
Northing : 80142.2 (ft)
Easting : 55140.6 (ft)
Surface Elevation : 295.7 (ft)
Water Table Elevation : 229.1 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Immediate dissip.	99.4	196.3	14.2	14.27								

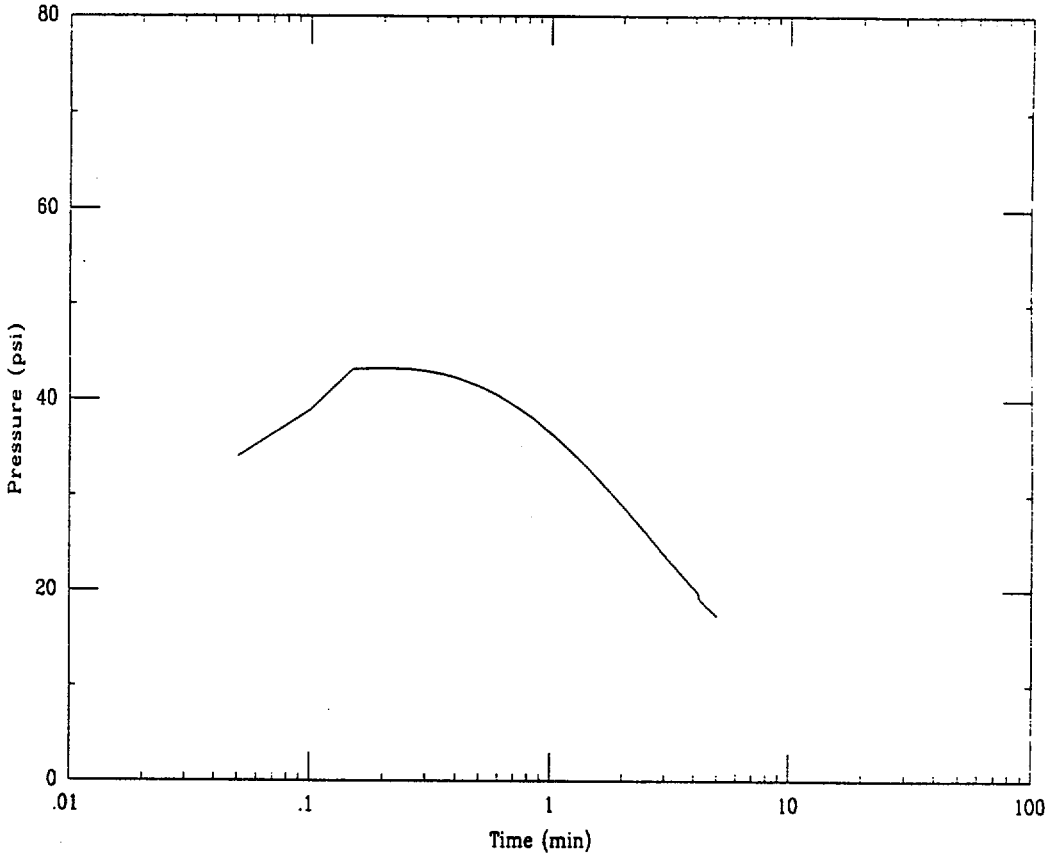
CPT-61 Applied Research Associates 07/21/00

Depth = 90.5 ft Max Pressure = 6.25 psi Pn = 6.19 psi



CPT-61 Applied Research Associates 07/21/00

Depth = 97.1 ft Max Pressure = 43.27 psi Pn = 17.78 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-61
Test Date : 7/21/00

