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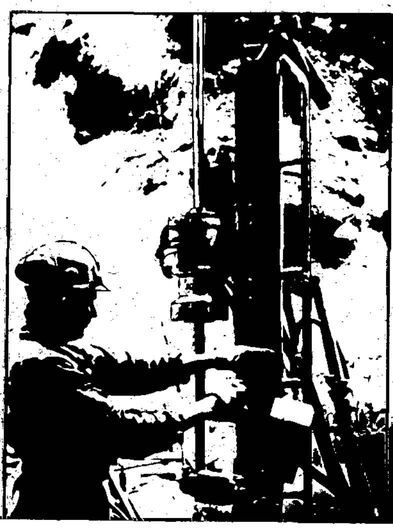

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SEISMIC VELOCITIES AND ATTENUATION IN A HEATED UNDERGROUND GRANITIC REPOSITORY

Volume II

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January 1983

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SEISMIC VELOCITIES AND ATTENUATION IN A HEATED UNDERGROUND GRANITIC REPOSITORY.

by

Björn Nils Patrick Paulsson

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Appendix A:1 - pole plots

The orientation of the fractures logged in core from vertical and horizontal boreholes drilled for the H9 heater experiment is an important part of the data base used for the analysis of the cross hole ultra sonic P and S wave velocities and attenuation.

The fractures were divided up into several subgroups. These groups include whether the fracture comes from a horizontal or vertical borehole; if the fracture is open or closed in the core; and which mineral was the dominant mineral coating the fracture surfaces.

The core was broken at several places for most fractures but only breaks in the core which coinsided with a natural fracture was counted as an open fracture. A closed fracture is defined as a fracture found in the core with a mineral infilling and having a traceable exposure over the entire circumference. Most common of the fracture infilling materials were chlorite, epidote and calcite. Occurences of fluorite, pyrite and hematite were also recorded. The implication of whether the fracture is from a horizontal or a vertical borehole is that that the fracture spacing calculated for a rock mass from core is only correct for fractures which are perpendicular to the drilling direction. The apparent spacing between fractures vary as $x_a = \frac{x_r}{\sin\alpha}$ where x_a is the apparent spacing and x_r the real spacing of this fracture set measured along a line perpendicular to the fracture surface. α is the angle between the axis of the borehole and the fracture plane. This bias is partly corrected for in the pole plot of all the fractures as there are fractures from vertical holes, as well as from horizontal holes drilled in three different directions. In Figure A:1.1 the relative frequency of all the oriented fractures around the H9 heater experiment are shown. This includes fractures from both horizontal and vertical boreholes. In Figure A:1.2 the fractures from the vertical holes drilled from the full scale drift are shown. Figure A:1.3 shows the fractures logged in core from the horizontal boreholes drilled from the extensometer drift. The difference of the position of the main pole is indeed striking and confirms the statement above. These two latter figure show fracture data from the same body of Stripa quartz monzonite. From the vertical boreholes there appear to be two major poles striking N - NE with a dip of 55° and 35° respectively. From the data obtained from the horizontal boreholes the major pole appear to be a vertical set with a N - S strike.

In Figure A:1.4 the closed fractures from the vertical and the horizontal boreholes are presented. In Figure A:1.5 the closed fractures from the vertical holes are shown. In Figure A:1.6 the open fractures for all the holes are shown and in Figure A:1.7 the fractures from the horizontal holes are seen. An interesting phenomenon is that open fractures tend to be more perpendicular to the drill direction than the closed fractures. A possible explanation for this is that when the drill direction is perpendicular to a fracture the fracture surface is small compared to if the drill passes a fracture at an angle other thatn 90°. This increae the likelyhood that this fractures will break in the drilling process. In Figure A:1.8 the calcite fractures from all the boreholes in the H9 area are shown. It is notisable that the calcite filled fractures lack a dominant direction.

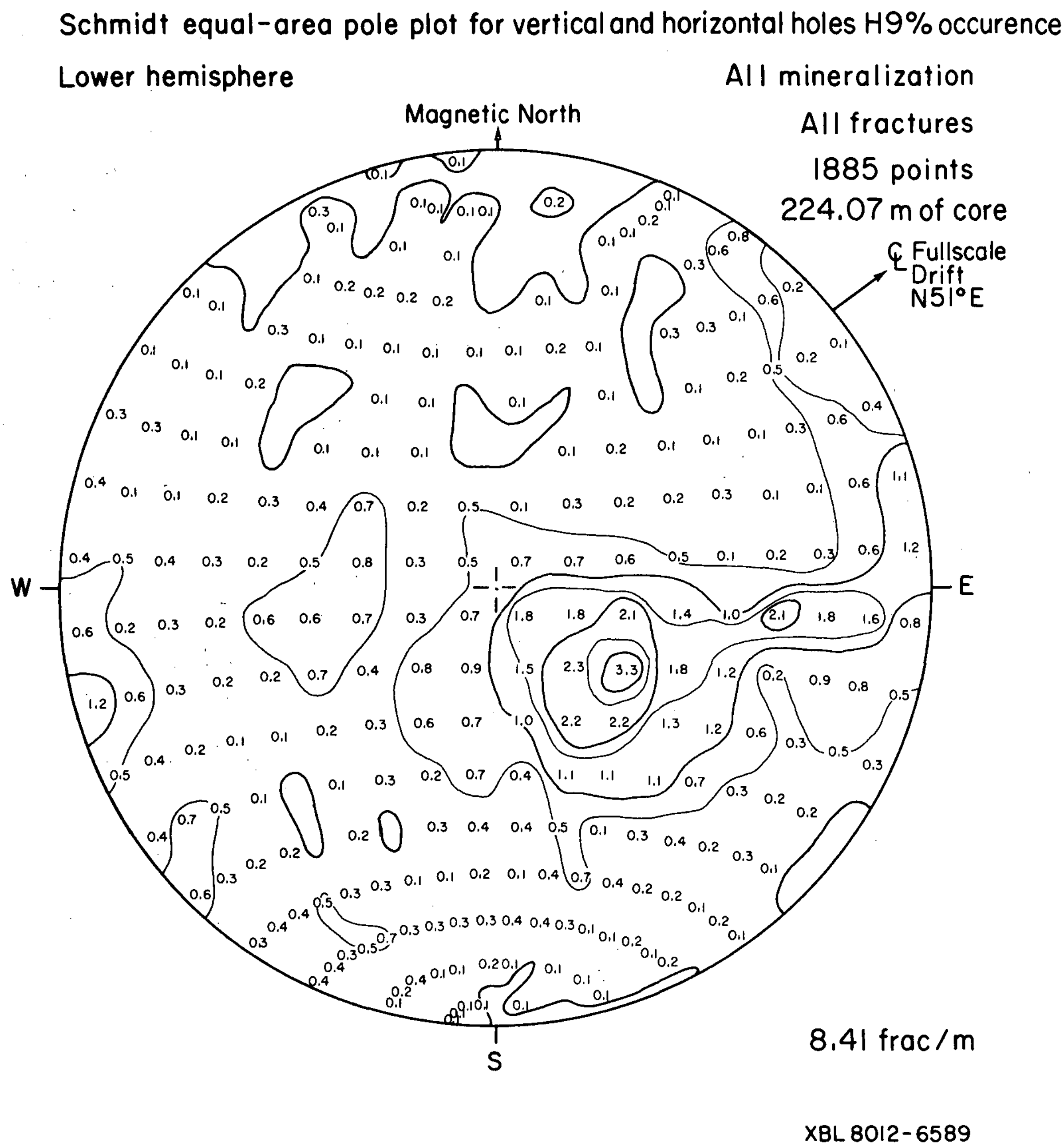

Fig. A:1.1 Schmidt equal-area pole plot for fractures from vertical and horizontal boreholes in the H9 area.

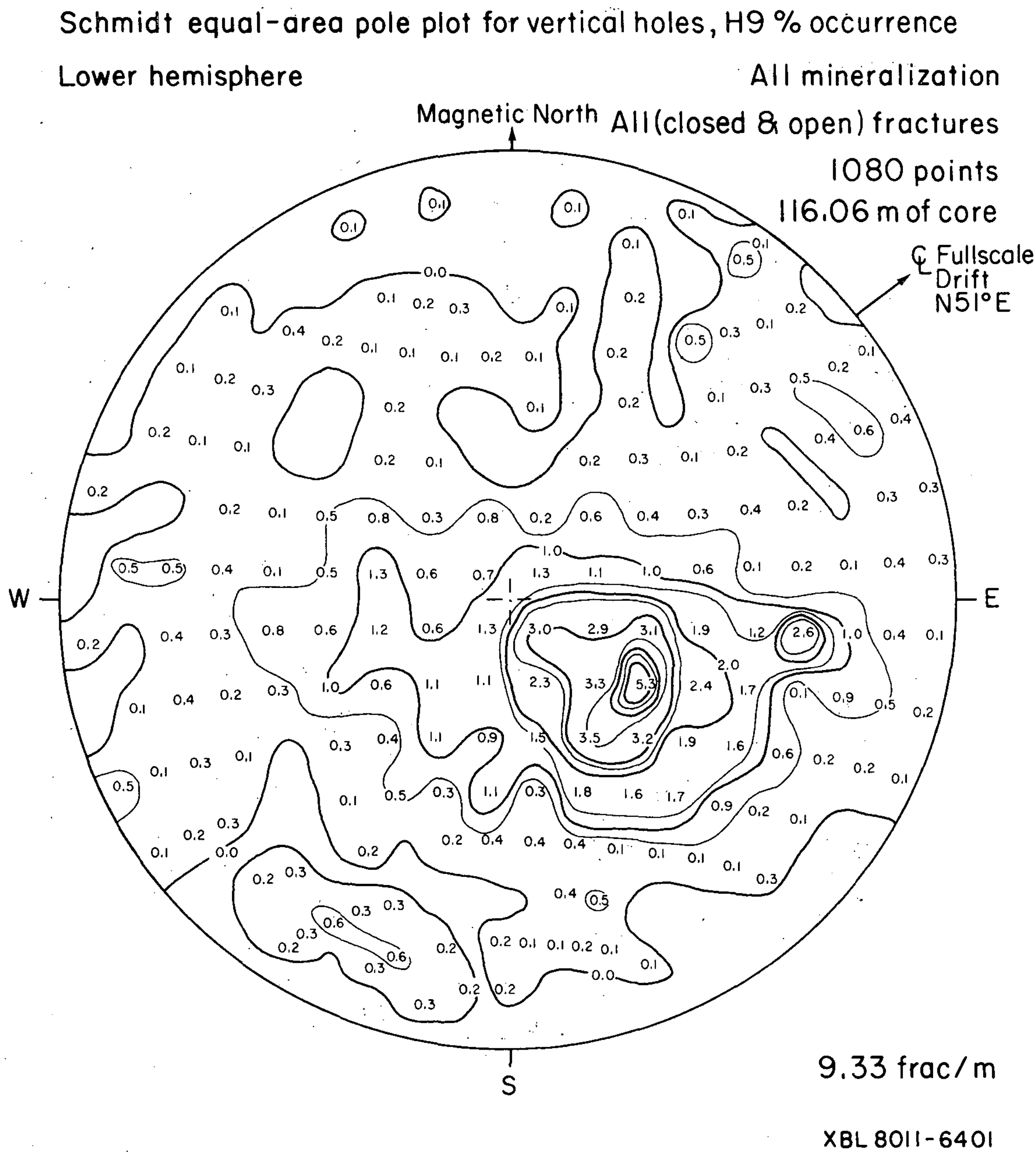

Fig. A:1.2 Schmidt equal-area pole plot for fractures from vertical boreholes in the H9 area.

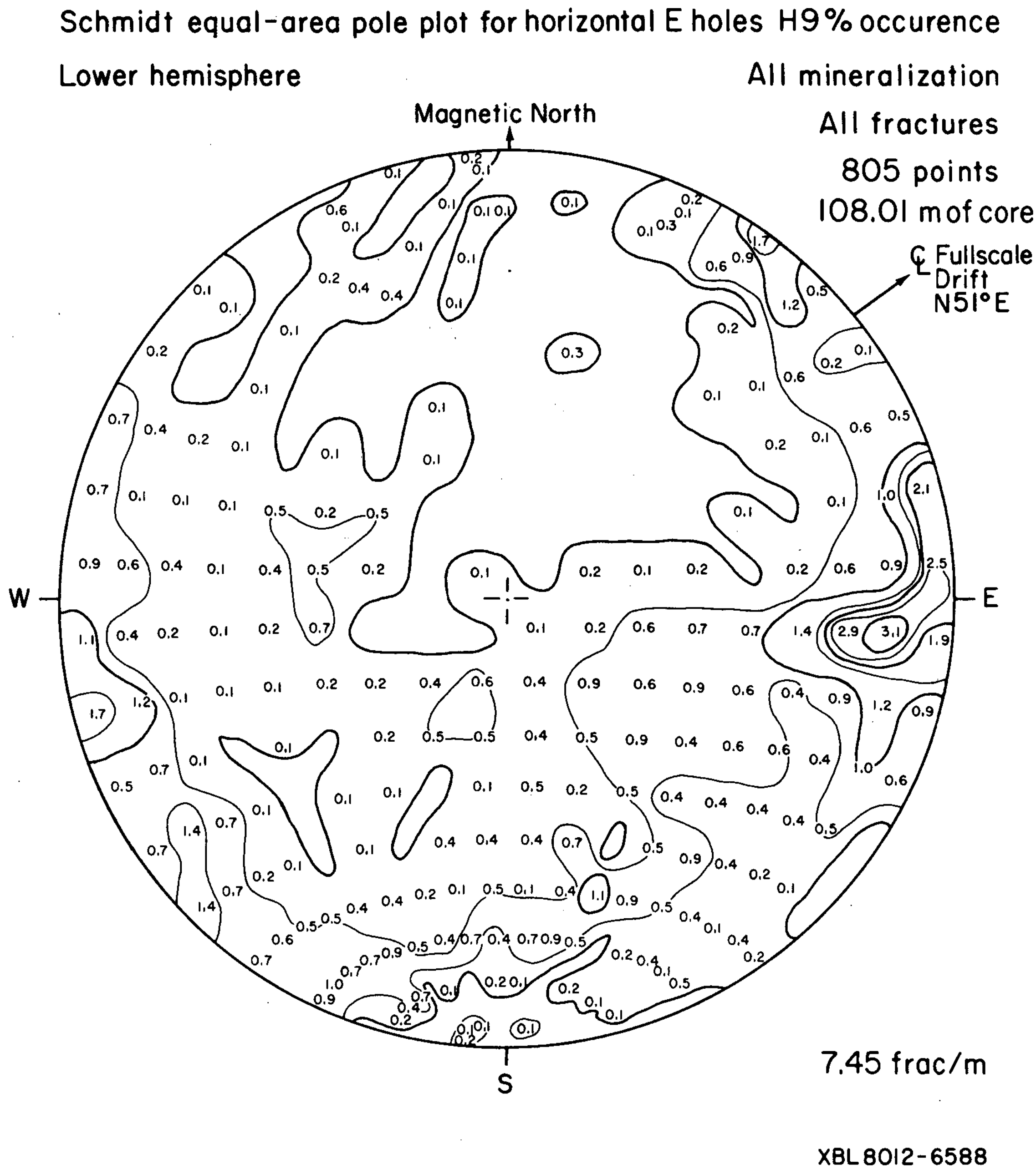

Fig. A:1.3 Schmidt equal-area pole plot for fractures from horizontal boreholes in the H9 area.

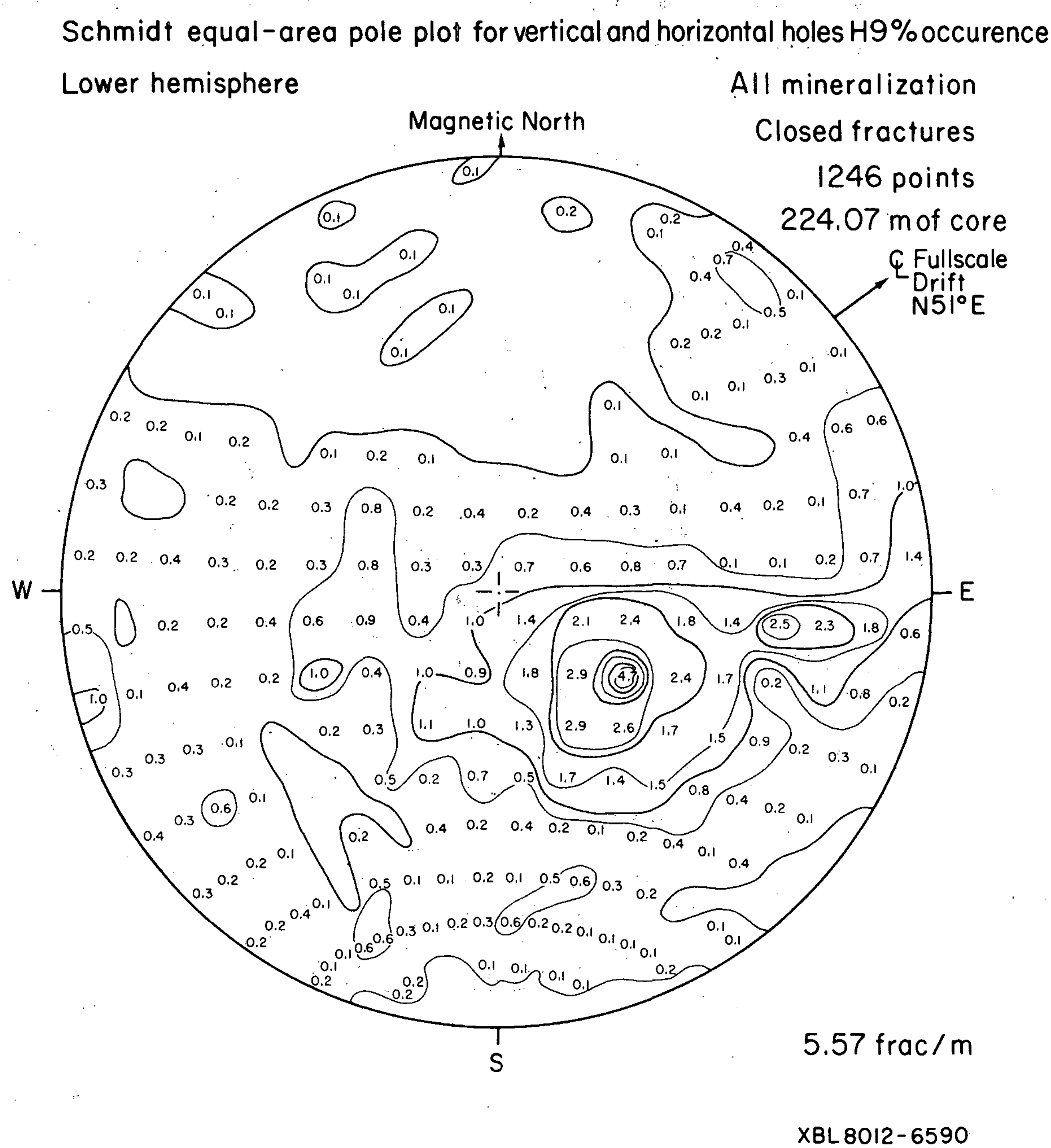

Fig. A:1.4 Schmidt equal-area pole plot for closed fractures from vertical and horizontal boreholes in the H9 area.

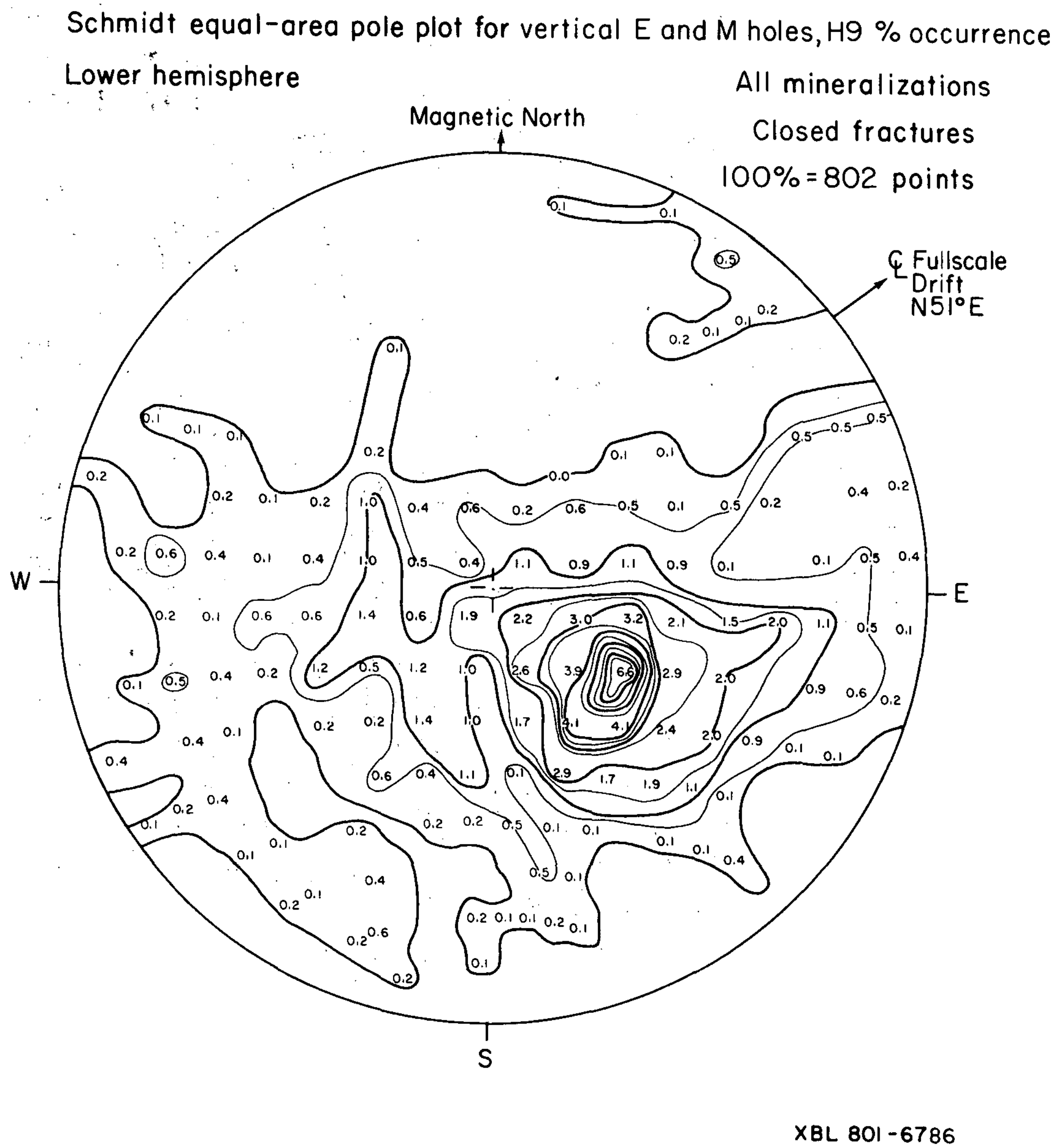

Fig. A:1.5 Schmidt eual-area pole plot for closed fractures from vertical boreholes drilled from the fullscale drift in the H9 area.

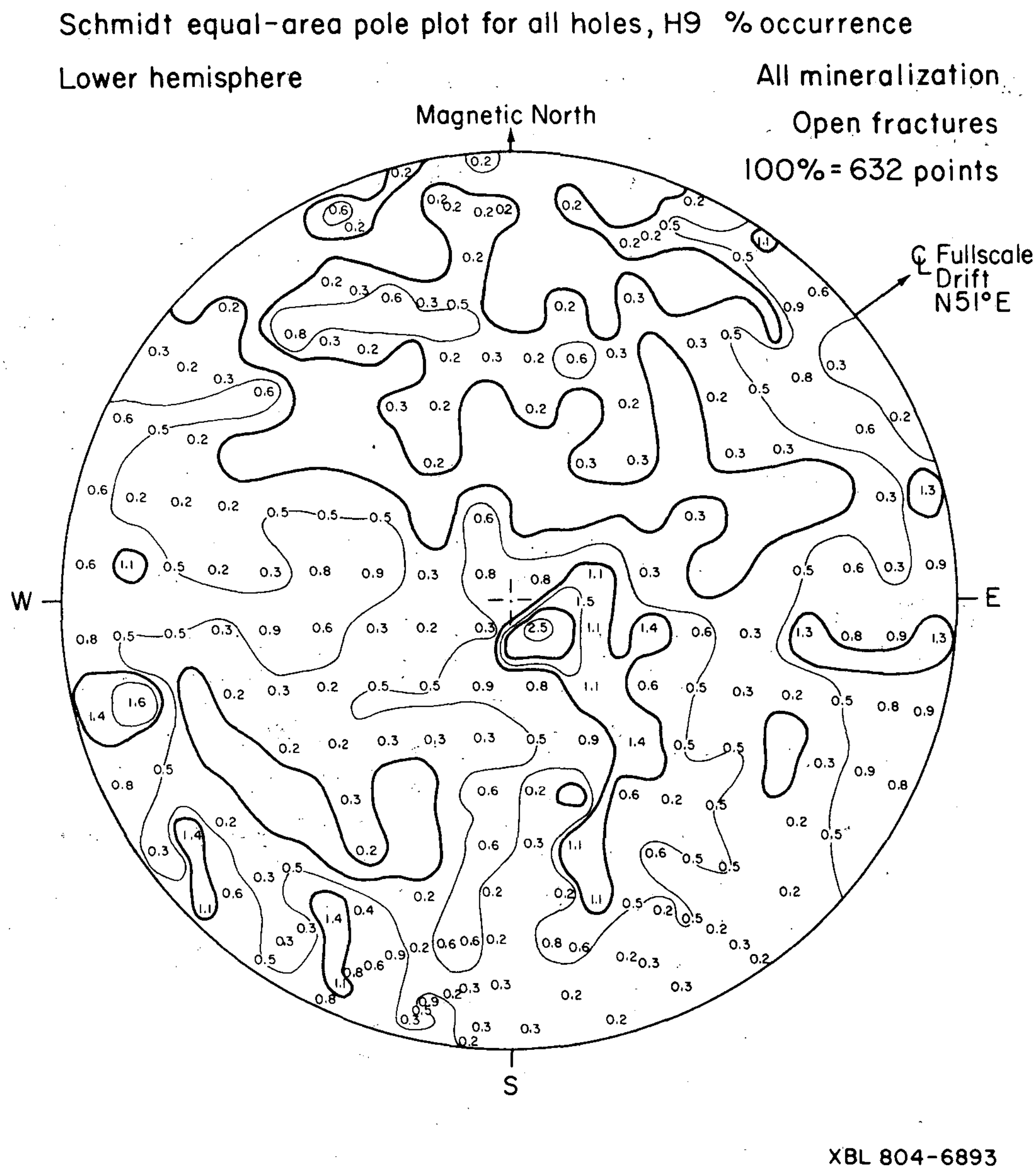

Fig. A:1.6 Schmidt equal-area pole plot for open fractures from vertical and horizontal boreholes in the H9 area.

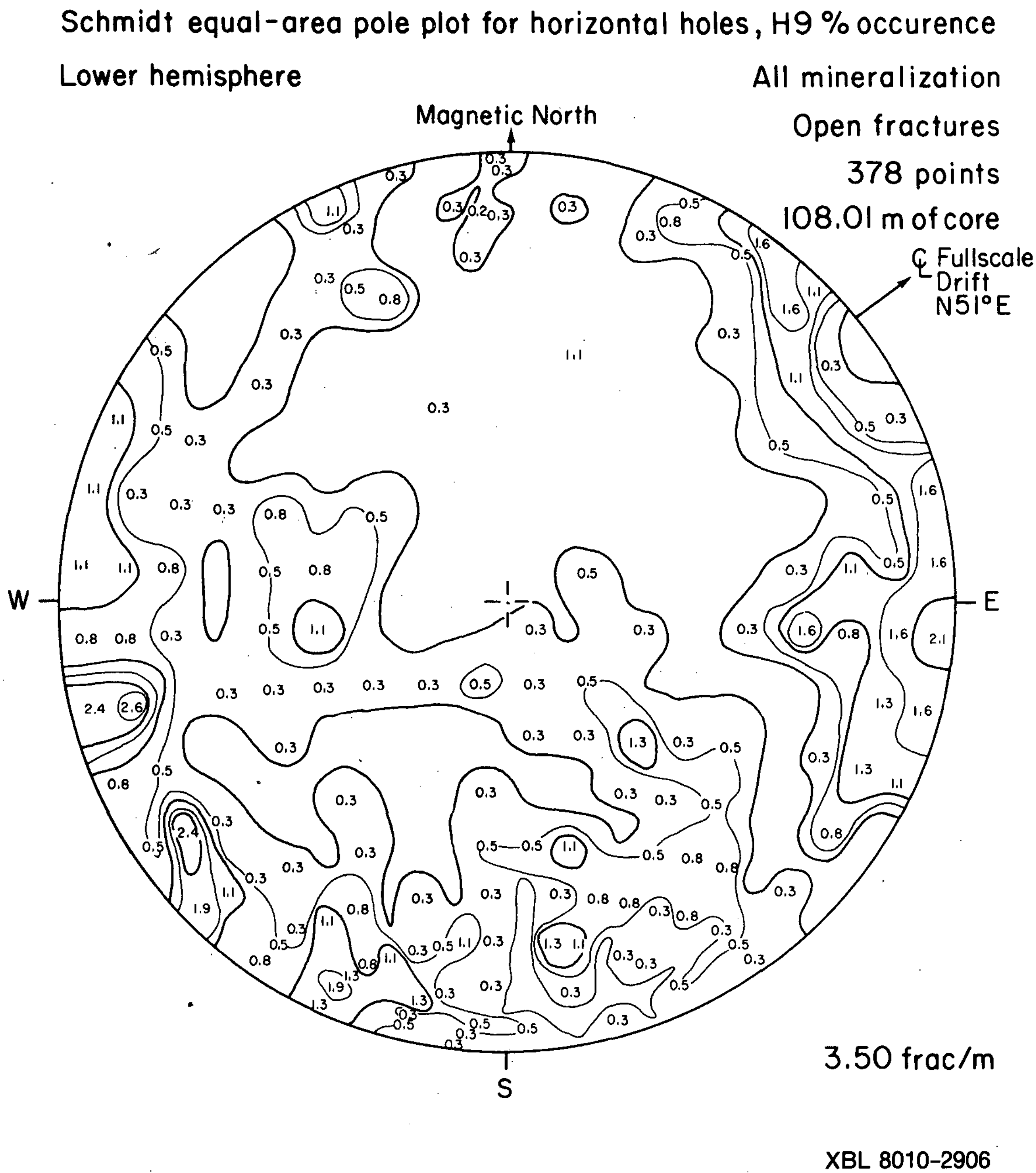

Fig. A:1.7 Schmidt equal-area pole plot for open fractures from horizontal boreholes in the H9 area.

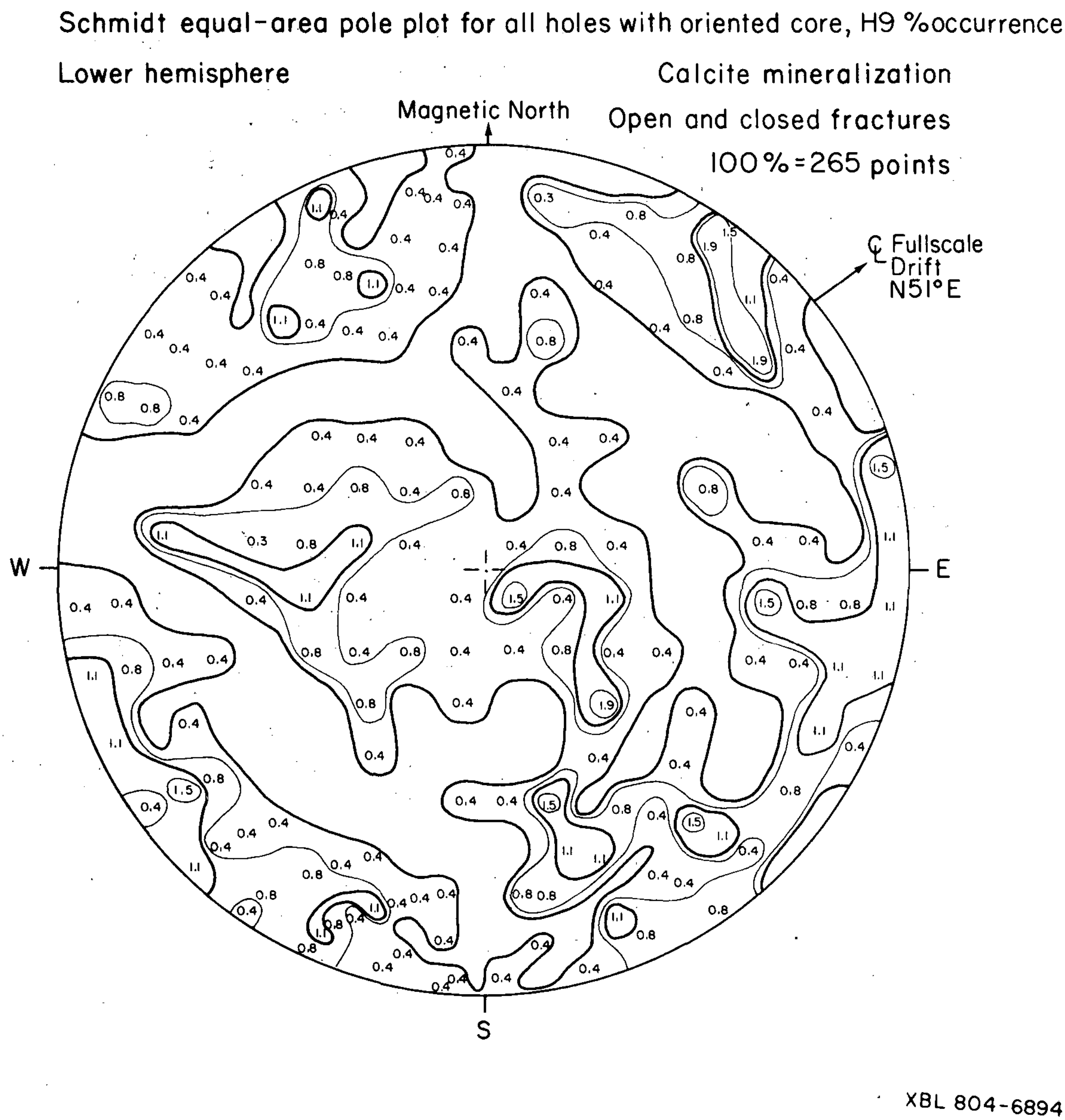

Fig. A:1.8 Schmidt equal-areaa pole plot for calcite fractures from the vertical and horizontal boreholes in the H9 area.

Appendix A:2 - geologic cross sections

The six cross section presented in this appendix have the geological information superinposed. The basic geological information is presented in this way rather than i a hard to digest table. The small fracture trace beside the strike dip is the apparent dip in this cross section. That makes it possible to correlate fractures from borehole to borehole.

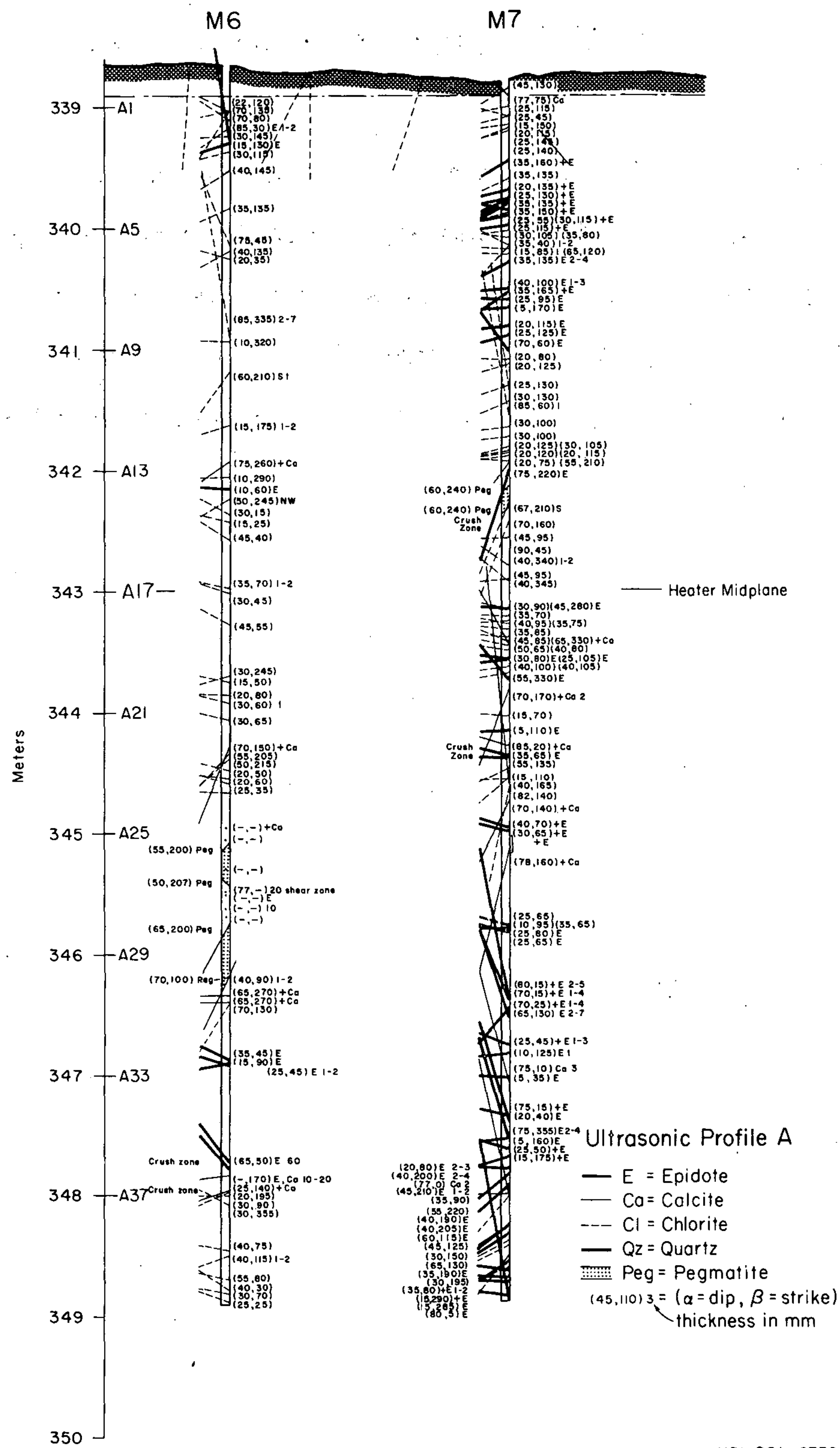

Fig. A:2.1 Section M7-M6, showing the location apparent dip and orientation information for open and closed fractures.

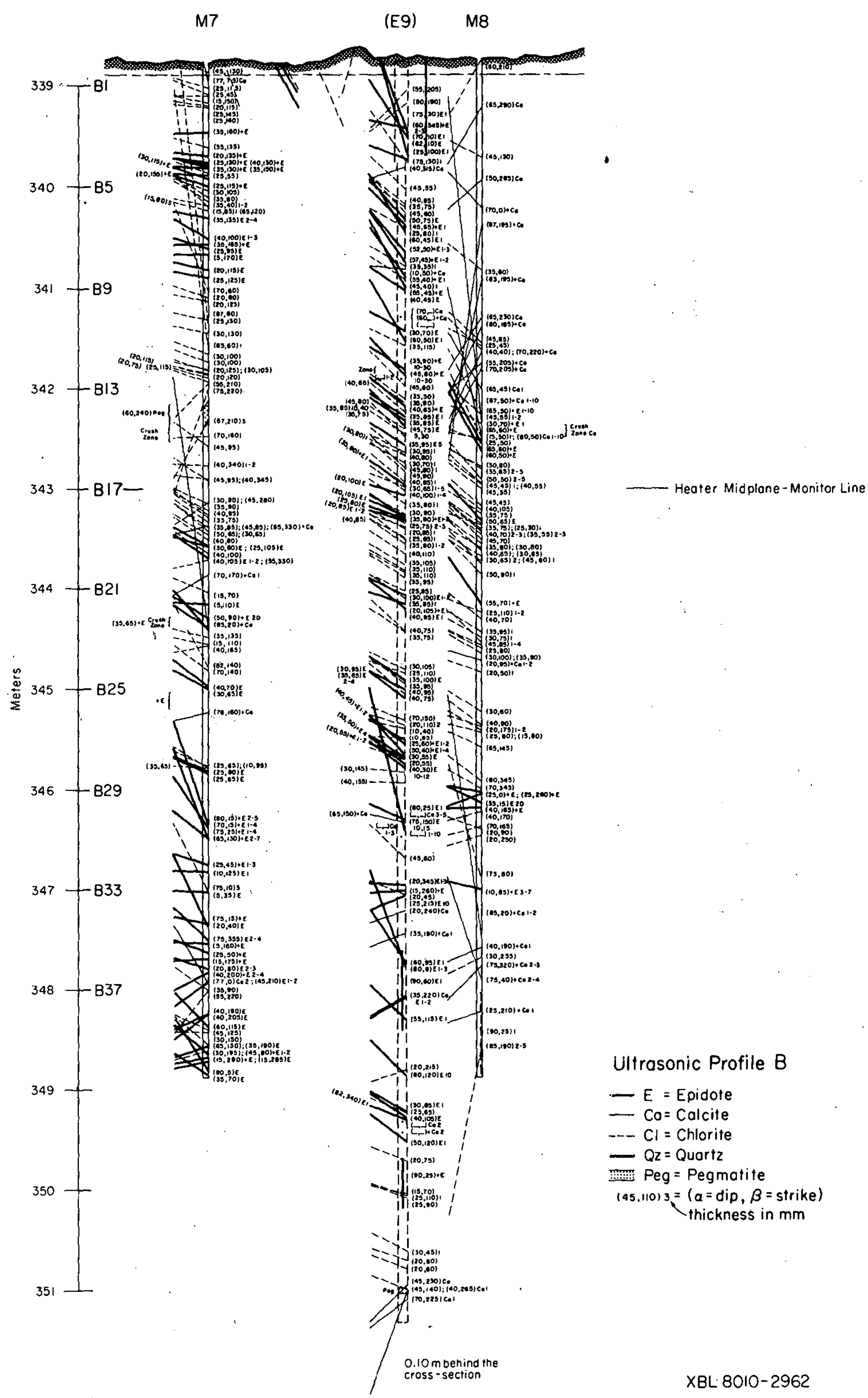

Fig. A:2.2 Section M8-M7, showing the location, apparent dip and orientation information for open and closed fractures.

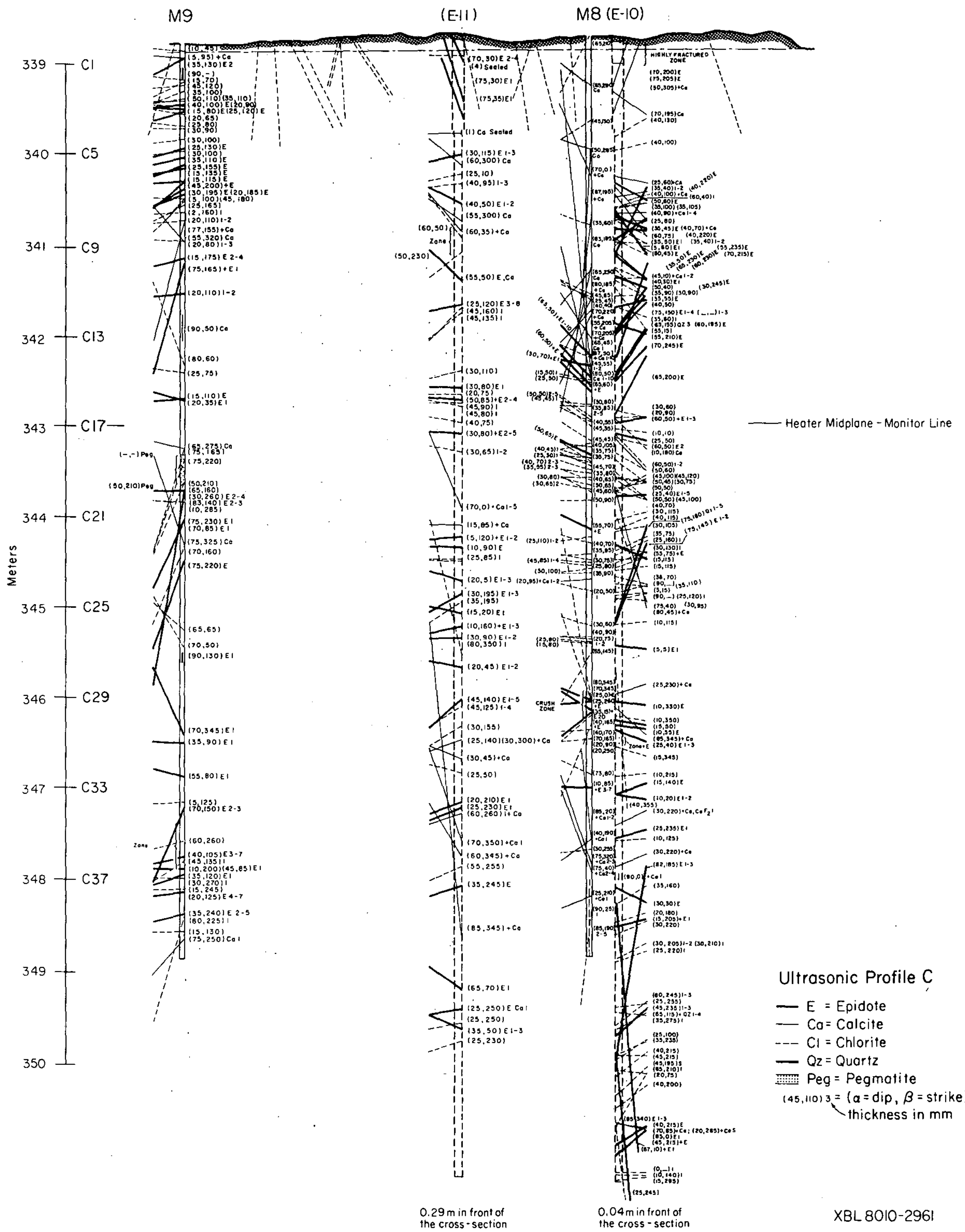

Fig. A:2.3 Section M8-M9, showing the location, apparent dip and orientation information for open and closed fractures.

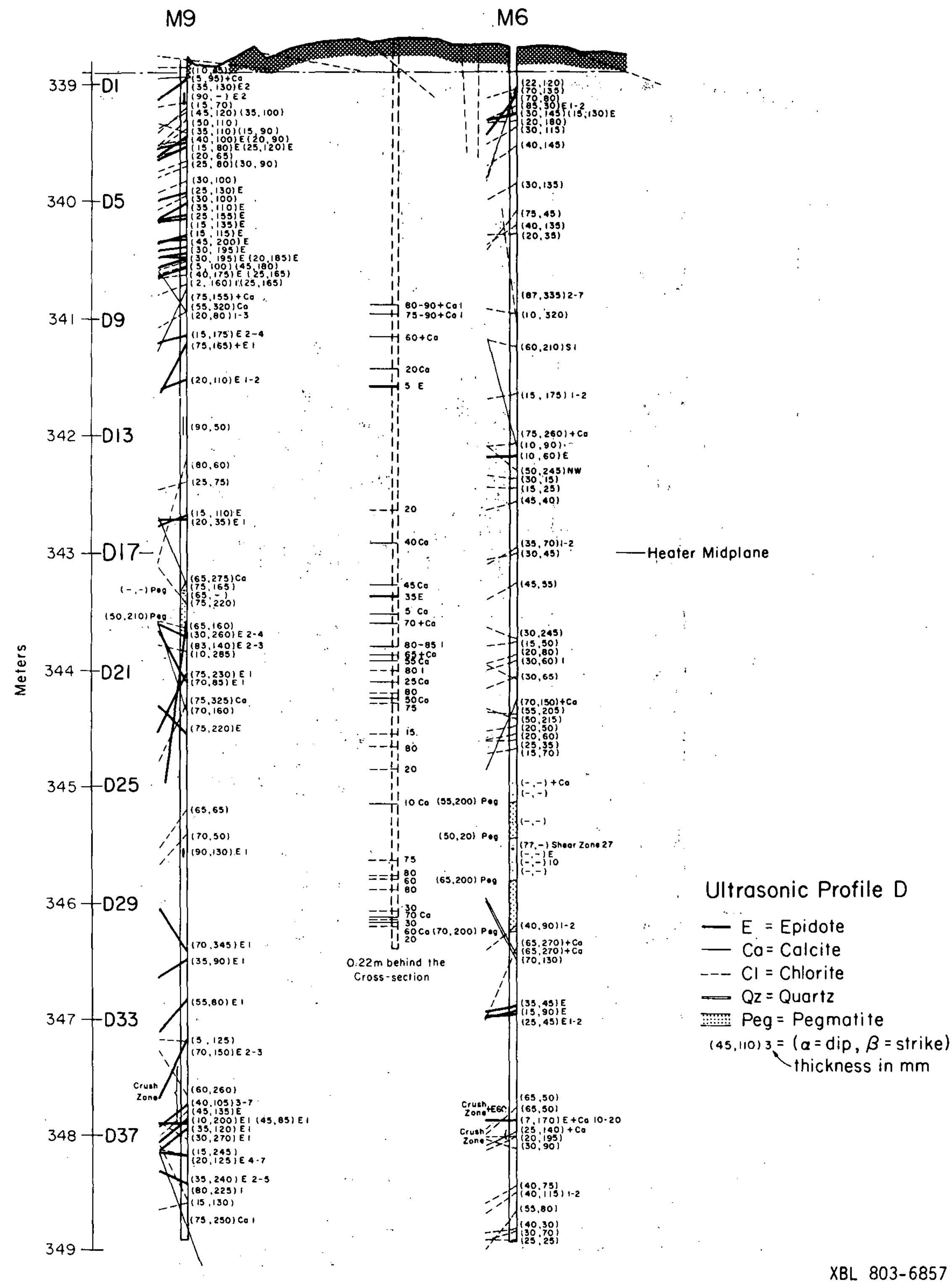

Fig. A:2.4 Section M9-M6, showing the location, apparent dip and orientation information for open and closed fractures.

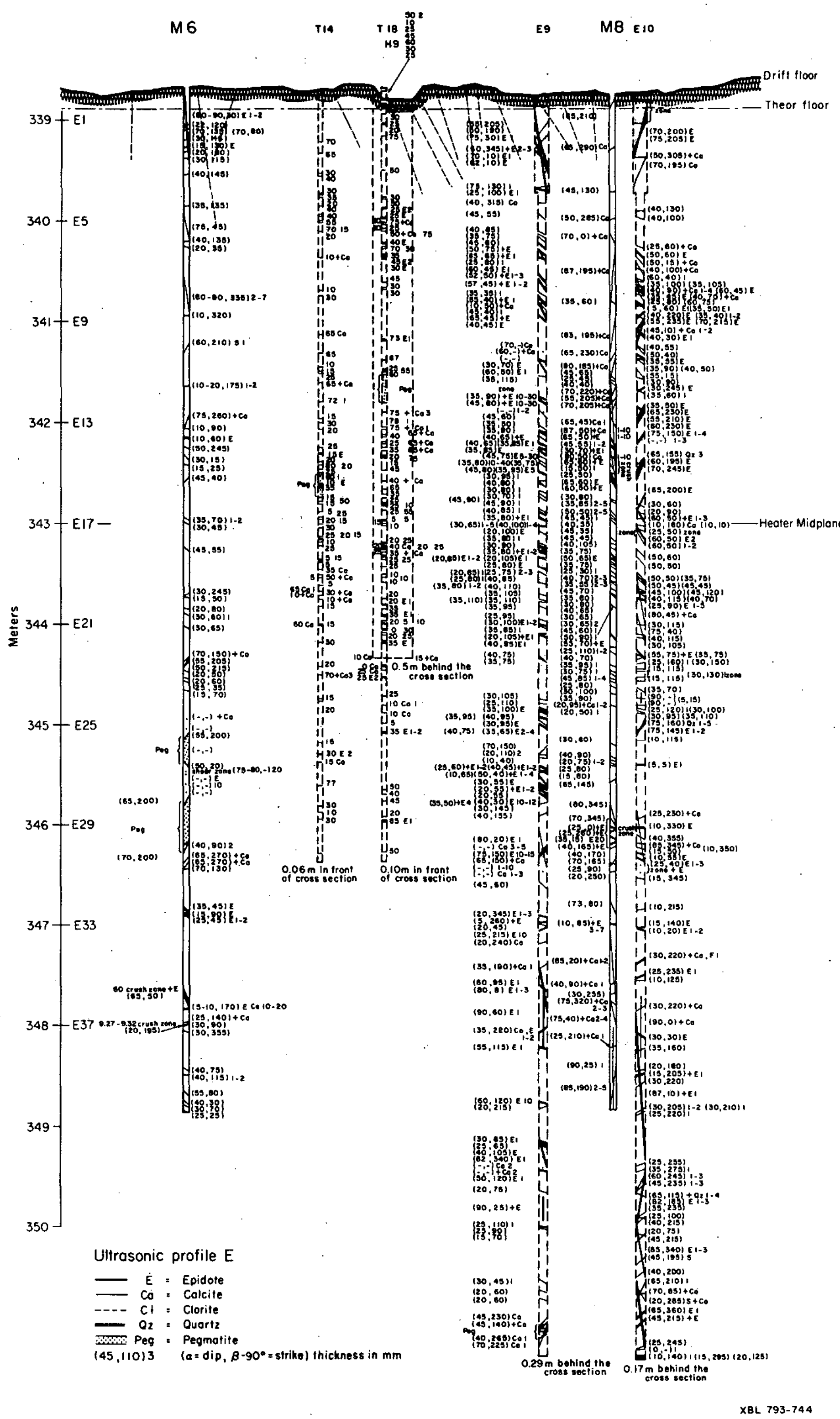

Fig. A:2.5 Section M8-M6, showng the location, apparent dip and orientation information for open and closed fractures.

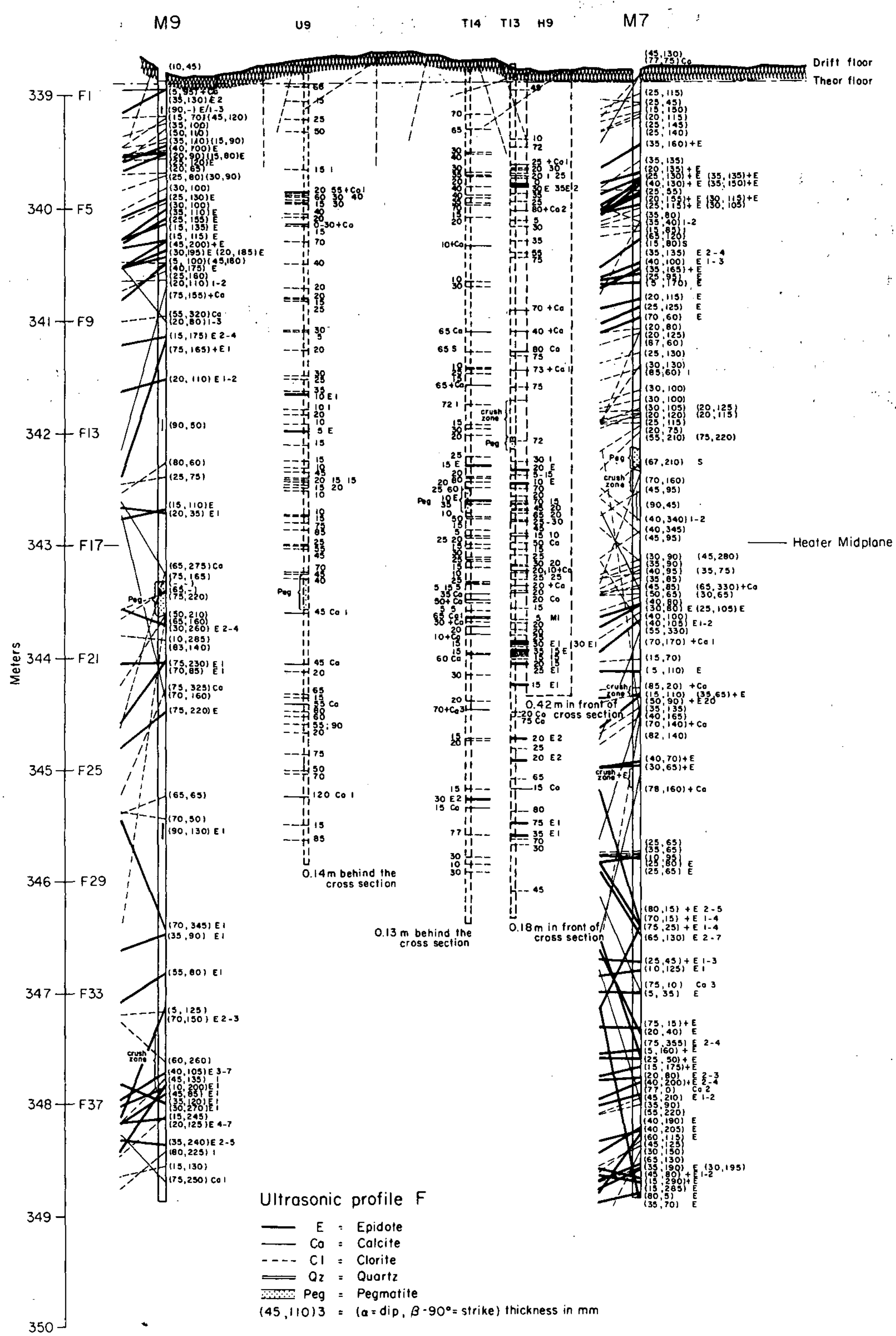

Fig. A:2.6 Section M7-M9, showing the location, apparent dip and orientation information for open and closed fractures.

Appendix B:1 - Coordinates for boreholes M6, M7, M8 and M9.

In this appendix the survey data from the location survey of the boreholes M6-M9 are given in Tables B:1.1 - 4. The coordinate system used in tables B:1.5 - 8 is the coordinate system for the mine. In tables B:1.5 - 8 the coordinates for the data points in the four monitor holes are presented.

VIAK

KOORDINATFÖRTECKNING

Datum 17/1 1978 Sid

Område Stripa- Full scale nr. M6 Uppdragsnr .

Plankoordinaterna beräknade i system Mine system Beräknat av: LW

Höjderna angivna i meter över Mine system Kontroll av: LW

Punkt bet	Markering	Koordinater Xmeter	Ymeter	Zmeter	Anmärkningar Tolerance
02 Theoret. top		323 610	1009 340	338 897	
Real top		323 608	1009 342	338 670	
Diff.		- 002	+ 002	- 227	
		Radial dist.:	0,003 m		0.020 m
		Direction:	150,0000 gon		
Theor.		323 610	1009 340	338 897	
Real		323 615	1009 353	343 679	
Diff		+ 005	+ 013	4 782	
		Radial dist.:	0,014 m		
		Direction:	76,6250 gon		
Theoret. bottom		323 610	1009 340	348 897	
Real bottom		323 621	1009 361	348 903	
Diff.		+ 011	+ 021	+ 006	
		Radial dist.:	0,024 m		
		Direction:	69,2822 gon		
Real top		323 608	1009 342	338 670	
Real bottom		323 621	1009 361	348 903	
Diff.		+ 013	+ 019	10 233	
		Radial dist.:	0,023 m		0,069 m
		Direction:	61,7996 gon		
		Inclination:	0,1431 gon		0.5555 gon

25 11. 68.

KOORDINATFÖRTECKNING

Datum 17/1 1978 Sid

Område Stripa- Full scale nr. H7 Uppdragsnr -

Plankoordinaterna beräknade i system Mine system Beräknat av: LW

Höjderna angivna i meter över Mine system Kontroll av: LW

Punkt bet	Mar-ke-ring	Koordinater Xmeter		Ymeter		Zmeter		Anmärkningar Tolerance
02 Theoret.top		322	524	1007	313	338	897	
Real top		322	529	1007	304	338	785	
Diff.			+005		-009		-112	
		Radial dist.:		0,010	m			0.020 m
		Direction:		332,2829	gon			
Theor.		322	524	1007	313	338	897	
Real		322	547	1007	311	343	793	
Diff			+023		-002	4	896	
		Radial dist.:		0,023	m			
		Direction:		394,4781	gon			
Theoret.bottom		322	524	1007	313	348	897	
Real bottom		322	564	1007	325	348	881	
Diff.			+040		+012		-016	
		Radial dist.:		0,042	m			
		Direction:		18,5547	gon			
Real top		322	529	1007	304	338	785	
Real bottom		322	564	1007	325	348	881	
Diff.			+035		+021	10	096	
		Radial dist.:		0,041	m			0,088 m
		Direction:		34,4042	gon			
		Inclination:		0,2585	gon			0.5555 gon

2.5 11.68

VIAK

KOORDINATFÖRTECKNING

Datum 17/1 1978 Sid

Område Stripa- Full scale nr. M8 Uppdragsnr

Plankoordinaterna beräknade i system Mine system Beräknat av: LW

Höjderna angivna i meter över Mine system Kontroll av: LW

Punkt bet	Mar-ke-ring	Koordinater Xmeter	Ymeter	Zmeter	Anmärkningar Tolerance
02 Theoret. top		324 224	1005 146	338 897	
Real top		324 223	1005 145	338 760	
Diff.		- 001	- 001	- 137	
		Radial dist.:	0,001 m		0.020 m
		Direction:	250,0000 gon		
Theor.		324 224	1005 146	338 897	
Real		324 235	1005 161	343 780	
Diff		+ 011	+ 015	4 883	
		Radial dist.:	0,019 m		
		Direction:	59,7180 gon		
Theoret. bottom		324 224	1005 146	348 897	
Real bottom		324 242	1005 178	348 887	
Diff.		+ 018	+ 032	- 010	
		Radial dist.:	0,037 m		
		Direction:	67,3803 gon		
Real top		324 223	1005 145	338 760	
Real bottom		324 242	1005 178	348 887	
Diff.		+ 019	+ 033	10 127	
		Radial dist.:	0,038 m		0,088 m
		Direction:	66,7428 gon		
		Inclination:	0,2389 gon		0.5555 gon

2.5 11. 68.

9

KOORDINATFÖRTECKNING

Datum 17/1 1978 Sid

Område Stripa- Full scale nr. M9 Uppdragsnr ....

Plankoordinaterna beräknade i system Mine system Beräknat av: LW

Höjderna angivna i meter över Mine system Kontroll av: LW

Punkt bet	Markering	Koordinater Xmeter		Ymeter		Zmeter		Anmärkningar Tolerance
3		15		28				
02 Theoret. top		326	426	1009	044	338	897	medelplan i orten
Real top		326	422	1009	042	338	765	bergytans verkliga höjd
Diff.			− 004		− 002		− 132	här 132 mm över theo.
		Radial dist.:		0,004	m			0.020 m
		Direction:		229,5167	gon			från N om medsols 100=E etc.
Theor.		326	426	1009	044	338	897	theor. medelplanet
Real		326	447	1009	019	343	784	verklig mitt djup
Diff			+ 021		− 025	4	887	djup från medelplanet
		Radial dist.:		0,033	m			
		Direction:		344,4781	gon			
Theoret. bottom		326	426	1009	044	348	897	
Real bottom		326	466	1008	995	348	898	
Diff.			+ 040		− 049		+ 001	
		Radial dist.:		0,063	m			
		Direction:		343,5841	gon			
Real top		326	422	1009	042	338	765	
Real bottom		326	466	1008	995	348	898	
Diff.			+ 044		− 047	10	133	
		Radial dist.:		0,064	m			0,088 m
		Direction:		347,9020	gon			
		Inclination:		0,4021	gon	till vertikalaxeln		0.5555 gon

2.5 11.69.

Project: Ultrasonic crosshole monitoring

M6

Coordinates for data points

#	X	Y	Z
A	323 608	1009 342	338 670
C 1	323.608	1009.342	339 000
C 2	323.609	.343	339 250
C 3	.609	.344	339 500
C 4	.609	.344	339 750
C 5	.610	.345	340 000
C 6	.610	.345	340 250
C 7	.610	.346	340 500
C 8	.611	.346	340 750
C 9	.611	.347	341 000
C 10	.611	.347	341 250
C 11	.612	.348	341 500
C 12	.612	.349	341 750
C 13	.612	.349	342 000
C 14	.613	.350	342 250
C 15	.613	.350	342 500
C 16	.614	.351	342 750
C 17	.614	.351	343 000
C 18	614	.352	343 250
C 19	615	.352	343 500
B	323 615	1009 353	343 679
C 20	323.615	1009.353	343 750
C 21	.615	.353	344 000
C 22	.616	.354	344 250
C 23	.616	.354	344 500
C 24	.616	.355	344 750
C 25	.617	.355	345 000
C 26	.617	.355	345 250
C 27	.617	.356	345 500
C 28	.617	.356	345 750
C 29	.618	.357	346 000
C 30	.618	.357	346 250
C 31	618	.357	346 500
C 32	619	.358	346 750
C 33	619	.358	347 000
C 34	619	.359	347 250
C 35	620	.359	347 500
C 36	620	.359	347 750
C 37	620	.360	348 000
C 38	620	.360	348 250
C 39	621	.361	348 500
C 40	621	.361	348 750
C	323 621	1009 361	348 903

Project: Ultrasonic cross hole monitoring

coordinates for data points

M7

#	X	Y	Z
A	322 529	1007 304	338 785
C 41	322 530	1007 304	339 000
C 42	322 531	" 305	339 250
C 43	322 532	" 305	339 500
C 44	322 533	" 306	339 750
C 45	322 533	" 306	340 000
C 46	322 534	" 306	340 250
C 47	322 535	" 307	340 500
C 48	322 536	" 307	340 750
C 49	322 537	" 307	341 000
C 50	322 538	" 307	341 250
C 51	322 539	" 308	341 500
C 52	322 540	" 308	341 750
C 53	" 541	" 309	342 000
C 54	" 541	" 309	342 250
C 55	" 542	" 309	342 500
C 56	" 543	" 310	342 750
C 57	" 544	" 310	343 000
C 58	" 545	" 310	343 250
C 59	" 546	" 311	343 500
C 60	" 547	" 311	343 750
B	322 547	1007 311	343 793
C 61	" 548	" 311	344 000
C 62	" 548	" 312	344 250
C 63	" 549	" 313	344 500
C 64	" 550	" 314	344 750
C 65	" 551	" 314	345 000
C 66	" 552	" 315	345 250
C 67	" 553	" 316	345 500
C 68	" 554	" 316	345 750
C 69	" 554	" 317	346 000
C 70	" 555	" 318	346 250
C 71	" 556	" 318	346 500
C 72	" 557	" 319	346 750
C 73	" 558	" 320	347 000
C 74	" 559	" 320	347 250
C 75	" 559	" 321	347 500
C 76	" 560	" 322	347 750
C 77	" 561	" 323	348 000
C 78	" 562	" 323	348 250
C 79	" 563	" 324	348 500
C 80	" 564	" 325	348 750
C	322 564	1007 325	348 881

Project: Ultra sonic cross hole monitoring
coordinates for data points

M 8

#	X	Y	Z
A	324 223	1005 145	338 760
C 81	324 224	1005 146	339 000
C 82	324 224	1005 147	339 250
C 83	324 225	1005 147	339 500
C 84	324 225	1005 148	339 750
C 85	324 226	1005 149	340 000
C 86	324 227	1005 150	340 250
C 87	324 227	1005 151	340 500
C 88	384 228	1005 151	340 750
C 89	324 228	1005 152	341 000
C 90	324 229	1005 153	341 250
C 91	324 230	1005 154	341 500
C 92	324 230	1005 155	341 750
C 93	324 231	1005 155	342 000
C 94	324 231	1005 156	342 250
C 95	324 232	1005 157	342 500
C 96	324 233	1005 158	342 750
C 97	324 233	1005 159	343 000
C 98	324 234	1005 159	343 250
C 99	324 234	1005 160	343 500
C 100	324 235	1005 161	343 750
B	324 235	1005 161	343 780
C 101	324 235	1005 162	344 000
C 102	324 236	1005 163	344 250
C 103	324 236	1005 164	344 500
C 104	324 237	1005 164	344 750
C 105	324 237	1005 165	345 000
C 106	324 237	1005 166	345 250
C 107	324 238	1005 167	345 500
C 108	324 238	1005 168	345 750
C 109	324 238	1005 169	346 000
C 110	324 239	1005 170	346 250
C 111	324 239	1005 171	346 500
C 112	324 239	1005 171	346 750
C 113	324 240	1005 172	347 000
C 114	324 240	1005 173	347 250
C 115	324 240	1005 174	347 500
C 116	324 241	1005 175	347 750
C 117	324 241	1005 176	348 000
C 118	324 241	1005 177	348 250
C 119	324 242	1005 178	348 500
C 120	324 242	1005 178	348 750
C	324.242	1005 178	348 887

Project: Ultrasonic Cross hole monitoring

coordinates for datapoints

M 9

#	X	Y	Z	
A	326 .422	1009.042	338 .765	A
C 121	326.423	1009.041	339 000	
C 122	326 .424	1009.040	339 .250	
C 123	326.426	1009.039	339 500	
C 124	326.427	1009.038	339 750	
C 125	326.428	1009.036	340 000	
C 126	326 .429	1009.035	340 250	
C 127	326 .431	1009.034	340 500	
C 128	326. 432	1009.033	340 750	
C 129	326.433	1009.032	341 000	
C 130	326. 434	1009.031	341 250	
C 131	326 .436	1009.030	341 500	
C 132	326 437	1009.028	341 750	
C 133	326 .438	1009 .027	342 000	
C 134	326 .439	1009 .026	342 250	
C 135	" 441	" .025	342 500	
C 136	" 442	" .024	342 750	
C 137	" 443	" .023	343 000	
C 138	" .444	" 021	343 250	
C 139	" .446	" 020	343 500	
C 140	" .447	" 019	343 750	
B	326.447	1009 019	343 784	B
C 141	" .448	" .018	344 000	
C 142	" .449	" .017	344 250	
C 143	" .450	" .016	344 500	
C 144	" .450	" .015	344 750	
C 145	" .451	" .013	345 000	
C 146	" .452	" .012	345 250	
C 147	" .453	" .011	345 500	
C 148	" .454	" .010	345 750	
C 149	" .455	" .009	346 000	
C 150	" .456	" .008	346 250	
C 151	" .457	" .006	346 500	
C 152	" .458	" .005	346 750	
C 153	" .459	" .004	347 000	
C 154	" .460	" .003	347 250	
C 155	" .461	" .002	347 500	
C 156	" .462	" .000	347 750	
C 157	" .463	1008.999	348 000	
C 158	" .464	" .998	348 250	
C 159	" .465	" .997	348 500	
C 160	" .465	" .996	348 750	
C	326 466	1008.995	348 898	C

Appendix C:1 - Tables for the monitor and reference lines

In this appendix the tabulated data and result from the monitor and reference lines are presented. In the first of the nine columns the Julian heater day is listed. In the second column the recorded time of arrival for the P waves, t_p are shown. This is not corrected for the instrument delay of 6.2×10^{-6} s which was done before the V_p was calculated. In the third column the arrival time for the S waves, t_s are given. The instrument delay for the S waves were 11.3×10^{-6} s which should be subtracted from the arrival times of the S waves before V_s is calculated. The V_p and the V_s are shown in columns 4 and 5 respecitvely.

Using the expressions in Chapter 7 the Poissons ratio and the dynamic moduli were calculated and they are presented in column 6 through 9.

Day # and mean temperature in line M7-M6					
Day #	Temp	Day #	Temp	Day #	Temp
0	11.3	343	60.8	456	18.0
6	31.8	344	61.0	459	17.4
8	34.8	351	61.0	462	17.3
11	39.3	362	61.0	466	17.1
12	40.0	376	61.7	469	16.6
13	41.8	383	61.8	473	16.3
14	42.8	398	61.8	476	16.0
15	43.8	399	59.0	480	16.1
18	46.0	400	54.6	483	16.1
21	47.2	403	44.5	497	15.1
36	51.8	404	41.4	501	14.6
43	53.2	405	39.0	503	14.7
50	53.9	406	37.1	505	14.7
57	55.0	410	32.5	508	14.4
64	55.7	411	31.1	510	14.2
78	56.7	412	30.4	512	14.1
91	57.3	413	29.7	515	14.1
110	57.8	414	29.2	518	14.1
118	58.6	417	27.4	522	14.1
133	58.8	418	26.9	526	14.1
159	59.0	419	26.0	530	14.1
176	59.2	420	25.9	533	13.7
195	59.7	424	23.9	536	13.6
210	59.9	426	23.6	539	13.6
222	60.0	428	22.8	543	13.5
238	60.0	431	21.9	546	13.5
252	60.0	433	21.6	550	12.8
267	60.0	435	20.9	557	12.7
271	60.0	438	20.3	564	12.6
329	60.9	440	20.1	571	12.6
330	60.9	442	19.8	575	12.3
333	60.9	447	19.1	585	12.3
334	60.9	449	18.6	657	10.0
335	60.9	452	18.3		
337	60.9	454	18.1		

Table C:1.1

Table C:1.1 Mean temperature in monitor line M7-M6 for days when traveltimes and waveforms were collected.

Day # and mean temperatures in line M8-M9					
Day #	Temp	Day #	Temp	Day #	Temp
0	11.0	343	36.7	456	17.8
6	16.3	344	36.9	459	17.4
8	17.8	351	37.0	462	17.0
11	19.9	362	37.0	466	16.9
12	21.2	376	37.7	469	16.8
13	22.1	383	37.6	473	16.3
14	22.8	398	37.6	476	15.9
15	23.7	399	37.6	480	15.9
18	24.7	400	37.6	483	15.9
21	25.8	403	34.9	497	15.0
36	28.0	404	34.0	501	14.9
43	29.2	405	32.4	503	14.9
50	29.9	406	31.7	505	14.9
57	31.0	410	29.4	508	14.8
64	31.9	411	28.2	510	14.3
78	32.7	412	27.9	512	14.2
91	33.7	413	27.4	515	14.2
110	33.8	414	27.0	518	14.2
118	34.6	417	25.5	522	14.2
133	34.7	418	25.3	526	13.9
159	35.0	419	24.6	530	13.9
176	35.5	420	24.3	533	13.9
195	35.5	424	22.7	536	13.8
210	35.6	426	22.7	539	13.8
222	35.9	428	21.9	543	13.9
238	35.9	431	20.9	546	13.9
252	36.0	433	20.9	550	13.2
267	36.0	435	20.1	557	13.2
271	36.0	438	20.0	564	13.1
329	36.6	440	19.8	571	12.9
330	36.6	442	19.3	575	13.0
333	36.6	447	18.8	585	13.0
334	36.6	449	18.2	657	10.0
335	36.6	452	18.0		
337	36.6	454	17.8		

Table C:1.2

Table C:1.2 Mean temperature in monitor line M8-M9 for days when traveltimes and waveforms were collected.

Day #'s and mean temperatures in line M8-M6					
Day #	Temp	Day #	Temp	Day #	Temp
0	11.2	343	65.0	456	18.0
6	35.9	344	65.3	459	17.3
8	39.0	351	65.3	462	17.2
11	43.2	362	65.3	466	17.0
12	44.7	376	65.7	469	16.5
13	45.8	383	65.9	473	16.2
14	46.8	398	66.0	476	16.0
15	47.9	399	60.0	480	16.0
18	49.9	400	54.9	483	16.0
21	51.0	403	44.7	497	15.0
36	54.5	404	41.4	501	14.6
43	55.9	405	38.8	503	14.6
50	57.5	406	36.9	505	14.6
57	58.6	410	32.6	508	14.3
64	59.2	411	31.1	510	14.1
78	60.5	412	30.3	512	14.0
91	61.3	413	29.8	515	14.0
110	61.9	414	29.2	518	14.0
118	62.6	417	27.2	522	14.0
133	62.9	418	26.8	526	14.0
159	63.2	419	26.0	530	14.0
176	63.4	420	25.8	533	13.7
195	63.8	424	23.8	536	13.5
210	63.9	426	23.5	539	13.5
222	64.2	428	22.7	543	13.4
238	64.2	431	21.8	546	13.4
252	64.2	433	21.5	550	12.6
267	64.2	435	20.8	557	12.7
271	64.2	438	20.2	564	12.5
329	65.0	440	20.0	571	12.5
330	65.0	442	19.8	575	12.3
333	65.0	447	19.0	585	12.3
334	65.0	449	18.4	657	10.0
335	65.0	452	18.2		
337	65.0	454	18.0		

Table C:1.3

Table C:1.3 Mean temperature in monitor line M8-M6 for days when velcocity and waveforms were collected.

Day #'s and mean temperatures in line M7-M9

Day #	Temp	Day #	Temp	Day #	Temp
0	11.0	343	62.3	456	17.8
6	35.4	344	62.4	459	17.3
8	38.2	351	62.6	462	17.0
11	41.9	362	62.6	466	16.9
12	43.0	376	62.9	469	16.4
13	44.1	383	63.1	473	16.2
14	44.8	398	63.1	476	16.0
15	45.8	399	54.8	480	15.9
18	47.5	400	49.7	483	15.9
21	48.7	403	40.8	497	15.0
36	52.1	404	38.3	501	14.6
43	53.8	405	36.2	503	14.5
50	55.0	406	34.8	505	14.5
57	56.2	410	30.9	508	14.4
64	56.7	411	29.8	510	14.2
78	57.8	412	29.2	512	14.2
91	58.6	413	28.7	515	14.1
110	59.3	414	28.0	518	14.1
118	59.9	417	26.4	522	14.1
133	60.2	418	25.9	526	13.9
159	60.4	419	25.3	530	13.9
176	60.5	420	24.9	533	13.7
195	60.9	424	23.2	536	13.4
210	61.0	426	22.9	539	13.4
222	61.3	428	22.4	543	13.4
238	61.3	431	21.4	546	13.4
252	61.4	433	21.2	550	12.8
261	61.4	435	20.6	557	12.8
271	61.4	438	19.9	564	12.5
329	62.2	440	19.8	571	12.3
330	62.2	442	19.7	575	12.2
333	62.2	447	18.8	585	12.2
334	62.2	449	18.2	657	10.0
335	62.2	452	18.0		
337	62.2	454	17.8		

Table C:1.4

Table C:1.4 Mean temperature in monitor line M7-M9 for days when traveltimes and waveforms were collected.

PROCESS DATE :19 JAN,1981 LINE AND FILE NAME: MON76

DAY	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
-44	4.01600E-04	6.81800E-04	5686.57	3353.42	.233414	7.27497E+10	4.54824E+10	2.94912E+10
21	3.92600E-04	6.71400E-04	5819.02	3406.26	.239366	7.54223E+10	4.82301E+10	3.04278E+10
36	3.90000E-04	6.60500E-04	5858.44	3463.45	.231355	7.74722E+10	4.80636E+10	3.14581E+10
43	3.90300E-04	6.61100E-04	5853.87	3460.25	.231473	7.73366E+10	4.80004E+10	3.14090E+10
50	3.92800E-04	6.60000E-04	5816.01	3466.12	.224602	7.71662E+10	4.66998E+10	3.15066E+10
57	3.93900E-04	6.59200E-04	5799.51	3470.4	.221091	7.71350E+10	4.60933E+10	3.15845E+10
64	3.92900E-04	6.60600E-04	5814.51	3462.91	.22517	7.70593E+10	4.67315E+10	3.14484E+10
78	3.90500E-04	6.60500E-04	5850.82	3463.45	.230277	7.74044E+10	4.78295E+10	3.14581E+10
91	3.88800E-04	6.60500E-04	5876.82	3463.45	.233925	7.76339E+10	4.86291E+10	3.14581E+10
110	3.89200E-04	6.60200E-04	5870.68	3465.05	.232692	7.76281E+10	4.84012E+10	3.14872E+10
133	3.89300E-04	6.60500E-04	5869.15	3463.45	.232857	7.75667E+10	4.83928E+10	3.14581E+10
159	3.87000E-04	6.53000E-04	5904.6	3503.93	.228214	7.90915E+10	4.85012E+10	3.21978E+10
176	3.87200E-04	6.50200E-04	5901.5	3519.28	.224062	7.95165E+10	4.80281E+10	3.24806E+10
195	3.87600E-04	6.51800E-04	5895.31	3510.49	.225302	7.91999E+10	4.80527E+10	3.23185E+10
210	3.87300E-04	6.52500E-04	5899.95	3506.66	.226895	7.91298E+10	4.82903E+10	3.22480E+10
222	3.86500E-04	6.59500E-04	5912.36	3468.79	.237551	7.81024E+10	4.95984E+10	3.15553E+10
238	3.86100E-04	6.56600E-04	5918.58	3484.38	.234784	7.86299E+10	4.94125E+10	3.18395E+10
252	3.86400E-04	6.54500E-04	5913.91	3495.76	.23147	7.89317E+10	4.89900E+10	3.20477E+10
267	3.88100E-04	6.59400E-04	5887.59	3469.33	.234035	7.79046E+10	4.88189E+10	3.15650E+10
329	3.88100E-04	6.63700E-04	5887.59	3446.46	.239351	7.72122E+10	4.93719E+10	3.11503E+10
330	3.89300E-04	6.62000E-04	5869.15	3455.46	.23474	7.73274E+10	4.85859E+10	3.13132E+10
333	3.87100E-04	6.61000E-04	5903.05	3460.78	.238138	7.77791E+10	4.95039E+10	3.14097E+10
334	3.89000E-04	6.59200E-04	5873.75	3470.4	.231854	7.78149E+10	4.83660E+10	3.15845E+10
335	3.89400E-04	6.58600E-04	5867.61	3473.61	.230223	7.78561E+10	4.80990E+10	3.16431E+10
337	3.90000E-04	6.57300E-04	5858.44	3480.6	.227231	7.79796E+10	4.76470E+10	3.17705E+10
344	3.90200E-04	6.69300E-04	5855.39	3417.13	.241765	7.60515E+10	4.90842E+10	3.06223E+10
351	3.89700E-04	6.72500E-04	5863.02	3400.59	.246526	7.56058E+10	4.97131E+10	3.03266E+10
362	3.87600E-04	6.64200E-04	5895.31	3443.82	.240991	7.71960E+10	4.96739E+10	3.11026E+10
376	3.89800E-04	6.72100E-04	5861.5	3402.65	.245863	7.56572E+10	4.96171E+10	3.03633E+10
383	3.89100E-04	6.69900E-04	5872.21	3414.01	.244704	7.60926E+10	4.96760E+10	3.05665E+10
398	3.90400E-04	6.65800E-04	5852.34	3435.4	.237125	7.65798E+10	4.85528E+10	3.09507E+10
399	3.90300E-04	6.64200E-04	5853.87	3443.82	.235363	7.68459E+10	4.83971E+10	3.11026E+10
400	3.90900E-04	6.79300E-04	5844.74	3365.97	.251879	7.43925E+10	4.99706E+10	2.97123E+10
403	3.93500E-04	6.80700E-04	5805.5	3358.93	.2484	7.38758E+10	4.89374E+10	2.95882E+10
404	3.94900E-04	6.86400E-04	5784.59	3330.57	.252049	7.28458E+10	4.89652E+10	2.90907E+10
405	3.95300E-04	6.83300E-04	5778.64	3345.94	.247824	7.32714E+10	4.84262E+10	2.93597E+10
406	3.93600E-04	6.85900E-04	5804	3333.04	.253974	7.30661E+10	4.94976E+10	2.91338E+10
410	3.97000E-04	6.82900E-04	5753.51	3347.93	.244027	7.31355E+10	4.76193E+10	2.93947E+10
411	3.96500E-04	6.84100E-04	5760.88	3341.96	.246385	7.30130E+10	4.79815E+10	2.92899E+10
412	3.97600E-04	6.82600E-04	5744.69	3349.43	.242488	7.31103E+10	4.73183E+10	2.94209E+10
413	3.95900E-04	6.86800E-04	5769.75	3328.6	.250576	7.26740E+10	4.85613E+10	2.90562E+10
414	3.96000E-04	6.88700E-04	5768.27	3319.27	.252475	7.23767E+10	4.87336E+10	2.88935E+10
417	3.97000E-04	6.86000E-04	5753.51	3332.55	.247559	7.26707E+10	4.79786E+10	2.91252E+10
418	3.97400E-04	6.93100E-04	5747.62	3297.84	.254601	7.15668E+10	4.86057E+10	2.85217E+10
419	3.96400E-04	6.90700E-04	5762.35	3309.49	.253892	7.20326E+10	4.87812E+10	2.87236E+10
420	3.98100E-04	6.90700E-04	5737.36	3309.49	.250672	7.18475E+10	4.80274E+10	2.87236E+10
424	3.97800E-04	6.89300E-04	5741.75	3316.33	.2497	7.20885E+10	4.80014E+10	2.88423E+10
426	3.98300E-04	6.91600E-04	5734.43	3305.12	.251279	7.16923E+10	4.80406E+10	2.86476E+10
428	3.98800E-04	6.92000E-04	5727.13	3303.17	.250767	7.15788E+10	4.78660E+10	2.86140E+10
431	3.98800E-04	6.93000E-04	5727.13	3298.33	.25186	7.14314E+10	4.79778E+10	2.85301E+10
433	3.98200E-04	6.87900E-04	5735.89	3323.19	.247366	7.22519E+10	4.76657E+10	2.89618E+10
435	3.98000E-04	6.93300E-04	5738.82	3296.88	.253692	7.14730E+10	4.83629E+10	2.85050E+10
438	3.98600E-04	6.93300E-04	5730.05	3296.88	.252564	7.14086E+10	4.80990E+10	2.85050E+10
440	3.98200E-04	6.93500E-04	5735.89	3295.91	.253532	7.14220E+10	4.82971E+10	2.84883E+10
442	3.98100E-04	6.93100E-04	5737.36	3297.84	.253289	7.14919E+10	4.82966E+10	2.85217E+10
447	3.98100E-04	6.89600E-04	5737.36	3314.86	.249457	7.20107E+10	4.79031E+10	2.88168E+10
449	3.98000E-04	6.92200E-04	5738.82	3302.2	.252501	7.16360E+10	4.82400E+10	2.85972E+10
452	3.98100E-04	6.92200E-04	5737.36	3302.2	.252313	7.16252E+10	4.81960E+10	2.85972E+10

454	3.98000E-04	6.92600E-04	5738.82	3300.26	.252936	7.15767E+10	4.82848E+10	2.85636E+10
456	3.98100E-04	6.92600E-04	5737.36	3300.26	.252747	7.15659E+10	4.82407E+10	2.85636E+10
459	3.97500E-04	6.92500E-04	5746.15	3300.75	.253768	7.16453E+10	4.84945E+10	2.85720E+10
462	3.97500E-04	6.91900E-04	5746.15	3303.66	.253119	7.17345E+10	4.84273E+10	2.86224E+10
466	3.97300E-04	6.92100E-04	5749.09	3302.69	.253712	7.17263E+10	4.85383E+10	2.86056E+10
469	3.97700E-04	6.92100E-04	5743.22	3302.69	.252959	7.16832E+10	4.83612E+10	2.86056E+10
473	3.98100E-04	6.92100E-04	5737.36	3302.69	.252204	7.16400E+10	4.81847E+10	2.86056E+10
476	3.97800E-04	6.92200E-04	5741.75	3302.2	.252879	7.16576E+10	4.83283E+10	2.85972E+10
480	3.97700E-04	6.92500E-04	5743.22	3300.75	.253392	7.16238E+10	4.84060E+10	2.85720E+10
483	3.98000E-04	6.92100E-04	5738.82	3302.69	.252393	7.16508E+10	4.82288E+10	2.86056E+10
497	3.96800E-04	6.92100E-04	5756.45	3302.69	.25465	7.17800E+10	4.87603E+10	2.86056E+10
501	3.96700E-04	6.92500E-04	5757.93	3300.75	.255266	7.17309E+10	4.88496E+10	2.85720E+10
503	3.96600E-04	6.92300E-04	5759.4	3301.72	.255239	7.17715E+10	4.88718E+10	2.85888E+10
505	3.96600E-04	6.92200E-04	5759.4	3302.2	.255132	7.17864E+10	4.88606E+10	2.85972E+10
508	3.97500E-04	6.92600E-04	5746.15	3300.26	.253876	7.16304E+10	4.85056E+10	2.85636E+10
510	3.97700E-04	6.92500E-04	5743.22	3300.75	.253392	7.16238E+10	4.84060E+10	2.85720E+10
512	3.96900E-04	6.92400E-04	5754.98	3301.23	.254785	7.17245E+10	4.87494E+10	2.85804E+10
515	3.97200E-04	6.92300E-04	5750.56	3301.72	.254116	7.17072E+10	4.86050E+10	2.85888E+10
518	3.96800E-04	6.92500E-04	5756.45	3300.75	.255079	7.17202E+10	4.88051E+10	2.85720E+10
522	3.96900E-04	6.92600E-04	5754.98	3300.26	.255	7.16946E+10	4.87718E+10	2.85636E+10
526	3.96500E-04	6.92100E-04	5760.88	3302.69	.255211	7.18121E+10	4.88940E+10	2.86056E+10
530	3.97500E-04	6.92500E-04	5746.15	3300.75	.253768	7.16453E+10	4.84945E+10	2.85720E+10
533	3.97500E-04	6.92400E-04	5746.15	3301.23	.25366	7.16602E+10	4.84833E+10	2.85804E+10
536	3.97600E-04	6.92800E-04	5744.69	3299.3	.253904	7.15900E+10	4.84837E+10	2.85468E+10
539	3.97400E-04	6.92700E-04	5747.62	3299.78	.254171	7.16263E+10	4.85611E+10	2.85552E+10
543	3.96600E-04	6.92900E-04	5759.4	3298.81	.25588	7.16818E+10	4.89389E+10	2.85385E+10
546	3.96800E-04	6.92800E-04	5756.45	3299.3	.2554	7.16754E+10	4.88386E+10	2.85468E+10
550	3.97000E-04	6.92600E-04	5753.51	3300.26	.254813	7.16839E+10	4.87274E+10	2.85636E+10
557	3.96900E-04	6.92500E-04	5754.98	3300.75	.254893	7.17096E+10	4.87606E+10	2.85720E+10
564	3.97400E-04	6.92600E-04	5747.62	3300.26	.254064	7.16412E+10	4.85499E+10	2.85636E+10
571	3.97100E-04	6.85000E-04	5752.03	3337.49	.246233	7.28091E+10	4.78188E+10	2.92117E+10
575	3.97000E-04	6.94800E-04	5753.51	3289.64	.257154	7.13561E+10	4.89721E+10	2.83800E+10
585	3.97200E-04	6.89100E-04	5750.56	3317.31	.250628	7.21846E+10	4.82442E+10	2.88594E+10
701	3.94300E-04	6.84600E-04	5793.53	3339.48	.251212	7.31869E+10	4.90291E+10	2.92464E+10

LENGTH OF LINE M7-M6 IS 2.24847 METER.

DENSITY USED IS 2622.5 KG/M^3

Table C:1.5 day #, t_p , t_p , V_p , V_s , ν , E_d , K_d , and G_d for monitor line M7-M6

PROCESS DATE :19 JAN,1981 LINE AND FILE NAME: MON89

DAY	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
-42	7.55300E-04	1.27140E-03	5867.52	3488.1	.226721	7.82835E+10	4.77434E+10	3.19076E+10
21	7.51200E-04	1.27020E-03	5899.81	3491.43	.230519	7.86756E+10	4.86588E+10	3.19685E+10
36	7.46900E-04	1.26580E-03	5934.06	3503.67	.232407	7.93501E+10	4.94222E+10	3.21931E+10
43	7.48800E-04	1.26450E-03	5918.88	3507.31	.229428	7.93226E+10	4.88611E+10	3.22599E+10
50	7.47500E-04	1.26400E-03	5929.26	3508.71	.230554	7.94586E+10	4.91493E+10	3.22857E+10
57	7.48100E-04	1.26390E-03	5924.46	3508.99	.229815	7.94236E+10	4.89934E+10	3.22909E+10
64	7.48200E-04	1.26310E-03	5923.67	3511.23	.22917	7.94834E+10	4.89135E+10	3.23321E+10
78	7.44800E-04	1.26270E-03	5950.93	3512.35	.232707	7.97631E+10	4.97351E+10	3.23528E+10
91	7.46100E-04	1.26050E-03	5940.48	3518.54	.2298	7.98555E+10	4.92570E+10	3.24669E+10
110	7.44700E-04	1.25900E-03	5951.74	3522.77	.230375	8.00851E+10	4.95041E+10	3.25450E+10
159	7.45400E-04	1.25710E-03	5946.1	3528.14	.228313	8.01949E+10	4.91957E+10	3.26443E+10
176	7.46300E-04	1.25610E-03	5938.87	3530.98	.226612	8.02126E+10	4.89004E+10	3.26968E+10
195	7.45200E-04	1.25630E-03	5947.71	3530.41	.228001	8.02776E+10	4.91900E+10	3.26863E+10
210	7.45800E-04	1.26360E-03	5942.89	3509.83	.232186	7.96148E+10	4.95461E+10	3.23063E+10
222	7.46200E-04	1.26840E-03	5939.68	3496.43	.23487	7.91801E+10	4.97743E+10	3.20601E+10
238	7.44300E-04	1.25860E-03	5954.97	3523.9	.230559	8.01484E+10	4.95769E+10	3.25659E+10
252	7.45400E-04	1.25640E-03	5946.1	3530.13	.227842	8.02543E+10	4.91468E+10	3.26810E+10
267	7.43100E-04	1.25530E-03	5964.66	3533.25	.229709	8.05186E+10	4.96494E+10	3.27389E+10
271	7.45000E-04	1.25540E-03	5949.32	3532.96	.227621	8.03689E+10	4.91771E+10	3.27336E+10
329	7.45100E-04	1.25400E-03	5948.52	3536.94	.226557	8.04803E+10	4.90536E+10	3.28074E+10
330	7.45600E-04	1.25800E-03	5944.5	3525.6	.228692	8.01038E+10	4.92084E+10	3.25972E+10
333	7.46400E-04	1.26100E-03	5938.07	3517.13	.229795	7.97913E+10	4.92166E+10	3.24409E+10
334	7.46400E-04	1.25960E-03	5938.07	3521.08	.22886	7.99096E+10	4.91196E+10	3.25137E+10
335	7.46700E-04	1.26170E-03	5935.67	3515.16	.229924	7.97104E+10	4.91901E+10	3.24046E+10
337	7.46800E-04	1.25720E-03	5934.86	3527.86	.226788	8.00825E+10	4.88525E+10	3.26391E+10
343	7.46400E-04	1.25770E-03	5938.07	3526.44	.227582	8.00701E+10	4.89873E+10	3.26129E+10
344	7.47800E-04	1.26150E-03	5926.86	3515.73	.228551	7.96469E+10	4.89024E+10	3.24150E+10
351	7.47600E-04	1.26710E-03	5928.46	3500.05	.232482	7.91907E+10	4.93367E+10	3.21265E+10
362	7.48000E-04	1.26600E-03	5925.26	3503.12	.231316	7.92545E+10	4.91622E+10	3.21829E+10
376	7.46600E-04	1.26620E-03	5936.47	3502.56	.233001	7.93377E+10	4.95244E+10	3.21726E+10
383	7.47700E-04	1.26790E-03	5927.66	3497.82	.232894	7.91163E+10	4.93664E+10	3.20856E+10
398	7.46900E-04	1.26830E-03	5934.06	3496.71	.234036	7.91392E+10	4.95928E+10	3.20652E+10
399	7.46100E-04	1.27440E-03	5940.48	3479.82	.238803	7.86794E+10	5.02045E+10	3.17562E+10
400	7.46200E-04	1.27530E-03	5939.68	3477.34	.239262	7.85965E+10	5.02398E+10	3.17110E+10
403	7.47200E-04	1.26820E-03	5931.66	3496.98	.233641	7.91265E+10	4.95112E+10	3.20703E+10
404	7.47900E-04	1.26870E-03	5926.06	3495.59	.233194	7.90349E+10	4.93711E+10	3.20448E+10
405	7.48000E-04	1.27230E-03	5925.26	3485.61	.235411	7.87255E+10	4.95899E+10	3.18621E+10
406	7.49000E-04	1.27260E-03	5917.29	3485.06	.234447	7.86391E+10	4.93556E+10	3.18520E+10
410	7.50500E-04	1.27880E-03	5905.36	3467.74	.236844	7.80105E+10	4.94070E+10	3.15361E+10
411	7.50500E-04	1.28100E-03	5905.36	3461.73	.238232	7.78277E+10	4.95526E+10	3.14269E+10
412	7.50700E-04	1.28180E-03	5903.77	3459.55	.23852	7.77478E+10	4.95562E+10	3.13874E+10
413	7.51200E-04	1.28290E-03	5899.81	3456.56	.238674	7.76230E+10	4.95059E+10	3.13331E+10
414	7.51400E-04	1.28280E-03	5898.23	3456.83	.238398	7.76179E+10	4.94504E+10	3.13380E+10
417	7.52500E-04	1.27780E-03	5889.53	3470.48	.234034	7.79563E+10	4.88510E+10	3.15860E+10
418	7.53900E-04	1.27800E-03	5878.51	3469.93	.232631	7.78430E+10	4.85240E+10	3.15760E+10
419	7.53000E-04	1.27850E-03	5885.59	3468.56	.233939	7.78641E+10	4.87758E+10	3.15511E+10
420	7.53300E-04	1.27790E-03	5883.23	3470.2	.233224	7.78928E+10	4.86630E+10	3.15810E+10
425	7.53700E-04	1.27160E-03	5880.08	3487.55	.228654	7.83819E+10	4.81439E+10	3.18975E+10
426	7.56100E-04	1.27540E-03	5861.26	3477.07	.22849	7.79010E+10	4.78197E+10	3.17060E+10
428	7.56400E-04	1.27700E-03	5858.92	3472.67	.229214	7.77500E+10	4.78545E+10	3.16259E+10
431	7.56700E-04	1.27820E-03	5856.58	3469.38	.229671	7.76316E+10	4.78624E+10	3.15660E+10
433	7.57100E-04	1.27770E-03	5853.46	3470.75	.228897	7.76440E+10	4.77333E+10	3.15909E+10
435	7.57200E-04	1.27740E-03	5852.68	3471.57	.228587	7.76612E+10	4.76894E+10	3.16059E+10
438	7.57500E-04	1.27820E-03	5850.34	3469.38	.228781	7.75754E+10	4.76709E+10	3.15660E+10
440	7.57000E-04	1.27740E-03	5854.24	3471.57	.22881	7.76753E+10	4.77373E+10	3.16059E+10
442	7.57500E-04	1.28000E-03	5850.34	3464.46	.229966	7.74300E+10	4.77902E+10	3.14765E+10
447	7.58300E-04	1.28080E-03	5844.12	3462.28	.229604	7.73098E+10	4.76523E+10	3.14368E+10
449	7.58100E-04	1.28650E-03	5845.67	3465.28	.229103	7.74123E+10	4.76272E+10	3.14914E+10

452	7.58000E-04	1.28760E-03	5846.45	3462.28	.229937	7.73306E+10	4.77238E+10	3.14368E+10
454	7.58400E-04	1.28860E-03	5843.34	3459.55	.230149	7.72223E+10	4.76944E+10	3.13874E+10
456	7.58600E-04	1.28750E-03	5841.79	3462.55	.229206	7.72969E+10	4.75743E+10	3.14418E+10
459	7.59300E-04	1.28740E-03	5836.36	3462.82	.228362	7.72560E+10	4.74013E+10	3.14468E+10
462	7.59000E-04	1.28750E-03	5838.68	3462.55	.228762	7.72690E+10	4.74792E+10	3.14418E+10
466	7.59400E-04	1.28970E-03	5835.58	3456.56	.229764	7.70646E+10	4.75291E+10	3.13331E+10
469	7.59200E-04	1.28980E-03	5837.13	3456.29	.23005	7.70704E+10	4.75832E+10	3.13282E+10
473	7.59500E-04	1.28930E-03	5834.81	3457.65	.229391	7.70897E+10	4.74792E+10	3.13528E+10
476	7.60000E-04	1.29080E-03	5830.94	3453.57	.229821	7.69350E+10	4.74592E+10	3.12790E+10
480	7.61500E-04	1.29130E-03	5836.36	3452.22	.230918	7.69432E+10	4.76578E+10	3.12544E+10
483	7.64200E-04	1.29120E-03	5815.51	3452.49	.227867	7.67646E+10	4.70142E+10	3.12593E+10
497	7.65000E-04	1.29270E-03	5809.36	3448.42	.227968	7.65903E+10	4.69248E+10	3.11858E+10
501	7.65000E-04	1.29210E-03	5809.36	3450.05	.227572	7.66377E+10	4.68856E+10	3.12152E+10
503	7.65000E-04	1.29250E-03	5809.36	3448.96	.227836	7.66061E+10	4.69117E+10	3.11956E+10
505	7.64600E-04	1.29240E-03	5812.43	3449.24	.228214	7.66417E+10	4.69988E+10	3.12005E+10
508	7.64400E-04	1.29310E-03	5813.97	3447.34	.228896	7.66000E+10	4.70914E+10	3.11662E+10
510	7.64200E-04	1.29400E-03	5815.51	3444.91	.229705	7.65424E+10	4.71969E+10	3.11223E+10
512	7.63800E-04	1.29330E-03	5818.59	3446.8	.229689	7.66255E+10	4.72453E+10	3.11564E+10
515	7.64200E-04	1.29380E-03	5815.51	3445.45	.229575	7.65583E+10	4.71839E+10	3.11320E+10
518	7.64300E-04	1.29380E-03	5814.74	3445.45	.229465	7.65514E+10	4.71604E+10	3.11320E+10
522	7.64100E-04	1.29400E-03	5816.28	3444.91	.229816	7.65493E+10	4.72204E+10	3.11223E+10
526	7.63900E-04	1.29370E-03	5817.82	3445.72	.22984	7.65868E+10	4.72478E+10	3.11369E+10
530	7.64200E-04	1.29370E-03	5815.51	3445.72	.229509	7.65662E+10	4.71774E+10	3.11369E+10
533	7.64500E-04	1.29370E-03	5813.2	3445.72	.229178	7.65456E+10	4.71070E+10	3.11369E+10
536	7.64100E-04	1.29450E-03	5816.28	3443.56	.230141	7.65096E+10	4.72529E+10	3.10979E+10
539	7.63900E-04	1.29440E-03	5817.82	3443.83	.230296	7.65312E+10	4.72934E+10	3.11028E+10
543	7.63800E-04	1.29240E-03	5818.59	3449.24	.2291	7.66970E+10	4.71866E+10	3.12005E+10
546	7.63900E-04	1.29340E-03	5817.82	3446.53	.229644	7.66106E+10	4.72283E+10	3.11515E+10
550	7.63600E-04	1.29390E-03	5820.13	3445.18	.230301	7.65915E+10	4.73314E+10	3.11271E+10
557	7.64000E-04	1.29380E-03	5817.05	3445.45	.229795	7.65720E+10	4.72308E+10	3.11320E+10
564	7.62300E-04	1.29510E-03	5830.16	3441.94	.2325	7.65842E+10	4.77160E+10	3.10687E+10
571	7.64700E-04	1.29170E-03	5811.66	3451.13	.227641	7.66902E+10	4.69297E+10	3.12348E+10
575	7.64000E-04	1.29080E-03	5817.05	3453.57	.227826	7.68102E+10	4.70349E+10	3.12790E+10
585	7.63600E-04	1.29100E-03	5820.13	3453.03	.228402	7.68221E+10	4.71421E+10	3.12691E+10
711	7.56900E-04	1.27740E-03	5855.02	3471.57	.228921	7.76823E+10	4.77612E+10	3.16059E+10

LENGTH OF LINE M8-M9 IS 4.39536 METER.

DENSITY USED IS 2622.5 KG/M^3

Table C:1.6 day #, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for monitor line M8-M9

PROCESS DATE :19 JAN,1981 LINE AND FILE NAME: MON86

DAY	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
-7	7.11300E-04	1.25960E-03	5930.31	3349.72	.265728	7.44910E+10	5.29947E+10	2.94261E+10
6	7.07800E-04	1.23640E-03	5959.89	3413.16	.255984	7.67436E+10	5.24171E+10	3.05512E+10
15	7.07400E-04	1.22240E-03	5963.29	3452.61	.247877	7.80213E+10	5.15762E+10	3.12616E+10
18	7.04800E-04	1.22020E-03	5985.48	3458.9	.24931	7.83954E+10	5.21198E+10	3.13755E+10
21	7.03700E-04	1.20700E-03	5994.92	3497.08	.242096	7.96731E+10	5.14876E+10	3.20721E+10
36	7.02000E-04	1.20000E-03	6009.57	3517.67	.239394	8.04389E+10	5.14436E+10	3.24509E+10
43	7.03200E-04	1.19600E-03	5999.23	3529.55	.235313	8.07164E+10	5.08251E+10	3.26704E+10
50	7.03400E-04	1.21370E-03	5997.5	3477.6	.246744	7.90826E+10	5.20439E+10	3.17156E+10
57	7.03800E-04	1.19300E-03	5994.06	3538.51	.232544	8.09449E+10	5.04413E+10	3.28365E+10
64	7.03700E-04	1.19330E-03	5994.92	3537.61	.23287	8.09252E+10	5.04906E+10	3.28198E+10
78	7.01700E-04	1.19220E-03	6012.16	3540.91	.234454	8.11802E+10	5.09518E+10	3.28810E+10
91	7.02200E-04	1.19160E-03	6007.84	3542.71	.233454	8.11969E+10	5.07711E+10	3.29144E+10
110	7.01500E-04	1.19050E-03	6013.89	3546.01	.233515	8.13525E+10	5.08789E+10	3.29759E+10
118	7.01200E-04	1.19100E-03	6016.49	3544.51	.234212	8.13295E+10	5.09991E+10	3.29479E+10
133	6.99800E-04	1.18330E-03	6028.63	3567.8	.230488	8.21530E+10	5.08035E+10	3.33823E+10
159	6.99800E-04	1.18970E-03	6028.63	3548.42	.234955	8.15581E+10	5.12857E+10	3.30207E+10
176	6.99600E-04	1.18900E-03	6030.37	3550.53	.234707	8.16386E+10	5.12883E+10	3.30599E+10
196	7.00200E-04	1.18960E-03	6025.16	3548.72	.234418	8.15364E+10	5.11684E+10	3.30263E+10
210	6.99400E-04	1.19110E-03	6032.11	3544.21	.236381	8.14586E+10	5.16001E+10	3.29423E+10
222	6.99800E-04	1.19210E-03	6028.63	3541.21	.236598	8.13350E+10	5.14645E+10	3.28866E+10
238	6.99100E-04	1.19140E-03	6034.72	3543.31	.236933	8.14535E+10	5.16051E+10	3.29256E+10
252	7.00300E-04	1.19420E-03	6024.29	3534.92	.237446	8.11020E+10	5.14828E+10	3.27699E+10
267	7.00100E-04	1.19410E-03	6026.03	3535.22	.237609	8.11264E+10	5.15302E+10	3.27754E+10
329	6.99300E-04	1.19040E-03	6032.98	3546.31	.236019	8.15314E+10	5.14755E+10	3.29815E+10
330	7.00200E-04	1.18970E-03	6025.16	3548.42	.234487	8.15272E+10	5.11758E+10	3.30207E+10
333	7.00200E-04	1.19110E-03	6025.16	3544.21	.23545	8.13972E+10	5.12803E+10	3.29423E+10
334	7.00200E-04	1.19020E-03	6025.16	3546.92	.234831	8.14808E+10	5.12132E+10	3.29927E+10
335	6.99700E-04	1.18970E-03	6029.5	3548.42	.235072	8.15658E+10	5.13132E+10	3.30207E+10
337	7.00600E-04	1.18950E-03	6021.69	3549.02	.233879	8.15147E+10	5.10512E+10	3.30319E+10
341	7.00900E-04	1.19310E-03	6019.09	3538.21	.236004	8.11583E+10	5.12370E+10	3.28309E+10
342	7.00400E-04	1.19270E-03	6023.42	3539.41	.236311	8.12335E+10	5.13443E+10	3.28532E+10
398	7.00500E-04	1.19320E-03	6022.55	3537.91	.236536	8.11795E+10	5.13539E+10	3.28254E+10
399	7.00700E-04	1.19450E-03	6020.82	3534.03	.237188	8.10439E+10	5.13953E+10	3.27533E+10
400	7.01100E-04	1.19430E-03	6017.36	3534.62	.236589	8.10321E+10	5.12711E+10	3.27644E+10
403	7.03300E-04	1.19970E-03	5998.36	3518.56	.237707	8.03700E+10	5.10688E+10	3.24673E+10
404	7.04500E-04	1.20630E-03	5988.06	3499.13	.240737	7.96792E+10	5.12217E+10	3.21096E+10
405	7.04900E-04	1.20920E-03	5984.63	3490.66	.242189	7.93867E+10	5.13211E+10	3.19544E+10
406	7.05200E-04	1.20220E-03	5982.06	3511.18	.23721	8.00008E+10	5.07381E+10	3.23311E+10
410	7.07800E-04	1.20730E-03	5959.89	3496.2	.237659	7.93487E+10	5.04107E+10	3.20560E+10
411	7.07600E-04	1.20090E-03	5961.59	3515.01	.233552	7.99387E+10	5.00027E+10	3.24018E+10
412	7.08100E-04	1.20280E-03	5957.34	3509.41	.234272	7.97305E+10	5.00076E+10	3.22986E+10
413	7.08400E-04	1.20090E-03	5954.8	3515.01	.232619	7.98782E+10	4.97905E+10	3.24018E+10
414	7.08800E-04	1.20150E-03	5951.41	3513.24	.232565	7.97942E+10	4.97281E+10	3.23692E+10
417	7.09400E-04	1.20110E-03	5946.33	3514.42	.231586	7.97844E+10	4.95407E+10	3.23909E+10
418	7.09600E-04	1.20000E-03	5944.64	3517.67	.230586	7.98672E+10	4.94080E+10	3.24509E+10
419	7.10000E-04	1.19960E-03	5941.28	3518.86	.229834	7.98722E+10	4.92735E+10	3.24728E+10
420	7.10300E-04	1.19860E-03	5938.73	3521.82	.228776	7.99380E+10	4.91217E+10	3.25275E+10
424	7.12000E-04	1.19970E-03	5924.43	3518.56	.227529	7.97091E+10	4.87569E+10	3.24673E+10
426	7.11700E-04	1.20210E-03	5926.95	3511.47	.229575	7.95204E+10	4.90096E+10	3.23365E+10
428	7.11900E-04	1.20140E-03	5925.27	3513.54	.228848	7.95669E+10	4.89066E+10	3.23746E+10
431	7.12000E-04	1.20130E-03	5924.43	3513.83	.228659	7.95680E+10	4.88733E+10	3.23800E+10
433	7.12400E-04	1.20150E-03	5921.07	3513.24	.228325	7.95197E+10	4.87835E+10	3.23692E+10
435	7.12200E-04	1.20150E-03	5922.75	3513.24	.228562	7.95350E+10	4.88356E+10	3.23692E+10
438	7.12500E-04	1.20220E-03	5920.23	3511.18	.228699	7.94504E+10	4.88082E+10	3.23311E+10
440	7.12700E-04	1.20350E-03	5918.56	3507.35	.229374	7.93208E+10	4.88502E+10	3.22606E+10
442	7.13200E-04	1.20360E-03	5914.37	3507.05	.228853	7.92739E+10	4.87275E+10	3.22552E+10
447	7.13600E-04	1.20460E-03	5911.03	3504.11	.229081	7.91558E+10	4.86958E+10	3.22012E+10
449	7.13300E-04	1.21490E-03	5913.53	3494.74	.231656	7.88979E+10	4.90029E+10	3.20292E+10

452	7.13600E-04	1.21520E-03	5911.03	3493.87	.231513	7.88492E+10	4.89466E+10	3.20131E+10
454	7.13300E-04	1.21530E-03	5913.53	3493.58	.231931	7.88628E+10	4.90315E+10	3.20078E+10
456	7.13500E-04	1.21640E-03	5911.86	3490.37	.232454	7.87514E+10	4.90580E+10	3.19490E+10
459	7.13600E-04	1.21590E-03	5911.03	3491.82	.231995	7.87878E+10	4.89965E+10	3.19757E+10
462	7.13600E-04	1.21460E-03	5911.03	3495.62	.231098	7.89018E+10	4.89037E+10	3.20453E+10
466	7.13600E-04	1.21550E-03	5911.03	3492.99	.23172	7.88229E+10	4.89680E+10	3.19971E+10
469	7.14000E-04	1.21560E-03	5907.69	3492.7	.231322	7.87843E+10	4.88716E+10	3.19917E+10
473	7.14100E-04	1.21580E-03	5906.85	3492.12	.231343	7.87593E+10	4.88599E+10	3.19811E+10
476	7.14400E-04	1.21480E-03	5904.35	3495.03	.2303	7.88242E+10	4.87111E+10	3.20345E+10
480	7.17300E-04	1.21580E-03	5896.86	3492.12	.229939	7.86695E+10	4.85505E+10	3.19810E+10
483	7.17400E-04	1.21500E-03	5896.02	3494.45	.229265	7.87315E+10	4.84678E+10	3.20238E+10
497	7.17200E-04	1.22790E-03	5897.69	3457.18	.238244	7.76240E+10	4.94252E+10	3.13444E+10
501	7.17200E-04	1.22840E-03	5897.69	3455.75	.238573	7.75805E+10	4.94597E+10	3.13185E+10
503	7.17400E-04	1.22960E-03	5896.02	3452.33	.239137	7.74621E+10	4.94909E+10	3.12565E+10
505	7.17100E-04	1.22900E-03	5898.52	3454.04	.23908	7.75353E+10	4.95268E+10	3.12874E+10
508	7.16900E-04	1.21660E-03	5900.18	3489.78	.230962	7.86298E+10	4.87104E+10	3.19384E+10
510	7.17000E-04	1.21980E-03	5899.35	3480.49	.233041	7.83436E+10	4.89112E+10	3.17685E+10
512	7.17200E-04	1.21650E-03	5897.69	3490.08	.230542	7.86161E+10	4.86261E+10	3.19437E+10
515	7.17100E-04	1.21680E-03	5898.52	3489.2	.230866	7.85975E+10	4.86731E+10	3.19277E+10
518	7.17000E-04	1.21710E-03	5899.35	3488.33	.23119	7.85788E+10	4.87202E+10	3.19117E+10
522	7.17100E-04	1.21770E-03	5898.52	3486.58	.231487	7.85191E+10	4.87370E+10	3.18798E+10
526	7.16600E-04	1.22030E-03	5902.68	3479.04	.233843	7.83293E+10	4.90495E+10	3.17420E+10
530	7.16800E-04	1.21940E-03	5901.02	3481.65	.233	7.83932E+10	4.89345E+10	3.17896E+10
533	7.16700E-04	1.22120E-03	5901.85	3476.44	.234338	7.82435E+10	4.90871E+10	3.16945E+10
536	7.16900E-04	1.21980E-03	5900.18	3480.49	.233157	7.83510E+10	4.89370E+10	3.17685E+10
539	7.16800E-04	1.21790E-03	5901.02	3486	.231973	7.85239E+10	4.88284E+10	3.18692E+10
543	7.16900E-04	1.22970E-03	5900.18	3452.04	.239762	7.74883E+10	4.96265E+10	3.12513E+10
546	7.16600E-04	1.22780E-03	5902.68	3457.47	.238852	7.76749E+10	4.95728E+10	3.13496E+10
550	7.16400E-04	1.23110E-03	5904.35	3448.06	.241229	7.74010E+10	4.98516E+10	3.11792E+10
557	7.16000E-04	1.22790E-03	5907.69	3457.18	.239591	7.77084E+10	4.97347E+10	3.13444E+10
564	7.16300E-04	1.22770E-03	5905.18	3457.75	.239123	7.77048E+10	4.96434E+10	3.13547E+10
571	7.16100E-04	1.22310E-03	5906.85	3470.96	.236301	7.81210E+10	4.93752E+10	3.15946E+10
575	7.17200E-04	1.22140E-03	5897.69	3475.86	.233898	7.81897E+10	4.89723E+10	3.16840E+10
585	7.17300E-04	1.22780E-03	5896.86	3457.47	.238066	7.76256E+10	4.93925E+10	3.13496E+10
704	7.13100E-04	1.22880E-03	5915.21	3434.46	.245721	7.70698E+10	5.05153E+10	3.09338E+10

LENGTH OF LINE M8-M6 IS 4.18146 METER.

DENSITY USED IS 2622.5 KG/M^3

Table C:1.7 day #, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for monitor line M8-M6

PROCESS DATE :19 JAN,1981   LINE AND FILE NAME: MON79

DAY	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
-43	7.37300E-04	1.32180E-03	5748.48	3206.95	.27407	6.87264E+10	5.06988E+10	2.69712E+10
0	7.39500E-04	1.32070E-03	5731.23	3209.65	.271529	6.87046E+10	5.01192E+10	2.70165E+10
6	7.27600E-04	1.25640E-03	5825.77	3375.4	.247335	7.45382E+10	4.91679E+10	2.98790E+10
8	7.23200E-04	1.25090E-03	5861.52	3390.38	.248616	7.52784E+10	4.99094E+10	3.01447E+10
11	7.21800E-04	1.24970E-03	5872.99	3393.66	.24936	7.54693E+10	5.01843E+10	3.02032E+10
12	7.19900E-04	1.25040E-03	5888.62	3391.74	.25177	7.55295E+10	5.07121E+10	3.01691E+10
13	7.20700E-04	1.25020E-03	5882.03	3392.29	.250816	7.54962E+10	5.04956E+10	3.01788E+10
14	7.19800E-04	1.25010E-03	5889.45	3392.57	.251695	7.55615E+10	5.07181E+10	3.01837E+10
15	7.18900E-04	1.24470E-03	5896.89	3407.42	.249371	7.60831E+10	5.05948E+10	3.04485E+10
21	7.21600E-04	1.24150E-03	5874.63	3416.28	.244509	7.61817E+10	4.96963E+10	3.06072E+10
43	7.17600E-04	1.21450E-03	5907.66	3492.94	.231261	7.87914E+10	4.88648E+10	3.19962E+10
50	7.19000E-04	1.21450E-03	5896.06	3492.94	.229629	7.86870E+10	4.85056E+10	3.19962E+10
57	7.18700E-04	1.21420E-03	5898.54	3493.81	.229772	7.87354E+10	4.85612E+10	3.20122E+10
64	7.20000E-04	1.21290E-03	5887.8	3497.59	.22734	7.87498E+10	4.81367E+10	3.20815E+10
78	7.17400E-04	1.21270E-03	5909.32	3498.18	.230253	7.89630E+10	4.87884E+10	3.20922E+10
91	7.16200E-04	1.21210E-03	5919.31	3499.93	.231239	7.91052E+10	4.90554E+10	3.21242E+10
110	7.16400E-04	1.21350E-03	5917.64	3495.85	.231968	7.89678E+10	4.91034E+10	3.20495E+10
112	7.16500E-04	1.21560E-03	5916.81	3489.75	.233284	7.87768E+10	4.92264E+10	3.19378E+10
159	7.15600E-04	1.21070E-03	5924.32	3504.01	.230973	7.92729E+10	4.91109E+10	3.21993E+10
176	7.14600E-04	1.21140E-03	5932.68	3501.97	.232617	7.92862E+10	4.94210E+10	3.21617E+10
195	7.14800E-04	1.21100E-03	5931.01	3503.13	.232111	7.93065E+10	4.93403E+10	3.21832E+10
222	7.16300E-04	1.22170E-03	5918.48	3472.17	.2376	7.82576E+10	4.97063E+10	3.16167E+10
333	7.14900E-04	1.22150E-03	5930.17	3472.74	.239041	7.83747E+10	5.00556E+10	3.16271E+10
334	7.14900E-04	1.23620E-03	5930.17	3431.06	.2484	7.70827E+10	5.10617E+10	3.08726E+10
337	7.16600E-04	1.23010E-03	5915.98	3448.24	.242728	7.75024E+10	5.02078E+10	3.11824E+10
349	7.16700E-04	1.22190E-03	5915.14	3471.59	.237281	7.82116E+10	4.96168E+10	3.16062E+10
362	7.16200E-04	1.23440E-03	5919.31	3436.11	.245885	7.71540E+10	5.06031E+10	3.09635E+10
383	7.15700E-04	1.22300E-03	5923.48	3468.44	.239129	7.81863E+10	4.99521E+10	3.15489E+10
398	7.17300E-04	1.24640E-03	5910.15	3402.73	.252079	7.60382E+10	5.11173E+10	3.03648E+10
399	7.17400E-04	1.25010E-03	5909.32	3392.57	.254182	7.57116E+10	5.13330E+10	3.01837E+10
400	7.23700E-04	1.25530E-03	5857.44	3378.38	.250755	7.48748E+10	5.00677E+10	2.99318E+10
419	7.43900E-04	1.26790E-03	5697.04	3344.51	.237061	7.25774E+10	4.60039E+10	2.93346E+10
431	7.47500E-04	1.28570E-03	5669.38	3297.8	.244304	7.09773E+10	4.62642E+10	2.85209E+10
433	7.44300E-04	1.37250E-03	5693.96	3087.5	.291758	6.45865E+10	5.16919E+10	2.49995E+10
435	7.48100E-04	1.37040E-03	5664.79	3092.27	.287769	6.45862E+10	5.07200E+10	2.50768E+10
438	7.51100E-04	1.37200E-03	5641.98	3088.64	.286031	6.43474E+10	5.01221E+10	2.50178E+10
440	7.50800E-04	1.37410E-03	5644.25	3083.88	.287215	6.42083E+10	5.02921E+10	2.49408E+10
442	7.50000E-04	1.37470E-03	5650.32	3082.52	.288132	6.41975E+10	5.05012E+10	2.49188E+10
447	7.50700E-04	1.37650E-03	5645.01	3078.46	.28836	6.40397E+10	5.04314E+10	2.48532E+10
449	7.50800E-04	1.37730E-03	5644.25	3076.65	.288632	6.39782E+10	5.04477E+10	2.48241E+10
452	7.50300E-04	1.37800E-03	5648.04	3075.08	.289343	6.39479E+10	5.05939E+10	2.47986E+10
454	7.50300E-04	1.37840E-03	5648.04	3074.18	.289518	6.39192E+10	5.06133E+10	2.47841E+10
456	7.50600E-04	1.37800E-03	5645.77	3075.08	.289101	6.39359E+10	5.05265E+10	2.47986E+10
459	7.50900E-04	1.37800E-03	5643.49	3075.08	.288859	6.39239E+10	5.04592E+10	2.47986E+10
462	7.50800E-04	1.37800E-03	5644.25	3075.08	.28894	6.39279E+10	5.04816E+10	2.47986E+10
466	7.46000E-04	1.37840E-03	5680.87	3074.18	.292948	6.40892E+10	5.15886E+10	2.47841E+10
469	7.46800E-04	1.37900E-03	5674.74	3072.83	.292572	6.40143E+10	5.14349E+10	2.47624E+10
473	7.45600E-04	1.37880E-03	5683.95	3073.28	.293435	6.40759E+10	5.16996E+10	2.47696E+10
476	7.45700E-04	1.37810E-03	5683.18	3074.85	.293057	6.41227E+10	5.16428E+10	2.47950E+10
480	7.45100E-04	1.37840E-03	5687.79	3074.18	.293659	6.41244E+10	5.17949E+10	2.47841E+10
483	7.45200E-04	1.37710E-03	5687.02	3077.11	.293024	6.42151E+10	5.17091E+10	2.48313E+10
497	7.45300E-04	1.37790E-03	5686.25	3075.3	.293288	6.41530E+10	5.17248E+10	2.48023E+10
501	7.45600E-04	1.37530E-03	5683.95	3081.17	.291932	6.43303E+10	5.15299E+10	2.48969E+10
503	7.44700E-04	1.37600E-03	5690.87	3079.59	.292949	6.43149E+10	5.17705E+10	2.48714E+10
505	7.44400E-04	1.37540E-03	5693.19	3080.94	.292929	6.43705E+10	5.18104E+10	2.48933E+10
508	7.44200E-04	1.37500E-03	5694.73	3081.84	.292916	6.44076E+10	5.18370E+10	2.49079E+10
510	7.45100E-04	1.37430E-03	5687.79	3083.43	.291899	6.44230E+10	5.15958E+10	2.49335E+10
512	7.41000E-04	1.37460E-03	5719.53	3082.75	.295272	6.45628E+10	5.25599E+10	2.49225E+10

515	7.44700E-04	1.37510E-03	5690.87	3081.62	.292562	6.43805E+10	5.17268E+10	2.49042E+10
518	7.43600E-04	1.37460E-03	5699.36	3082.75	.293221	6.44606E+10	5.19560E+10	2.49225E+10
522	7.43300E-04	1.37460E-03	5701.68	3082.75	.293458	6.44724E+10	5.20253E+10	2.49225E+10
526	7.42900E-04	1.37310E-03	5704.78	3086.14	.293132	6.45982E+10	5.20447E+10	2.49774E+10
530	7.44300E-04	1.37380E-03	5693.96	3084.56	.29232	6.44913E+10	5.17554E+10	2.49518E+10
533	7.43700E-04	1.37390E-03	5698.59	3084.33	.292841	6.45079E+10	5.18987E+10	2.49481E+10
536	7.43100E-04	1.37410E-03	5703.23	3083.88	.293403	6.45169E+10	5.20472E+10	2.49408E+10
539	7.42900E-04	1.37470E-03	5704.78	3082.52	.293818	6.44809E+10	5.21228E+10	2.49188E+10
543	7.43500E-04	1.37560E-03	5700.14	3080.49	.293728	6.43913E+10	5.20278E+10	2.48860E+10
546	7.43100E-04	1.37380E-03	5703.23	3084.56	.293274	6.45389E+10	5.20326E+10	2.49518E+10
550	7.38200E-04	1.37390E-03	5741.41	3084.33	.297168	6.47238E+10	5.31833E+10	2.49481E+10
557	7.38700E-04	1.37450E-03	5737.49	3082.97	.297029	6.46599E+10	5.30946E+10	2.49261E+10
706	7.52200E-04	1.35180E-03	5633.66	3135.18	.275675	6.57674E+10	4.88632E+10	2.57775E+10

LENGTH OF LINE M7-M9 IS 4.20271 METER.

DENSITY USED IS 2622.5 KG/M^3

Table C:1.8 day #, t_p, t_s, V_p, V_s, ν, E_d, K_d, and G_d for monitor line M7-M9

PROCESS DATE :19 JAN,1981 LINE AND FILE NAME: REF96

DAY	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
-1	4.77000E-04	8.07100E-04	5899.45	3490.15	.230772	7.86341E+10	4.86787E+10	3.19450E+10
0	4.76600E-04	8.06900E-04	5904.46	3491.03	.231267	7.87053E+10	4.88126E+10	3.19611E+10
5	4.76900E-04	8.07000E-04	5900.7	3490.59	.230844	7.86584E+10	4.87068E+10	3.19531E+10
6	4.76600E-04	8.06400E-04	5904.46	3493.22	.230747	7.87710E+10	4.87590E+10	3.20013E+10
19	4.76400E-04	8.06500E-04	5906.98	3492.78	.231203	7.87804E+10	4.88475E+10	3.19932E+10
20	4.75000E-04	8.09800E-04	5924.62	3478.35	.237005	7.84988E+10	4.97467E+10	3.17294E+10
20	4.75200E-04	8.04300E-04	5922.09	3502.47	.231025	7.92066E+10	4.90794E+10	3.21710E+10
20	4.76800E-04	8.11000E-04	5901.95	3473.13	.235126	7.81444E+10	4.91708E+10	3.16342E+10
20	4.75300E-04	8.09700E-04	5920.83	3478.78	.236391	7.84794E+10	4.96185E+10	3.17373E+10
113	4.74200E-04	8.09500E-04	5934.74	3479.65	.238072	7.86255E+10	5.00299E+10	3.17532E+10
116	4.74500E-04	8.09100E-04	5930.94	3481.4	.237158	7.86463E+10	4.98692E+10	3.17851E+10
118	4.74600E-04	8.10600E-04	5929.68	3474.87	.238489	7.84356E+10	4.99887E+10	3.16659E+10
118	4.75000E-04	8.10500E-04	5924.62	3475.3	.237707	7.84058E+10	4.98208E+10	3.16738E+10
119	4.74900E-04	8.10300E-04	5925.88	3476.17	.237678	7.84432E+10	4.98390E+10	3.16897E+10
119	4.74600E-04	8.10200E-04	5929.68	3476.61	.238089	7.84889E+10	4.99464E+10	3.16976E+10
132	4.74300E-04	8.09600E-04	5933.48	3479.22	.238001	7.86013E+10	5.00011E+10	3.17453E+10
223	4.74500E-04	8.11400E-04	5930.94	3471.39	.239453	7.83398E+10	5.01125E+10	3.16026E+10
223	4.73600E-04	8.10000E-04	5942.36	3477.48	.23959	7.86234E+10	5.03202E+10	3.17135E+10
329	4.75100E-04	8.09900E-04	5923.35	3477.91	.236935	7.84746E+10	4.97181E+10	3.17214E+10
336	4.74700E-04	8.08700E-04	5928.41	3483.15	.236412	7.86777E+10	4.97479E+10	3.18170E+10
336	4.74700E-04	8.08700E-04	5928.41	3483.15	.236412	7.86777E+10	4.97479E+10	3.18170E+10
337	4.74700E-04	8.06000E-04	5928.41	3494.98	.233662	7.90371E+10	4.94591E+10	3.20335E+10
343	4.74600E-04	8.12000E-04	5929.68	3468.79	.239878	7.82493E+10	5.01362E+10	3.15552E+10
344	4.74600E-04	8.12400E-04	5929.68	3467.06	.240272	7.81960E+10	5.01782E+10	3.15237E+10
344	4.74400E-04	8.15900E-04	5932.21	3451.98	.244014	7.77510E+10	5.06219E+10	3.12501E+10
348	4.74500E-04	8.14000E-04	5930.94	3460.15	.242008	7.79936E+10	5.03850E+10	3.13982E+10
349	4.74500E-04	8.13400E-04	5930.94	3462.74	.241422	7.80735E+10	5.03223E+10	3.14452E+10
349	4.75200E-04	8.13400E-04	5922.09	3462.74	.240246	7.79995E+10	5.00471E+10	3.14452E+10
350	4.74900E-04	8.10800E-04	5925.88	3474	.238178	7.83767E+10	4.98918E+10	3.16500E+10
350	4.75200E-04	8.10400E-04	5922.09	3475.74	.237266	7.83974E+10	4.97318E+10	3.16817E+10
354	4.74800E-04	8.09300E-04	5927.14	3480.53	.236845	7.85870E+10	4.97723E+10	3.17691E+10
354	4.75100E-04	8.15700E-04	5923.35	3452.83	.24266	7.77051E+10	5.03258E+10	3.12656E+10
355	4.75000E-04	8.15000E-04	5924.62	3455.84	.242147	7.78083E+10	5.02924E+10	3.13201E+10
355	4.74600E-04	8.10800E-04	5929.68	3474	.238688	7.84090E+10	5.00098E+10	3.16500E+10
356	4.74500E-04	8.14800E-04	5930.94	3456.7	.242786	7.78871E+10	5.04683E+10	3.13357E+10
356	4.75100E-04	8.14100E-04	5923.35	3459.72	.241102	7.79172E+10	5.01595E+10	3.13904E+10
357	4.74500E-04	8.13700E-04	5930.94	3461.44	.241715	7.80335E+10	5.03537E+10	3.14217E+10
357	4.75200E-04	8.14700E-04	5922.09	3457.13	.241521	7.78272E+10	5.01827E+10	3.13435E+10
358	4.74900E-04	8.14500E-04	5925.88	3457.99	.241827	7.78852E+10	5.02797E+10	3.13591E+10
362	4.75100E-04	8.14400E-04	5923.35	3458.42	.241395	7.78775E+10	5.01907E+10	3.13669E+10
375	4.75000E-04	8.10200E-04	5924.62	3476.61	.237407	7.84456E+10	4.97891E+10	3.16976E+10
375	4.75000E-04	8.10500E-04	5924.62	3475.3	.237707	7.84058E+10	4.98208E+10	3.16738E+10
385	4.75500E-04	8.12500E-04	5918.3	3466.63	.23885	7.80869E+10	4.98354E+10	3.15159E+10
398	4.75500E-04	8.12700E-04	5918.3	3465.76	.239049	7.80604E+10	4.98563E+10	3.15001E+10
398	4.75100E-04	8.12200E-04	5923.35	3467.92	.23923	7.81693E+10	4.99606E+10	3.15395E+10
419	4.75200E-04	8.12400E-04	5922.09	3467.06	.239259	7.81321E+10	4.99424E+10	3.15237E+10
420	4.75300E-04	8.11000E-04	5920.83	3473.13	.237696	7.83070E+10	4.97559E+10	3.16342E+10
424	4.75400E-04	8.12400E-04	5919.56	3467.06	.238921	7.81108E+10	4.98640E+10	3.15237E+10
424	4.75400E-04	8.09400E-04	5919.56	3480.09	.235916	7.85082E+10	4.95474E+10	3.17612E+10
424	4.74800E-04	8.09200E-04	5927.14	3480.96	.236744	7.86003E+10	4.97617E+10	3.17771E+10
425	4.75600E-04	8.08900E-04	5917.04	3482.27	.235064	7.85525E+10	4.94160E+10	3.18010E+10
425	4.75400E-04	8.09200E-04	5919.56	3480.96	.235713	7.85347E+10	4.95262E+10	3.17771E+10
425	4.75500E-04	8.09300E-04	5918.3	3480.53	.235642	7.85106E+10	4.94977E+10	3.17691E+10
426	4.74800E-04	8.09500E-04	5927.14	3479.65	.237046	7.85604E+10	4.97935E+10	3.17532E+10
566	4.76900E-04	8.12700E-04	5925.88	3495.42	.23321	7.90280E+10	4.93697E+10	3.20416E+10
566	4.78700E-04	8.16100E-04	5903.21	3480.53	.233567	7.83787E+10	4.90297E+10	3.17691E+10
699	4.75300E-04	8.10700E-04	5920.83	3474.43	.237396	7.83468E+10	4.97243E+10	3.16579E+10
701	4.75900E-04	8.04200E-04	5913.26	3502.91	.229683	7.91402E+10	4.87946E+10	3.21791E+10

706	4.76000E-04	8.04800E-04	5912	3500.26	.230135	7.90496E+10	4.88204E+10	3.21305E+10
708	4.76200E-04	8.06100E-04	5909.49	3494.54	.231139	7.88556E+10	4.88825E+10	3.20255E+10
710	4.76000E-04	8.05500E-04	5912	3497.18	.230866	7.89573E+10	4.88959E+10	3.20739E+10
712	4.76000E-04	8.05000E-04	5912	3499.38	.230344	7.90232E+10	4.88420E+10	3.21143E+10
712	4.76400E-04	8.05200E-04	5906.98	3498.5	.229346	7.89515E+10	4.87077E+10	3.20981E+10
712	4.76400E-04	8.05000E-04	5906.98	3499.38	.229636	7.89778E+10	4.86862E+10	3.21143E+10
712	4.76200E-04	8.05200E-04	5909.49	3498.5	.2302	7.89742E+10	4.87856E+10	3.20981E+10
756	4.76000E-04	8.05400E-04	5912	3497.62	.230762	7.89705E+10	4.88852E+10	3.20819E+10

LENGTH OF LINE REF. LINE M9-M6 IS 2.77746 METER.

DENSITY USED IS 2622.5 KG/M^3

Table C:1.9 day #, t_p, t_s, V_p, V_s, ν, E_d, K_d, and G_d for reference line M9-M6

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Appendix C:2 - P waveforms from the monitor and reference lines

The P waveforms make up the data base where the arrival times and change in arrival times for the P waves in the heater midplane can be verified. The P-waveforms shown in this appendix are digitized from the AM taperecorder and graphed. The waveform were averaged 4 times to improve the signal to noise ratio. The primary source of noise was the taperecorder. In Figure 3.5 in Chapter 3 a polaroid photograph of a typical signal is shown and note the high signal to noise ratio. The high frequency noise seen in the figures in this appendix are all generated by the recording process.

The signals are normalized before graphing because the amplitude control was poor and the amplitude depended on the coupling between the transducer and the borehole wall as well as the rock. The vertical spacing in the figures do not represent equal time. The time between each recording is obtained from the tables in Appendix C:1.

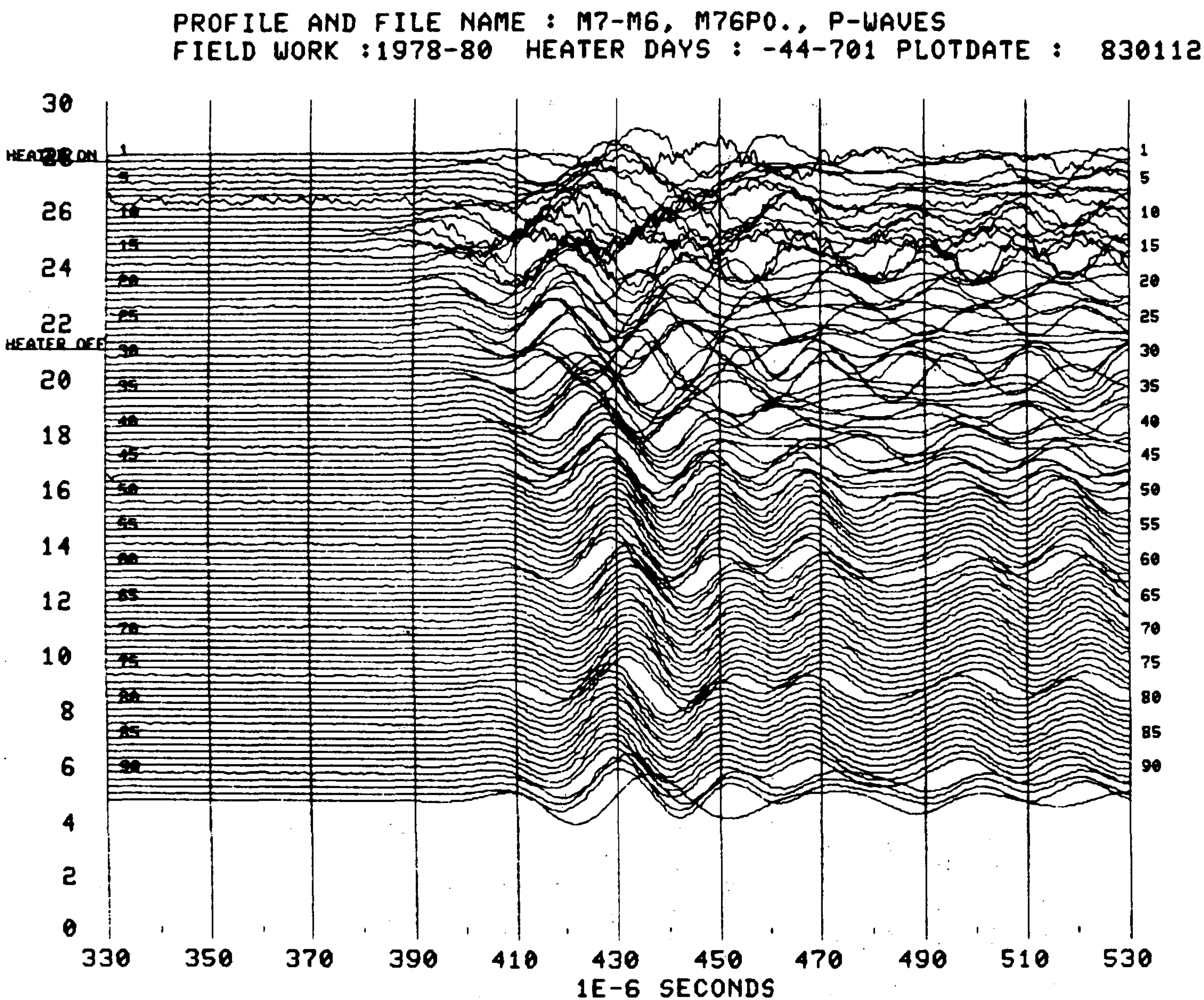


Fig. C:2.1 P waveforms from monitor line M7-M6

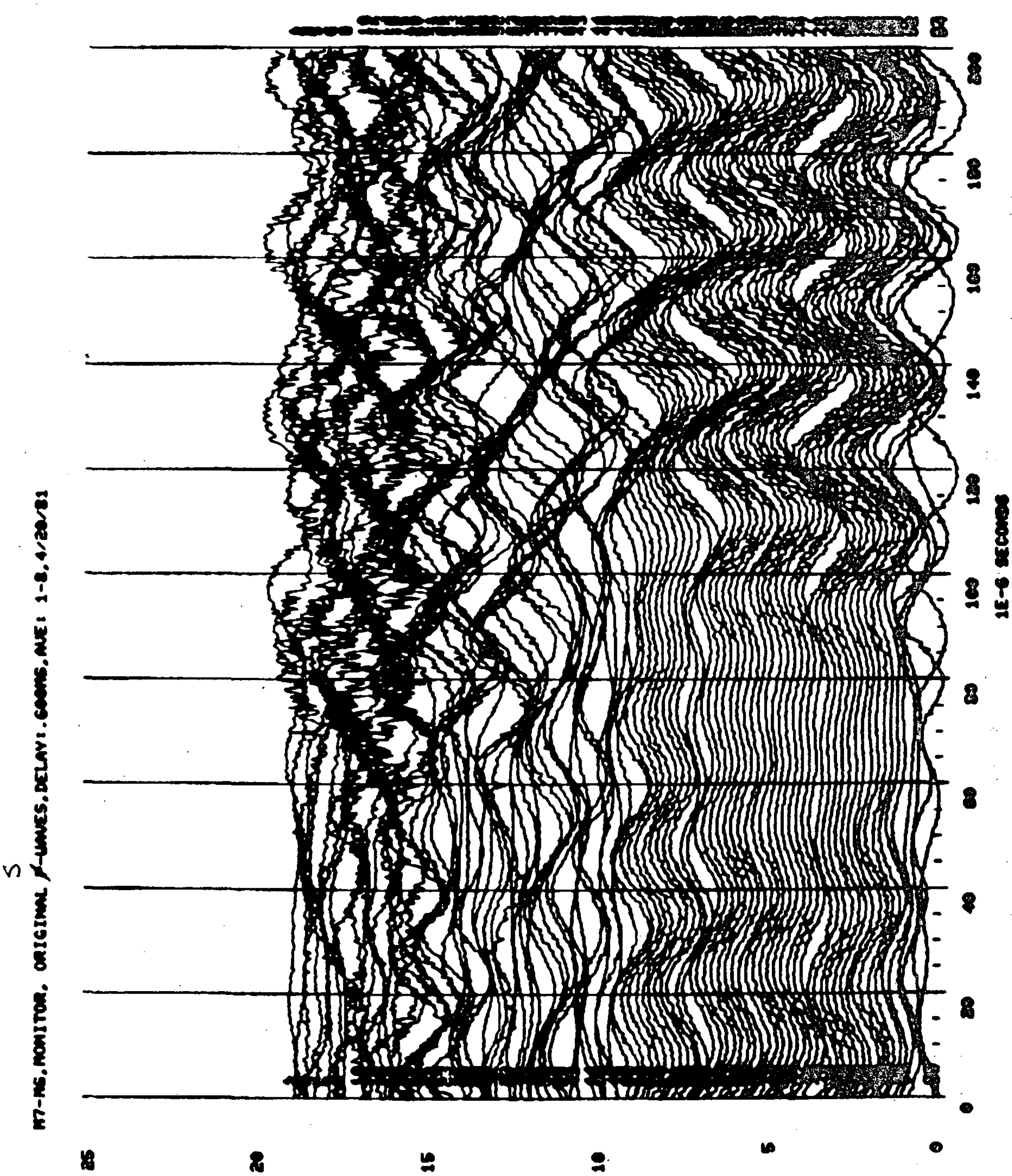


Fig. C:2.2 S waveforms from monitor line M7-M6

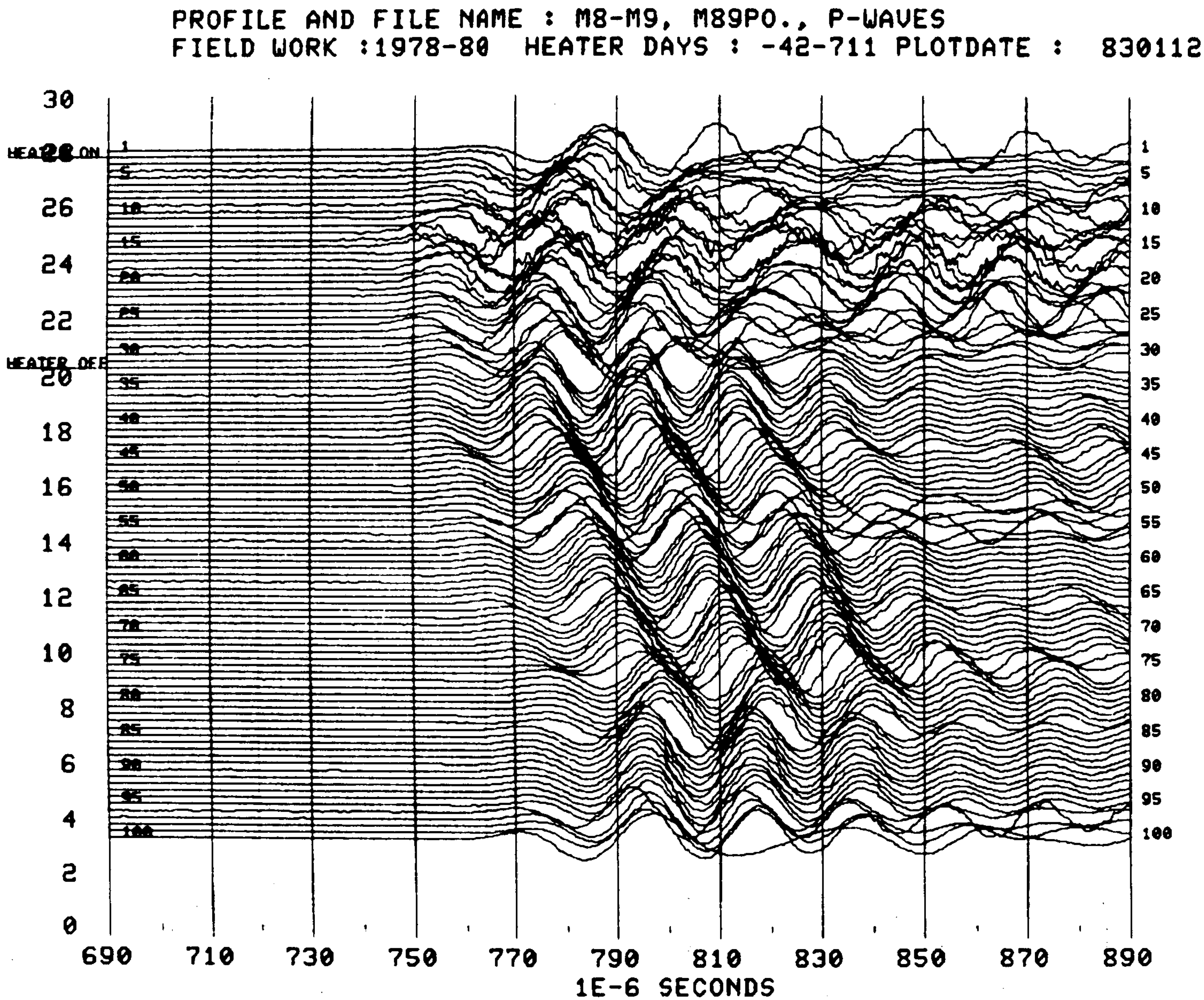


Fig. C:2.3 P waveforms from monitor line M8-M9

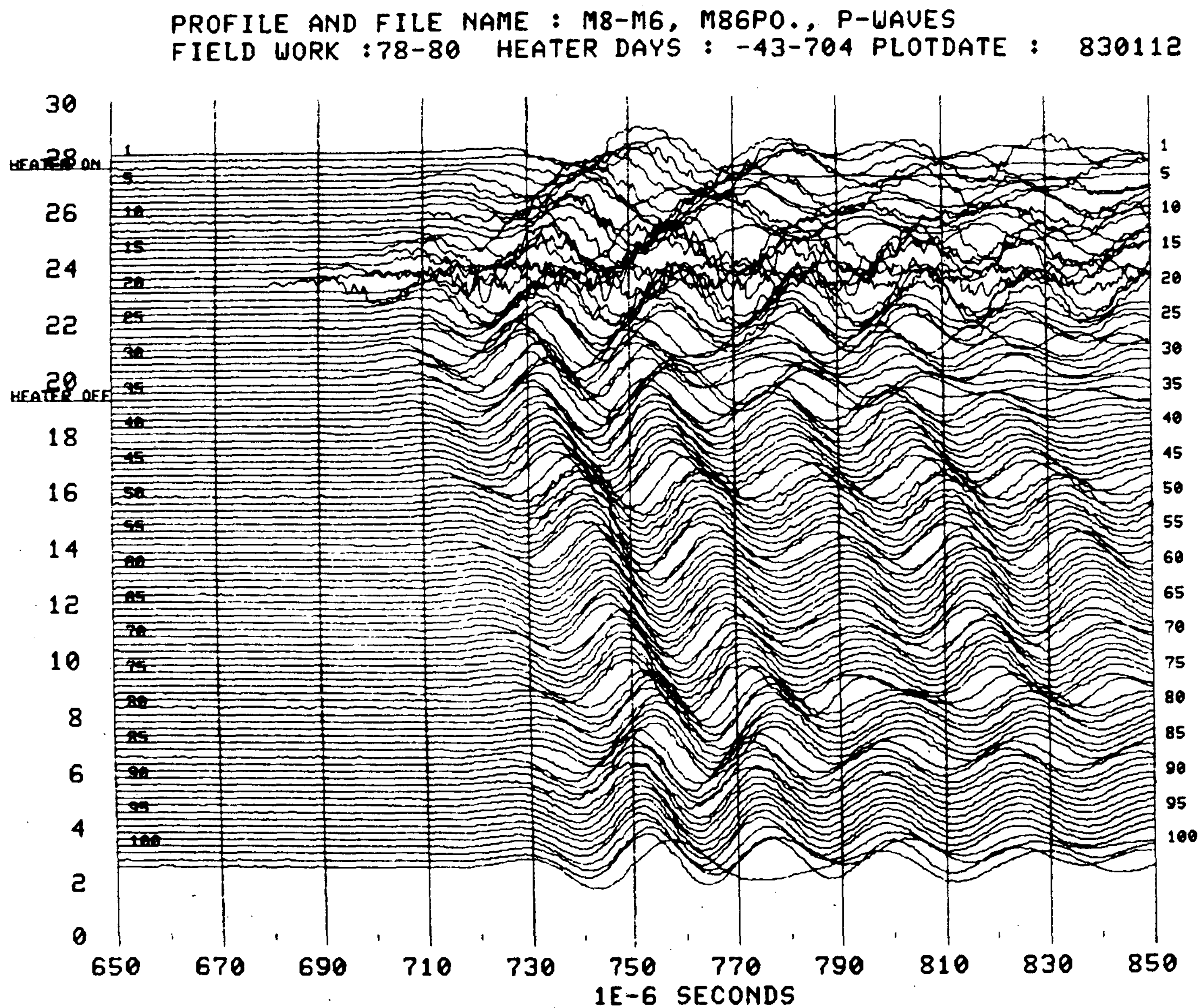


Fig. C.2.4 P waveforms from monitor line M8-M6

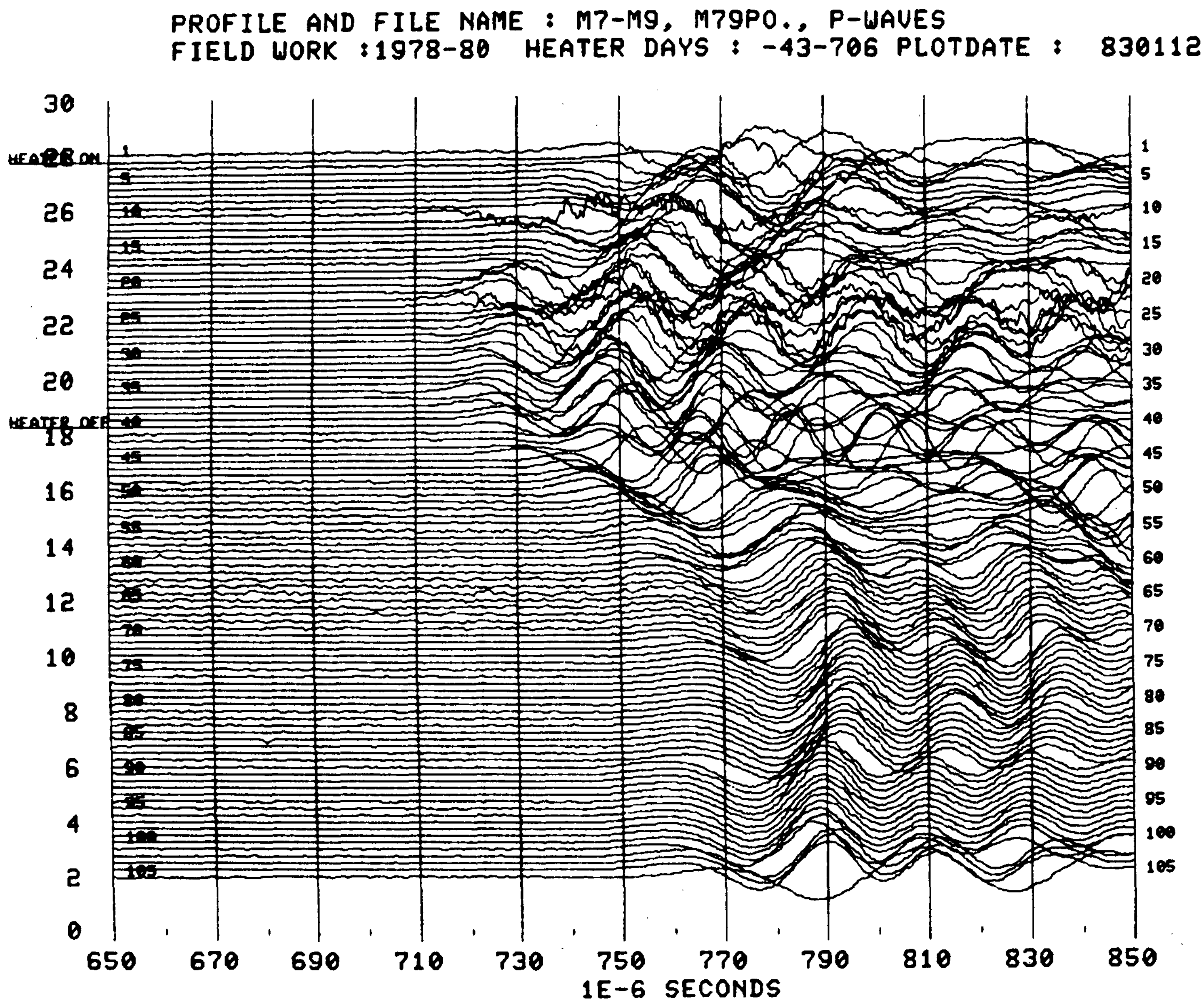


Fig. C:2.5 P waveforms from monitor line M7-M9

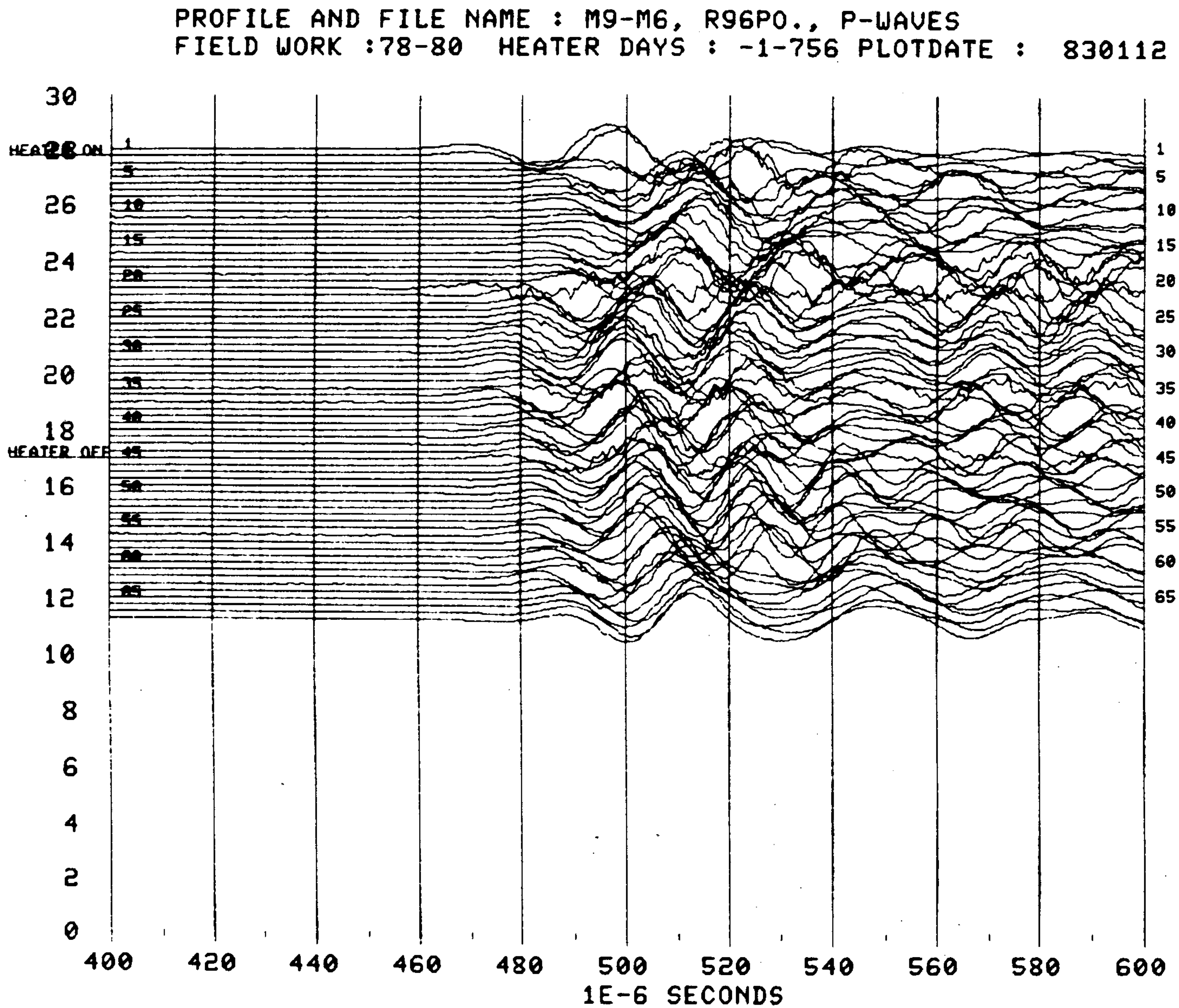


Fig. C:2.6 P waveforms from reference line M9-M6

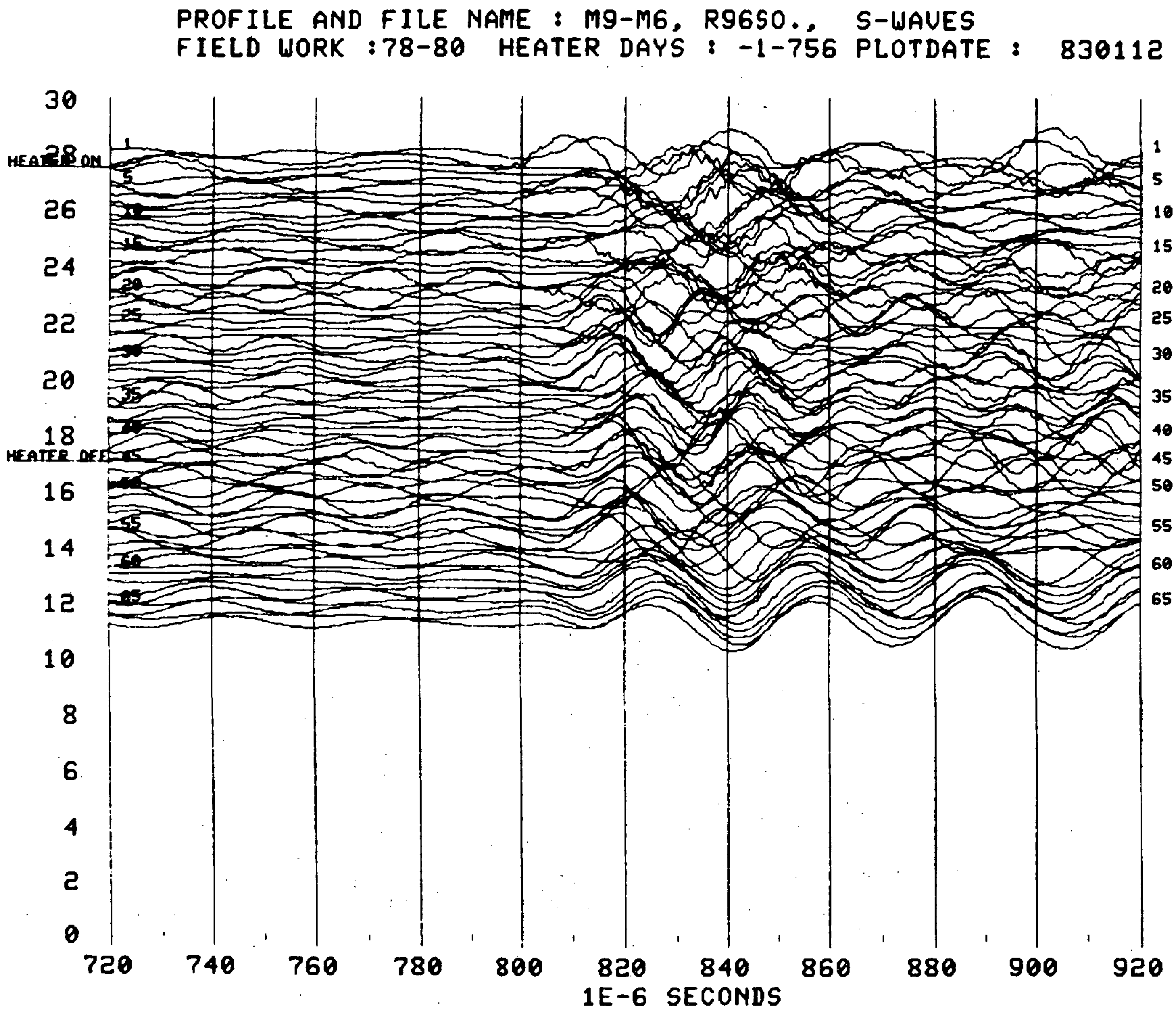


Fig. C:2.7 S waveforms from reference line M9-m6

Appendix C:3 - Tables for the survey data in six cross sections

In this appendix results from the cross hole surveys in the six ultrasonic sections are presented. In the first of the nine columns the Julian heater day is listed. In the second column the recorded time of arrival for the P waves, t_p are shown. This is not corrected for the instrument delay of 6.2×10^{-6} s. which was done before the V_p was calculated. In the third column the arrival time for the S waves, t^s are given. The instrument delay for the S waves were 11.3×10^{-6} s which should be subtracted from the arrival times of the S waves before V_s is calculated. The V_p and the V_s are shown in columns 4 and 5 respecitvely.

Using the expressions in Chapter 7 the Poissons ratio and the dynamic moduli were calculated and they are presented in column 6 through 9. The density used for the calculation of the dynamic moduli is 2622 kg/m^3.

PROFILE AND FILE NAME : M7-M6 SURVA.1

DATE FOR FIELD WORK : 11 JULY,1978 DAYS AFTER HEATER TURN ON : -44 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	3.85100E-04	6.60200E-04	5938.24	3467.41	.24133	7.82784E+10	5.04364E+10	3.15301E+10
5	3.87400E-04	6.64300E-04	5902.41	3445.64	.241523	7.73106E+10	4.98501E+10	3.11354E+10
7	3.86400E-04	6.65700E-04	5915.31	3436.74	.245226	7.71412E+10	5.04639E+10	3.09748E+10
9	3.87600E-04	6.67600E-04	5896.7	3426.79	.245032	7.66832E+10	5.01261E+10	3.07957E+10
11	3.93300E-04	6.73900E-04	5809.87	3394.2	.240923	7.49836E+10	4.82376E+10	3.02128E+10
13	4.02600E-04	6.61600E-04	5671.04	3456.87	.204367	7.54866E+10	4.25565E+10	3.13387E+10
15	4.00200E-04	6.98100E-04	5708.12	3274.61	.254729	7.05690E+10	4.79531E+10	2.81212E+10
17	4.01600E-04	6.94400E-04	5685.38	3290.88	.248068	7.08937E+10	4.69000E+10	2.84014E+10
19	4.01800E-04	7.04300E-04	5682.51	3243.87	.258302	6.94475E+10	4.78886E+10	2.75957E+10
21	4.03300E-04	6.87400E-04	5658.52	3323.47	.236679	7.16452E+10	4.53472E+10	2.89668E+10
23	3.98800E-04	6.56300E-04	5723.38	3483.72	.205726	7.67505E+10	4.34689E+10	3.18275E+10
25	4.00700E-04	6.72500E-04	5695.82	3398.37	.223624	7.41197E+10	4.46974E+10	3.02870E+10
27	3.88000E-04	6.51300E-04	5880.04	3507.81	.223739	7.89781E+10	4.76470E+10	3.22692E+10
29	3.86700E-04	6.45700E-04	5900.13	3538.78	.219073	8.00722E+10	4.75047E+10	3.28414E+10
31	3.89300E-04	6.66000E-04	5854.87	3426	.239654	7.63168E+10	4.88560E+10	3.07815E+10
33	3.85300E-04	6.61900E-04	5914.01	3446.05	.242962	7.74188E+10	5.01994E+10	3.11429E+10
35	3.91100E-04	6.65400E-04	5824.89	3427.61	.235165	7.61121E+10	4.78990E+10	3.08105E+10
37	3.88200E-04	6.83300E-04	5863.87	3333.33	.261297	7.35056E+10	5.13229E+10	2.91389E+10
39	3.88000E-04	6.63100E-04	5864.33	3435.1	.238829	7.66719E+10	4.89282E+10	3.09453E+10

LINE #	DISTANCE (M)
3	2.25
5	2.25
7	2.249
9	2.249
11	2.249
13	2.248
15	2.249
17	2.248
19	2.248
21	2.247
23	2.247
25	2.247
27	2.245
29	2.245
31	2.243
33	2.242
35	2.242
37	2.24
39	2.239

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.1 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey #1 at 44 days before heater turn on in cross section M7-M6.

PROFILE AND FILE NAME : M7-M6 SURVA.2

DATE FOR FIELD WORK : 3 AUG,1979 DAYS AFTER HEATER TURN ON : 344 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	3.84500E-04	6.53900E-04	5947.66	3501.4	.234807	7.94014E+10	4.99016E+10	3.21513E+10
5	3.83200E-04	6.48600E-04	5968.17	3530.52	.230839	8.04681E+10	4.98265E+10	3.26883E+10
7	3.83800E-04	6.47900E-04	5956.04	3532.83	.228599	8.04269E+10	4.93900E+10	3.27311E+10
9	3.83200E-04	6.54900E-04	5965.52	3494.41	.238822	7.93416E+10	5.06306E+10	3.20230E+10
11	3.85400E-04	6.46200E-04	5930.91	3542.29	.222735	8.04722E+10	4.83726E+10	3.29067E+10
13	3.91700E-04	6.44200E-04	5831.39	3551.9	.205082	7.97415E+10	4.50643E+10	3.30855E+10
15	3.88400E-04	6.46400E-04	5884.35	3541.18	.216108	7.99857E+10	4.69578E+10	3.28859E+10
17	3.89200E-04	6.46100E-04	5869.45	3541.27	.213813	7.98392E+10	4.64960E+10	3.28878E+10
19	3.90500E-04	6.61000E-04	5849.6	3460.06	.230915	7.72930E+10	4.78740E+10	3.13966E+10
21	3.91000E-04	6.71500E-04	5839.4	3403.51	.242747	7.55063E+10	4.89184E+10	3.03788E+10
23	3.91300E-04	6.62500E-04	5834.85	3450.55	.231103	7.68806E+10	4.76518E+10	3.12243E+10
25	3.91200E-04	6.60600E-04	5836.36	3460.65	.228889	7.71922E+10	4.74542E+10	3.14073E+10
27	3.86100E-04	6.54800E-04	5909.45	3488.73	.232504	7.86809E+10	4.90230E+10	3.19191E+10
29	3.84500E-04	6.40400E-04	5934.44	3568.59	.216787	8.12743E+10	4.78287E+10	3.33971E+10
31	3.85600E-04	6.43700E-04	5911.97	3546.81	.218843	8.04207E+10	4.76724E+10	3.29906E+10
33	3.82600E-04	6.51800E-04	5956.43	3500.39	.236232	7.94472E+10	5.02001E+10	3.21328E+10
35	3.82500E-04	6.48400E-04	5958.01	3519.07	.232114	8.00299E+10	4.97910E+10	3.24767E+10
37	3.81500E-04	6.68200E-04	5968.56	3400.96	.257713	7.67051E+10	5.27646E+10	3.04939E+10

LINE #	DISTANCE (M)
3	2.25
5	2.25
7	2.249
9	2.249
11	2.249
13	2.248
15	2.249
17	2.248
19	2.248
21	2.247
23	2.247
25	2.247
27	2.245
29	2.245
31	2.243
33	2.242
35	2.242
37	2.24

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-06 SEC.

Table C:3.2 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 2 at 344 days after the heater turn on in cross section M7-M6.

PROFILE AND FILE NAME : M7-M6 SURVA.3

DATE FOR FIELD WORK : 22 OCT.,1979 DAYS AFTER HEATER TURN ON : 424 PROCESS DATE : 20 JAN.,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	3.85000E-04	6.42800E-04	5939.81	3562.95	.218982	8.11636E+10	4.81366E+10	3.32915E+10
5	3.86200E-04	6.45400E-04	5921.05	3548.34	.21981	8.05541E+10	4.79164E+10	3.30191E+10
7	3.88000E-04	6.45600E-04	5890.52	3545.64	.215918	8.01750E+10	4.70375E+10	3.29689E+10
9	3.89600E-04	6.52100E-04	5865.94	3509.68	.221208	7.88985E+10	4.71668E+10	3.23035E+10
11	3.91400E-04	6.54800E-04	5838.53	3494.95	.220791	7.82111E+10	4.66861E+10	3.20330E+10
13	4.05100E-04	6.85700E-04	5635.5	3333.33	.230936	7.17362E+10	4.44357E+10	2.91389E+10
15	4.05500E-04	6.79000E-04	5632.36	3368.28	.22163	7.26945E+10	4.35240E+10	2.97531E+10
17	3.97000E-04	6.77800E-04	5752.3	3372.84	.238034	7.38704E+10	4.69975E+10	2.98338E+10
19	3.97900E-04	6.88500E-04	5739.09	3319.55	.248618	7.21662E+10	4.78463E+10	2.88984E+10
21	3.96500E-04	6.92900E-04	5757.11	3296.66	.256066	7.15987E+10	4.89194E+10	2.85012E+10
23	3.94100E-04	6.70600E-04	5792.73	3408.16	.23529	7.52583E+10	4.73841E+10	3.04618E+10
25	3.93600E-04	6.77800E-04	5800.21	3371.34	.244889	7.42133E+10	4.84842E+10	2.98072E+10
27	3.85700E-04	6.49900E-04	5915.68	3515.5	.227017	7.95373E+10	4.85606E+10	3.24108E+10
29	3.85300E-04	6.41600E-04	5921.92	3561.8	.216603	8.09529E+10	4.76087E+10	3.32701E+10
31	3.86200E-04	6.51700E-04	5902.63	3502.5	.228277	7.90311E+10	4.84753E+10	3.21715E+10
33	3.83500E-04	6.48100E-04	5942.22	3520.73	.229526	7.99371E+10	4.92574E+10	3.25073E+10
35	3.82900E-04	6.42600E-04	5951.69	3551.4	.223534	8.09396E+10	4.87941E+10	3.30762E+10
37	3.83300E-04	6.41400E-04	5940.07	3554.99	.220973	8.09335E+10	4.83426E+10	3.31430E+10

LINE #	DISTANCE (M)
3	2.25
5	2.25
7	2.249
9	2.249
11	2.249
13	2.248
15	2.249
17	2.248
19	2.248
21	2.247
23	2.247
25	2.247
27	2.245
29	2.245
31	2.243
33	2.242
35	2.242
37	2.24

DENSITY : 2622.6 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.3 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 3 at 424 days after heater turn on and 26 days after the H9 heater was turned off, in cross section M7-M6.

PROFILE AND FILE NAME : M7-M6 SURVA.4

DATE FOR FIELD WORK : 25 JULY,1980 DAYS AFTER HEATER TURN ON : 701 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	3.86100E-04	6.50200E-04	5922.61	3521.68	.226524	7.97849E+10	4.86239E+10	3.25248E+10
3	3.88700E-04	6.49700E-04	5882.35	3524.44	.219986	7.94840E+10	4.73095E+10	3.25758E+10
5	3.84700E-04	6.44400E-04	5944.52	3553.94	.221879	8.09457E+10	4.85074E+10	3.31235E+10
7	3.87200E-04	6.47600E-04	5902.89	3534.5	.22054	7.99747E+10	4.76959E+10	3.27620E+10
9	3.88200E-04	6.47300E-04	5887.43	3536.16	.217827	7.98722E+10	4.71769E+10	3.27929E+10
11	3.91100E-04	6.53900E-04	5843.08	3499.84	.22025	7.83957E+10	4.67058E+10	3.21228E+10
13	4.07000E-04	7.14000E-04	5608.78	3199.09	.258904	6.75757E+10	4.67143E+10	2.68391E+10
15	4.00100E-04	7.23300E-04	5709.57	3158.71	.279473	6.69569E+10	5.06036E+10	2.61658E+10
17	3.94300E-04	6.53500E-04	5792.32	3500.47	.212334	7.79147E+10	4.51419E+10	3.21342E+10
19	3.94900E-04	7.16600E-04	5783.38	3187.3	.281892	6.83033E+10	5.21939E+10	2.66416E+10
21	3.95400E-04	7.58900E-04	5773.38	3005.62	.314107	6.22650E+10	5.58250E+10	2.36910E+10
23	3.93000E-04	7.95900E-04	5809.2	2863.88	.339464	5.76217E+10	5.98221E+10	2.15092E+10
25	3.92800E-04	6.72000E-04	5812.21	3400.94	.239676	7.52058E+10	4.81489E+10	3.03328E+10
27	3.85400E-04	6.47100E-04	5920.36	3530.98	.223952	8.00390E+10	4.83244E+10	3.26969E+10
29	3.85600E-04	6.49200E-04	5917.24	3519.36	.226312	7.96662E+10	4.85141E+10	3.24820E+10
31	3.85600E-04	6.47300E-04	5911.97	3526.73	.22377	7.98343E+10	4.81690E+10	3.26182E+10
33	3.82300E-04	6.43700E-04	5961.18	3545.22	.226377	8.08457E+10	4.92440E+10	3.29612E+10
35	3.82200E-04	6.45400E-04	5962.77	3535.72	.22886	8.05756E+10	4.95289E+10	3.27847E+10
37	3.82200E-04	6.40000E-04	5957.45	3562.91	.221578	8.13347E+10	4.86878E+10	3.32908E+10
39	3.82700E-04	6.43000E-04	5946.88	3544.4	.224531	8.06867E+10	4.88178E+10	3.29460E+10

LINE #	DISTANCE (M)
1	2.25
3	2.25
5	2.25
7	2.249
9	2.249
11	2.249
13	2.248
15	2.249
17	2.248
19	2.248
21	2.247
23	2.247
25	2.247
27	2.245
29	2.245
31	2.243
33	2.242
35	2.242
37	2.24
39	2.239

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.4 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 4 at 701 days after heater turn on and 403 days after the H9 heater was turned off, in cross section M7-M6.

PROFILE AND FILE NAME : M7-M8 SURV8.1

DATE FOR FIELD WORK : 13 JULY,1978 DAYS AFTER HEATER TURN ON : -44 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	4.71700E-04	9.43400E-04	5772.29	2882.74	.333857	5.81387E+10	5.83220E+10	2.17934E+10
3	4.57400E-04	8.85600E-04	5955.23	3073.32	.318496	6.53189E+10	5.99794E+10	2.47702E+10
5	4.64700E-04	8.27400E-04	5858.23	3291.26	.26939	7.21217E+10	5.21239E+10	2.84080E+10
7	4.64500E-04	8.81000E-04	5858.61	3087.27	.307776	6.53775E+10	5.66852E+10	2.49957E+10
9	4.62500E-04	8.88300E-04	5879.9	3059.29	.314403	6.45233E+10	5.79421E+10	2.45447E+10
11	4.74800E-04	8.31800E-04	5723.43	3268.74	.25797	7.04979E+10	4.85463E+10	2.80205E+10
13	4.73700E-04	8.34200E-04	5736.9	3259.21	.261718	7.02961E+10	4.91687E+10	2.78573E+10
15	4.74100E-04	8.22000E-04	5727.72	3305.79	.250253	7.16626E+10	4.78234E+10	2.86592E+10
17	4.67400E-04	8.32600E-04	5808.76	3261.9	.269714	7.08587E+10	5.12830E+10	2.79034E+10
19	4.63400E-04	8.19200E-04	5857.39	3314.77	.264429	7.28695E+10	5.15552E+10	2.88152E+10
21	4.61300E-04	8.12400E-04	5880.03	3340.41	.261741	7.38439E+10	5.16552E+10	2.92627E+10
23	4.57200E-04	8.68500E-04	5933.48	3121.79	.308614	6.68906E+10	5.82512E+10	2.55578E+10
25	4.58900E-04	8.48600E-04	5908.99	3194.79	.293466	6.92446E+10	5.58782E+10	2.67671E+10
27	4.55100E-04	8.30400E-04	5959.01	3265.78	.285358	7.19024E+10	5.58314E+10	2.79698E+10
29	4.54800E-04	7.62300E-04	5958.54	3559.25	.222623	8.12374E+10	4.88129E+10	3.32226E+10
31	4.54400E-04	7.98500E-04	5961.62	3394.31	.260168	7.61512E+10	5.29199E+10	3.02147E+10
33	4.53100E-04	7.82200E-04	5978.97	3466.08	.246913	7.85703E+10	5.17413E+10	3.15059E+10
35	4.54000E-04	7.56500E-04	5964.72	3584.27	.21741	8.20322E+10	4.83812E+10	3.36913E+10
37	4.55700E-04	7.80300E-04	5939.93	3472.04	.240503	7.84355E+10	5.03766E+10	3.16144E+10
39	4.54400E-04	7.77000E-04	5954.93	3485.7	.239392	7.89831E+10	5.05121E+10	3.18636E+10

LINE #	DISTANCE (M)
1	2.687
3	2.687
5	2.686
7	2.685
9	2.683
11	2.682
13	2.682
15	2.68
17	2.679
19	2.678
21	2.676
23	2.676
25	2.675
27	2.675
29	2.673
31	2.672
33	2.672
35	2.671
37	2.67
39	2.669

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.5 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 1 at 44 days befor heater turn on in cross section M7-M8.

PROFILE AND FILE NAME : M7-M8 SURV8.2

DATE FOR FIELD WORK : 14-15 DEC,1978 DAYS AFTER HEATER TURN ON : 112 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	4.53900E-04	7.78100E-04	6001.79	3504.17	.241405	7.99521E+10	5.15298E+10	3.22023E+10
5	4.53900E-04	7.83900E-04	5999.55	3476.57	.247229	7.90668E+10	5.21333E+10	3.16970E+10
7	4.56[illegible]00E-04	7.77900E-04	5961.37	3502.48	.236419	7.95540E+10	5.03033E+10	3.21711E+10
9	4.54[illegible]0E-04	7.74200E-04	5986.17	3516.84	.236466	8.02110E+10	5.07277E+10	3.24356E+10
11	4.5[illegible]0E-04	7.84900E-04	5967.96	3466.91	.245319	7.85074E+10	5.13763E+10	3.15210E+10
13	4.5[illegible]0E-04	7.81000E-04	5944.15	3484.47	.238231	7.88536E+10	5.02056E+10	3.18412E+10
15	4.5[illegible]0E-04	7.68700E-04	5986.15	3538.42	.231478	8.08707E+10	5.01949E+10	3.28348E+10
17	4.51200E-04	7.68200E-04	6020.22	3539.44	.235877	8.12062E+10	5.12426E+10	3.28537E+10
19	4.54900E-04	7.64300E-04	5968.35	3556.44	.224714	8.12477E+10	4.91899E+10	3.31701E+10
21	4.52500E-04	7.69200E-04	5995.97	3530.81	.234584	8.07262E+10	5.06915E+10	3.26937E+10
23	4.54800E-04	7.67500E-04	5965.22	3538.75	.228489	8.06892E+10	4.95310E+10	3.28409E+10
25	4.55100E-04	7.82100E-04	5959.01	3470.42	.243377	7.85439E+10	5.10112E+10	3.15849E+10
27	4.54200E-04	7.95000E-04	5970.98	3413.3	.2573	7.68303E+10	5.27608E+10	3.05537E+10
29	4.53700E-04	7.78800E-04	5973.18	3482.74	.242469	7.90446E+10	5.11554E+10	3.18095E+10
31	4.54100E-04	7.74900E-04	5965.62	3499.21	.237739	7.94905E+10	5.05161E+10	3.21112E+10
33	4.51000E-04	7.72800E-04	6007.19	3508.86	.241062	8.01442E+10	5.15851E+10	3.22886E+10
35	4.54500E-04	7.89400E-04	5958.06	3432.72	.251558	7.73524E+10	5.18916E+10	3.09024E+10
37	4.51000E-04	7.76000E-04	6002.7	3491.57	.24433	7.95649E+10	5.18670E+10	3.19710E+10

LINE #	DISTANCE (M)
3	2.687
5	2.686
7	2.685
9	2.683
11	2.682
13	2.682
15	2.68
17	2.679
19	2.678
21	2.676
23	2.676
25	2.675
27	2.675
29	2.673
31	2.672
33	2.672
35	2.671
37	2.67

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.6 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 2 at 112 days after the heater was turned on in cross section M7-M8.

PROFILE AND FILE NAME : M7-M8 SURV3.3

DATE FOR FIELD WORK : 7 AUG,1979 DAYS AFTER HEATER TURN ON : 348 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	4.53500E-04	7.53900E-04	6007.15	3618.37	.215296	8.34551E+10	4.88549E+10	3.43353E+10
5	4.54100E-04	7.55600E-04	5996.87	3608.76	.21614	8.30701E+10	4.87740E+10	3.41532E+10
7	4.56400E-04	7.73400E-04	5964.02	3523.16	.231987	8.02077E+10	4.98780E+10	3.25522E+10
9	4.53500E-04	7.68700E-04	5998.21	3542.38	.232215	8.11003E+10	5.04759E+10	3.29084E+10
11	4.55800E-04	7.89600E-04	5965.3	3445.97	.249585	7.78278E+10	5.17993E+10	3.11415E+10
13	4.54700E-04	7.89000E-04	5979.93	3448.63	.250843	7.80264E+10	5.21935E+10	3.11895E+10
15	4.52400E-04	7.38600E-04	6006.27	3684.86	.198224	8.53347E+10	4.71291E+10	3.56088E+10
17	4.51300E-04	7.47100E-04	6018.87	3640.94	.211446	8.42317E+10	4.86516E+10	3.47649E+10
19	4.50700E-04	7.62500E-04	6024.75	3564.96	.230612	8.20308E+10	5.07514E+10	3.33292E+10
21	4.49500E-04	7.54400E-04	6036.54	3601.13	.22375	8.32369E+10	5.02183E+10	3.40089E+10
23	4.51800E-04	7.29700E-04	6005.39	3724.94	.187347	8.64097E+10	4.60626E+10	3.63877E+10
25	4.52400E-04	7.33900E-04	5995.07	3701.91	.191858	8.56686E+10	4.63361E+10	3.59391E+10
27	4.50500E-04	7.36600E-04	6020.71	3688.13	.199684	8.55903E+10	4.75001E+10	3.56720E+10
29	4.51400E-04	7.72200E-04	6004.04	3512.95	.239731	8.02446E+10	5.13857E+10	3.23637E+10
31	4.50200E-04	7.71200E-04	6018.02	3516.25	.240823	8.04666E+10	5.17450E+10	3.24247E+10
33	4.49800E-04	7.93300E-04	6023.44	3416.88	.262768	7.73265E+10	5.43254E+10	3.06179E+10
35	4.51000E-04	7.95100E-04	6004.95	3407.76	.262486	7.68970E+10	5.39596E+10	3.04546E+10
37	4.49700E-04	8.15800E-04	6020.29	3318.83	.281709	7.40467E+10	5.65352E+10	2.88859E+10

LINE #	DISTANCE (M)
3	2.687
5	2.686
7	2.685
9	2.683
11	2.682
13	2.682
15	2.68
17	2.679
19	2.678
21	2.676
23	2.676
25	2.675
27	2.675
29	2.673
31	2.672
33	2.672
35	2.671
37	2.67

DENSITY : 2682.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.7 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 3 at 348 days after the heater was turned on in cross section M7-M8.

PROFILE AND FILE NAME : M7-M8 SURVB.4

DATE FOR FIELD WORK : 23 OCT,1979 DAYS AFTER HEATER TURN ON : 456 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	4.54300E-04	7.76600E-04	5996.43	3511.04	.239155	8.01204E+10	5.11928E+10	3.23286E+10
5	4.57200E-04	7.88300E-04	5955.65	3456.89	.245957	7.80942E+10	5.12342E+10	3.13390E+10
7	4.63100E-04	8.00900E-04	5876.56	3400.46	.248309	7.57080E+10	5.01330E+10	3.03242E+10
9	4.62200E-04	7.90700E-04	5883.77	3442.39	.239773	7.70563E+10	4.93520E+10	3.10768E+10
11	4.70200E-04	8.23400E-04	5780.17	3302.55	.257664	7.19463E+10	4.94812E+10	2.86032E+10
13	4.78800E-04	8.26100E-04	5674.99	3291.61	.246508	7.08363E+10	4.65737E+10	2.84139E+10
15	4.72500E-04	8.15200E-04	5747.37	3333.75	.246472	7.26597E+10	4.77657E+10	2.91461E+10
17	4.65100E-04	8.10600E-04	5837.87	3351.68	.254152	7.38961E+10	5.00960E+10	2.94606E+10
19	4.59300E-04	7.81800E-04	5910.4	3475.67	.235691	7.82945E+10	4.93706E+10	3.16805E+10
21	4.54300E-04	7.88000E-04	5971.88	3445.35	.250548	7.78595E+10	5.20203E+10	3.11301E+10
23	4.53800E-04	7.86800E-04	5978.55	3450.68	.250226	7.80805E+10	5.21008E+10	3.12265E+10
25	4.53200E-04	8.09600E-04	5984.34	3350.87	.271633	7.48898E+10	5.46561E+10	2.94463E+10
27	4.51900E-04	7.70900E-04	6001.79	3521.59	.237476	8.04933E+10	5.11022E+10	3.25232E+10
29	4.52000E-04	7.89400E-04	5995.96	3435.29	.255672	7.77229E+10	5.30180E+10	3.09487E+10
31	4.51400E-04	7.79800E-04	6001.8	3476.9	.247441	7.90953E+10	5.21959E+10	3.17030E+10
33	4.48600E-04	7.70600E-04	6039.78	3519.03	.24303	8.07371E+10	5.23649E+10	3.24759E+10
35	4.50800E-04	7.74500E-04	6007.65	3499.74	.243157	7.98624E+10	5.18231E+10	3.21208E+10
37	4.49200E-04	7.70200E-04	6027.09	3518.25	.24156	8.06059E+10	5.19823E+10	3.24615E+10

LINE #	DISTANCE (M)
3	2.687
5	2.686
7	2.685
9	2.683
11	2.682
13	2.682
15	2.68
17	2.679
19	2.678
21	2.676
23	2.676
25	2.675
27	2.675
29	2.673
31	2.672
33	2.672
35	2.671
37	2.67

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.8 *day#* , t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 4 at 456 days after the heater was turned on, and 58 days after the heater was turned off, in cross-section M7-M8.

PROFILE AND FILE NAME : M7-M8 SURVB.5

DATE FOR FIELD WORK : 1 AUG,1980 DAYS AFTER HEATER TURN ON : 708 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	4.63200E-04	8.79000E-04	5879.65	3096.69	.308062	6.57915E+10	5.71293E+10	2.51485E+10
3	4.54200E-04	8.83900E-04	5997.77	3079.3	.321032	6.56998E+10	6.11840E+10	2.48668E+10
5	4.58100E-04	8.87300E-04	5943.79	3066.21	.31869	6.50268E+10	5.97750E+10	2.46558E+10
7	4.66800E-04	8.66800E-04	5829.35	3138.52	.2959	6.69523E+10	5.46729E+10	2.58324E+10
9	4.66300E-04	9.28500E-04	5831.34	2925.21	.331874	5.97753E+10	5.92565E+10	2.24403E+10
11	4.71200E-04	9.34100E-04	5767.74	2906.37	.329834	5.89176E+10	5.77059E+10	2.21523E+10
13	4.81400E-04	9.57600E-04	5643.94	2834.2	.331398	5.60936E+10	5.54497E+10	2.10657E+10
15	4.75900E-04	9.31500E-04	5705.77	2912.41	.32383	5.88956E+10	5.57184E+10	2.22444E+10
17	4.65800E-04	8.90700E-04	5828.98	3046.4	.312109	6.38686E+10	5.66538E+10	2.43382E+10
19	4.60500E-04	8.62400E-04	5894.78	3146.52	.300777	6.75473E+10	5.65089E+10	2.59642E+10
21	4.55400E-04	8.50200E-04	5957.26	3189.89	.299012	6.93283E+10	5.74897E+10	2.66850E+10
23	4.56000E-04	8.73300E-04	5949.31	3104.41	.312917	6.63652E+10	5.91229E+10	2.52740E+10
25	4.54700E-04	8.86700E-04	5964.33	3055.75	.322044	6.47479E+10	6.06402E+10	2.44878E+10
27	4.51600E-04	8.06000E-04	6005.84	3366.05	.271011	7.55329E+10	5.49755E+10	2.97137E+10
29	4.52300E-04	8.80500E-04	5991.93	3075.24	.3212	6.55349E+10	6.10878E+10	2.48013E+10
31	4.52200E-04	8.82400E-04	5991.03	3067.39	.322364	6.52580E+10	6.12283E+10	2.46747E+10
33	4.49300E-04	7.77700E-04	6030.24	3486.43	.248949	7.96255E+10	5.28614E+10	3.18770E+10
35	4.51200E-04	7.86600E-04	6002.25	3445.12	.254351	7.80859E+10	5.29793E+10	3.11260E+10
37	4.50500E-04	7.98800E-04	6009.45	3390.48	.266528	7.63628E+10	5.45124E+10	3.01465E+10
39	4.49800E-04	8.48700E-04	6016.68	3187.25	.304958	6.95302E+10	5.94147E+10	2.66408E+10

LINE #	DISTANCE (M)
1	2.687
3	2.687
5	2.686
7	2.685
9	2.683
11	2.682
13	2.682
15	2.68
17	2.679
19	2.678
21	2.676
23	2.676
25	2.675
27	2.675
29	2.673
31	2.672
33	2.672
35	2.671
37	2.67
39	2.669

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.9 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 5 at 708 days after the heater was turned on, and 310 days after the heater was turned off, in cross section M7-M8

PROFILE AND FILE NAME : M8-M9 SURVC.1

DATE FOR FIELD WORK : 13 JULY,1978 DAYS AFTER HEATER TURN ON : -42 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	7.57800E-04	1.26450E-03	5876.8	3524.58	.219124	7.94342E+10	4.71347E+10	3.25784E+10
5	7.56400E-04	1.27310E-03	5879.77	3495.8	.226621	7.86228E+10	4.79327E+10	3.20485E+10
9	7.54600E-04	1.26600E-03	5888.56	3512.39	.223861	7.91925E+10	4.77976E+10	3.23535E+10
13	7.54700E-04	1.26320E-03	5879.76	3515.46	.221822	7.91984E+10	4.74506E+10	3.24100E+10
17	7.55300E-04	1.27140E-03	5867.04	3487.82	.226722	7.82707E+10	4.77356E+10	3.15024E+10
21	7.57800E-04	1.27120E-03	5840.87	3484.4	.223749	7.79282E+10	4.70154E+10	3.18399E+10
25	7.54100E-04	1.25340E-03	5860.41	3528.7	.215619	7.93912E+10	4.65286E+10	3.26547E+10
29	7.52200E-04	1.27000E-03	5868.63	3478.19	.229271	7.80010E+10	4.80191E+10	3.17265E+10
33	7.61000E-04	1.28250E-03	5792.26	3439.27	.227725	7.61691E+10	4.66251E+10	3.10204E+10
37	7.59500E-04	1.28270E-03	5795.83	3434.01	.229522	7.60475E+10	4.68600E+10	3.09256E+10

LINE #	DISTANCE (M)
1	4.417
5	4.411
9	4.407
13	4.401
17	4.395
21	4.39
25	4.383
29	4.378
33	4.372
37	4.366

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.10 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 1 at 42 days before heater was turned on in cross section M8-M9.

PROFILE AND FILE NAME : M8-M9 SURVC.2

DATE FOR FIELD WORK : 20 DEC,1978 DAYS AFTER HEATER TURN ON : 118 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	7.54500E-04	1.27410E-03	5902.71	3497.78	.229416	7.88914E+10	4.85933E+10	3.20849E+10
5	7.50900E-04	1.26850E-03	5923.19	3508.59	.229731	7.94001E+10	4.89636E+10	3.22835E+10
9	7.47100E-04	1.26790E-03	5948.17	3507.08	.233556	7.95786E+10	4.97783E+10	3.22558E+10
13	7.45900E-04	1.25560E-03	5949.71	3536.93	.22673	8.04909E+10	4.90912E+10	3.28071E+10
17	7.47900E-04	1.26060E-03	5925.58	3517.97	.227834	7.97020E+10	4.88073E+10	3.24564E+10
21	7.47600E-04	1.26690E-03	5921.23	3496.34	.232351	7.90144E+10	4.92028E+10	3.20584E+10
25	7.44100E-04	1.25460E-03	5939.83	3525.3	.228105	8.00519E+10	4.90704E+10	3.25917E+10
29	7.47100E-04	1.25950E-03	5909.03	3507.45	.228001	7.92369E+10	4.85521E+10	3.22625E+10
33	7.53800E-04	1.28910E-03	5848.05	3421.51	.23977	7.61239E+10	4.87542E+10	3.07008E+10
37	7.51500E-04	1.28860E-03	5858.04	3418.15	.241887	7.61043E+10	4.91414E+10	3.06406E+10

LINE #	DISTANCE (M)
1	4.417
5	4.411
9	4.407
13	4.401
17	4.395
21	4.39
25	4.383
29	4.378
33	4.372
37	4.366

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.11 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 2 at 118 days after the heater was turned on in cross section M8-M9.

PROFILE AND FILE NAME : M8-M9 SURVC.3

DATE FOR FIELD WORK : 2 AUG,1979 DAYS AFTER HEATER TURN ON : 343 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
5	7.51500E-04	1.27490E-03	5918.42	3490.82	.233257	7.88232E+10	4.92504E+10	3.19573E+10
9	7.46300E-04	1.25940E-03	5954.6	3530.97	.228839	8.03578E+10	4.93912E+10	3.26966E+10
13	7.44400E-04	1.27740E-03	5961.8	3476.03	.242484	7.87414E+10	5.09622E+10	3.16871E+10
17	7.46400E-04	1.25770E-03	5937.58	3526.16	.227582	8.00569E+10	4.89792E+10	3.26076E+10
21	7.49100E-04	1.25700E-03	5909.27	3524.12	.224014	7.97322E+10	4.81498E+10	3.25700E+10
25	7.44900E-04	1.25460E-03	5933.4	3525.3	.227193	7.99925E+10	4.88701E+10	3.25917E+10
29	7.45900E-04	1.26230E-03	5918.62	3499.6	.231218	7.90892E+10	4.90418E+10	3.21183E+10
33	7.43000E-04	1.27230E-03	5933.77	3467.09	.240809	7.82313E+10	5.03047E+10	3.15243E+10
37	7.51500E-04	1.27610E-03	5858.04	3451.93	.234032	7.71251E+10	4.83299E+10	3.12492E+10

LINE #	DISTANCE (M)
5	4.411
9	4.407
13	4.401
17	4.395
21	4.39
25	4.383
29	4.378
33	4.372
37	4.366

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.12 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 3 at 343 days after the heater was turned on in cross section M8-M9.

PROFILE AND FILE NAME : M8-M9 SURVC.4

DATE FOR FIELD WORK : 23 OCT,1979 DAYS AFTER HEATER TURN ON : 425 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
5	7.54100E-04	1.24350E-03	5897.85	3579.78	.208354	8.12178E+10	4.64135E+10	3.36068E+10
9	7.52400E-04	1.25460E-03	5905.92	3544.6	.218491	8.02975E+10	4.75399E+10	3.29496E+10
13	7.51900E-04	1.26270E-03	5901.84	3516.86	.2247	7.94485E+10	4.80982E+10	3.24359E+10
17	7.53700E-04	1.27160E-03	5879.6	3487.26	.228654	7.83691E+10	4.81360E+10	3.18923E+10
21	7.54600E-04	1.26850E-03	5865.85	3491.89	.225561	7.83792E+10	4.75996E+10	3.19769E+10
25	7.48500E-04	1.26110E-03	5904.62	3506.96	.227491	7.91818E+10	4.84276E+10	3.22535E+10
29	7.46900E-04	1.26800E-03	5910.62	3483.73	.233842	7.85404E+10	4.91815E+10	3.18276E+10
33	7.54200E-04	1.27940E-03	5844.92	3447.68	.233207	7.68838E+10	4.80296E+10	3.11723E+10
37	7.53900E-04	1.27800E-03	5839.24	3446.75	.232631	7.68066E+10	4.78779E+10	3.11556E+10

LINE #	DISTANCE (M)
5	4.411
9	4.407
13	4.401
17	4.395
21	4.39
25	4.383
29	4.378
33	4.372
37	4.366

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.13 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 4 at 425 days after the heater was turned on and 27 days after the heater was turned off, in cross section M8-M9.

PROFILE AND FILE NAME : M8-M9 SURVC.5

DATE FOR FIELD WORK : 4-5 AUG,1980 DAYS AFTER HEATER TURN ON : 711 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	7.56000E-04	1.27530E-03	5890.9	3494.46	.228536	7.86853E+10	4.83092E+10	3.20240E+10
3	7.55800E-04	1.27340E-03	5889.81	3498.14	.227496	7.87843E+10	4.81855E+10	3.20915E+10
5	7.55900E-04	1.27470E-03	5883.69	3491.37	.22825	7.85280E+10	4.81618E+10	3.19674E+10
7	7.60300E-04	1.28060E-03	5846.7	3473.57	.227247	7.76656E+10	4.74578E+10	3.16422E+10
9	7.53400E-04	1.28200E-03	5898.02	3468.17	.235742	7.79603E+10	4.91694E+10	3.15439E+10
11	7.54700E-04	1.29420E-03	5883.77	3432.85	.241957	7.67646E+10	4.95813E+10	3.09047E+10
13	7.55200E-04	1.26690E-03	5876.83	3505.1	.223789	7.88592E+10	4.75839E+10	3.22193E+10
15	7.57800E-04	1.27540E-03	5851.52	3479.15	.226584	7.78736E+10	4.74696E+10	3.17441E+10
17	7.56900E-04	1.27740E-03	5854.54	3471.29	.228921	7.76696E+10	4.77534E+10	3.16007E+10
19	7.64700E-04	1.29810E-03	5791.69	3413.9	.233778	7.54194E+10	4.72159E+10	3.05644E+10
21	7.53900E-04	1.27230E-03	5871.34	3481.36	.228895	7.81194E+10	4.80252E+10	3.17844E+10
23	7.47100E-04	1.26490E-03	5921.18	3499.52	.231594	7.91098E+10	4.91233E+10	3.21168E+10
25	7.47300E-04	1.26460E-03	5914.18	3497.17	.231174	7.89764E+10	4.89638E+10	3.20736E+10
27	7.44300E-04	1.27720E-03	5935.51	3460.78	.242467	7.80509E+10	5.05118E+10	3.14097E+10
29	7.46700E-04	1.26780E-03	5912.22	3484.28	.233932	7.85712E+10	4.92175E+10	3.18377E+10
31	7.50700E-04	1.27470E-03	5875.08	3462.09	.234005	7.75779E+10	4.86086E+10	3.14334E+10
33	7.53500E-04	1.27790E-03	5850.39	3451.76	.233005	7.70533E+10	4.80990E+10	3.12462E+10
35	7.61200E-04	1.30950E-03	5788.08	3366.2	.244452	7.39611E+10	4.82369E+10	2.97163E+10
37	7.51100E-04	1.27880E-03	5861.19	3444.58	.236195	7.69315E+10	4.86038E+10	3.11162E+10

LINE #	DISTANCE (M)
1	4.417
3	4.415
5	4.411
7	4.409
9	4.407
11	4.404
13	4.401
15	4.398
17	4.395
19	4.393
21	4.39
23	4.387
25	4.383
27	4.381
29	4.378
31	4.374
33	4.372
35	4.37
37	4.366

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-06 SEC.