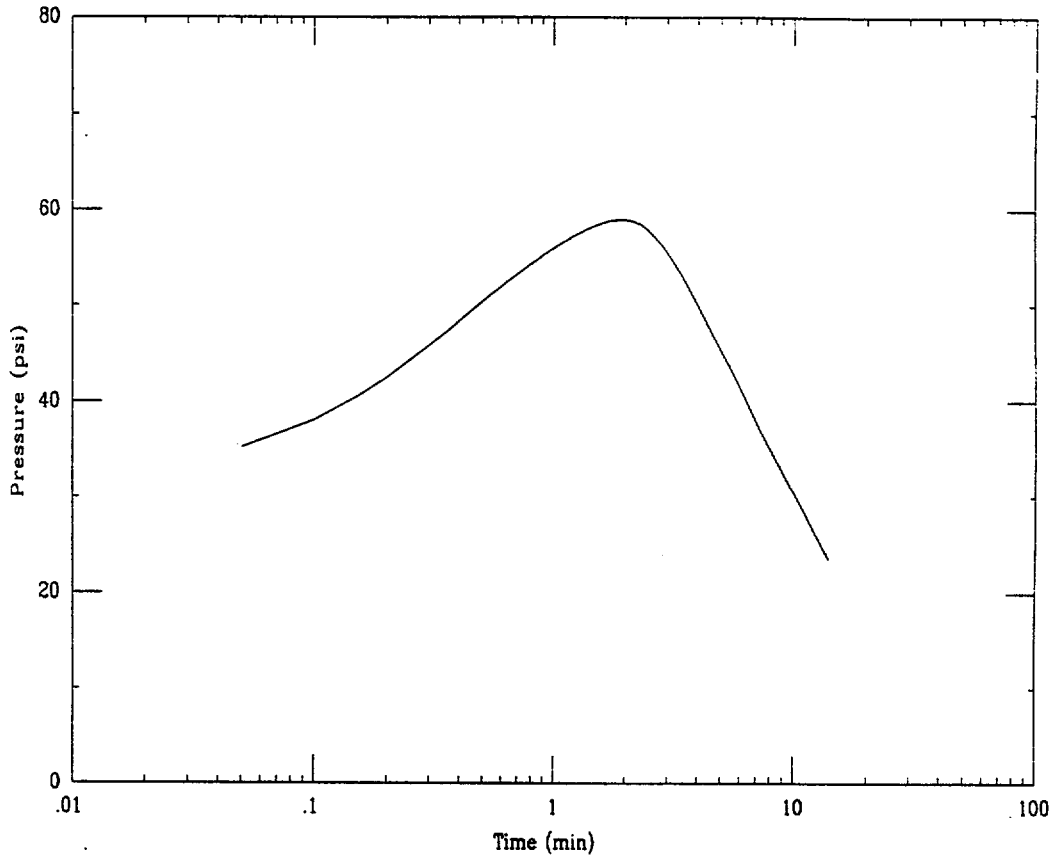
Northing : 80037.6 (ft)
Easting : 54869.6 (ft)
Surface Elevation : 279.3 (ft)
Water Table Elevation : 203.0 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Soil Dilation	90.5	188.8	6.2	6.25								
	97.1	182.2	9.0	43.27	26.14	131.9	3.0	395.83	2.50	2.81E-02	1.81E-01	6.51E-06

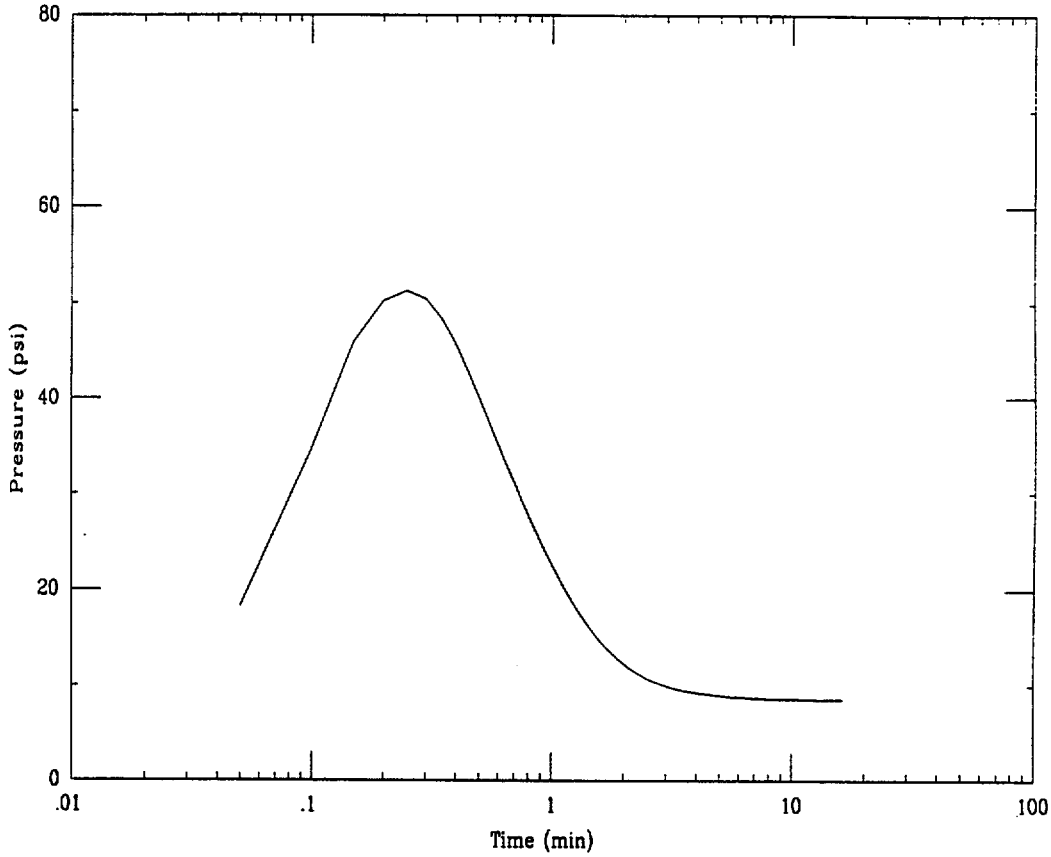
CPT-62 Applied Research Associates 07/22/00