Table C:3.14 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 5 at day 711 after the heater was turned on and 313 days after the heater was turned off, in cross section M8-M9.

PROFILE AND FILE NAME : M6-M9 SURVD.1

DATE FOR FIELD WORK : 13 JULY,1978 DAYS AFTER HEATER TURN ON : -42 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	4.78000E-04	8.15900E-04	5881.73	3448.92	.237991	7.72376E+10	4.91317E+10	3.11947E+10
5	4.78000E-04	8.24000E-04	5890.21	3419.47	.24583	7.64048E+10	5.01008E+10	3.06642E+10
9	4.81300E-04	8.02700E-04	5859.82	3517.82	.218268	7.90742E+10	4.67787E+10	3.24535E+10
13	4.84000E-04	8.11000E-04	5835.08	3486.31	.222425	7.79290E+10	4.67916E+10	3.18748E+10
17	4.82000E-04	8.02200E-04	5868.01	3530.16	.216406	7.95082E+10	4.67266E+10	3.26816E+10
21	4.92200E-04	7.76100E-04	5755.14	3657.17	.161342	8.14694E+10	4.00942E+10	3.50756E+10
25	4.87300E-04	8.09400E-04	5817.92	3507.08	.214607	7.83561E+10	4.57592E+10	3.22557E+10
29	4.86800E-04	8.15800E-04	5830.21	3482.91	.222547	7.77849E+10	4.67255E+10	3.18126E+10
33	4.81700E-04	8.20900E-04	5901.16	3465.91	.236696	7.79189E+10	4.93212E+10	3.15029E+10
37	4.88300E-04	7.63300E-04	5828.67	3736.7	.151108	8.43021E+10	4.02714E+10	3.66178E+10

LINE #	DISTANCE (M)
1	2.775
5	2.779
9	2.784
13	2.788
17	2.792
21	2.797
25	2.799
29	2.802
33	2.806
37	2.81

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.15 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 1 at 42 days before heater was turned on in cross section M6-M9.

PROFILE AND FILE NAME : M6-M9 SURVD.2

DATE FOR FIELD WORK : 21 DEC,1978 DAYS AFTER HEATER TURN ON : 119 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
5	4.72900E-04	8.14600E-04	5954.57	3459.48	.245242	7.81665E+10	5.11377E+10	3.13861E+10
9	4.74900E-04	8.21400E-04	5939.83	3436.61	.24841	7.73328E+10	5.12293E+10	3.09725E+10
13	4.75100E-04	8.09900E-04	5945.83	3491.11	.236935	7.90713E+10	5.00961E+10	3.19626E+10
17	4.74100E-04	8.07500E-04	5967.09	3506.66	.236231	7.97318E+10	5.03798E+10	3.22479E+10
21	4.82500E-04	8.28400E-04	5872.35	3423.08	.242665	7.63720E+10	4.94634E+10	3.07291E+10
25	4.80000E-04	8.24200E-04	5907.56	3443.23	.24275	7.72789E+10	5.00674E+10	3.10919E+10
29	4.79900E-04	8.13400E-04	5915.14	3493.33	.232212	7.88697E+10	4.90872E+10	3.20033E+10
33	4.78200E-04	8.21600E-04	5944.92	3462.92	.243219	7.81946E+10	5.07532E+10	3.14484E+10
37	4.82900E-04	8.36700E-04	5894.69	3404.41	.249756	7.59721E+10	5.05987E+10	3.03948E+10

LINE #	DISTANCE (M)
5	2.779
9	2.784
13	2.788
17	2.792
21	2.797
25	2.799
29	2.802
33	2.806
37	2.81

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.16 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 2 at 119 days after the heater was turned on in cross section M6-M9.

PROFILE AND FILE NAME : M6-M9 SURVD.3

DATE FOR FIELD WORK : 2 AUG,1979 DAYS AFTER HEATER TURN ON : 343 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
5	4.73000E-04	8.07700E-04	5953.3	3489.45	.238319	7.90847E+10	5.03696E+10	3.19323E+10
9	4.75200E-04	8.14800E-04	5936.03	3464.84	.241618	7.81808E+10	5.04298E+10	3.14834E+10
13	4.75300E-04	8.15800E-04	5943.3	3465.51	.242424	7.82616E+10	5.06399E+10	3.14955E+10
17	4.74600E-04	8.04300E-04	5960.72	3520.81	.232082	8.01068E+10	4.98329E+10	3.25087E+10
21	4.82300E-04	8.30800E-04	5874.82	3413.06	.245261	7.60839E+10	4.97790E+10	3.05494E+10
25	4.81500E-04	8.26100E-04	5888.91	3435.2	.242105	7.68790E+10	4.96837E+10	3.09470E+10
29	4.79800E-04	8.11500E-04	5916.39	3501.62	.230427	7.91299E+10	4.89230E+10	3.21555E+10
33	4.77400E-04	8.18600E-04	5955.01	3475.78	.241648	7.86773E+10	5.07559E+10	3.16826E+10
37	4.82500E-04	8.29800E-04	5899.64	3433.11	.243995	7.69023E+10	5.00656E+10	3.09094E+10

LINE #	DISTANCE (M)
5	2.779
9	2.784
13	2.788
17	2.792
21	2.797
25	2.799
29	2.802
33	2.806
37	2.81

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.17 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 3 at 343 days after the heater was turned on in cross section M6-M9.

PROFILE AND FILE NAME : M6-M9 SURVD.4

DATE FOR FIELD WORK : 24 OCT,1979 DAYS AFTER HEATER TURN ON : 426 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
5	4.74200E-04	8.04500E-04	5938.03	3503.53	.23299	7.93810E+10	4.95494E+10	3.21905E+10
9	4.78100E-04	8.17300E-04	5899.55	3454.09	.239207	7.75457E+10	4.95575E+10	3.12884E+10
13	4.82600E-04	8.17500E-04	5852.23	3458.2	.23173	7.72611E+10	4.79997E+10	3.13628E+10
17	4.78700E-04	8.06300E-04	5909	3511.95	.226916	7.93701E+10	4.84406E+10	3.23454E+10
21	4.82900E-04	8.38200E-04	5867.48	3382.51	.251114	7.50795E+10	5.02771E+10	3.00051E+10
25	4.82300E-04	8.28800E-04	5879.02	3423.85	.243373	7.64499E+10	4.96504E+10	3.07430E+10
29	4.82000E-04	8.03100E-04	5889.03	3538.77	.217415	7.99630E+10	4.71616E+10	3.28413E+10
33	4.77500E-04	8.18000E-04	5953.74	3478.37	.240898	7.87468E+10	5.06536E+10	3.17298E+10
37	4.83200E-04	8.08300E-04	5890.99	3525.72	.220947	7.96046E+10	4.75444E+10	3.25995E+10

LINE #	DISTANCE (M)
5	2.779
9	2.784
13	2.788
17	2.792
21	2.797
25	2.799
29	2.802
33	2.806
37	2.81

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.18 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 4 at 426 days after the heater was turned on and 28 days after the heater was turned off, in cross section M6-M9.

PROFILE AND FILE NAME : M6-M9 SURVD.5

DATE FOR FIELD WORK : 3-4 AUG,1980 DAYS AFTER HEATER TURN ON : 710 PROCESS DATE : 21 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	4.81700E-04	8.32800E-04	5835.96	3377.97	.248084	7.46965E+10	4.94190E+10	2.99245E+10
5	4.74800E-04	8.20300E-04	5930.43	3435.11	.247541	7.72113E+10	5.09729E+10	3.09454E+10
9	4.80000E-04	8.13700E-04	5875.9	3469.59	.232346	7.78099E+10	4.84518E+10	3.15698E+10
13	4.88200E-04	8.33100E-04	5784.23	3392.55	.237802	7.47222E+10	4.74973E+10	3.01834E+10
17	4.78100E-04	8.07700E-04	5916.51	3505.78	.229459	7.92552E+10	4.88251E+10	3.22318E+10
21	4.88400E-04	8.67800E-04	5800.5	3265.62	.267982	7.09233E+10	5.09467E+10	2.79670E+10
25	4.82900E-04	8.62600E-04	5871.62	3287.91	.271601	7.21003E+10	5.26128E+10	2.83502E+10
29	4.81900E-04	8.25700E-04	5890.27	3440.57	.241061	7.70547E+10	4.95964E+10	3.10439E+10
33	4.77000E-04	8.18700E-04	5960.07	3475.35	.242409	7.87060E+10	5.09245E+10	3.16748E+10
37	4.82500E-04	8.27900E-04	5899.64	3441.1	.242187	7.71483E+10	4.98736E+10	3.10534E+10

LINE #	DISTANCE (M)
1	2.775
5	2.779
9	2.784
13	2.788
17	2.792
21	2.797
25	2.799
29	2.802
33	2.806
37	2.81

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.19 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d for survey # 5 at 710 days after the heater was turned on and 312 days after the heater was turned off, in cross section M6-M9.

PROFILE AND FILE NAME : M8-M6 SURVE.1

DATE FOR FIELD WORK : 11 JULY,1978 DAYS AFTER HEATER TURN ON : -44 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	7.18200E-04	1.24100E-03	5877.81	3403.27	.247844	7.58051E+10	5.01046E+10	3.03744E+10
3	7.13100E-04	1.25550E-03	5921.63	3364.41	.261664	7.49044E+10	5.23801E+10	2.96848E+10
5	7.11200E-04	1.21000E-03	5936.17	3491.28	.235585	7.89928E+10	4.97909E+10	3.19658E+10
7	7.17800E-04	1.23630E-03	5879.71	3415.51	.245349	7.61987E+10	4.98712E+10	3.05933E+10
9	7.17400E-04	1.30660E-03	5883.01	3230.14	.284212	7.02789E+10	5.42808E+10	2.73626E+10
11	7.25600E-04	1.25450E-03	5813.18	3363.9	.248282	7.40874E+10	4.90546E+10	2.96757E+10
13	7.29800E-04	1.27510E-03	5778.05	3308.28	.256148	7.21090E+10	4.92846E+10	2.87025E+10
15	7.22100E-04	1.29280E-03	5841.6	3263.36	.27317	7.11153E+10	5.22530E+10	2.79284E+10
17	7.16500E-04	1.32540E-03	5886.25	3181.65	.293622	6.86841E+10	5.54678E+10	2.65472E+10
19	7.15300E-04	1.25380E-03	5896.21	3364.99	.258487	7.47414E+10	5.15785E+10	2.96950E+10
21	7.17200E-04	1.25590E-03	5880.45	3359.31	.257778	7.44475E+10	5.12254E+10	2.95949E+10
23	7.16800E-04	1.23500E-03	5882.35	3415.87	.245613	7.62309E+10	4.99442E+10	3.05998E+10
25	7.18500E-04	1.21290E-03	5868.31	3478.69	.229105	7.80130E+10	4.79970E+10	3.17357E+10
27	7.11100E-04	1.27420E-03	5928.5	3309.05	.273739	7.31531E+10	5.38855E+10	2.87159E+10
29	7.11400E-04	1.22280E-03	5924.56	3448.62	.243769	7.75845E+10	5.04651E+10	3.11893E+10
31	7.11800E-04	1.28940E-03	5918.37	3267.35	.280802	7.17165E+10	5.45296E+10	2.79967E+10
33	7.09100E-04	1.22380E-03	5941.1	3444.12	.246914	7.75782E+10	5.10881E+10	3.11081E+10
35	7.14200E-04	1.29690E-03	5896.89	3247.51	.282344	7.09335E+10	5.43161E+10	2.76577E+10
37	7.14900E-04	1.21940E-03	5889.66	3455.01	.237657	7.74898E+10	4.92293E+10	3.13051E+10
39	7.07500E-04	1.21230E-03	5950.38	3474.6	.241304	7.86021E+10	5.06401E+10	3.16611E+10

LINE #	DISTANCE (M)
1	4.185
3	4.186
5	4.185
7	4.184
9	4.184
11	4.182
13	4.181
15	4.182
17	4.181
19	4.181
21	4.181
23	4.18
25	4.18
27	4.179
29	4.178
31	4.176
33	4.176
35	4.175
37	4.174
39	4.173

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.20 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d,for survey # 1 at at day -44 before the heater was turned on in cross section M8-M6.

PROFILE AND FILE NAME : M8-M6 SURVE.2

DATE FOR FIELD WORK : 17 AUG,1978 DAYS AFTER HEATER TURN ON : -7 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	7.19600E-04	1.24610E-03	5866.27	3389.21	.249486	7.52791E+10	5.00831E+10	3.01240E+10
2	7.14700E-04	1.28930E-03	5906.85	3274.65	.278146	7.18878E+10	5.40053E+10	2.81219E+10
3	7.12200E-04	1.26020E-03	5929.18	3351.75	.26518	7.45488E+10	5.29120E+10	2.94618E+10
4	7.12700E-04	1.26180E-03	5923.57	3346.66	.265575	7.43458E+10	5.28568E+10	2.93724E+10
5	7.10500E-04	1.26340E-03	5942.07	3342.38	.268577	7.43319E+10	5.35326E+10	2.92974E+10
6	7.14400E-04	1.33760E-03	5907.94	3154.64	.300581	6.78864E+10	5.67370E+10	2.60985E+10
7	7.15400E-04	1.23790E-03	5899.61	3411.05	.248915	7.62177E+10	5.05922E+10	3.05136E+10
8	7.18600E-04	1.23920E-03	5873.1	3407.44	.2463	7.58971E+10	4.98602E+10	3.04490E+10
9	7.18000E-04	1.27790E-03	5878.06	3303.33	.2692	7.26407E+10	5.24558E+10	2.86167E+10
10	7.20900E-04	1.24710E-03	5852.81	3384.85	.248724	7.50398E+10	4.97725E+10	3.00466E+10
11	7.24200E-04	1.28760E-03	5824.51	3276.66	.268495	7.14326E+10	5.14262E+10	2.81565E+10
12	7.25800E-04	1.24770E-03	5810.17	3381.59	.24387	7.46041E+10	4.85457E+10	2.99887E+10
13	7.25400E-04	1.20360E-03	5813.4	3506.67	.214016	7.82995E+10	4.56316E+10	3.22481E+10
14	7.20200E-04	1.21980E-03	5857.14	3460.49	.231877	7.73727E+10	4.80953E+10	3.14044E+10
15	7.20500E-04	1.23280E-03	5854.68	3423.66	.240169	7.62443E+10	4.89063E+10	3.07395E+10
16	7.16700E-04	1.27240E-03	5884.59	3315.36	.267489	7.30720E+10	5.23789E+10	2.88255E+10
17	7.11300E-04	1.25960E-03	5929.65	3349.35	.265728	7.44746E+10	5.29830E+10	2.94197E+10
18	7.10700E-04	1.25370E-03	5934.71	3365.26	.263034	7.50236E+10	5.27667E+10	2.96998E+10
19	7.12100E-04	1.28380E-03	5922.94	3285.66	.277738	7.23489E+10	5.42519E+10	2.83113E+10
20	7.12900E-04	1.22810E-03	5916.23	3436.06	.245497	7.71277E+10	5.05087E+10	3.09626E+10
21	7.15700E-04	1.22990E-03	5892.88	3430.99	.243586	7.67819E+10	4.99075E+10	3.08712E+10
22	7.14000E-04	1.23040E-03	5907.04	3429.58	.245753	7.68527E+10	5.03792E+10	3.08459E+10
23	7.14400E-04	1.20300E-03	5902.29	3507.59	.227005	7.91791E+10	4.83398E+10	3.22652E+10
24	7.14600E-04	1.22660E-03	5900.62	3439.48	.242684	7.71066E+10	4.99428E+10	3.10242E+10
25	7.11600E-04	1.25730E-03	5925.72	3354.73	.264159	7.46215E+10	5.27344E+10	2.95143E+10
26	7.10700E-04	1.25680E-03	5933.29	3356.08	.264766	7.47172E+10	5.29382E+10	2.95380E+10
27	7.07600E-04	1.22040E-03	5958.08	3456.29	.246401	7.80951E+10	5.13245E+10	3.13282E+10
28	7.07000E-04	1.19400E-03	5963.18	3533.44	.229457	8.05109E+10	4.95984E+10	3.27424E+10
29	7.15000E-04	1.22160E-03	5894.47	3452.04	.238995	7.74401E+10	4.94499E+10	3.12512E+10
30	7.08000E-04	1.21840E-03	5951.84	3460.36	.244692	7.81718E+10	5.10311E+10	3.14020E+10
31	7.10100E-04	1.21520E-03	5932.66	3468.73	.24029	7.82724E+10	5.02306E+10	3.15541E+10
32	7.05700E-04	1.20360E-03	5969.98	3502.47	.237579	7.96284E+10	5.05729E+10	3.21710E+10
33	7.07600E-04	1.22540E-03	5953.81	3439.59	.24953	7.75361E+10	5.15937E+10	3.10261E+10
34	7.12100E-04	1.19840E-03	5914.44	3516.97	.226486	7.95694E+10	4.84859E+10	3.24380E+10
35	7.12400E-04	1.22820E-03	5911.92	3430.85	.246103	7.69312E+10	5.05002E+10	3.08687E+10
36	7.10500E-04	1.25590E-03	5926.45	3353.69	.264462	7.45927E+10	5.27818E+10	2.94958E+10
37	7.08600E-04	1.24870E-03	5942.48	3373.2	.262301	7.53343E+10	5.28218E+10	2.98401E+10
38	7.08900E-04	1.22200E-03	5938.52	3446.77	.245996	7.76400E+10	5.09441E+10	3.11558E+10
39	7.07000E-04	1.22100E-03	5954.62	3449.62	.247432	7.78581E+10	5.13776E+10	3.12073E+10

Table C:3.21 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 2 at day -7 before the heater was turned on in cross section M8-M6.

LINE #	DISTANCE (M)
1	4.185
2	4.185
3	4.186
4	4.185
5	4.185
6	4.184
7	4.184
8	4.184
9	4.184
10	4.183
11	4.182
12	4.181
13	4.181
14	4.182
15	4.182
16	4.181
17	4.181
18	4.181
19	4.181
20	4.181
21	4.181
22	4.181
23	4.18
24	4.18
25	4.18
26	4.18
27	4.179
28	4.179
29	4.178
30	4.177
31	4.176
32	4.176
33	4.176
34	4.175
35	4.175
36	4.174
37	4.174
38	4.173
39	4.173

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

PROFILE AND FILE NAME : M8-M6 SURVE.3

DATE FOR FIELD WORK : 30 AUG.,1978 DAYS AFTER HEATER TURN ON : 6 PROCESS DATE : 20 JAN.,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.15700E-04	1.32950E-03	5899.93	3175.54	.296076	6.85507E+10	5.60264E+10	2.64455E+10
5	7.10500E-04	1.29610E-03	5942.07	3257.32	.285204	7.15216E+10	5.54957E+10	2.78250E+10
7	7.15100E-04	1.28970E-03	5902.1	3272.84	.277985	7.17994E+10	5.38998E+10	2.80909E+10
9	7.14900E-04	1.25430E-03	5903.77	3366.05	.259178	7.48296E+10	5.17876E+10	2.97137E+10
11	7.20300E-04	1.27700E-03	5856.32	3304.1	.266524	7.25213E+10	5.17692E+10	2.86300E+10
13	7.18200E-04	1.24690E-03	5872.19	3383.78	.25144	7.51554E+10	5.03939E+10	3.00276E+10
15	7.11500E-04	1.22980E-03	5929.39	3432.09	.248075	7.71087E+10	5.10130E+10	3.08910E+10
17	7.07800E-04	1.23640E-03	5959.24	3412.78	.255984	7.67268E+10	5.24055E+10	3.05445E+10
19	7.08300E-04	1.21470E-03	5954.99	3474.32	.241975	7.86319E+10	5.07909E+10	3.16560E+10
21	7.11800E-04	1.21200E-03	5925.45	3482.14	.236244	7.86214E+10	4.96806E+10	3.17985E+10
23	7.12900E-04	1.21280E-03	5914.82	3478.98	.235524	7.84335E+10	4.94270E+10	3.17410E+10
25	7.11500E-04	1.21310E-03	5926.56	3478.12	.237321	7.85084E+10	4.98126E+10	3.17251E+10

LINE #	DISTANCE (M)
3	4.186
5	4.185
7	4.184
9	4.184
11	4.182
13	4.181
15	4.182
17	4.181
19	4.181
21	4.181
23	4.18
25	4.18

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.22 $day\#$, t_p, t_s, V_p, V_s, ν, E_d, K_d, and G_d, for survey # 3 at day 6 after the heater was turned on in cross section M8-M6.

PROFILE AND FILE NAME : M8-M6 SURVE.4

DATE FOR FIELD WORK : 8 SEP.,1978 DAYS AFTER HEATER TURN ON : 15 PROCESS DATE : 20 JAN.,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.16500E-04	1.24850E-03	5893.28	3383.45	.254162	7.53040E+10	5.10527E+10	3.00216E+10
5	7.11300E-04	1.22740E-03	5935.33	3441.33	.246792	7.74447E+10	5.09756E+10	3.10576E+10
7	7.13300E-04	1.23640E-03	5917.13	3415.23	.250224	7.64846E+10	5.10355E+10	3.05883E+10
9	7.13100E-04	1.25480E-03	5918.8	3364.7	.261267	7.48935E+10	5.22855E+10	2.96898E+10
11	7.14900E-04	1.26180E-03	5900.95	3344.26	.263421	7.41129E+10	5.22114E+10	2.93303E+10
13	7.14300E-04	1.25580E-03	5904.53	3359.58	.260637	7.46287E+10	5.19634E+10	2.95996E+10
15	7.09200E-04	1.23180E-03	5948.79	3426.46	.251756	7.70829E+10	5.17521E+10	3.07899E+10
17	7.08900E-04	1.24890E-03	5949.91	3378.31	.262114	7.55516E+10	5.29327E+10	2.99306E+10
19	7.10000E-04	1.25270E-03	5940.61	3367.97	.263165	7.51524E+10	5.28867E+10	2.97476E+10
21	7.09600E-04	1.22330E-03	5943.99	3449.67	.246056	7.77746E+10	5.10444E+10	3.12083E+10
23	7.12400E-04	1.22470E-03	5919	3444.87	.243885	7.74230E+10	5.03829E+10	3.11215E+10
25	7.12800E-04	1.27850E-03	5915.65	3298.61	.274389	7.27293E+10	5.37276E+10	2.85350E+10

LINE #	DISTANCE (M)
3	4.186
5	4.185
7	4.184
9	4.184
11	4.182
13	4.181
15	4.182
17	4.181
19	4.181
21	4.181
23	4.18
25	4.18

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.23 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 4 at day 15 after the heater was turned on in cross section M8-M6.

PROFILE AND FILE NAME : M8-M6 SURVE.5

DATE FOR FIELD WORK : 13-14 SEP.,1978 DAYS AFTER HEATER TURN ON : 20 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.14800E-04	1.22110E-03	5907.42	3460.08	.238891	7.77946E+10	4.96565E+10	3.13969E+10
5	7.09700E-04	1.22110E-03	5948.83	3459.25	.244549	7.81126E+10	5.09639E+10	3.13819E+10
7	7.12600E-04	1.22760E-03	5922.99	3439.94	.245508	7.73025E+10	5.06253E+10	3.10325E+10
9	7.11300E-04	1.21950E-03	5933.91	3463	.241754	7.81064E+10	5.04082E+10	3.14500E+10
11	7.13800E-04	1.21130E-03	5910.12	3485	.233474	7.85744E+10	4.91348E+10	3.18508E+10
13	7.13300E-04	1.21290E-03	5912.88	3479.53	.235133	7.84331E+10	4.93538E+10	3.17509E+10
15	7.07600E-04	1.20820E-03	5962.36	3494.03	.238487	7.93029E+10	5.05411E+10	3.20161E+10
17	7.07400E-04	1.20730E-03	5962.63	3495.82	.238115	7.93605E+10	5.05059E+10	3.20489E+10
19	7.09500E-04	1.21290E-03	5944.83	3479.53	.239452	7.87074E+10	5.03473E+10	3.17509E+10
21	7.09300E-04	1.21550E-03	5946.52	3472.01	.241381	7.84899E+10	5.05826E+10	3.16139E+10
23	7.13000E-04	1.20930E-03	5913.98	3489.15	.233034	7.87335E+10	4.91533E+10	3.19267E+10
25	7.15800E-04	1.23840E-03	5890.64	3406.41	.248797	7.60029E+10	5.04260E+10	3.04304E+10
27	7.06500E-04	1.22210E-03	5967.44	3451.44	.248661	7.80171E+10	5.17344E+10	3.12403E+10
29	7.09300E-04	1.24890E-03	5942.26	3375.89	.261714	7.54194E+10	5.27513E+10	2.98876E+10
31	7.09700E-04	1.24720E-03	5936.03	3378.91	.260342	7.54724E+10	5.24861E+10	2.99412E+10
33	7.06900E-04	1.22240E-03	5959.75	3448.11	.248417	7.78514E+10	5.15743E+10	3.11800E+10
35	7.11300E-04	1.21870E-03	5921.15	3457.84	.241234	7.78413E+10	5.01362E+10	3.13564E+10
37	7.05900E-04	1.20440E-03	5965.41	3498.45	.237886	7.94653E+10	5.05285E+10	3.20972E+10

LINE #	DISTANCE (M)
3	4.186
5	4.185
7	4.184
9	4.184
11	4.182
13	4.181
15	4.182
17	4.181
19	4.181
21	4.181
23	4.18
25	4.18
27	4.179
29	4.178
31	4.176
33	4.176
35	4.175
37	4.174

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.24 *day#* , t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 5 at day 20 after the heater was turned on in cross section M8-M6.

PROFILE AND FILE NAME : M8-M6 SURVE.6

DATE FOR FIELD WORK : 13 DEC.,1978 DAYS AFTER HEATER TURN ON : 111 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
5	7.07000E-04	1.23520E-03	5971.75	3419.4	.256101	7.70316E+10	5.26389E+10	3.06630E+10
6	7.13800E-04	1.20230E-03	5912.94	3513.01	.227224	7.94382E+10	4.85369E+10	3.23650E+10
7	7.12200E-04	1.21560E-03	5926.35	3474.22	.23819	7.83874E+10	4.99009E+10	3.16540E+10
8	7.10700E-04	1.21180E-03	5938.96	3485.21	.237363	7.88318E+10	5.00259E+10	3.18548E+10
9	7.09800E-04	1.20860E-03	5946.56	3494.53	.236246	7.91822E+10	5.00354E+10	3.20253E+10
10	7.12300E-04	1.21070E-03	5924.09	3487.58	.234795	7.87749E+10	4.95056E+10	3.18980E+10
11	7.10000E-04	1.19890E-03	5942.03	3521.39	.229343	7.99551E+10	4.92352E+10	3.25194E+10
12	7.13300E-04	1.22720E-03	5912.88	3438.6	.244491	7.71795E+10	5.03437E+10	3.10085E+10
13	7.14500E-04	1.19470E-03	5902.87	3533.04	.220895	7.99320E+10	4.77312E+10	3.27350E+10
14	7.09400E-04	1.19120E-03	5947.1	3544.37	.224571	8.06877E+10	4.88255E+10	3.29453E+10
15	7.07300E-04	1.18740E-03	5964.91	3555.82	.22437	8.11966E+10	4.90977E+10	3.31585E+10
16	7.07300E-04	1.19180E-03	5963.49	3541.72	.227539	8.07623E+10	4.94030E+10	3.28960E+10
17	7.03400E-04	1.18900E-03	5996.84	3550.14	.230218	8.13239E+10	5.02405E+10	3.30527E+10
18	7.04600E-04	1.20590E-03	5986.54	3499.92	.24036	7.96909E+10	5.11548E+10	3.21241E+10
19	7.06600E-04	1.20780E-03	5969.45	3494.36	.239355	7.93736E+10	5.07547E+10	3.20221E+10
20	7.06900E-04	1.19440E-03	5966.89	3533.94	.229858	8.05597E+10	4.97020E+10	3.27516E+10
21	7.08600E-04	1.18940E-03	5952.45	3548.93	.224239	8.08738E+10	4.88792E+10	3.30302E+10
22	7.06100E-04	1.20010E-03	5973.71	3516.99	.234748	8.01063E+10	5.03334E+10	3.24383E+10
23	7.07400E-04	1.21260E-03	5961.21	3479.56	.241612	7.88462E+10	5.08578E+10	3.17515E+10
24	7.13700E-04	1.20150E-03	5908.13	3512.01	.226776	7.93640E+10	4.84121E+10	3.23466E+10
25	7.10400E-04	1.20870E-03	5935.81	3490.9	.235625	7.89780E+10	4.97892E+10	3.19587E+10
26	7.05600E-04	1.20640E-03	5976.55	3497.62	.23956	7.95348E+10	5.08977E+10	3.20819E+10
27	7.04400E-04	1.19770E-03	5985.39	3522.42	.235081	8.03754E+10	5.05661E+10	3.25385E+10
28	7.06000E-04	1.20310E-03	5971.71	3506.46	.236898	7.97659E+10	5.05292E+10	3.22443E+10
29	7.05400E-04	1.20460E-03	5975.4	3501.22	.23859	7.96362E+10	5.07735E+10	3.21479E+10
30	7.06000E-04	1.23340E-03	5968.85	3417.89	.256069	7.69617E+10	5.25843E+10	3.06359E+10
31	7.05100E-04	1.22550E-03	5975.1	3439.3	.252256	7.76925E+10	5.22668E+10	3.10210E+10
32	7.04500E-04	1.22000E-03	5980.24	3454.95	.249509	7.82291E+10	5.20505E+10	3.13040E+10
33	7.04700E-04	1.21370E-03	5978.53	3473.05	.245317	7.87859E+10	5.15582E+10	3.16329E+10
34	7.07200E-04	1.23000E-03	5955.78	3425.78	.252774	7.71148E+10	5.19867E+10	3.07776E+10
35	7.09000E-04	1.21810E-03	5940.52	3459.56	.243398	7.80545E+10	5.06975E+10	3.13876E+10
36	7.06500E-04	1.22480E-03	5960.3	3439.64	.250336	7.75886E+10	5.17954E+10	3.10271E+10

Table C:3.25 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 6 at day 111 after the heater was turned on in cross section M8-M6.

LINE #	DISTANCE (M)
5	4.185
6	4.184
7	4.184
8	4.184
9	4.184
10	4.183
11	4.182
12	4.181
13	4.181
14	4.182
15	4.182
16	4.181
17	4.181
18	4.181
19	4.181
20	4.181
21	4.181
22	4.181
23	4.18
24	4.18
25	4.18
26	4.18
27	4.179
28	4.179
29	4.178
30	4.177
31	4.176
32	4.176
33	4.176
34	4.175
35	4.175
36	4.174

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

PROFILE AND FILE NAME : M8-M6 SURVE.7

DATE FOR FIELD WORK : 20 DEC,1978 DAYS AFTER HEATER TURN ON : 118 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.14000E-04	1.18790E-03	5914.1	3557.71	.21645	8.07570E+10	4.74678E+10	3.31937E+10
5	7.05500E-04	1.24010E-03	5984.56	3405.76	.260502	7.66863E+10	5.33660E+10	3.04189E+10
7	7.08200E-04	1.21850E-03	5960.11	3465.87	.244536	7.84112E+10	5.11561E+10	3.15022E+10
9	7.06100E-04	1.20470E-03	5978	3505.95	.237859	7.98046E+10	5.07389E+10	3.22349E+10
11	7.08400E-04	1.20820E-03	5955.57	3494.03	.237577	7.92447E+10	5.03288E+10	3.20161E+10
13	7.06500E-04	1.20160E-03	5970.3	3512.56	.235307	7.99407E+10	5.03355E+10	3.23566E+10
15	7.01900E-04	1.19650E-03	6011.21	3528.52	.237157	8.07896E+10	5.12281E+10	3.26513E+10
17	7.01200E-04	1.19100E-03	6015.83	3544.12	.234212	8.13116E+10	5.09878E+10	3.29407E+10
19	7.02300E-04	1.22020E-03	6006.32	3458.52	.251989	7.85463E+10	5.27842E+10	3.13686E+10
21	7.02700E-04	1.20110E-03	6002.87	3514.04	.23933	8.02685E+10	5.13220E+10	3.23838E+10
23	7.06800E-04	1.20790E-03	5966.31	3493.23	.239195	7.93121E+10	5.06842E+10	3.20015E+10
25	7.06600E-04	1.21040E-03	5968.02	3485.95	.241069	7.91012E+10	5.09153E+10	3.18682E+10
27	7.03400E-04	1.20120E-03	5993.98	3512.06	.238599	8.01309E+10	5.10907E+10	3.23474E+10
29	7.04400E-04	1.21090E-03	5983.96	3482.83	.24385	7.91366E+10	5.14910E+10	3.18112E+10
31	7.04600E-04	1.19610E-03	5979.38	3524.65	.233751	8.03903E+10	5.03227E+10	3.25796E+10
33	7.04700E-04	1.22700E-03	5978.53	3435.06	.253591	7.75835E+10	5.24761E+10	3.09445E+10
35	7.09800E-04	1.23100E-03	5933.77	3422.97	.250632	7.68567E+10	5.13677E+10	3.07272E+10
37	7.04800E-04	1.21450E-03	5974.81	3469.08	.245718	7.86311E+10	5.15381E+10	3.15606E+10
39	7.04500E-04	1.23190E-03	5975.94	3418.81	.256734	7.70440E+10	5.27844E+10	3.06525E+10

LINE #	DISTANCE (M)
3	4.186
5	4.185
7	4.184
9	4.184
11	4.182
13	4.181
15	4.182
17	4.181
19	4.181
21	4.181
23	4.18
25	4.18
27	4.179
29	4.178
31	4.176
33	4.176
35	4.175
37	4.174
39	4.173

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.26 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 7 at day 118 after the heater was turned on in cross section M8-M6.

PROFILE AND FILE NAME : M8-M6 SURVE.REV

DATE FOR FIELD WORK : 21 DEC.,1978 DAYS AFTER HEATER TURN ON : 119 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
11	7.10400E-04	1.22120E-03	5938.65	3456.48	.243844	7.79436E+10	5.07136E+10	3.13318E+10
13	7.09600E-04	1.22850E-03	5943.99	3434.93	.249306	7.73127E+10	5.13991E+10	3.09422E+10
15	7.04300E-04	1.20740E-03	5990.55	3496.36	.241685	7.96141E+10	5.13675E+10	3.20589E+10
17	7.02300E-04	1.21650E-03	6006.32	3469.13	.249701	7.88848E+10	5.25270E+10	3.15615E+10
19	7.02800E-04	1.19760E-03	6002.01	3524.4	.236865	8.05821E+10	5.10397E+10	3.25752E+10
21	7.03300E-04	1.21390E-03	5997.7	3476.63	.24698	7.90538E+10	5.20736E+10	3.16981E+10
23	7.06500E-04	1.21870E-03	5968.87	3461.98	.246525	7.83604E+10	5.15242E+10	3.14315E+10

LINE #	DISTANCE (M)
11	4.182
13	4.181
15	4.182
17	4.181
19	4.181
21	4.181
23	4.18

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.27 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for reverse survey at day 119 after the heater was turned on in cross section M8-M6.

PROFILE AND FILE NAME : M8-M6 SURVE.8

DATE FOR FIELD WORK : 31 JULY,1979 DAYS AFTER HEATER TURN ON : 341 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.09100E-04	1.21630E-03	5955.33	3473.86	.242124	7.86203E+10	5.08127E+10	3.16475E+10
4	7.05200E-04	1.20080E-03	5987.12	3518.28	.236265	8.02636E+10	5.07223E+10	3.24622E+10
5	7.04500E-04	1.22410E-03	5993.13	3450.69	.252038	7.81944E+10	5.25580E+10	3.12268E+10
6	7.06500E-04	1.23530E-03	5974.58	3418.3	.256677	7.70176E+10	5.27540E+10	3.06433E+10
7	7.07200E-04	1.22290E-03	5968.62	3453.28	.248406	7.80847E+10	5.17266E+10	3.12738E+10
8	7.04200E-04	1.20660E-03	5994.27	3500.38	.241272	7.97704E+10	5.13864E+10	3.21325E+10
9	7.06700E-04	1.20570E-03	5972.88	3503.01	.237843	7.96700E+10	5.06504E+10	3.21810E+10
10	7.07800E-04	1.20570E-03	5962.09	3502.18	.236585	7.95510E+10	5.03332E+10	3.21656E+10
11	7.08200E-04	1.20470E-03	5957.27	3504.27	.23545	7.95732E+10	5.01311E+10	3.22041E+10
12	7.06700E-04	1.19300E-03	5968.59	3538.12	.229109	8.07015E+10	4.96519E+10	3.28293E+10
13	7.07700E-04	1.19240E-03	5960.08	3539.92	.227486	8.06769E+10	4.93412E+10	3.28626E+10
14	7.04300E-04	1.19100E-03	5990.55	3544.97	.230555	8.11095E+10	5.01708E+10	3.29564E+10
15	7.03400E-04	1.18910E-03	5998.28	3550.69	.230288	8.13537E+10	5.02720E+10	3.30629E+10
16	7.03000E-04	1.18520E-03	6000.29	3561.63	.227998	8.17036E+10	5.00630E+10	3.32670E+10
17	7.00400E-04	1.19270E-03	6022.76	3539.02	.236311	8.12156E+10	5.13330E+10	3.28459E+10
18	7.00000E-04	1.18370E-03	6026.23	3566.19	.230532	8.20818E+10	5.07678E+10	3.33522E+10
19	7.02000E-04	1.18470E-03	6008.91	3563.15	.228844	8.18296E+10	5.02968E+10	3.32953E+10
20	7.01900E-04	1.20640E-03	6009.77	3498.45	.243717	7.98397E+10	5.19216E+10	3.20972E+10
21	7.03100E-04	1.19240E-03	5999.43	3539.92	.232951	8.10360E+10	5.05751E+10	3.28626E+10
22	7.05100E-04	1.19830E-03	5982.26	3522.32	.234678	8.03449E+10	5.04701E+10	3.25368E+10
23	7.06200E-04	1.20100E-03	5971.43	3513.49	.235246	7.99791E+10	5.03480E+10	3.23737E+10
24	7.07700E-04	1.20090E-03	5958.66	3513.79	.233436	7.98753E+10	4.99412E+10	3.23792E+10
25	7.05900E-04	1.19510E-03	5973.99	3531	.231532	8.05354E+10	4.99968E+10	3.26973E+10
26	7.05100E-04	1.22810E-03	5980.83	3435.24	.253835	7.76068E+10	5.25439E+10	3.09478E+10
27	7.02500E-04	1.19490E-03	6001.72	3530.75	.235375	8.07754E+10	5.08740E+10	3.26927E+10
28	7.02300E-04	1.19650E-03	6003.45	3525.99	.236696	8.06436E+10	5.10459E+10	3.26045E+10
29	7.03300E-04	1.21530E-03	5993.4	3470.1	.247865	7.88128E+10	5.20970E+10	3.15791E+10
30	7.04700E-04	1.18690E-03	5979.96	3553.08	.227165	8.12565E+10	4.96371E+10	3.31074E+10
31	7.03900E-04	1.21590E-03	5985.38	3466.71	.24759	7.86417E+10	5.19272E+10	3.15174E+10
32	7.02000E-04	1.21730E-03	6001.72	3462.69	.250521	7.86435E+10	5.25385E+10	3.14443E+10
33	7.03500E-04	1.20500E-03	5988.81	3498.37	.241008	7.96619E+10	5.12641E+10	3.20956E+10
34	7.05400E-04	1.20050E-03	5971.11	3510.76	.235831	7.98928E+10	5.04050E+10	3.23235E+10
35	7.07900E-04	1.19670E-03	5949.84	3522.02	.230287	8.00452E+10	4.94632E+10	3.25311E+10
36	7.05700E-04	1.20740E-03	5967.12	3489.67	.240109	7.92091E+10	5.07963E+10	3.19364E+10
37	7.04500E-04	1.18630E-03	5977.37	3552.34	.226976	8.12102E+10	4.95744E+10	3.30936E+10
38	7.02900E-04	1.18770E-03	5989.67	3547.26	.229896	8.11709E+10	5.00862E+10	3.29991E+10

Table C:3.28 *day#* , t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 8 at day 341 after the heater was turned on in cross section M8-M6.

LINE #	DISTANCE (M)
3	4.186
4	4.185
5	4.185
6	4.184
7	4.184
8	4.184
9	4.184
10	4.183
11	4.182
12	4.181
13	4.181
14	4.182
15	4.182
16	4.181
17	4.181
18	4.181
19	4.181
20	4.181
21	4.181
22	4.181
23	4.18
24	4.18
25	4.18
26	4.18
27	4.179
28	4.179
29	4.178
30	4.177
31	4.176
32	4.176
33	4.176
34	4.175
35	4.175
36	4.174
37	4.174
38	4.173

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

PROFILE AND FILE NAME : M8-M6 SURVE.9

DATE FOR FIELD WORK : 18 OCT,1979 DAYS AFTER HEATER TURN ON : 420 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.09100E-04	1.20320E-03	5955.33	3512.04	.233385	7.97927E+10	4.98800E+10	3.23470E+10
4	7.08600E-04	1.22710E-03	5958.14	3442.18	.249511	7.76519E+10	5.16668E+10	3.10729E+10
5	7.08600E-04	1.23090E-03	5958.14	3431.45	.251843	7.73128E+10	5.19246E+10	3.08796E+10
6	7.10700E-04	1.23530E-03	5938.96	3418.3	.252299	7.67493E+10	5.16412E+10	3.06433E+10
7	7.13500E-04	1.25560E-03	5915.45	3362.53	.261322	7.48005E+10	5.22325E+10	2.96516E+10
8	7.13900E-04	1.25910E-03	5912.11	3353.1	.262897	7.44744E+10	5.23503E+10	2.94855E+10
9	7.15000E-04	1.25450E-03	5902.93	3365.51	.259192	7.48064E+10	5.17745E+10	2.97041E+10
10	7.20900E-04	1.25300E-03	5852.81	3368.77	.252287	7.45404E+10	5.01523E+10	2.97617E+10
11	7.23200E-04	1.25140E-03	5832.64	3372.31	.248921	7.44964E+10	4.94508E+10	2.98243E+10
12	7.27600E-04	1.25090E-03	5795.67	3372.86	.243937	7.42234E+10	4.83106E+10	2.98341E+10
13	7.27700E-04	1.22570E-03	5794.87	3442.85	.227227	7.62970E+10	4.66181E+10	3.10851E+10
14	7.24200E-04	1.24120E-03	5824.51	3400.28	.241496	7.52869E+10	4.85401E+10	3.03210E+10
15	7.21700E-04	1.23750E-03	5844.86	3410.54	.241868	7.57646E+10	4.89186E+10	3.05043E+10
16	7.17800E-04	1.23870E-03	5875.49	3406.39	.246847	7.58834E+10	4.99589E+10	3.04301E+10
17	7.10500E-04	1.19680E-03	5936.39	3526.78	.227263	8.00645E+10	4.89266E+10	3.26191E+10
18	7.13300E-04	1.23450E-03	5912.88	3418.08	.249058	7.65409E+10	5.08357E+10	3.06394E+10
19	7.14000E-04	1.23480E-03	5907.04	3417.25	.248496	7.64690E+10	5.06745E+10	3.06244E+10
20	7.13800E-04	1.23150E-03	5908.71	3426.49	.246659	7.67700E+10	5.05051E+10	3.07903E+10
21	7.12400E-04	1.23230E-03	5920.42	3424.24	.248661	7.67925E+10	5.09223E+10	3.07499E+10
22	7.13300E-04	1.23450E-03	5912.88	3418.08	.249058	7.65409E+10	5.08357E+10	3.06394E+10
23	7.14500E-04	1.22100E-03	5901.45	3455.4	.239162	7.76016E+10	4.95847E+10	3.13121E+10
24	7.14800E-04	1.22960E-03	5898.96	3431.01	.244378	7.68319E+10	5.00947E+10	3.08716E+10
25	7.11500E-04	1.21420E-03	5926.56	3474.94	.238053	7.84112E+10	4.98900E+10	3.16671E+10
26	7.08800E-04	1.21270E-03	5949.33	3479.27	.240108	7.87376E+10	5.04938E+10	3.17463E+10
27	7.06600E-04	1.20200E-03	5966.59	3509.7	.235463	7.98206E+10	5.02896E+10	3.23039E+10
28	7.05500E-04	1.20630E-03	5975.98	3497.07	.239607	7.95130E+10	5.08930E+10	3.20719E+10
29	7.07300E-04	1.21050E-03	5959.21	3483.99	.240348	7.89665E+10	5.06874E+10	3.18324E+10
30	7.07300E-04	1.21130E-03	5957.78	3480.83	.240874	7.88568E+10	5.07197E+10	3.17747E+10
31	7.06100E-04	1.21210E-03	5966.57	3477.68	.242737	7.88323E+10	5.10712E+10	3.17172E+10
32	7.03500E-04	1.23380E-03	5988.81	3415.95	.258882	7.70467E+10	5.32567E+10	3.06012E+10
33	7.04900E-04	1.21570E-03	5976.81	3467.29	.246372	7.85910E+10	5.16446E+10	3.15279E+10
34	7.07200E-04	1.22120E-03	5955.78	3450.7	.247341	7.79013E+10	5.13875E+10	3.12269E+10
35	7.09100E-04	1.22540E-03	5939.68	3438.76	.247917	7.73989E+10	5.11729E+10	3.10113E+10
36	7.07200E-04	1.22440E-03	5954.35	3440.77	.249339	7.75778E+10	5.15822E+10	3.10475E+10
37	7.05100E-04	1.22440E-03	5972.24	3440.77	.251584	7.77172E+10	5.21418E+10	3.10475E+10

Table C:3.29 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 9 at day 420 after the heater was turned on and 22 days after the heater was turned off in cross section M8-M6.

LINE #	DISTANCE (M)
3	4.186
4	4.185
5	4.185
6	4.184
7	4.184
8	4.184
9	4.184
10	4.183
11	4.182
12	4.181
13	4.181
14	4.182
15	4.182
16	4.181
17	4.181
18	4.181
19	4.181
20	4.181
21	4.181
22	4.181
23	4.18
24	4.18
25	4.18
26	4.18
27	4.179
28	4.179
29	4.178
30	4.177
31	4.176
32	4.176
33	4.176
34	4.175
35	4.175
36	4.174
37	4.174

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-06 SEC.

PROFILE AND FILE NAME : M8-M6 SURVE.10

DATE FOR FIELD WORK : 28 JULY,1980 DAYS AFTER HEATER TURN ON : 704 PROCESS DATE : 20 JAN.,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	7.13100E-04	1.28480E-03	5920.21	3286.22	.277333	7.23507E+10	5.41545E+10	2.83210E+10
2	7.09600E-04	1.24650E-03	5949.67	3388.12	.26004	7.58658E+10	5.26935E+10	3.01045E+10
3	7.08000E-04	1.22420E-03	5964.66	3451.23	.248354	7.79887E+10	5.16524E+10	3.12366E+10
4	7.07700E-04	1.25030E-03	5965.79	3377.72	.264097	7.56440E+10	5.34428E+10	2.99202E+10
5	7.07500E-04	1.24010E-03	5967.49	3405.76	.258468	7.65625E+10	5.28311E+10	3.04189E+10
6	7.12300E-04	1.30850E-03	5925.51	3225.41	.289479	7.03606E+10	5.57035E+10	2.72826E+10
7	7.15700E-04	1.34100E-03	5897.11	3146.57	.300986	6.75607E+10	5.65796E+10	2.59652E+10
8	7.17800E-04	1.29160E-03	5879.71	3267.98	.276493	7.15029E+10	5.33189E+10	2.80076E+10
9	7.19700E-04	1.34030E-03	5864.05	3148.23	.297527	6.74520E+10	5.55234E+10	2.59925E+10
10	7.26100E-04	1.29600E-03	5810.53	3256.01	.271128	7.06817E+10	5.14712E+10	2.78027E+10
11	7.30700E-04	1.36050E-03	5772.26	3099.61	.297405	6.53787E+10	5.37843E+10	2.51960E+10
12	7.36100E-04	1.32390E-03	5728.18	3185.28	.276185	6.79132E+10	5.05724E+10	2.66079E+10
13	7.37800E-04	1.30940E-03	5714.87	3220.86	.267252	6.89529E+10	4.93760E+10	2.72057E+10
14	7.27900E-04	1.26800E-03	5794.65	3327.76	.253955	7.28336E+10	4.93362E+10	2.90416E+10
15	7.25200E-04	1.20340E-03	5816.41	3508.1	.214115	7.83697E+10	4.56883E+10	3.22744E+10
16	7.20100E-04	1.24750E-03	5856.56	3382.14	.249811	7.49847E+10	4.99521E+10	2.99984E+10
17	7.13100E-04	1.22880E-03	5914.56	3434.09	.245721	7.70529E+10	5.05042E+10	3.09270E+10
18	7.14200E-04	1.26920E-03	5905.37	3323.79	.268158	7.34830E+10	5.28256E+10	2.89723E+10
19	7.16000E-04	1.23630E-03	5890.39	3413.06	.247286	7.62078E+10	5.02595E+10	3.05495E+10
20	7.16600E-04	1.25150E-03	5885.42	3371.23	.255828	7.48605E+10	5.10982E+10	2.98052E+10
21	7.14900E-04	1.19770E-03	5899.53	3524.11	.222599	7.96393E+10	4.78485E+10	3.25697E+10
22	7.13800E-04	1.19960E-03	5908.71	3518.47	.225302	7.95603E+10	4.82713E+10	3.24656E+10
23	7.14400E-04	1.23170E-03	5902.29	3425.11	.246137	7.66760E+10	5.03394E+10	3.07655E+10
24	7.13800E-04	1.20530E-03	5907.29	3500.84	.229334	7.90241E+10	4.86603E+10	3.21410E+10
25	7.10400E-04	1.22470E-03	5935.81	3444.87	.246069	7.75590E+10	5.09056E+10	3.11215E+10
26	7.06900E-04	1.22140E-03	5965.46	3454.26	.247791	7.80904E+10	5.16043E+10	3.12914E+10
27	7.05300E-04	1.21030E-03	5977.69	3485.4	.242459	7.91651E+10	5.12314E+10	3.18582E+10
28	7.05000E-04	1.21330E-03	5980.25	3476.71	.244731	7.89145E+10	5.15237E+10	3.16994E+10
29	7.05000E-04	1.21350E-03	5978.82	3475.3	.244859	7.88586E+10	5.15131E+10	3.16737E+10
30	7.06100E-04	1.22020E-03	5968	3455.21	.247905	7.81403E+10	5.16607E+10	3.13086E+10
31	7.05000E-04	1.21860E-03	5975.96	3458.96	.248094	7.83219E+10	5.18195E+10	3.13766E+10
32	7.02800E-04	1.21600E-03	5994.83	3466.42	.248848	7.87079E+10	5.22312E+10	3.15122E+10
33	7.04200E-04	1.22090E-03	5982.81	3452.38	.250389	7.81679E+10	5.21932E+10	3.12574E+10
34	7.07100E-04	1.22180E-03	5956.63	3448.99	.247826	7.78543E+10	5.14553E+10	3.11960E+10
35	7.08700E-04	1.22690E-03	5943.06	3434.52	.24928	7.72924E+10	5.13803E+10	3.09348E+10
36	7.06400E-04	1.22400E-03	5961.15	3441.91	.249949	7.76669E+10	5.17674E+10	3.10680E+10
37	7.04400E-04	1.22400E-03	5978.23	3441.91	.252083	7.77995E+10	5.23021E+10	3.10680E+10
38	7.02400E-04	1.20920E-03	5993.97	3483.6	.24497	7.92428E+10	5.17866E+10	3.18252E+10
39	7.01900E-04	1.20500E-03	5998.27	3495.85	.242806	7.96627E+10	5.16230E+10	3.20495E+10

Table C:3.30 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 10 at day 704 after the heater was turned on and 306 days after the heater was turned off in cross section M8-M6.

LINE #	DISTANCE (M)
1	4.185
2	4.185
3	4.186
4	4.185
5	4.185
6	4.184
7	4.184
8	4.184
9	4.184
10	4.183
11	4.182
12	4.181
13	4.181
14	4.182
15	4.182
16	4.181
17	4.181
18	4.181
19	4.181
20	4.181
21	4.181
22	4.181
23	4.18
24	4.18
25	4.18
26	4.18
27	4.179
28	4.179
29	4.178
30	4.177
31	4.176
32	4.176
33	4.176
34	4.175
35	4.175
36	4.174
37	4.174
38	4.173
39	4.173

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 0 SEC.

INSTRUMENT DELAY FOR S-WAVE : 0 SEC.

PROFILE AND FILE NAME : M7-M9 SURVF.1

DATE FOR FIELD WORK : 12 JULY,1978 DAYS AFTER HEATER TURN ON : -43 PROCESS DATE : 20 JAN.,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	7.22400E-04	1.39450E-03	5874.06	3041.5	.316845	6.38933E+10	5.81415E+10	2.42600E-10
3	7.23100E-04	1.31840E-03	5868.32	3218.58	.284882	6.98129E+1[illegible]	5.40888E+10	2.71671E+10
5	7.23900E-04	1.23760E-03	5860.39	3429.83	.239515	7.64790[illegible]	4.89337E+10	3.08504E+10
7	7.32500E-04	1.22890E-03	5791	3454.34	.223827	7.65546[illegible]	4.62234E+10	3.12928E+10
9	7.31300E-04	1.27790E-03	5799.2	3319.91	.256251	7.26231[illegible]	4.96570E+10	2.89047E+10
11	7.34600E-04	1.27310E-03	5772.93	3332.54	.250104	7.28186[illegible]	4.85659E+10	2.91250E+10
13	7.32500E-04	1.36420E-03	5786.87	3106.66	.297551	6.56836[illegible]	5.40743E+10	2.53106E+10
15	7.34800E-04	1.25730E-03	5769.97	3374	.240198	7.40501[illegible]	4.75042E+10	2.98542E+10
17	7.37300E-04	1.32180E-03	5748.87	3207.17	.27407	6.87359[illegible]	5.07058E+10	2.69749E+10
19	7.43500E-04	1.29270E-03	5699.17	3279.23	.252538	7.06446[illegible]	4.75795E+10	2.82006E+10
21	7.40800E-04	1.26400E-03	5718.76	3353.56	.237944	7.30226[illegible]	4.64421E+10	2.94935E+10
23	7.28000E-04	1.31170E-03	5820.17	3230.54	.277361	6.99215E+10	5.23429E+10	2.73695E+10
25	7.19700E-04	1.28330E-03	5883.67	3300.31	.270457	7.25798E+10	5.26987E+10	2.85645E+10
27	7.18500E-04	1.23920E-03	5890.78	3417.22	.246407	7.63397E+10	5.01721E+10	3.06239E+10
29	7.16200E-04	1.23260E-03	5909.86	3435.68	.244753	7.70646E+10	5.03202E+10	3.09558E+10
31	7.16000E-04	1.20930E-03	5910.12	3501.67	.229535	7.90745E+10	4.87275E+10	3.21563E+10
33	7.19300E-04	1.24470E-03	5879.96	3399.55	.248949	7.57063E+10	5.02595E+10	3.03080E+10
35	7.23200E-04	1.25610E-03	5847.98	3368.41	.251753	7.44929E+10	5.00125E+10	2.97554E+10
37	7.17900E-04	1.26020E-03	5890.12	3356.55	.259542	7.44295E+10	5.15888E+10	2.95463E+10
39	7.16800E-04	1.23140E-03	5896.43	3434.14	.243338	7.69081E+10	4.99412E+10	3.09281E+10

LINE #	DISTANCE (M)
1	4.207
3	4.207
5	4.206
7	4.206
9	4.205
11	4.205
13	4.203
15	4.204
17	4.203
19	4.202
21	4.201
23	4.201
25	4.198
27	4.196
29	4.196
31	4.195
33	4.193
35	4.193
37	4.192
39	4.19

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.31 *day#* , t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 1 at day -43 before the heater was turned on in cross section M7-M9.

PROFILE AND FILE NAME : M7-M9 SURVF.2

DATE FOR FIELD WORK : 23-24 AUG,1978 DAYS AFTER HEATER TURN ON : 00 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
2	7.23800E-04	1.35310E-03	5861.2	3134.6	.299705	6.69812E+10	5.57355E+10	2.57679E+10
3	7.19100E-04	1.35470E-03	5901.25	3131.61	.304	6.70745E+10	5.70362E+10	2.57187E+10
4	7.22500E-04	1.20410E-03	5871.84	3526.16	.217988	7.94313E+10	4.69431E+10	3.26076E+10
5	7.23400E-04	1.20790E-03	5864.47	3514.96	.219679	7.90372E+10	4.69921E+10	3.24008E+10
6	7.29600E-04	1.35940E-03	5814.21	3119.95	.297805	6.62597E+10	5.46169E+10	2.55276E+10
7	7.29600E-04	1.34650E-03	5814.21	3150.09	.292248	6.72569E+10	5.39560E+10	2.60232E+10
8	7.29200E-04	1.39190E-03	5816.04	3045.78	.311061	6.37918E+10	5.62719E+10	2.43283E+10
9	7.28600E-04	1.23230E-03	5820.87	3443.9	.230716	7.65603E+10	4.73851E+10	3.11040E+10
10	7.32100E-04	1.27720E-03	5791.43	3320.96	.255046	7.25992E+10	4.93965E+10	2.89229E+10
11	7.29200E-04	1.41620E-03	5816.04	2993.1	.319875	6.20182E+10	5.73843E+10	2.34940E+10
12	7.28300E-04	1.30430E-03	5821.91	3251.35	.273375	7.06041E+10	5.19243E+10	2.77232E+10
13	7.31500E-04	1.43740E-03	5794.84	2947.2	.325542	6.03890E+10	5.76921E+10	2.27790E+10
14	7.35200E-04	1.28100E-03	5765.43	3310.23	.254121	7.20778E+10	4.88573E+10	2.87364E+10
15	7.31100E-04	1.35650E-03	5799.42	3125.19	.295387	6.63585E+10	5.40521E+10	2.56134E+10
16	7.33800E-04	1.41270E-03	5776.53	2999.14	.315478	6.20617E+10	5.60562E+10	2.35890E+10
17	7.39500E-04	1.32070E-03	5731.62	3209.87	.271529	6.87141E+10	5.01261E+10	2.70203E+10
18	7.40000E-04	1.31320E-03	5726.36	3227.59	.267198	6.92384E+10	4.95688E+10	2.73195E+10
19	7.33000E-04	1.27650E-03	5781.51	3321.21	.253733	7.25345E+10	4.90894E+10	2.89274E+10
20	7.36300E-04	1.30240E-03	5755.38	3254.59	.264949	7.02766E+10	4.98307E+10	2.77784E+10
21	7.32700E-04	1.29560E-03	5782.52	3271.04	.264715	7.09759E+10	5.02766E+10	2.80600E+10
22	7.29000E-04	1.29580E-03	5812.12	3270.53	.268319	7.11560E+10	5.11883E+10	2.80513E+10
23	7.25700E-04	1.31080E-03	5838.78	3232.78	.278962	7.01061E+10	5.28613E+10	2.74074E+10
24	7.18500E-04	1.24040E-03	5894.99	3416.32	.247153	7.63453E+10	5.03237E+10	3.06079E+10
25	7.17300E-04	1.24030E-03	5903.53	3415.79	.248371	7.63959E+10	5.06008E+10	3.05983E+10
26	7.18500E-04	1.24710E-03	5892.18	3396.18	.251247	7.56955E+10	5.07167E+10	3.02480E+10
27	7.16500E-04	1.25100E-03	5907.36	3384.69	.255637	7.54479E+10	5.14590E+10	3.00437E+10
28	7.13500E-04	1.23050E-03	5932.42	3441.6	.246357	7.74300E+10	5.08785E+10	3.10625E+10
29	7.14200E-04	1.23290E-03	5926.55	3434.84	.247103	7.71722E+10	5.08587E+10	3.09406E+10
30	7.14000E-04	1.23410E-03	5926.82	3430.65	.248063	7.70433E+10	5.09674E+10	3.08652E+10
31	7.13700E-04	1.23600E-03	5929.33	3425.33	.249555	7.68963E+10	5.11731E+10	3.07695E+10
32	7.15000E-04	1.22100E-03	5917.04	3466.98	.238601	7.80869E+10	4.97877E+10	3.15222E+10
33	7.16900E-04	1.24050E-03	5899.82	3411.16	.248919	7.62227E+10	5.05963E+10	3.05155E+10
34	7.17900E-04	1.24220E-03	5891.53	3406.45	.248901	7.60111E+10	5.04522E+10	3.04318E+10
35	7.20800E-04	1.32630E-03	5867.62	3188.59	.290471	6.88164E+10	5.47389E+10	2.66833E+10
36	7.17900E-04	1.29410E-03	5890.12	3267.85	.27766	7.15625E+10	5.36434E+10	2.80053E+10

Table C:3.32 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 2 at day 00 which is the day the heater was turned on in cross section M7-M9.

LINE #	DISTANCE (M)
2	4.206
3	4.207
4	4.206
5	4.206
6	4.206
7	4.206
8	4.205
9	4.205
10	4.204
11	4.205
12	4.204
13	4.203
14	4.203
15	4.204
16	4.203
17	4.203
18	4.202
19	4.202
20	4.202
21	4.201
22	4.201
23	4.201
24	4.199
25	4.198
26	4.197
27	4.196
28	4.196
29	4.196
30	4.195
31	4.195
32	4.194
33	4.193
34	4.193
35	4.193
36	4.192

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

PROFILE AND FILE NAME : M7-M9 SURVF.3

DATE FOR FIELD WORK : 39 AUG.,1978 DAYS AFTER HEATER TURN ON : 6 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.21000E-04	1.24970E-03	5885.56	3397.13	.2502	7.56742E+10	5.04898E+10	3.02649E+10
5	7.21500E-04	1.22740E-03	5880.05	3458.6	.23551	7.75160E+10	4.88462E+10	3.13701E+10
7	7.25400E-04	1.25600E-03	5848.16	3379.13	.249402	7.48267E+10	4.97655E+10	2.99450E+10
9	7.25100E-04	1.24100E-03	5849.21	3419.53	.240383	7.60738E+10	4.88371E+10	3.06654E+10
11	7.23100E-04	1.22430E-03	5865.53	3466.61	.2316	7.76292E+10	4.82049E+10	3.15156E+10
13	7.21500E-04	1.27280E-03	5875.86	3331.75	.263063	7.35385E+10	5.17287E+10	2.91112E+10
15	7.22300E-04	1.35850E-03	5870.69	3120.55	.303095	6.65553E+10	5.63345E+10	2.55374E+10
17	7.27600E-04	1.25640E-03	5826.17	3375.63	.247335	7.45485E+10	4.91747E+10	2.98831E+10
19	7.27500E-04	1.23890E-03	5825.59	3422.94	.236364	7.59784E+10	4.80324E+10	3.07266E+10
21	7.29300E-04	1.25960E-03	5809.71	3365.38	.247497	7.41058E+10	4.89141E+10	2.97018E+10
23	7.25800E-04	1.24760E-03	5837.97	3398.04	.243807	7.53280E+10	4.90047E+10	3.02812E+10
25	7.18500E-04	1.24310E-03	5893.58	3408.02	.248816	7.60761E+10	5.04784E+10	3.04593E+10

LINE #	DISTANCE (M)
3	4.207
5	4.206
7	4.206
9	4.205
11	4.205
13	4.203
15	4.204
17	4.203
19	4.202
21	4.201
23	4.201
25	4.198

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.33 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 3 at day 6 after the heater was turned on in cross section M7-M9.

PROFILE AND FILE NAME : M7-M9 SURVF.4

DATE FOR FIELD WORK : 7 SEP.,1978 DAYS AFTER HEATER TURN ON : 13 PROCESS DATE : 20 JAN,1978

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.21400E-04	1.28180E-03	5882.27	3311.29	.268056	7.29255E+10	5.24016E+10	2.87549E+10
5	7.21600E-04	1.21230E-03	5879.23	3502.08	.225019	7.88026E+10	4.77624E+10	3.21638E+10
7	7.25000E-04	1.23310E-03	5851.42	3442.46	.235344	7.67841E+10	4.83546E+10	3.10781E+10
9	7.22400E-04	1.23970E-03	5871.26	3423.15	.242505	7.63653E+10	4.94283E+10	3.07304E+10
11	7.21800E-04	1.22340E-03	5876.19	3469.19	.232483	7.78003E+10	4.84706E+10	3.15624E+10
13	7.21600E-04	1.24600E-03	5875.03	3404.07	.247307	7.58080E+10	5.00001E+10	3.03886E+10
15	7.20900E-04	1.25970E-03	5882.19	3367.51	.256231	7.47193E+10	5.10862E+10	2.97395E+10
17	7.23500E-04	1.29590E-03	5859.47	3271.84	.273475	7.15021E+10	5.26079E+10	2.80736E+10
19	7.27100E-04	1.26560E-03	5828.83	3350.08	.253364	7.37789E+10	4.98569E+10	2.94323E+10
21	7.27100E-04	1.29180E-03	5827.44	3280.75	.267989	7.15826E+10	5.14218E+10	2.82268E+10
23	7.25800E-04	1.30160E-03	5837.97	3255.83	.27428	7.08491E+10	5.23134E+10	2.77997E+10
25	7.17700E-04	1.25900E-03	5900.21	3364.59	.259057	7.47576E+10	5.17118E+10	2.96879E+10
27	7.17800E-04	1.24700E-03	5896.57	3395.65	.251918	7.57123E+10	5.08651E+10	3.02385E+10
29	7.14500E-04	1.25060E-03	5924.04	3385.78	.257445	7.56054E+10	5.19507E+10	3.00631E+10
31	7.15000E-04	1.23990E-03	5918.45	3414.46	.250562	7.64705E+10	5.10953E+10	3.05744E+10
33	7.19400E-04	1.24870E-03	5879.14	3388.56	.25127	7.53574E+10	5.04949E+10	3.01124E+10
35	7.22400E-04	1.25570E-03	5854.51	3369.5	.252343	7.45759E+10	5.01875E+10	2.97745E+10

LINE #	DISTANCE (M)
3	4.207
5	4.206
7	4.206
9	4.205
11	4.205
13	4.203
15	4.204
17	4.203
19	4.202
21	4.201
23	4.201
25	4.198
27	4.196
29	4.196
31	4.195
33	4.193
35	4.193

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.34 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 4 at day 13 after the heater was turned on in cross section M7-M9.

PROFILE AND FILE NAME : M7-M9 SURVF.5

DATE FOR FIELD WORK : 14 SEP,1978 DAYS AFTER HEATER TURN ON : 20 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.18300E-04	1.24700E-03	5907.88	3404.55	.251396	7.60780E+10	5.10035E+10	3.03973E+10
5	7.16800E-04	1.20880E-03	5918.94	3512.32	.228244	7.94726E+10	4.87401E+10	3.23521E+10
7	7.23600E-04	1.21920E-03	5862.84	3482.08	.227507	7.80631E+10	4.77463E+10	3.17974E+10
9	7.22500E-04	1.21660E-03	5870.44	3488.76	.226984	7.83296E+10	4.78175E+10	3.19196E+10
11	7.20300E-04	1.22520E-03	5888.53	3464.04	.235403	7.77536E+10	4.89761E+10	3.14689E+10
13	7.17900E-04	1.22810E-03	5905.58	3454.14	.240004	7.75977E+10	4.97429E+10	3.12893E+10
15	7.18100E-04	1.23410E-03	5905.32	3438.01	.243635	7.70998E+10	5.01237E+10	3.09977E+10
17	7.21600E-04	1.24150E-03	5875.03	3416.52	.244509	7.61922E+10	4.97031E+10	3.06114E+10
19	7.24700E-04	1.23140E-03	5848.3	3443.98	.234553	7.68027E+10	4.82222E+10	3.11055E+10
21	7.25900E-04	1.23720E-03	5837.15	3426.87	.237035	7.61944E+10	4.82919E+10	3.07972E+10
23	7.21300E-04	1.22630E-03	5874.7	3457.61	.235003	7.74402E+10	4.87051E+10	3.13522E+10
25	7.14700E-04	1.22850E-03	5925.19	3448.9	.243788	7.75984E+10	5.04780E+10	3.11944E+10
27	7.14200E-04	1.22460E-03	5926.55	3458.34	.241838	7.79013E+10	5.02923E+10	3.13653E+10
29	7.12700E-04	1.21340E-03	5939.14	3490.56	.236156	7.89966E+10	4.99010E+10	3.19525E+10
31	7.12400E-04	1.22620E-03	5940.24	3452.96	.244839	7.78470E+10	5.08483E+10	3.12679E+10
33	7.17400E-04	1.23470E-03	5895.67	3427.33	.244775	7.66918E+10	5.00812E+10	3.08055E+10
35	7.20000E-04	1.25350E-03	5874.19	3375.46	.253514	7.49103E+10	5.06522E+10	2.98801E+10
37	7.13700E-04	1.23410E-03	5925.09	3428.2	.248384	7.69530E+10	5.09725E+10	3.08210E+10

LINE #	DISTANCE (M)
3	4.207
5	4.206
7	4.206
9	4.205
11	4.205
13	4.203
15	4.204
17	4.203
19	4.202
21	4.201
23	4.201
25	4.198
27	4.196
29	4.196
31	4.195
33	4.193
35	4.193
37	4.192

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.35 *day#* , t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 5 at day 20 after the heater was turned on in cross section M7-M9.

PROFILE AND FILE NAME : M7-M9 SURVF.6

DATE FOR FIELD WORK : 13 DEC,1978 DAYS AFTER HEATER TURN ON : 111 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.21100E-04	1.26180E-03	5884.74	3364.25	.257245	7.46351E+10	5.12416E+10	2.96820E+10
4	7.20100E-04	1.23210E-03	5891.58	3445.28	.240158	7.72097E+10	4.95236E+10	3.11290E+10
5	7.18400E-04	1.18100E-03	5905.64	3595.79	.205431	8.17481E+10	4.62530E+10	3.39082E+10
6	7.25300E-04	1.25550E-03	5848.98	3380.49	.249204	7.48750E+10	4.97583E+10	2.99691E+10
7	7.24100E-04	1.22270E-03	5858.75	3472.02	.229348	7.77291E+10	4.78654E+10	3.16140E+10
8	7.23000E-04	1.21970E-03	5866.35	3479.81	.228557	7.80282E+10	4.79095E+10	3.17560E+10
9	7.21100E-04	1.21730E-03	5881.94	3486.73	.229114	7.83746E+10	4.82212E+10	3.18825E+10
10	7.19600E-04	1.21790E-03	5892.91	3484.17	.231273	7.83968E+10	4.86223E+10	3.18357E+10
11	7.17800E-04	1.21030E-03	5909.22	3507.09	.228114	7.92278E+10	4.85669E+10	3.22559E+10
12	7.13300E-04	1.20610E-03	5945.41	3518.58	.23048	7.99015E+10	4.94097E+10	3.24676E+10
13	7.16700E-04	1.20530E-03	5915.55	3520.1	.225893	7.96724E+10	4.84436E+10	3.24957E+10
14	7.18500E-04	1.23150E-03	5900.6	3444.52	.241537	7.72613E+10	4.98210E+10	3.11152E+10
15	7.17300E-04	1.21540E-03	5911.97	3491.4	.232225	7.87836E+10	4.90359E+10	3.19680E+10
16	7.14600E-04	1.21010E-03	5933.09	3506.01	.231725	7.94117E+10	4.93347E+10	3.22360E+10
17	7.16500E-04	1.21560E-03	5917.22	3489.99	.233284	7.87876E+10	4.92332E+10	3.19422E+10
18	7.21500E-04	1.23150E-03	5874.46	3443.7	.238213	7.70178E+10	4.90334E+10	3.11004E+10
19	7.19100E-04	1.23340E-03	5894.23	3438.34	.242096	7.70193E+10	4.97726E+10	3.10037E+10
20	7.21800E-04	1.25390E-03	5872	3381.62	.251891	7.50864E+10	5.04391E+10	2.99892E+10
21	7.20500E-04	1.22290E-03	5881.28	3467.32	.233634	7.77890E+10	4.86730E+10	3.15284E+10
22	7.20500E-04	1.21660E-03	5881.28	3485.44	.229331	7.83302E+10	4.82324E+10	3.18589E+10
23	7.19100E-04	1.20410E-03	5892.83	3521.97	.222143	7.95129E+10	4.76940E+10	3.25301E+10
24	7.13500E-04	1.21780E-03	5936.66	3480.31	.238178	7.86621E+10	5.00735E+10	3.17653E+10
25	7.13000E-04	1.24770E-03	5939.45	3395.34	.257284	7.60232E+10	5.22032E+10	3.02331E+10
26	7.15500E-04	1.23820E-03	5917.1	3420.82	.248993	7.66594E+10	5.09013E+10	3.06885E+10
27	7.14600E-04	1.23610E-03	5923.21	3425.87	.248659	7.68652E+10	5.09700E+10	3.07791E+10
28	7.12300E-04	1.21380E-03	5942.5	3489.4	.236879	7.89902E+10	5.00341E+10	3.19313E+10
29	7.13300E-04	1.23150E-03	5934.1	3438.78	.247198	7.73553E+10	5.09986E+10	3.10116E+10
30	7.13200E-04	1.24030E-03	5933.52	3413.34	.252695	7.65510E+10	5.15901E+10	3.05545E+10
31	7.12800E-04	1.23010E-03	5936.88	3441.91	.246862	7.74753E+10	5.10100E+10	3.10681E+10
32	7.14300E-04	1.24090E-03	5922.89	3410.87	.251905	7.63916E+10	5.13188E+10	3.05102E+10
33	7.16200E-04	1.22870E-03	5905.63	3444.23	.24227	7.72938E+10	4.99838E+10	3.11099E+10
34	7.16300E-04	1.23650E-03	5904.8	3422.3	.247088	7.66087E+10	5.04845E+10	3.07150E+10
35	7.19400E-04	1.23600E-03	5879.14	3423.7	.243424	7.64460E+10	4.96579E+10	3.07401E+10
36	7.19200E-04	1.23470E-03	5879.38	3426.52	.242816	7.65346E+10	4.95979E+10	3.07908E+10

Table C:3.36 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 6 at day 111 after the heater was turned on in cross section M7-M9.

LINE #	DISTANCE (M)
3	4.207
4	4.206
5	4.206
6	4.206
7	4.206
8	4.205
9	4.205
10	4.204
11	4.205
12	4.204
13	4.203
14	4.203
15	4.204
16	4.203
17	4.203
18	4.202
19	4.202
20	4.202
21	4.201
22	4.201
23	4.201
24	4.199
25	4.198
26	4.197
27	4.196
28	4.196
29	4.196
30	4.195
31	4.195
32	4.194
33	4.193
34	4.193
35	4.193
36	4.192

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

PROFILE AND FILE NAME : M7-M9 SURVF.7

DATE FOR FIELD WORK : 3 JAN,1979 DAYS AFTER HEATER TURN ON : 132 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.18200E-04	1.24650E-03	5908.71	3405.93	.251199	7.61276E+10	5.09964E+10	3.04219E+10
5	7.14800E-04	1.21080E-03	5935.65	3506.46	.231973	7.94483E+10	4.94032E+10	3.22443E+10
7	7.20700E-04	1.21880E-03	5886.63	3483.23	.230615	7.83126E+10	4.84514E+10	3.18185E+10
9	7.17400E-04	1.21440E-03	5912.54	3495.14	.231424	7.89009E+10	4.89625E+10	3.20364E+10
11	7.16500E-04	1.22220E-03	5920.03	3472.62	.237705	7.82849E+10	4.97435E+10	3.16250E+10
13	7.13700E-04	1.26530E-03	5940.64	3351.67	.266523	7.46246E+10	5.32705E+10	2.94604E+10
15	7.12400E-04	1.24440E-03	5952.99	3409.29	.255965	7.65688E+10	5.22936E+10	3.04821E+10

LINE #	DISTANCE (M)
3	4.207
5	4.206
7	4.206
9	4.205
11	4.205
13	4.203
15	4.204

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Table C:3.37 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 7 at day 132 after the heater was turned on in cross section M7-M9.

PROFILE AND FILE NAME : M7-M9 SURVF.8

DATE FOR FIELD WORK : 4 JAN,1979 DAYS AFTER HEATER TURN ON : 133 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
29	7.09800E-04	1.22850E-03	5963.62	3447.26	.249092	7.78551E+10	5.17156E+10	3.11647E+10
33	7.13500E-04	1.22710E-03	5928.18	3448.76	.244209	7.76183E+10	5.05741E+10	3.11918E+10
37	7.11600E-04	1.25700E-03	5942.73	3365.18	.263992	7.50768E+10	5.30185E+10	2.96983E+10

LINE #	DISTANCE (M)
29	4.196
33	4.193
37	4.192

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

PROFILE AND FILE NAME : M7-M9 SURVF.9

DATE FOR FIELD WORK : 8 AUG.,1979 DAYS AFTER HEATER TURN ON : 349 PROCESS DATE : 20 JAN.,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.19600E-04	1.24130E-03	5897.11	3420.32	.246534	7.64864E+10	5.02937E+10	3.06796E+10
4	7.18000E-04	1.23580E-03	5908.96	3434.87	.244818	7.70322E+10	5.03119E+10	3.09411E+10
5	7.16300E-04	1.25110E-03	5923.11	3392.48	.255901	7.58117E+10	5.17628E+10	3.01822E+10
6	7.21700E-04	1.24590E-03	5878.41	3406.77	.247139	7.59183E+10	5.00396E+10	3.04370E+10
7	7.20400E-04	1.28430E-03	5889.11	3304.01	.270326	7.27348E+10	5.27812E+10	2.86284E+10
8	7.19000E-04	1.20700E-03	5899.27	3516.77	.224351	7.94217E+10	4.80211E+10	3.24342E+10
9	7.18300E-04	1.21570E-03	5905.07	3491.36	.231272	7.87209E+10	4.88231E+10	3.19673E+10
10	7.17900E-04	1.21400E-03	5906.98	3495.47	.230568	7.88609E+10	4.87821E+10	3.20425E+10
11	7.16200E-04	1.20330E-03	5922.54	3527.68	.225066	7.99621E+10	4.84734E+10	3.26358E+10
12	7.12800E-04	1.20160E-03	5949.62	3531.88	.22792	8.03393E+10	4.92130E+10	3.27136E+10
13	7.14300E-04	1.20560E-03	5935.6	3519.22	.228954	7.98313E+10	4.90885E+10	3.24794E+10
14	7.15000E-04	1.23310E-03	5929.74	3440.01	.246366	7.73588E+10	5.08336E+10	3.10337E+10
15	7.14800E-04	1.29360E-03	5932.83	3278.48	.280195	7.21718E+10	5.47241E+10	2.81878E+10
16	7.15800E-04	1.21300E-03	5923.06	3497.55	.232321	7.90671E+10	4.92300E+10	3.20806E+10
17	7.16700E-04	1.22190E-03	5915.55	3471.83	.237281	7.82224E+10	4.96237E+10	3.16106E+10
18	7.21300E-04	1.21380E-03	5876.1	3494.39	.226435	7.85474E+10	4.78543E+10	3.20227E+10
19	7.19500E-04	1.24820E-03	5890.93	3397.2	.250864	7.57179E+10	5.06538E+10	3.02662E+10
20	7.22200E-04	1.30020E-03	5868.72	3260.14	.276836	7.11794E+10	5.31592E+10	2.78733E+10
21	7.20500E-04	1.35740E-03	5881.28	3120.87	.304025	6.66166E+10	5.66540E+10	2.55427E+10
22	7.18300E-04	1.26720E-03	5899.45	3345.01	.263088	7.41266E+10	5.21477E+10	2.93434E+10
23	7.21000E-04	1.21730E-03	5877.17	3483.42	.229231	7.82330E+10	4.81548E+10	3.18219E+10
24	7.11700E-04	1.21310E-03	5951.81	3493.93	.237094	7.92092E+10	5.02138E+10	3.20142E+10
25	7.11700E-04	1.21810E-03	5950.39	3478.62	.240397	7.87264E+10	5.05427E+10	3.17344E+10
26	7.11900E-04	1.22200E-03	5947.29	3466.59	.242704	7.83282E+10	5.07381E+10	3.15152E+10
27	7.11700E-04	1.21450E-03	5947.55	3487.37	.238026	7.89715E+10	5.02412E+10	3.18941E+10
28	7.09100E-04	1.20750E-03	5969.55	3507.77	.236307	7.97876E+10	5.04297E+10	3.22685E+10
29	7.09800E-04	1.22440E-03	5963.62	3458.91	.246532	7.82216E+10	5.14342E+10	3.13757E+10
30	7.09700E-04	1.21640E-03	5963.04	3481.04	.241521	7.89073E+10	5.08792E+10	3.17785E+10
31	7.10000E-04	1.21860E-03	5960.5	3474.7	.242614	7.86892E+10	5.09540E+10	3.16628E+10
32	7.11900E-04	1.22000E-03	5943.03	3469.84	.241411	7.83937E+10	5.05266E+10	3.15744E+10
33	7.13400E-04	1.23160E-03	5929.02	3436.04	.247153	7.72292E+10	5.09064E+10	3.09622E+10
34	7.14200E-04	1.24130E-03	5922.32	3408.94	.252251	7.63266E+10	5.13467E+10	3.04758E+10
35	7.16900E-04	1.24050E-03	5899.82	3411.16	.248919	7.62227E+10	5.05963E+10	3.05155E+10
36	7.15000E-04	1.24020E-03	5914.22	3411.18	.250745	7.63350E+10	5.10421E+10	3.05158E+10
37	7.11600E-04	1.23180E-03	5942.73	3434.66	.249207	7.72942E+10	5.13665E+10	3.09373E+10
38	7.11000E-04	1.23060E-03	5944.95	3436.4	.249107	7.73663E+10	5.13939E+10	3.09687E+10

Table C:3.38 $day\#$, t_p, t_s, V_p, V_s, ν, E_d, K_d, and G_d, for survey # 9 at day 349 after the heater was turned on in cross section M7-M9.

LINE #	DISTANCE (M)
3	4.207
4	4.206
5	4.206
6	4.206
7	4.206
8	4.205
9	4.205
10	4.204
11	4.205
12	4.204
13	4.203
14	4.203
15	4.204
16	4.203
17	4.203
18	4.202
19	4.202
20	4.202
21	4.201
22	4.201
23	4.201
24	4.199
25	4.198
26	4.197
27	4.196
28	4.196
29	4.196
30	4.195
31	4.195
32	4.194
33	4.193
34	4.193
35	4.193
36	4.192
37	4.192
38	4.19

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

PROFILE AND FILE NAME : M7-M9 SURUF.10

DATE FOR FIELD WORK : 17 OCT,1979 DAYS AFTER HEATER TURN ON : 419 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
3	7.18900E-04	1.24520E-03	5902.9	3409.51	.249676	7.61953E+10	5.07311E+10	3.04860E+10
4	7.19500E-04	1.24620E-03	5896.54	3405.94	.249652	7.60343E+10	5.06192E+10	3.04222E+10
5	7.20600E-04	1.24810E-03	5887.46	3400.71	.24965	7.58007E+10	5.04631E+10	3.03288E+10
6	7.26100E-04	1.25760E-03	5842.48	3374.79	.249637	7.46488E+10	4.96936E+10	2.98682E+10
7	7.29300E-04	1.26320E-03	5816.62	3359.69	.249673	7.39845E+10	4.92585E+10	2.96016E+10
8	7.27700E-04	1.26040E-03	5828.14	3366.42	.249655	7.42802E+10	4.94518E+10	2.97203E+10
9	7.28200E-04	1.26130E-03	5824.1	3364	.249675	7.41745E+10	4.93855E+10	2.96775E+10
10	7.32700E-04	1.26910E-03	5786.65	3342.34	.249681	7.32229E+10	4.87530E+10	2.92966E+10
11	7.34500E-04	1.27220E-03	5773.72	3334.92	.249671	7.28974E+10	4.85344E+10	2.91666E+10
12	7.33600E-04	1.27060E-03	5779.49	3338.36	.249646	7.30465E+10	4.86288E+10	2.92269E+10
13	7.38900E-04	1.27980E-03	5736.32	3313.36	.249661	7.19574E+10	4.79066E+10	2.87908E+10
14	7.52300E-04	1.30300E-03	5633.29	3253.85	.249661	6.93958E+10	4.62013E+10	2.77658E+10
15	7.53000E-04	1.30420E-03	5629.35	3251.61	.249654	6.92996E+10	4.61359E+10	2.77275E+10
16	7.71700E-04	1.33660E-03	5490.53	3171.36	.249669	6.59221E+10	4.38899E+10	2.63758E+10
17	7.44300E-04	1.28920E-03	5694.35	3288.99	.249691	7.09044E+10	4.72112E+10	2.83688E+10
18	7.42800E-04	1.28660E-03	5704.59	3294.91	.249689	7.11598E+10	4.73809E+10	2.84710E+10
19	7.36900E-04	1.27630E-03	5750.65	3321.74	.249638	7.23204E+10	4.81440E+10	2.89365E+10
20	7.34800E-04	1.27270E-03	5767.23	3331.22	.249659	7.27350E+10	4.84241E+10	2.91019E+10
21	7.31500E-04	1.26700E-03	5792.09	3345.54	.249667	7.33624E+10	4.88433E+10	2.93528E+10
22	7.24800E-04	1.25540E-03	5846.09	3376.74	.249667	7.47368E+10	4.97583E+10	2.99027E+10
23	7.24100E-04	1.25420E-03	5851.79	3380	.249674	7.48817E+10	4.98561E+10	2.99605E+10
24	7.15900E-04	1.24000E-03	5916.58	3417.43	.249672	7.65494E+10	5.09661E+10	3.06278E+10
25	7.15100E-04	1.23860E-03	5921.85	3420.52	.249663	7.66870E+10	5.10559E+10	3.06831E+10
26	7.16100E-04	1.24030E-03	5912.1	3414.97	.249644	7.64374E+10	5.08858E+10	3.05837E+10
27	7.14000E-04	1.23670E-03	5928.23	3424.19	.249666	7.68519E+10	5.11662E+10	3.07490E+10
28	7.11000E-04	1.23150E-03	5953.46	3438.78	.249662	7.75081E+10	5.16023E+10	3.10116E+10
29	7.11900E-04	1.23300E-03	5945.87	3434.56	.249626	7.73156E+10	5.14668E+10	3.09355E+10
30	7.11800E-04	1.23290E-03	5945.29	3434.02	.249671	7.72942E+10	5.14618E+10	3.09258E+10
31	7.11300E-04	1.23200E-03	5949.51	3436.55	.24965	7.74070E+10	5.15325E+10	3.09715E+10
32	7.12600E-04	1.23430E-03	5937.15	3429.27	.24968	7.70812E+10	5.13219E+10	3.08404E+10
33	7.16200E-04	1.24050E-03	5905.63	3411.16	.249661	7.62679E+10	5.07764E+10	3.05155E+10
34	7.16800E-04	1.24150E-03	5900.65	3408.39	.249637	7.61426E+10	5.06881E+10	3.04659E+10
35	7.19700E-04	1.24660E-03	5876.66	3394.32	.249685	7.55181E+10	5.02821E+10	3.02148E+10
36	7.19900E-04	1.24690E-03	5873.62	3392.68	.249657	7.54437E+10	5.02269E+10	3.01858E+10
37	7.14300E-04	1.23720E-03	5920.07	3419.53	.249654	7.66422E+10	5.10242E+10	3.06653E+10

Table C:3.39 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 10 at day 419 after the heater was turned on and 21 days after the heater was turned off in cross section M7-M9.

LINE #	DISTANCE (M)
3	4.207
4	4.206
5	4.206
6	4.206
7	4.206
8	4.205
9	4.205
10	4.204
11	4.205
12	4.204
13	4.203
14	4.203
15	4.204
16	4.203
17	4.203
18	4.202
19	4.202
20	4.202
21	4.201
22	4.201
23	4.201
24	4.199
25	4.198
26	4.197
27	4.196
28	4.196
29	4.196
30	4.195
31	4.196
32	4.194
33	4.193
34	4.193
35	4.193
36	4.192
37	4.192

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

PROFILE AND FILE NAME : M7-M9 SURVF.11

DATE FOR FIELD WORK : 30 JULY,1980 DAYS AFTER HEATER TURN ON : 707 PROCESS DATE : 20 JAN,1981

LINE #	P-TIME (SEC)	S-TIME (SEC)	P-VELOCITY (M/SEC)	S-VELOCITY (M/SEC)	POISS.RATIO	YOUNGS MOD (PA)	BULK MOD (PA)	SHEAR MOD (PA)
1	7.33400E-04	1.23260E-03	5785.2	3444.69	.225361	7.62623E+10	4.62803E+10	3.11183E+10
2	7.24600E-04	1.24440E-03	5854.68	3410.92	.243091	7.58560E+10	4.92106E+10	3.05111E+10
3	7.21000E-04	1.22430E-03	5885.56	3468.26	.234005	7.78549E+10	4.87822E+10	3.15456E+10
4	7.20500E-04	1.23160E-03	5888.28	3446.69	.239391	7.72252E+10	4.93876E+10	3.11546E+10
5	7.22000E-04	1.25180E-03	5875.94	3390.57	.250422	7.53958E+10	5.03488E+10	3.01481E+10
6	7.31900E-04	1.24000E-03	5795.78	3423.13	.232143	7.57275E+10	4.71194E+10	3.07300E+10
7	7.36300E-04	1.25040E-03	5760.85	3394.4	.234095	7.45795E+10	4.67456E+10	3.02163E+10
8	7.37100E-04	1.24770E-03	5753.18	3401	.231407	7.47070E+10	4.63570E+10	3.03340E+10
9	7.39900E-04	1.26630E-03	5731.23	3350.6	.240373	7.30369E+10	4.68858E+10	2.94415E+10
10	7.44400E-04	1.31720E-03	5694.93	3219.24	.265201	6.87718E+10	4.88160E+10	2.71782E+10
11	7.45400E-04	1.32210E-03	5688.58	3207.96	.266843	6.83797E+10	4.88797E+10	2.69882E+10
12	7.43300E-04	1.31380E-03	5703.43	3227.64	.264429	6.90891E+10	4.88806E+10	2.73203E+10
13	7.47200E-04	1.29000E-03	5672.06	3286.93	.247199	7.06745E+10	4.65942E+10	2.83333E+10
14	7.51500E-04	1.34520E-03	5639.34	3150.91	.273057	6.62927E+10	4.86854E+10	2.60368E+10
15	7.50100E-04	1.32530E-03	5651.3	3199.39	.264156	6.78705E+10	4.79629E+10	2.68442E+10
16	7.48500E-04	1.33280E-03	5662.13	3180.48	.26952	6.73549E+10	4.87064E+10	2.65277E+10
17	7.52200E-04	1.32890E-03	5634.05	3189.89	.264099	6.74649E+10	4.76647E+10	2.66850E+10
18	7.52900E-04	1.35220E-03	5627.43	3133.72	.275259	6.56845E+10	4.87113E+10	2.57534E+10
19	7.41000E-04	1.36280E-03	5718.56	3109.14	.290175	6.54145E+10	5.19595E+10	2.53510E+10
20	7.35500E-04	1.37610E-03	5761.69	3078.84	.300166	6.46425E+10	5.39135E+10	2.48593E+10
21	7.33400E-04	1.38560E-03	5776.95	3056.83	.305564	6.39861E+10	5.48476E+10	2.45052E+10
22	7.27800E-04	1.23570E-03	5821.79	3431.07	.233912	7.61883E+10	4.77213E+10	3.08727E+10
23	7.24600E-04	1.23110E-03	5847.72	3444.01	.234466	7.67985E+10	4.82038E+10	3.11060E+10
24	7.18000E-04	1.22800E-03	5899.13	3451.14	.239828	7.74518E+10	4.96157E+10	3.12349E+10
25	7.16700E-04	1.26960E-03	5908.51	3336.25	.265968	7.39069E+10	5.26331E+10	2.91899E+10
26	7.16800E-04	1.22650E-03	5906.28	3453.75	.240186	7.75916E+10	4.97739E+10	3.12822E+10
27	7.14900E-04	1.23930E-03	5920.7	3416.94	.250302	7.65658E+10	5.11057E+10	3.06189E+10
28	7.11800E-04	1.23800E-03	5946.71	3420.56	.252775	7.68799E+10	5.18287E+10	3.06838E+10
29	7.11800E-04	1.21710E-03	5946.71	3479.85	.23963	7.87332E+10	5.03982E+10	3.17567E+10
30	7.12200E-04	1.22280E-03	5941.93	3462.65	.242888	7.81618E+10	5.06664E+10	3.14436E+10
31	7.12300E-04	1.22020E-03	5941.08	3470.1	.241096	7.83852E+10	5.04597E+10	3.15790E+10
32	7.13000E-04	1.22910E-03	5933.79	3443.91	.246019	7.75131E+10	5.08653E+10	3.11043E+10
33	7.14700E-04	1.23410E-03	5918.14	3429.02	.247313	7.69236E+10	5.07370E+10	3.08357E+10
34	7.15700E-04	1.27240E-03	5909.8	3324.87	.268446	7.35475E+10	5.29377E+10	2.89912E+10
35	7.18900E-04	1.26980E-03	5883.26	3331.74	.263942	7.35895E+10	5.19571E+10	2.91111E+10
36	7.17600E-04	1.26980E-03	5892.61	3330.95	.265206	7.36280E+10	5.22642E+10	2.90972E+10
37	7.13100E-04	1.24950E-03	5930.12	3385.56	.258229	7.56425E+10	5.21448E+10	3.00591E+10
38	7.11600E-04	1.22610E-03	5939.89	3449.13	.245648	7.77247E+10	5.09299E+10	3.11985E+10

Table C:3.40 $day\#$, t_p , t_s , V_p , V_s , ν , E_d , K_d , and G_d, for survey # 11 at day 707 after the heater was turned on and 309 days after the heater was turned off in cross section M7-M9.

LINE #	DISTANCE (M)
1	4.207
2	4.206
3	4.207
4	4.206
5	4.206
6	4.206
7	4.206
8	4.205
9	4.205
10	4.204
11	4.205
12	4.204
13	4.203
14	4.203
15	4.204
16	4.203
17	4.203
18	4.202
19	4.202
20	4.202
21	4.201
22	4.201
23	4.201
24	4.199
25	4.198
26	4.197
27	4.196
28	4.196
29	4.196
30	4.195
31	4.195
32	4.194
33	4.193
34	4.193
35	4.193
36	4.192
37	4.192
38	4.19

DENSITY : 2622.5 KG/M^3

INSTRUMENT DELAY FOR P-WAVE : 6.20000E-06 SEC.

INSTRUMENT DELAY FOR S-WAVE : 1.13000E-05 SEC.

Appendix C:4 - P waveforms from surveys in six cross sections.

In this appendix the P-waveforms from the cross-hole ultrasonic surveys between the four monitor holes in the H9 area. The order in which the cross sections are presented is the same as in previous appendices starting with cross section M7-M6. In this cross section four surveys were performed. In cross section M7-M8, which follows, and in cross section M8-M9 as well as in cross section M6-M9 five surveys were perfomed during the course of the H9 heater experiment. The two main cross sections M8-M6 and M7-M9 follows both with 8 surveys presented.

The data is presented so the distance between two consecutive numbers represents a vertical distance of 0.25 m. In using this convention the heater shown in each figure is placed on the right level relative to the P wave signals.