Depth = 70.8 ft Max Pressure = 58.94 psi Pn = 23.50 psi



CPT-62 Applied Research Associates 07/22/00

Depth = 95.6 ft Max Pressure = 51.30 psi Pn = 8.57 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-62
Test Date : 7/22/00

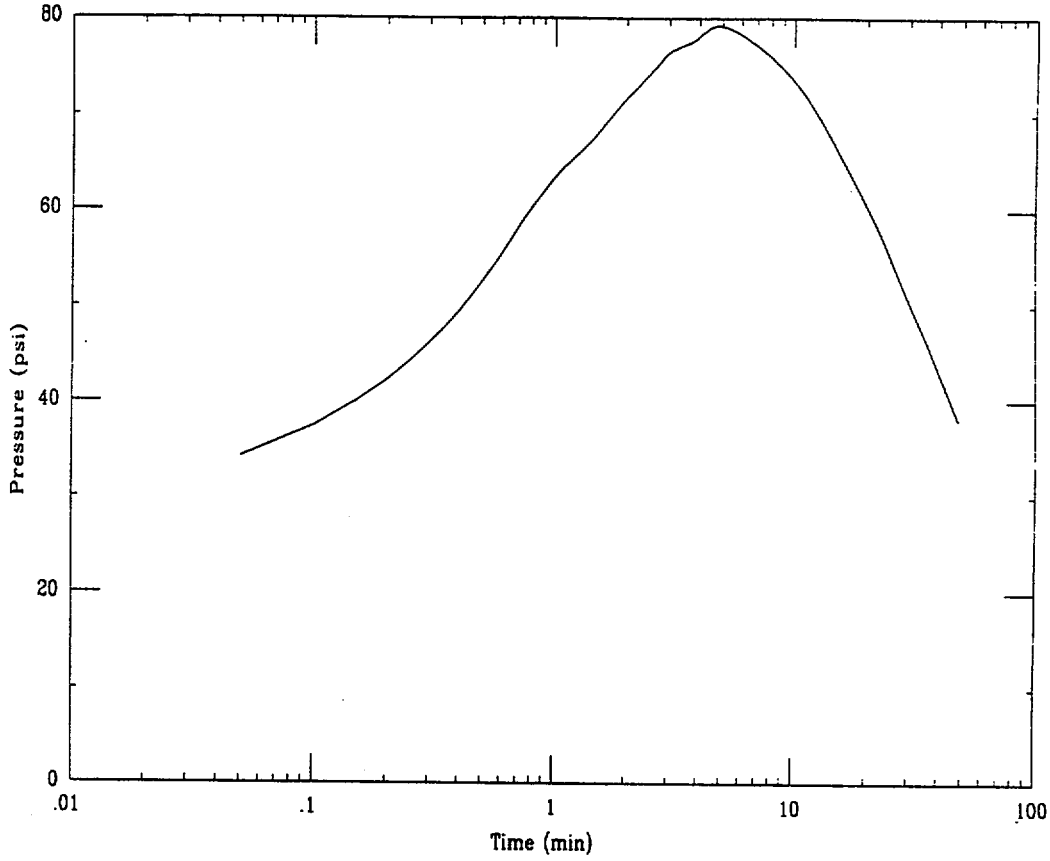
Northing : 80055.6 (ft)
Easting : 54956.3 (ft)
Surface Elevation : 278.5 (ft)
Water Table Elevation : 202.6 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
Above GWT	70.8	207.7	-2.2									
	95.6	182.9	8.5	51.30	29.92	205.6	3.0	616.67	0.75	9.36E-02	6.04E-01	1.39E-05

CPT-63 Applied Research Associates 07/22/00

Depth = 104.5 ft Max Pressure = 79.23 psi Pn = 38.21 psi



Project : Duke Cogema Stone & Webster

Test Id : CPT-63
Test Date : 7/22/00

Northing : 80066.0 (ft)
Easting : 55055.5 (ft)
Surface Elevation : 279.4 (ft)
Water Table Elevation : 189.4 (ft)

Probe Diameter : 1.75 (in)

Notes	Test Depth (ft)	Test Elev (ft)	Static Pressure (psi)	Maximum Pressure (psi)	50 % Pressure (psi)	Tip Stress (psi)	Alpha	Constrained Modulus (psi)	Time 50 % (min)	Coefficient Lateral Consolidation (in2/s)	Coefficient Lateral Consolidation (cm2/sec)	Coefficient Lateral Permeability (cm/s)
	104.5	174.9	6.3	79.23	42.76	273.6	3.0	820.83	40.74	1.72E-03	1.11E-02	1.92E-07

APPENDIX E

DILATOMETER DATA

Dilatometer SDG. No.	GB-115			Client	DCS
Location	DMT-10	A avg (bars)	0.05	DMT Operator	DGC
Gage Zero LR (bars)	0.00	B avg (bars)	0.80	Rig Operator	JDB
Gage Zero HR (bars)	0.20			Rig Type	MACK 1
GWT Depth (ft)	63.00			Rod Type	1.75
Casing Depth (ft)				Membrane Type	H
Predrill Depth (ft)				Date:	07-Jul-00

Depth (Ft)	Thrust (psi)	A bars	B bars	C bars	Depth (Ft)	Thrust (psi)	A bars	B bars	C bars
1					51	550	3.15	14.40	NR
2					52	600	4.40	17.40	NR
3					53	600	1.25	16.70	NR
4					54	550	1.85	8.40	NR
5					55	550	4.05	14.70	NR
6					56	400	3.80	14.20	NR
7					57	300	4.00	14.60	NR
8					58	400	4.40	14.00	NR
9					59	400	4.00	15.60	NR
10	BROKE MEMBRANE. PULLING RODS.				60	450	4.15	16.30	NR
11	800	14.20	>20	3.35	61	400	3.30	13.50	NR
12	750	20.00	>20	15.50	62	400	2.75	13.00	NR
13	1100	13.80	>20	2.35	63	400	5.25	10.00	NR
14	1200	9.40	>20	0.00	64	200	4.20	11.60	NR
15	700	10.10	>20	0.00	65	500	2.00	10.80	NR
16	600	9.00	>20	NR	66	500	2.40	11.80	NR
17	500	5.85	16.80	NR	67	500	2.25	8.60	NR
18	500	5.25	17.20	NR	68	450	5.05	17.80	NR
19	400	4.00	15.60	NR	69	500	2.35	10.20	NR
20	400	3.20	13.60	NR	70	400	3.30	13.70	NR
21	600	4.90	19.40	NR	71	500	5.50	13.20	NR
22	700	5.20	>20	NR	72	600	1.65	8.80	NR
23	650	3.55	>20	NR	73	450	1.35	5.55	0.00
24	650	4.70	19.40	NR	74	350	2.65	11.40	0.00
25	700	3.75	18.80	NR	75	200	3.50	11.40	0.00
26	500	4.15	16.60	NR	76	200	5.85	13.40	0.00
27	550	4.30	15.20	NR	77	250	5.85	10.80	0.00
28	NO READINGS FOR THIS DEPTH.				78	250	7.45	13.00	0.10
29	500	4.40	15.80	NR	79	250	12.80	13.60	2.45
30	500	4.05	14.80	NR	80	300	12.60	19.80	2.45
31	500	4.55	15.20	NR	81	600	13.20	>20	3.85
32	400	2.00	10.80	NR	82	400	7.15	8.10	4.95
33	450	1.70	16.80	NR	83	400	15.20	>20	4.75
34	500	1.65	11.40	NR	84	400	11.20	>20	0.35
35	500	2.10	11.60	NR	85	450	11.00	16.20	2.45
36	600	4.15	>20	NR	86	NR	5.55	18.80	0.00
37	550	4.65	17.30	NR	87	800	5.85	>20	0.00
38	750	4.45	>20	NR	88	1150	4.35	18.40	0.00
39	750	8.15	>20	0.00	89	REFUSAL			
40	700	3.70	19.60	NR	90				
41	600	1.85	>20	NR	91				
42	500	3.15	17.40	NR	92				
43	450	8.10	>20	NR	93				
44	500	4.00	17.20	NR	94				
45	500	7.55	>20	NR	95				
46	400	7.75	>20	0.00	96				
47	350	4.35	17.00	NR	97				
48	300	6.65	14.60	0.00	98				
49	500	4.10	19.20	NR	99				
50	600	1.95	12.80	NR	100				