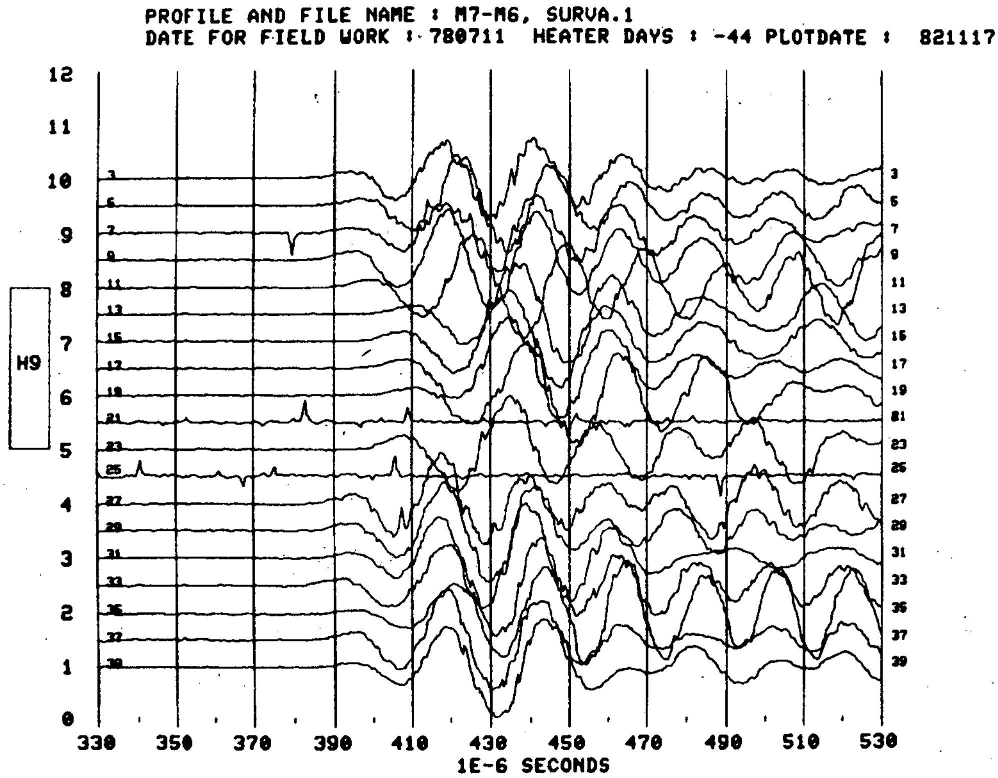


Fig. C:4.1a P waves for survey # 1 in cross section M7-M6

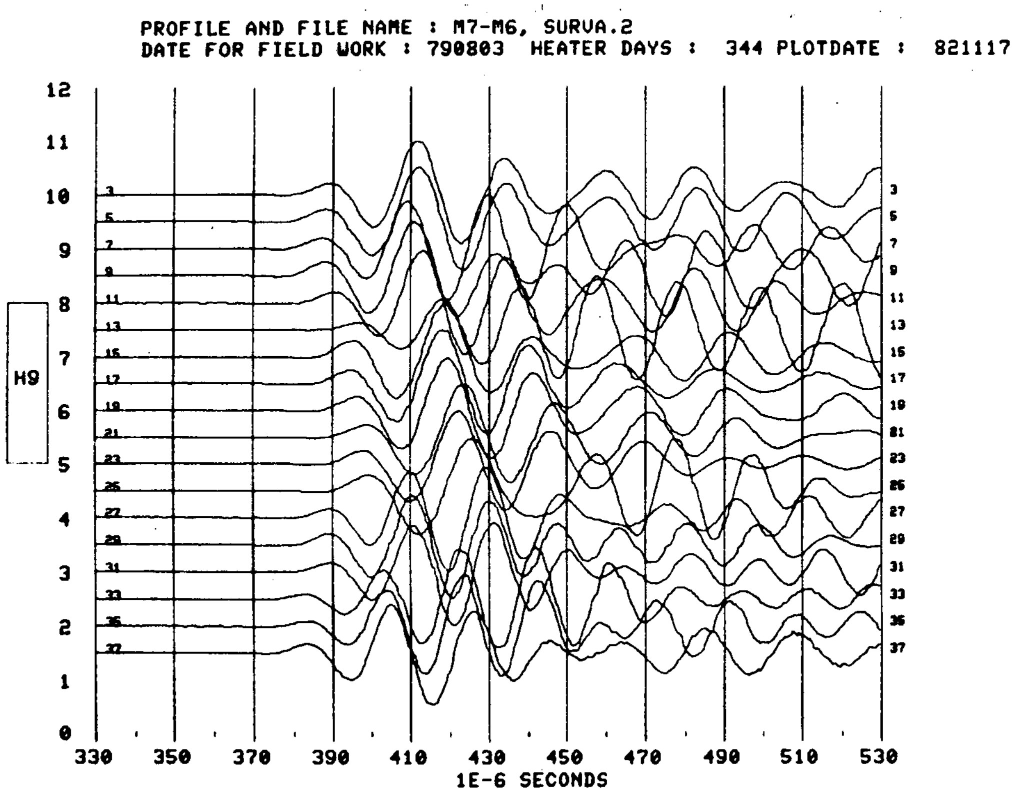
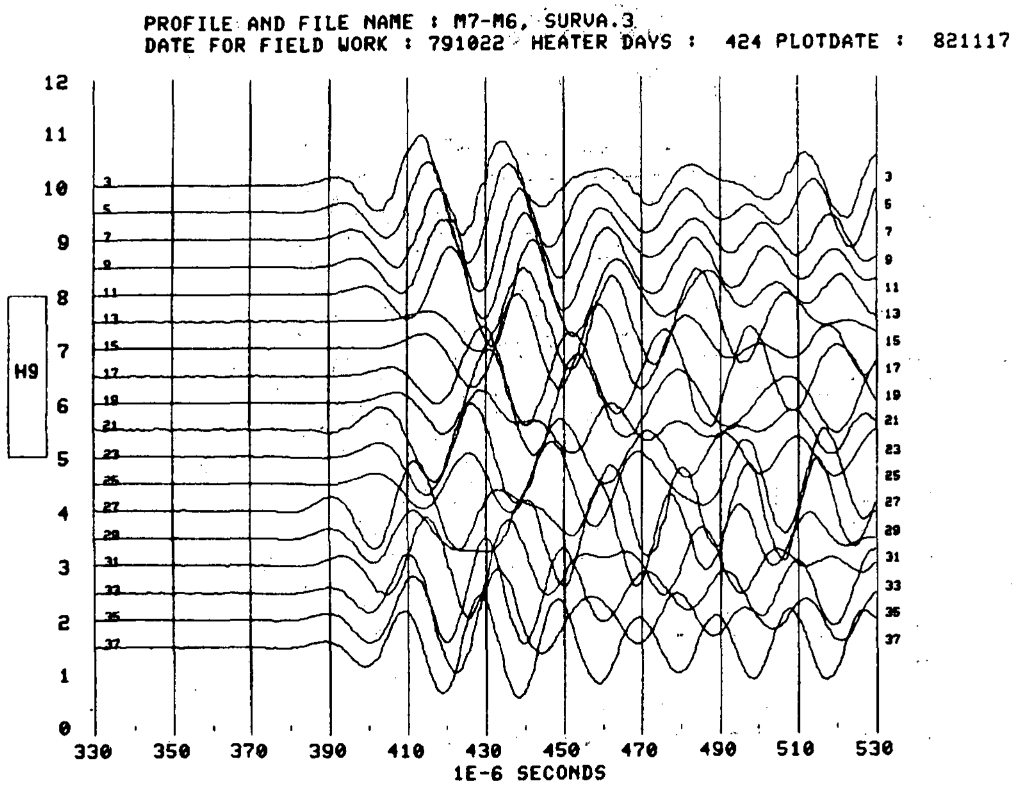


Fig. C:4.1b P waves for survey # 2 in cross section M7-M6



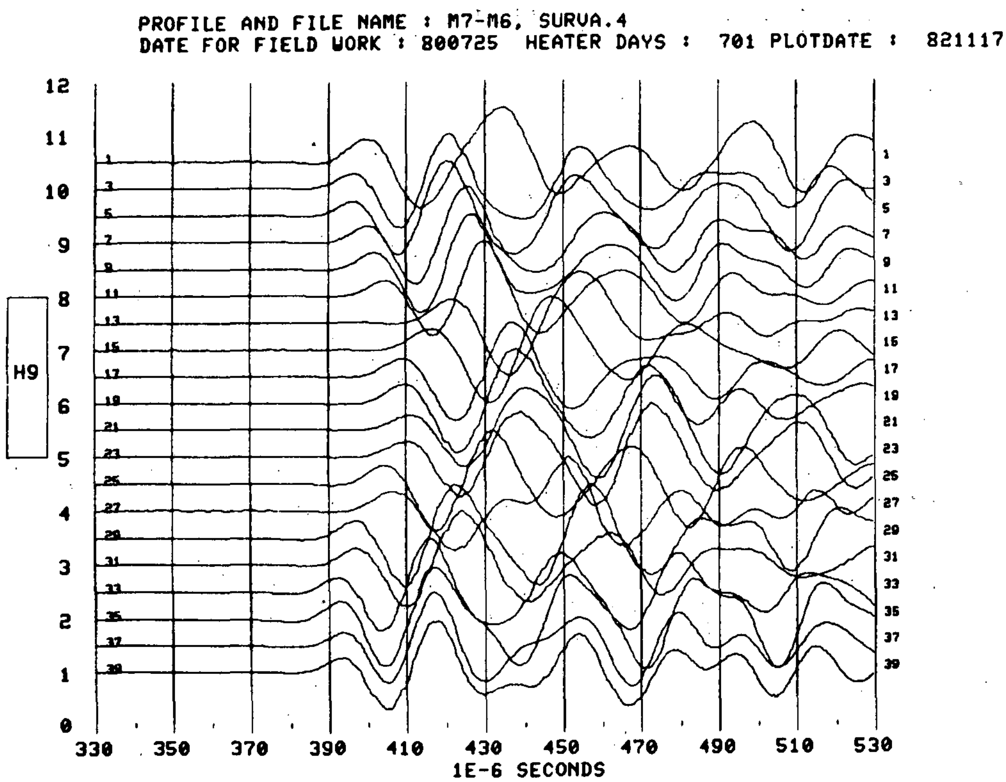


Fig. C:4.1c P waves for survey # 3 in cross section M7-M6

Fig. C:4.1d P waves for survey # 4 in cross section M7-M6

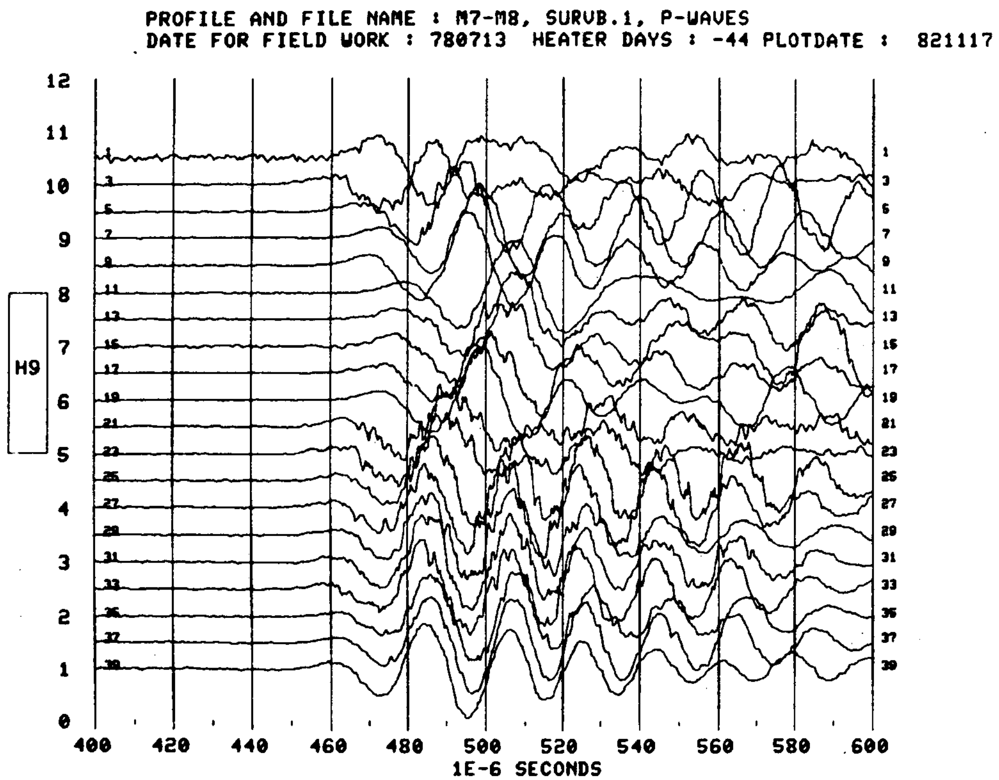


Fig. C:4.2a P waves for survey # 1 in cross section M7-M8

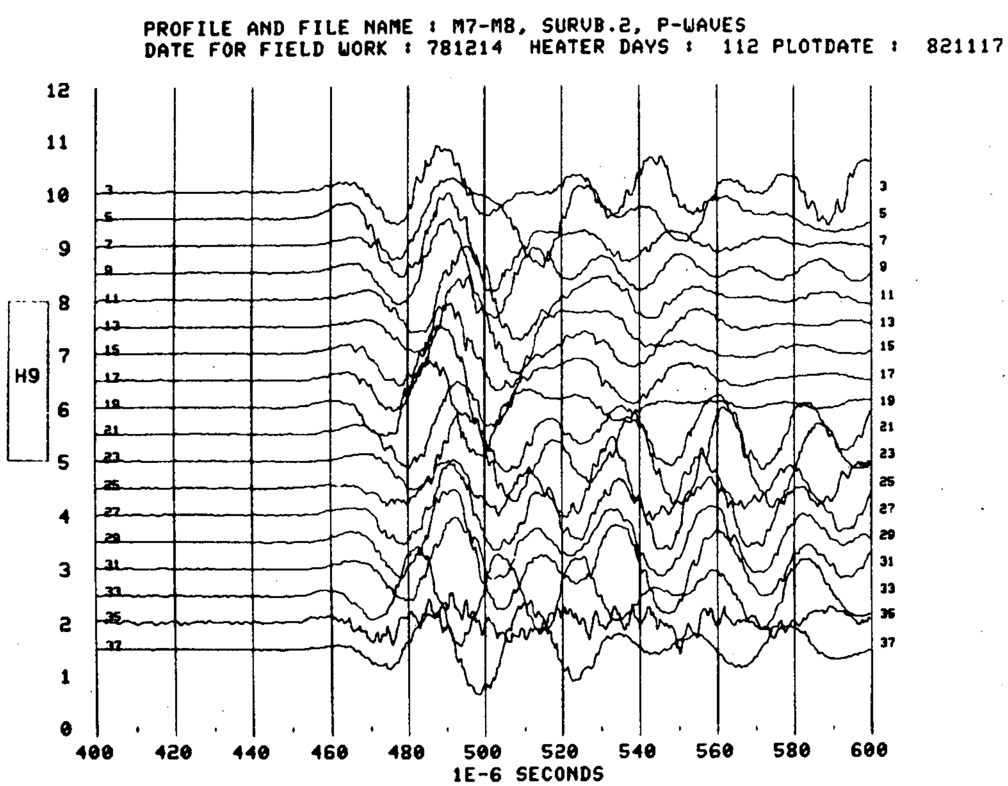


Fig. C:4.2b P waves for survey # 2 in cross section M7-M8

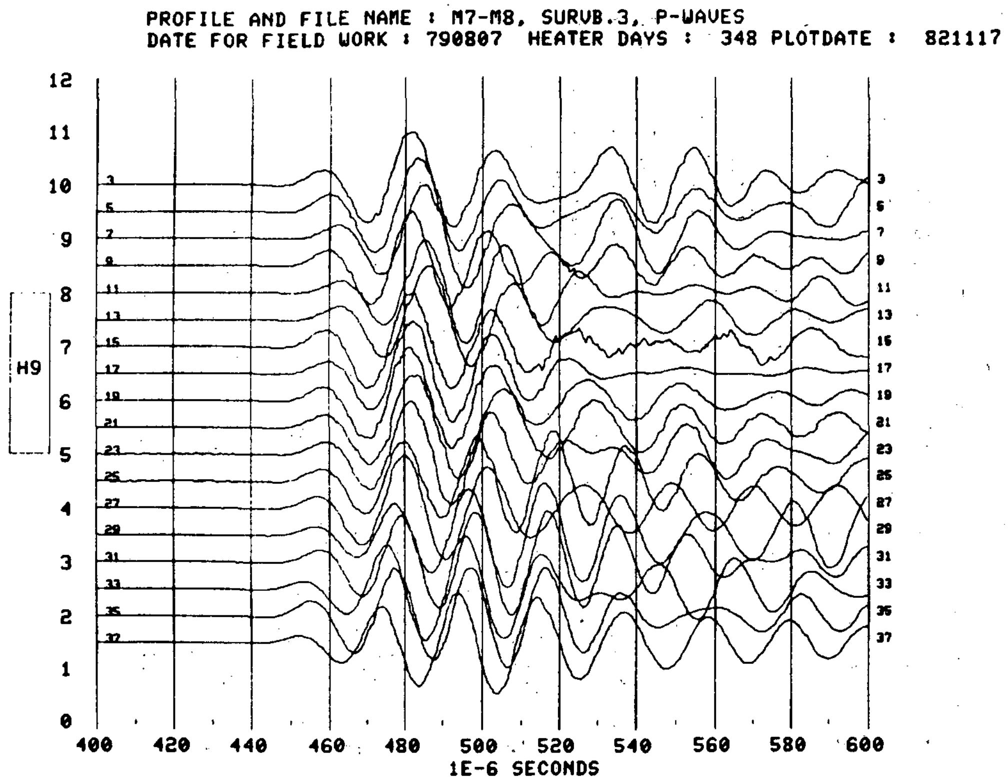


Fig. C:4.2c P waves for survey # 3 in cross section M7-M8

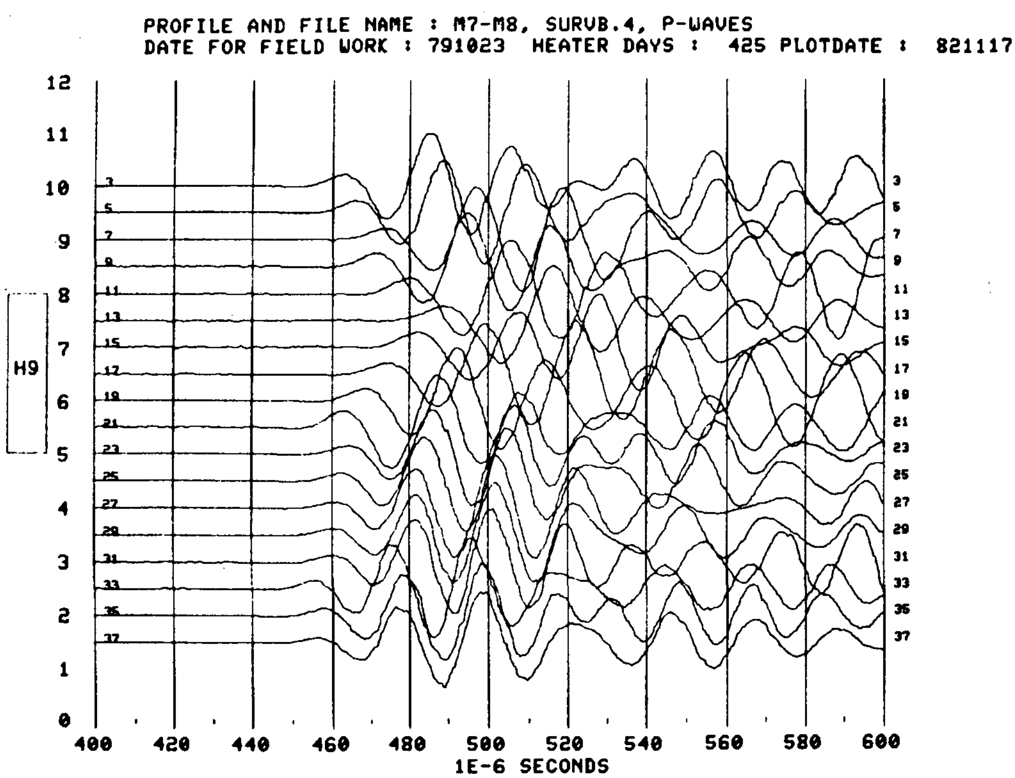


Fig. C:4.2d P waves for survey # 4 in cross section M7-M8

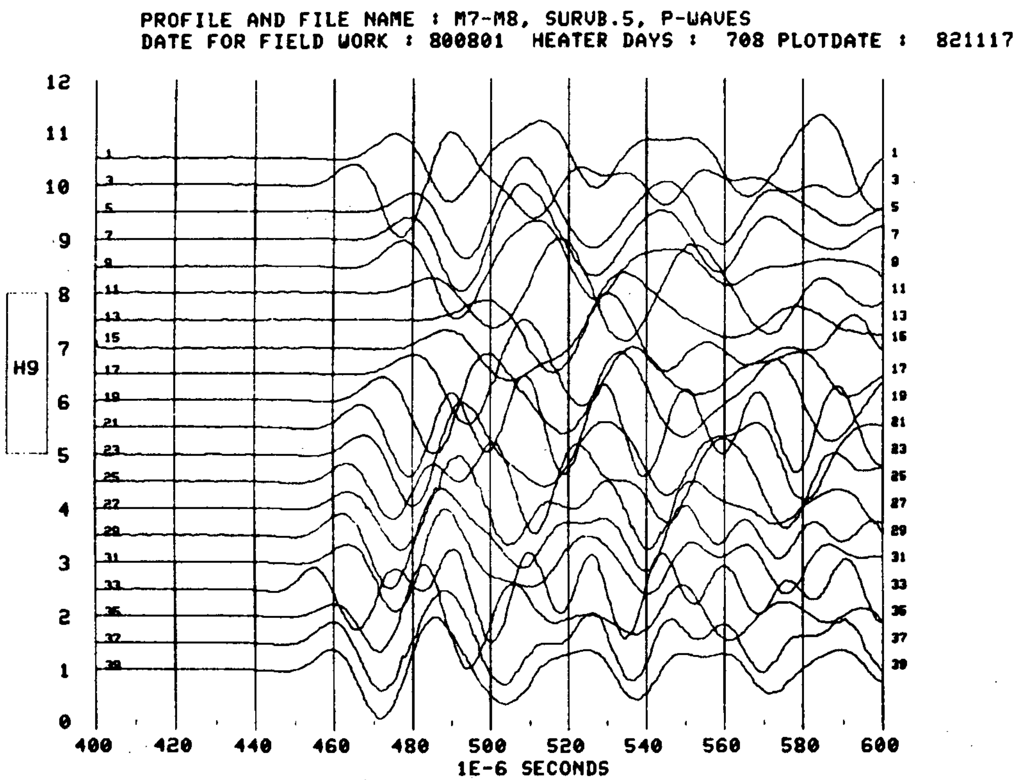


Fig. C:4.2e P waves for survey # 5 in cross section M7-M8

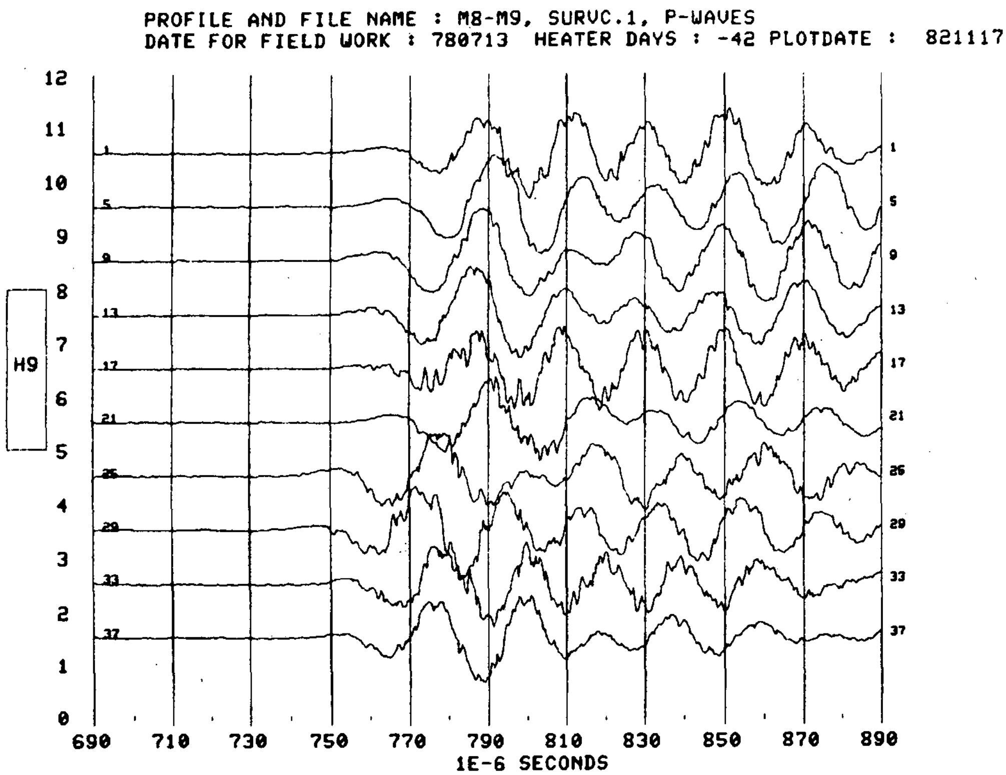


Fig. C:4.3a P waves for survey # 1 in cross section M8-M9

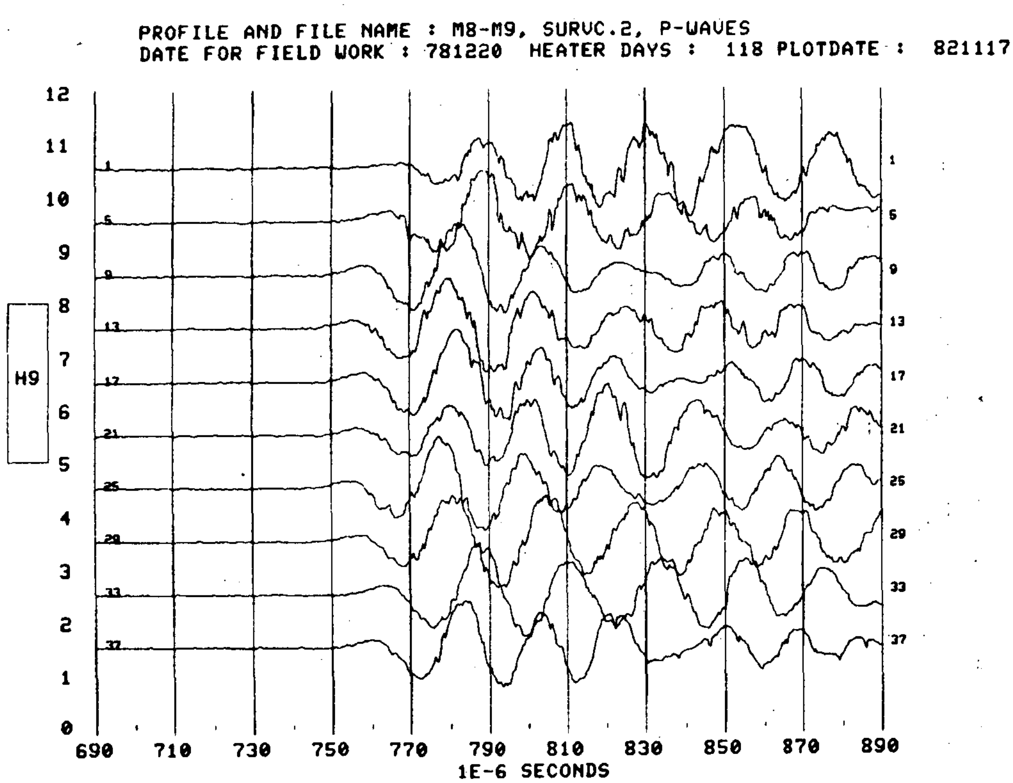


Fig. C:4.3b P waves for survey # 2 in cross section M8-M9

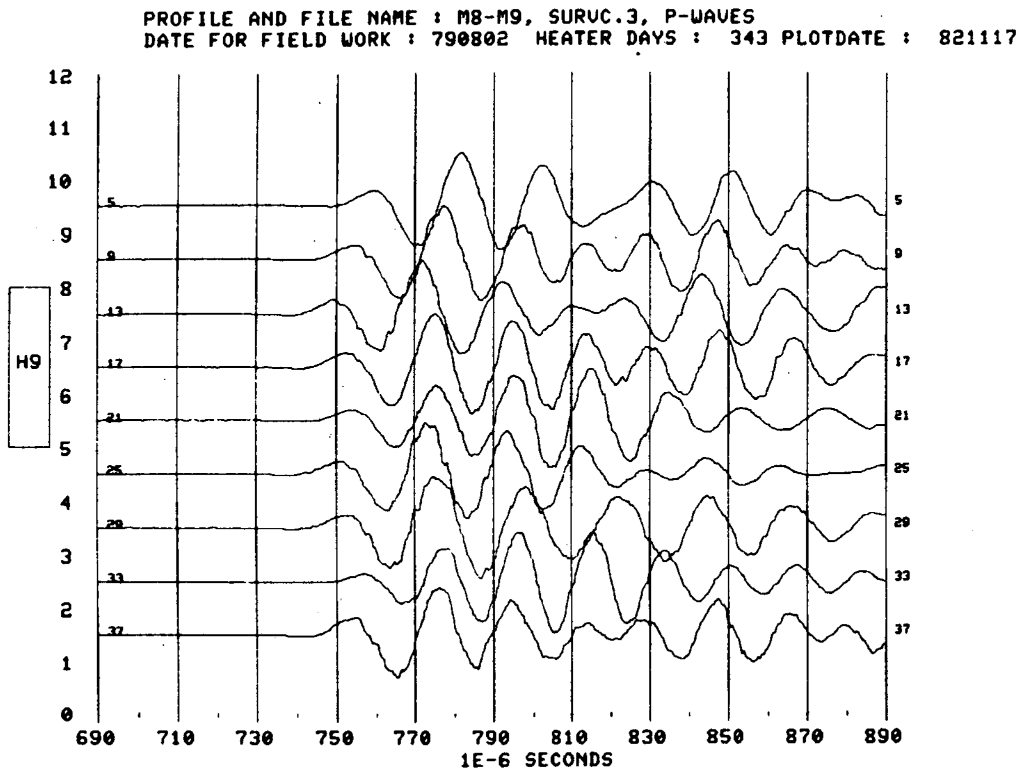


Fig. C:4.3c P waves for survey # 3 in cross section M8-M9

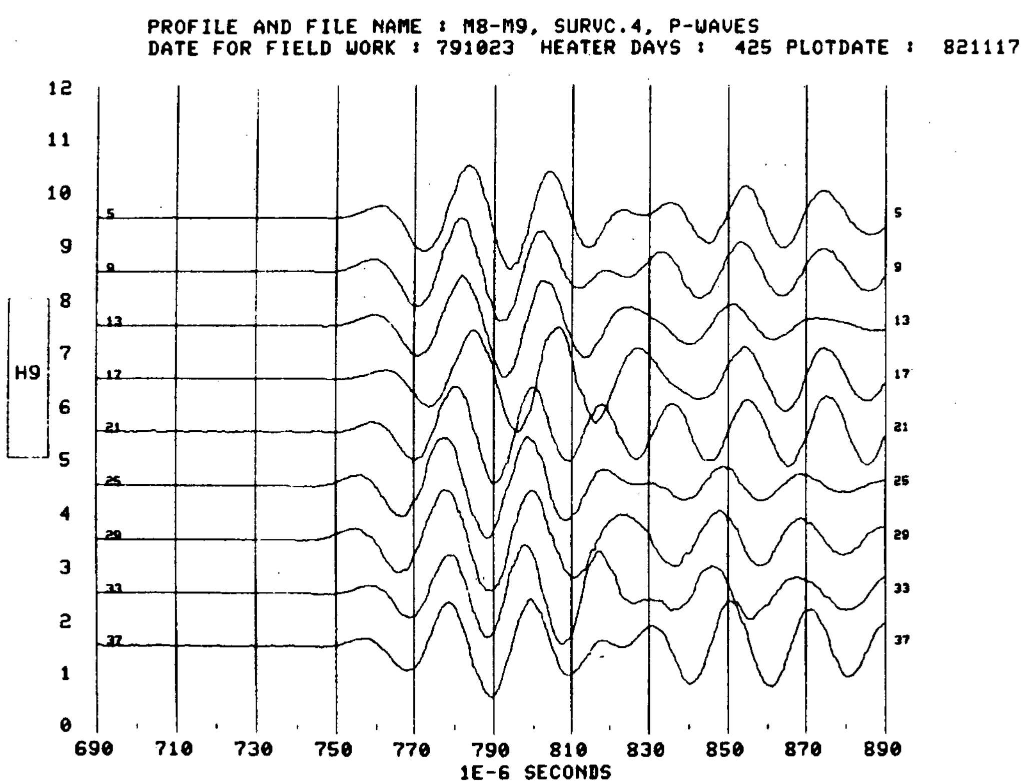


Fig. C:4.3d P waves for survey # 4 in cross section M8-M9

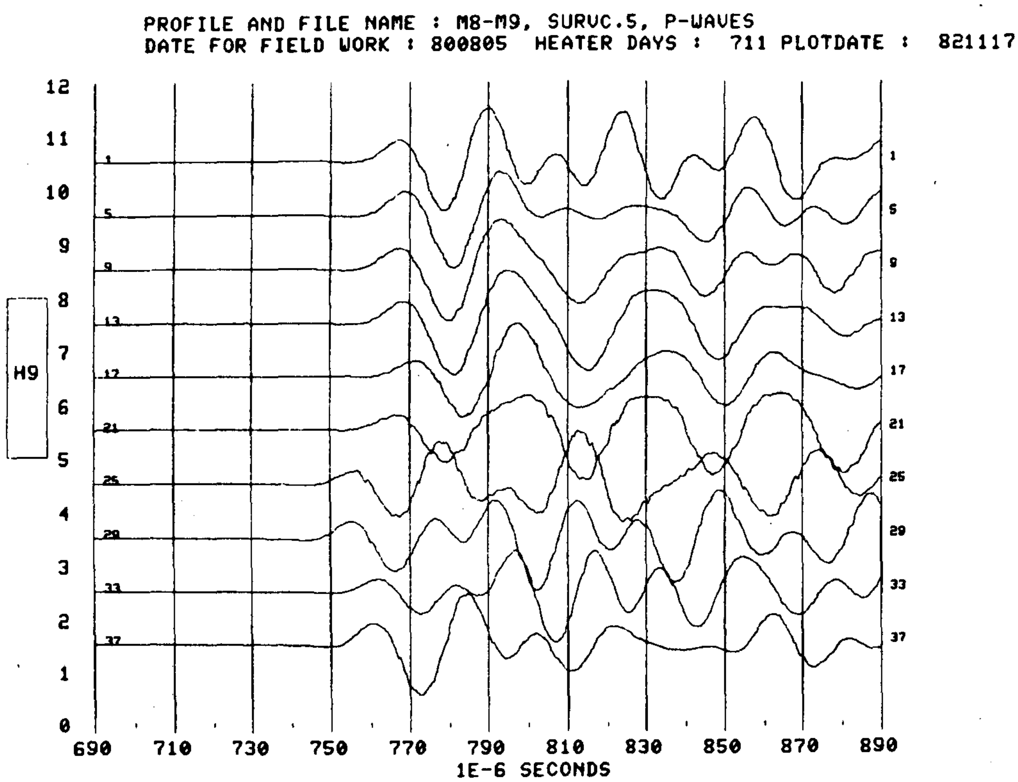


Fig. C:4.3e P waves for survey # 5 in cross section M8-M9

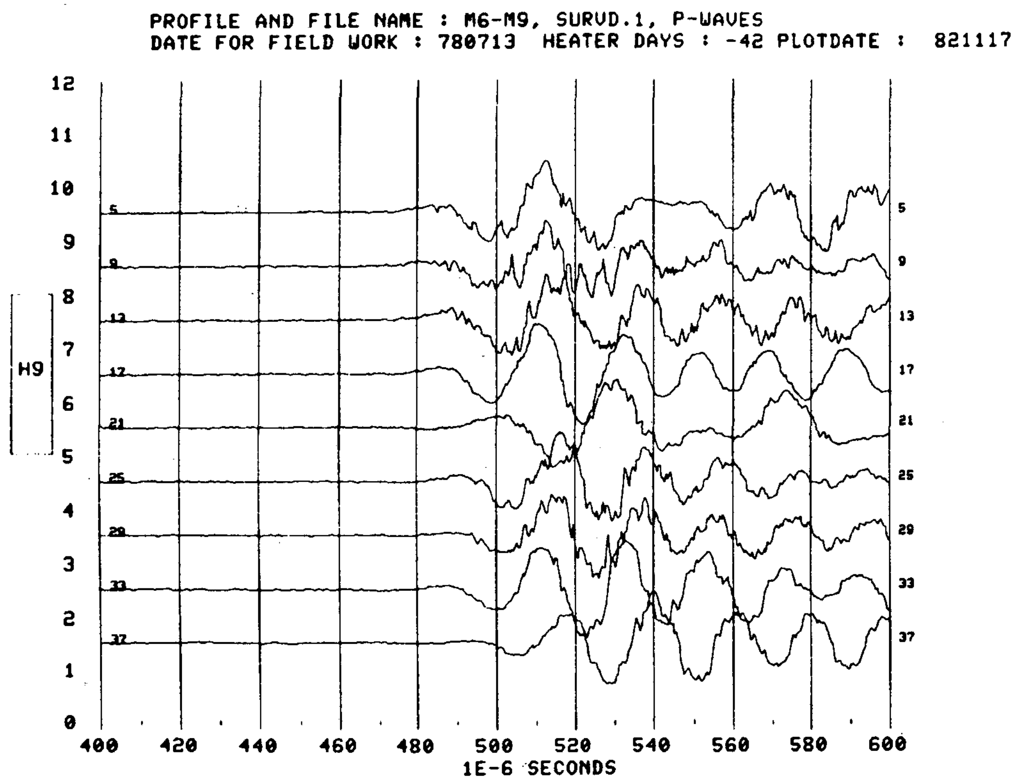


Fig. C:4.4a P waves for survey # 1 in cross section M6-M9

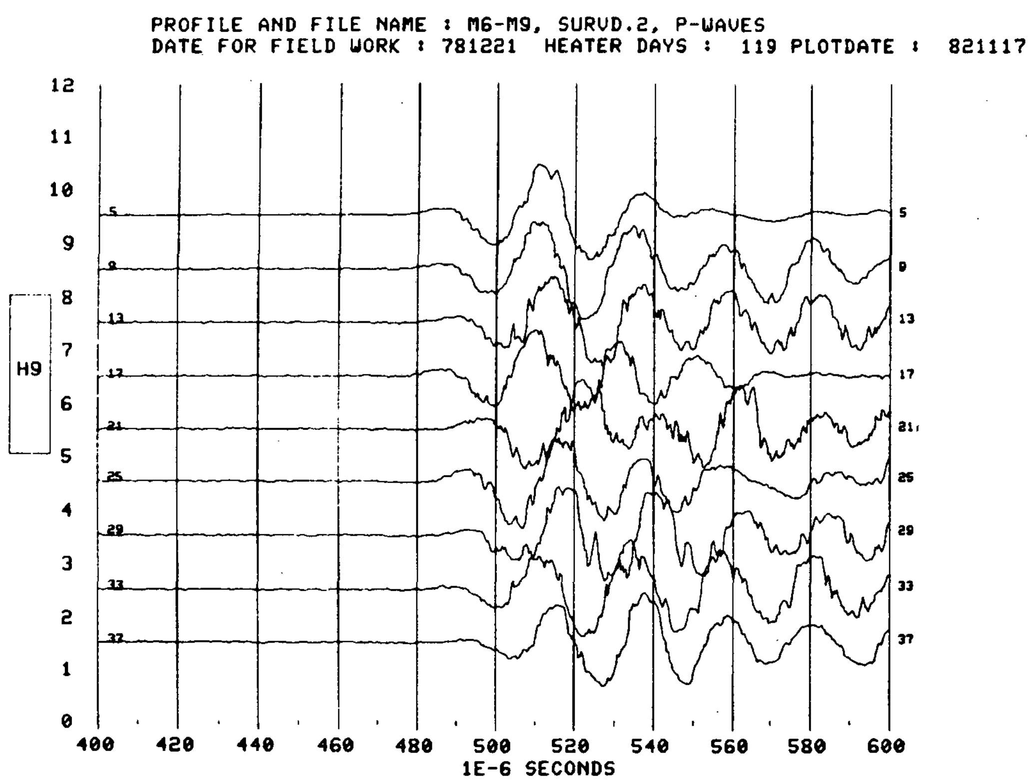


Fig. C:4.4b P waves for survey # 2 in cross section M6-M9

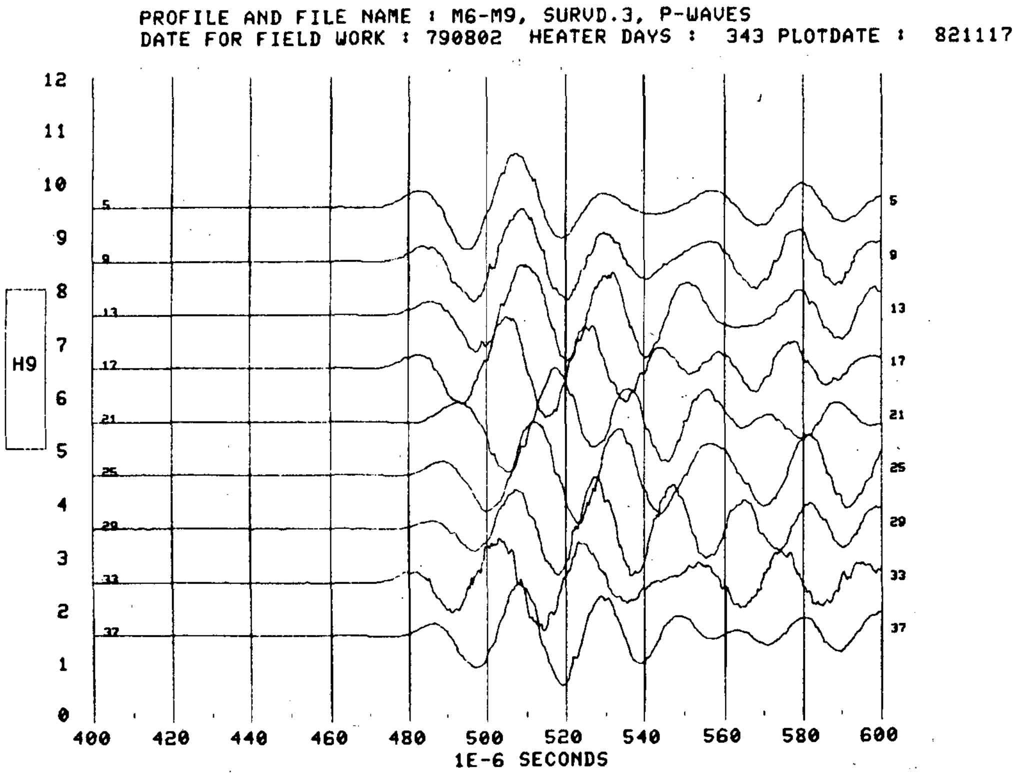


Fig. C:4.4c P waves for survey # 3 in cross section M6-M9

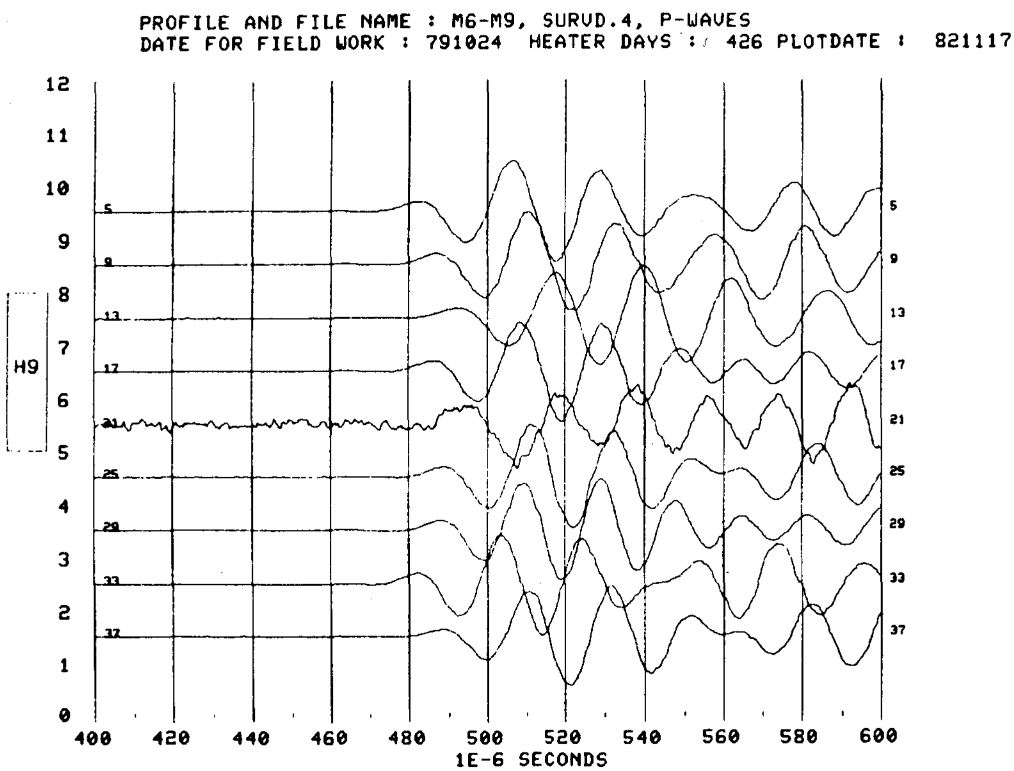


Fig. C:4.4d P waves for survey # 4 in cross section M6-M9

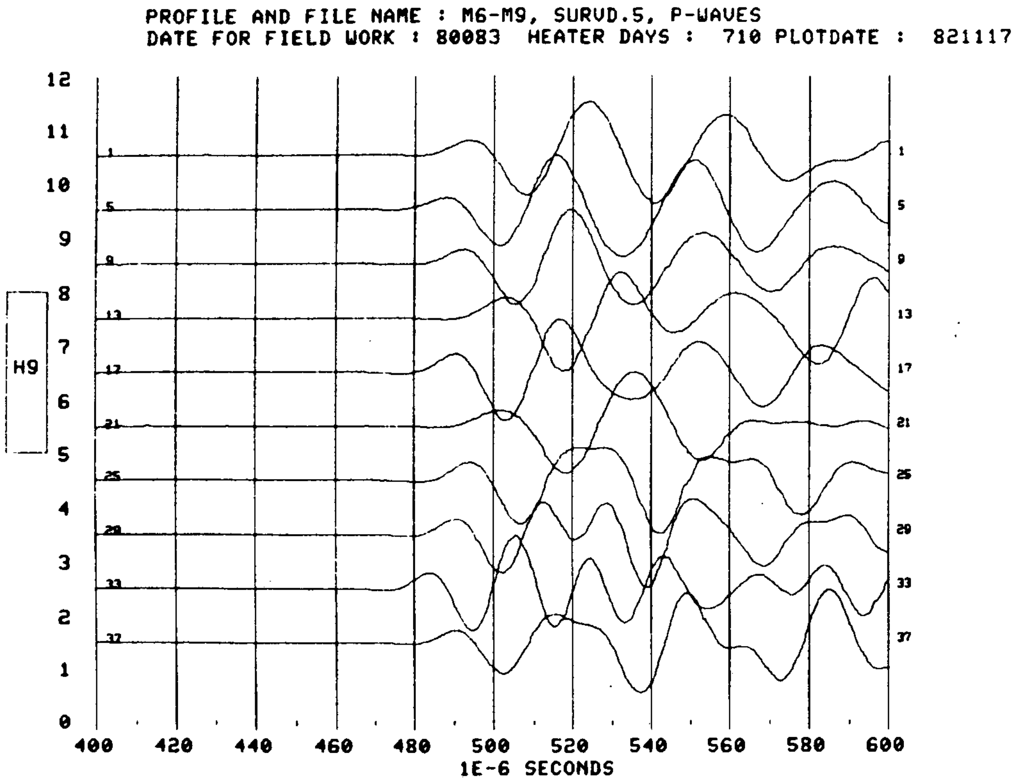


Fig. C:4.4e P waves for survey # 5 in cross section M6-M9

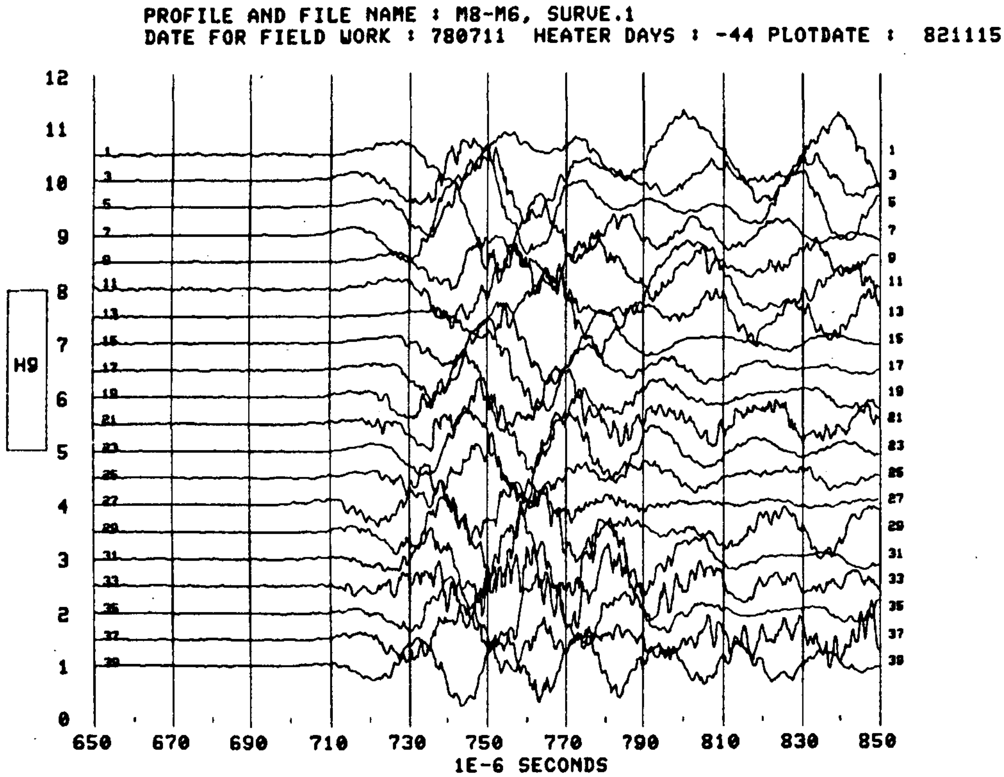


Fig. C:4.5a P waves for survey # 1 in cross section M8-M6

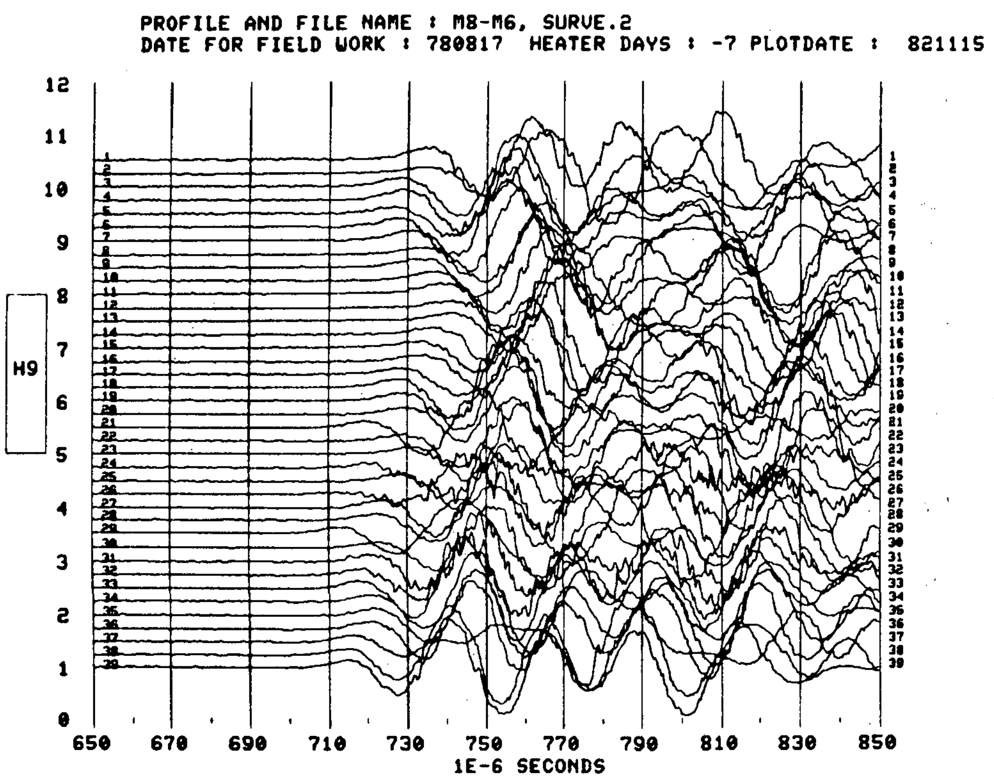


Fig. C:4.5b P waves for survey # 2 in cross section M8-M6

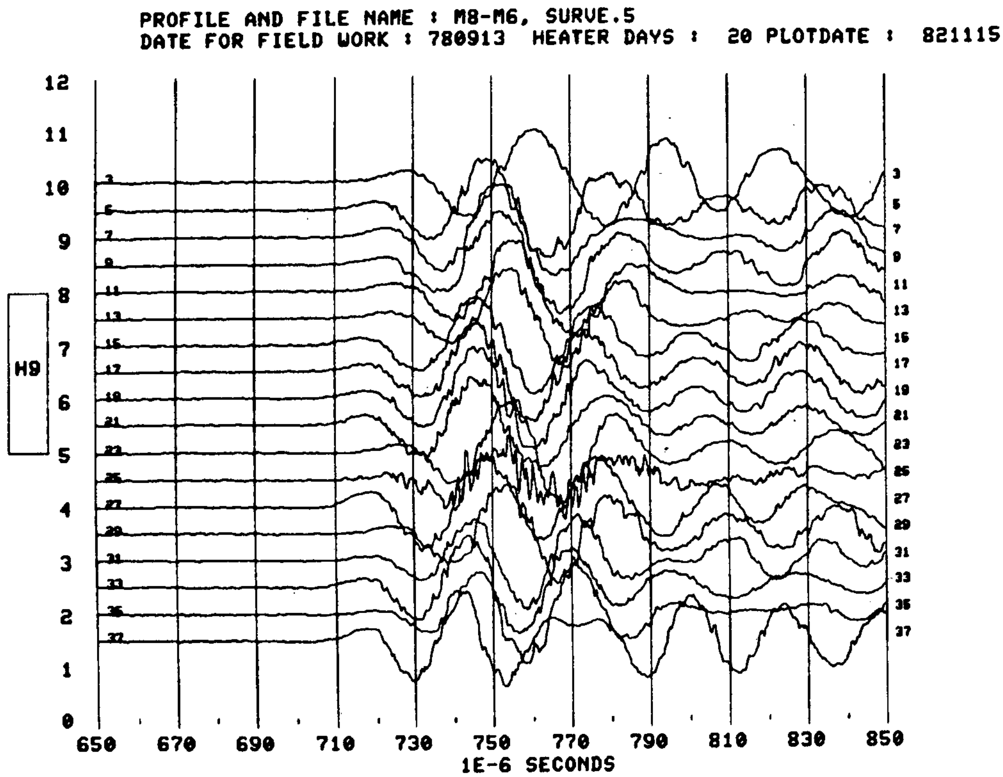


Fig. C:4.5c P waves for survey # 5 in cross section M8-M6

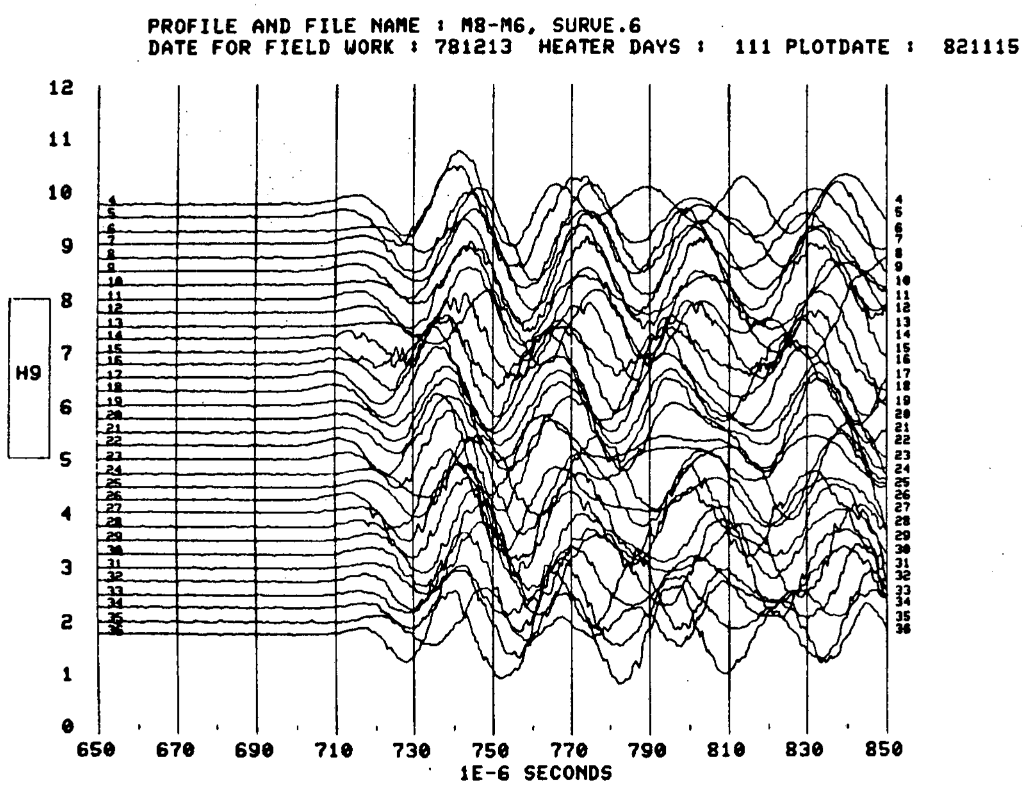


Fig. C:4.5d P waves for survey # 6 in cross section M8-M6

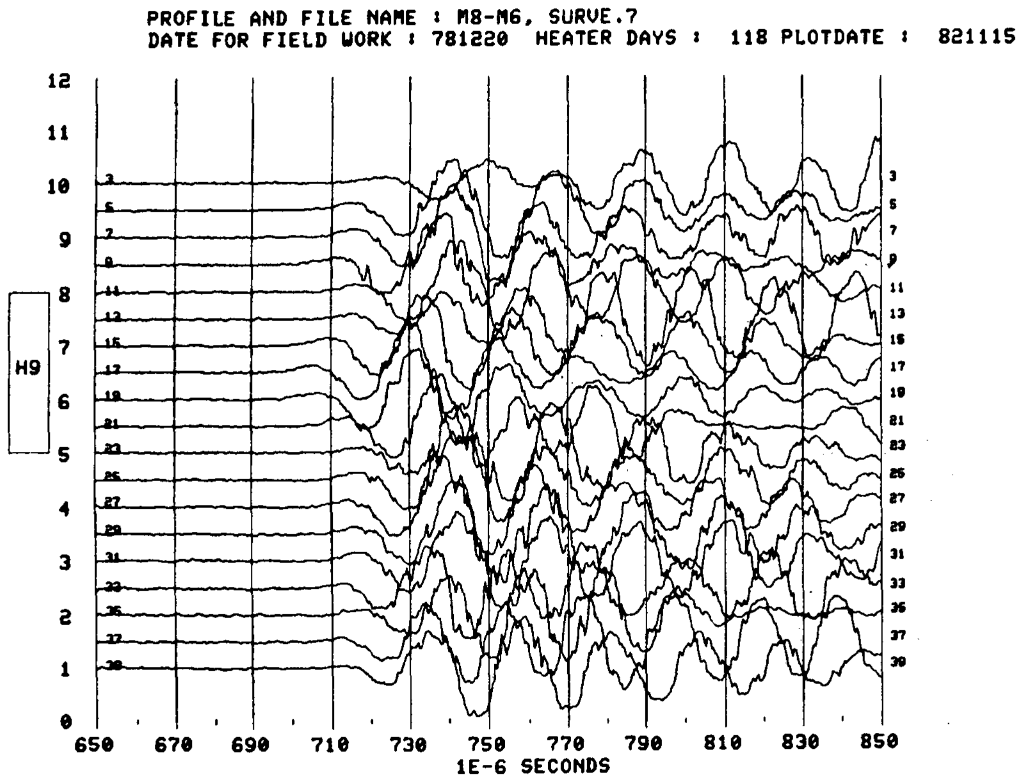


Fig. C:4.5e P waves for survey # 7 in cross section M8-M6

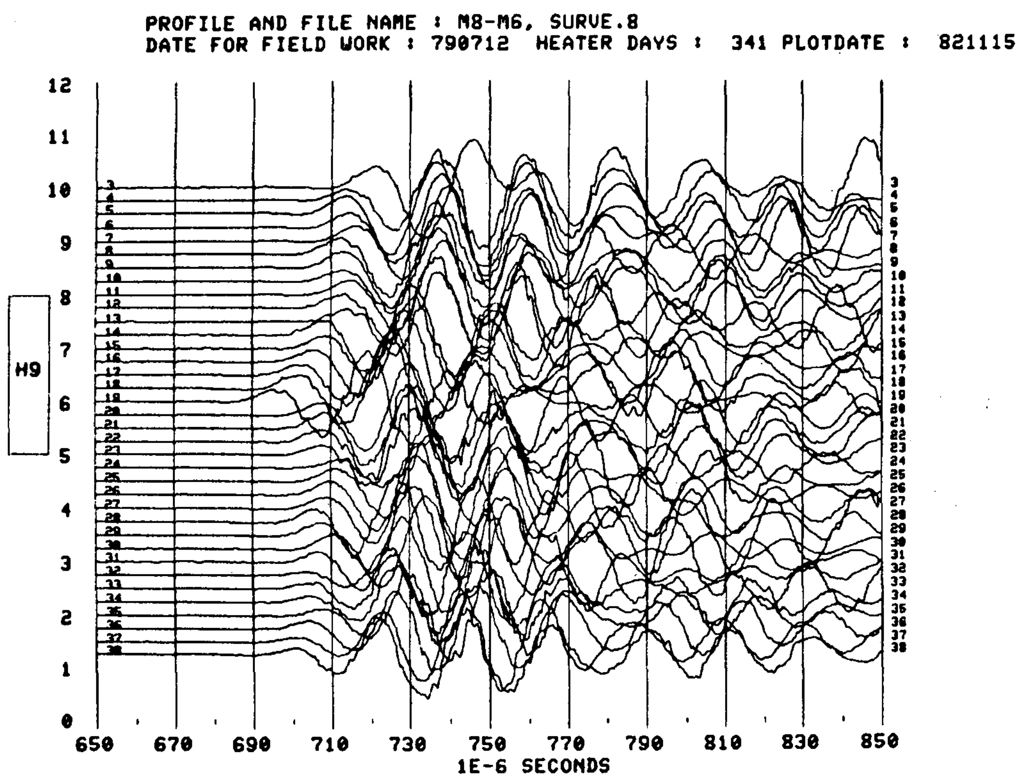


Fig. C:4.5f P-waves for survey # 8 in cross section M8-M6

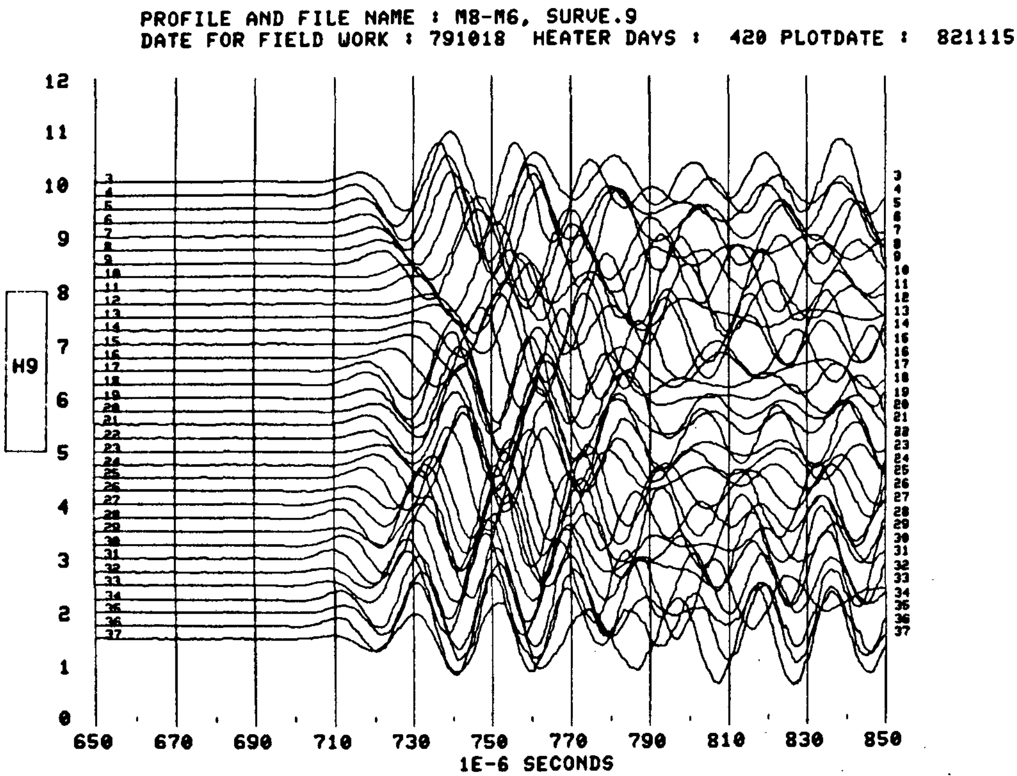


Fig. C:4.5g P waves for survey # 9 in cross section M8-M6

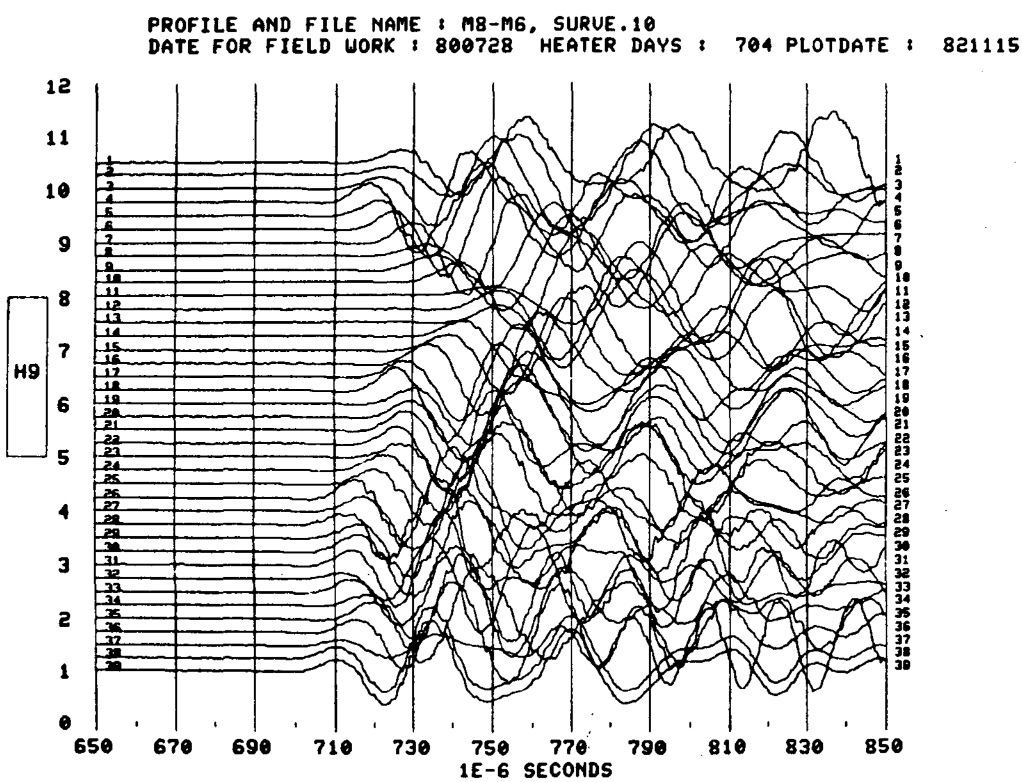


Fig. C:4.5h P waves for survey # 10 in cross section M8-M6

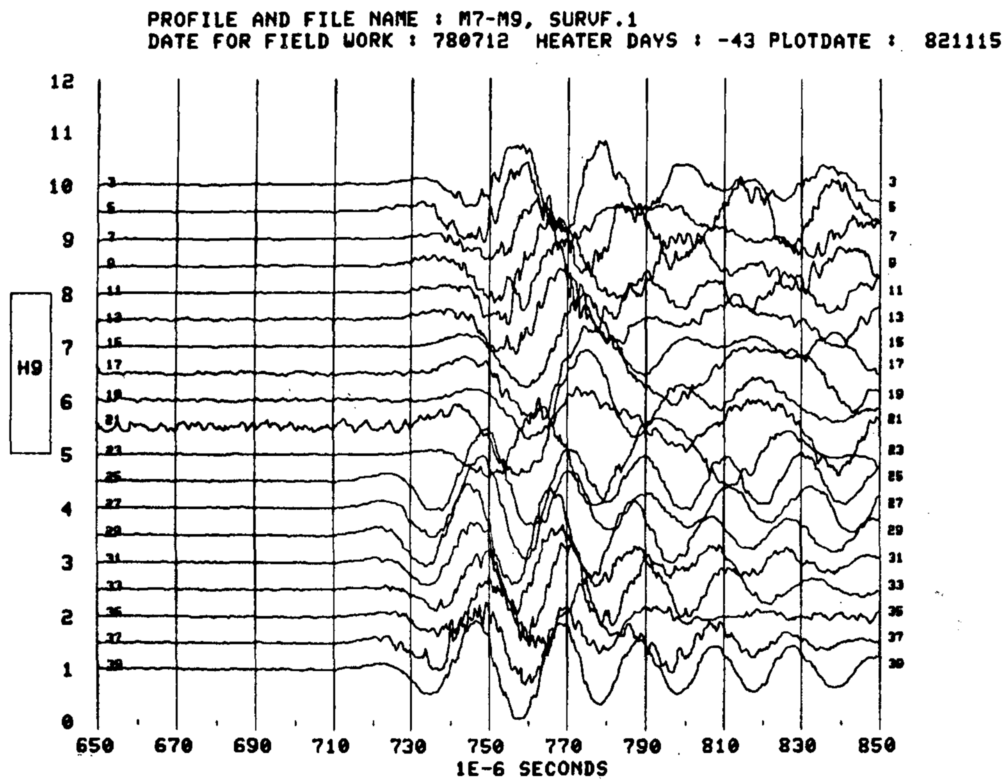


Fig. C:4.6a P waves for survey # 1 in cross section M7-M9

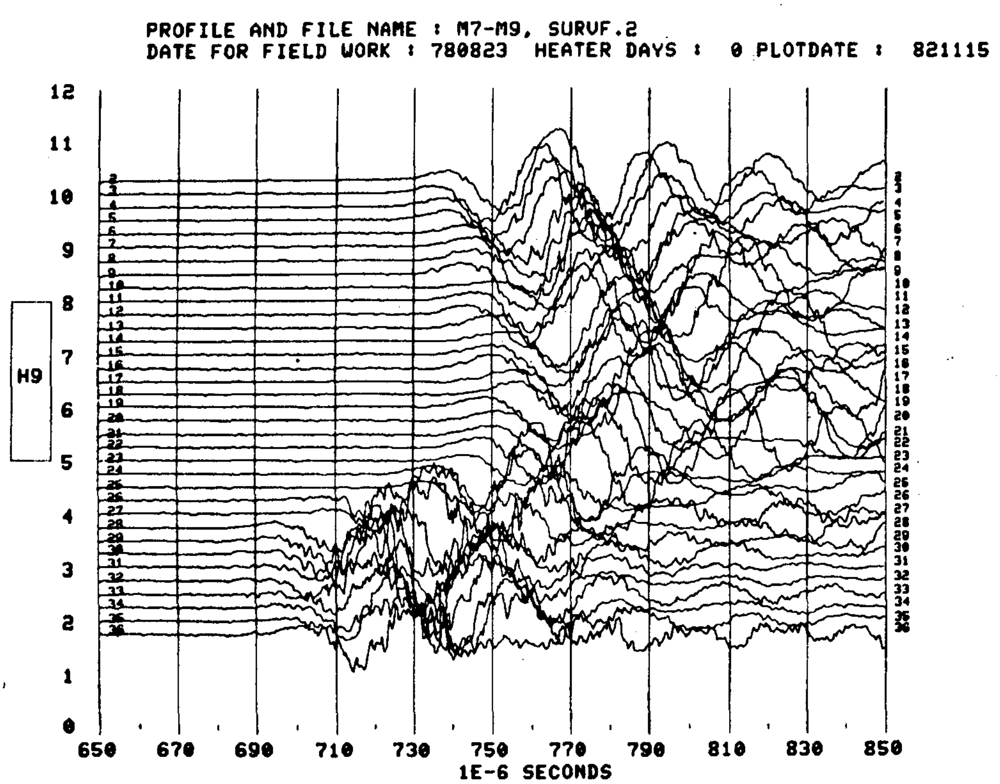


Fig. C:4.6b P waves for survey # 2 in cross section M7-M9 Lines 28-36 were digitized with a delay error of 20 μs.

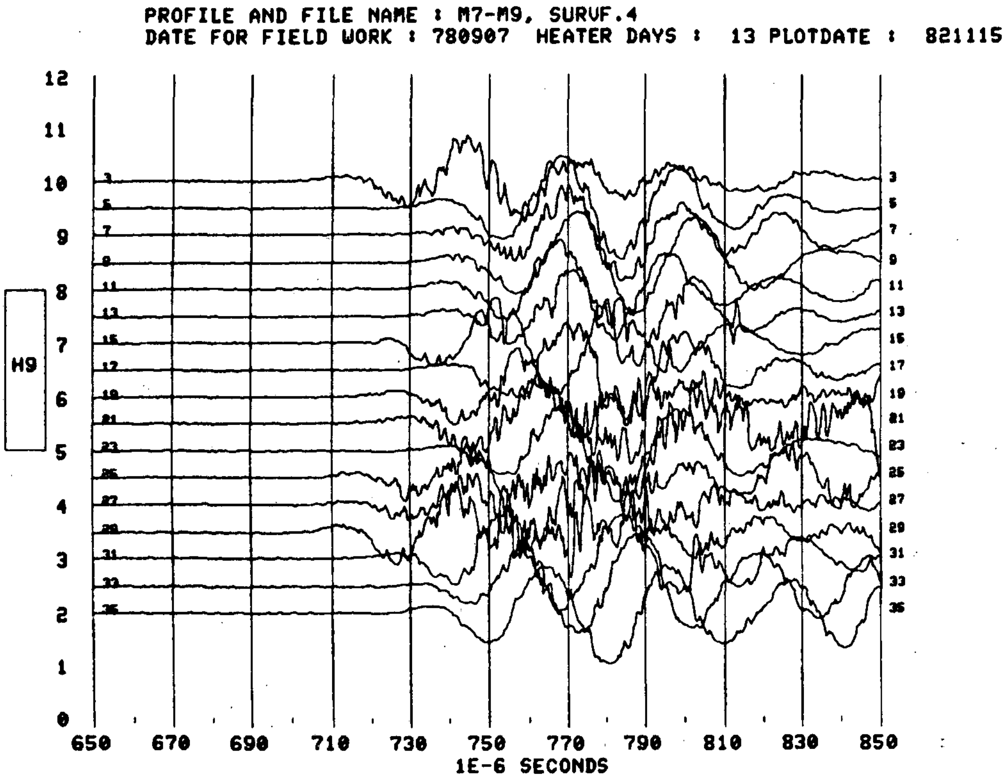


Fig. C:4.6c P waves for survey # 4 in cross section M7-M9

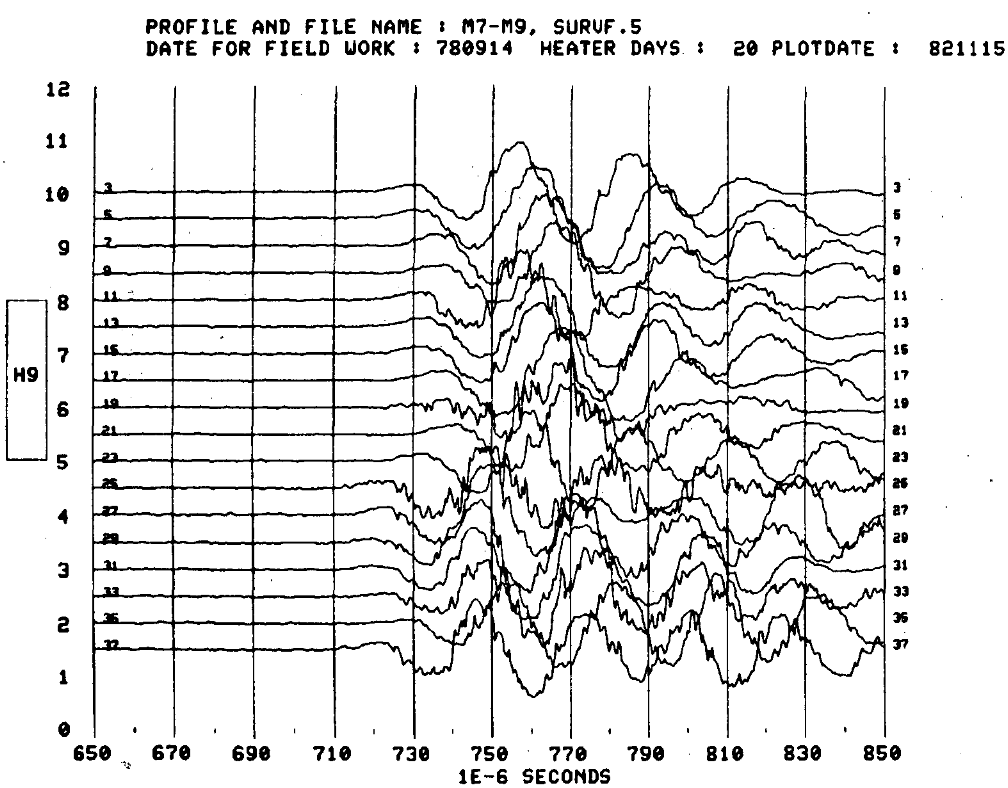


Fig. C:4.6d P waves for survey # 5 in cross section M7-M9

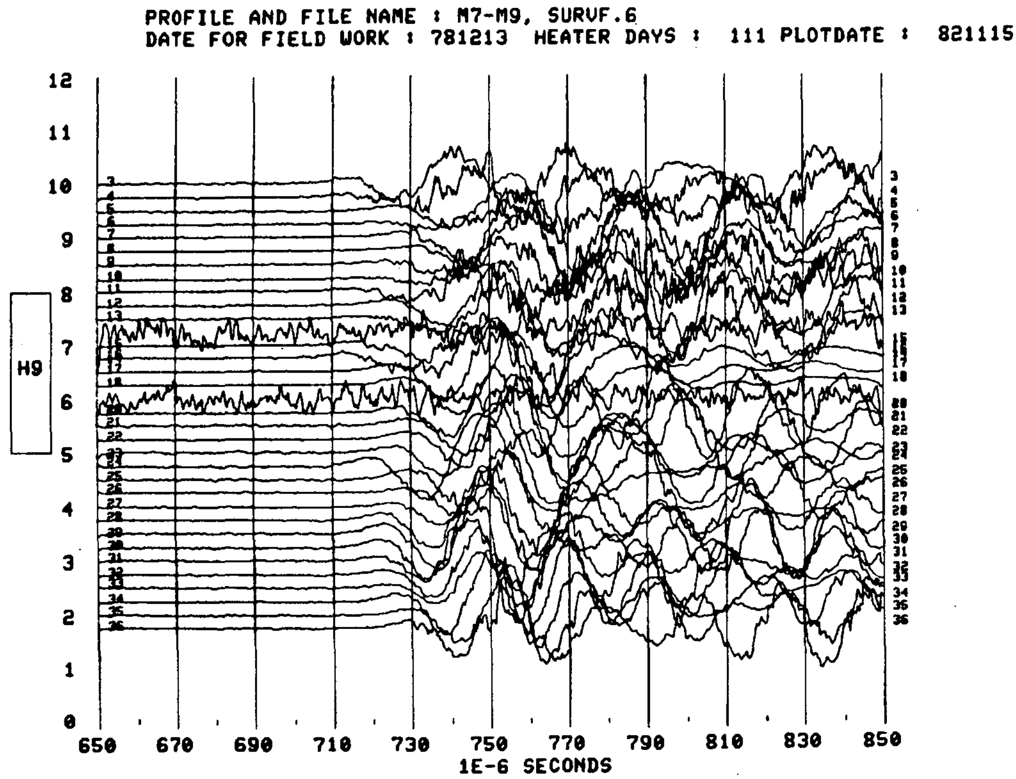


Fig. C:4.6e P waves for survey # 6 in cross section M7-M9

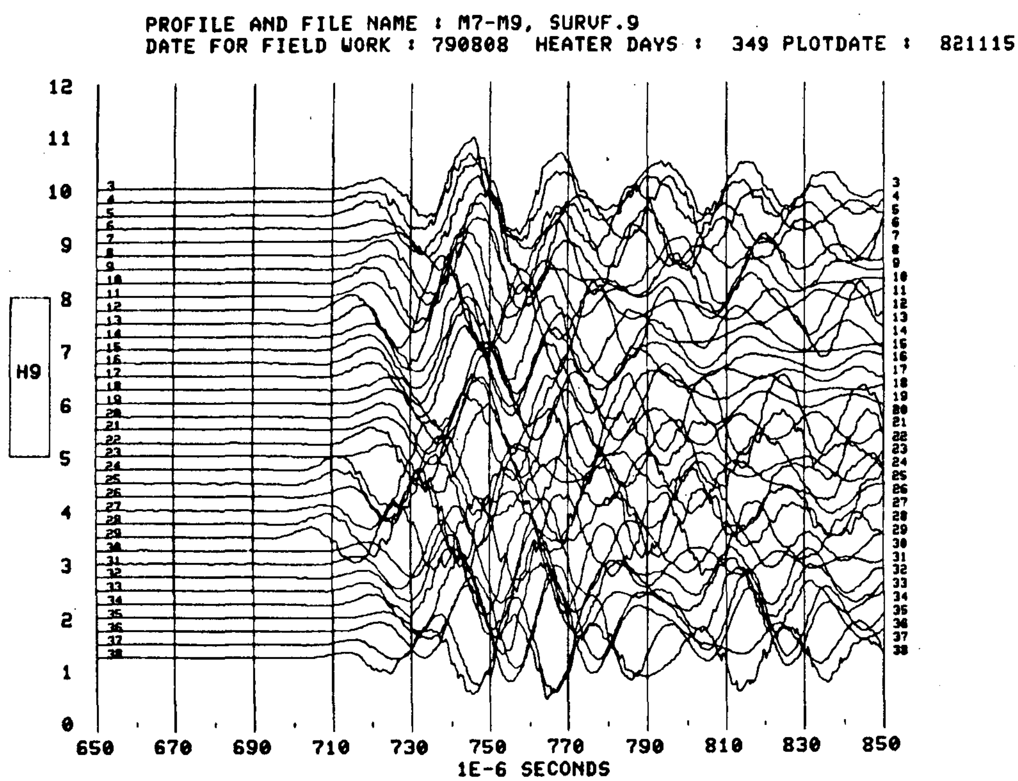


Fig. C:4.6f P waves for survey # 9 in cross section M7-M9

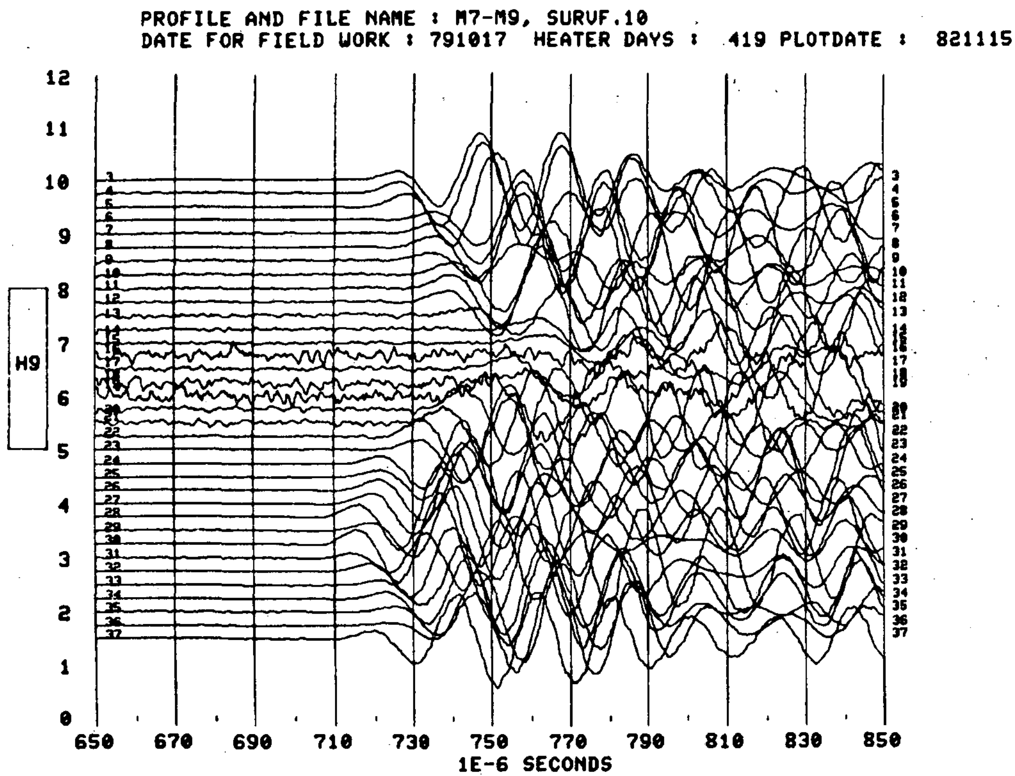


Fig. C:4.6g P waves for survey # 10 in cross section M7-M9

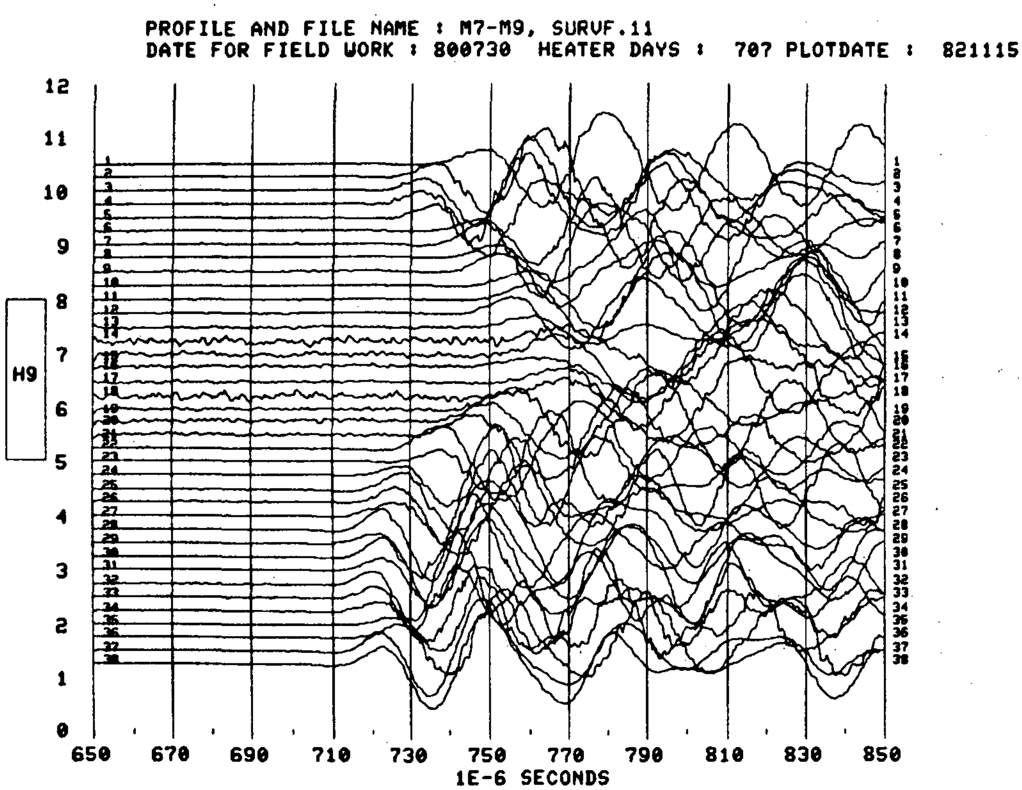


Fig. C:4.6h P waves for survey # 11 in cross section M7-M9

Appendix D:1 - Tables and figures for Q-values in monitor and reference line.

In this appendix the Q values are presented in table form as well as being graphed with the one graph for each monitor line. By plotting all the Q - values in one graph the individual curve in obscured.

D:1.1

M7-M6 #	DAY #	Q-VALUE	VELOCITY
1	-44	15.2641	5686
2	21	13.7203	5819
3	50	13.4492	5816
4	57	12.8249	5800
5	64	12.6778	5814
6	78	12.596	5851
7	91	12.8576	5877
8	110	15.1213	5871
9	133	18.2563	5869
10	159	18.9314	5905
11	176	18.5777	5902
12	195	17.3033	5895
13	210	16.0394	5900
14	222	16.1951	5912
15	238	18.1306	5919
16	252	19.6602	5914
17	267	19.6388	5888
18	306	18.9133	5888
19	330	18.7944	5869
20	333	18.6473	5903
21	334	18.6072	5874
22	335	19.3096	5868
23	337	20.2391	5858
24	344	21.4915	5855
25	351	22.07	5863
26	362	20.2496	5895
27	376	19.2701	5861
28	383	19.793	5872
29	398	20.8559	5852
30	399	21.3549	5854
31	399	21.2555	5854
32	400	20.0328	5845
33	400	18.3044	5845
34	403	17.5155	5806
35	403	17.4477	5806
36	404	18.4264	5785
37	405	19.4224	5779
38	406	19.3061	5804
39	410	19.3907	5754
40	411	19.4741	5761
41	412	19.2052	5745
42	413	18.6706	5770
43	414	18.3372	5768
44	417	18.3088	5754
45	417	18.6618	5754
46	418	19.0446	5748
47	419	19.1604	5762
48	420	19.2706	5737
49	424	19.2844	5742
50	426	19.3937	5734
51	428	19.5554	5727
52	431	19.5999	5727
53	433	19.461	5736
54	435	19.256	5739
55	438	19.1135	5730
56	440	19.052	5736
57	442	18.9537	5737
58	447	18.7412	5737
59	449	18.54	5739
60	452	18.3707	5737
61	454	18.2583	5739
62	456	18.1662	5737
63	459	18.0652	5746
64	462	18.0473	5746
65	466	18.0662	5749
66	469	18.0124	5743
67	473	17.9867	5737
68	476	18.128	5742
69	480	18.2663	5743
70	483	18.2804	5739
71	497	18.1871	5756
72	501	18.1368	5758
73	503	18.1406	5759
74	505	18.1405	5759
75	508	18.1453	5746
76	510	18.0721	5743
77	512	17.9642	5755
78	515	17.8639	5751
79	518	17.802	5756
80	522	17.7323	5755
81	526	17.6859	5761
82	530	17.6919	5746
83	533	17.7351	5746
84	536	17.747	5745
85	539	17.6833	5748
86	543	17.6508	5759
87	546	17.5994	5756
88	550	17.5878	5764
89	557	17.6526	5755
90	564	17.6016	5748
91	571	17.5426	5752
92	575	17.4004	5754
93	585	16.1109	5751
94	701	13.5585	5783

D:1.2

M8-M9 #	DAY #	Q-VALUE	VELOCITY
1	-42	18.6508	5868
2	21	16.1526	5900
3	50	15.1934	5929
4	57	14.9519	5924
5	64	15.2511	5924
6	78	15.8434	5951
7	91	16.0861	5940
8	110	16.4754	5952
9	118	17.9671	5952
10	133	19.2828	5952
11	159	19.6448	5946
12	176	19.6018	5939
13	195	19.3708	5948
14	210	19.5192	5943
15	222	20.5464	5940
16	238	21.8127	5955
17	252	21.5677	5946
18	267	20.4	5965
19	271	20.2256	5949
20	306	20.9197	5949
21	330	21.8735	5944
22	333	23.2744	5938
23	334	24.1594	5938
24	335	24.2568	5936
25	337	22.7834	5935
26	343	21.8144	5938
27	344	21.8464	5927
28	351	21.4849	5928
29	362	19.8819	5925
30	376	19.3347	5936
31	383	21.6552	5928
32	398	25.2971	5934
33	399	26.9816	5940
34	399	27.4349	5940
35	400	27.4782	5940
36	400	27.5732	5940
37	403	27.9491	5932
38	403	28.0737	5932
39	404	27.3523	5926
40	404	26.8834	5926
41	405	26.6337	5925
42	405	26.5224	5925
43	406	26.5886	5917
44	410	26.1485	5905
45	411	25.5346	5905
46	412	24.9778	5904
47	413	24.5354	5900
48	414	24.4417	5898
49	417	24.6086	5890
50	417	24.2943	5890
51	418	22.9553	5878
52	419	21.9965	5886
53	420	22.2061	5883
54	424	22.4261	5883
55	425	22.8383	5880
56	426	23.3651	5861
57	428	23.544	5859
58	431	23.6557	5856
59	433	23.8268	5853
60	435	23.8631	5853
61	438	23.721	5850
62	440	23.7752	5854
63	442	23.9268	5850
64	447	23.9822	5844
65	449	23.9009	5846
66	452	23.8932	5846
67	454	24.0577	5843
68	456	24.0112	5842
69	459	23.9	5836
70	462	24.0003	5839
71	466	24.2739	5836
72	469	24.3477	5837
73	473	24.7808	5835
74	476	26.4532	5831
75	480	27.3797	5836
76	483	25.9669	5816
77	497	24.8523	5809
78	501	24.1611	5809
79	503	23.8919	5809
80	505	23.8142	5812
81	508	23.6575	5814
82	510	23.4811	5816
83	512	23.0609	5819
84	515	22.6066	5816
85	518	22.4445	5815
86	522	22.2281	5816
87	526	22.0083	5818
88	530	21.9239	5816
89	533	21.821	5813
90	536	21.5814	5816
91	539	21.5528	5818
92	543	21.6762	5818
93	546	21.7292	5818
94	550	21.7806	5820
95	557	21.8135	5817
96	564	21.6424	5830
97	571	21.4917	5812
98	575	21.105	5817
99	585	18.6896	5820
100	711	14.0965	5856

Table D:1.1 *record#* , *day#* , Q_α , and V_p for line M7-M6 in H9 heater mid-plane.

Table D:1.2 *record#* , *day#* , Q_α , and V_p for line M8-M9 in H9 heater mid-plane.

D:1.3

M8-M6 #	DAY #	Q-VALUE	VELOCITY
1	-43	13.0743	5930
2	-7	13.0785	5930
3	6	12.853	5960
4	15	12.5853	5963
5	18	12.8494	5985
6	21	13.718	5995
7	50	14.169	5998
8	57	13.7777	5994
9	64	13.6316	5995
10	78	13.8629	6012
11	91	14.2955	6008
12	110	15.55	6014
13	118	18.1984	6016
14	133	19.7645	6029
15	159	18.9549	6029
16	176	18.2471	6030
17	195	16.9597	6025
18	210	15.2528	6032
19	222	15.835	6029
20	238	17.1513	6035
21	252	18.2717	6024
22	267	18.2173	6026
23	306	17.6789	6026
24	330	17.4725	6025
25	333	17.6234	6025
26	334	18.0652	6025
27	335	18.9677	6030
28	337	19.3969	6022
29	341	19.1715	6019
30	342	19.2472	6023
31	344	19.6601	6023
32	351	19.7242	6023
33	362	18.7001	6023
34	376	17.9754	6023
35	383	18.2582	6023
36	398	19.332	6023
37	399	20.2423	6021
38	399	20.4756	6021
39	400	20.4398	6017
40	400	20.4569	6017
41	403	20.375	5998
42	403	20.1624	5998
43	404	19.9789	5988
44	404	19.9595	5988
45	405	19.8632	5985
46	405	19.6763	5985
47	406	19.4844	5982
48	410	19.2245	5960
49	411	18.8601	5962
50	412	18.6795	5957
51	413	18.3816	5955
52	414	18.0005	5951
53	417	17.9965	5946
54	417	18.2130	5946
55	418	18.427	5945
56	419	18.4905	5941
57	420	18.6271	5939
58	424	18.7673	5924
59	426	18.7562	5927
60	428	18.7161	5925
61	431	18.749	5924
62	433	18.7863	5921
63	435	18.7603	5923
64	438	18.7426	5920
65	440	18.7581	5919
66	442	18.8028	5914
67	447	18.76	5911
68	449	18.6601	5914
69	452	18.7111	5911
70	454	18.8566	5914
71	456	18.8886	5912
72	459	18.7883	5911
73	462	18.6737	5911
74	466	18.6822	5911
75	469	18.7938	5908
76	473	19.207	5907
77	476	20.178	5904
78	480	20.7551	5897
79	483	20.1529	5896
80	497	19.8087	5898
81	501	19.6024	5898
82	503	19.3721	5896
83	505	19.2106	5899
84	508	19.1788	5900
85	510	19.1046	5899
86	512	18.935	5898
87	515	18.6863	5899
88	518	18.4958	5899
89	522	18.3816	5899
90	526	18.1492	5903
91	530	18.0327	5901
92	533	18.2182	5902
93	536	18.2039	5900
94	539	18.095	5901
95	543	18.0293	5900
96	546	18.0521	5903
97	550	18.098	5904
98	557	18.1019	5908
99	564	17.8696	5905
100	571	17.5239	5907
101	575	17.232	5898
102	585	15.813	5897
103	704	12.7585	5915

D:1.4

M7-M9 #	DAY #	Q-VALUE	VELOCITY
1	-43	11.5796	5748
2	0	11.721	5731
3	6	12.5487	5826
4	8	13.0837	5862
5	11	13.0739	5873
6	12	13.0473	5889
7	13	13.1027	5882
8	14	12.9454	5889
9	15	12.5177	5897
10	21	12.3072	5874
11	50	12.4728	5896
12	57	12.5117	5899
13	64	12.7595	5888
14	78	13.1631	5909
15	91	13.2464	5919
16	110	13.887	5918
17	112	16.1214	5917
18	133	17.7609	5917
19	159	17.0542	5924
20	176	16.4894	5933
21	195	15.4826	5931
22	210	14.1966	5931
23	222	14.415	5918
24	235	15.8244	5918
25	252	16.6826	5918
26	267	17.0264	5918
27	271	17.3689	5918
28	306	17.5397	5918
29	330	18.2226	5918
30	333	19.1584	5930
31	334	19.5519	5930
32	335	19.746	5930
33	337	19.2337	5916
34	344	18.8705	5916
35	349	19.502	5915
36	351	19.7961	5919
37	362	18.4511	5919
38	376	17.9207	5923
39	383	19.6472	5910
40	398	22.4818	5910
41	399	23.8058	5909
42	399	23.896	5909
43	400	22.0042	5857
44	400	18.7836	5847
45	403	16.7147	5837
46	403	15.7244	5827
47	404	15.3812	5817
48	405	14.9522	5807
49	406	13.8352	5797
50	410	12.8268	5787
51	411	12.2795	5777
52	412	11.9258	5767
53	413	11.6727	5757
54	414	11.5496	5747
55	417	11.5518	5737
56	417	11.6659	5727
57	418	11.8051	5717
58	419	11.8548	5697
59	420	11.9136	5687
60	424	11.9155	5677
61	426	11.8328	5677
62	428	11.896	5667
63	431	11.9812	5669
64	433	12.0295	5694
65	435	12.0756	5665
66	438	12.1477	5642
67	440	12.2994	5644
68	442	12.4869	5650
69	447	12.6414	5645
70	449	12.7033	5644
71	452	12.7482	5648
72	454	12.8007	5648
73	456	12.8801	5646
74	459	12.9647	5643
75	462	13.0221	5644
76	466	13.0201	5681
77	469	13.008	5675
78	473	13.0363	5684
79	476	13.0936	5683
80	480	13.1406	5688
81	483	13.1206	5687
82	497	13.0036	5686
83	501	12.9058	5684
84	503	12.8475	5691
85	505	12.789	5693
86	508	12.7894	5695
87	510	12.8151	5688
88	512	12.7672	5719
89	515	12.7027	5691
90	518	12.6773	5699
91	522	12.6776	5702
92	526	12.7279	5705
93	530	12.7468	5694
94	533	12.7225	5699
95	536	12.7166	5703
96	539	12.7288	5705
97	543	12.7489	5700
98	546	12.7661	5703
99	550	12.7592	5741
100	557	12.8637	5737
101	564	13.0502	5717
102	571	13.2454	5697
103	575	13.1028	5677
104	585	11.7721	5657
105	706	9.27969	5634

Table D:1.3 *record#* , *day#* , Q_α , and V_p for line M8-M6 in H9 heater mid-plane

Table D:1.4 *record#* , *day#* , Q_α , and V_p for line M7-M9 in H9 heater mid-plane

REF. PROFILE #	DAY #	Q-VALUE	VELOCITY
1	-1	13.8103	5899
2	0	13.6996	5904
3	5	13.7487	5901
4	6	14.2449	5904
5	19	14.9722	5907
6	20	14.9304	5925
7	20	14.5709	5922
8	20	14.4236	5902
9	20	14.6662	5921
10	110	14.9062	5920
11	110	15.3871	5920
12	110	15.8174	5920
13	110	15.7541	5920
14	113	15.8345	5935
15	116	16.3211	5931
16	118	17.1964	5930
17	118	17.6242	5925
18	119	18.1332	5926
19	119	19.4953	5930
20	132	19.576	5933
21	223	18.6976	5931
22	223	20.2825	5942
23	336	21.8044	5928
24	336	22.3349	5928
25	337	21.4985	5928
26	343	20.3429	5930
27	344	19.7895	5930
28	344	19.5316	5932
29	348	19.8896	5931
30	349	20.1955	5931
31	349	19.9104	5922
32	350	20.0203	5926
33	350	19.9703	5922
34	354	19.6531	5927
35	354	19.4805	5923
36	355	19.8436	5925
37	355	20.5802	5930
38	356	21.4677	5931
39	356	21.8541	5923
40	357	22.0288	5931
41	357	21.7568	5922
42	358	20.5656	5926
43	362	19.0721	5923
44	375	18.94	5925
45	375	20.183	5925
46	398	22.404	5918
47	398	23.6175	5918
48	419	25.2602	5922
49	420	25.4031	5921
50	424	24.5421	5920
51	424	23.5603	5920
52	424	23.0562	5927
53	425	22.6486	5917
54	425	22.8159	5920
55	425	22.7973	5918
56	426	22.3379	5927
57	566	22.2393	5926
58	566	20.633	5903
59	699	17.4113	5921
60	701	15.5963	5913
61	706	14.8511	5912
62	708	14.5821	5909
63	710	14.5494	5912
64	712	14.585	5912
65	712	14.6856	5907
66	712	14.7267	5907
67	712	14.5705	5909
68	750	14.5132	5912

Table D:1.5 *record#* , *day#* , Q_α , and V_n for reference line M9-M6 1 m below ground surface

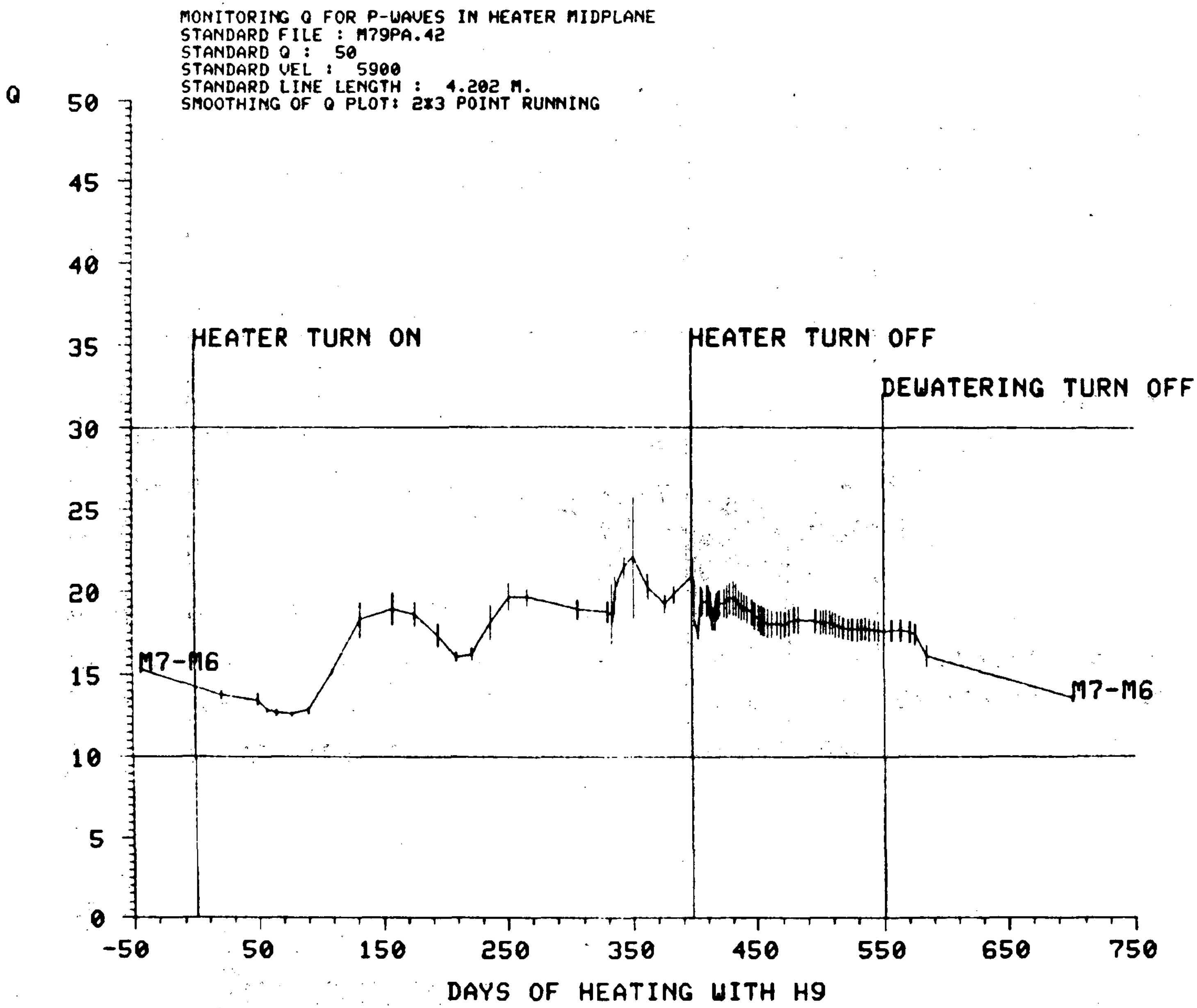


Fig. D:1.1 Q_α for monitor signals in heater midplane in line M7-M6

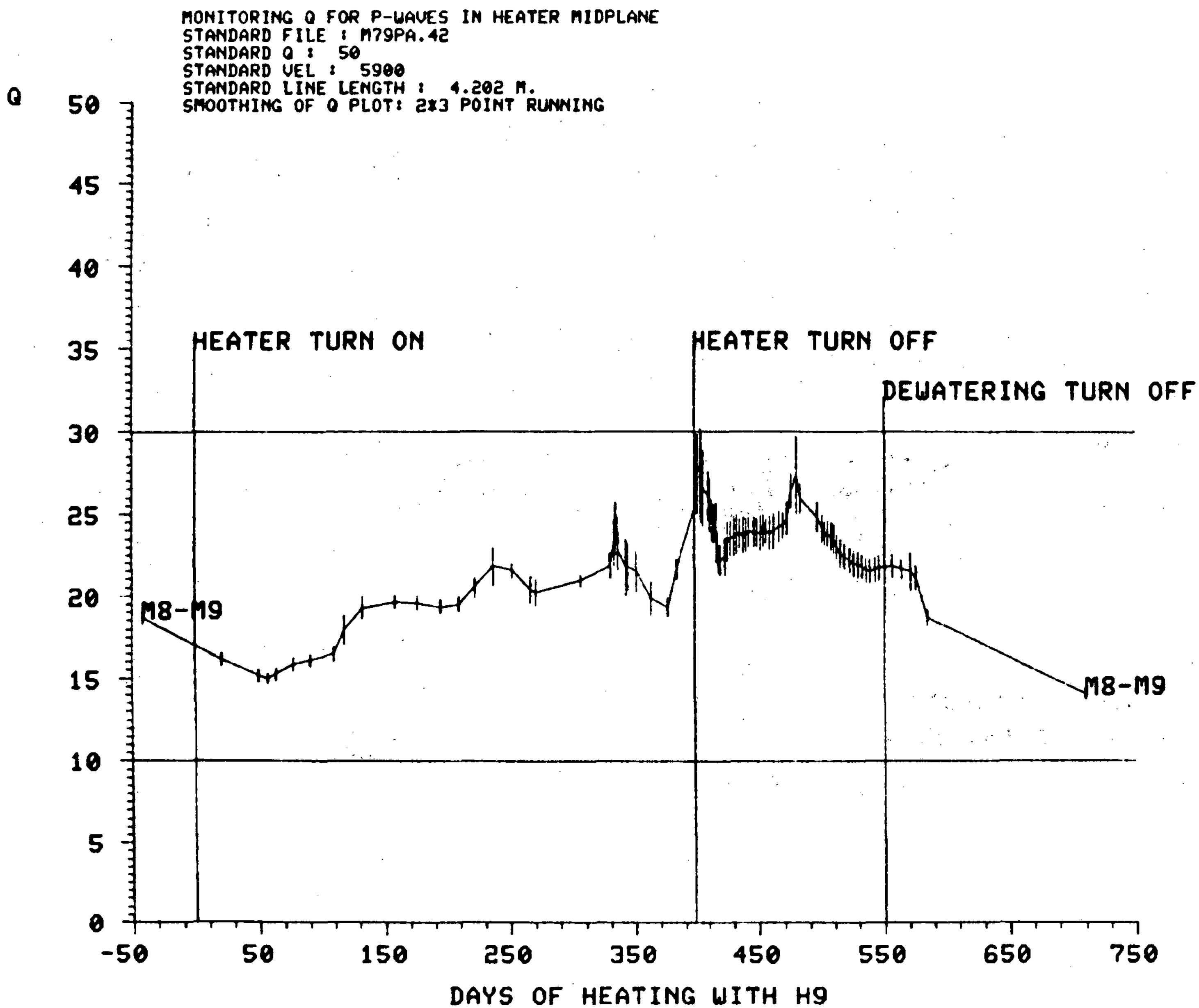


Fig. D:1.2 Q_a for monitor signals in heater midplane in line M8-M9.

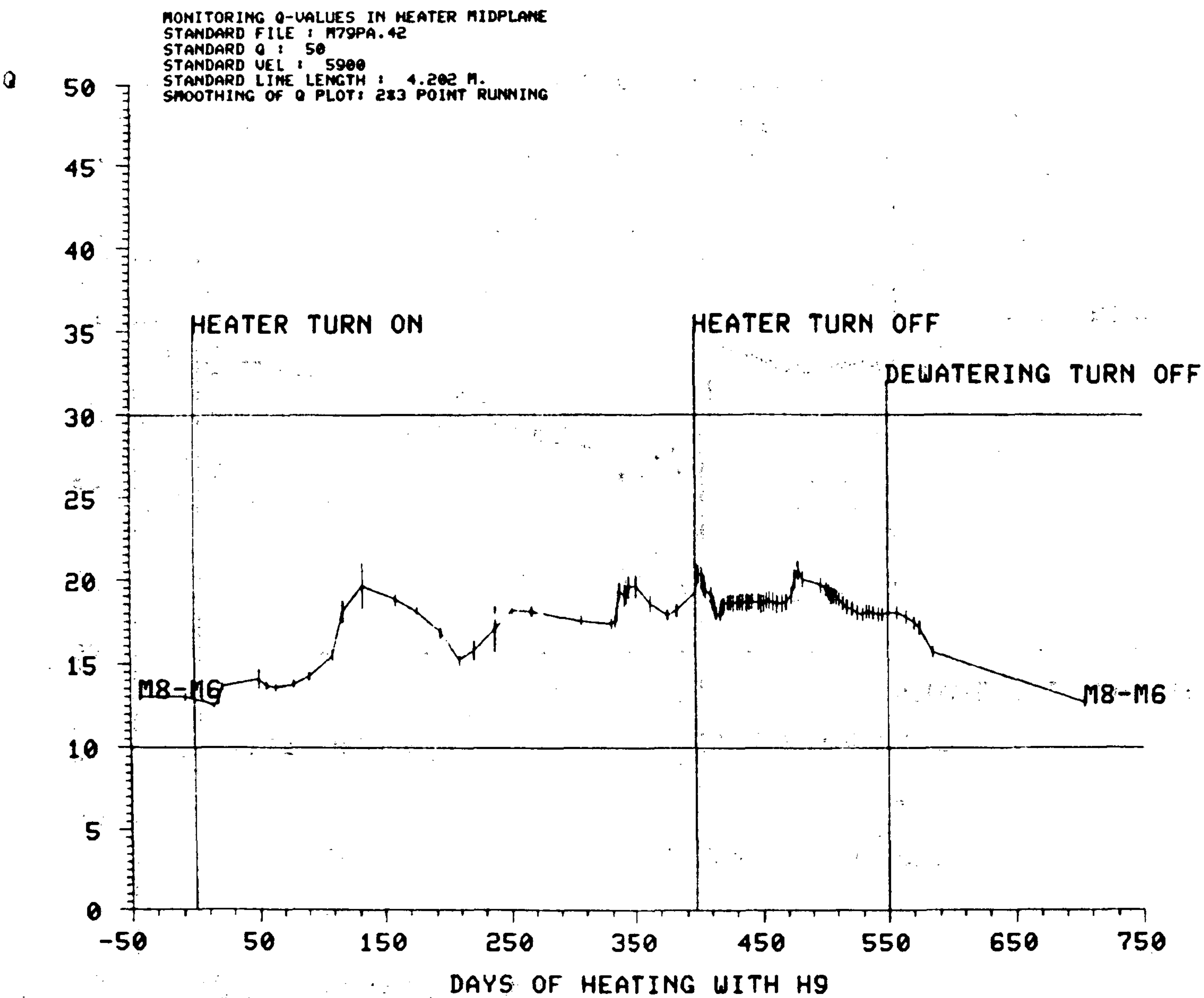


Fig. D:1.3 Q_a for monitor signals in heater midplane in line M8-M6.

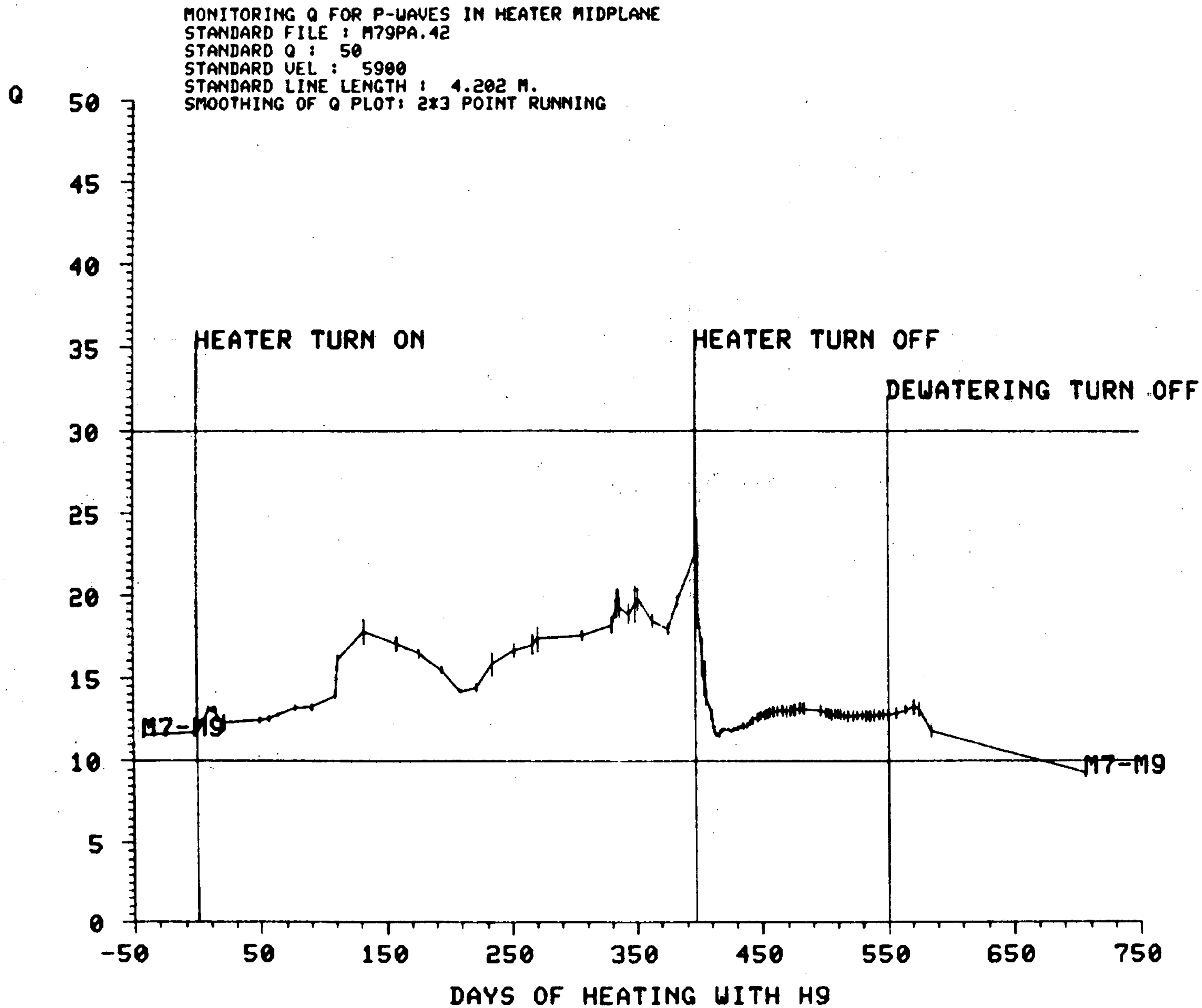


Fig. D:1.4 Q_a for monitor signals in heater midplane in line M7-M9.

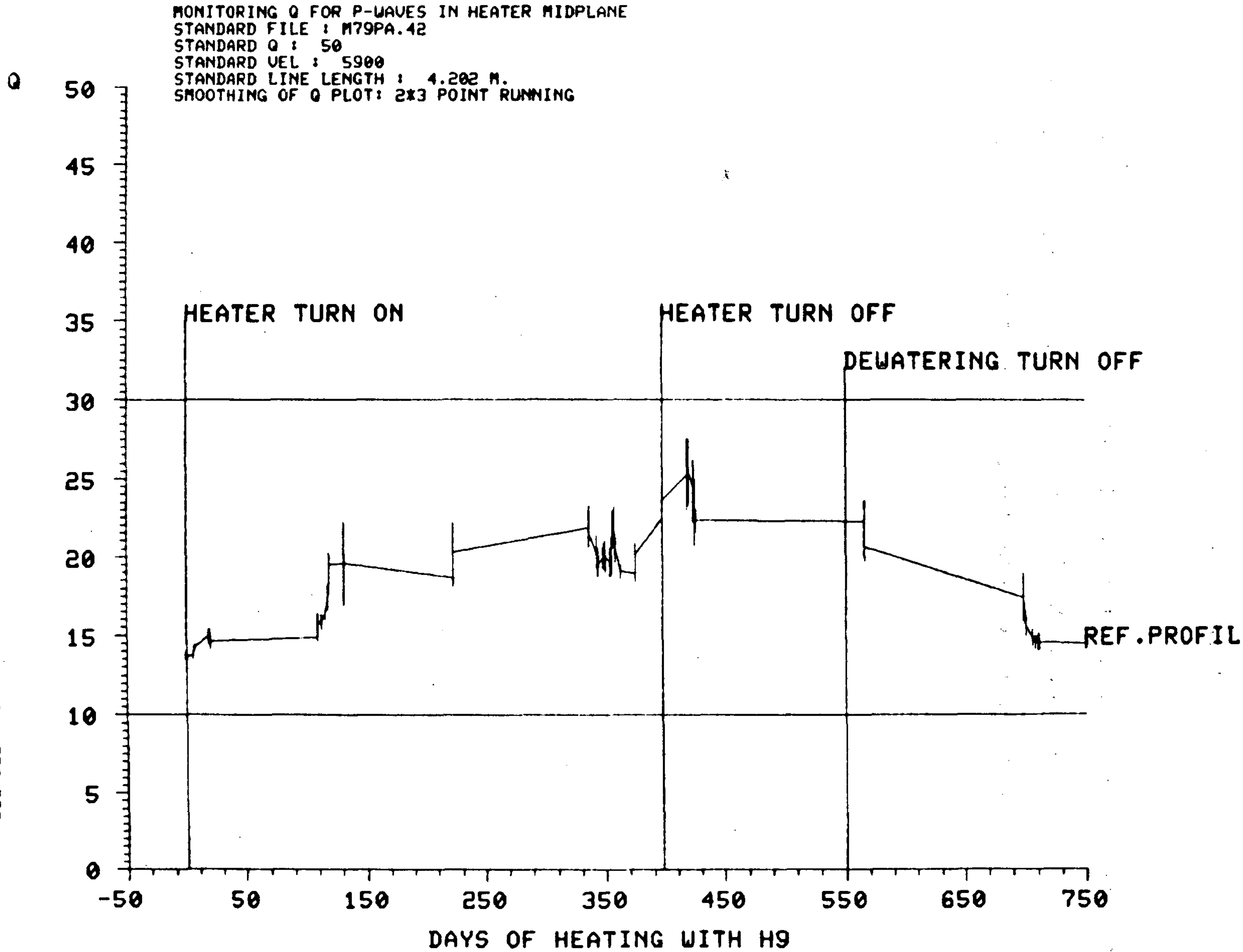


Fig. D.1.5 Q_a for reference signals between boreholes M6-M9.

Appendix D:2 - Amplitude spectra from seismic waves in the monitor and reference lines

The Fourier amplitude spectra from the ultra sonic cross holes signals are presented in this appendix. The amplitude spectra are obtained by Fourier transformation of the cross hole signals in Appendix D:2.

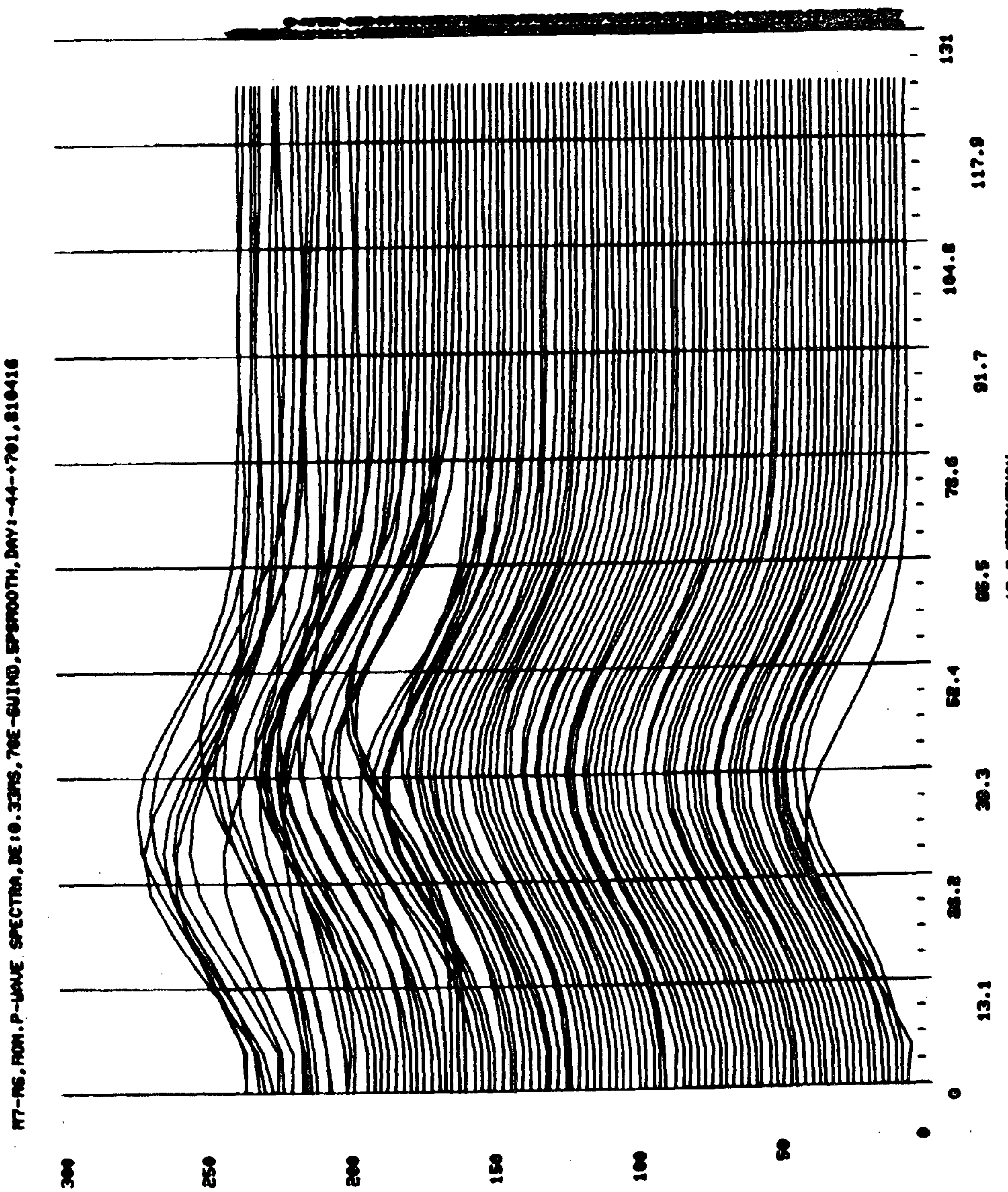


Fig. D:2.1 P wave amplitude spectra from monitor line M7-M6

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Fig. D:2.2

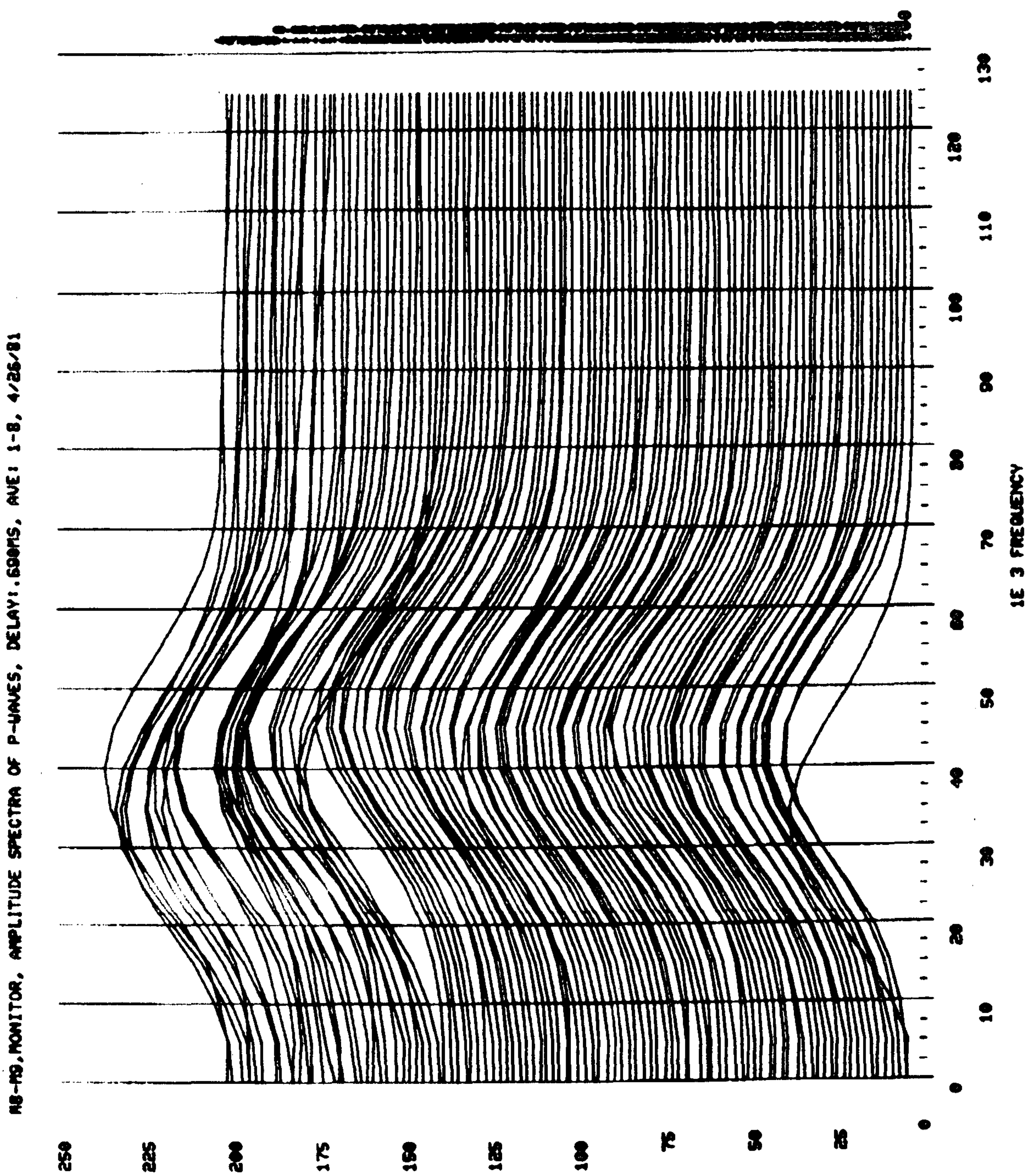


Fig. D:2.3 P wave amplitude spectra from monitor line M8-M9

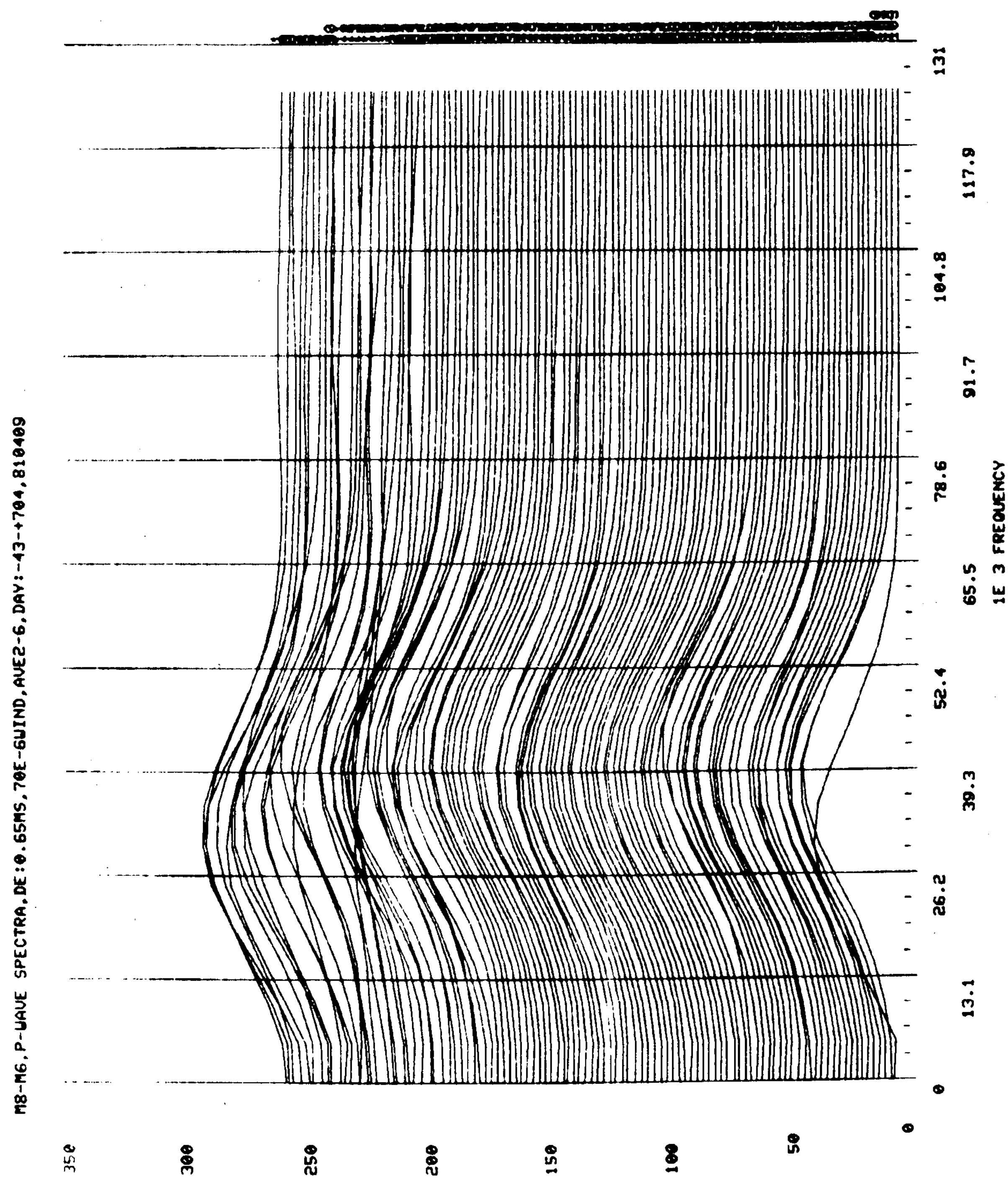


Fig. D:2.4 P wave amplitude spectra from monitor line M8-M6

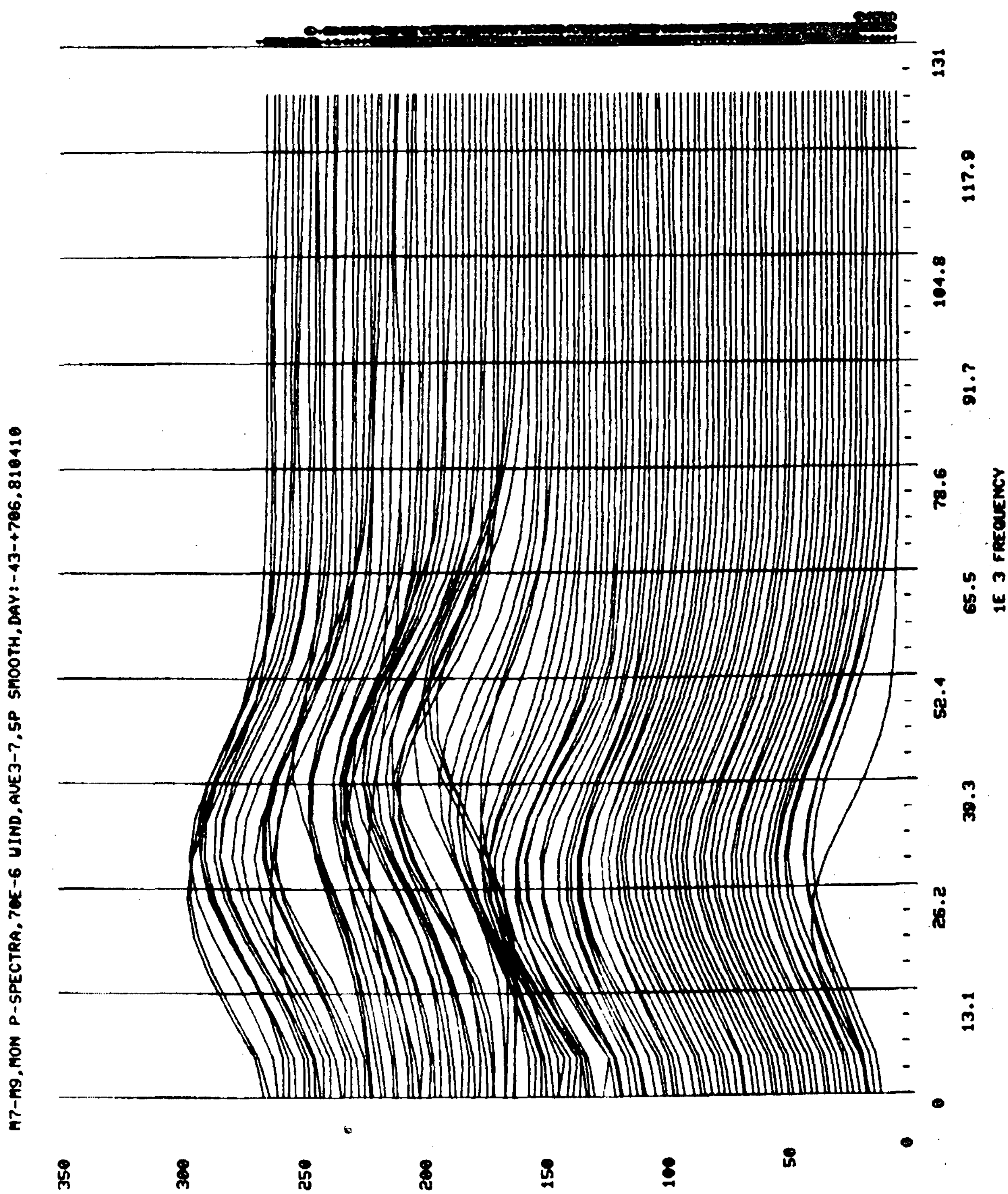


Fig. D:2.5 P wave amplitude spectra from monitor line M7-M9

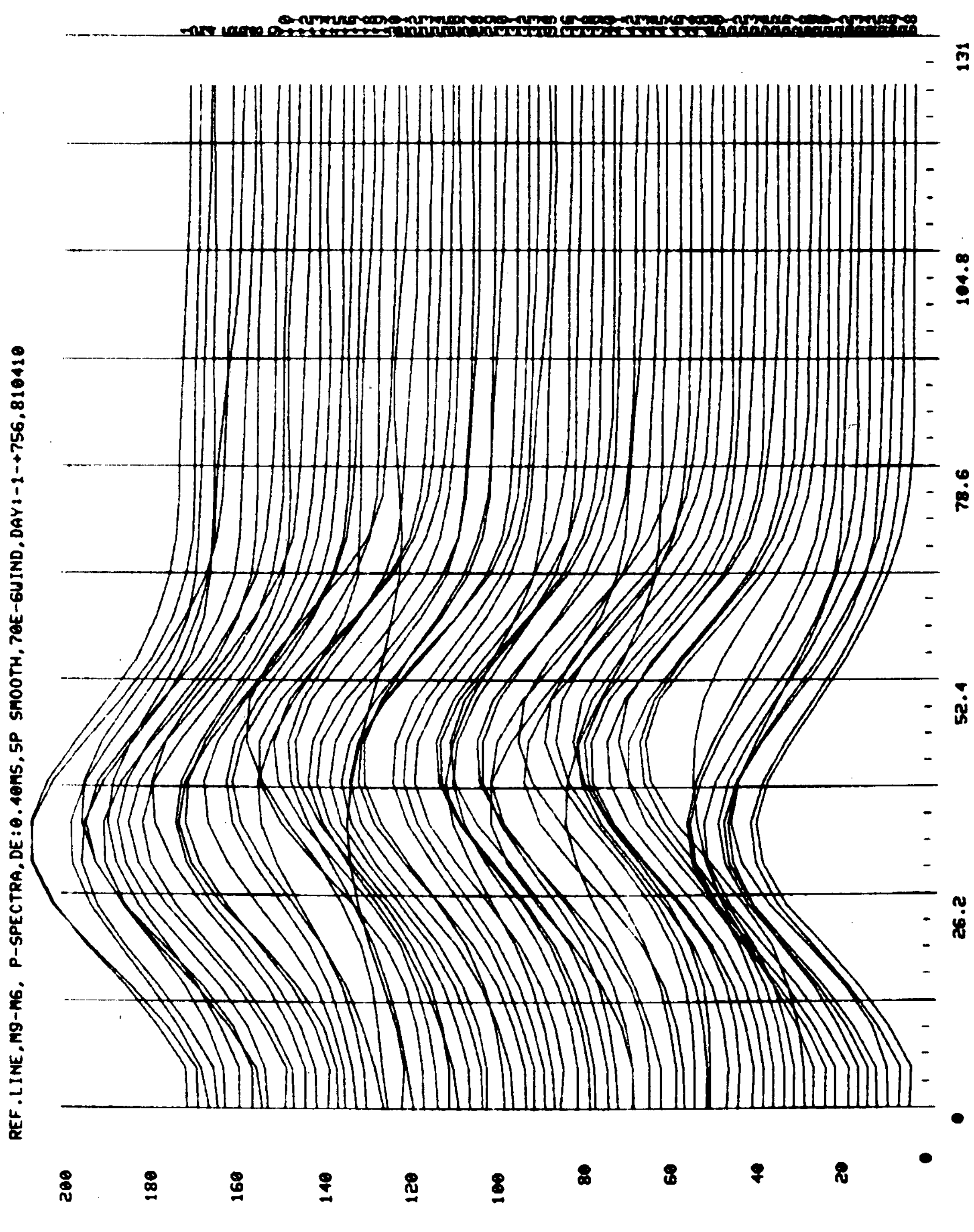


Fig. D:2.6 P wave amplitude spectra from reference line M9-M6

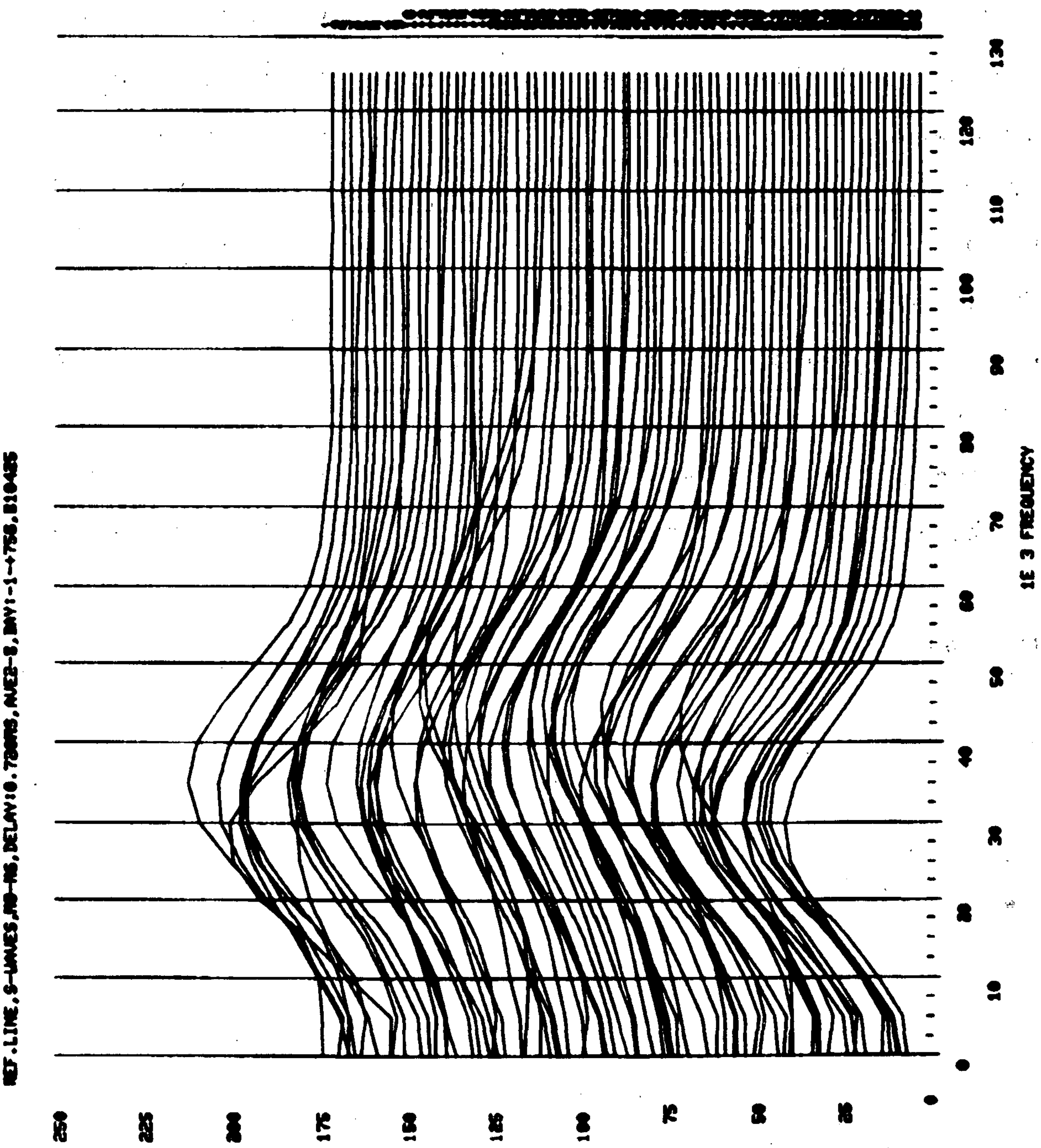


Fig. D:2.7 S wave amplitude spectra from reference line M9-m6

Appendix D:3 - P wave amplitude spectra for cross hole surveys in six sections.

The P wave amplitude spectra for the surveys between the four monitor holes in the H9 area are presented in this appendix. The order of presentation is the same as before starting with cross section M7-M6. In this cross section four surveys were performed. In cross section M7-M8 which follows, and in cross section M8-M9 as well as in cross section M6-M9 five surveys were perfomed during the course of the H9 heater experiment. The two main cross sections M8-M6 and M7-M9 follow both with 8 surveys, out of 10 and 11 respecively, presented.

The data is presented so the distance between two consecutive numbers represent a vertical distance of 0.25 m. Using this convention the heater shown in each figure is placed on the right level relative to the p wave signals.