NR = NO READING

Post Calibration :

A avg (bars) 0.10

B avg (bars) 0.27

Dilatometer SDG. No.	GB-133
Location	DMT-15
Gage Zero LR (bars)	0.00
Gage Zero HR (bars)	0.20
GWT Depth (ft)	68.00
Casing Depth (ft)	
Predrill Depth (ft)	

A avg (bars)	0.10
B avg (bars)	0.60

Client	DCS
DMT Operator	DGC
Rig Operator	JDB
Rig Type	MACK1
Rod Type	1.75
Membrane Type	H
Date:	30-Jun-00

Depth (Ft)	Thrust (psi)	A bars	B bars	C bars	Depth (Ft)	Thrust (psi)	A bars	B bars	C bars
1					51	300	4.00	11.00	NR
2					52	250	3.10	12.00	NR
3					53	300	4.05	9.80	NR
4					54	200	1.90	10.70	NR
5					55	200	5.35	7.85	1.20
6					56	350	1.65	12.80	NR
7					57	600	1.65	10.40	NR
8					58	650	ERROR	17.40	NR
9					59	600	2.35	14.40	NR
10	700	10.80	NR	NR	60	400	2.35	6.65	NR
11	700	10.80	28.20	NR	61	250	10.00	15.00	1.85
12	600	9.80	NR	9.40	62	200	5.47	9.60	0.75
13	650	6.65	24.20	NR	63	200	5.95	10.20	0.20
14	650	6.30	NR	17.00	64	550	2.90	15.60	NR
15	600	6.65	22.80	NR	65	600	4.30	14.80	NR
16	600	5.75	21.20	NR	66	800	5.70	>20.00	NR
17	650	6.25	27.80	NR	67	800	4.75	>20.00	NR
18	650	5.05	19.20	NR	68	700	2.80	13.60	NR
19	600	4.65	17.60	NR	69	700	3.25	14.80	NR
20	500	5.65	17.60	NR	70	700	3.95	17.20	NR
21	500	5.35	16.80	NR	71	700	3.35	15.30	NR
22	600	4.30	15.60	NR	72	600	2.85	14.70	NR
23	600	4.45	17.60	NR	73	550	6.55	15.60	NR
24	700	4.70	19.20	NR	74	650	3.75	20.60	NR
25	500	6.55	19.40	NR	75	800	4.15	>20.00	NR
26	400	4.55	16.20	NR	76	750	3.45	17.20	NR
27	400	6.50	20.40	NR	77	750	3.25	17.80	NR
28	400	5.95	26.20	NR	78	650	2.45	11.80	0.00
29	400	2.30	10.00	NR	79	750	2.50	13.20	0.00
30	500	4.25	16.40	NR	80	650	2.30	11.80	0.00
31	600	3.45	14.80	NR	81	800	2.65	14.20	0.00
32	600	3.20	14.20	NR	82	800	3.10	14.80	0.00
33*	550	3.00	NR	2.15	83	800	3.40	16.50	0.00
34	see below				84	600	4.95	16.60	0.05
35	600	4.90	18.80	NR	85	400	4.50	14.00	0.00
36	550	1.55	8.80	NR	86	200	3.30	5.35	0.10
37	3500	1.45	7.75	NR	87	200	5.95	9.20	2.60
38	450	1.25	7.00	NR	88	200	6.65	12.60	1.65
39**	450	1.25		NR	89	250	7.40	13.20	3.30
40	500	1.75		NR	90	200	7.40	10.80	4.05
41	600	1.70	9.40	NR	91	250	7.15	11.60	2.65
42	500	1.60	9.20	NR	92	300	7.20	14.60	0.45
43	500	1.75	8.40	NR	93	400	8.80	11.20	5.30
44	500	1.70	9.80	NR	94	250	4.45	8.60	0.35
45	550	2.95	15.60	NR	95	350	7.90	16.20	0.00
46	600	2.55	13.80	NR	96	550	7.75	16.20	0.00
47	600	4.00	17.00	NR	97	600	4.00	15.00	0.15
48	650	5.45	>20.00	NR	98	650	5.75	19.60	0.25
49	650	2.65	14.00	NR	99	500	5.85	12.60	0.00
50	550	1.40	8.80	NR	100	900	11.20	>20.00	2.35
					101	800	5.35	>20.00	0.30
					102	700	6.15	>20.00	0.30
					103	1100	7.25	>20.00	0.65

NR = NO READING

Notes :

* Pulling DMT. Same cal. Factors as earlier calibration. New max. pressure 400 psi. 33 ft data is suspect.