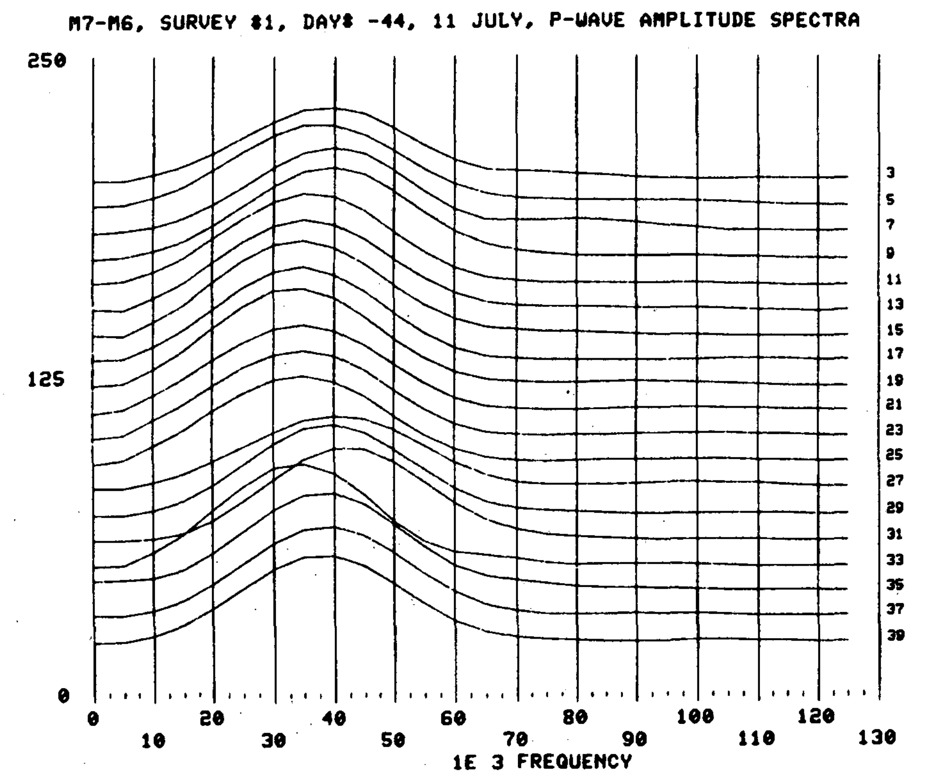


Fig. D:3.1a P wave amplitude spectra for survey # 1 in cross section M7-
M6

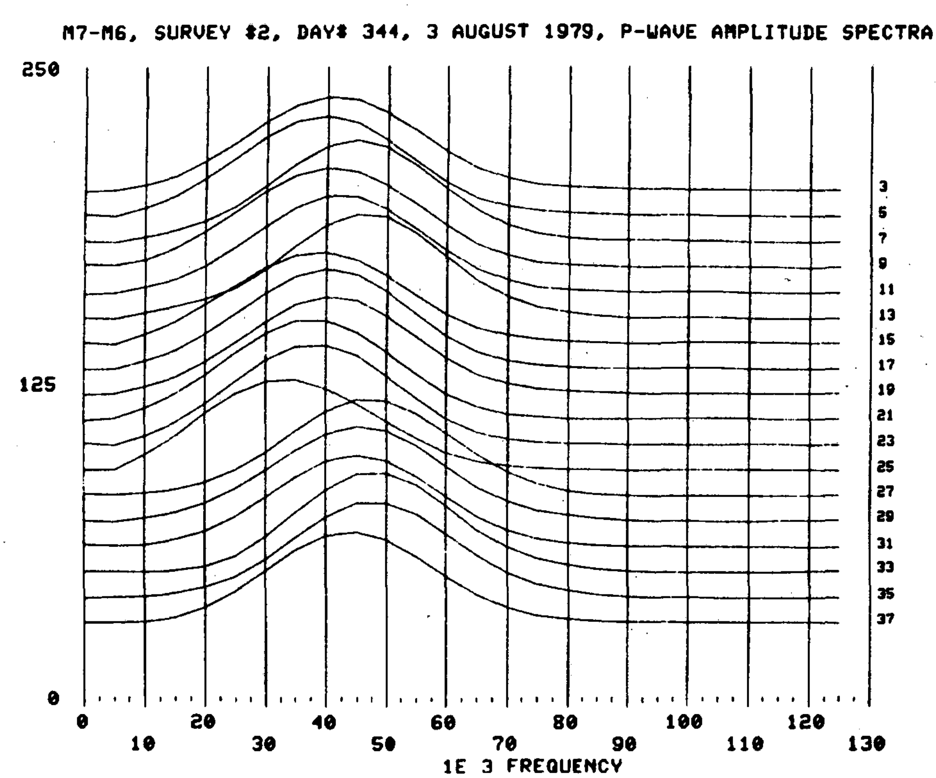


Fig. D:3.1b P wave amplitude spectra for survey # 2 in cross section M7-
M6

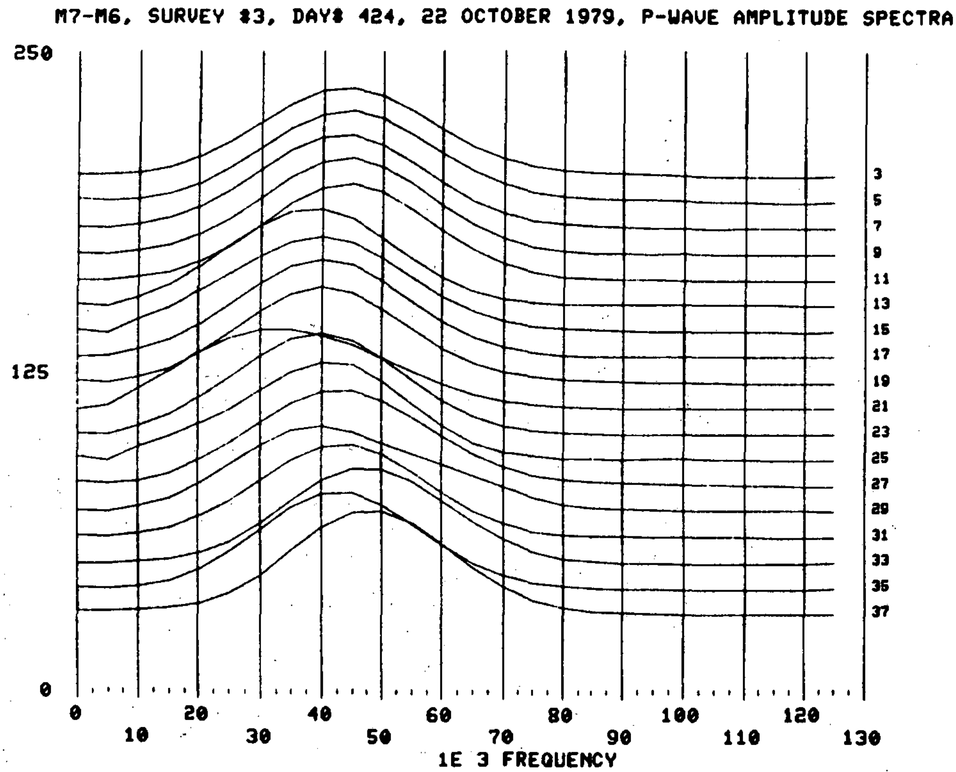


Fig. D:3.1c P wave amplitude spectra for survey # 3 in cross section M7-M6

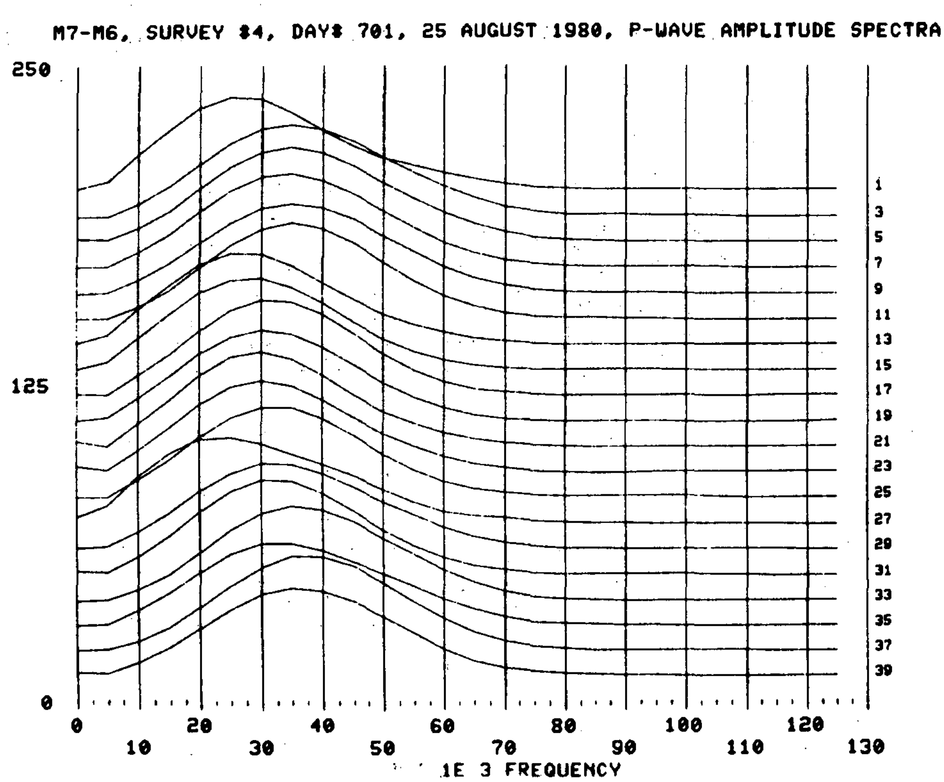


Fig. D:3.1d P wave amplitude spectra for survey # 4 in cross section M7-M6

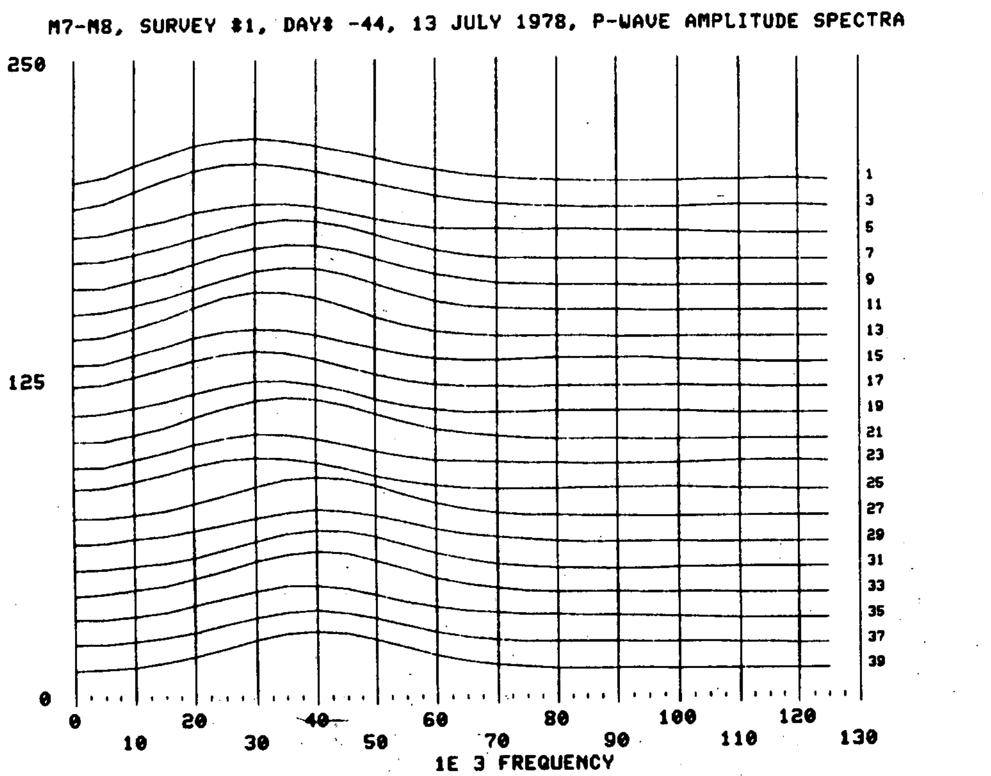


Fig. D:3.2a P wave amplitude spectra for survey # 1 in cross section M7-M8

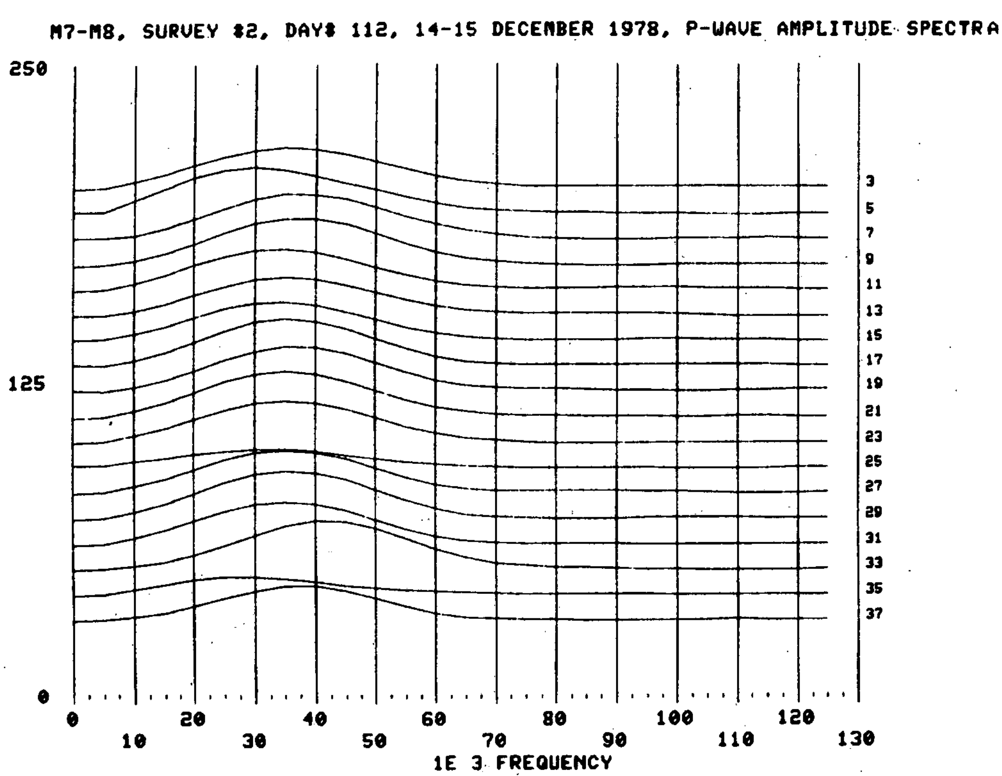


Fig. D:3.2b P wave amplitude spectra for survey # 2 in cross section M7-M8

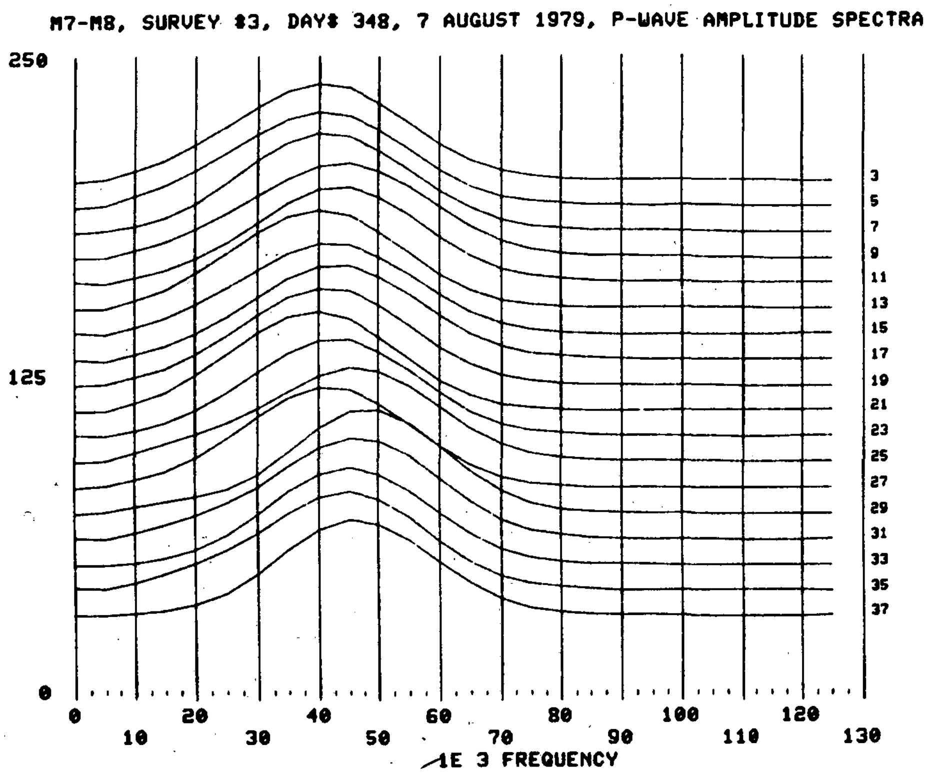


Fig. D:3.2c P wave amplitude spectra for survey # 3 in cross section M7-M8

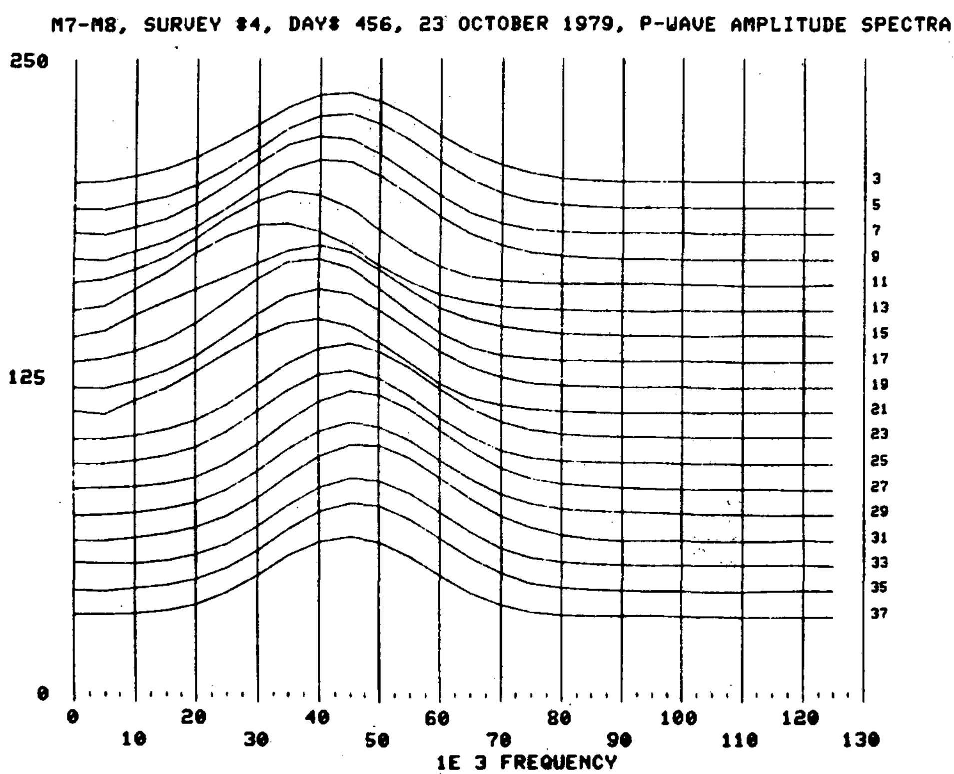


Fig. D:3.2d P wave amplitude spectra for survey # 4 in cross section M7-M8

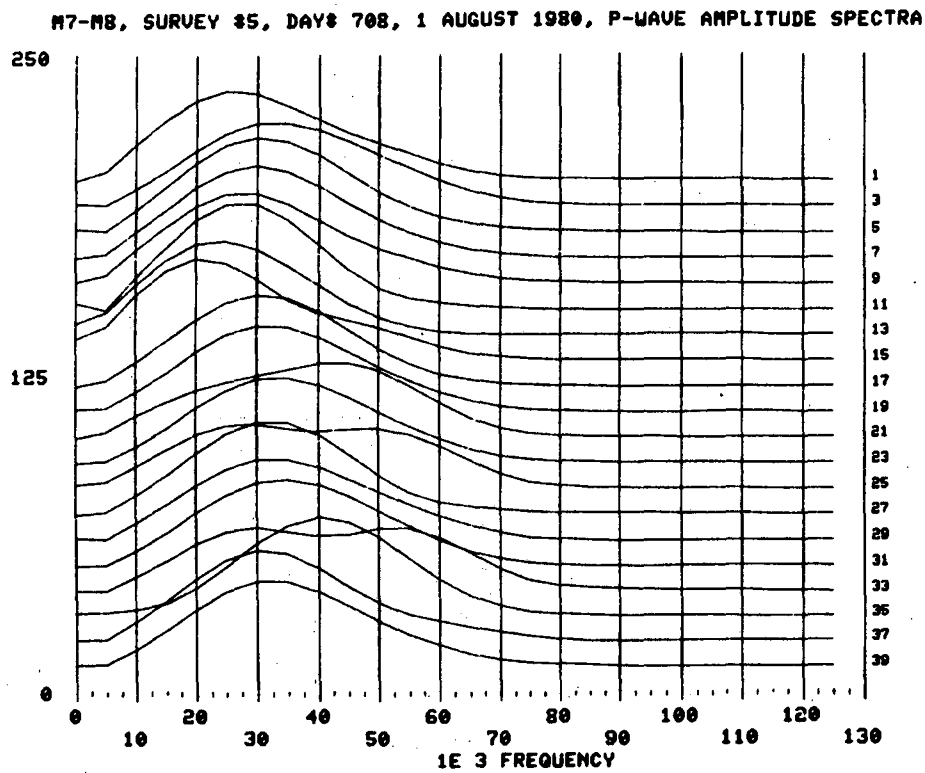


Fig. D:3.2e P wave amplitude spectra for survey # 5 in cross section M7-M8

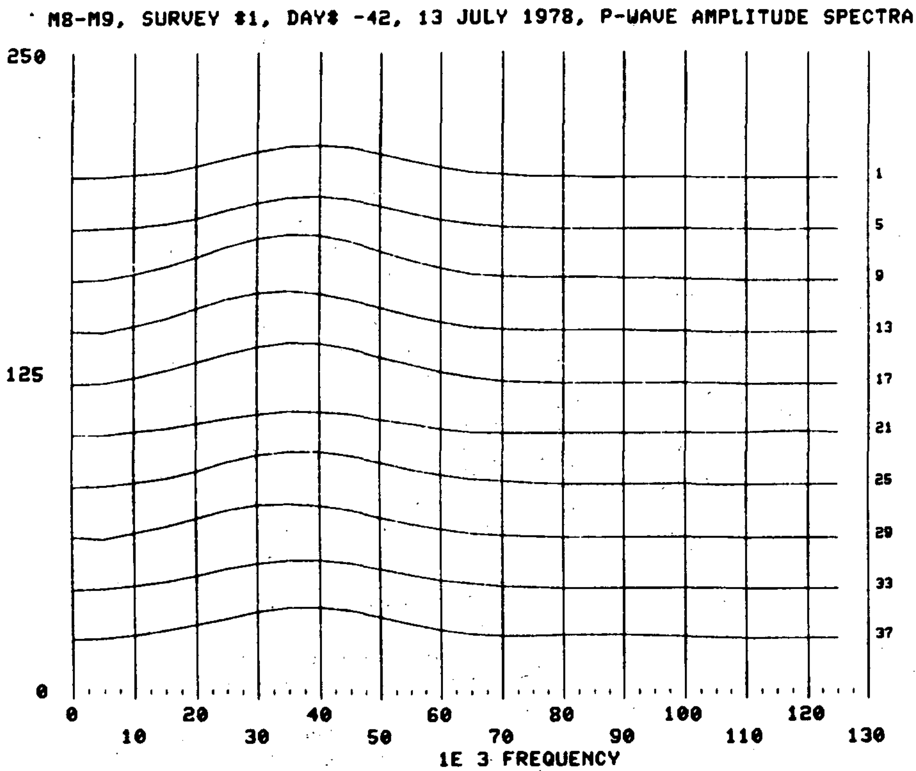


Fig. D:3.3a P wave amplitude spectra for survey # 1 in cross section M8-M9

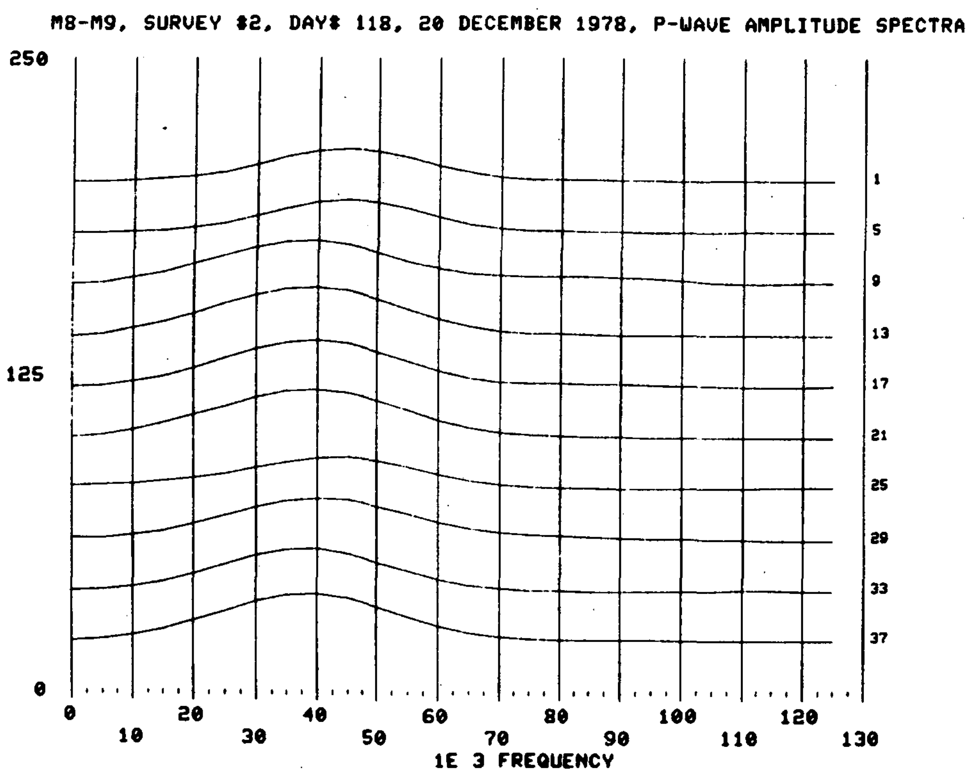


Fig. D:3.3b P wave amplitude spectra for survey # 2 in cross section M8-M9

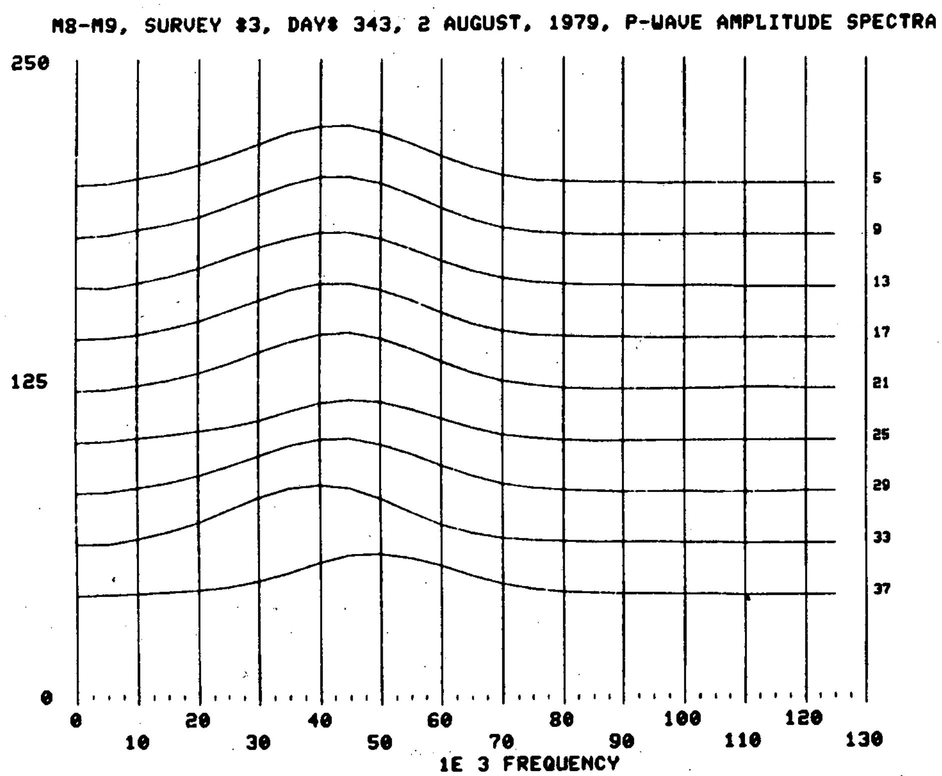


Fig. D:3.3c P wave amplitude spectra for survey # 3 in cross section M8-M9

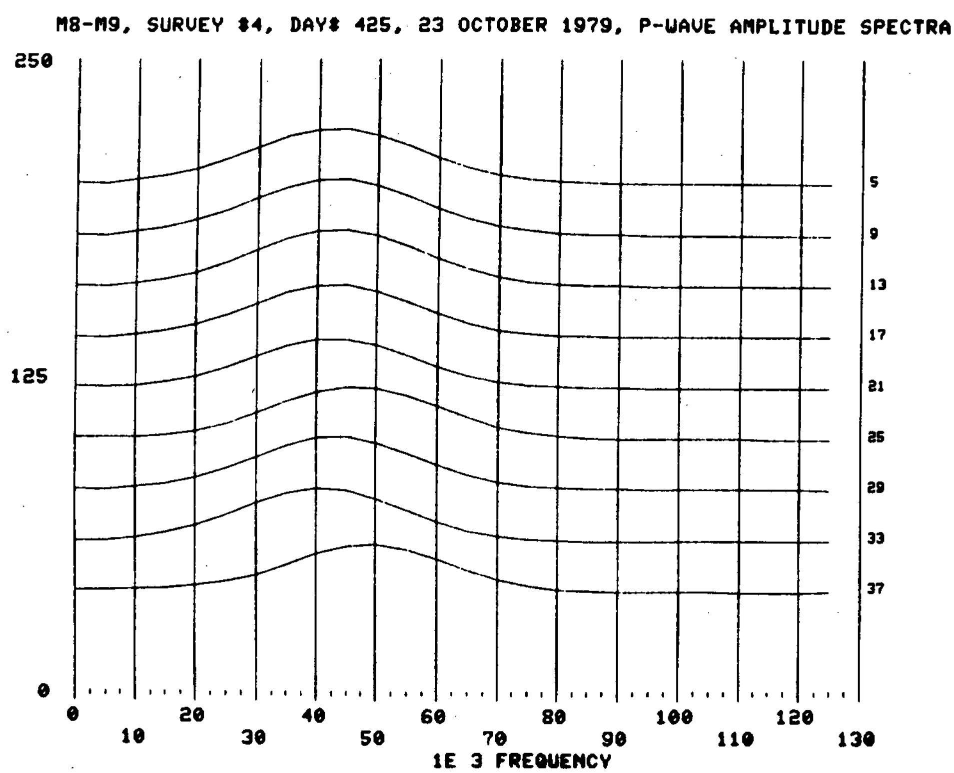


Fig. D:3.3d P wave amplitude spectra for survey # 4 in cross section M8-M9

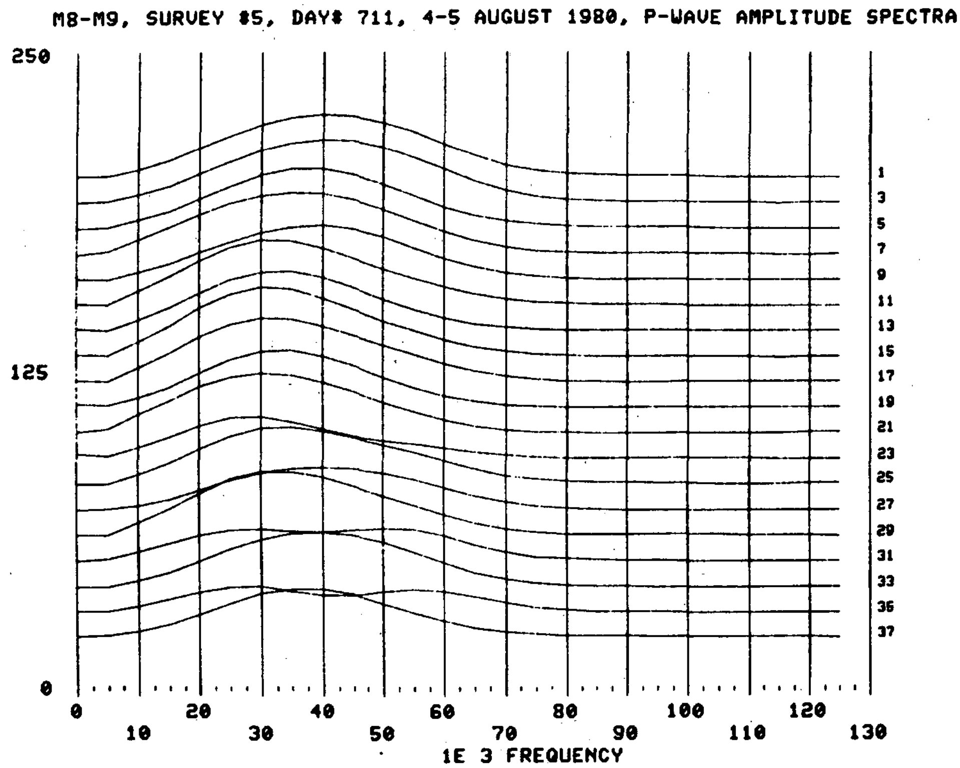


Fig. D:3.3e P wave amplitude spectra for survey # 5 in cross section M8-M9

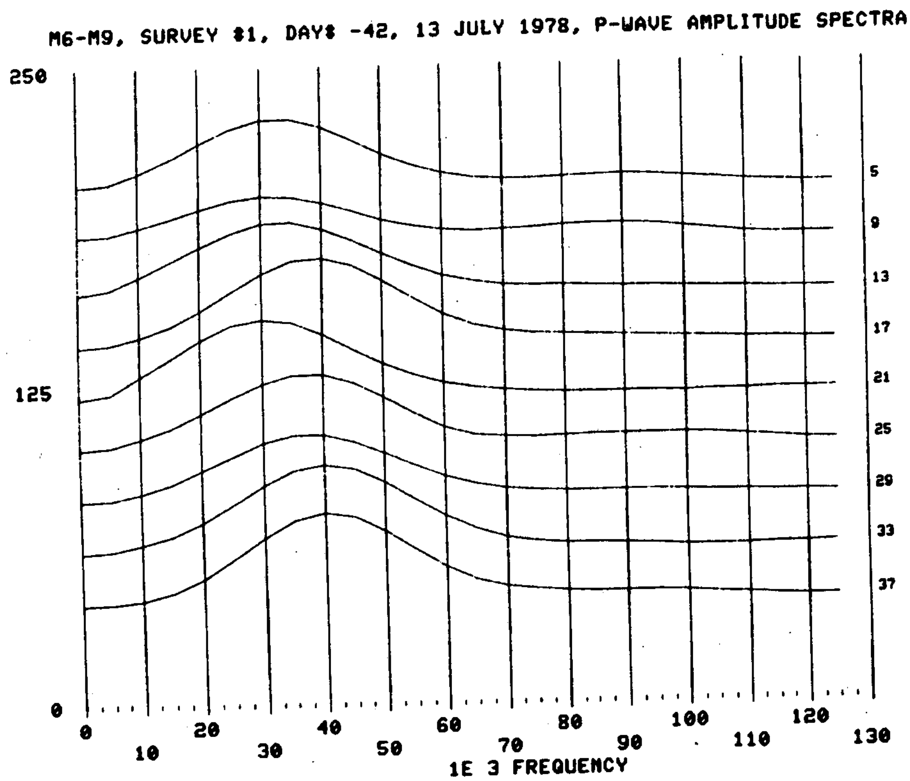


Fig. D:3.4a P wave amplitude spectra for survey # 1 in cross section M6-M9

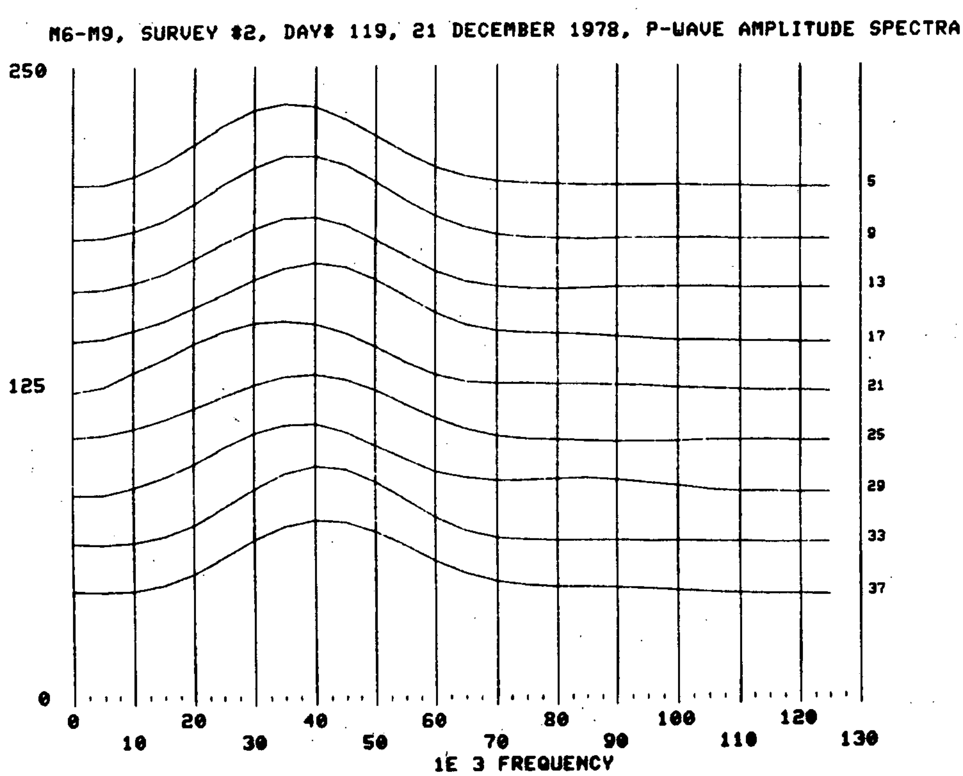


Fig. D:3.4b P wave amplitude spectra for survey # 2 in cross section M6-M9

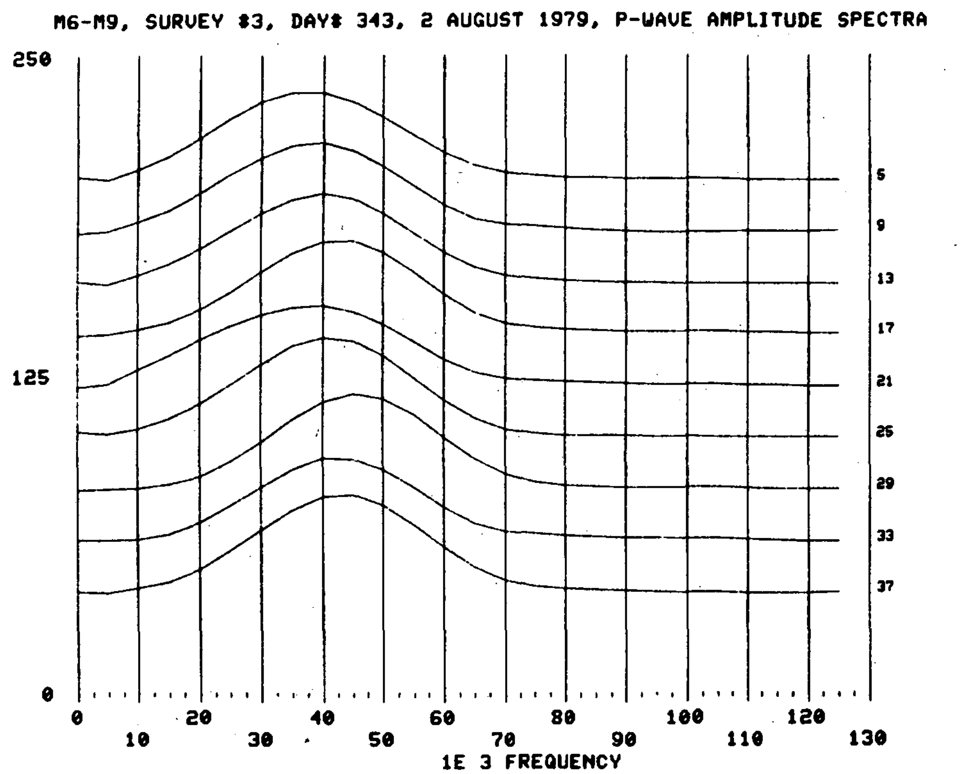


Fig. D:3.4c P wave amplitude spectra for survey # 3 in cross section M6-M9

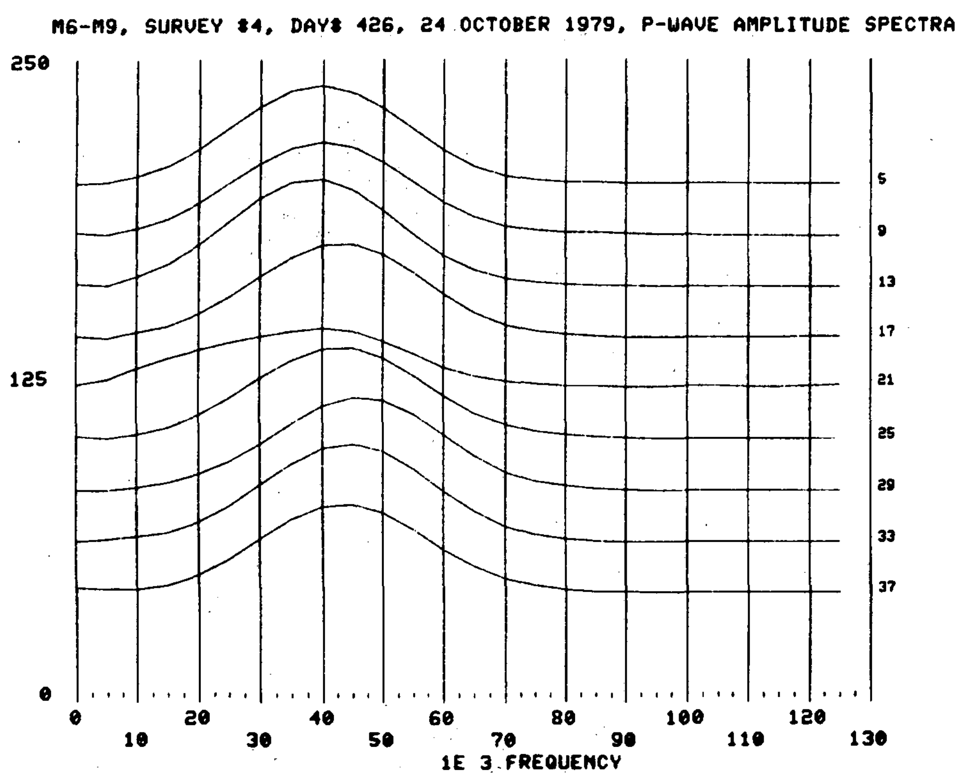


Fig. D:3.4d P wave amplitude spectra for survey # 4 in cross section M6-M9

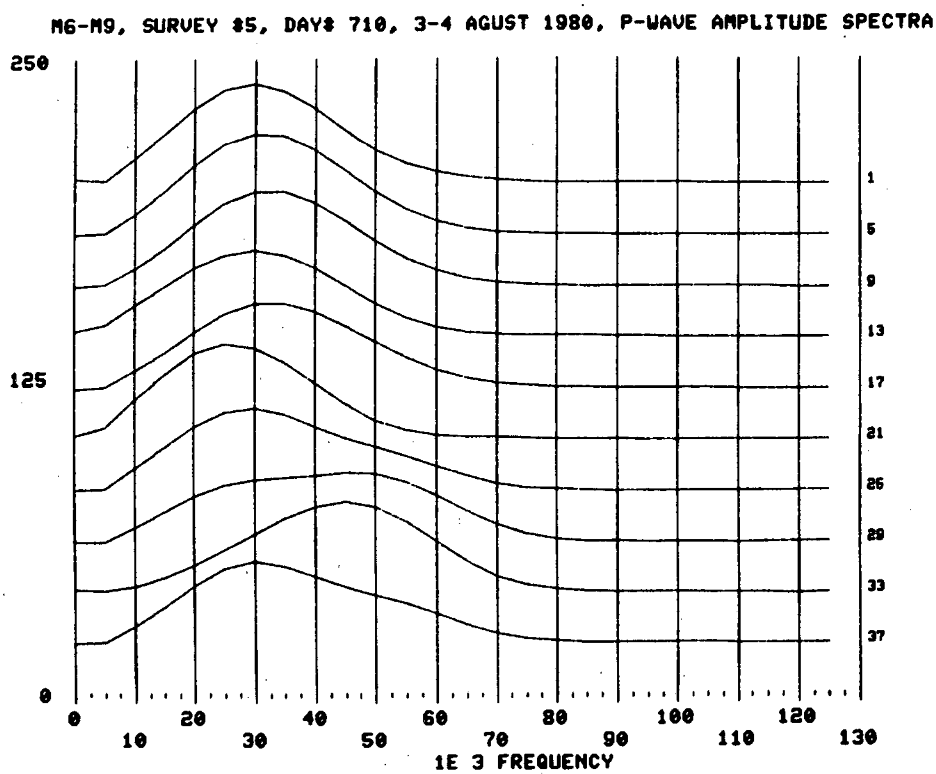


Fig. D:3.4e P wave amplitude spectra for survey # 5 in cross section M6-M9

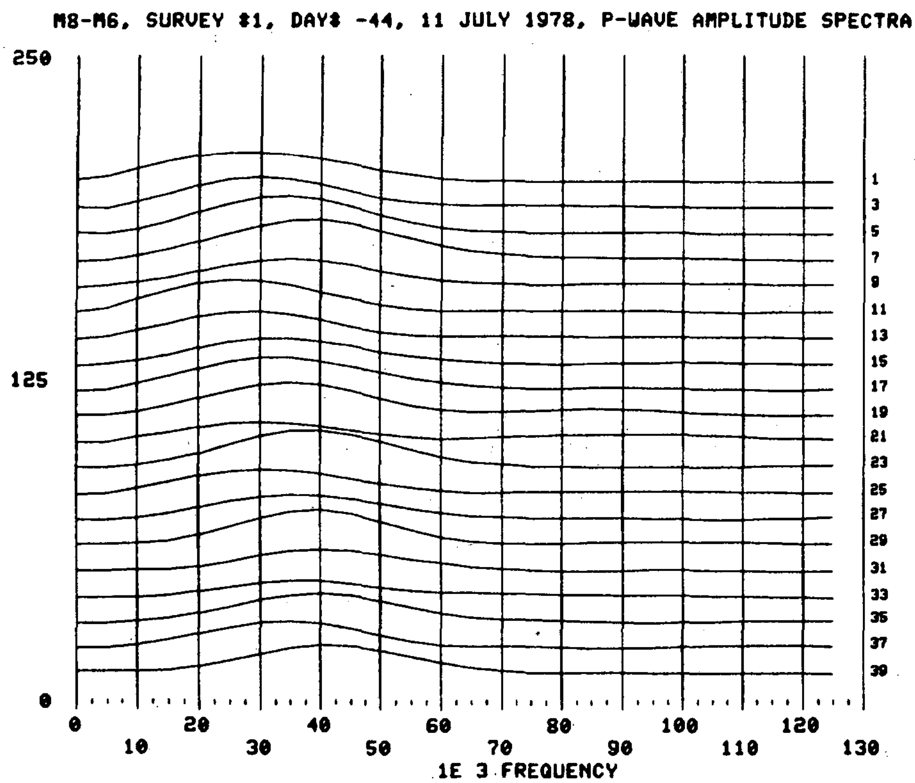


Fig. D:3.5a P wave amplitude spectra for survey # 1 in cross section M8-M6

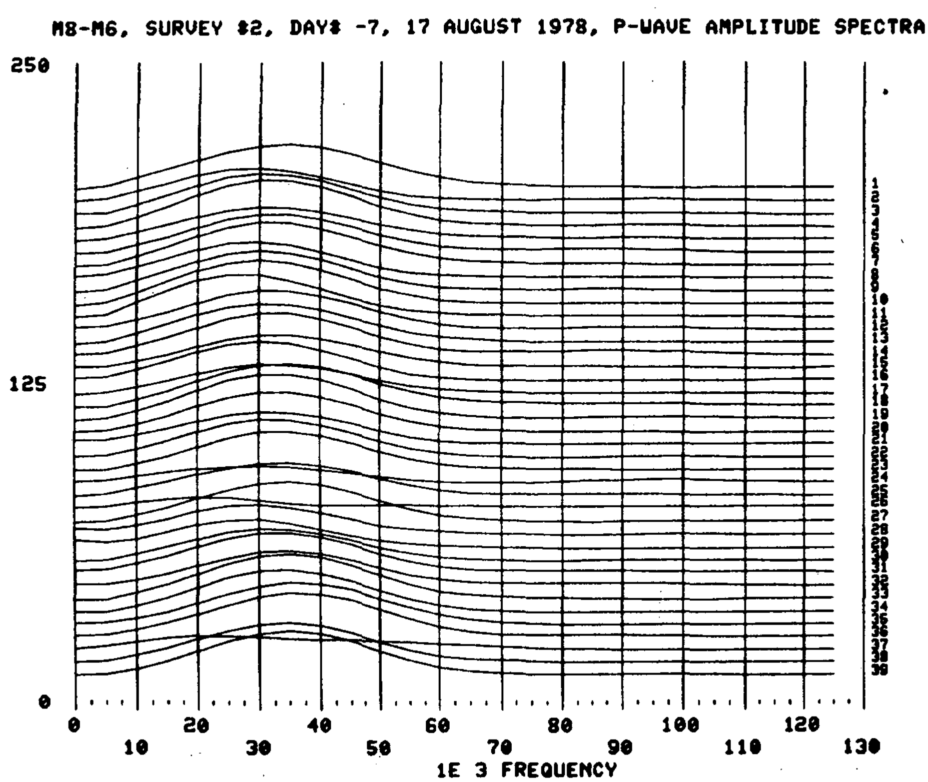


Fig. D:3.5b P wave amplitude spectra for survey # 2 in cross section M8-M6

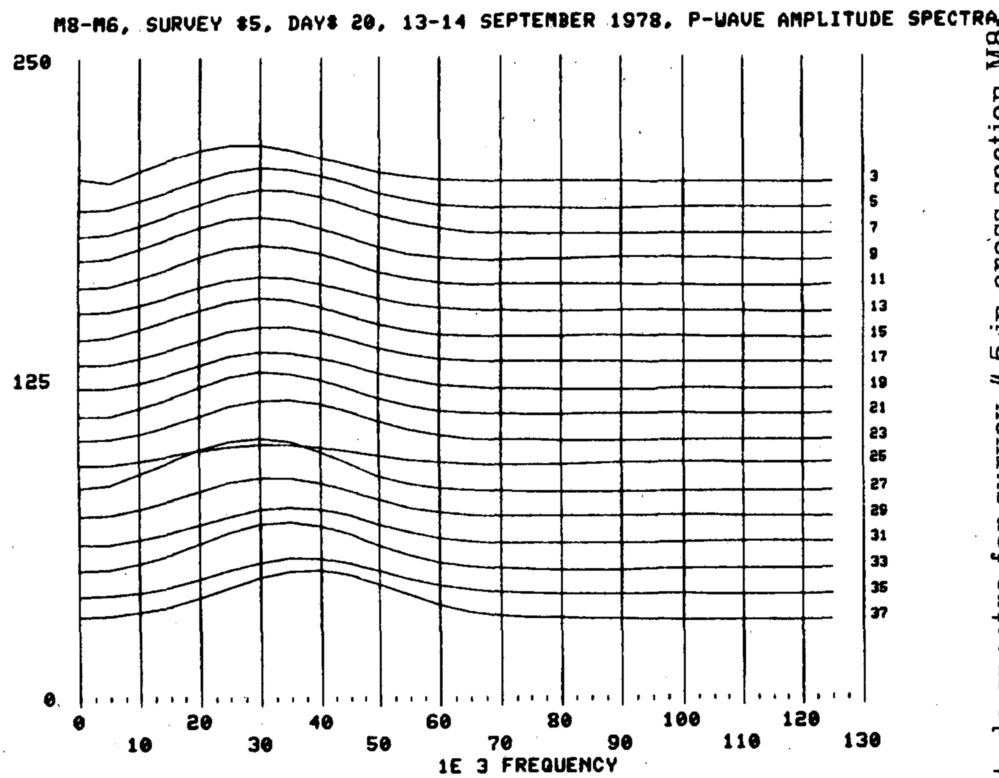


Fig. D:3.5c P wave amplitude spectra for survey # 5 in cross section M8-M6

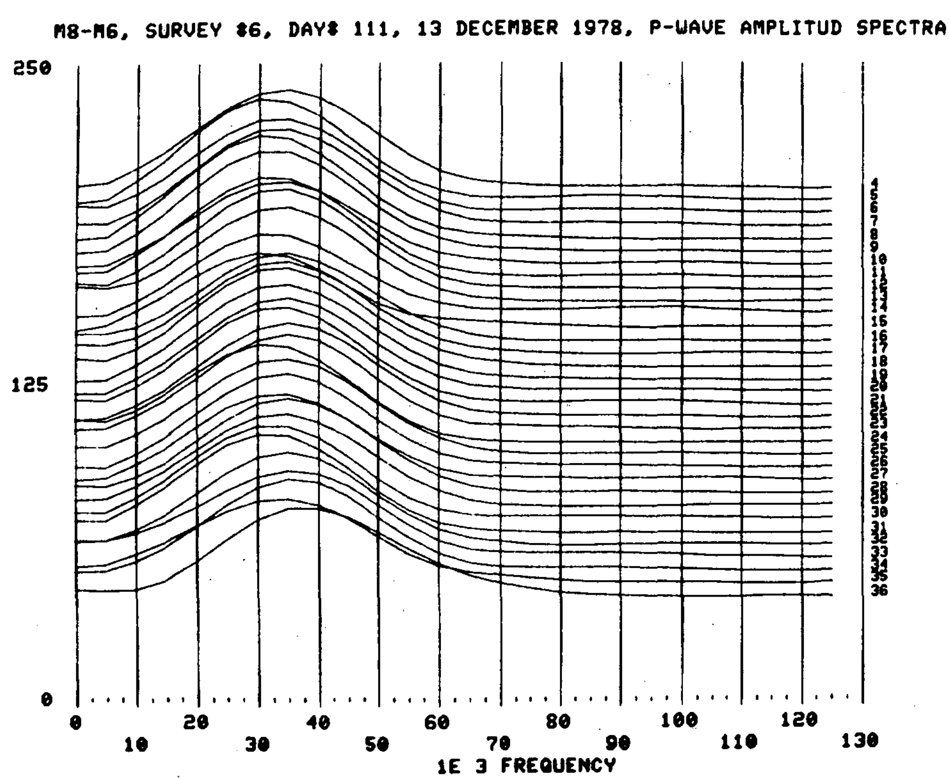


Fig. D:3.5d P wave amplitude spectra for survey # 6 in cross section M8-M6

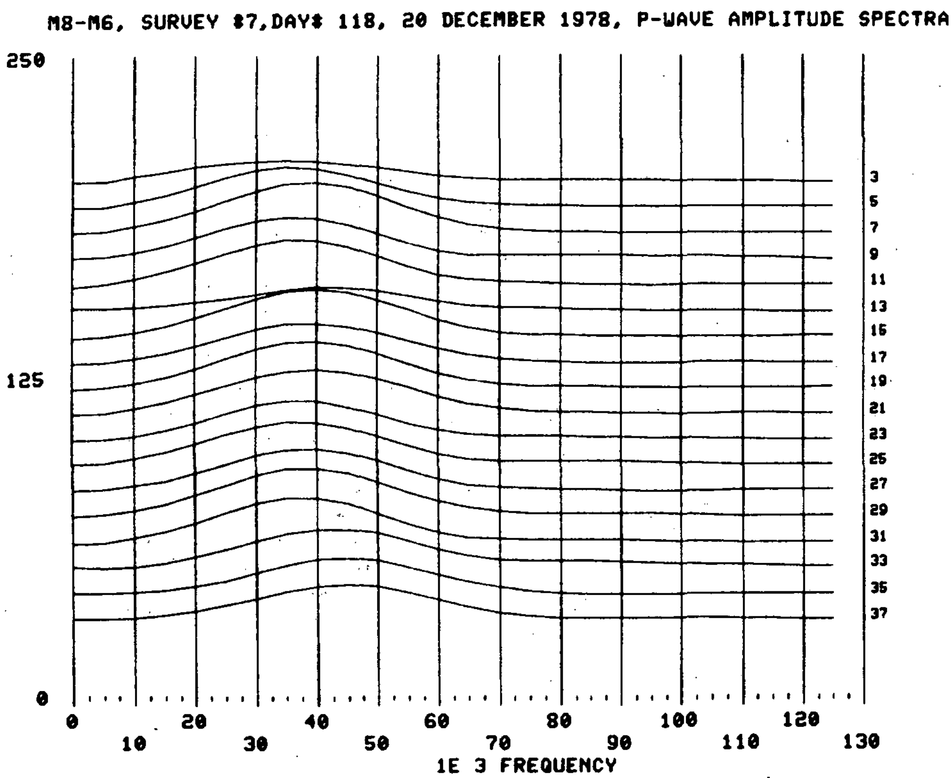


Fig. D:3.5e P wave amplitude spectra for survey # 7 in cross section M8-M6

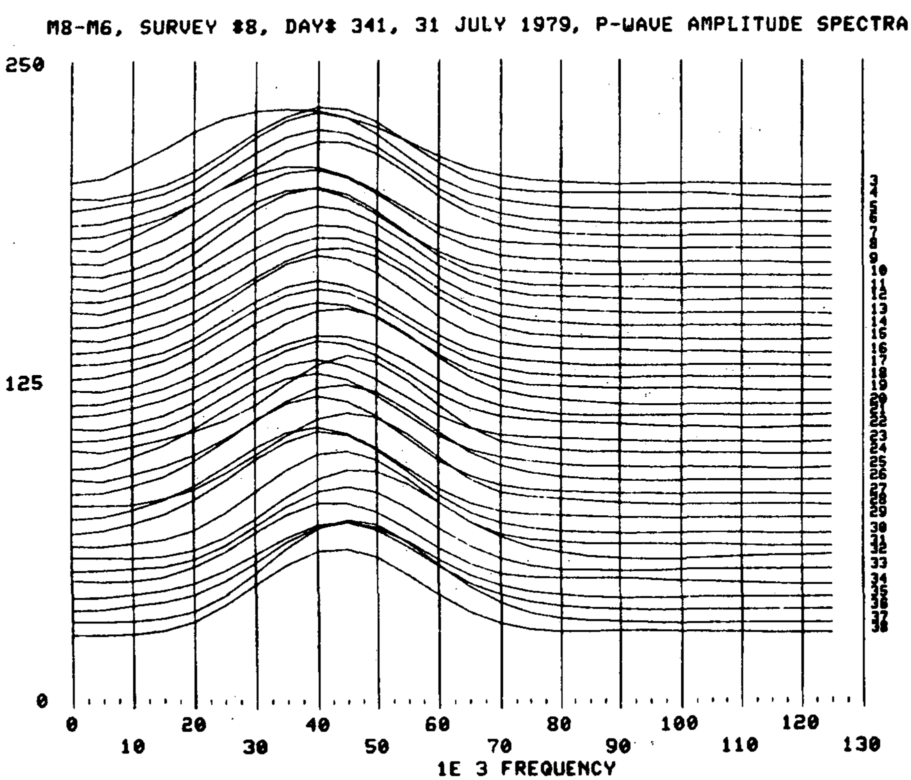


Fig. D:3.5f P-wave amplitude spectra for survey # 8 in cross section M8-M6

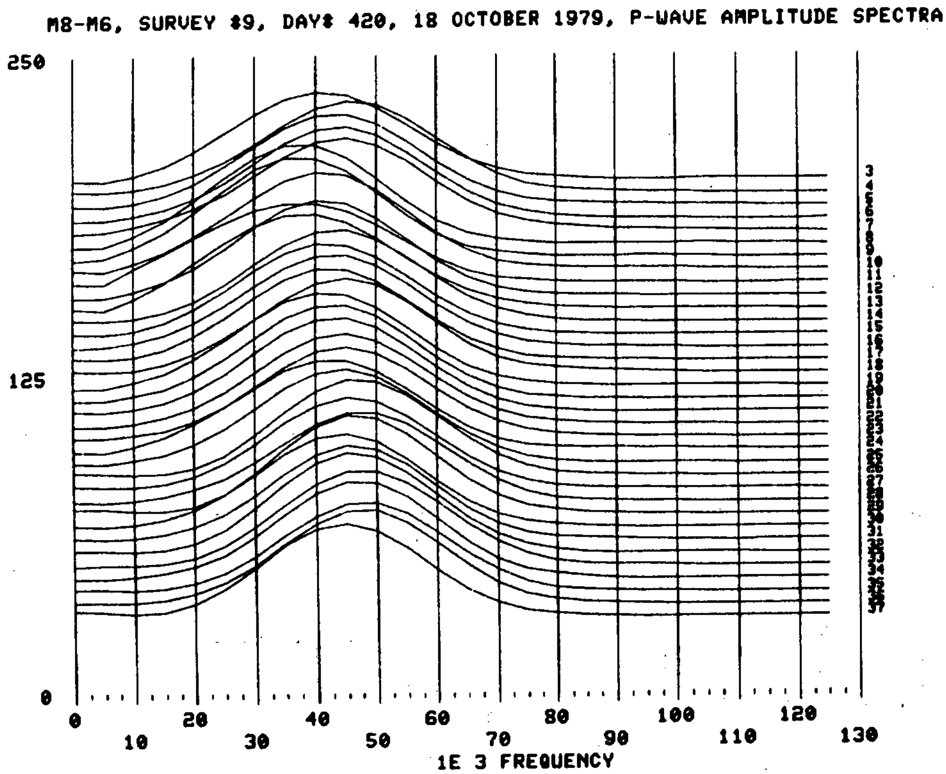


Fig. D:3.5g P wave amplitude spectra for survey # 9 in cross section M8-M6

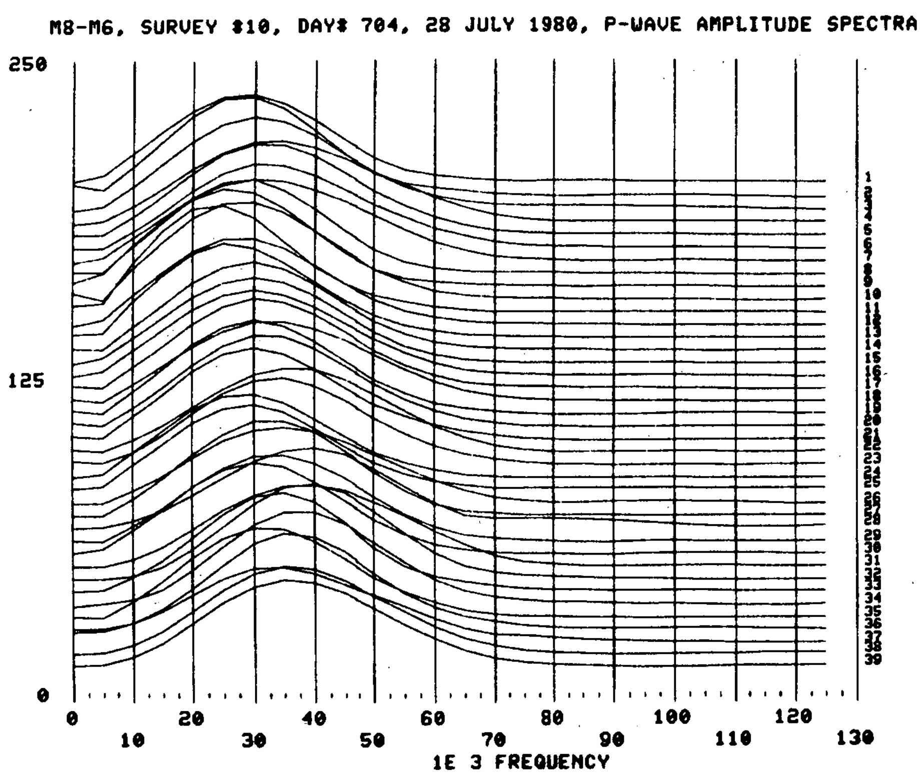


Fig. D:3.5h P wave amplitude spectra for survey # 10 in cross section M8-M6

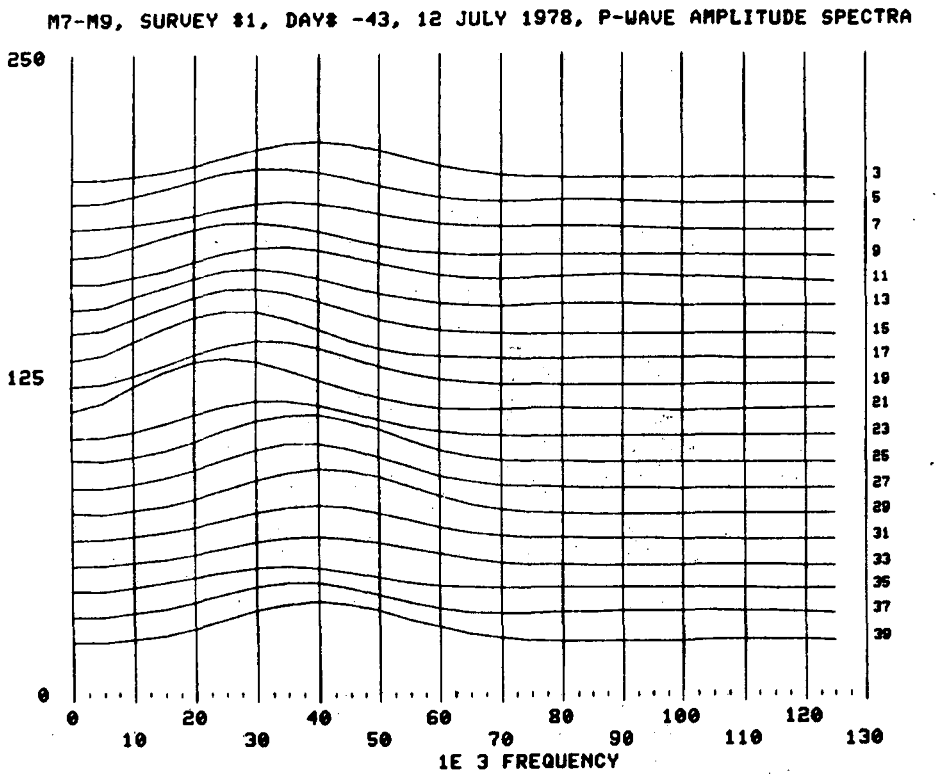


Fig. D:3.6a P wave amplitude spectra for survey # 1 in cross section M7-M9

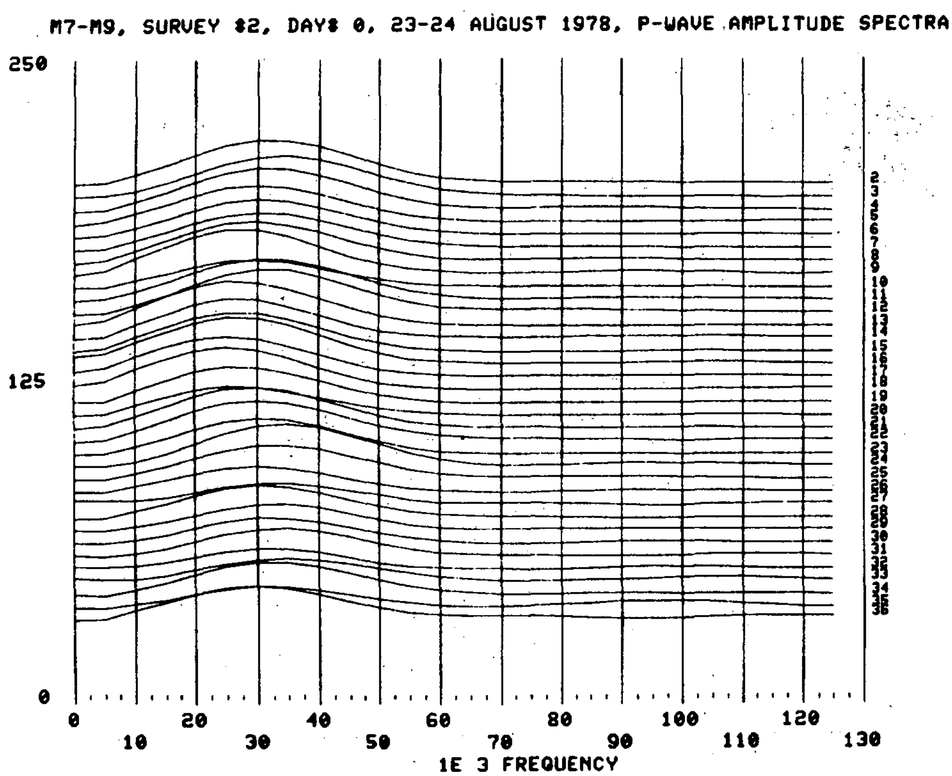


Fig. D:3.6b P wave amplitude spectra for survey # 2 in cross section M7-M9

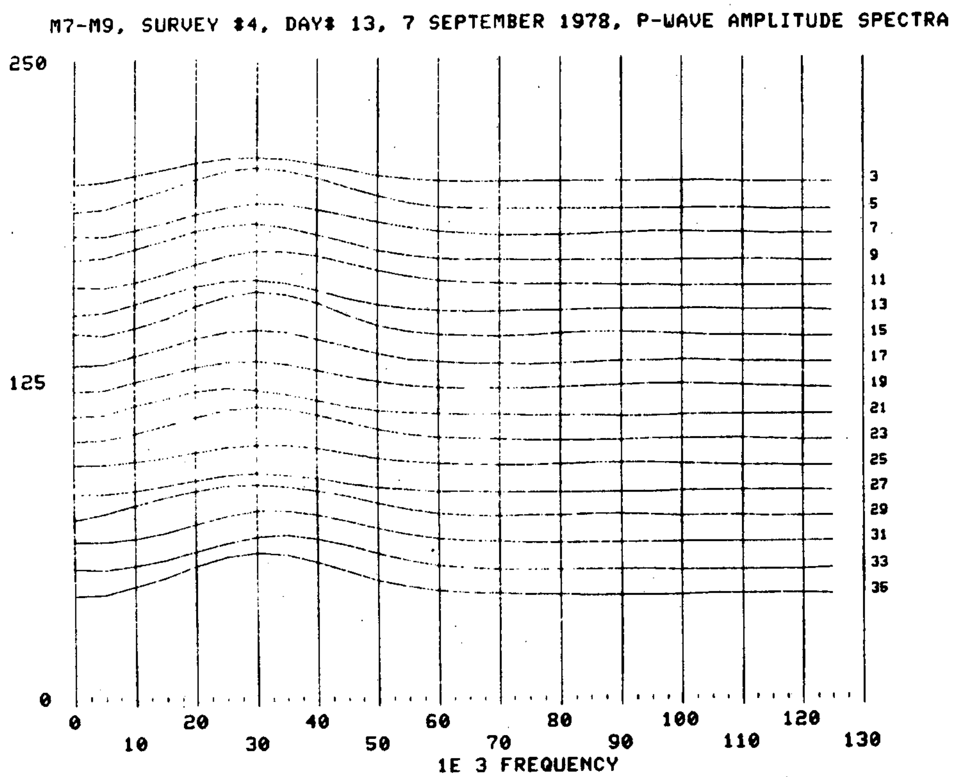


Fig. D:3.6c P wave amplitude spectra for survey # 4 in cross section M7-M9

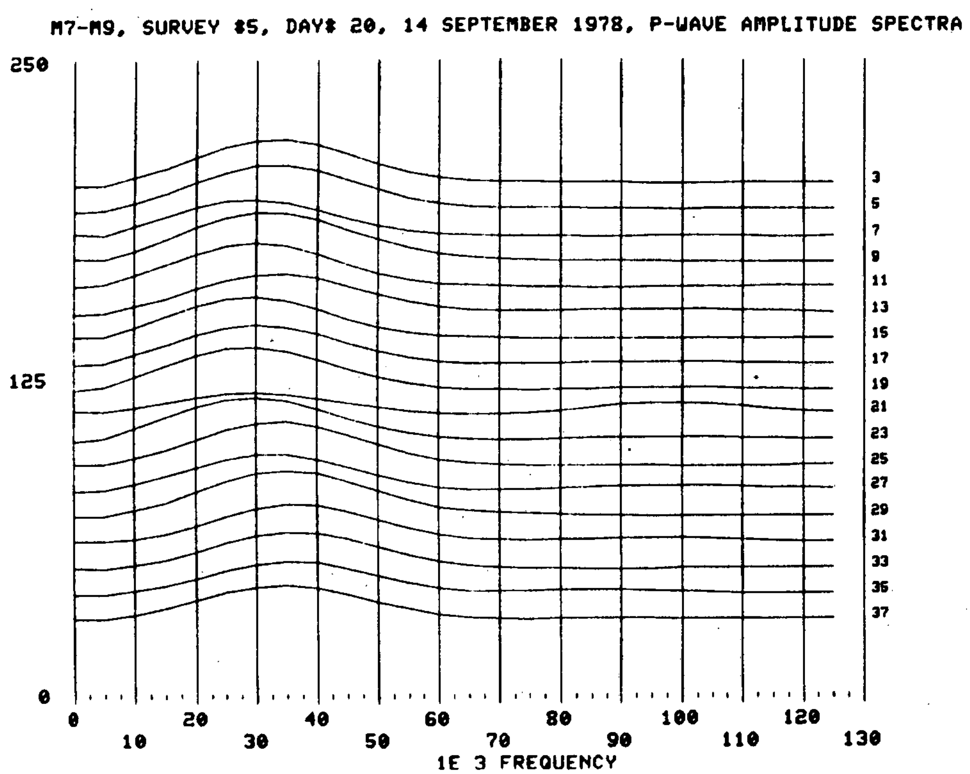


Fig. D:3.6d P wave amplitude spectra for survey # 5 in cross section M7-M9

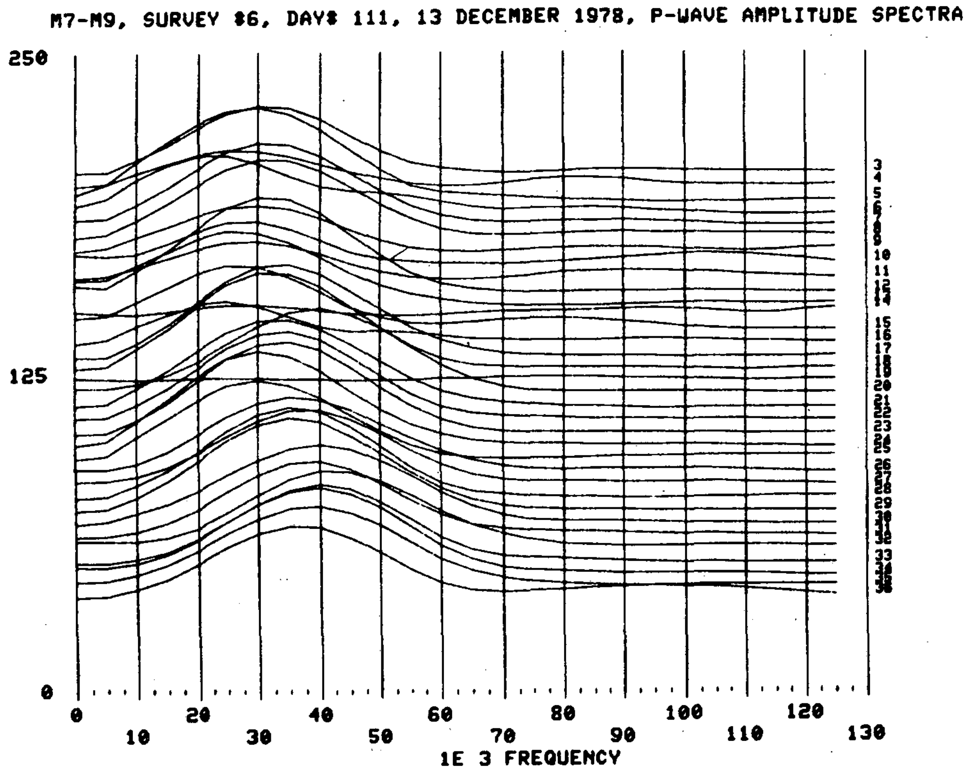


Fig. D:3.6e P wave amplitude spectra for survey # 6 in cross section M7-M9

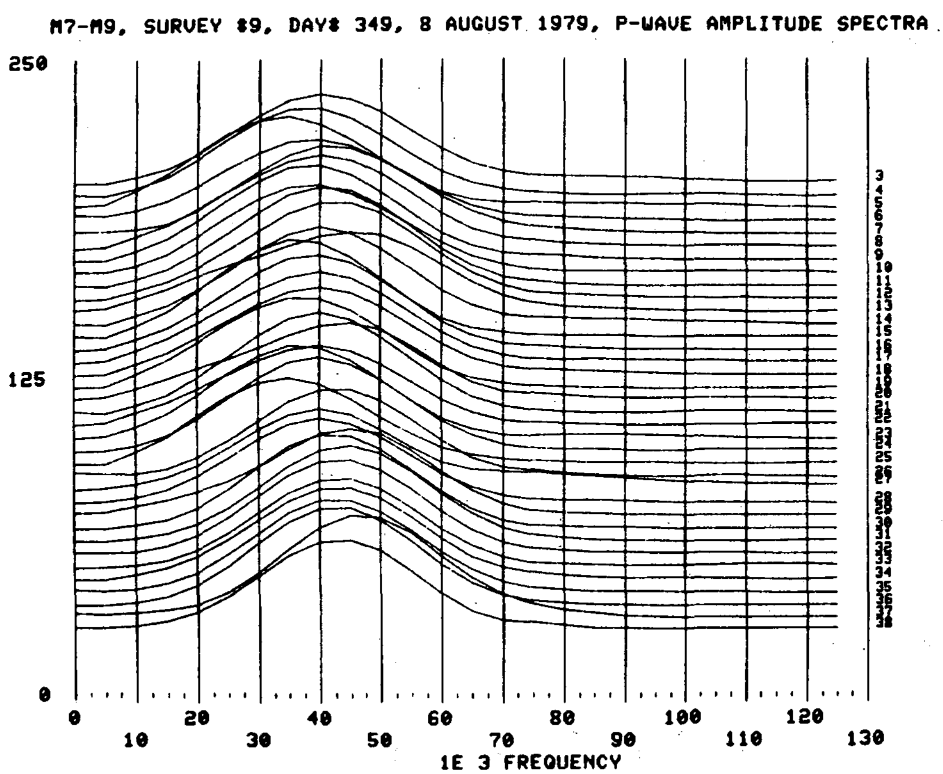


Fig. D:3.6f P wave amplitude spectra for survey # 9 in cross section M7-M9

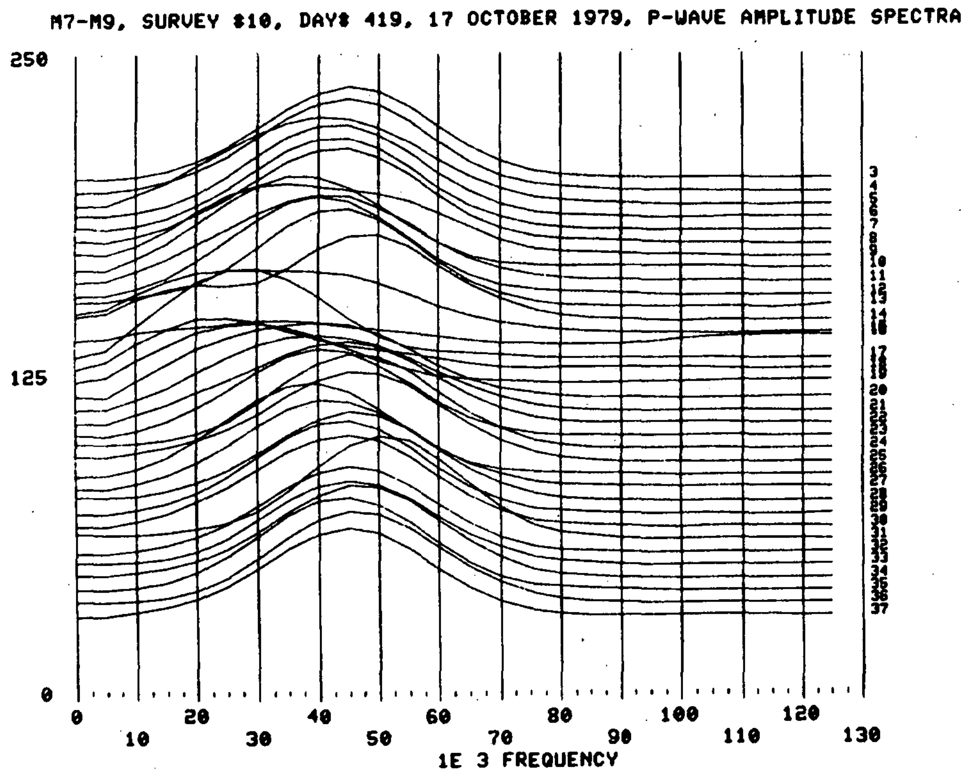


Fig. D:3.6g P wave amplitude spectra for survey # 10 in cross section M7-M9

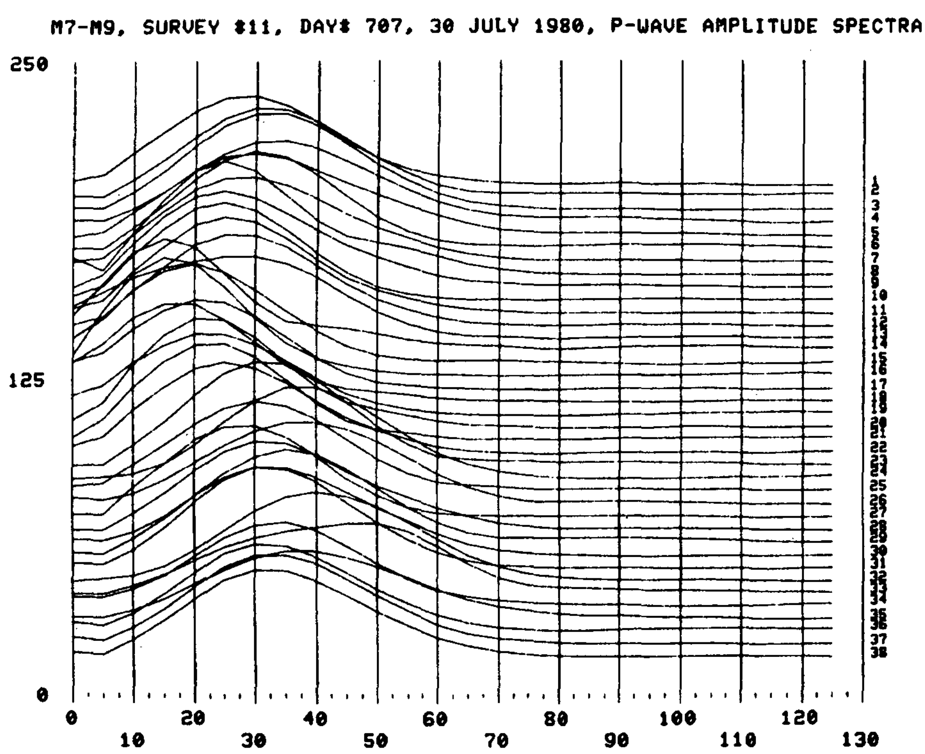


Fig. D:3.6h P wave amplitude spectra for survey # 11 in cross section M7-M9

Appendix E:1 - Tables for laboratory test of Stripa quartz monzonite.

In this appendix the tables for testing of the 11 core specimens from the full scale drift are presented. The first column shows the load in meteric tons the specimen were subjected to in the laboratory press. In the second column the pressure is shown. In the third and fourth columns the V_p and V_s are presented. In the remaining columns the dynamic moduli and Poissons ratio is shown calculated from the seismic velocities in column three and four.

Table E:1.1a Specimen # 1, dry, from borehole E21, H9 area

DATE :29 OCTOBER, 1982

LENGTH OF SPECIMEN : .079045 METER.

DIAMETER OF SPECIMEN : 5.1791 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2605 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.32751	5574.4	3346.53	71.0828	42.0489	29.1741	.218253
1	4.65503	5590.17	3347.95	71.2659	42.4746	29.1988	.220358
2	9.31005	5566.55	3353.63	71.2011	41.6558	29.298	.215121
3	13.9651	5598.09	3357.9	71.6105	42.4734	29.3727	.218999
4	18.6201	5650.11	3377.99	72.6402	43.5277	29.7252	.221862
5	23.2751	5686.69	3395.4	73.4591	44.1984	30.0324	.222995
6	27.9302	5723.75	3415.95	74.3749	44.814	30.3969	.223394
7	32.5852	5752.91	3432.26	75.1037	45.2977	30.688	.223666
9	41.8952	5790.84	3456.27	76.1369	45.8638	31.1189	.223323
11	51.2053	5820.69	3476.03	76.9796	46.291	31.4757	.222842
9	41.8952	5799.34	3460.81	76.3453	46.0113	31.2007	.223455
7	32.5852	5765.5	3439.73	75.4316	45.4972	30.8217	.223677
5	23.2751	5711.34	3401.25	73.8466	44.7925	30.1359	.225227
3	13.9651	5638.02	3360.76	72.0514	43.5755	29.4227	.22442
1	4.65503	5582.27	3350.78	71.2709	42.1787	29.2483	.218377
.5	2.32751	5562.63	3345.11	70.9355	41.7404	29.1494	.216759

Table E:1.1b Specimen # 1, saturated.

DATE :3 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .079045 METER.

DIAMETER OF SPECIMEN : 5.1791 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2611 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.32751	5970.17	3483.69	78.7026	50.8137	31.6874	.241859
1	4.65503	5970.17	3483.69	78.7026	50.8137	31.6874	.241859
2	9.31005	5970.17	3485.23	78.7501	50.7764	31.7154	.241514
3	13.9651	5974.68	3489.85	78.9305	50.8051	31.7994	.241068
4	18.6201	5979.2	3513.11	79.6844	50.3789	32.2248	.236383
5	23.2751	5982.8	3541.44	80.6674	50.1002	32.7467	.231689
6	27.9302	5982.8	3554.18	81.0521	49.7936	32.9827	.228706
7	32.5852	5997.35	3570.24	81.5756	49.5378	33.2813	.225544
9	41.8952	6001.9	3562.19	81.377	49.8802	33.1315	.228092
11	51.2053	6001.9	3562.19	81.377	49.8802	33.1315	.228092
9	41.8952	6001.9	3563.8	81.4253	49.8403	33.1614	.227713
7	32.5852	5997.35	3558.98	81.2384	49.817	33.0718	.228211
5	23.2751	5979.2	3509.99	79.5889	50.4552	32.1676	.237097
3	13.9651	5965.86	3494.47	78.997	50.4114	31.8838	.238826
1	4.65503	5907.7	3480.63	78.0772	48.9507	31.6316	.234164
.5	2.32751	5898.88	3474.61	77.8166	48.8271	31.5205	.234381

TAble E.1.2a Specimen # 2, dry, from borehole E24, H9 area

DATE :3 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .081928 METER.

DIAMETER OF SPECIMEN : 5.1689 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2605 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.33671	4989.52	3180.43	61.0168	29.7191	26.35	.157813
1	4.67342	5017.02	3189.1	61.5182	30.2441	26.4938	.160991
2	9.34683	5032.43	3217.91	62.2657	30.0064	26.9746	.154153
3	14.0203	5114.11	3264.06	64.1848	31.1261	27.754	.156318
4	18.6937	5245.07	3325	67.05	33.2656	28.7999	.164068
5	23.3671	5379.38	3378.47	69.834	35.7379	29.7337	.174323
6	28.0405	5469.16	3419.37	71.8278	37.3095	30.4578	.179136
7	32.7139	5550.68	3458.34	73.6999	38.7187	31.156	.182755
9	42.0607	5661.92	3511.7	76.2908	40.6761	32.125	.187405
11	51.4076	5733.24	3542.07	77.8731	42.0492	32.6829	.191342
9	42.0607	5701.32	3522.27	77.0065	41.5842	32.3186	.191363
7	32.7139	5600	3480.37	74.8045	39.6203	31.5544	.185327
5	23.3671	5461.87	3405.15	71.411	37.4388	30.2052	.182099
3	14.0203	5235.02	3303.55	66.4765	33.485	28.4295	.169128
1	4.67342	5020.1	3189.1	61.555	30.3245	26.4938	.161687
.5	2.33671	4977.4	3174.27	60.7507	29.5403	26.248	.157244

Table E.1.2b Specimen # 2, saturated.

DATE :31 AUGUST, 1982

LENGTH OF SPECIMEN : .081928 METER.

DIAMETER OF SPECIMEN : 5.1689 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2811 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.33671	5814.62	3423.65	75.5731	47.4713	30.6046	.234671
1	4.67342	5835.33	3422.22	75.7058	48.1353	30.579	.237871
2	9.34683	5864.57	3430.82	76.2083	48.8233	30.7328	.23985
3	14.0203	5877.19	3439.46	76.5748	49.0036	30.8879	.239561
4	18.6937	5894.1	3462.72	77.4207	48.9645	31.307	.236474
5	23.3671	5902.59	3480.37	78.025	48.7994	31.627	.233518
6	28.0405	5923.93	3490.75	78.5239	49.2065	31.816	.234033
7	32.7139	5932.51	3514.71	79.3189	48.8877	32.2542	.229588
9	42.0607	5949.75	3542.07	80.2906	48.7504	32.7582	.225504
11	51.4076	5967.08	3571.4	81.3204	48.5632	33.3031	.220912
9	42.0607	5958.4	3551.28	80.6446	48.792	32.9288	.224529
7	32.7139	5932.51	3516.22	79.3639	48.8508	32.2819	.22923
5	23.3671	5856.18	3486.3	77.7833	47.2309	31.7348	.225521
3	14.0203	5697.36	3440.91	74.991	43.5343	30.9138	.212904
1	4.67342	5502.22	3359.08	70.8789	39.765	29.461	.202926
.5	2.33671	5513.32	3359.08	70.9909	40.0845	29.461	.204828

Table E.1.3a Specimen # 3, dry, from borehole E29, H10 area

ATE :3 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .081178 METER.

DIAMETER OF SPECIMEN : 5.1867 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2605 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.3207	5586.92	3307.99	70.1295	43.3038	28.5059	.230087
1	4.6414	5586.92	3318.81	70.4322	43.0548	28.6927	.227364
2	9.28279	5629.54	3354.46	71.8003	43.4736	29.3126	.224736
3	13.9242	5680.76	3373.98	72.8019	44.5263	29.6547	.227495
4	18.5656	5716.76	3392.31	73.6404	45.1646	29.9777	.228252
5	23.207	5749.15	3416.58	74.6223	45.558	30.4083	.227006
6	27.8484	5773.68	3429.57	75.2147	45.9855	30.6399	.227397
7	32.4898	5798.43	3444.12	75.8566	46.3841	30.9005	.227433
9	41.7726	5827.57	3461.75	76.6301	46.8438	31.2175	.227356
11	51.0553	5848.56	3470.63	77.0783	47.2685	31.3779	.228225
9	41.7726	5835.95	3460.27	76.6623	47.1339	31.1909	.22892
7	32.4898	5802.57	3444.12	75.8937	46.5093	30.9005	.228034
5	23.207	5777.79	3413.71	74.791	46.4863	30.3571	.231853
3	13.9242	5712.74	3371.18	72.9981	45.5412	29.6054	.23285
1	4.6414	5625.64	3332.43	71.1478	43.8709	28.9288	.229708
.5	2.3207	5598.48	3313.39	70.3794	43.5164	28.5991	.230449

Table E:1.3b Specimen # 3, saturated.

DATE :2 SEPTEMBER,1982

LENGTH OF SPECIMEN : .081178 METER.

DIAMETER OF SPECIMEN : 5.1867 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2811 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.3207	5865.46	3472.11	77.4511	47.8585	31.4771	.230278
1	4.6414	5891	3475.09	77.7651	48.5705	31.531	.233154
2	9.28279	5921.08	3481.05	78.206	49.3538	31.6393	.2359
3	13.9242	5934.06	3490.03	78.5901	49.5379	31.8027	.235589
4	18.5656	5942.75	3503.58	79.0762	49.4772	32.0503	.233628
5	23.207	5947.11	3512.68	79.389	49.3902	32.2169	.232103
6	27.8484	5955.83	3518.77	79.6504	49.5123	32.3287	.231884
7	32.4898	5960.21	3524.88	79.8737	49.4985	32.4411	.231057
9	41.7726	5964.58	3538.71	80.3285	49.2947	32.6962	.228408
11	51.0553	5968.97	3538.71	80.3687	49.4314	32.6962	.229023
9	41.7726	5968.97	3535.63	80.2762	49.5073	32.6392	.22975
7	32.4898	5955.83	3523.35	79.7883	49.4	32.4129	.230809
5	23.207	5951.47	3506.61	79.2443	49.674	32.1056	.234119
3	13.9242	5934.06	3488.53	78.5447	49.5743	31.7754	.235936
1	4.6414	5882.46	3458.8	77.2029	48.7012	31.2361	.235794
.5	2.3207	5865.46	3449.98	76.7925	48.3919	31.0771	.235519

Table E:1.4a Specimen # 4, dry, from borehole DBEX-1, H10 area

DATE :3 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .077775 METER.

DIAMETER OF SPECIMEN : 5.2095 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2605 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.30043	5555.38	3421.69	72.855	39.7299	30.4992	.194374
1	4.60086	5571.28	3436.81	73.4061	39.8311	30.7694	.192844
2	9.20171	5623.65	3441.37	74.0838	41.2493	30.8511	.200666
3	13.8026	5672.87	3459.74	75.0777	42.2574	31.1814	.203888
4	18.4034	5710.35	3473.65	75.8343	43.0341	31.4325	.206302
5	23.0043	5744.09	3489.23	76.5996	43.6639	31.7152	.207617
6	27.6051	5773.94	3498.65	77.1599	44.331	31.8866	.20991
7	32.206	5799.78	3504.96	77.5938	44.9565	32.0017	.212338
9	41.4077	5838.96	3508.12	78.0685	46.0676	32.0595	.217558
11	50.6094	5856.55	3514.46	78.4192	46.4488	32.1755	.218618
9	41.4077	5838.96	3509.7	78.1134	46.029	32.0884	.217159
7	32.206	5812.78	3498.65	77.5463	45.5033	31.8866	.215968
5	23.0043	5765.38	3484.54	76.6864	44.4159	31.63	.212241
3	13.8026	5693.63	3472.1	75.6202	42.5748	31.4045	.203971
1	4.60086	5591.3	3450.53	73.9691	40.0851	31.0156	.19245
.5	2.30043	5563.3	3435.89	73.2808	39.6361	30.7422	.19186

Table E:1.4b Specimen # 4, saturated.

DATE :2 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .077775 METER.

DIAMETER OF SPECIMEN : 5.2095 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2611 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.30043	5869.81	3449	76.8004	48.5486	31.0595	.236345
1	4.60086	5887.59	3452.06	77.0434	49.0207	31.1146	.238058
2	9.20171	5909.96	3456.67	77.3709	49.599	31.1976	.240012
3	13.8026	5914.45	3465.91	77.6901	49.515	31.3647	.238496
4	18.4034	5923.46	3473.65	78.0019	49.6065	31.5049	.237931
5	23.0043	5927.97	3478.31	78.1821	49.6334	31.5895	.237468
6	27.6051	5932.49	3484.54	78.4103	49.6223	31.7029	.236643
7	32.206	5941.56	3493.94	78.7737	49.6752	31.874	.235704
9	41.4077	5950.65	3503.38	79.1393	49.7274	32.0465	.234756
11	50.6094	5959.77	3504.96	79.2668	49.9725	32.0754	.235632
9	41.4077	5946.1	3503.38	79.0995	49.5862	32.0465	.234135
7	32.206	5937.02	3497.08	78.8293	49.458	31.9314	.234356
5	23.0043	5923.46	3472.1	77.9547	49.644	31.4768	.238288
3	13.8026	5896.51	3450.53	77.0719	49.3321	31.087	.239616
1	4.60086	5852.15	3432.28	76.148	48.4089	30.7586	.237831
.5	2.30043	5812.78	3417.18	75.3655	47.5696	30.489	.235947

Table E:1.5a Specimen # 5, dry, from borehole DBEX-1, H10 area

DATE :3 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .078943 METER.

DIAMETER OF SPECIMEN : 5.1956 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2605 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.31275	5539.86	3259.41	68.3727	43.0477	27.6749	.235283
1	4.62551	5555.45	3268.86	68.7659	43.2842	27.8356	.235215
2	9.25101	5567.21	3296.16	69.6312	43.0023	28.3024	.230126
3	13.8765	5610.73	3312.76	70.4648	43.8886	28.5882	.23241
4	18.502	5654.94	3372.19	72.5223	43.8061	29.6232	.224078
5	23.1275	5691.64	3404.18	73.7501	44.1377	30.1879	.221515
6	27.753	5728.81	3429.32	74.7982	44.6469	30.6355	.220779
7	32.3786	5753.86	3448.8	75.58	44.931	30.9844	.219644
9	41.6296	5791.86	3470.02	76.5375	45.5637	31.3669	.220035
11	50.8806	5821.76	3479.2	77.0803	46.2468	31.5331	.222214
9	41.6296	5808.9	3468.5	76.6539	46.1156	31.3394	.222965
7	32.3786	5766.47	3450.31	75.7408	45.2733	31.0115	.221172
5	23.1275	5724.66	3413.01	74.3001	44.9105	30.3448	.224266
3	13.8765	5642.82	3340.8	71.5317	44.1812	29.0742	.230158
1	4.62551	5551.55	3321.12	70.184	41.975	28.7327	.221326
.5	2.31275	5532.1	3263.46	68.4231	42.7321	27.7436	.233132

Table E:1.5b Specimen # 5, saturated.

DATE :3 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .078943 METER.

DIAMETER OF SPECIMEN : 5.1956 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2611 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.31275	5900.07	3486.88	78.1975	48.5639	31.7454	.231634
1	4.62551	5900.07	3489.96	78.2894	48.4891	31.8016	.230904
2	9.25101	5908.91	3500.8	78.691	48.4978	31.9993	.229572
3	13.8765	5913.33	3521.1	79.3318	48.1382	32.3715	.225333
4	18.502	5917.77	3532.13	79.697	48.0043	32.5746	.223299
5	23.1275	5922.21	3544.81	80.1096	47.829	32.809	.220847
6	27.753	5931.1	3554.39	80.4742	47.8677	32.9866	.219803
7	32.3786	5940.03	3560.8	80.7476	47.9855	33.1057	.219542
9	41.6296	5944.5	3564.02	80.8847	48.0445	33.1655	.219411
11	50.8806	5953.47	3565.63	81.0191	48.2831	33.1955	.220333
9	41.6296	5944.5	3557.59	80.6975	48.2038	33.046	.220985
7	32.3786	5935.56	3541.63	80.1443	48.321	32.7502	.22357
5	23.1275	5922.21	3532.13	79.7389	48.1416	32.5746	.223943
3	13.8765	5904.49	3508.58	78.8811	48.1716	32.1417	.227083
1	4.62551	5860.65	3493.05	78.0214	47.2035	31.8579	.224521
.5	2.31275	5856.31	3479.2	77.5771	47.4068	31.6057	.227265

Table E:1.6a Specimen # 6, dry, from borehole E22, H9 area.

DATE :17 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .07813 METER.

DIAMETER OF SPECIMEN : 5.1742 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2606 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.33192	5572.75	3495.75	74.8765	38.4695	31.846	.175602
1	4.66385	5608.76	3495.75	75.3089	39.5186	31.846	.182391
2	9.32769	5657.49	3489.5	75.7123	41.1011	31.7323	.192984
3	13.9915	5698.76	3494.19	76.2845	42.2088	31.8175	.198781
4	18.6554	5728.01	3511.46	77.0522	42.6591	32.1329	.198961
5	23.3192	5761.8	3527.31	77.8355	43.2832	32.4237	.200286
6	27.9831	5783.12	3535.29	78.2773	43.729	32.5706	.201657
7	32.6469	5800.3	3549.75	78.8488	43.8915	32.8375	.200592
9	41.9746	5834.95	3574.11	79.8783	44.3394	33.2897	.199746
11	51.3023	5852.44	3593.84	80.5991	44.3805	33.6582	.197318
9	41.9746	5834.95	3579.02	80.0097	44.2173	33.3812	.198422
7	32.6469	5813.24	3552.98	79.0753	44.2037	32.8972	.201852
5	23.3192	5774.58	3528.91	78.0151	43.6283	32.453	.20197
3	13.9915	5702.92	3502.02	76.5334	42.142	31.9603	.197319
1	4.66385	5592.7	3486.39	74.5128	38.3513	31.6757	.176183
.5	2.33192	5560.85	3486.39	74.5128	38.3513	31.6757	.176183

Table E:1.6b Specimen # 6, saturated.

DATE :29 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .07813 METER.

DIAMETER OF SPECIMEN : 5.1742 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2611 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.33192	5977.81	3506.73	79.4771	50.4915	32.1079	.237655
1	4.66385	5982.39	3505.16	79.4679	50.6729	32.0791	.238624
2	9.32769	5977.81	3514.62	79.7185	50.2987	32.2525	.23585
3	13.9915	5982.39	3530.5	80.2424	50.0521	32.5447	.232804
4	18.6554	5977.81	3538.5	80.4429	49.7125	32.6922	.230306
5	23.3192	5982.39	3551.36	80.8714	49.5378	32.9304	.227914
6	27.9831	5982.39	3554.6	80.9681	49.4579	32.9904	.227148
7	32.6469	5986.97	3561.08	81.2045	49.4406	33.1108	.226256
9	41.9746	5991.56	3561.08	81.2475	49.5842	33.1108	.226904
11	51.3023	5991.56	3562.7	81.296	49.5439	33.141	.226519
9	41.9746	5991.56	3557.83	81.1503	49.6646	33.0505	.227672
7	32.6469	5986.97	3549.75	80.8652	49.721	32.9005	.228936
5	23.3192	5977.81	3544.92	80.6359	49.5541	32.811	.228795
3	13.9915	5968.68	3524.13	79.9271	49.7808	32.4273	.232403
1	4.66385	5941.45	3508.31	79.207	49.3213	32.1368	.232343
.5	2.33192	5932.42	3487.95	78.5129	49.5375	31.7648	.235847

Table E:1.7a Specimen # 7, dry, from borehole E22, H9 area.

DATE :29 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .08255 METER.

DIAMETER OF SPECIMEN : 5.1765 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2611 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.32985	5960.29	3579.79	81.4985	48.1429	33.4597	.217859
1	4.65971	5964.6	3586.01	81.7217	48.1218	33.5761	.216962
2	9.31941	5973.23	3587.57	81.8529	48.3519	33.6053	.217857
3	13.9791	5968.91	3587.57	81.81	48.2173	33.6053	.217218
4	18.6388	5973.23	3587.57	81.8529	48.3519	33.6053	.217857
5	23.2985	5973.23	3592.25	81.989	48.2349	33.6931	.216702
6	27.9582	5981.88	3600.09	82.303	48.309	33.8402	.216053
7	32.6179	5981.88	3604.8	82.4395	48.1907	33.9289	.214885
9	41.9373	5990.57	3609.53	82.6644	48.3433	34.018	.215009
11	51.2567	5999.27	3607.95	82.7066	48.6556	33.9883	.216694
9	41.9373	5986.22	3607.95	82.5746	48.2471	33.9883	.214751
7	32.6179	5977.55	3603.23	82.35	48.0949	33.8993	.214627
5	23.2985	5977.55	3587.57	81.8958	48.4869	33.6053	.218495
3	13.9791	5973.23	3526.27	80.0324	49.8701	32.4667	.23253
1	4.65971	5938.85	3475.79	78.1974	50.0314	31.5438	.239506
.5	2.32985	5938.85	3475.79	78.1974	50.0314	31.5438	.239506

Table E:1.7b Specimen # 7, saturated.

DATE :17 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .08255 METER.

DIAMETER OF SPECIMEN : 5.1765 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2606 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.32985	5665.75	3419.64	73.96	43.0221	30.4743	.21348
1	4.65971	5669.64	3421.05	74.0363	43.1034	30.4996	.213726
2	9.31941	5681.35	3439.58	74.6538	43.0079	30.8309	.210698
3	13.9791	5716.76	3452.53	75.3555	43.7497	31.0634	.212929
4	18.6388	5752.61	3477.25	76.3882	44.226	31.5099	.21213
5	23.2985	5788.92	3502.33	77.442	44.7098	31.9661	.211316
6	27.9582	5813.38	3533.82	78.5572	44.6796	32.5434	.206961
7	32.6179	5833.92	3552.07	79.271	44.8539	32.8803	.205447
9	41.9373	5867.09	3561.26	79.8716	45.6381	33.0508	.208315
11	51.2567	5888.02	3576.69	80.5181	45.8964	33.3378	.207609
9	41.9373	5875.45	3565.87	80.0865	45.7794	33.1365	.208433
7	32.6179	5842.18	3555.13	79.4417	45.0296	32.937	.205965
5	23.2985	5809.29	3517.26	78.0599	44.9615	32.2391	.210642
3	13.9791	5756.63	3449.65	75.6588	45.0108	31.0115	.21985
1	4.65971	5677.44	3369.39	72.6704	44.553	29.5853	.22815
.5	2.32985	5657.99	3362.53	72.3056	44.1388	29.4649	.226976

Table E:1.8a Specimen # 8, dry from borehole E22, H9 area.

DATE :19 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .080683 METER.

DIAMETER OF SPECIMEN : 5.1841 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2606 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.32303	5511.13	3283.8	68.8352	41.6824	28.1014	.224763
1	4.64606	5514.9	3282.47	68.8313	41.8212	28.0785	.225692
2	9.2921	5579.74	3316.19	70.3243	42.9824	28.6586	.226933
3	13.9382	5626.43	3343.68	71.4987	43.6499	29.1356	.227
4	18.5842	5665.94	3367.4	72.5133	44.2595	29.5506	.226939
5	23.2303	5697.96	3382.94	73.2356	44.8432	29.8237	.227008
6	27.8763	5738.48	3392.89	73.8748	45.8165	29.9996	.231266
7	32.5224	5763.07	3407.22	74.5032	46.2151	30.2535	.231317
9	41.8145	5796.19	3431.86	75.5096	46.6274	30.6926	.230096
11	51.1066	5821.28	3446.52	76.159	47.0366	30.9554	.230143
9	41.8146	5804.53	3430.4	75.54	46.9143	30.6665	.231638
7	32.5224	5771.32	3415.88	74.8264	46.2577	30.4074	.2304
5	23.2303	5722.2	3381.52	73.4067	45.5981	29.7987	.231693
3	13.9382	5658	3321.66	71.1375	45.0883	28.753	.237044
1	4.64605	5568.19	3291.84	69.545	43.146	28.2392	.231358
.5	2.32303	5562.86	3286.48	69.2661	42.8243	28.1472	.230425

Table E:1.8b Specimen # 8, saturated.

DATE :29 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .080683 METER.

DIAMETER OF SPECIMEN : 5.1841 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2611 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.32303	5950.07	3439.17	77.1541	51.2613	30.8827	.249148
1	4.64605	5954.46	3477.72	78.3873	50.4697	31.5788	.241141
2	9.2921	5954.46	3491.26	78.8031	50.1411	31.8252	.238062
3	13.9382	5954.46	3503.39	79.1729	49.8458	32.0467	.235274
4	18.5842	5954.46	3506.43	79.2653	49.7715	32.1024	.234569
5	23.2303	5958.86	3521.74	79.767	49.5338	32.3833	.231608
6	27.8763	5963.27	3540.28	80.3633	49.215	32.7252	.22785
7	32.5224	5967.68	3552.75	80.7757	49.0444	32.9562	.225502
9	41.8145	5967.68	3573.21	81.379	48.537	33.3367	.22056
11	51.1066	5976.52	3590.7	81.9767	48.3765	33.6639	.217574
9	41.8145	5967.68	3576.37	81.4717	48.4582	33.3959	.219787
7	32.5224	5967.68	3560.59	81.0079	48.8503	33.1018	.223619
5	23.2303	5950.07	3405.78	76.0999	52.057	30.2859	.256357
3	13.9382	5945.69	3387.2	75.4752	52.3603	29.9563	.259757
1	4.64605	5915.18	3394.32	75.4785	51.2472	30.0824	.254528
.5	2.32303	5906.52	3402.91	75.6828	50.7766	30.2349	.251582

Table E:1.9a Specimen # 9, dry, from borehole E25, H9 area.

DATE :20 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .082855 METER.

DIAMETER OF SPECIMEN : 5.1638 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2606 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.34133	5476.21	3486.59	72.1062	37.363	30.5984	.178208
1	4.68265	5476.21	3433.69	72.2702	37.1837	30.7254	.176067
2	9.36531	5549.56	3472.55	74.0523	38.3592	31.4247	.17825
3	14.048	5617.29	3506.35	75.6655	39.5103	32.0394	.18082
4	18.7306	5671.12	3528.75	76.8489	40.5462	32.4501	.18411
5	23.4133	5725.98	3554.48	78.1334	41.5425	32.9251	.186532
6	28.0959	5753.82	3563.66	78.6898	42.1484	33.0953	.188838
7	32.7786	5777.89	3572.88	79.204	42.6432	33.2667	.190439
9	42.1439	5814.39	3593.02	80.145	43.2441	33.6429	.191114
11	51.5092	5834.86	3607.1	80.7474	43.5134	33.907	.190718
9	42.1439	5822.56	3593.02	80.2391	43.4919	33.6429	.192513
7	32.7786	5794.06	3580.6	79.5892	42.9387	33.4107	.191074
5	23.4133	5749.83	3563.66	78.6433	42.0287	33.0953	.188136
3	14.048	5682.79	3521.25	76.7987	41.0752	32.3123	.188382
1	4.68265	5560.74	3446.55	73.558	39.3078	30.9559	.188111
.5	2.34133	5479.83	3411.07	71.7842	37.8251	30.3219	.183701

Table E:1.9b Specimen # 9, saturated.

DATE :30 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .082855 METER.

DIAMETER OF SPECIMEN : 5.1638 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2611 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.34133	5905.56	3510.81	78.9567	48.1502	32.1825	.2267
1	4.68265	5913.99	3510.81	79.0341	48.4104	32.1825	.227903
2	9.36531	5913.99	3516.77	79.2102	48.2646	32.2919	.226472
3	14.048	5918.21	3548.39	80.1749	47.6171	32.8754	.219377
4	18.7306	5918.21	3616.54	82.0978	45.9173	34.1503	.202008
5	23.4133	5926.68	3622.87	82.3645	46.0197	34.2698	.201706
6	28.0959	5926.68	3627.63	82.4948	45.8996	34.3599	.200452
7	32.7786	5930.92	3629.22	82.5854	45.9908	34.39	.200718
9	42.1439	5935.17	3638.78	82.8939	45.8805	34.5715	.198877
11	51.5092	5947.95	3645.18	83.2122	46.1147	34.6933	.199256
9	42.1439	5939.43	3641.98	83.0289	45.9313	34.6323	.198721
7	32.7786	5935.17	3635.59	82.8069	45.9613	34.5108	.199723
5	23.4133	5926.68	3633.99	82.6683	45.7387	34.4806	.198766
3	14.048	5918.21	3611.81	81.9678	46.0363	34.061	.203249
1	4.68265	5872.08	3500.42	78.3421	47.374	31.9925	.224384
.5	2.34133	5863.76	3491.57	78.007	47.3347	31.8309	.225336

Table E:1.10a Specimen # 10, dry, from borehole E25, H9 area.

DATE :20 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .080289 METER.

DIAMETER OF SPECIMEN : 5.174 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2606 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.3321	5341.98	3386.29	69.5735	34.521	29.883	.164101
1	4.66421	5392.14	3397.76	70.4439	35.6558	30.0856	.170723
2	9.32842	5503.08	3437.03	72.6656	37.8712	30.7851	.180207
3	13.9926	5587.27	3469.71	74.4262	39.5219	31.3733	.186139
4	18.6568	5646.2	3489.31	75.5812	40.7732	31.7288	.191051
5	23.321	5698.3	3509.13	76.6064	41.8312	32.0903	.194541
6	27.9853	5734.93	3524.54	77.4697	42.5462	32.3727	.196527
7	32.6495	5755.48	3541.64	78.1425	42.7418	32.6876	.195292
9	41.9779	5805.42	3555.76	79.0649	43.8982	32.9487	.199817
11	51.3063	5830.72	3569.99	79.7215	44.313	33.213	.200157
9	41.9779	5809.62	3558.91	79.1948	43.9474	33.0072	.199661
7	32.6495	5772.04	3538.52	78.2431	43.3158	32.63	.198943
5	23.321	5722.67	3510.67	76.9736	42.5191	32.1184	.198278
3	13.9926	5622.48	3468.21	74.7856	40.5867	31.3462	.192898
1	4.66421	5439.63	3422.38	71.5714	36.4129	30.5232	.172408
.5	2.3321	5388.52	3387.72	70.1769	35.7907	29.9082	.173207

Table E:1.10b Specimen # 10, saturated.

DATE :30 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .080289 METER.

DIAMETER OF SPECIMEN : 5.174 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2611 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
.5	2.3321	5942.93	3527.64	79.7991	48.8939	32.4919	.227986
1	4.66421	5942.93	3533.85	79.9836	48.7413	32.6064	.226503
2	9.32842	5942.93	3543.2	80.2602	48.5107	32.7793	.224253
3	13.9926	5942.93	3557.33	80.6746	48.1615	33.0412	.220819
4	18.6568	5942.93	3571.57	81.0883	47.808	33.3063	.217313
5	23.321	5942.93	3579.54	81.3178	47.6098	33.455	.215333
6	27.9853	5951.74	3589.14	81.6824	47.6439	33.6346	.214261
7	32.6495	5951.74	3595.57	81.8665	47.4831	33.7553	.212647
9	41.9779	5960.58	3605.25	82.2338	47.5151	33.9374	.211552
11	51.3063	5960.58	3603.64	82.1877	47.5557	33.9069	.21196
9	41.9779	5956.16	3602.02	82.0959	47.4586	33.8765	.211693
7	32.6495	5951.74	3592.35	81.7745	47.5636	33.6949	.213456
5	23.321	5951.74	3577.94	81.36	47.9233	33.4251	.217048
3	13.9926	5942.93	3544.77	80.3063	48.4721	32.8082	.223875
1	4.66421	5916.65	3495.39	78.5988	48.8688	31.9005	.231939
.5	2.3321	5894.93	3466.71	77.548	48.894	31.3792	.235659

Table E:1.11a Specimen # 11, dry, from borehole E25, H9 area.

DATE :28 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .080213 METER.

DIAMETER OF SPECIMEN : 5.1791 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2606 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (MPA)	BULK M (MPA)	SHEAR M (MPA)	PO. RA
.5	2.32751	5434.49	3403.18	71.0737	36.7823	30.1818	.177427
1	4.65503	5501.58	3423.52	72.329	38.152	30.5436	.184031
2	9.31005	5597.56	3467.98	74.4996	39.8649	31.341	.188533
3	13.9651	5676.79	3504.28	76.3027	41.3118	32.0017	.192168
4	18.6201	5729.5	3535.17	77.684	42.1232	32.5683	.192632
5	23.2751	5774.88	3566.61	79.0081	42.7078	33.1501	.191672
6	27.9302	5804.12	3584.14	79.7966	43.1548	33.4768	.19182
7	32.5852	5833.67	3611.57	80.8494	43.3651	33.9912	.189268
9	41.8952	5863.58	3622.99	81.4951	43.988	34.2065	.191222
11	51.2053	5889.35	3637.78	82.1839	44.406	34.4863	.191544
9	41.8952	5872.11	3618.09	81.4655	44.3739	34.114	.194019
7	32.5852	5842.17	3598.61	80.6098	43.9484	33.7477	.194301
5	23.2751	5804.18	3563.44	79.2546	43.6689	33.0912	.197517
3	13.9651	5725.41	3510.42	76.9968	42.6072	32.1138	.198811
1	4.65503	5558.77	3441.14	73.4032	39.38	30.8588	.189338
.5	2.32751	5509.13	3419.14	72.3098	38.4729	30.4655	.18675

Table E:1.11b Specimen # 11, saturated.

DATE :30 SEPTEMBER, 1982

LENGTH OF SPECIMEN : .080213 METER.

DIAMETER OF SPECIMEN : 5.1791 CENTIMETER

NUMBER OF LOADS : 16

DENSITY OF SPECIMEN : 2611 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (MPA)	BULK M (MPA)	SHEAR M (MPA)	PO. RA
.5	2.32751	5986.05	3576.15	81.6433	49.0371	33.3916	.222512
1	4.65503	5986.05	3577.74	81.6904	48.9974	33.4214	.222126
2	9.31005	5986.05	3582.54	81.8317	48.8779	33.5111	.220965
3	13.9651	5986.05	3609.95	82.6303	48.1915	34.0258	.21423
4	18.6201	5990.52	3627.91	83.1918	47.8788	34.3652	.210408
5	23.2751	5994.99	3624.63	83.1448	48.1017	34.3031	.211913
6	27.9302	5994.99	3629.55	83.2857	47.9774	34.3963	.210678
7	32.5852	5994.99	3627.91	83.2387	48.0189	34.3652	.211091
9	41.8952	6003.97	3627.91	83.3322	48.3001	34.3652	.21245
11	51.2053	6008.47	3629.55	83.4261	48.3997	34.3963	.212718
9	41.8952	5999.48	3626.27	83.2384	48.2008	34.3341	.212182
7	32.5852	5994.99	3624.63	83.1448	48.1017	34.3031	.211913
5	23.2751	5994.99	3624.63	83.1448	48.1017	34.3031	.211913
3	13.9651	5994.99	3619.72	83.0038	48.2254	34.2103	.21314
1	4.65503	5981.58	3571.37	81.4593	49.0165	33.3025	.223021
.5	2.32751	5941.7	3541.41	80.1958	48.5168	32.7461	.224509

Appendix E:2 - Velocity plots for laboratory test.

In this appendix the V_p and V_s are plotted as function of the uniaxial stress σ_{ua}. The dry velocities are shown in figures a and b and the saturated in figures c and d. The saturated velocites have many times a considerable hysteresis on theb unloading part of the curve. This is interpreted to be an effct of the saturation which is assumed to be partial during the unloading because the pore fluid were forced out of the fractures during the loading of the specimen.

In Table 7.2 the location of the specimen are shown.

Figure captions for Appendix E:2

Fig. E:2.1a P wave veloctiy as function of uniaxial stress for the dry specimen # 1

Fig. E:2.1b S wave velocity as function of uniaxial stress for the dry specimen # 1

Fig. E:2.1c P wave velocity as function of uniaxial stress for the saturated specimen # 1

Fig. E:2.1d S wave velocity as function of uniaxial stress for the saturated specimen # 1

Fig. E:2.2a P wave veloctiy as function of uniaxial stress for the dry specimen # 2

Fig. E:2.2b S wave velocity as function of uniaxial stress for the dry specimen # 2

Fig. E:2.2c P wave velocity as function of uniaxial stress for the saturated specimen # 2

Fig. E:2.2d S wave velocity as function of uniaxial stress for the saturated specimen # 2

Fig. E:2.3a P wave veloctiy as function of uniaxial stress for the dry specimen # 3

Fig. E:2.3b S wave velocity as function of uniaxial stress for the dry specimen # 3

Fig. E:2.3c P wave velocity as function of uniaxial stress for the saturated specimen # 3

Fig. E:2.3d S wave velocity as function of uniaxial stress for the saturated specimen # 3

Fig. E:2.4a P wave veloctiy as function of uniaxial stress for the dry specimen # 4

Fig. E:2.4b S wave velocity as function of uniaxial stress for the dry specimen # 4

Fig. E:2.4c P wave velocity as function of uniaxial stress for the saturated specimen # 4

Fig. E:2.4d S wave velocity as function of uniaxial stress for the saturated specimen # 4

Fig. E:2.5a P wave veloctiy as function of uniaxial stress for the dry specimen # 5

Fig. E:2.5b S wave velocity as function of uniaxial stress for the dry specimen # 5

Fig. E:2.5c P wave velocity as function of uniaxial stress for the saturated specimen # 5

Fig. E:2.5d S wave velocity as function of uniaxial stress for the saturated specimen # 5

Fig. E:2.6a P wave veloctiy as function of uniaxial stress for the dry specimen # 6

Fig. E:2.6b S wave velocity as function of uniaxial stress for the dry specimen # 6

Fig. E:2.6c P wave velocity as function of uniaxial stress for the saturated specimen # 6

Fig. E:2.6d S wave velocity as function of uniaxial stress for the saturated specimen # 6

Fig. E:2.7a P wave veloctiy as function of uniaxial stress for the dry specimen # 7

Fig. E:2.7b S wave velocity as function of uniaxial stress for the dry specimen # 7

Fig. E:2.7c P wave velocity as function of uniaxial stress for the saturated specimen # 7

Fig. E:2.7d S wave velocity as function of uniaxial stress for the saturated specimen # 7

Fig. E:2.8a P wave veloctiy as function of uniaxial stress for the dry specimen # 8

Fig. E:2.8b S wave velocity as function of uniaxial stress for the dry specimen # 8

Fig. E:2.8c P wave velocity as function of uniaxial stress for the saturated specimen # 8

Fig. E:2.8d S wave velocity as function of uniaxial stress for the saturated specimen # 8

Fig. E:2.9a P wave veloctiy as function of uniaxial stress for the dry specimen # 9

Fig. E:2.9b S wave velocity as function of uniaxial stress for the dry specimen # 9

Fig. E:2.9c P wave velocity as function of uniaxial stress for the saturated specimen # 9

Fig. E:2.9d S wave velocity as function of uniaxial stress for the saturated specimen # 9

Fig. E:2.10a P wave veloctiy as function of uniaxial stress for the dry specimen # 10

Fig. E:2.10b S wave velocity as function of uniaxial stress for the dry specimen # 10

Fig. E:2.10c P wave velocity as function of uniaxial stress for the saturated specimen # 10

Fig. E:2.10d S wave velocity as function of uniaxial stress for the saturated specimen # 10

Fig. E:2.11a P wave veloctiy as function of uniaxial stress for the dry specimen # 11

Fig. E:2.11b S wave velocity as function of uniaxial stress for the dry specimen # 11

Fig. E:2.11c P wave velocity as function of uniaxial stress for the saturated specimen # 11

Fig. E:2.11d S wave velocity as function of uniaxial stress for the saturated specimen # 11

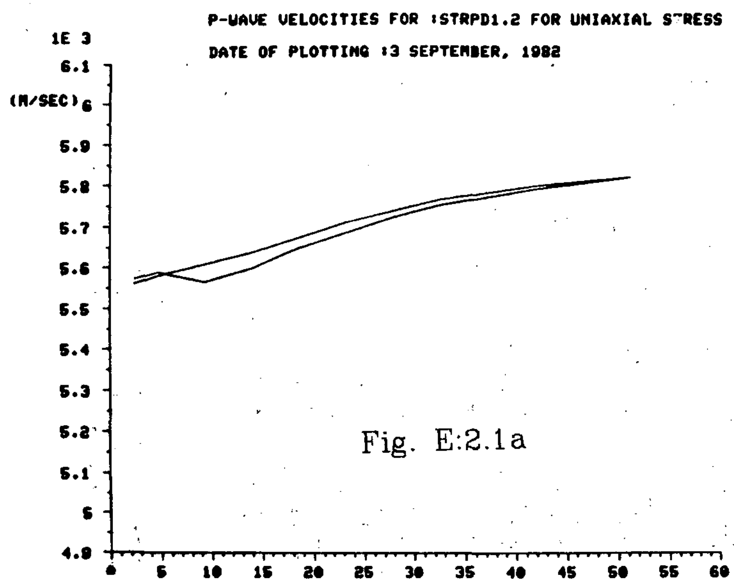


Fig. E:2.1a

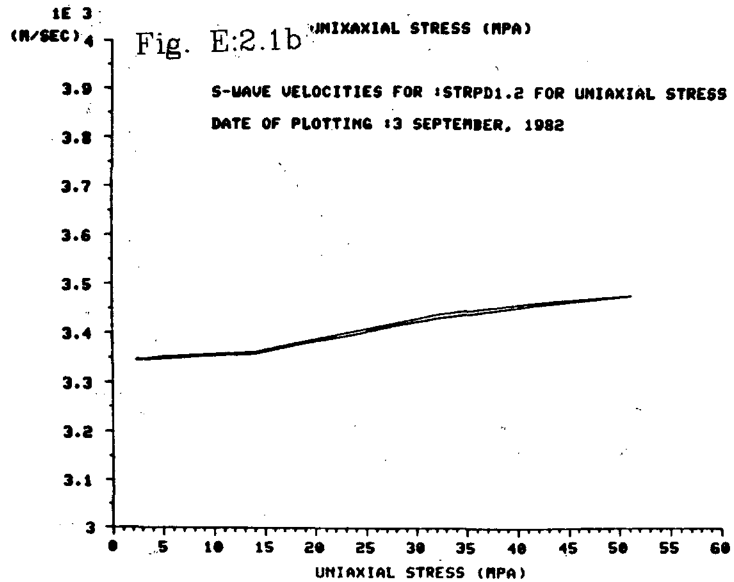


Fig. E:2.1b

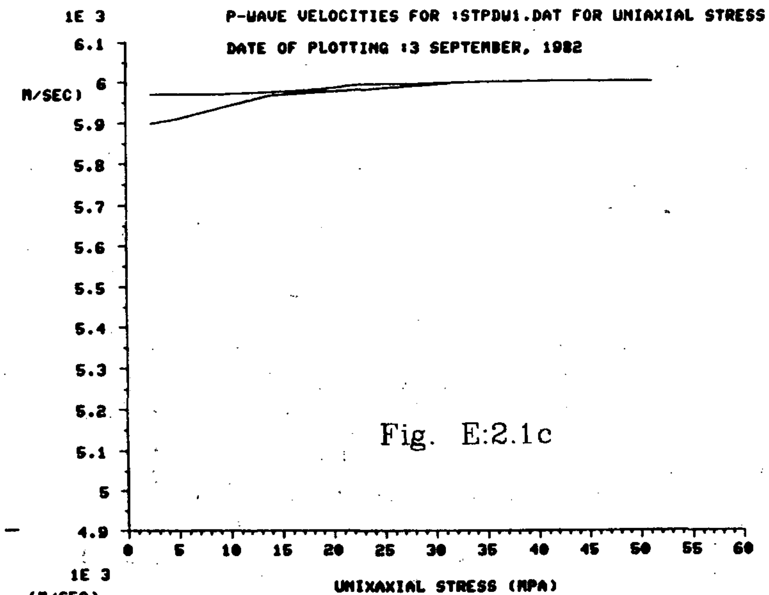


Fig. E:2.1c

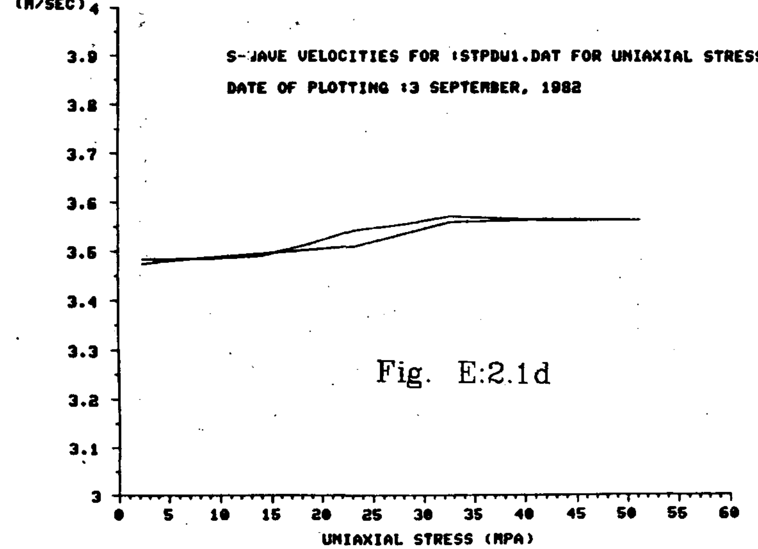
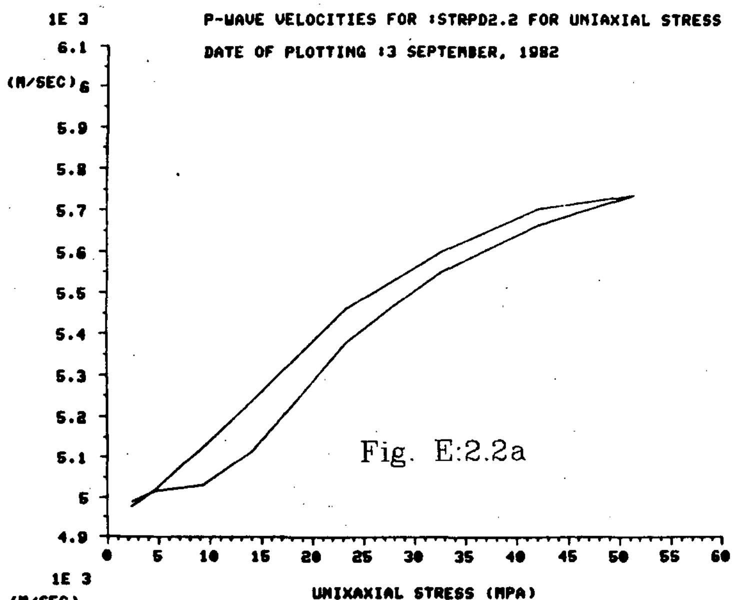


Fig. E:2.1d



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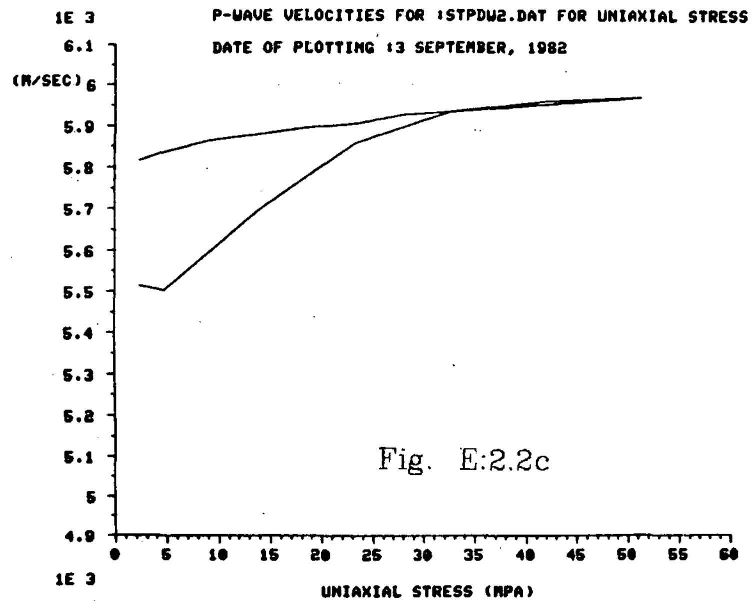

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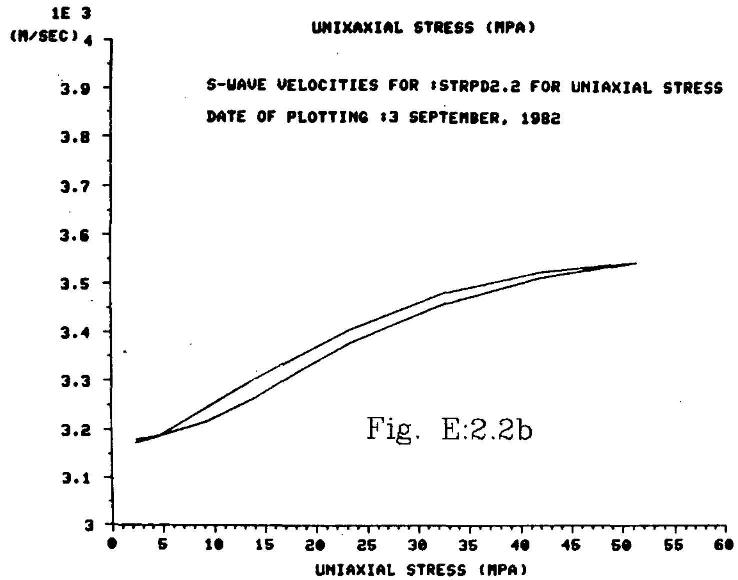


Fig. E:2.2b

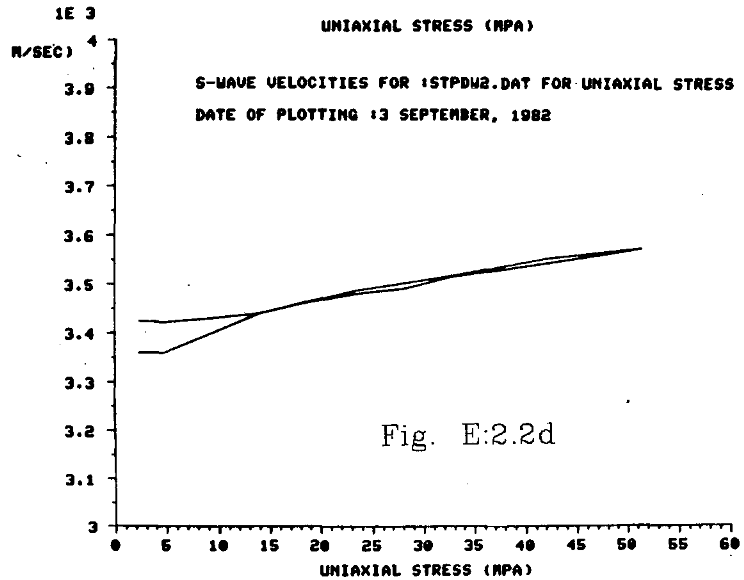
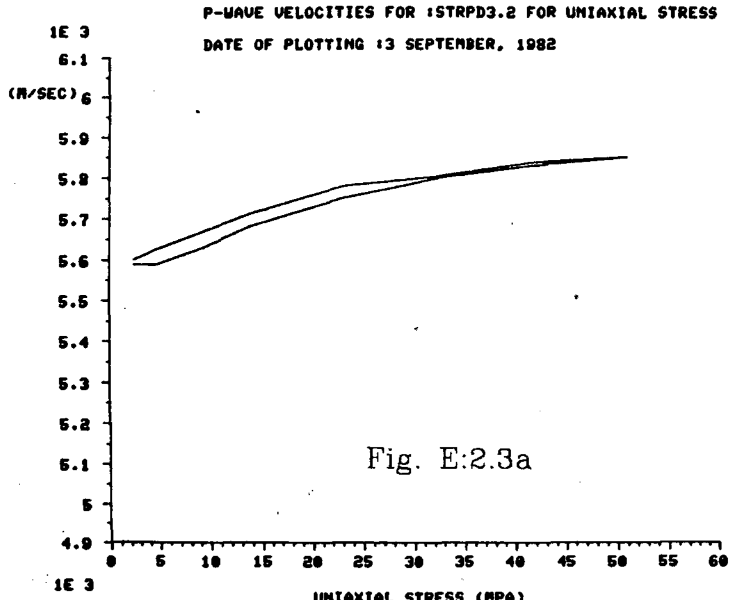


Fig. E:2.2d



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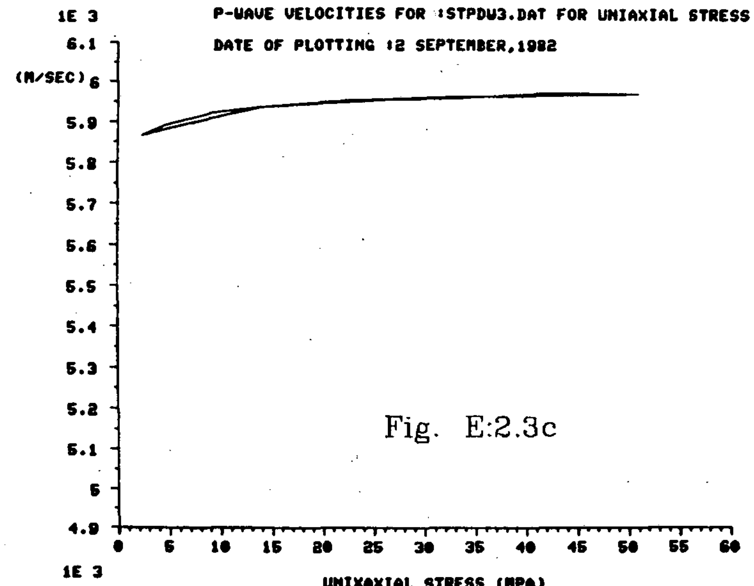


Fig. E:2.3c

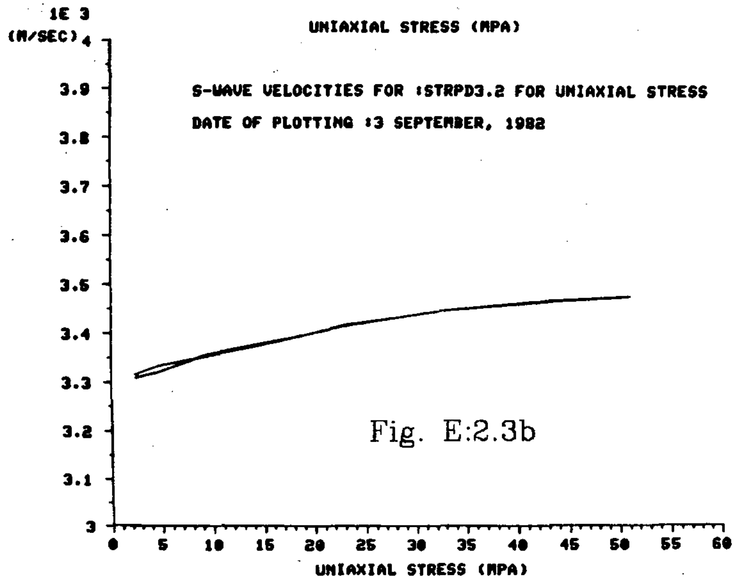


Fig. E:2.3b

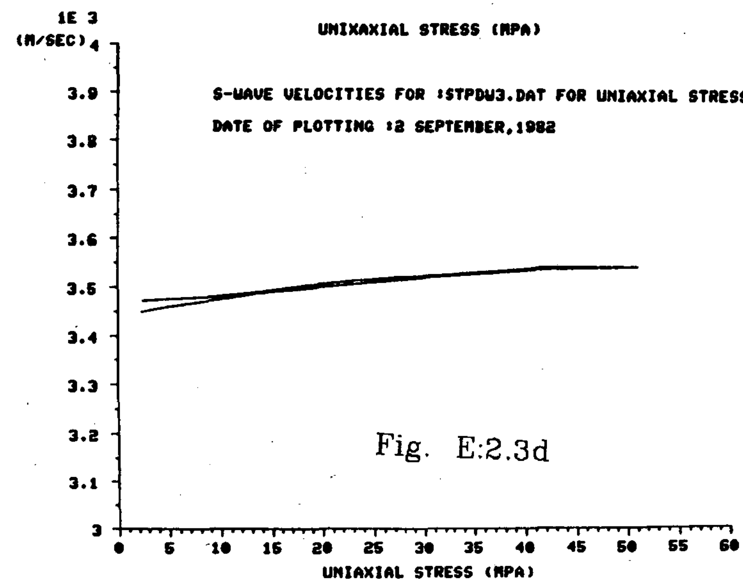
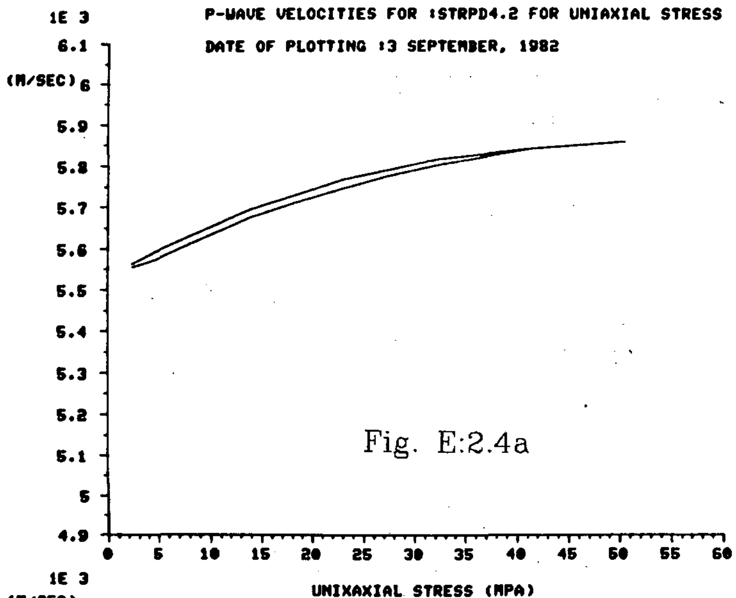


Fig. E:2.3d



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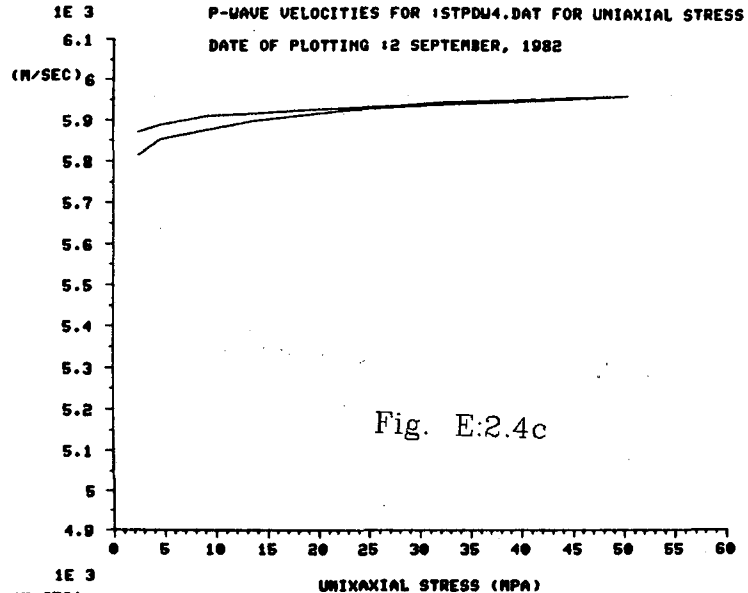

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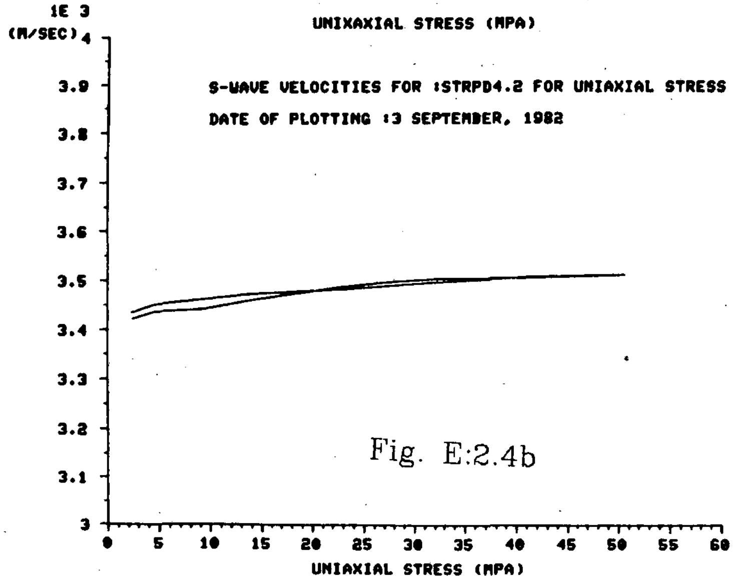

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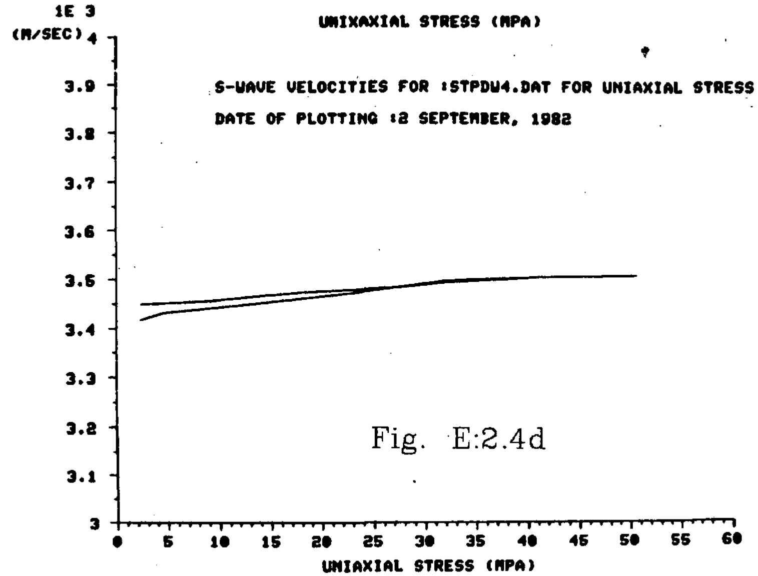

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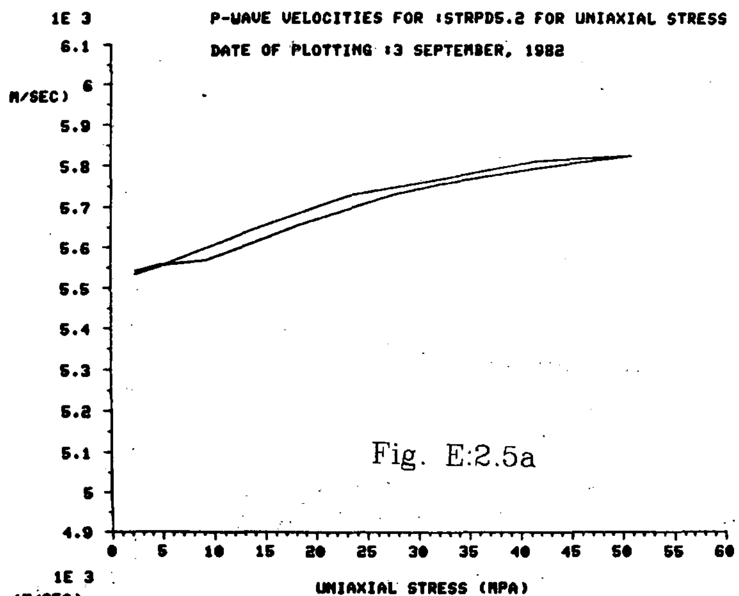

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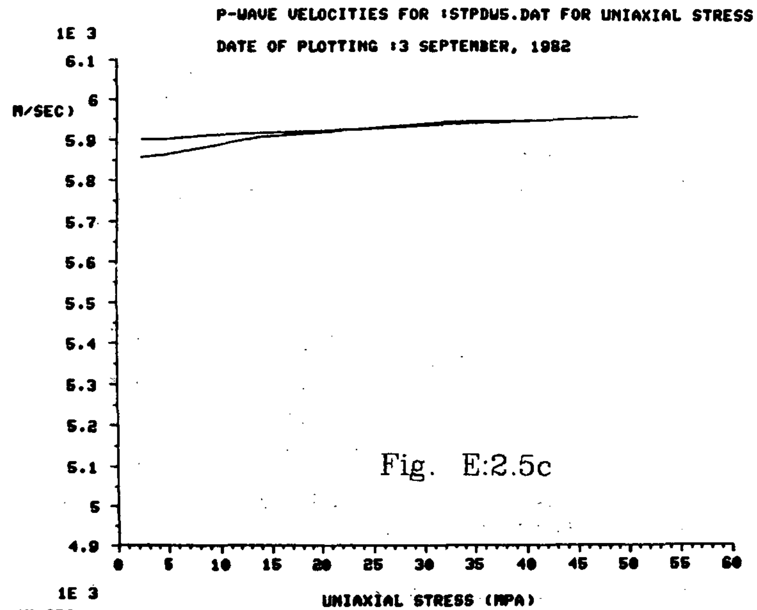

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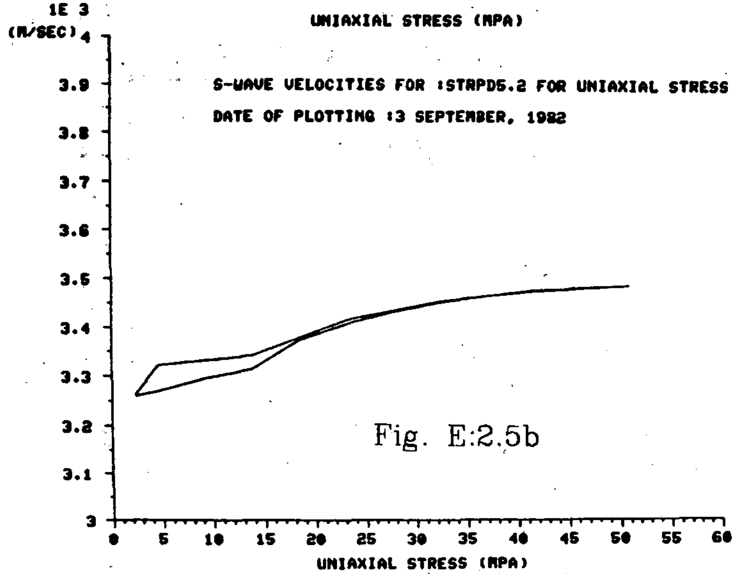


Fig. E:2.5b

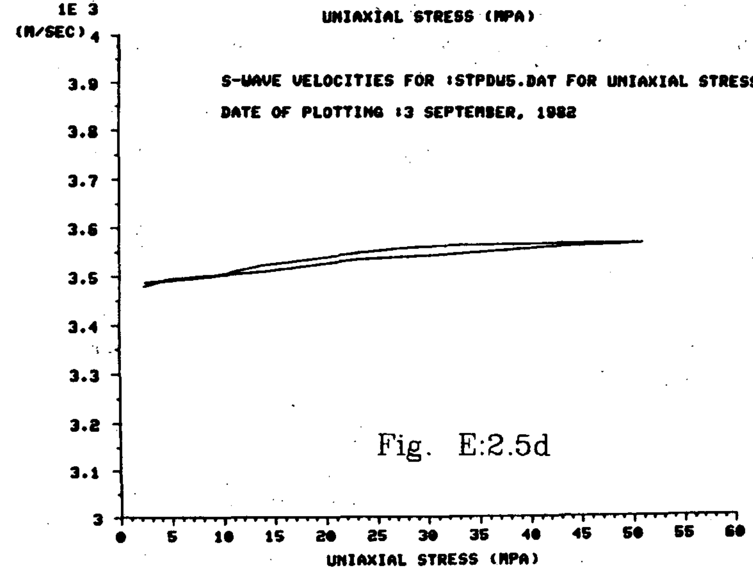


Fig. E:2.5d

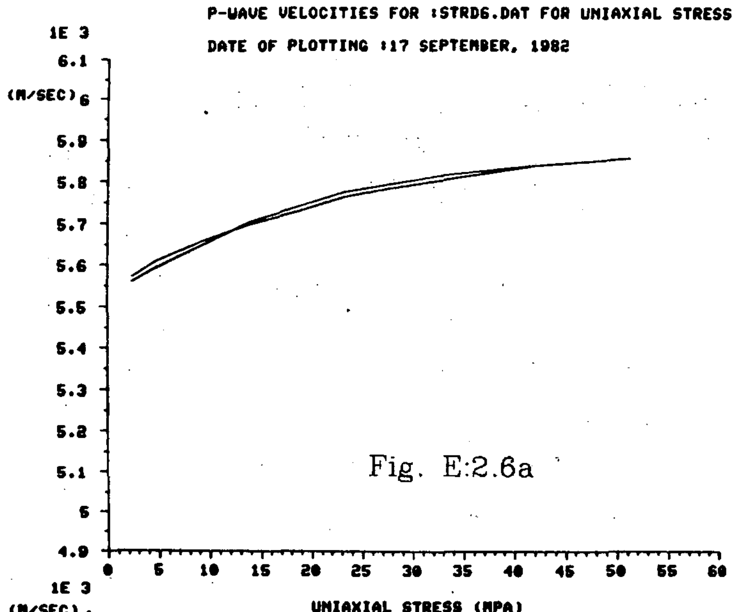
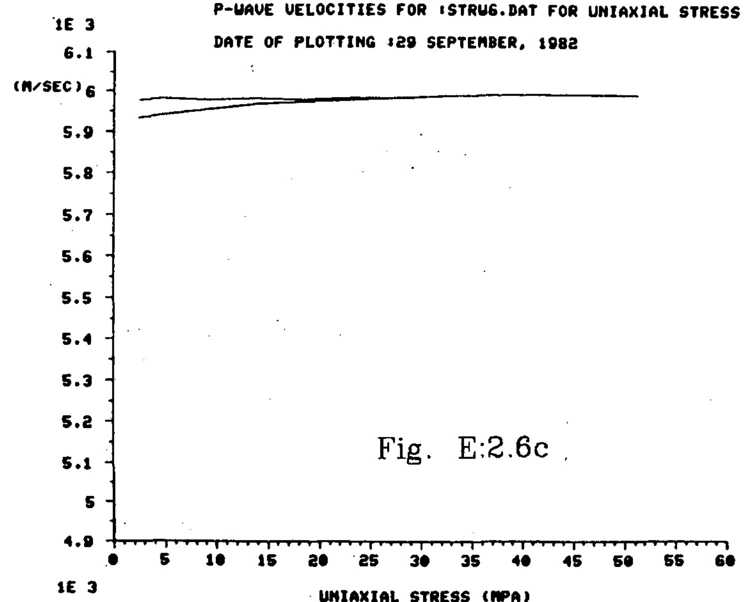


Fig. E:2.6a



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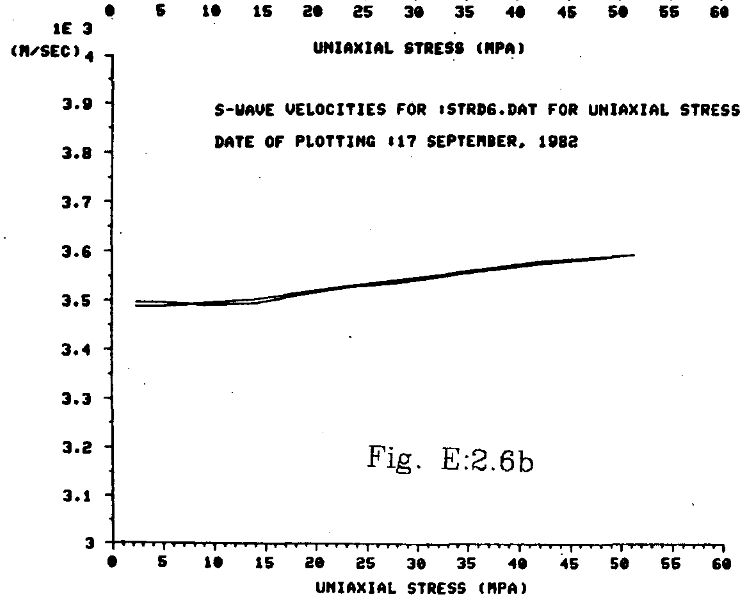

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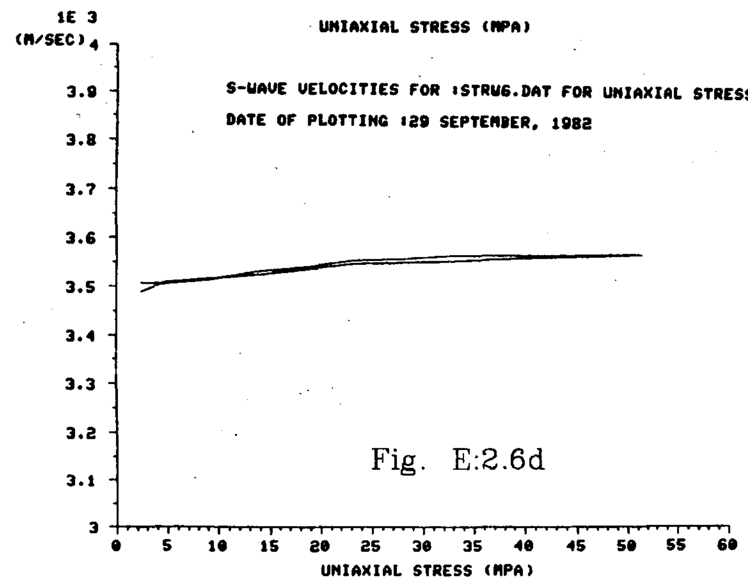
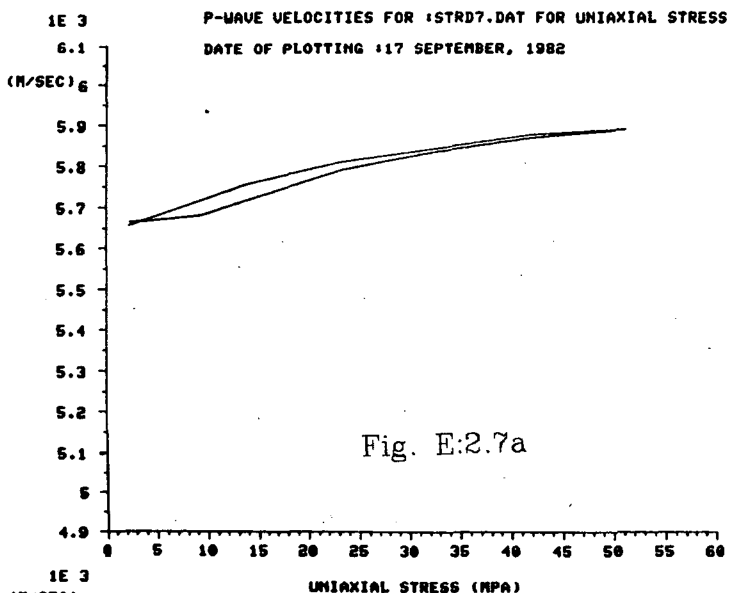


Fig. E:2.6d



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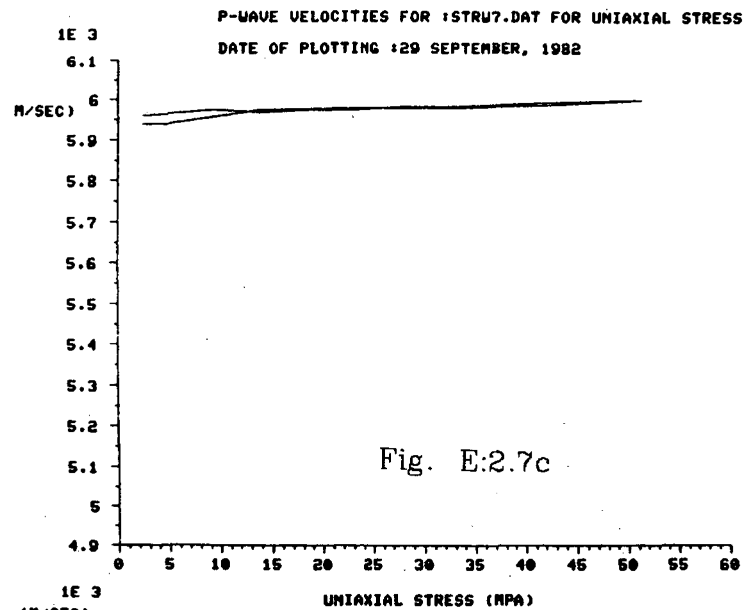

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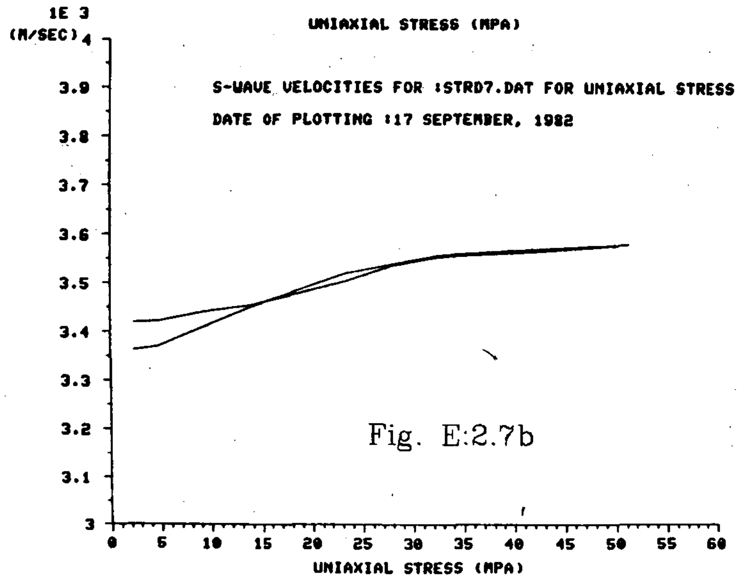

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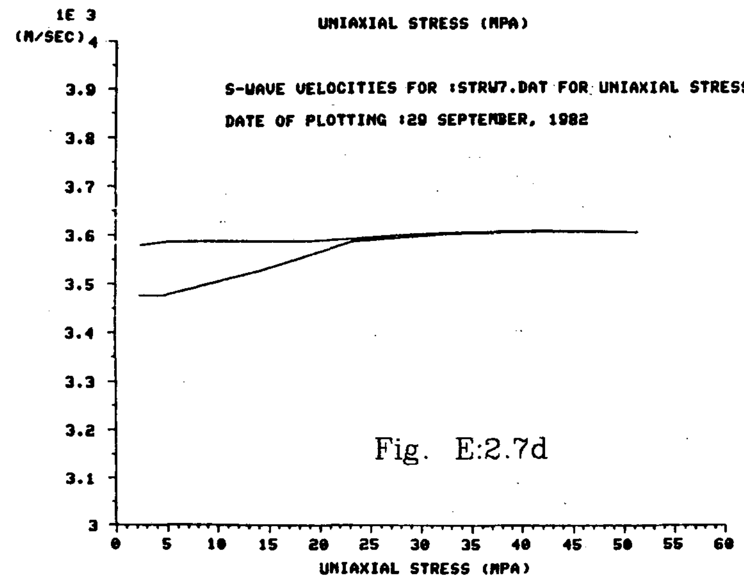

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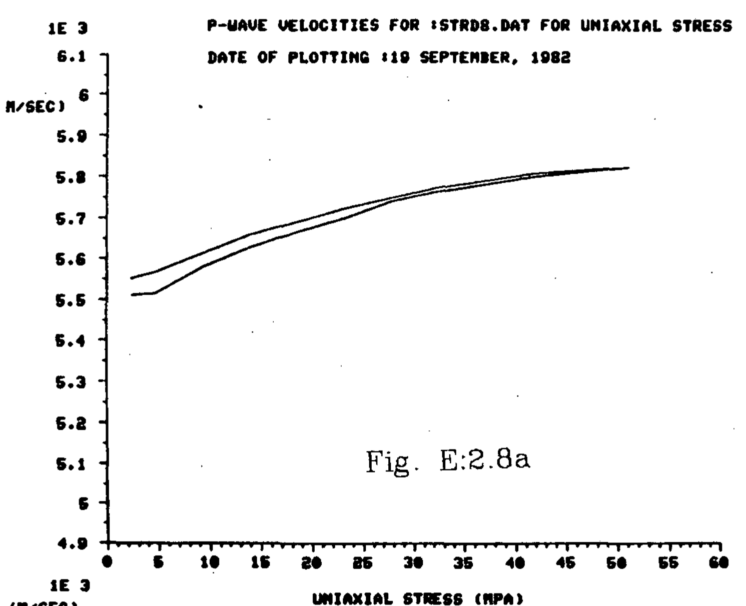

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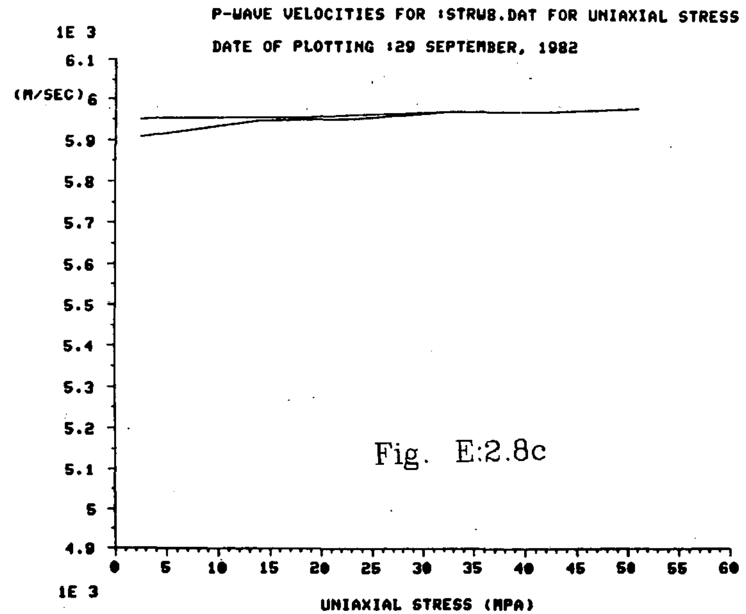

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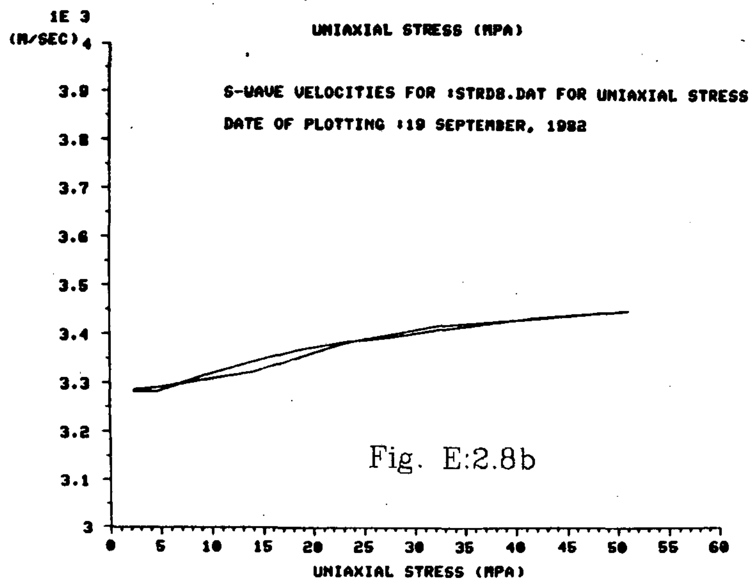

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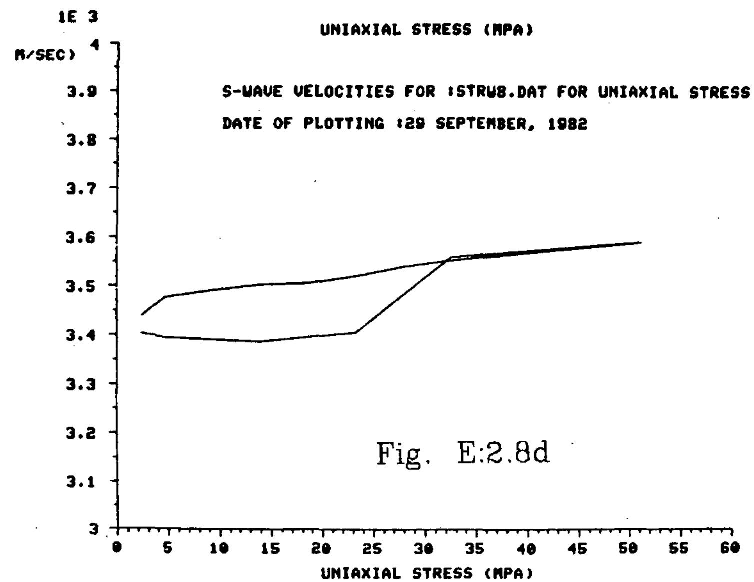

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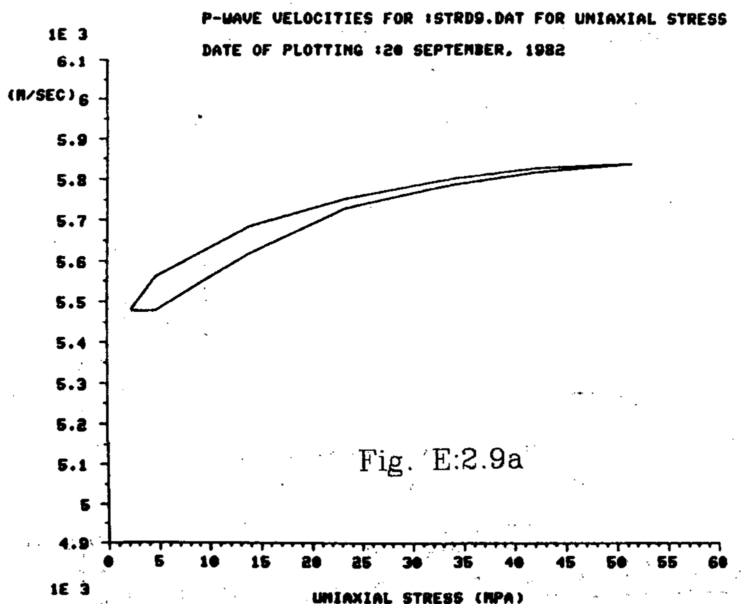

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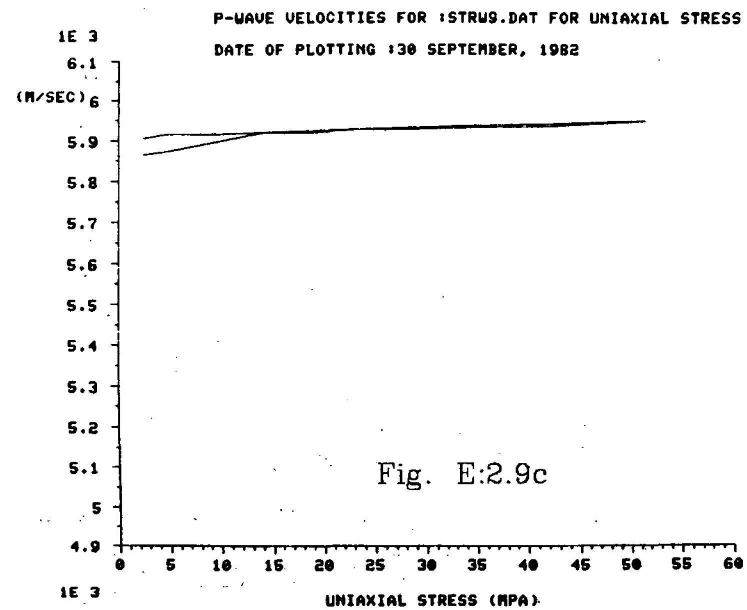

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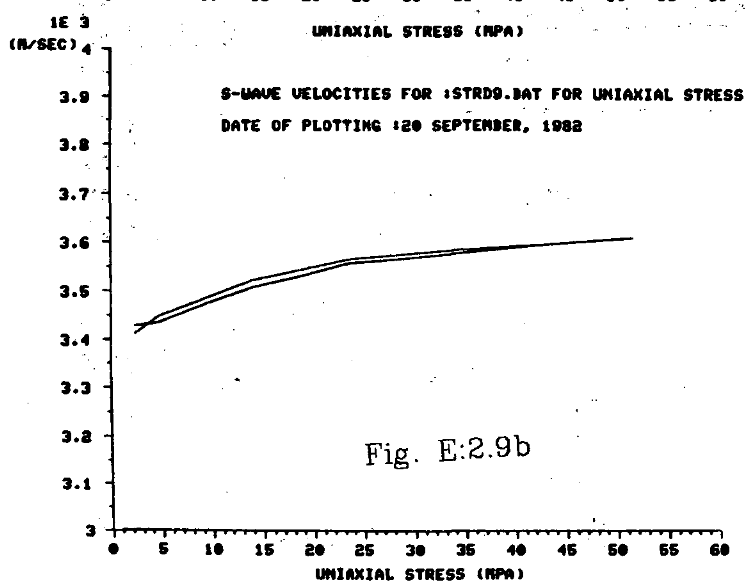

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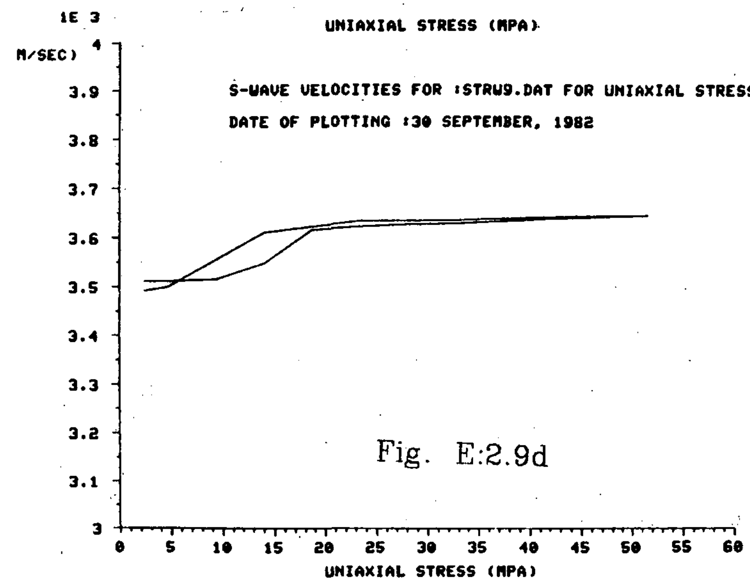

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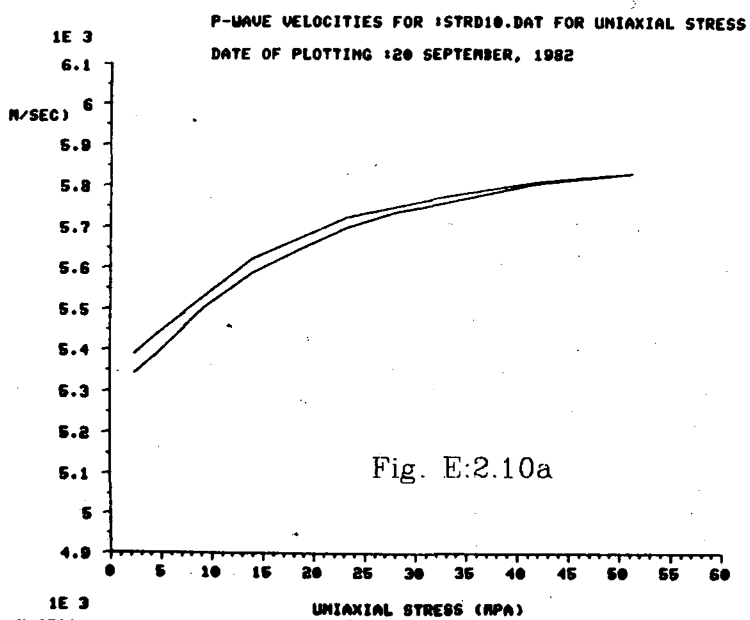

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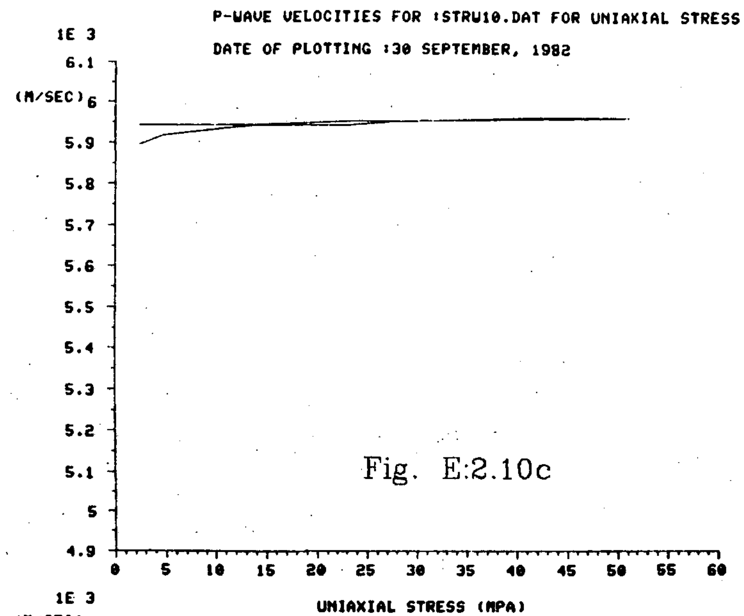

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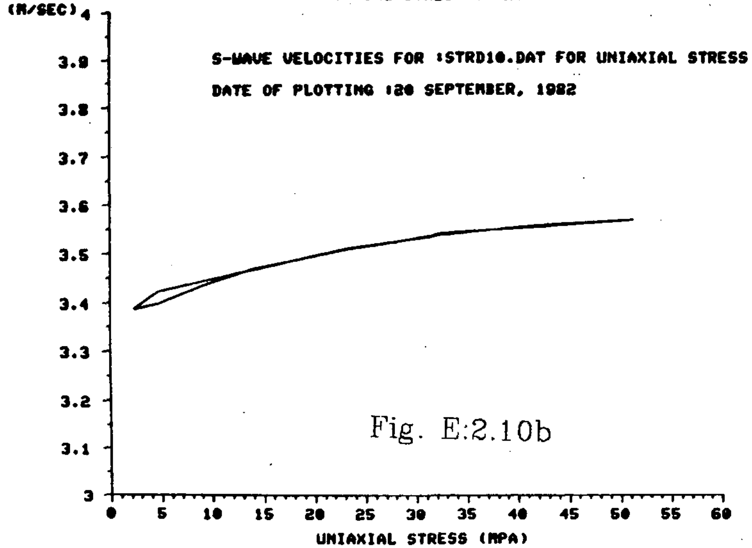
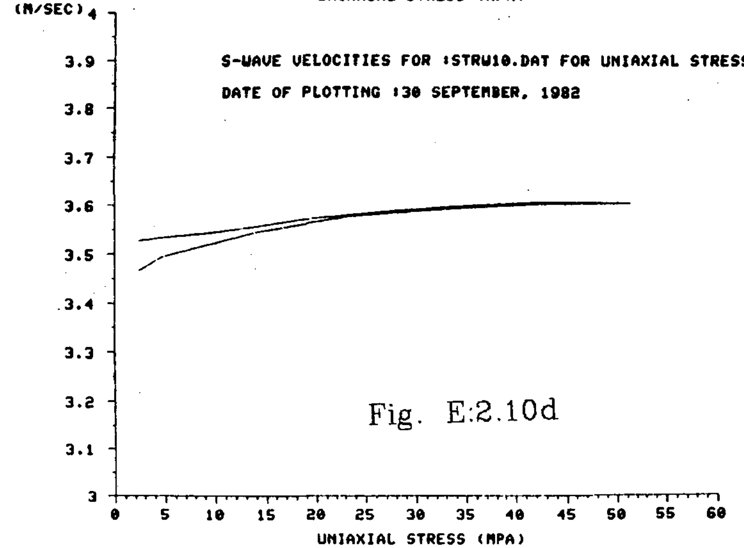


Fig. E:2.10b



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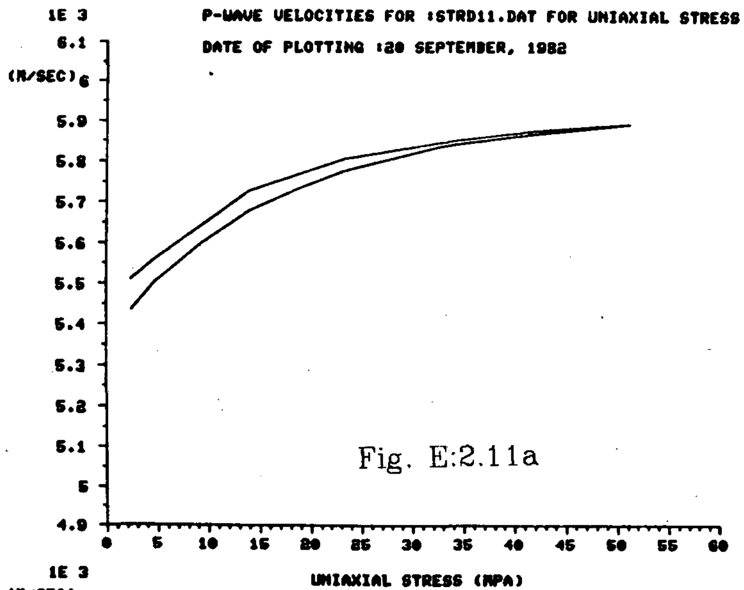


Fig. E:2.11a

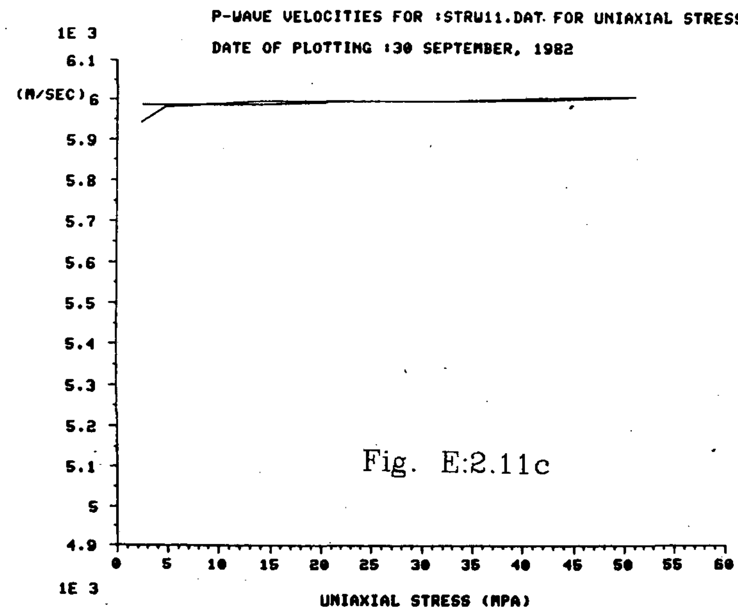


Fig. E:2.11c

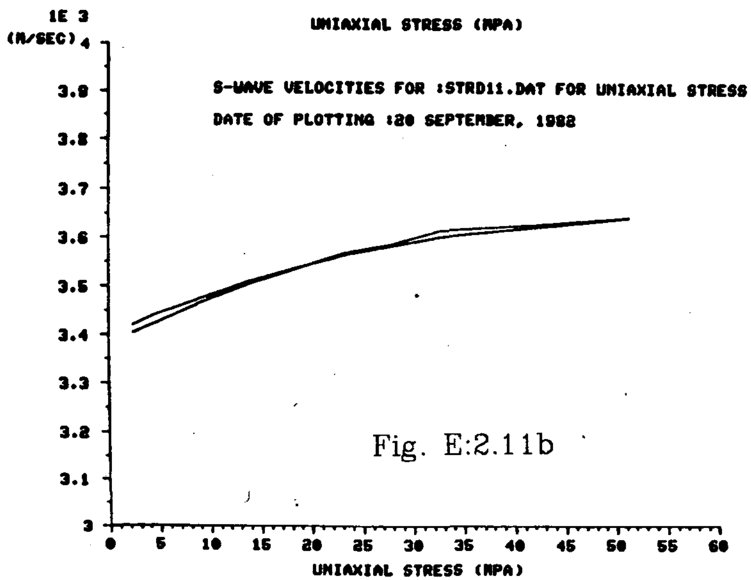


Fig. E:2.11b

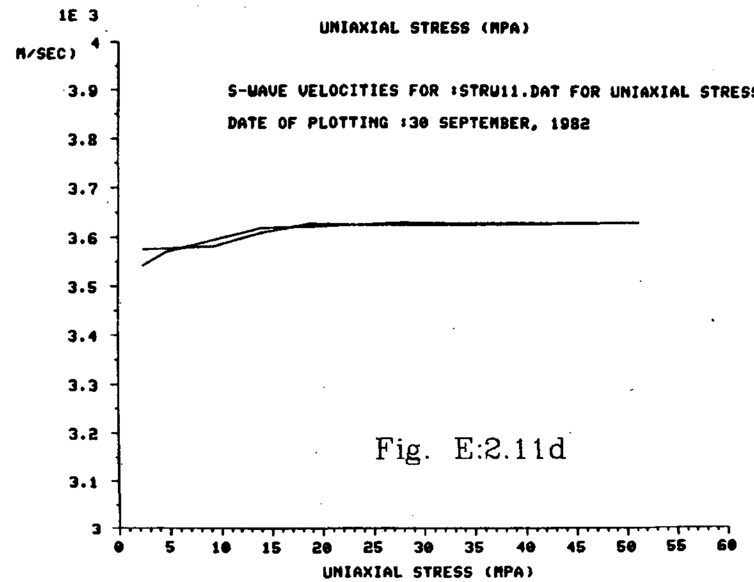


Fig. E:2.11d

Appendix E:3 - P and S waveforms from laboratory test

In this appendix the V_p and V_s are plotted as function of the uniaxial stress σ_{ua}. The dry velocities are shown in figures a and b and the saturated in figures c and d. The saturated velocites have many times a considerable hysteresis on theb unloading part of the curve. This is interpreted to be an effct of the saturation which is assumed to be partial during the unloading because the pore fluid were forced out of the fractures during the loading of the specimen.

In Table 7.2 the location of the specimen are shown.

Figure captions for Appendix E:3

Fig. E:3.1a P wave veloctiy as function of uniaxial stress for the dry specimen # 1

Fig. E:3.1b P waveform as function of uniaxial stress for the saturated specimen # 1

Fig. E:3.1c S waveform as function of uniaxial stress for the dry specimen # 1

Fig. E:3.1d S waveform as function of uniaxial stress for the saturated specimen # 1

Fig. E:3.2a P wave veloctiy as function of uniaxial stress for the dry specimen # 2

Fig. E:3.2b P waveform as function of uniaxial stress for the saturated specimen # 2

Fig. E:3.2c S waveform as function of uniaxial stress for the dry specimen # 2

Fig. E:3.2d S waveform as function of uniaxial stress for the saturated specimen # 2

Fig. E:3.3a P wave veloctiy as function of uniaxial stress for the dry specimen # 3

Fig. E:3.3b P waveform as function of uniaxial stress for the saturated specimen # 3

Fig. E:3.3c S waveform as function of uniaxial stress for the dry specimen # 3

Fig. E:3.3d S waveform as function of uniaxial stress for the saturated specimen # 3

Fig. E:3.4a P wave veloctiy as function of uniaxial stress for the dry specimen # 4

Fig. E:3.4b P waveform as function of uniaxial stress for the saturated specimen # 4

Fig. E:3.4c S waveform as function of uniaxial stress for the dry specimen # 4

Fig. E:3.4d S waveform as function of uniaxial stress for the saturated specimen # 4

Fig. E:3.5a P wave veloctiy as function of uniaxial stress for the dry specimen # 5

Fig. E:3.5b P waveform as function of uniaxial stress for the saturated specimen # 5

Fig. E:3.5c S waveform as function of uniaxial stress for the dry specimen # 5

Fig. E:3.5d S waveform as function of uniaxial stress for the saturated specimen # 5

Fig. E:3.6a P wave veloctiy as function of uniaxial stress for the dry specimen # 6

Fig. E:3.6b P waveform as function of uniaxial stress for the saturated specimen # 6

Fig. E:3.6c S waveform as function of uniaxial stress for the dry specimen # 6

Fig. E:3.6d S waveform as function of uniaxial stress for the saturated specimen # 6

Fig. E:3.7a P wave veloctiy as function of uniaxial stress for the dry specimen # 7

Fig. E:3.7b P waveform as function of uniaxial stress for the saturated specimen # 7

Fig. E:3.7c S waveform as function of uniaxial stress for the dry specimen # 7

Fig. E:3.7d S waveform as function of uniaxial stress for the saturated specimen # 7

Fig. E:3.8a P wave veloctiy as function of uniaxial stress for the dry specimen # 8

Fig. E:3.8b P waveform as function of uniaxial stress for the saturated specimen # 8

Fig. E:3.8c S waveform as function of uniaxial stress for the dry specimen # 8

Fig. E:3.8d S waveform as function of uniaxial stress for the saturated specimen # 8

Fig. E:3.9a P wave veloctiy as function of uniaxial stress for the dry specimen # 9

Fig. E:3.9b P waveform as function of uniaxial stress for the saturated specimen # 9

Fig. E:3.9c S waveform as function of uniaxial stress for the dry specimen # 9

Fig. E:3.9d S waveform as function of uniaxial stress for the saturated specimen # 9

Fig. E:3.10a P wave veloctiy as function of uniaxial stress for the dry specimen # 10

Fig. E:3.10b P waveform as function of uniaxial stress for the saturated specimen # 10

Fig. E:3.10c S waveform as function of uniaxial stress for the dry specimen # 10

Fig. E:3.10d S waveform as function of uniaxial stress for the saturated specimen # 10

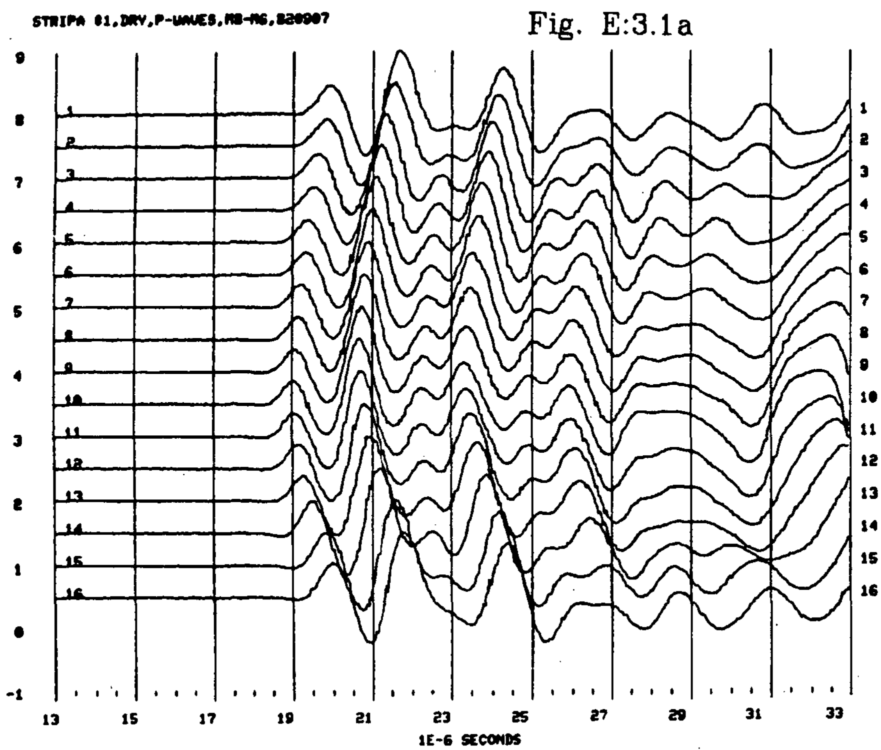
Fig. E:3.11a P wave veloctiy as function of uniaxial stress for the dry specimen # 11

Fig. E:3.11b P waveform as function of uniaxial stress for the saturated specimen # 11

Fig. E:3.11c S waveform as function of uniaxial stress for the dry specimen # 11

Fig. E:3.11d S waveform as function of uniaxial stress for the saturated specimen # 11

Fig. E:3.1a



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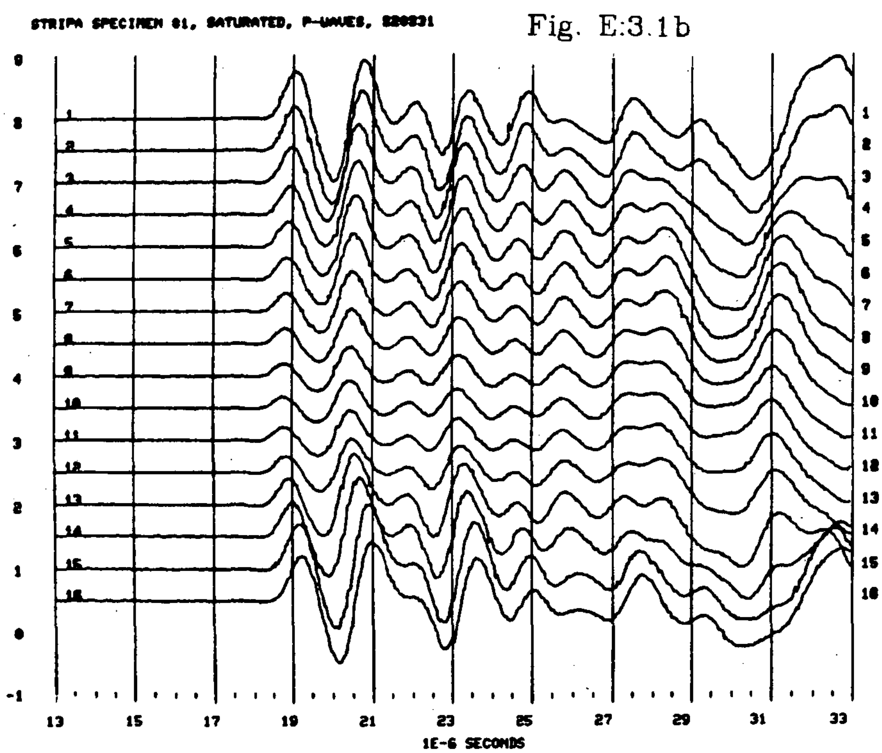

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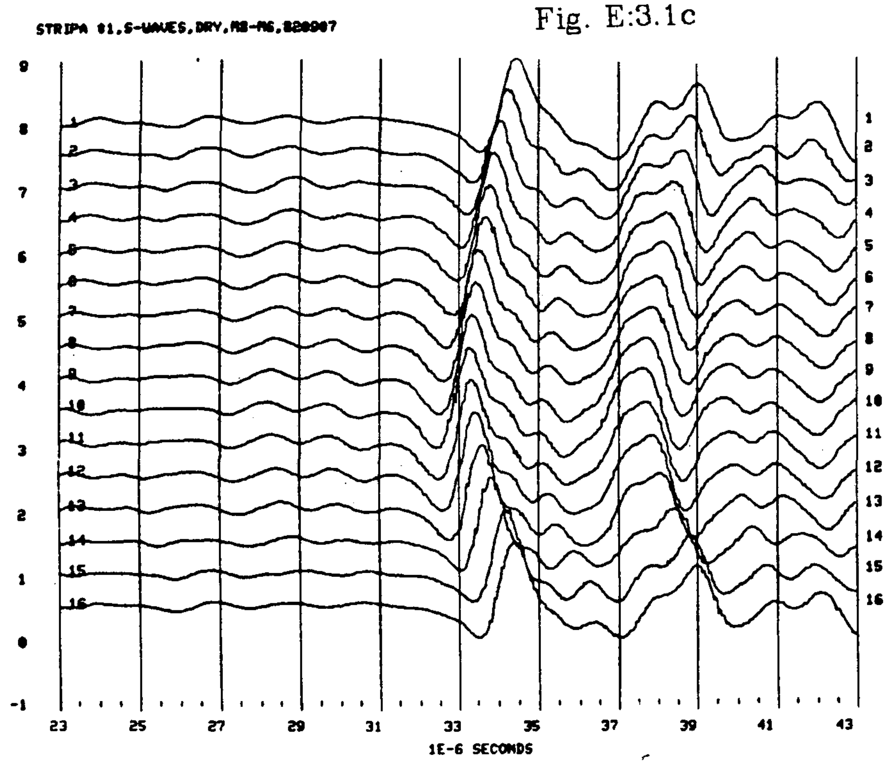


Fig. E:3.1d

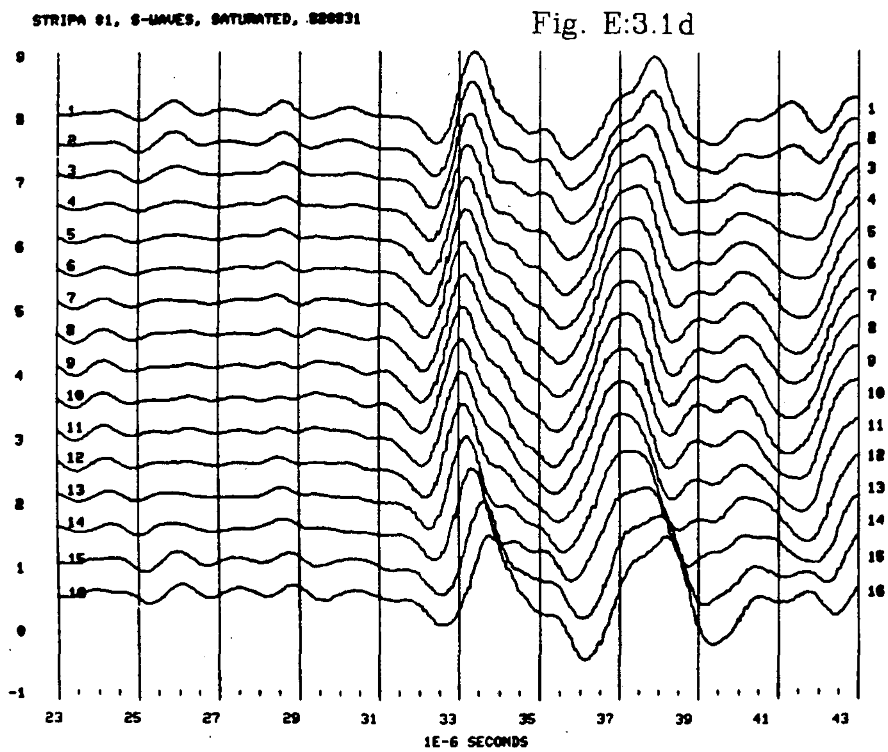


Fig. E:3.2a

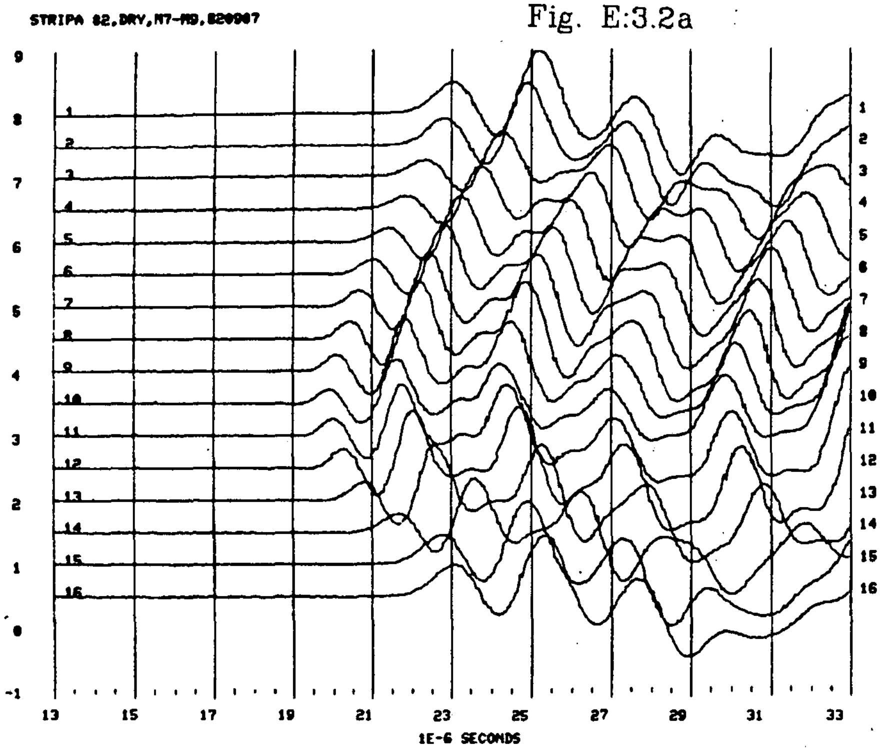


Fig. E:3.2b

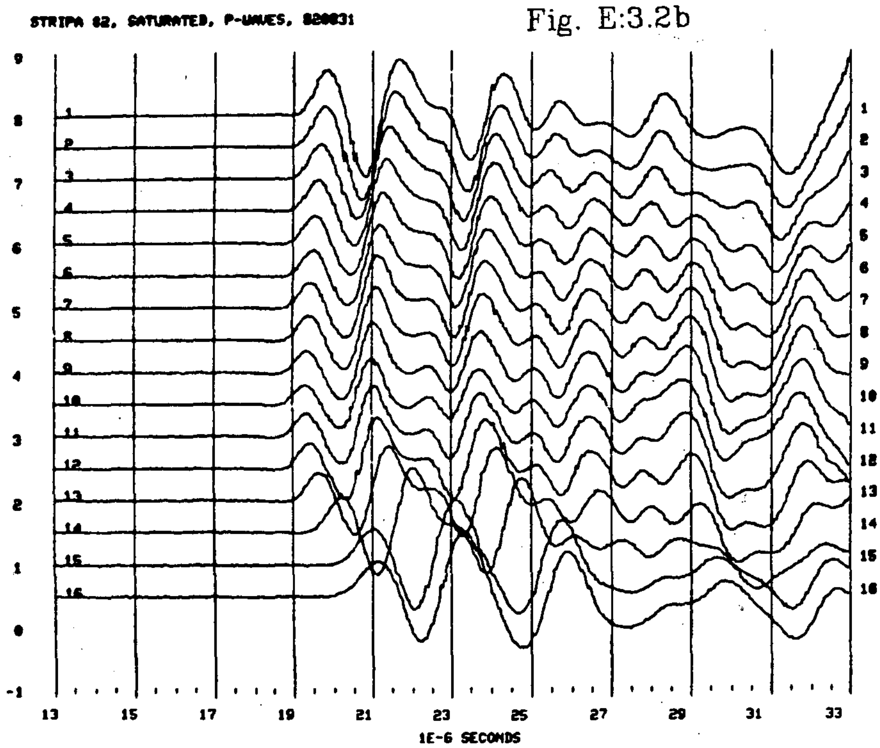
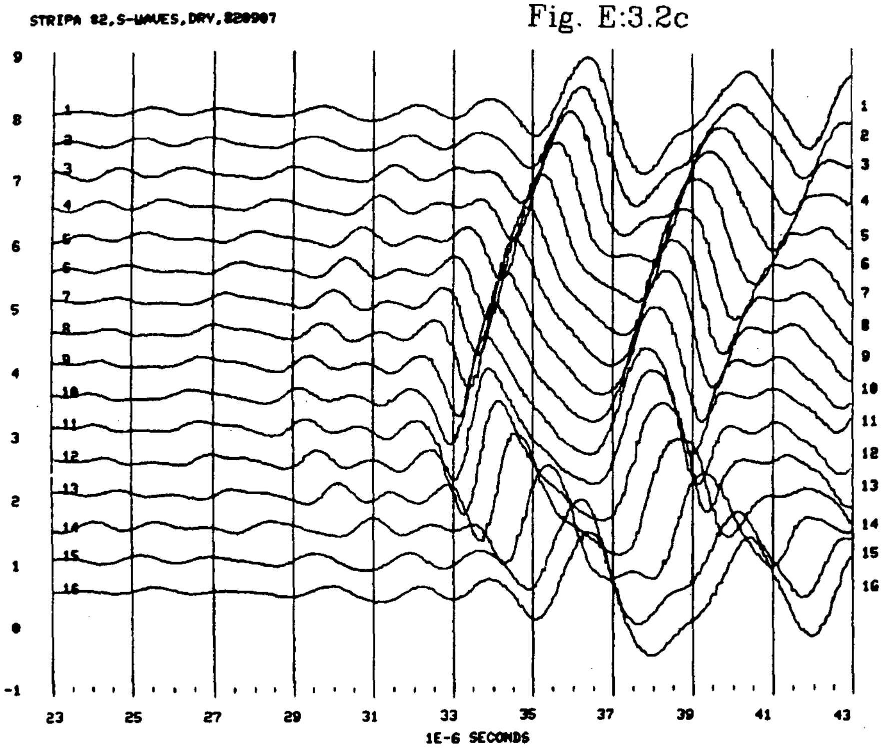


Fig. E:3.2c



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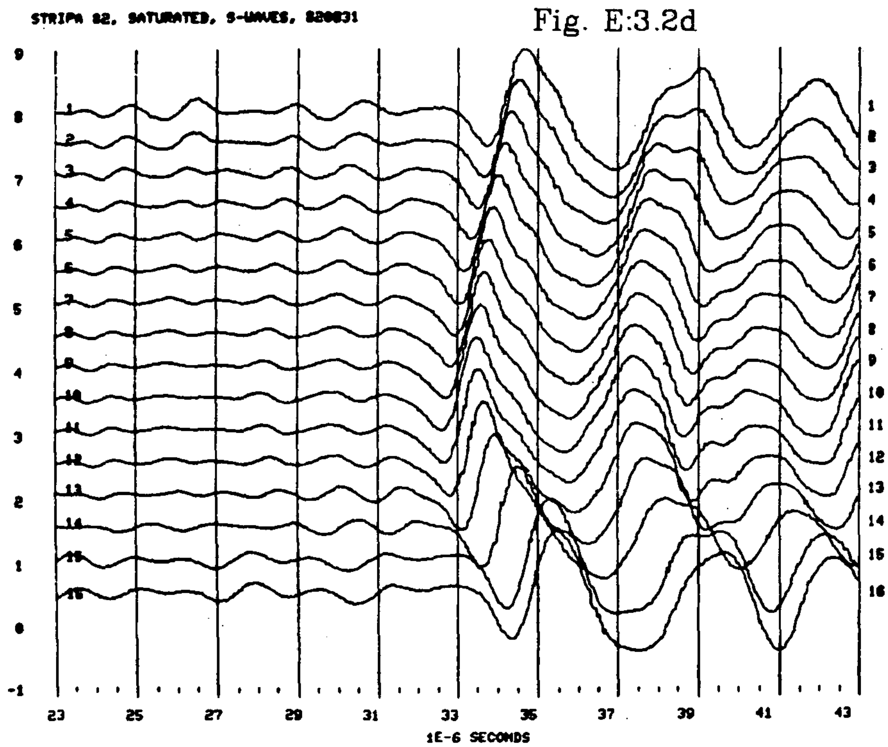

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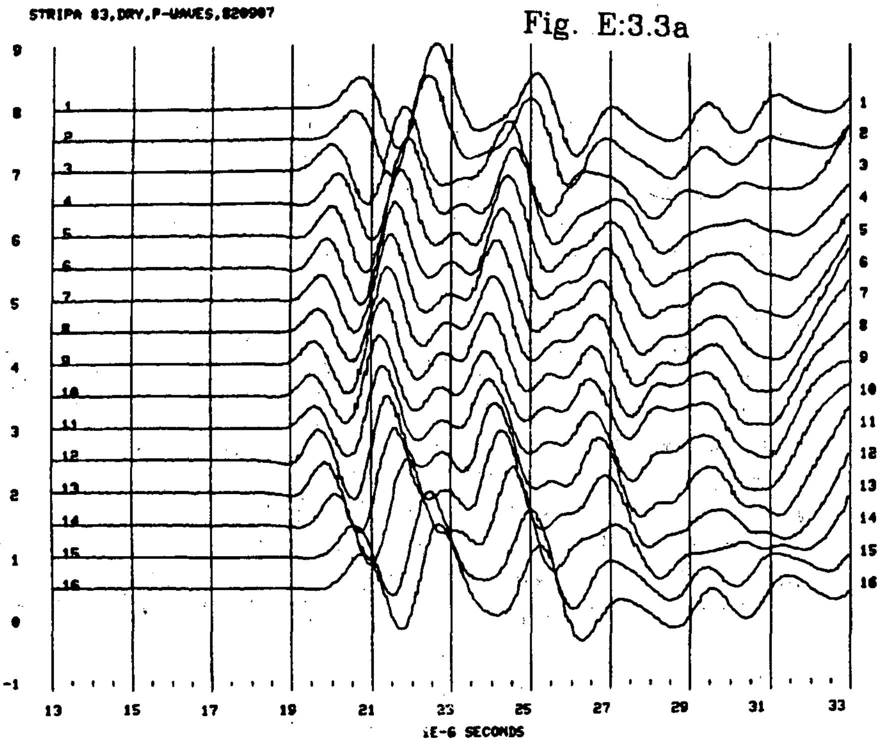
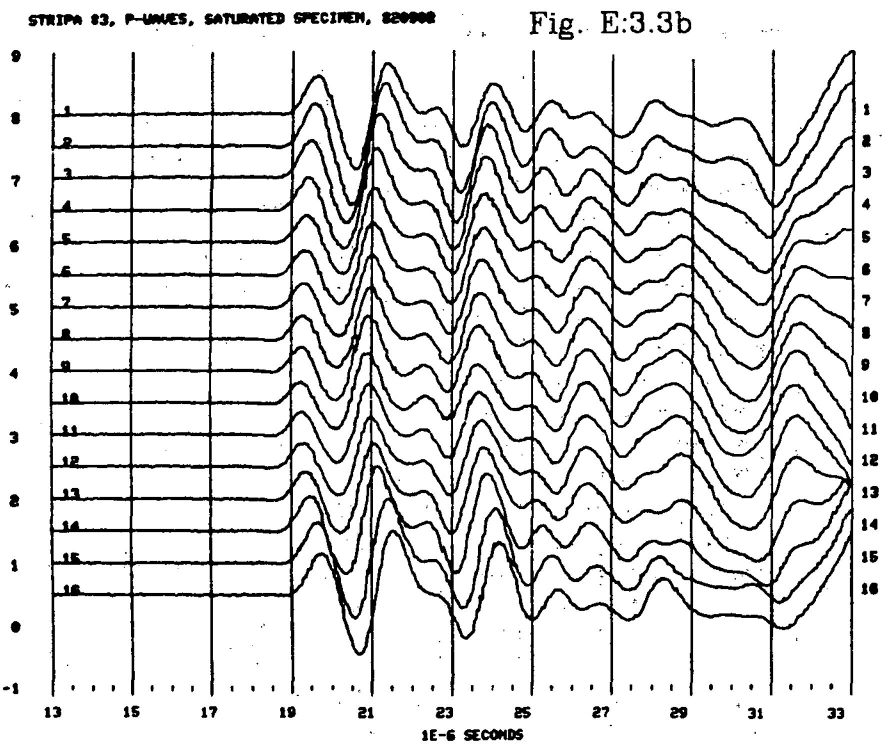


Fig. E:3.3b



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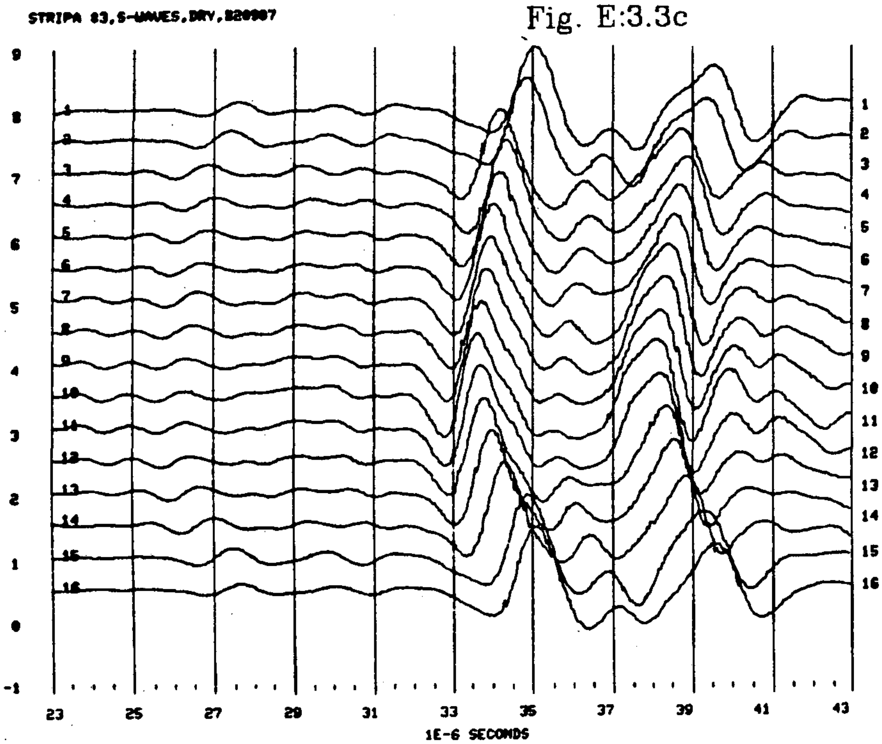

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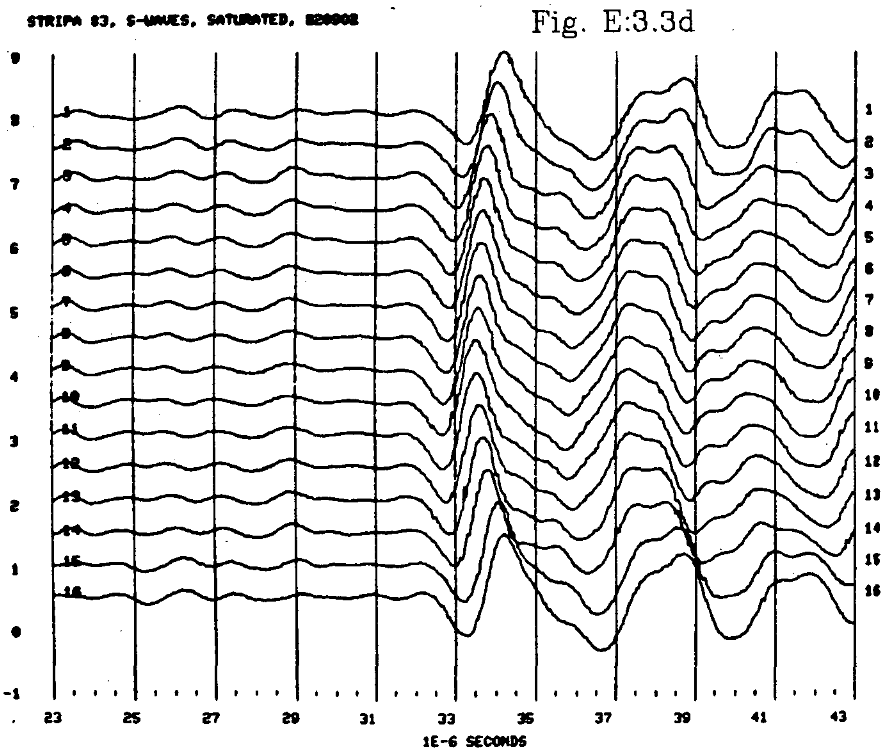


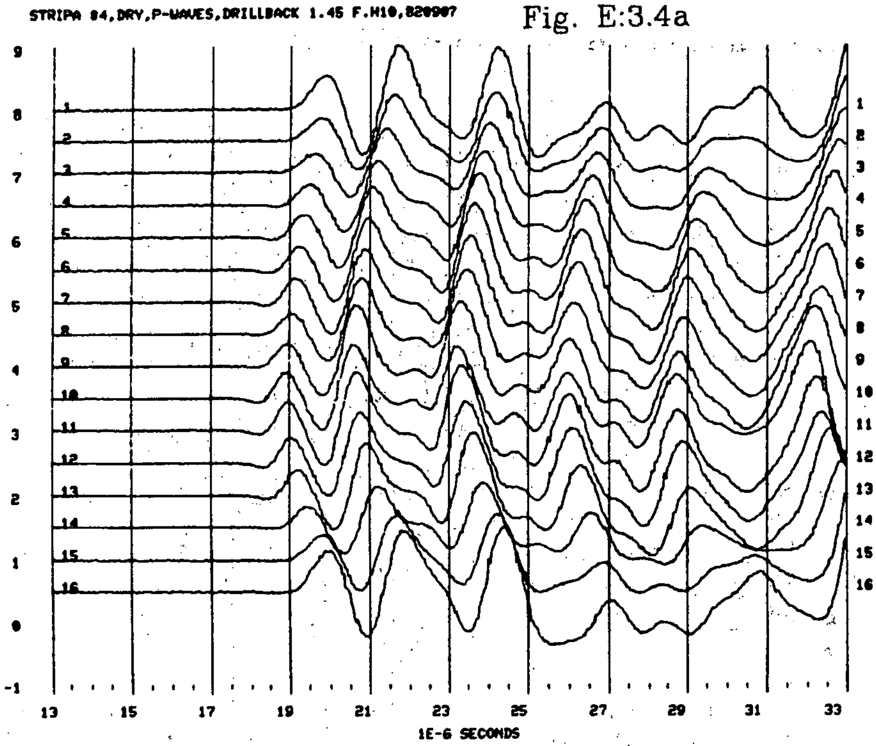


Fig. E:3.4a

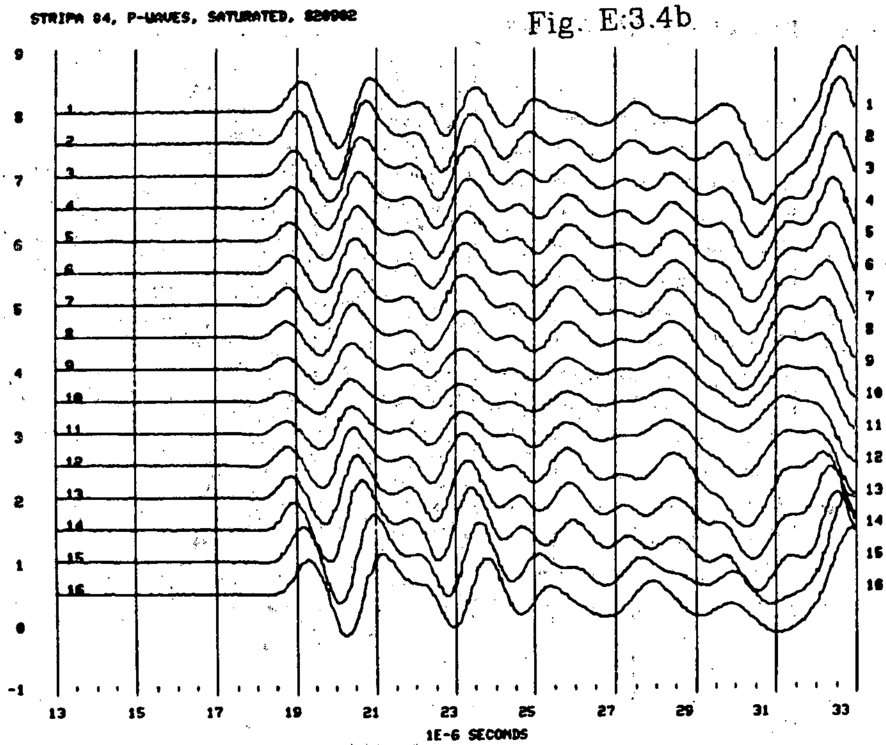
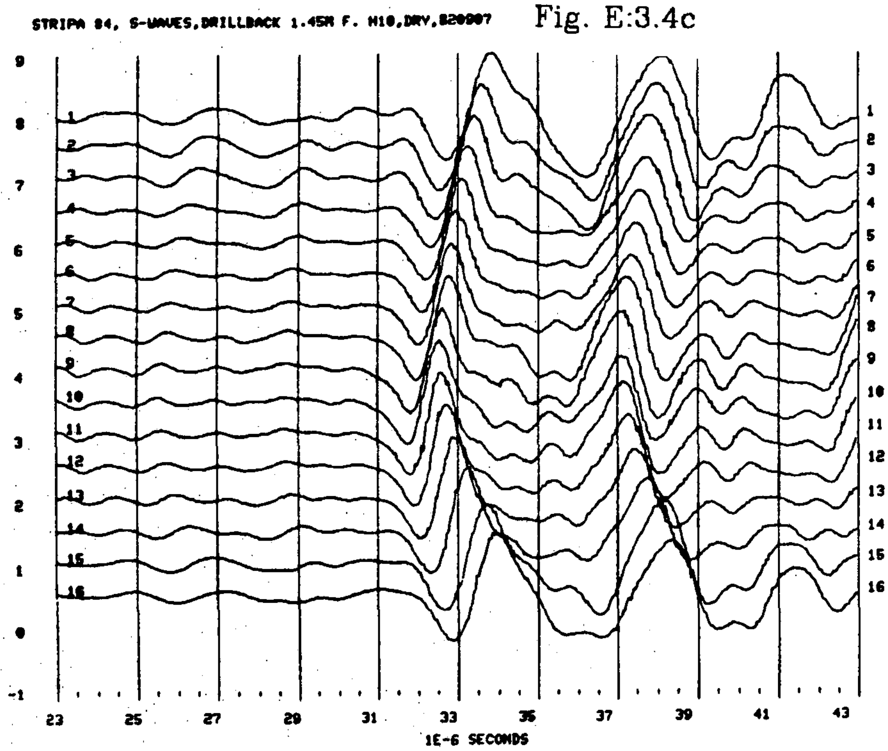


Fig. E:3.4b

Fig. E:3.4c



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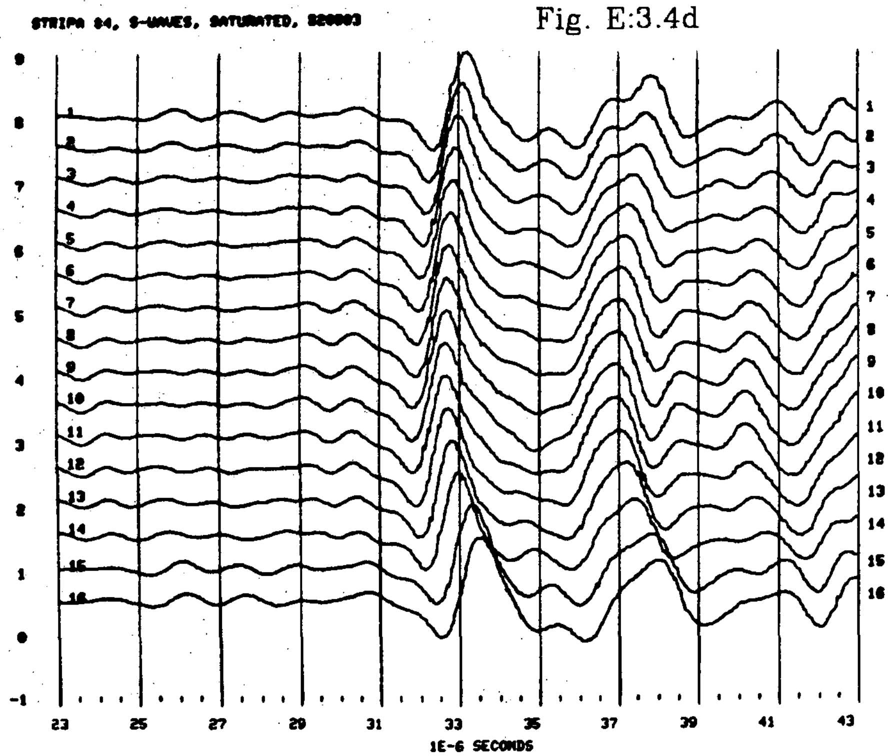

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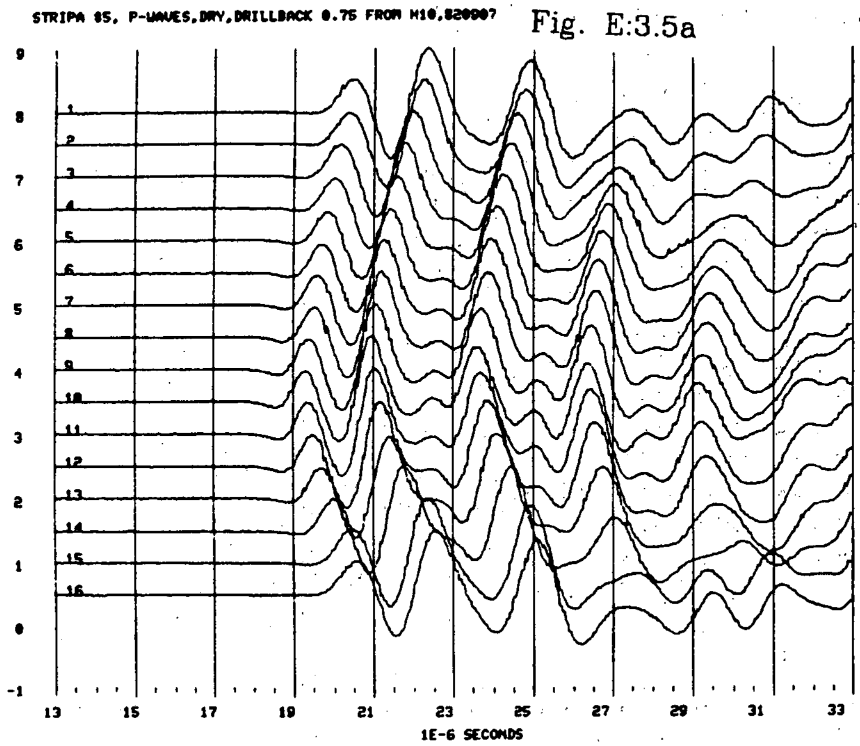
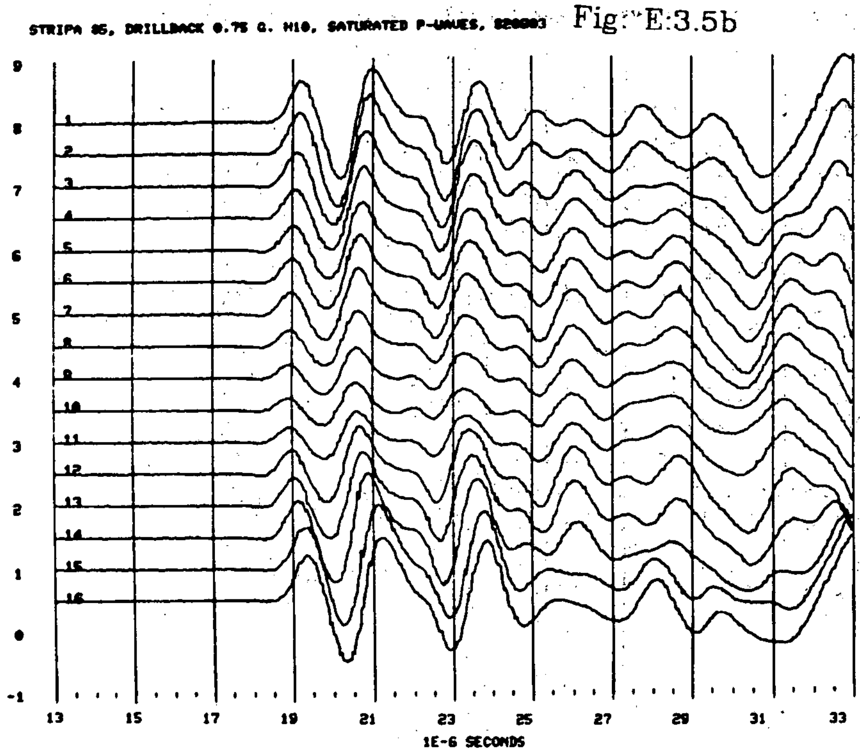
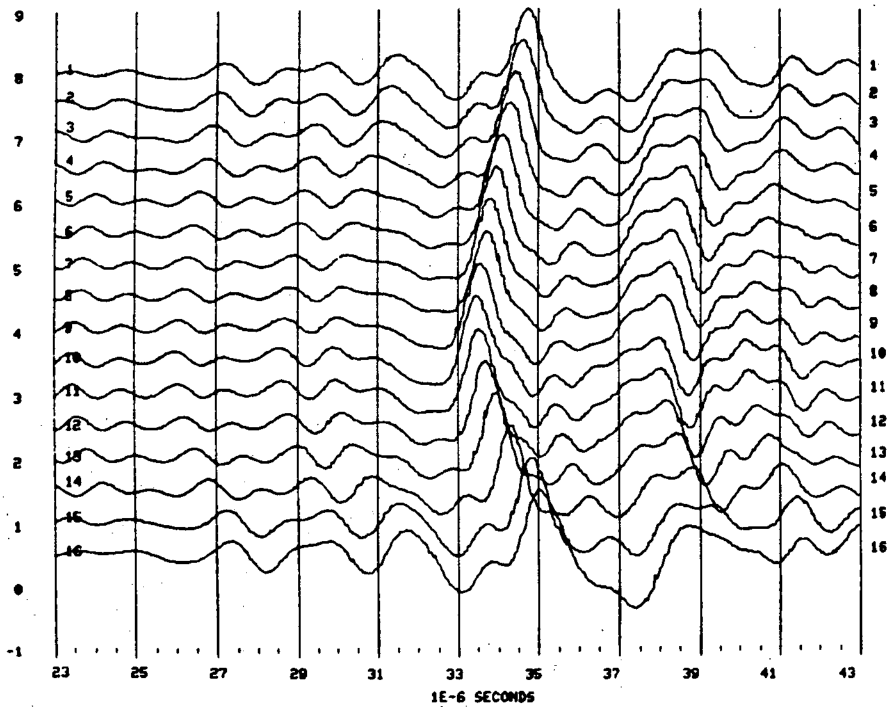


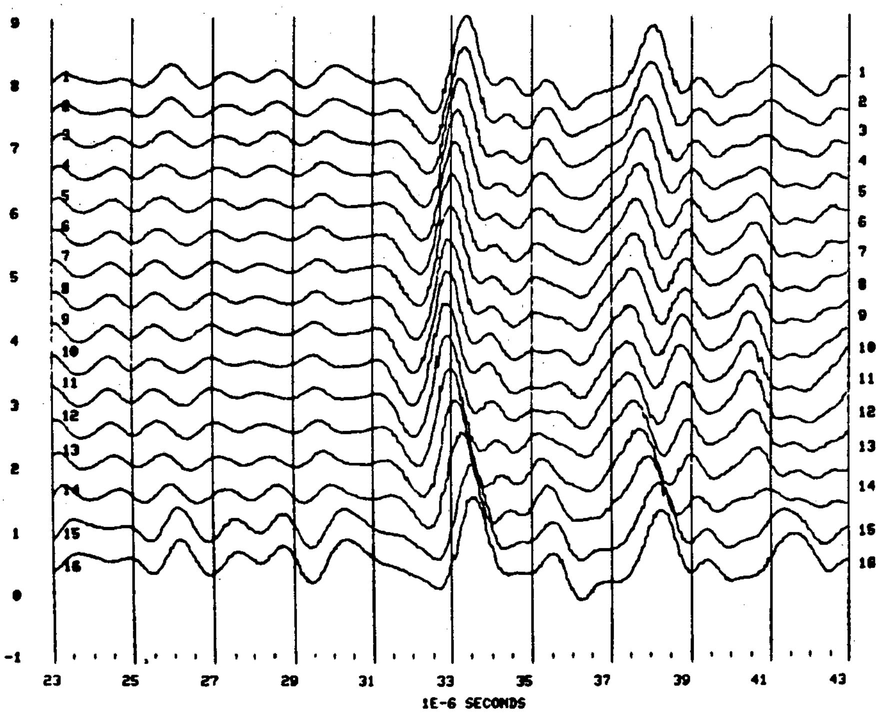
Fig. E:3.5b



STRIPA 85,DRY,S-WAVES,DRILLBACK 0.75M FROM H10, 820907 Fig. E:3.5c

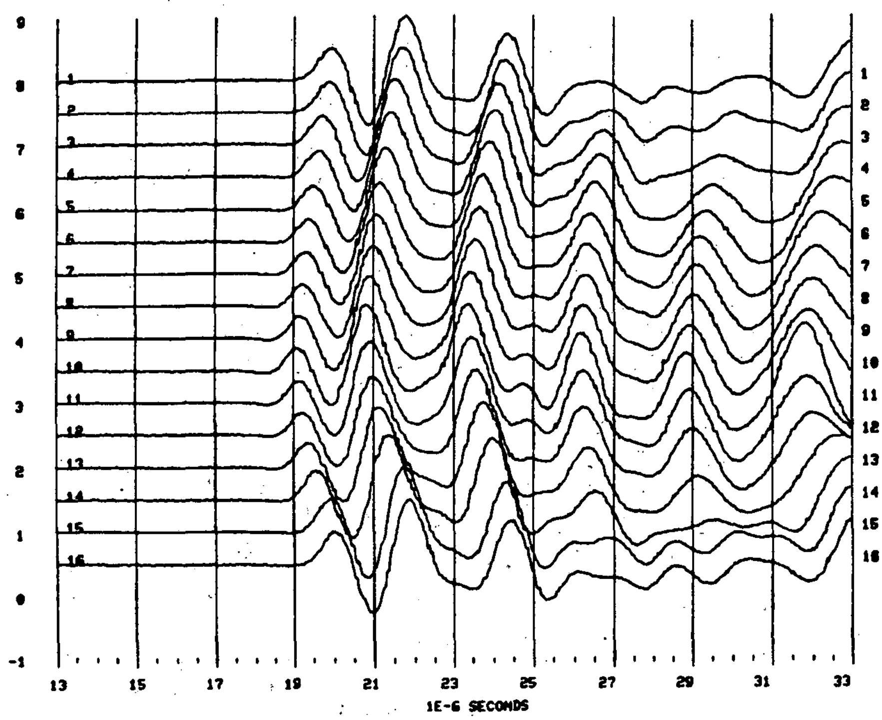


STRIPA 85, SATURATED, DRILLBACK 0.75 FROM H10, S-WAVES, 820903 Fig. E:3.5d



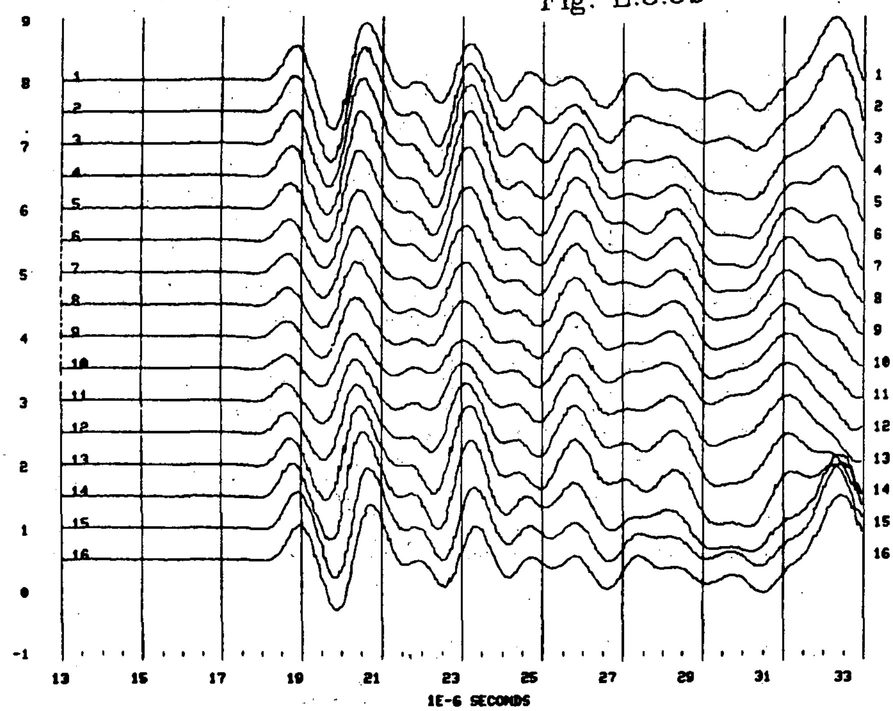
STRIPA 86,E22,DRY,P-WAVES,820916

Fig. E:3.6a



STRIPA 86, P-WAVES, SATURATED,M8-M6, 820929

Fig. E:3.6b



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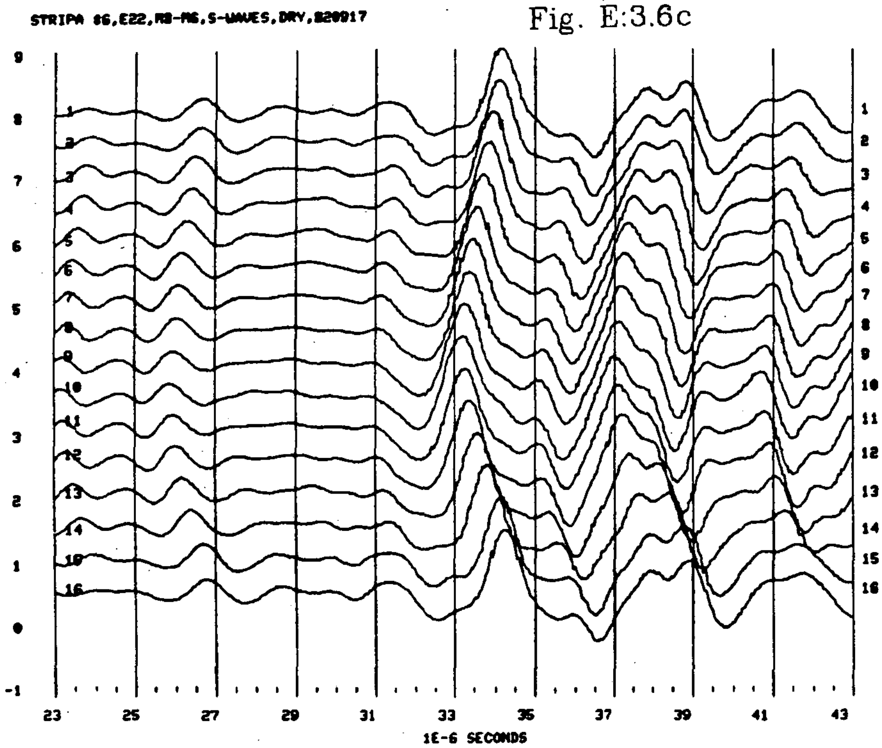

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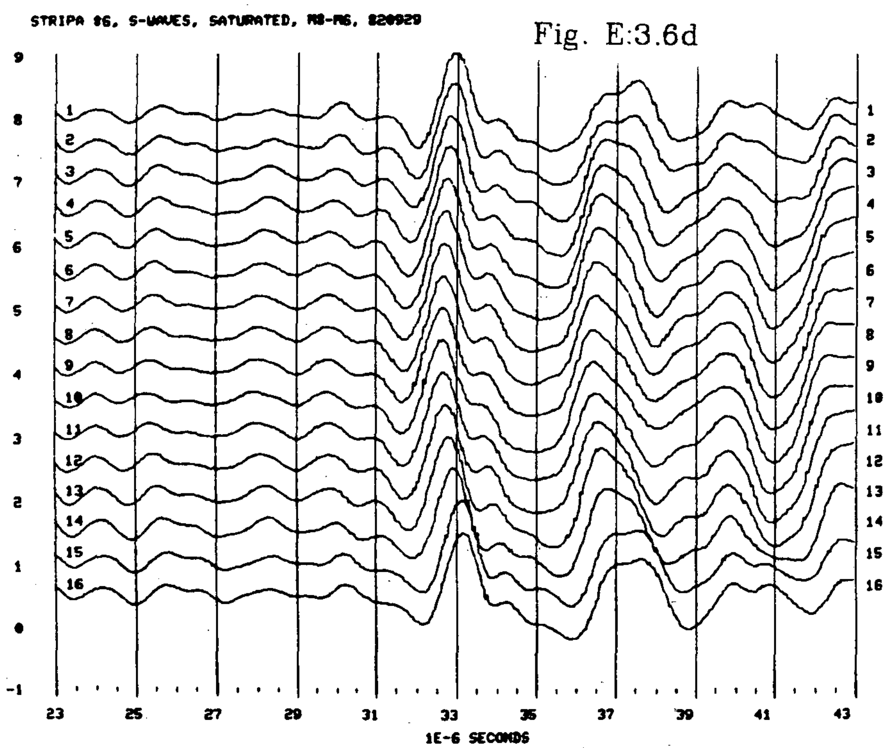

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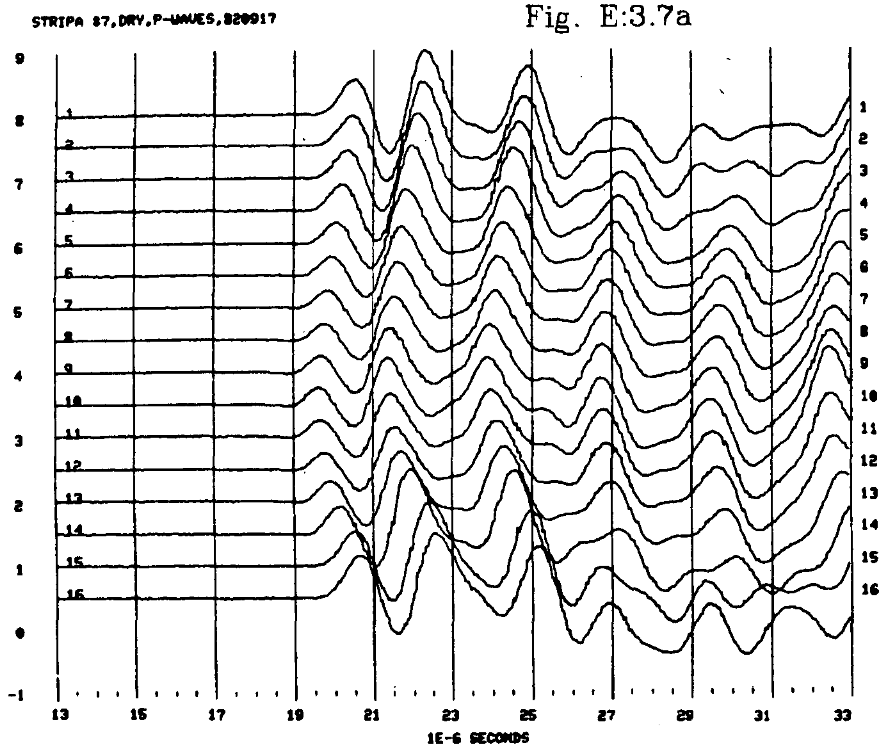

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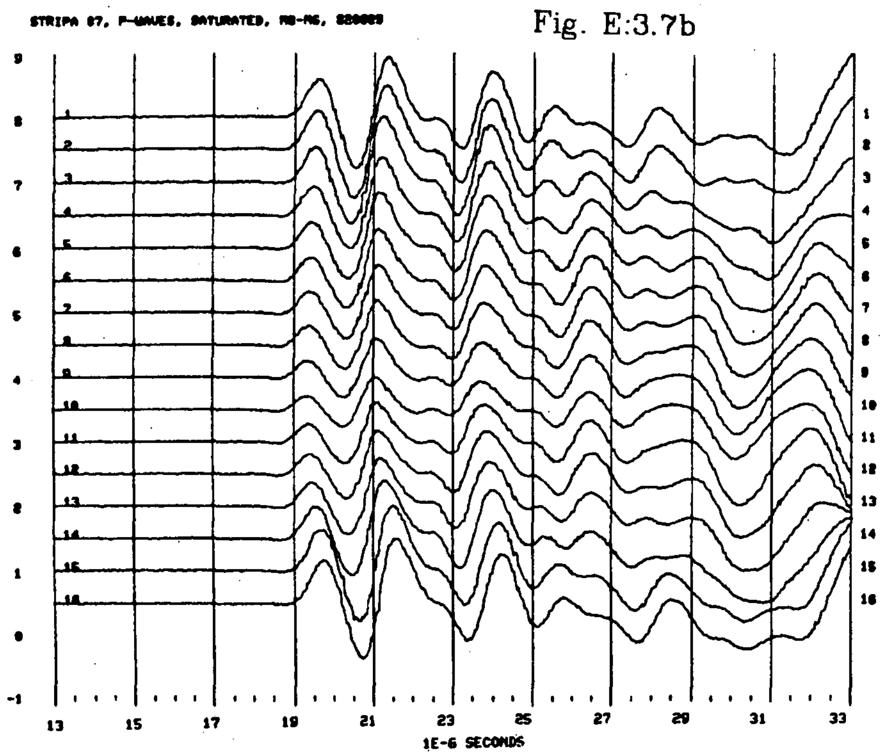


Fig. E:3.7c

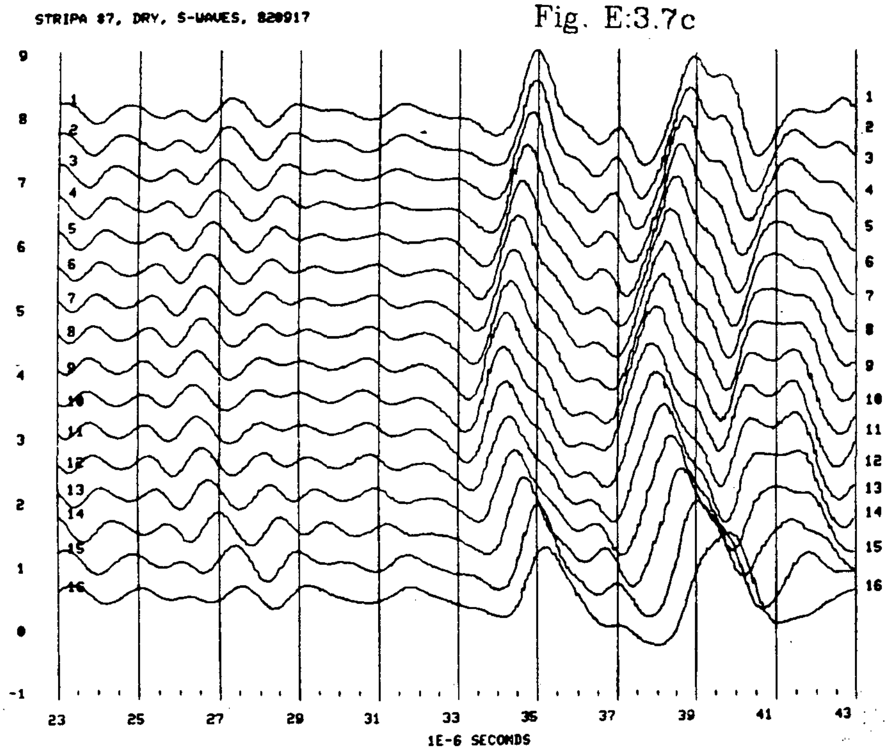


Fig. E:3.7d

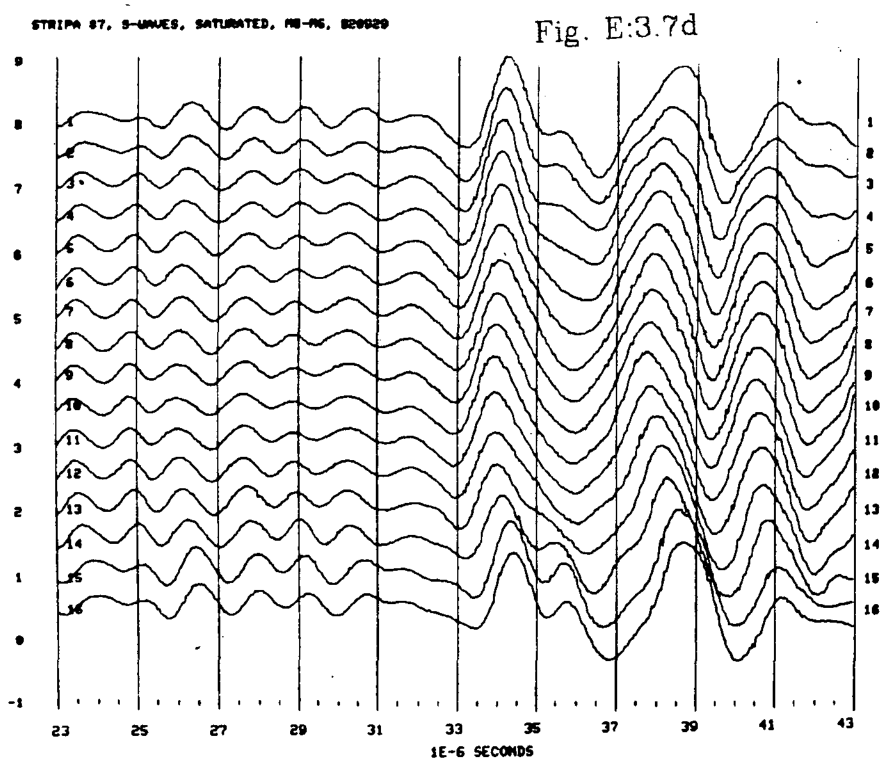


Fig. E:3.8a

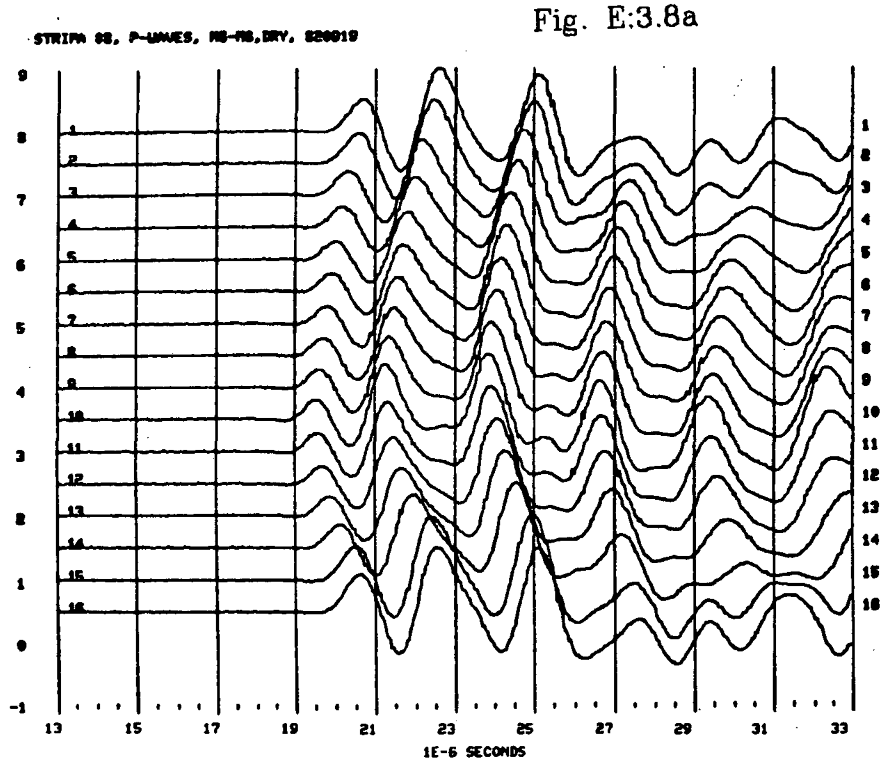
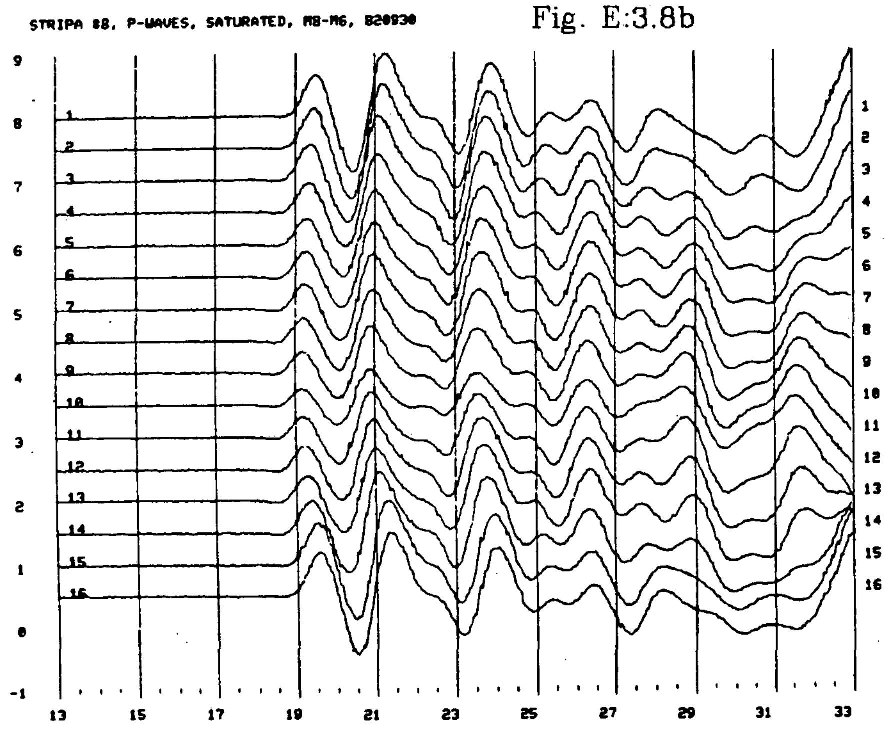
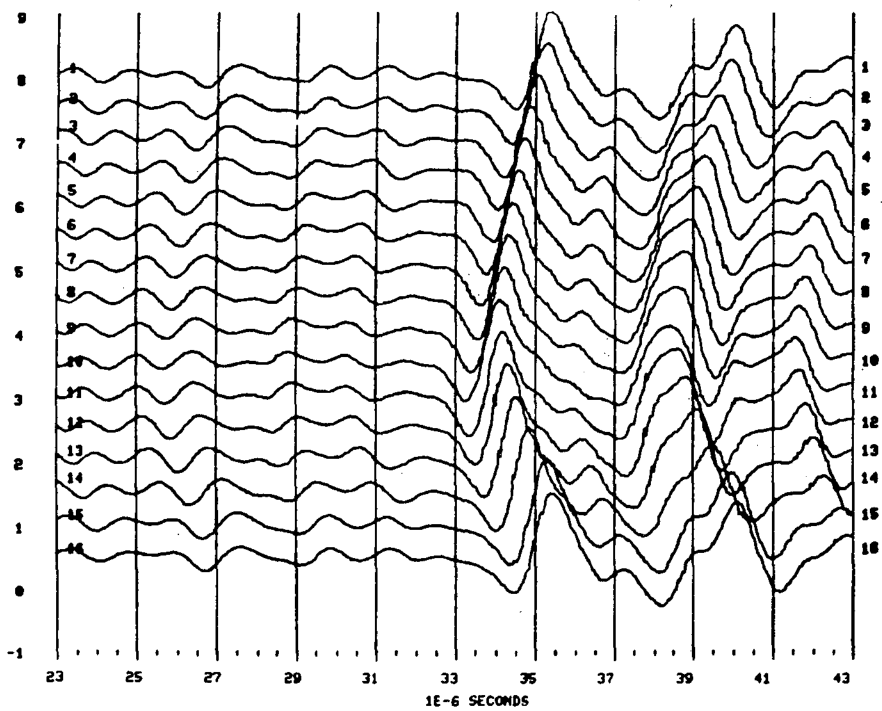


Fig. E:3.8b



STRIPA 88, S-WAVES, M8-M6, DRY, 820919

Fig. E:3.8c



STRIPA 88, S-WAVES, SATURATED, M8-M6, 820930

Fig. E:3.8d

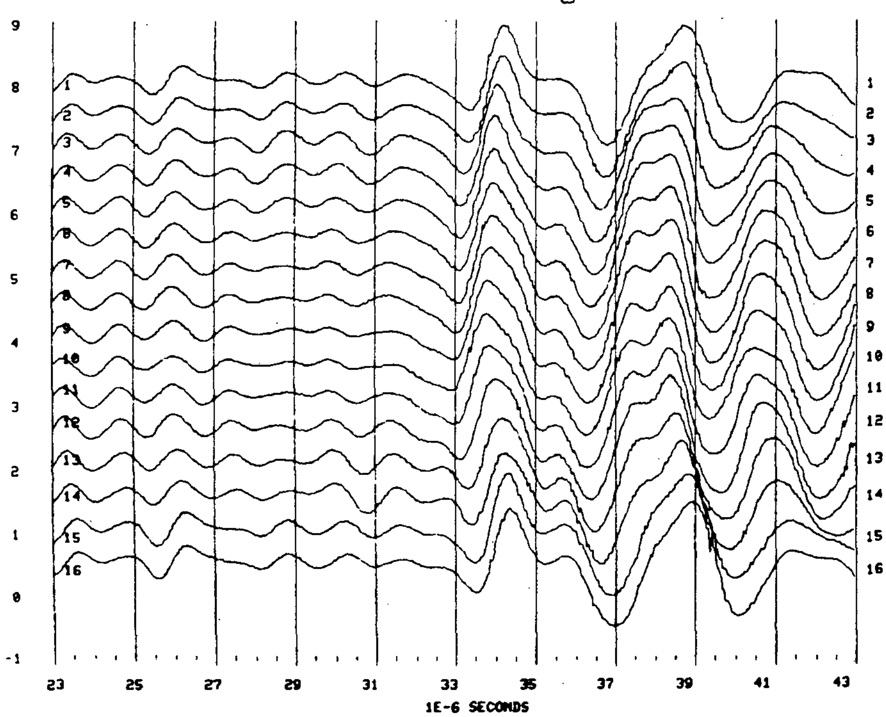


Fig. E:3.9a

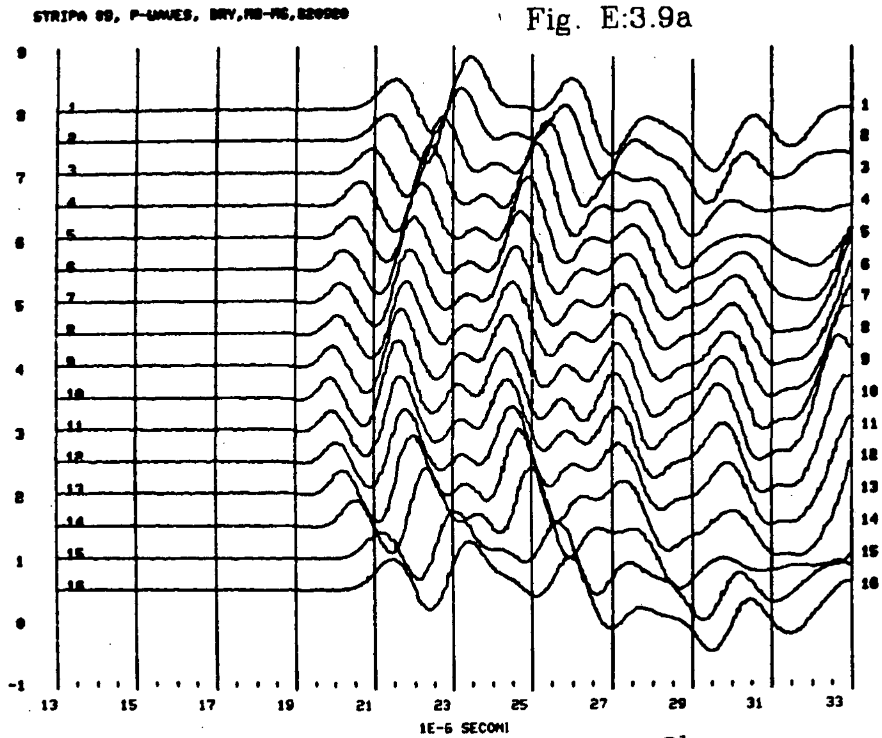
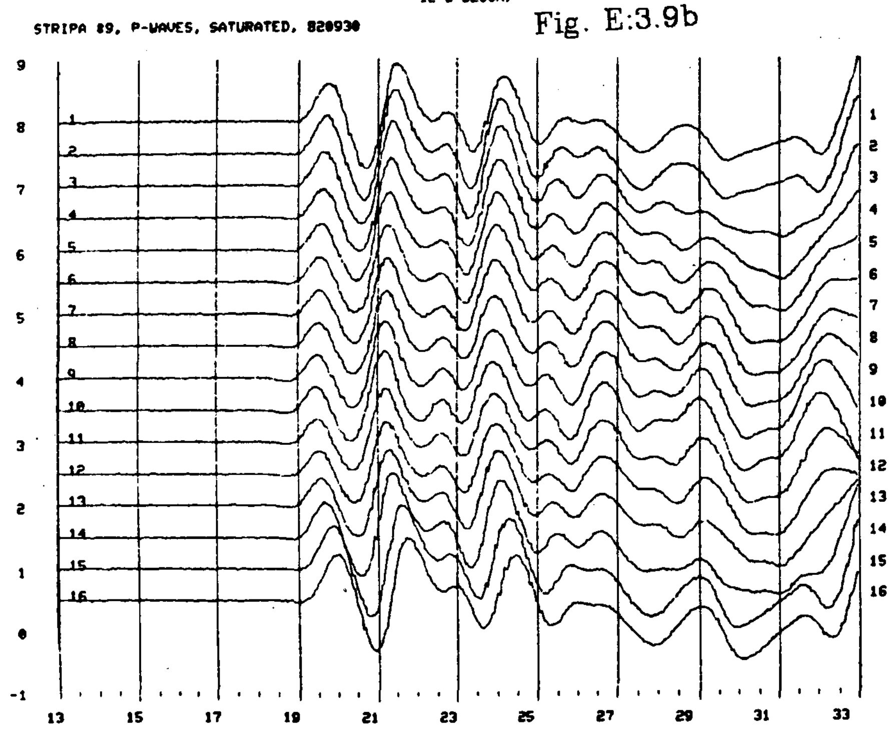