** New Diaphram. New Max = 20 bars. A avg. - 0.10 bars. B ave = 0.55 bars.

Post Calibration :

A avg (bars)	0.30
B avg (bars)	0.10

Dilatometer SDG. No.	GB-133			Client	DCS
Location	DMT-23	A avg (bars)	0.10	DMT Operator	DGC
Gage Zero LR (bars)	0.00	B avg (bars)	0.70	Rig Operator	JDB
Gage Zero HR (bars)	0.20			Rig Type	MACK 1
GWT Depth (ft)	70.00			Rod Type	1.75
Casing Depth (ft)				Membrane Type	H
Predrill Depth (ft)				Date:	06-Jul-00

Depth (Ft)	Thrust (psi)	A bars	B bars	C bars	Depth (Ft)	Thrust (psi)	A bars	B bars	C bars
1					51	650	3.35	16.20	NR
2					52	750	3.10	15.50	NR
3					53	900	3.00	15.30	NR
4					54	1000	5.15	>20	NR
5					55	800	3.55	15.60	NR
6					56	800	3.45	14.20	NR
7					57	500	2.70	12.50	NR
8					58	650	4.55	17.10	NR
9					59	550	2.75	12.80	NR
10	500	13.80	>20	3.65	60	550	3.35	15.00	NR
11	500	12.70	>20	1.60	61	700	1.80	9.80	NR
12	500	5.05	15.60	NR	62	600	4.45	17.80	NR
13	500	4.55	13.70	NR	63	850	3.15	15.60	NR
14	400	5.40	16.80	NR	64	600	3.35	14.40	NR
15	300	3.25	11.20	NR	65	600	4.25	14.30	NR
16	350	2.75	11.60	NR	66	750	3.35	15.70	NR
17	500	2.45	11.50	NR	67	900	6.00	>20	NR
18	400	3.80	14.10	NR	68	600	3.35	15.60	NR
19	400	3.85	13.90	NR	69	500	3.65	14.60	NR
20	400	4.65	15.80	NR	70	500	2.55	11.40	NR
21	400	5.20	17.00	NR	71	400	9.80	13.80	4.25
22	400	3.55	13.30	NR	72	200	15.00	>20	9.00
23	400	4.95	15.50	NR	73	300	18.80	>20	12.80
24	500	4.60	15.70	NR	74	300	6.85	19.80	0.00
25	400	4.35	14.80	NR	75	300	11.00	15.60	3.55
26	400	4.55	14.80	NR	76	250	8.80	13.80	0.00
27	400	4.80	16.20	NR	77	500	5.45	19.60	NR
28	400	4.60	15.30	NR	78	400	7.35	13.80	0.00
29	600	5.35	16.40	NR	79	300	7.25	16.80	NR
30	500	2.15	10.40	NR	80	450	2.35	11.00	NR
31	500	3.65	14.20	NR	81	400	4.25	13.20	0.00
32	500	4.80	16.20	NR	82	350	4.75	16.00	0.00
33	500	2.25	11.20	NR	83	300	5.75	10.00	0.00
34	600	4.55	16.80	NR	84	350	5.15	9.40	NR
35	650	3.00	14.00	NR	85	400	5.80	19.90	0.00
36	700	3.15	13.40	NR	86	550	6.75	>20	0.00
37	650	2.25	12.00	NR	87	700	2.85	12.20	0.00
38	600	4.00	16.20	NR	88	600	5.20	12.40	0.00
39	700	1.70	9.40	NR	89	600	4.65	11.60	0.00
40	700	1.55	8.80	NR	90	600	4.05	15.20	0.00
41	550	2.25	12.60	NR	91	600	5.25	19.60	0.00
42	550	7.65	>20	NR	92	650	6.15	>20	0.00
43.4	500	4.85	>20	NR	93	700	5.90	>20	0.00
44	500	1.95	>20	NR	94	550	4.85	16.60	0.00
45	450	5.70	>20	NR	95	850	3.95	14.80	0.00
46	500	2.65	13.00	NR	96	1050	5.15	>20	0.00
47	550	1.35	8.80	NR	97	1300	7.30	>20	0.00
48	600	2.95	14.60	NR	98	1300			
49	600	2.20	12.20	NR	99	1100	5.05	>20	0.00
50	800	2.15	12.50	NR	100.2	600	3.15	12.20	0.00
					101	500	6.80	15.00	0.00
					102	200	8.00	12.50	2.65
					103	200	8.40	13.60	2.60
					104	250	>20	NR	NR
					105	150	>20	NR	NR
					106	150	ERROR		
					107	350	>20	NR	NR
					108	400	>20	NR	NR

NR = NO READING

Post Calibration :

A avg (bars)	0.10
B avg (bars)	0.70

Notes :

* AT 45 FEET, PULLING RODS, GOT 4 READINGS OF >20 FOR B-VALUE
CHANGED DIAPHRAM AND RECALIBRATING AT 45 FEET
DEPTHS 42 TO 45 THE B-VALUE IS QUESTIONABLE

Dilatometer SDG. No.	GB-133			Client	DCS
Location	DMT-25	A avg (bars)	0.15	DMT Operator	DGC
Gage Zero LR (bars)	0.00	B avg (bars)	0.25	Rig Operator	JDB
Gage Zero HR (bars)	0.20			Rig Type	MACK 1
GWT Depth (ft)	68.00			Rod Type	1.75
Casing Depth (ft)				Membrane Type	H
Predrill Depth (ft)				Date:	01-Jul-00

Depth (Ft)	Thrust (psi)	A bars	B bars	C bars	Depth (Ft)	Thrust (psi)	A bars	B bars	C bars
1					51	350	5.35	11.00	0.00
2					52	200	6.10	11.80	0.15
3					53	400	5.95	10.40	0.30
4					54	400	1.15	10.00	NR
5					55	400	2.50	10.40	NR
6					56	300	3.55	9.60	NR
7					57	300	4.45	11.20	0.00
8					58	400	4.35	16.00	NR
9					59	450	1.35	6.35	NR
10	600	12.00	>20	1.90	60	550	4.45	16.80	NR
11	550	12.40	>20	1.95	61	600	2.55	12.20	NR
12	450	11.80	>20	1.65	62	550	2.00	10.20	NR
13	500	10.00	>20	0.80	63	550	1.25	6.75	NR
14	500	10.20	>20	1.05	64	500	3.25	13.60	NR
15	700	5.35	>20	NR	65	500	3.35	13.30	NR
16	800	12.40	>20	2.75	66	550	3.45	14.30	NR
17	550	12.40	>20	2.40	67	450	1.85	8.00	NR
18	700	10.20	>20	1.55	68	400	3.40	12.90	NR
19	750	12.60	>20	2.15	69	550	1.45	6.55	NR
20	1000	11.60	>20	2.05	70	500	2.80	12.00	NR
21	1200	13.20	>20	3.65	71	600	2.20	9.80	NR
22	1100	8.80	>20	NR	72	700	1.45	6.70	NR
23	700	11.60	>20	1.55	73	650	1.40	7.25	NR
24	550	2.75	13.20	2.85	74	500	1.35	7.25	NR
25	550	5.55	19.80	NR	75	600	1.75	10.50	NR
26	600	4.65	18.00	NR	76	500	1.70	10.00	NR
27	600	4.10	15.80	NR	77	500	1.30	6.25	0.00
28	600	2.05	11.40	NR	78	500	1.75	7.45	0.00
29	600	1.45	7.85	NR	79	600	1.95	10.50	0.00
30	600	2.45	13.20	NR	80	700	1.75	10.30	0.00
31	650	3.65	15.20	NR	81	750	2.00	10.80	0.00
32	600	3.80	15.60	NR	82	1000	5.25	>20	0.00
33	600	3.35	15.00	NR	83	1200	5.65	>20	0.00
34	600	3.35	14.60	NR	84				
35	600	4.15	15.70	NR	85				
36	500	4.15	15.40	NR	86				
37	500	1.55	7.30	NR	87				
38	500	3.60	14.20	NR	88				
39	500	3.30	14.50	NR	89				
40.4	450	2.94	12.60	NR	90				
41	500	2.45	11.80	NR	91				
42	700	4.75	18.30	NR	92				
43	700	3.55	15.20	NR	93				
44	700	6.55	>20	NR	94				
45	700	10.00	>20	0.85	95				
46	700	3.35	15.60	NR	96				
47	550	2.00	9.50	NR	97				
48	500	3.55	14.00	NR	98				
49	450	6.45	19.30	NR	99				
50	400	4.55	15.20	NR	100				

NR = NO READING

Post Calibration :

A avg (bars) 0.10

B avg (bars) 0.20

Dilatometer SDG. No.	GB-133			Client	DCS
Location	DMT-29	A avg (bars)	0.10	DMT Operator	DGC
Gage Zero LR (bars)		B avg (bars)	0.60	Rig Operator	JDB
Gage Zero HR (bars)				Rig Type	MACK 1
GWT Depth (ft)	70.00			Rod Type	1.75
Casing Depth (ft)				Membrane Type	H
Predrill Depth (ft)				Date:	29-Jun-00

Depth (Ft)	Thrust (psi)	A bars	B bars	C bars	Depth (Ft)	Thrust (psi)	A bars	B bars	C bars
1	1800	20.80	55.80	NR	51	550	4.00	16.60	NR
2	1700	19.60	52.00	NR	52	600	1.85	8.60	NR
3	1200	13.00	38.00	NR	53	600	2.00	9.20	NR
4	800	8.40	24.20	NR	54	600	1.55	9.00	NR
5	400	3.40	13.00	0.15	55	600	1.75	8.20	NR
6	450	3.50	11.60	NR	56	600	1.95	10.20	NR
7	400	3.60	11.00	NR	57	700	1.85	9.60	NR
8	500	3.60	12.00	NR	58	700	1.75	9.00	NR
9	500	5.30	17.00	NR	59	650	2.00	10.70	NR
10	850	8.30	27.60	NR	60	650	2.25	11.80	NR
11	1300	18.80	50.00	NR	61	700	1.95	11.60	NR
12	1400	14.20	42.00	NR	62	700	3.20	15.00	NR
13	800	11.80	18.80	1.80	63	600	3.40	14.80	NR
14	300	11.80	21.60	0.50	64	600	4.25	17.20	NR
15	500	10.40	24.80	0.15	65	550	2.05	9.70	NR
16	700	6.35	22.60	NR	66	400	4.40	15.00	NR
17	700	7.25	21.60	NR	67	250	7.85	13.20	2.70
18	800	11.40	29.20	NR	68	200	17.00	24.20	6.60
19	800	8.60	23.20	NR	69	250	9.60	13.80	3.65
20	800	7.85	20.80	NR	70	200	11.60	17.80	9.00
21	800	6.15	19.40	NR	71	700	10.20	29.20	NR
22	700	6.60	20.00	NR	72	700	8.80	29.00	NR
23	700	4.80	17.00	NR	73	500	5.35	11.60	2.70
24	750	6.90	22.00	NR	74	400	5.25	11.60	NR
25	750	5.70	20.20	NR	75	450	5.15	17.20	NR
26	NR	NR	NR	NR	76	450	2.20	11.40	NR
27*	NR	NR	NR	NR	77	500	2.15	13.00	NR
28	750	3.75	16.20	NR	78	350	4.30	8.05	NR
29	800	4.25	17.80	NR	79	200	5.45	10.20	NR
30	700	2.80	12.20	NR	80	150	4.85	10.00	NR
31	650	2.60	12.10	NR	81	200	4.65	9.60	NR
32	650	3.05	14.20	NR	82	500	4.35	14.80	NR
33	650	4.95	18.00	NR	83	400	5.80	16.40	NR
34	700	2.45	13.00	NR	84	500	3.60	14.65	NR
35	800	2.05	11.60	NR	85	500	3.60	14.00	NR
36	700	1.40	7.25	NR	86	600	3.65	14.00	NR
37	500	1.10	6.30	NR	87	700	3.75	13.60	0.00
38	500	5.90	15.30	NR	88	600	4.35	13.80	0.00
39	500	2.35	10.80	NR	89	500	4.00	11.40	0.00
40	500	2.65	12.30	NR	90	500	2.55	12.40	0.00
41	450	4.45	17.10	NR	91	650	1.85	9.80	0.00
42	550	1.45	10.60	NR	92	800	3.05	14.20	0.00
43	600	1.15	7.75	NR	93	900	3.15	17.20	0.00
44	550	1.45	9.00	NR	94	1200	4.55	19.80	0.00
45	500	1.95	10.60	NR	95	1600	11.00	47.20	0.00
46	500	1.60	7.75	NR	96				
47	550	1.45	9.00	NR	97				
48	550	1.55	10.60	NR	98				
49	700	1.60	9.80	NR	99				
50	600	1.75	9.80	NR	100				

NR = NO READING

Notes :

* Vane oriented parallel to E-W sides of MOX building.

** Test with diaphram split at 28 ft test depth. Replaced blade , installed H diaphram.

Post Calibration :

A avg (bars)	0.125
B avg (bars)	0.300