Fig. E:3.9b



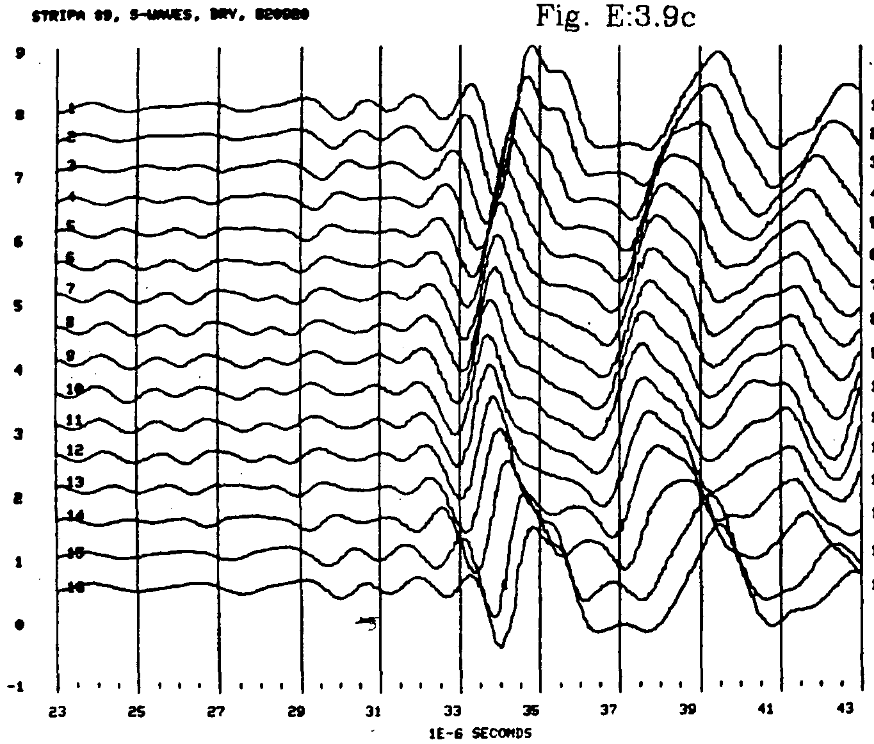


Fig. E:3.9c

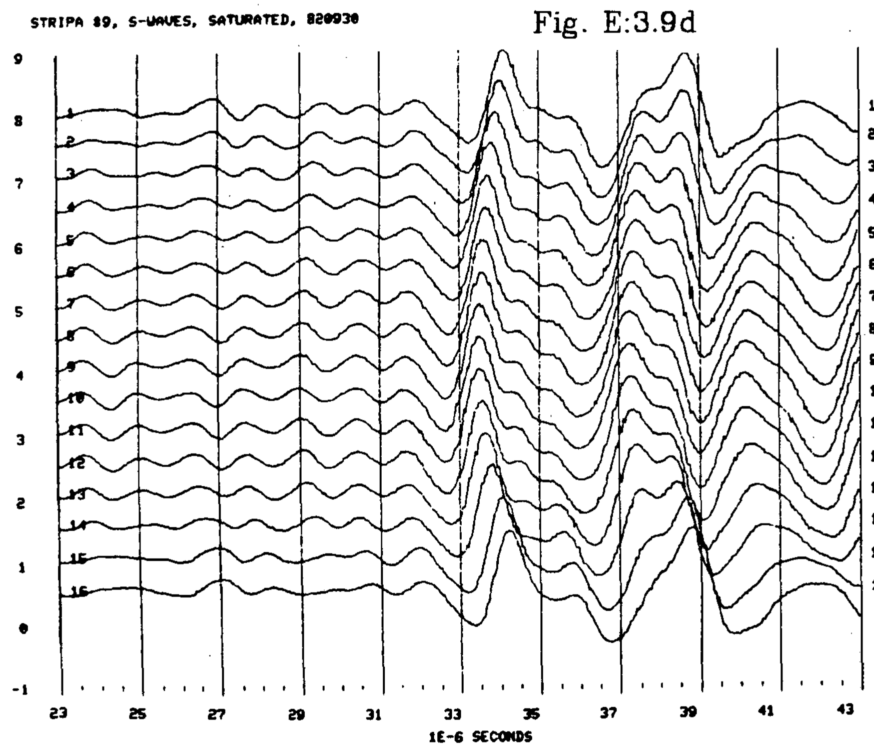


Fig. E:3.9d

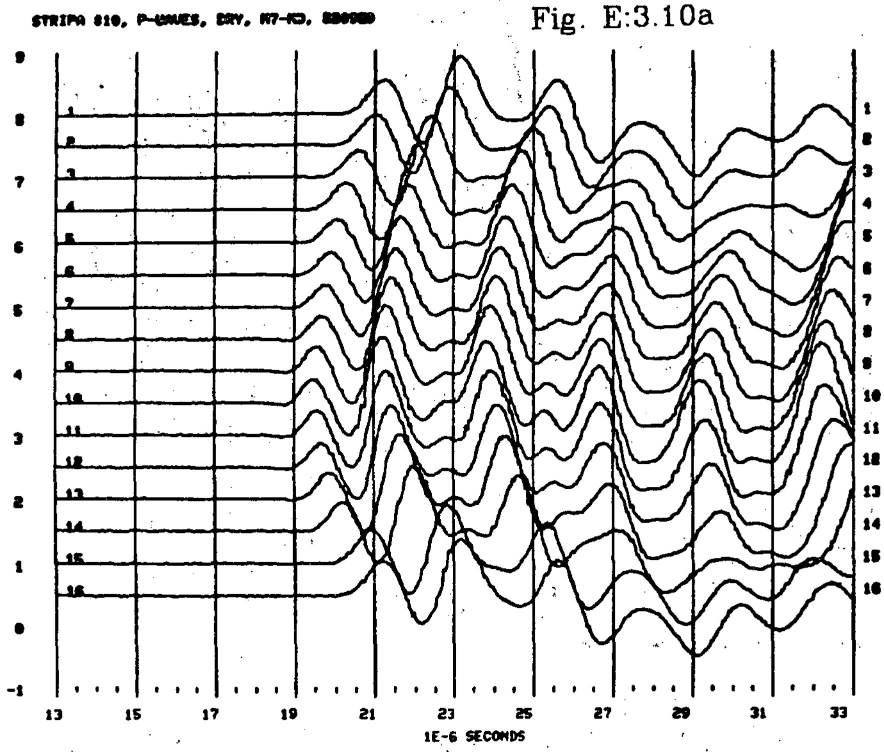


Fig. E:3.10a

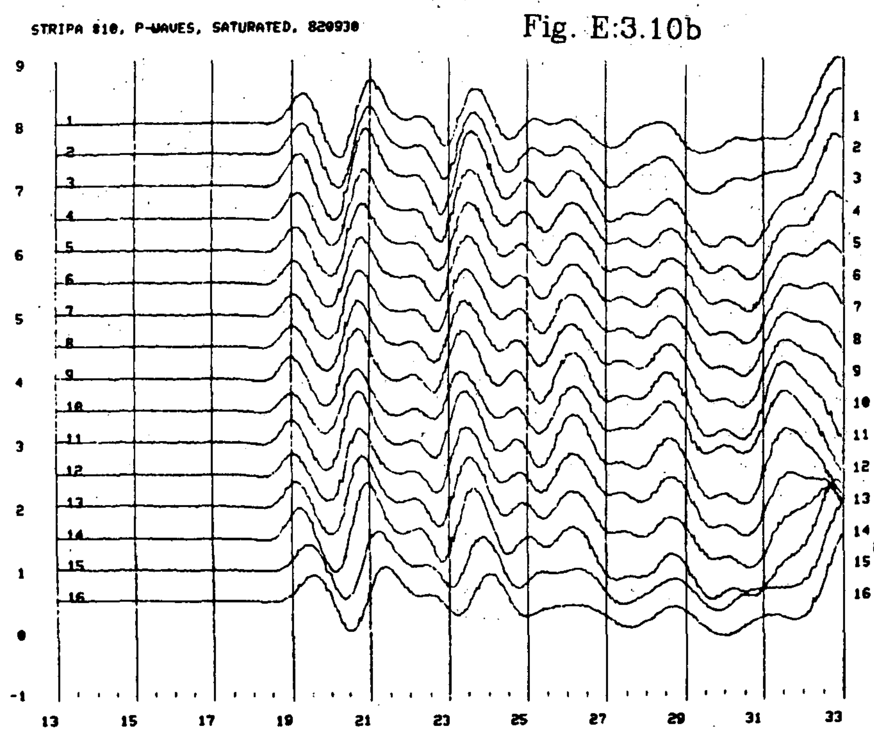
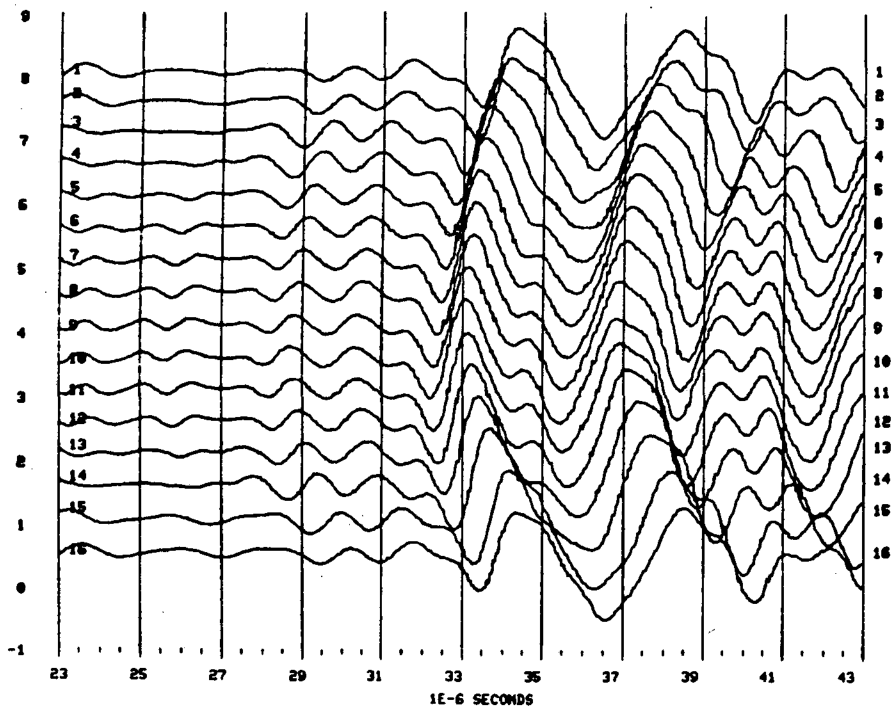


Fig. E:3.10b

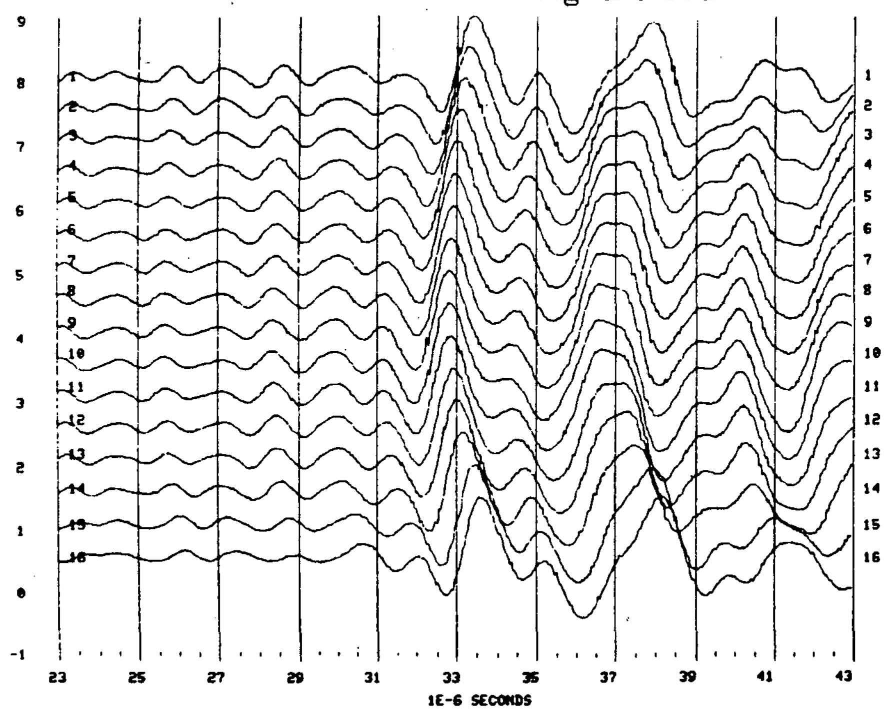
STRIPA 810, S-WAVES, DRY, M7-M9, 820920

Fig. E:3.10c



STRIPA 810, S-WAVES, SATURATED, 820930

Fig. E:3.10d



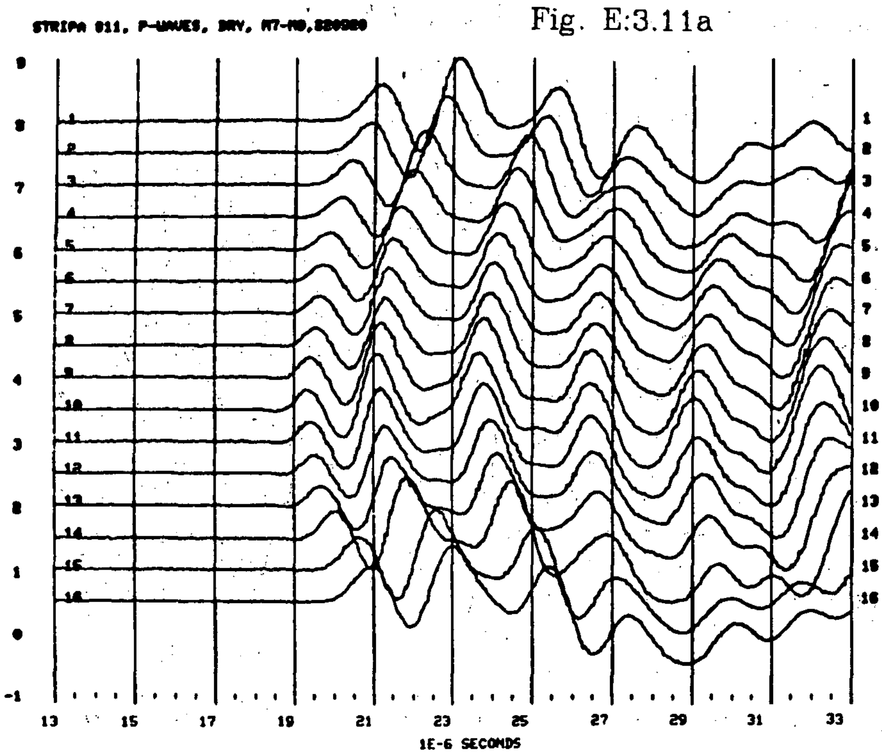


Fig. E:3.11a

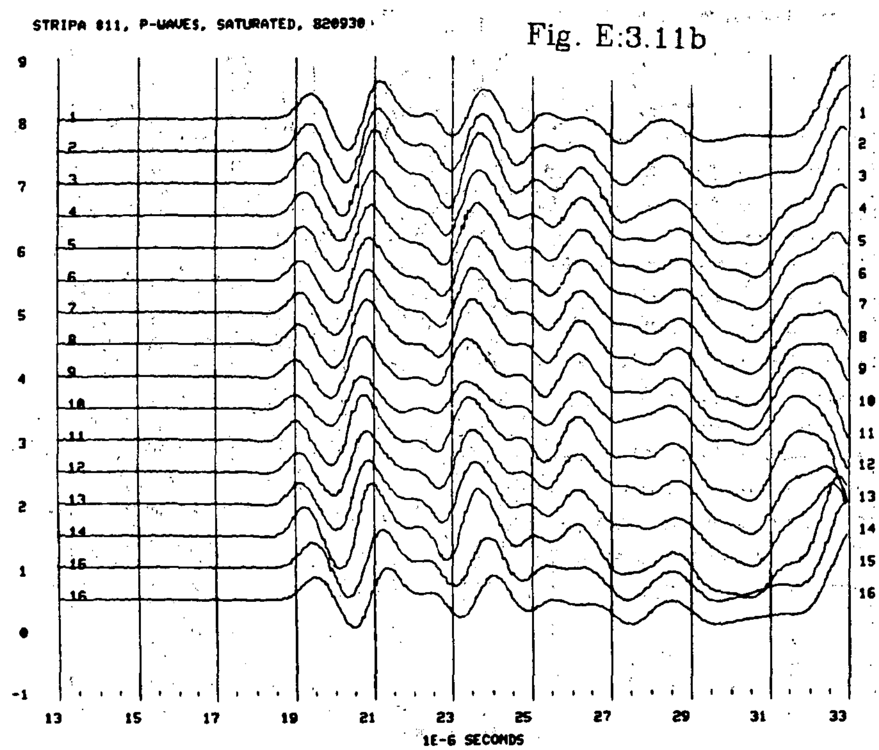


Fig. E:3.11b

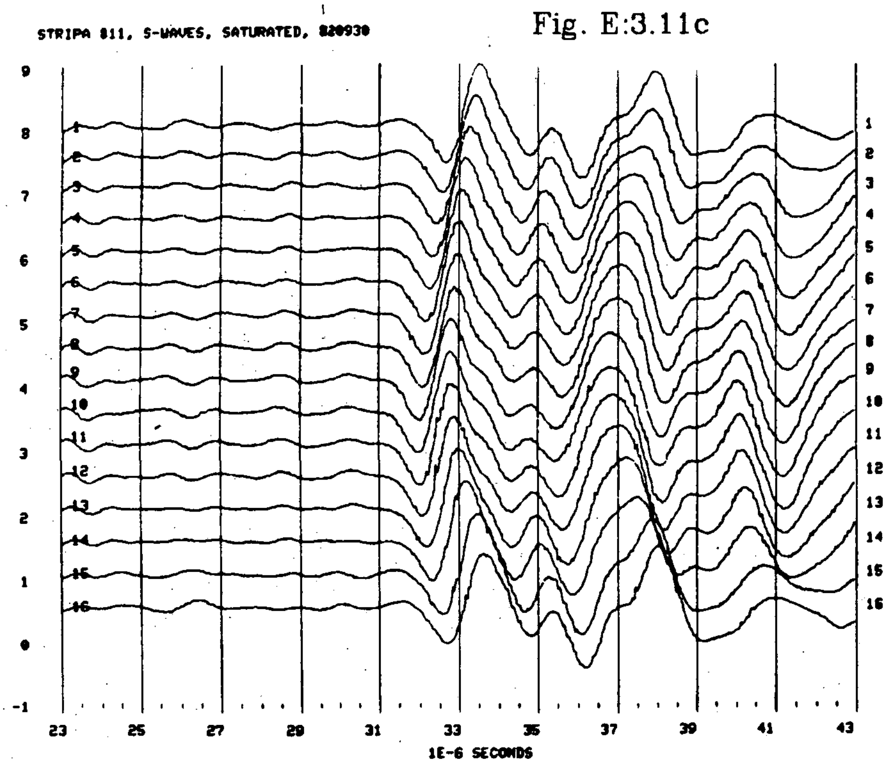


Fig. E:3.11c

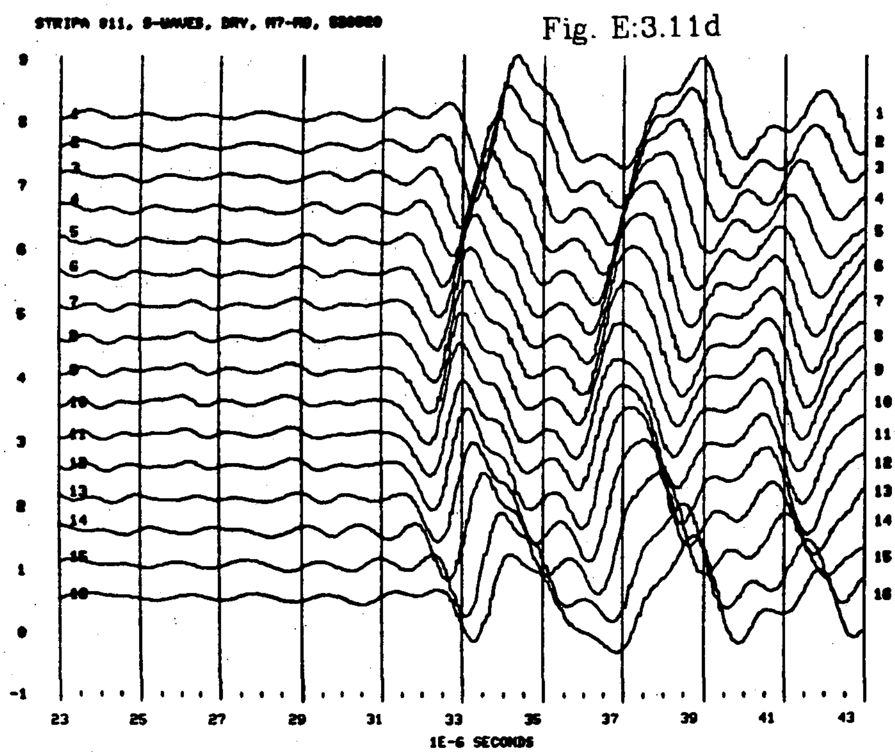


Fig. E:3.11d

Appendix E:4 - Truncated P and S waveforms from the laboratory test.

In this appendix the P and S waveforms after truncation are shown. The P waves were trucated with a 4×10^{-6} s long half cos window and the S waves were truncated with a 3×10^{-6} s cos window.

Figure captions for Appendix E:4

Fig. E:4.1a Truncated P waveforms as function of uniaxial stress for the dry specimen # 1

Fig. E:4.1b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 1

Fig. E:4.1c Truncated S waveforms as function of uniaxial stress for the dry specimen # 1

Fig. E:4.1d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 1

Fig. E:4.2a Truncated P waveforms as function of uniaxial stress for the dry specimen # 2

Fig. E:4.2b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 2

Fig. E:4.2c Truncated S waveforms as function of uniaxial stress for the dry specimen # 2

Fig. E:4.2d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 2

Fig. E:4.3a Truncated P waveforms as function of uniaxial stress for the dry specimen # 3

Fig. E:4.3b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 3

Fig. E:4.3c Truncated S waveforms as function of uniaxial stress for the dry specimen # 3

Fig. E:4.3d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 3

Fig. E:4.4a Truncated P waveforms as function of uniaxial stress for the dry specimen # 4

Fig. E:4.4b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 4

Fig. E:4.4c Truncated S waveforms as function of uniaxial stress for the dry specimen # 4

Fig. E:4.4d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 4

Fig. E:4.5a Truncated P waveforms as function of uniaxial stress for the dry specimen # 5

Fig. E:4.5b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 5

Fig. E:4.5c Truncated S waveforms as function of uniaxial stress for the dry specimen # 5

Fig. E:4.5d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 5

Fig. E:4.6a Truncated P waveforms as function of uniaxial stress for the dry specimen # 6

Fig. E:4.6b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 6

Fig. E:4.6c Truncated S waveforms as function of uniaxial stress for the dry specimen # 6

Fig. E:4.6d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 6

Fig. E:4.7a Truncated P waveforms as function of uniaxial stress for the dry specimen # 7

Fig. E:4.7b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 7

Fig. E:4.7c Truncated S waveforms as function of uniaxial stress for the dry specimen # 7

Fig. E:4.7d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 7

Fig. E:4.8a Truncated P waveforms as function of uniaxial stress for the dry specimen # 8

Fig. E:4.8b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 8

Fig. E:4.8c Truncated S waveforms as function of uniaxial stress for the dry specimen # 8

Fig. E:4.8d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 8

Fig. E:4.9a Truncated P waveforms as function of uniaxial stress for the dry specimen # 9

Fig. E:4.9b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 9

Fig. E:4.9c Truncated S waveforms as function of uniaxial stress for the dry specimen # 9

Fig. E:4.9d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 9

Fig. E:4.10a Truncated P waveforms as function of uniaxial stress for the dry specimen # 10

Fig. E:4.10b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 10

Fig. E:4.10c Truncated S waveforms as function of uniaxial stress for the dry specimen # 10

Fig. E:4.10d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 10

Fig. E:4.11a Truncated P waveforms as function of uniaxial stress for the dry specimen # 11

Fig. E:4.11b Truncated P waveforms as function of uniaxial stress for the saturated specimen # 11

Fig. E:4.11c Truncated S waveforms as function of uniaxial stress for the dry specimen # 11

Fig. E:4.11d Truncated S waveforms as function of uniaxial stress for the saturated specimen # 11

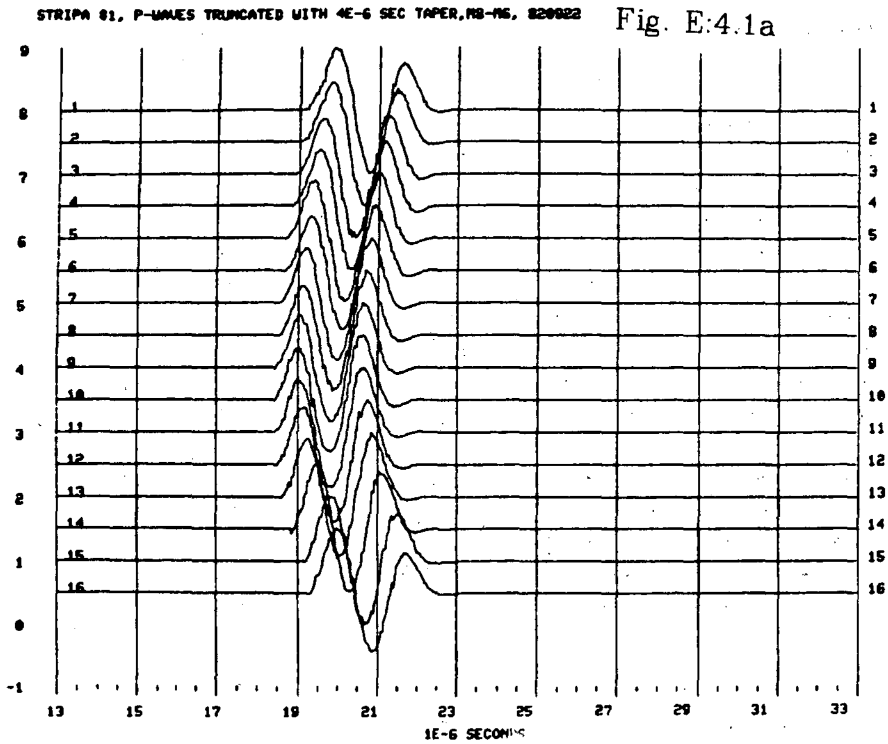


Fig. E:4.1a

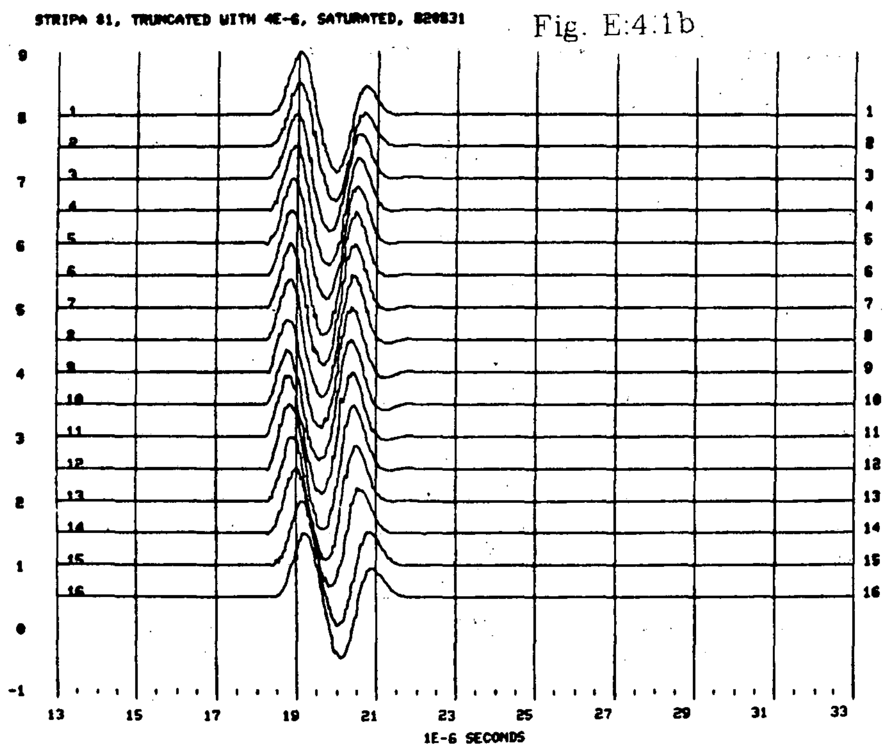
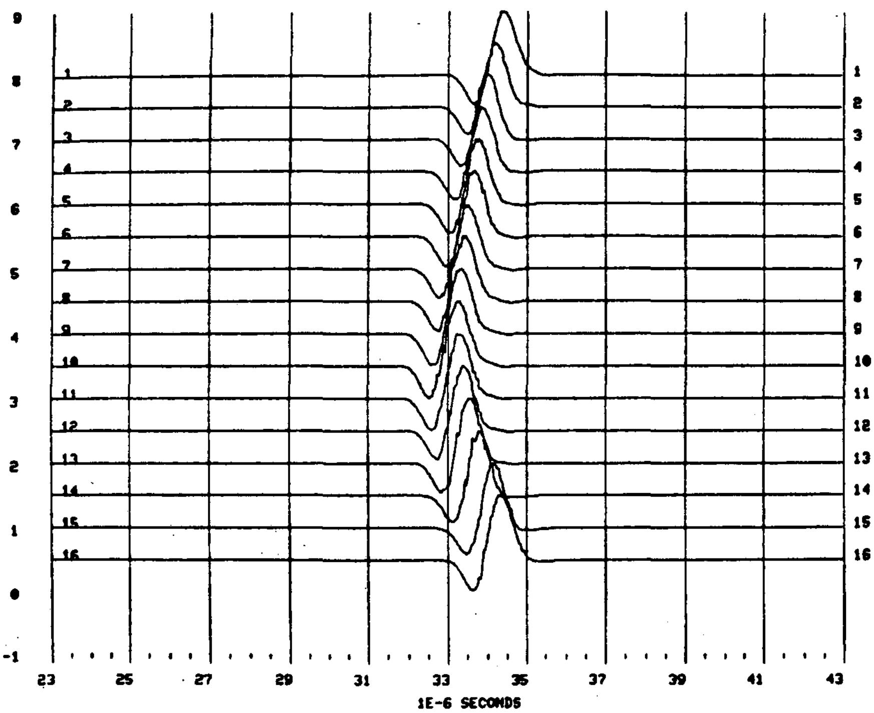
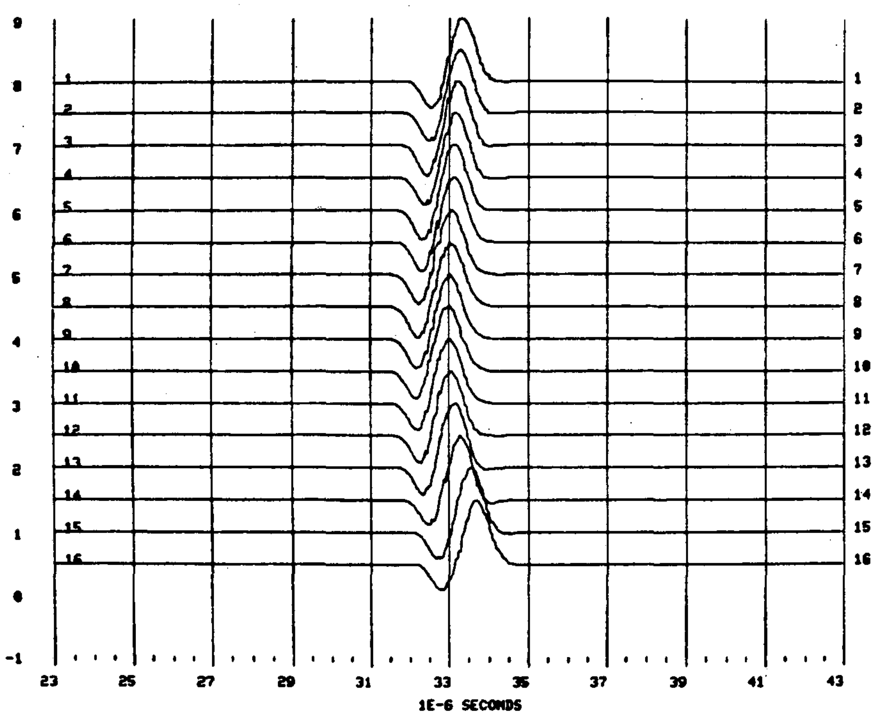


Fig. E:4.1b

STRIPA 81, TRUNCATED S-WAVES WITH 1+2E-6 SEC WIND, DRY, M8-M6, 821019 Fig. E:4.1c

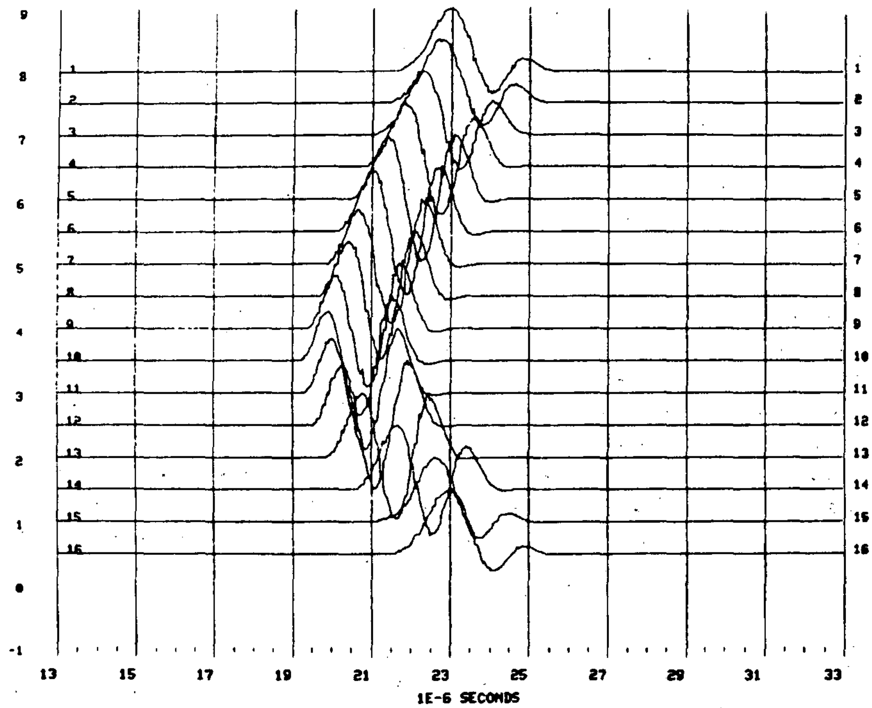


STRIPA 81, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND, SATURATED, M8-M6, 8210: Fig. E:4.1d



STRIPA #2, P-WAVES TRUNCATED WITH 4E-6 SEC, DRY SPECIMEN, 821027

Fig. E:4.2a



STRIPA #2, TRUNCATED P-WAVES, SATURATED SPECIMEN, 880831

Fig. E:4.2b

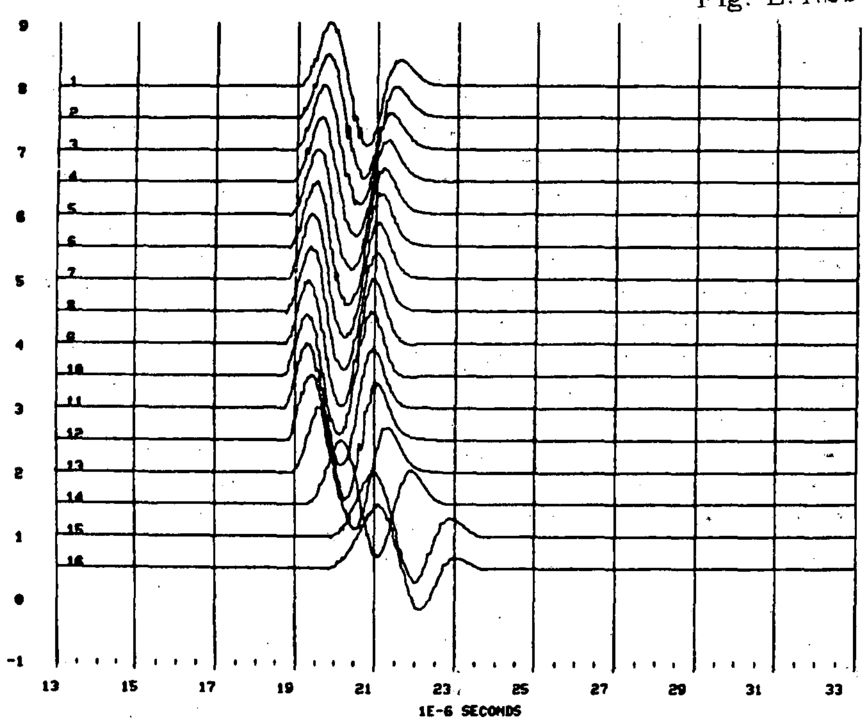


Fig. E:4.2c

STRIPA 82, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND, DRY, M7-M9, 821029

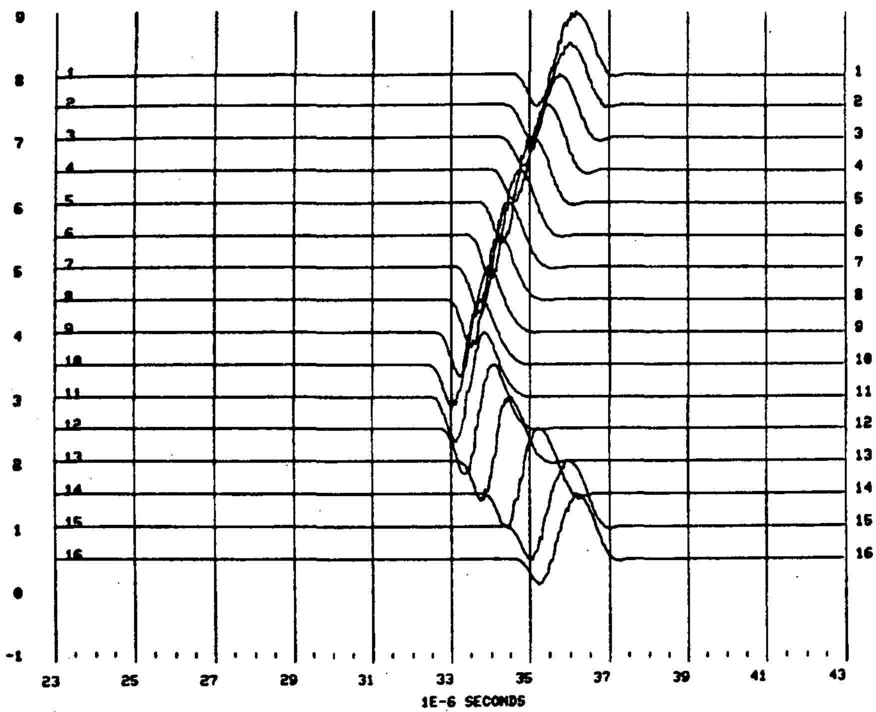
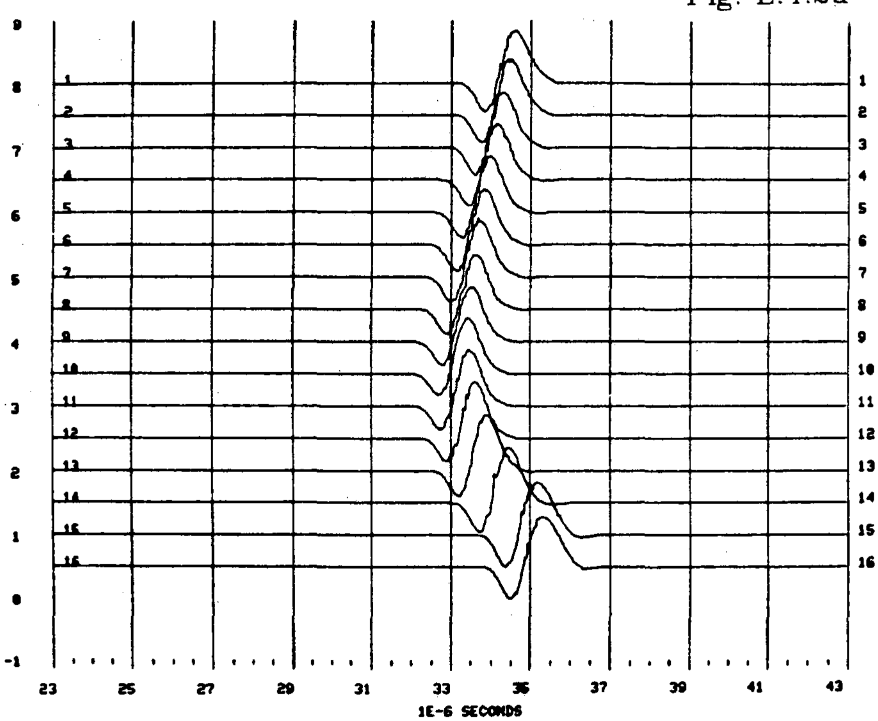


Fig. E:4.2d

STRIPA 82, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND, SATURATED, 821019



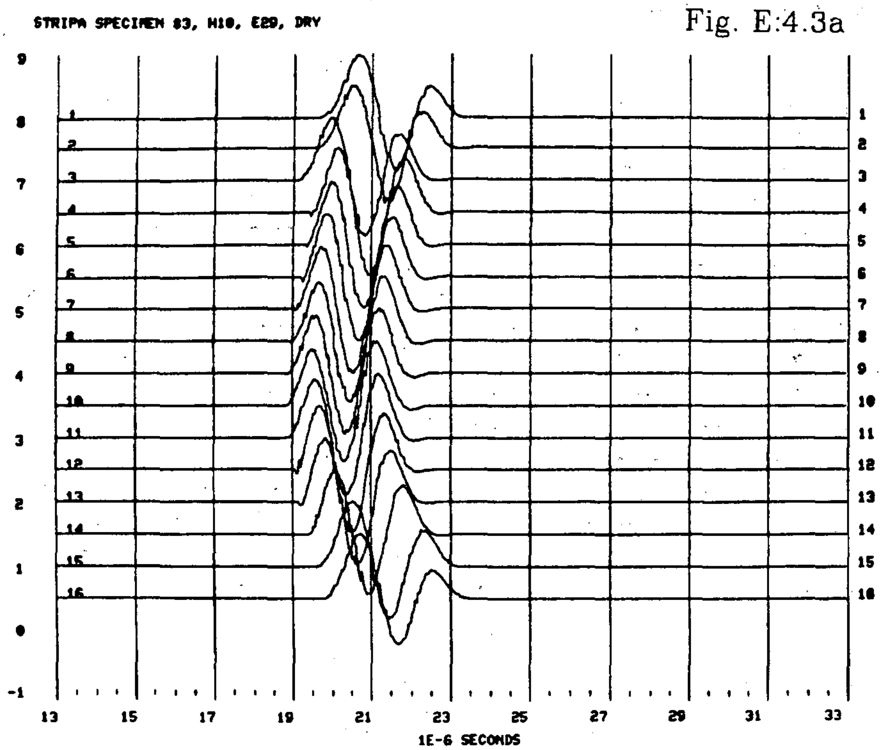


Fig. E:4.3a

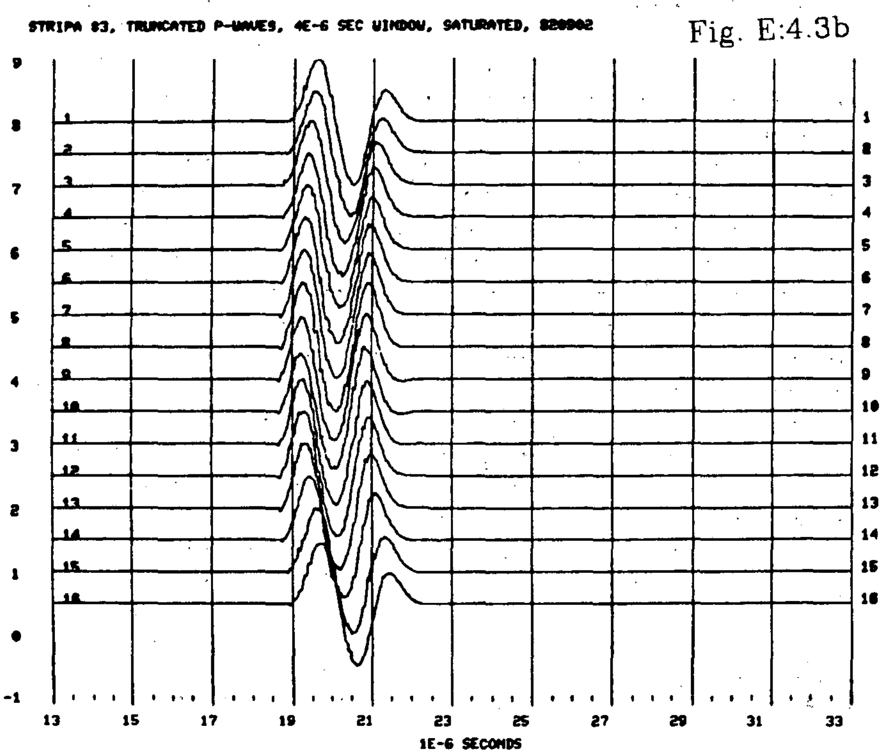


Fig. E:4.3b

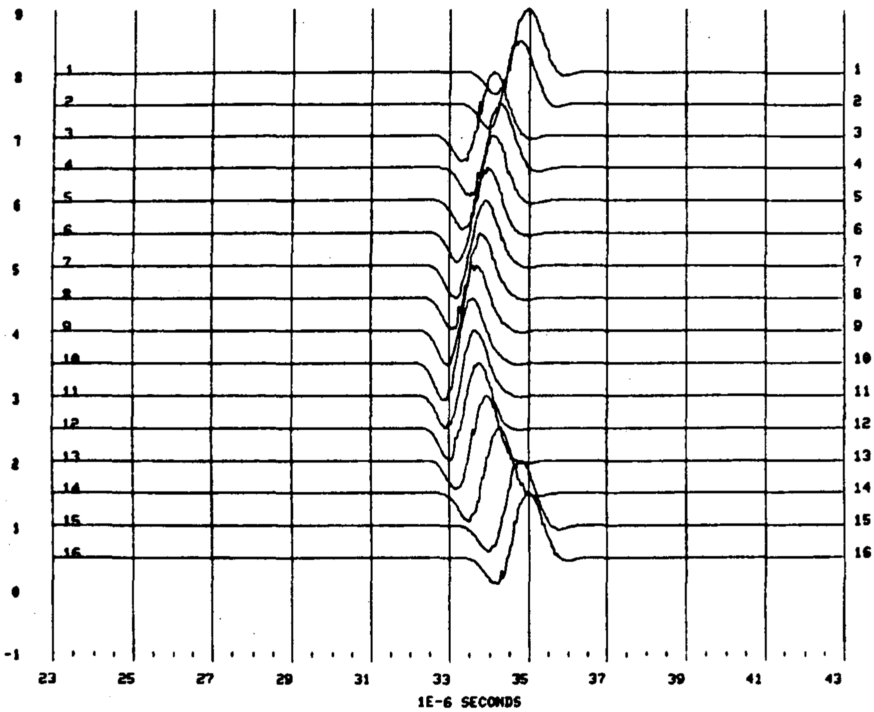


Fig. E:4.3c

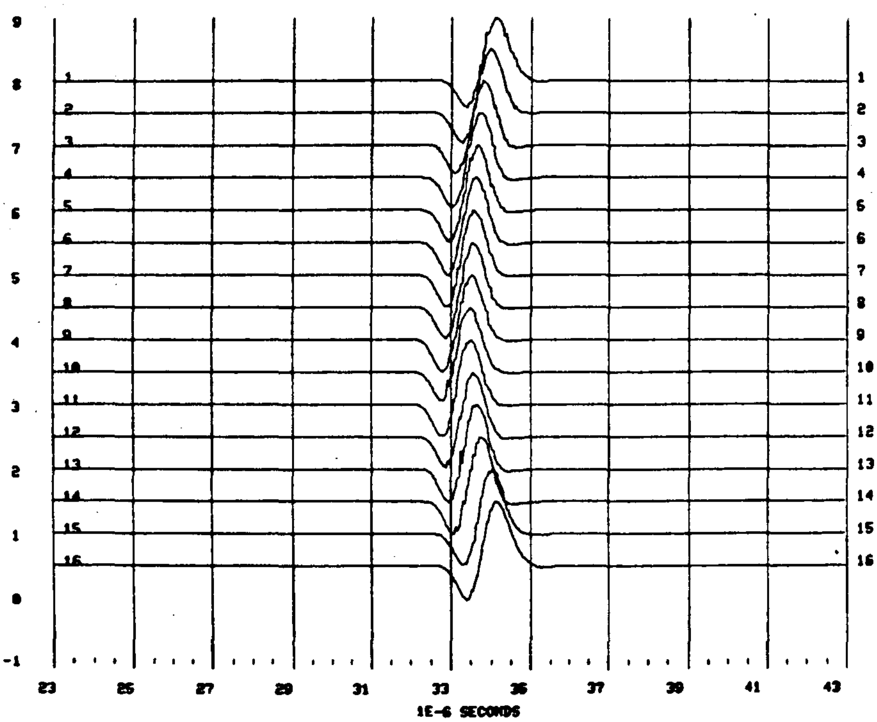


Fig. E:4.3d

Fig. E:4.4a

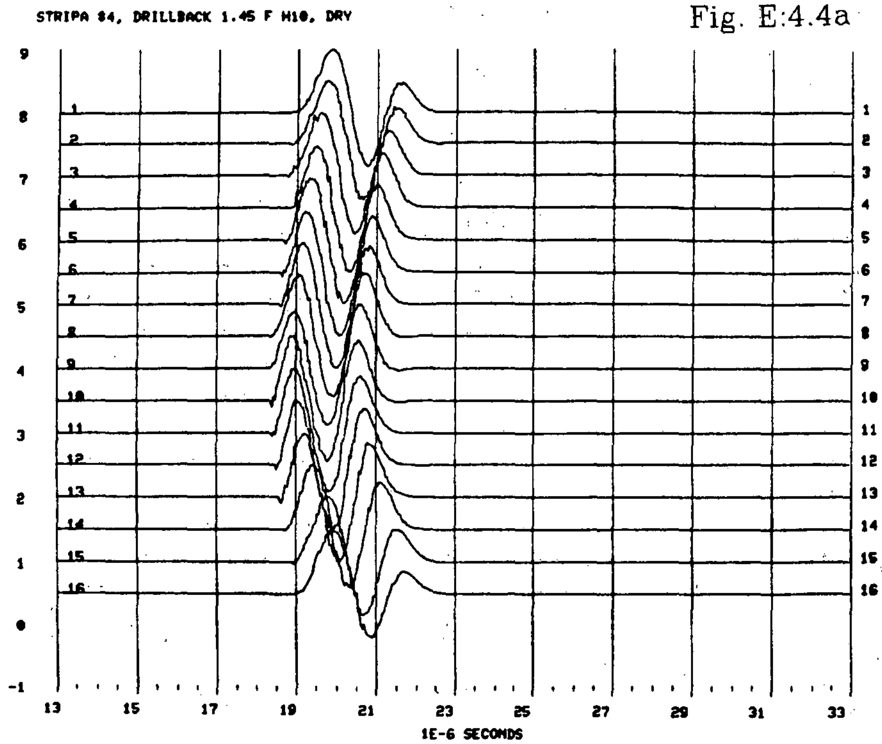
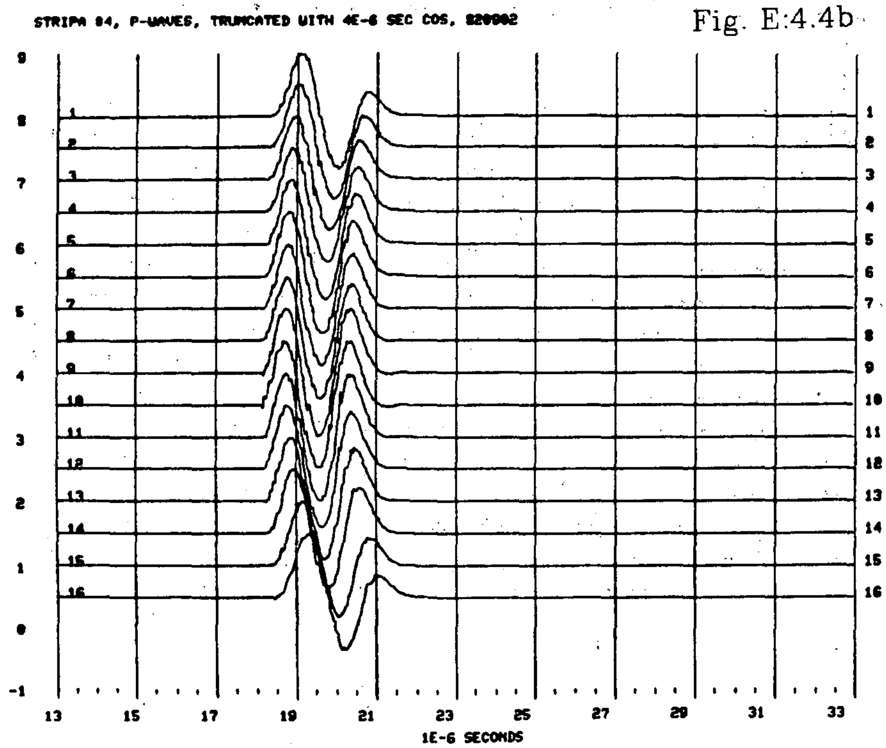
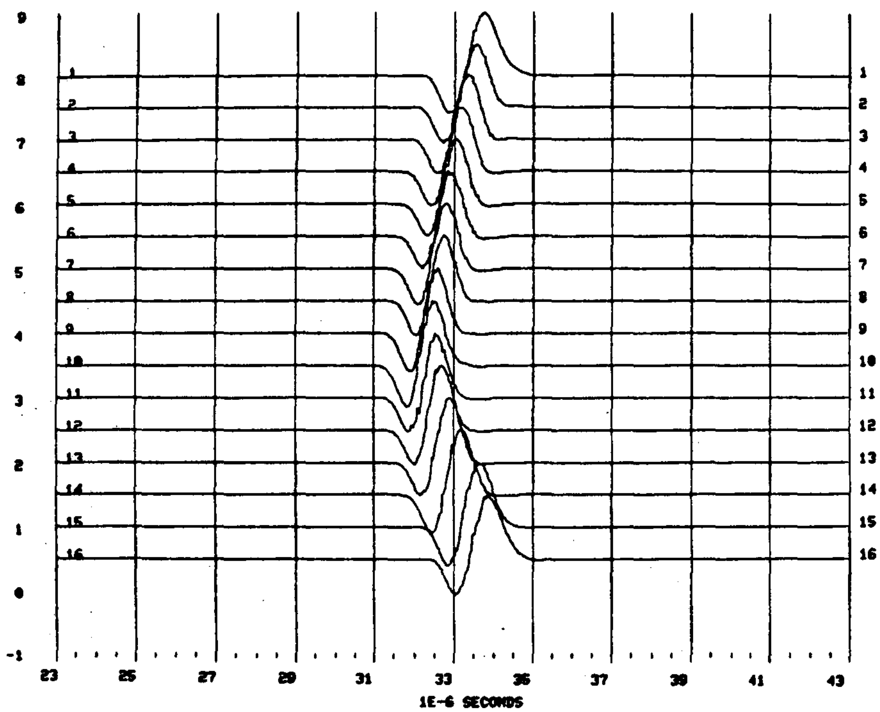


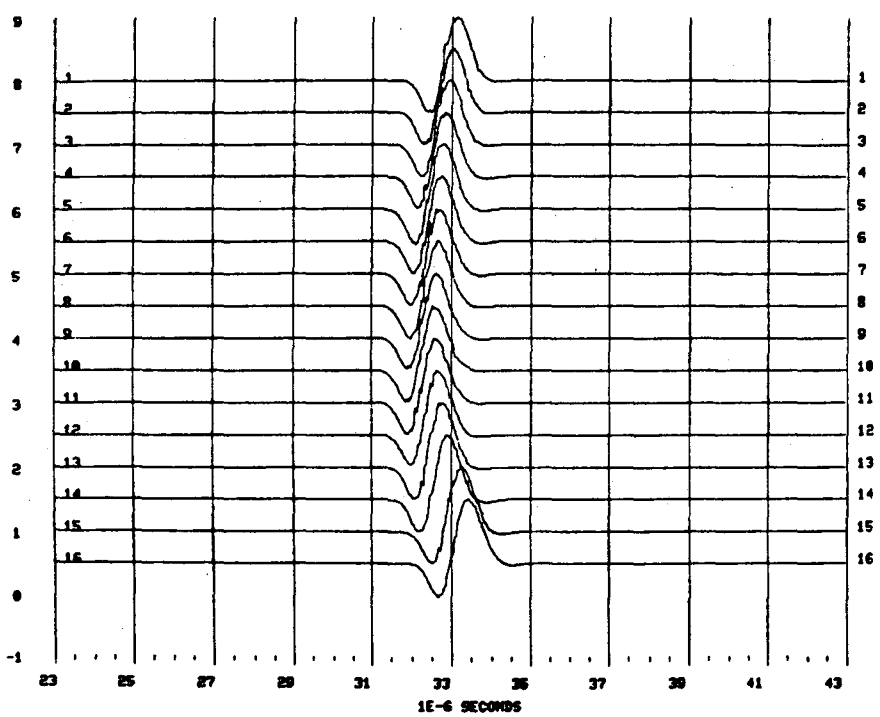
Fig. E:4.4b



STRIPA 84, S-WAVES TRUNC. WITH 1+2E-6 SEC WIND, DBEX-1 1.45 M FROM H10, 130 C Fig. E:4.4c



STRIPA 84, S-WAVES TRUNC. WITH 1+2E-6 SEC WIND,SATURATED, DBEX-1 1.45 F.H10,130 Fig. E:4.4d



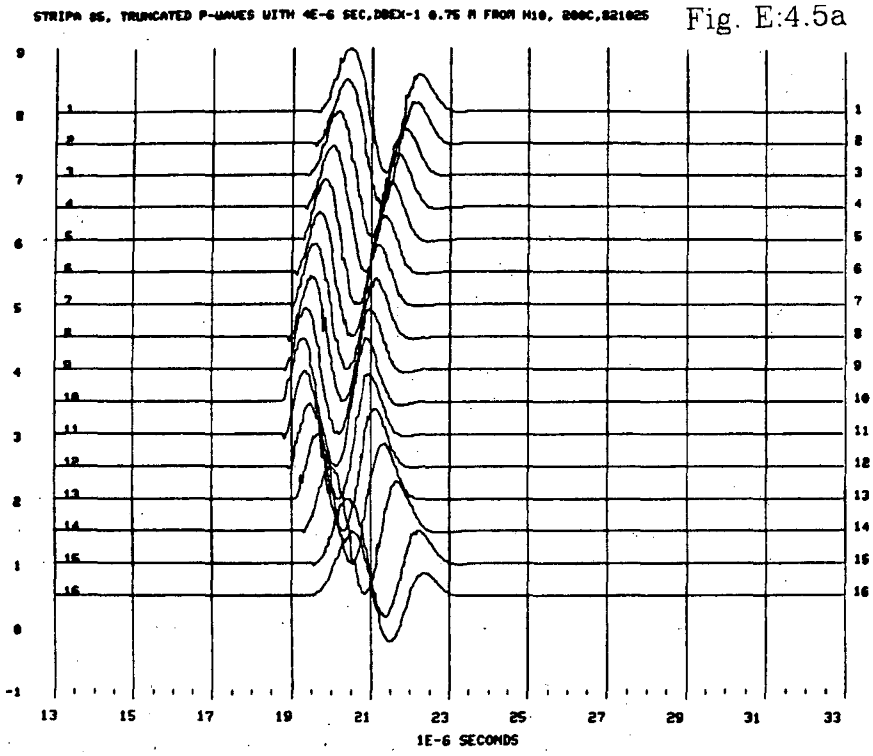


Fig. E:4.5a

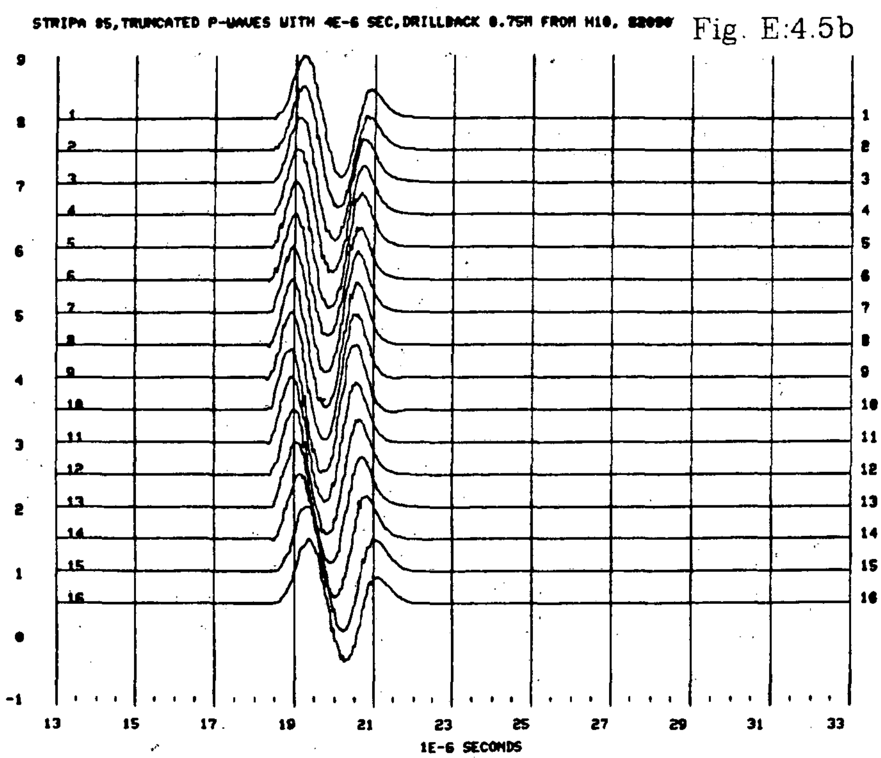


Fig. E:4.5b

Fig. E:4.5c

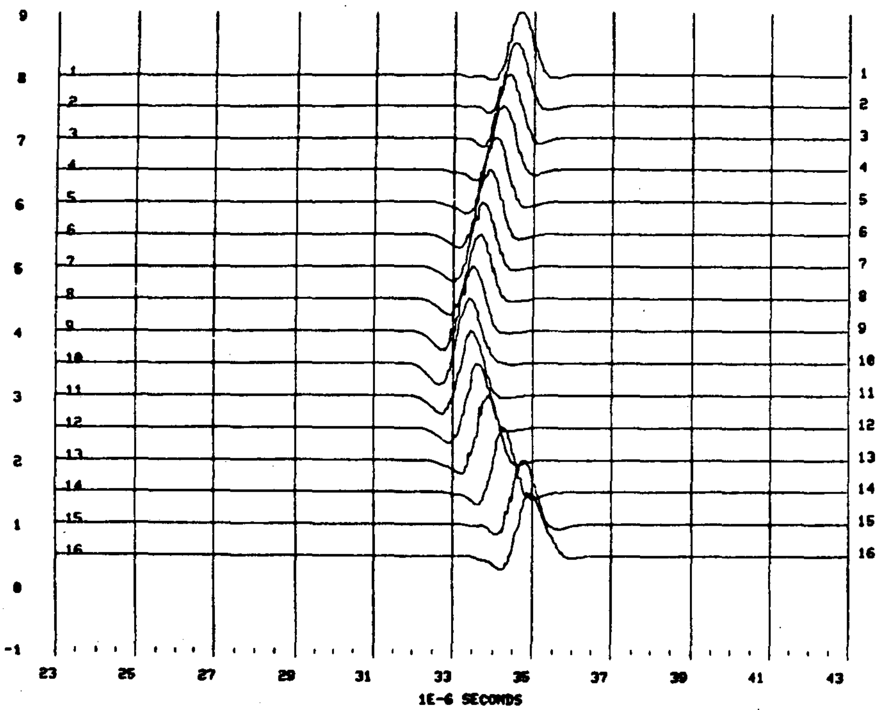


Fig. E:4.5d

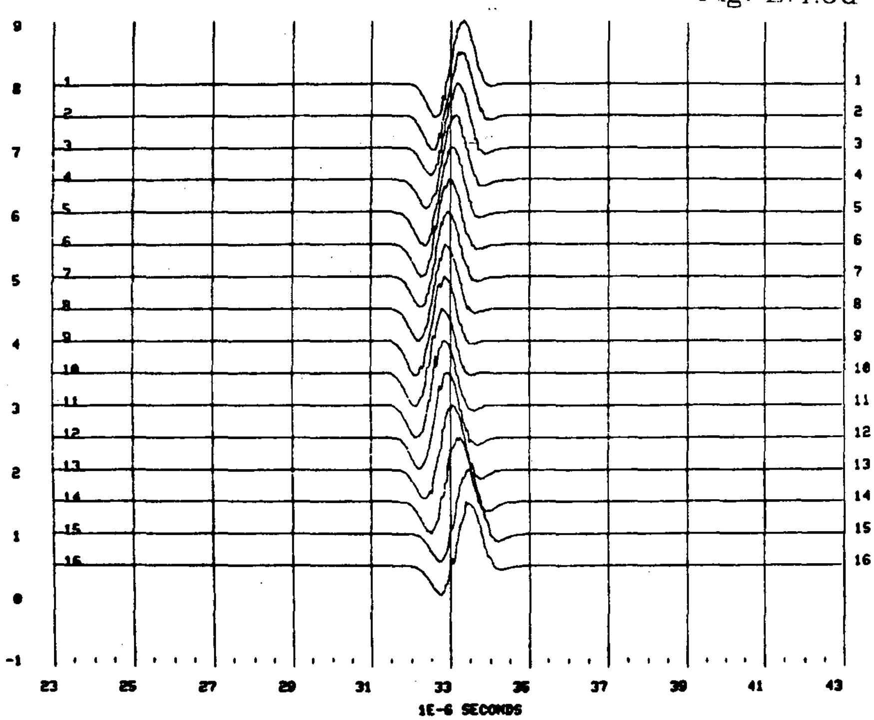


Fig. E:4.6a

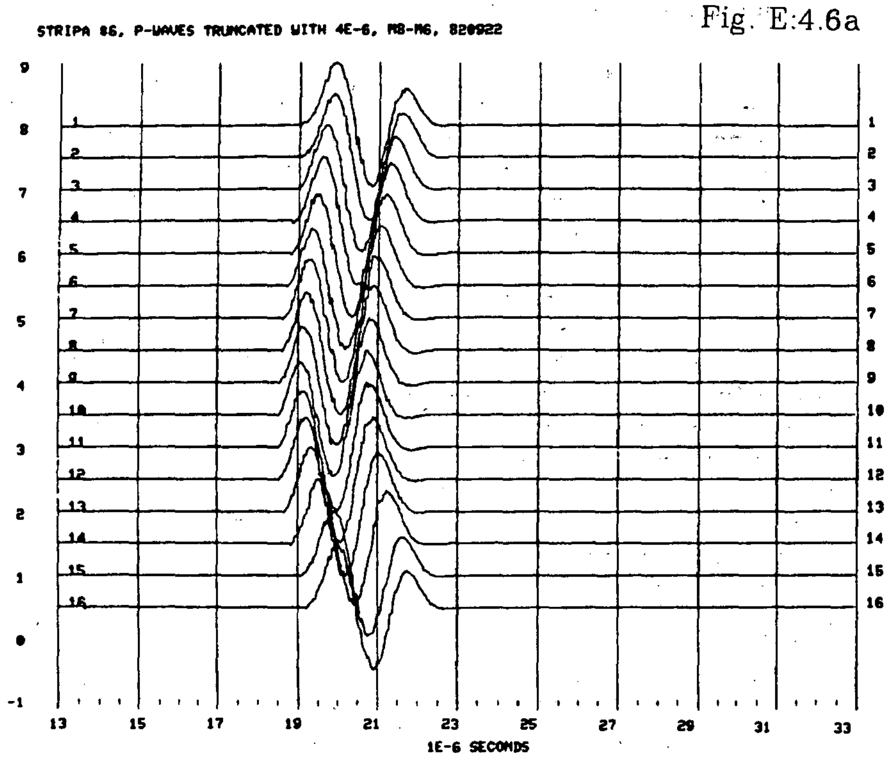
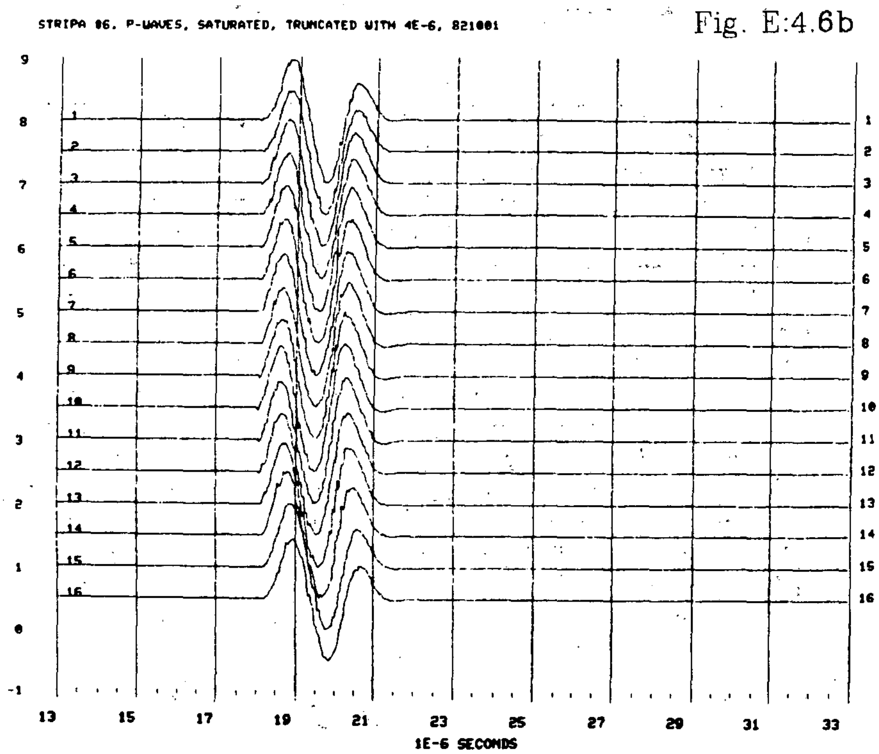
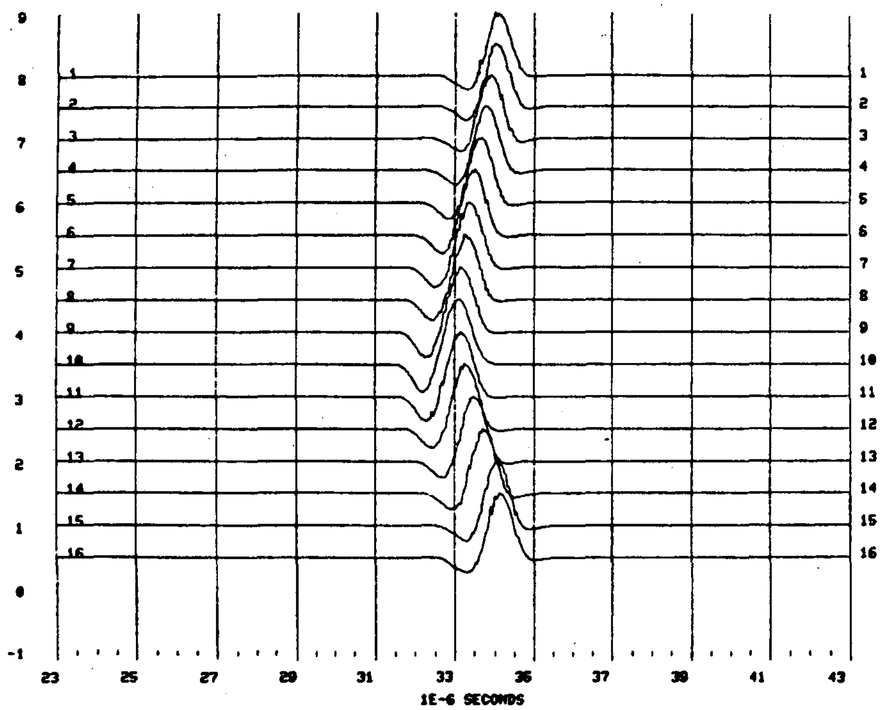


Fig. E:4.6b



STRIPA 86, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND, E22,M8-M6, DRY, 821020 Fig. E:4.6c



STRIPA 86, TRUNCATED S-WAVES WITH 1+2E-6 SEC WINDOW, SATURATED, 821003 Fig. E:4.6d

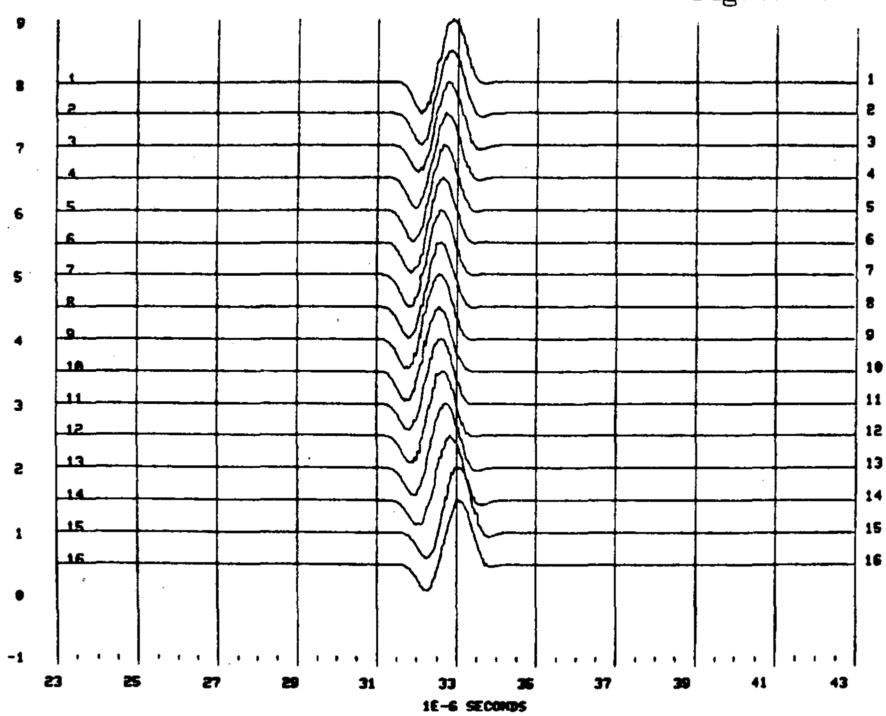


Fig. E:4.7a

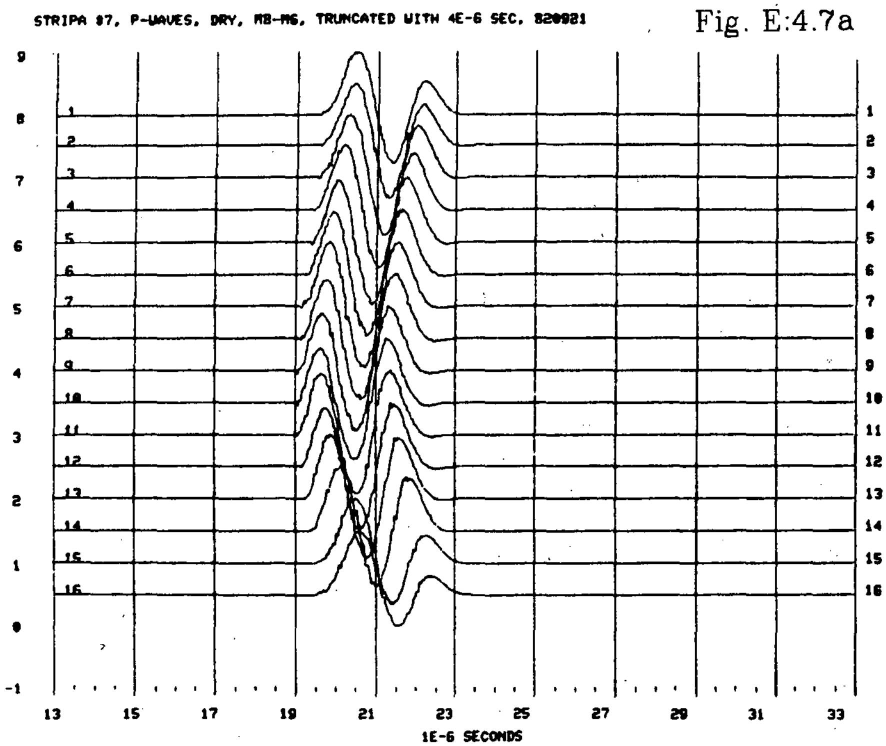
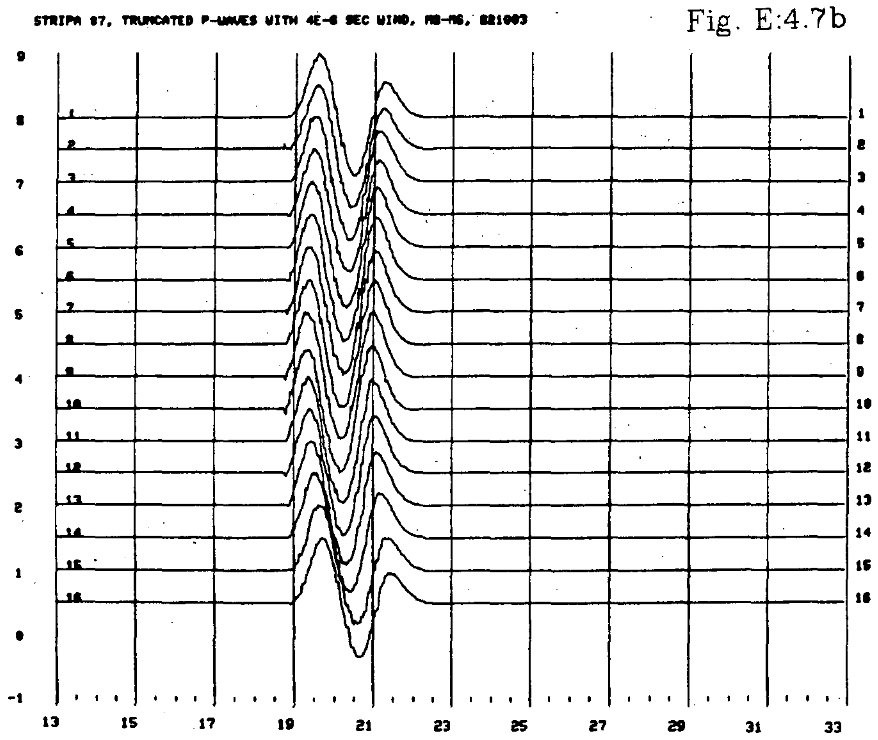


Fig. E:4.7b



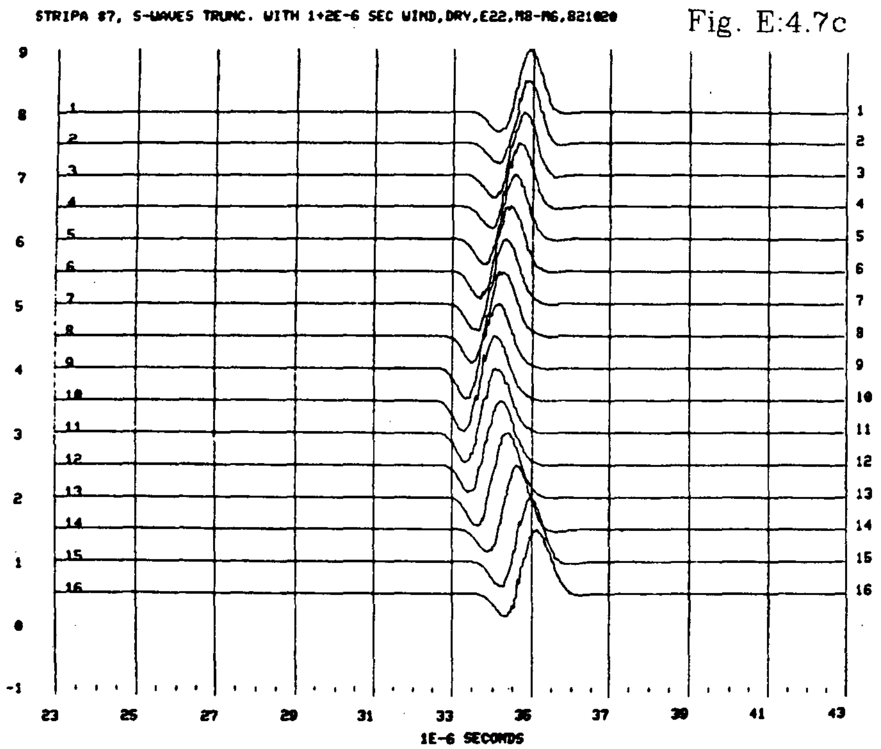


Fig. E:4.7c

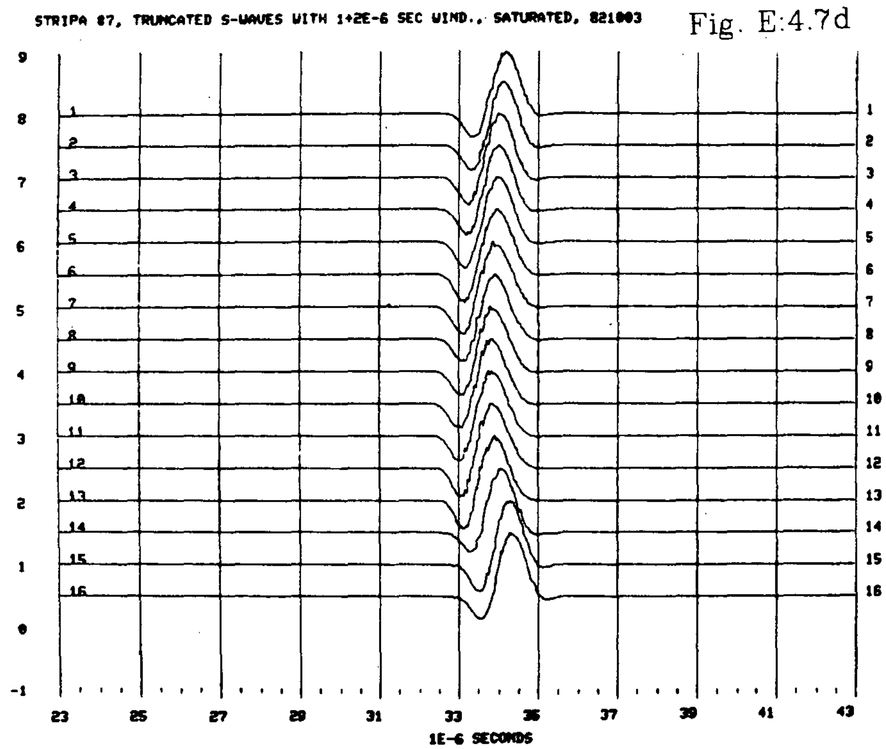
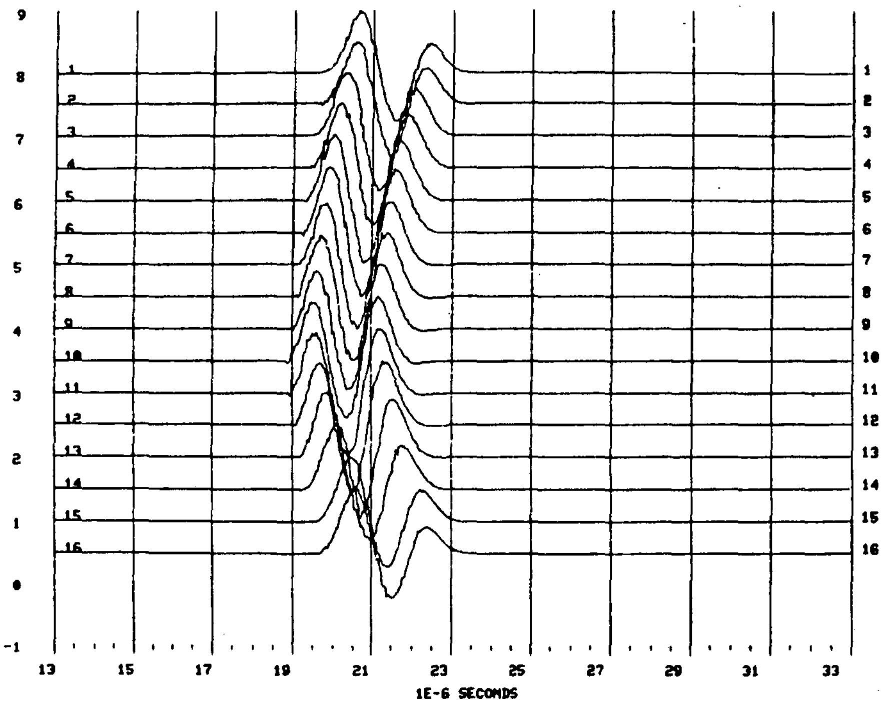


Fig. E:4.7d

STRIPA 88, TRUNCATED P-WAVES 4E-6 SEC, DRY, 820921

Fig. E:4.8a



STRIPA 88, SATURATED, TRUNCATED P-WAVES WITH 4E-6 SEC WIND, 821003

Fig. E:4.8b

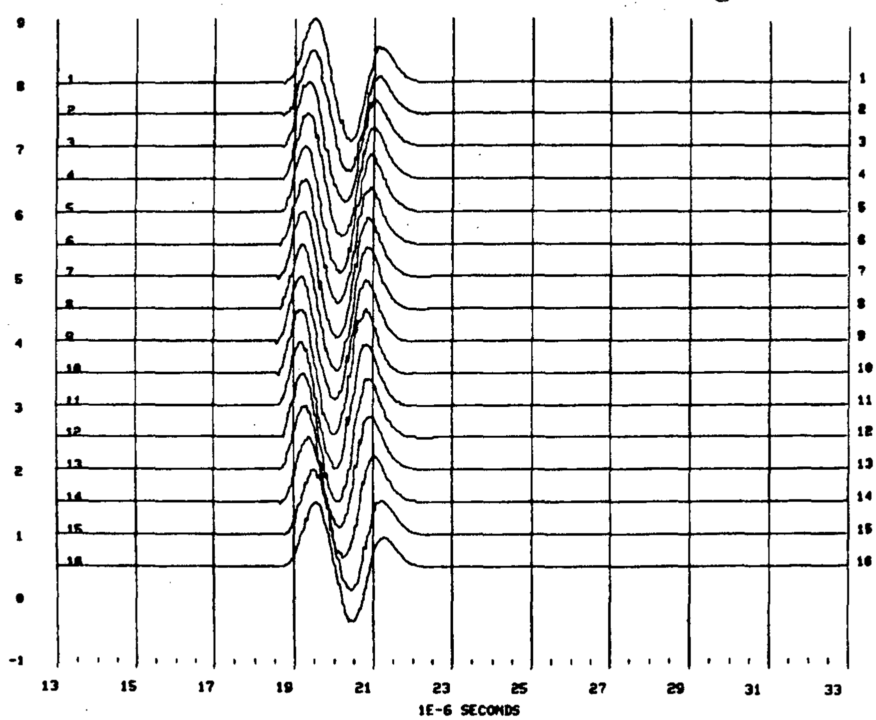


Fig. E:4.8c

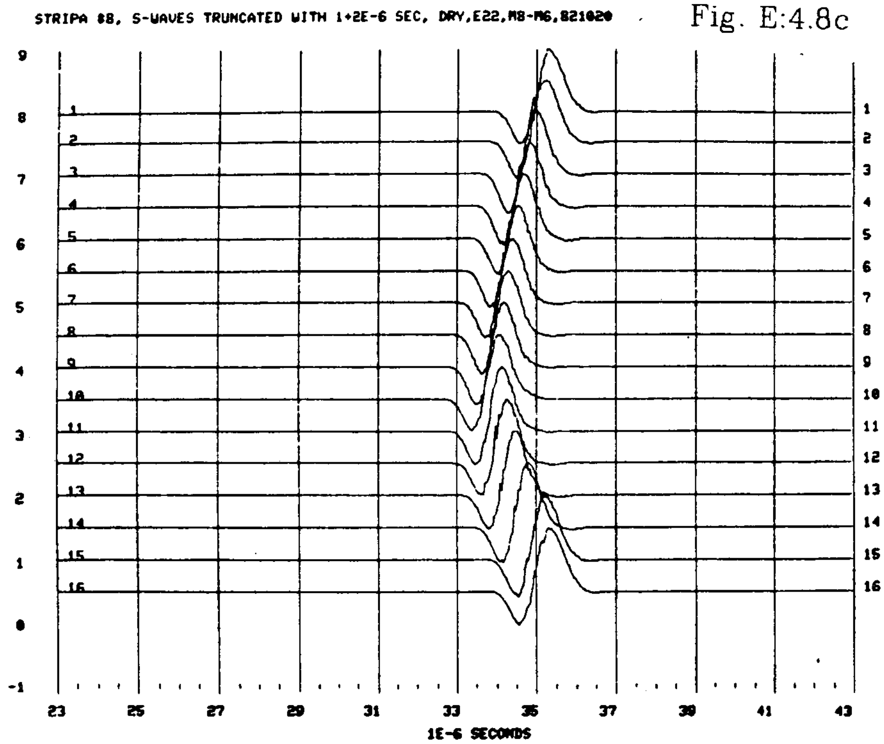
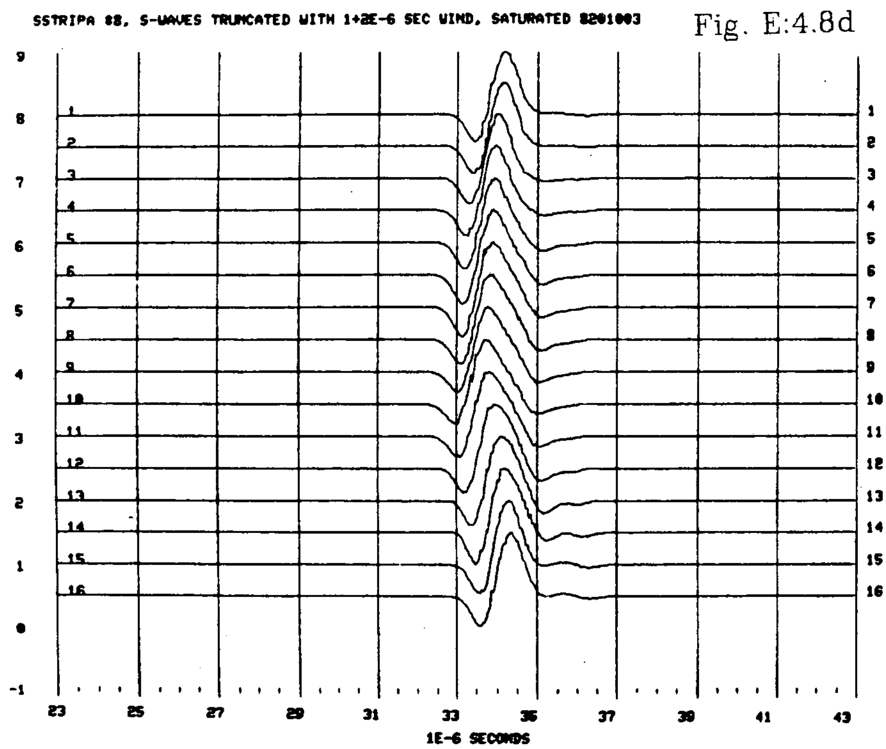


Fig. E:4.8d



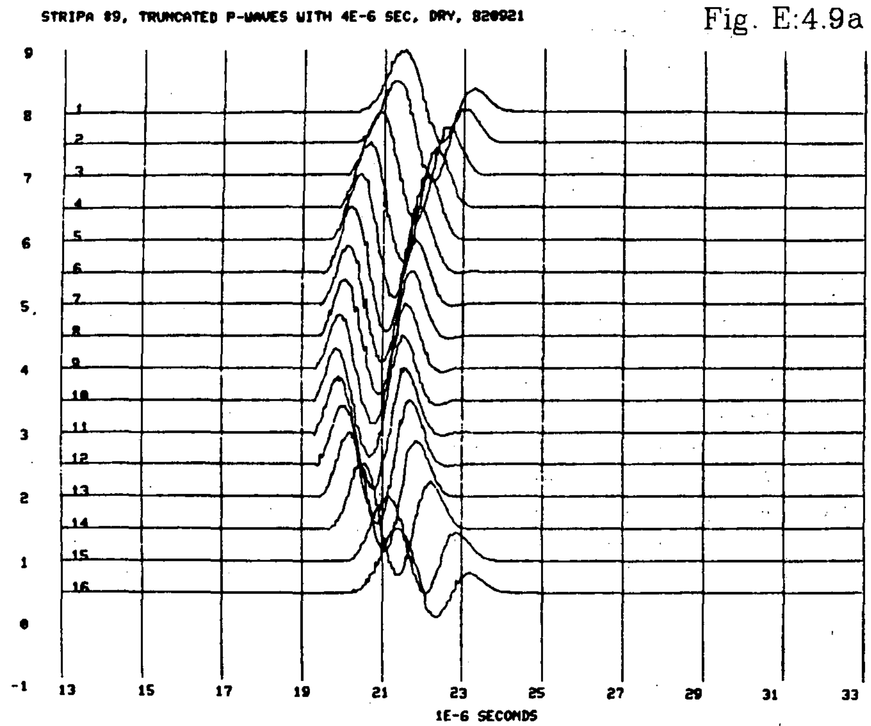


Fig. E:4.9a

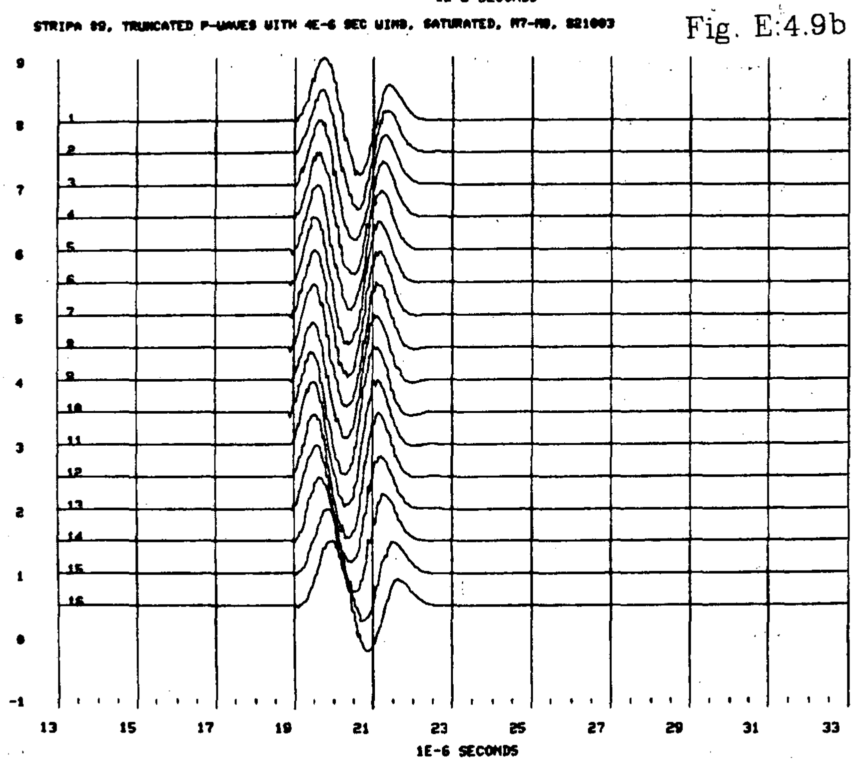
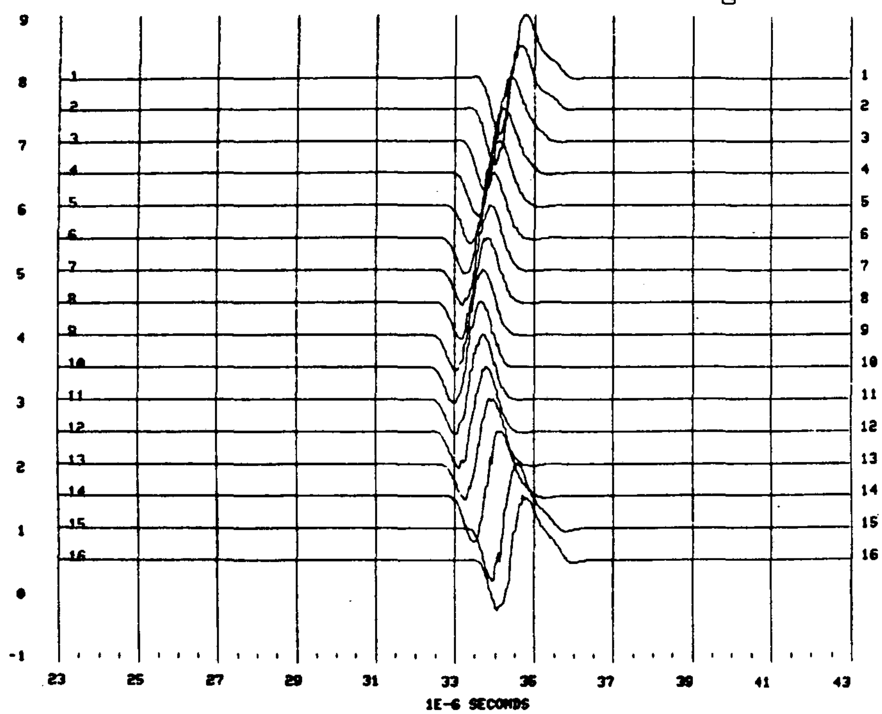


Fig. E:4.9b

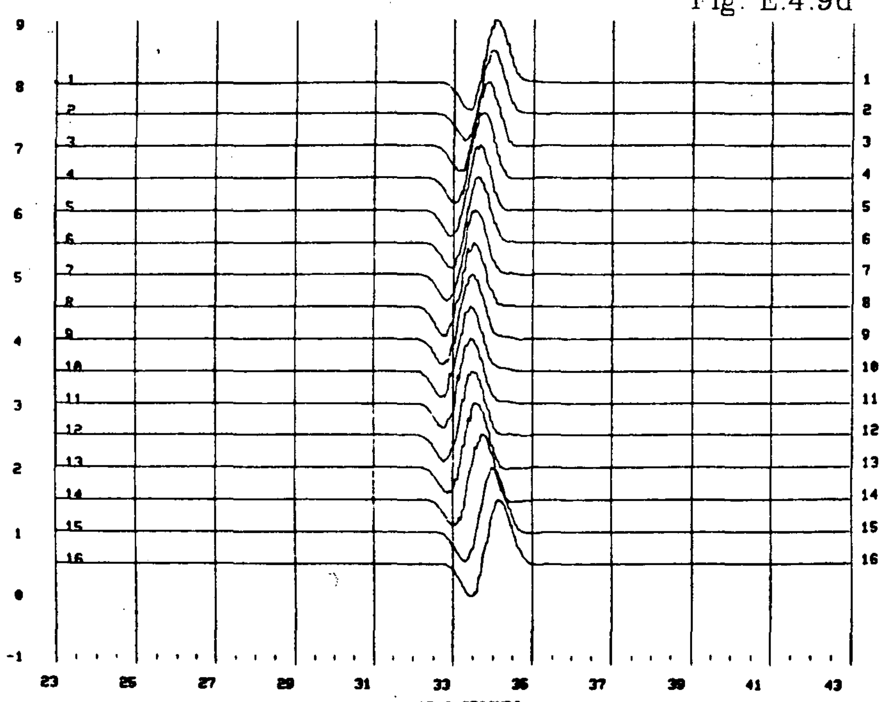
STRIPA 89, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND,DRY,E25,M7-M9

Fig. E:4.9c



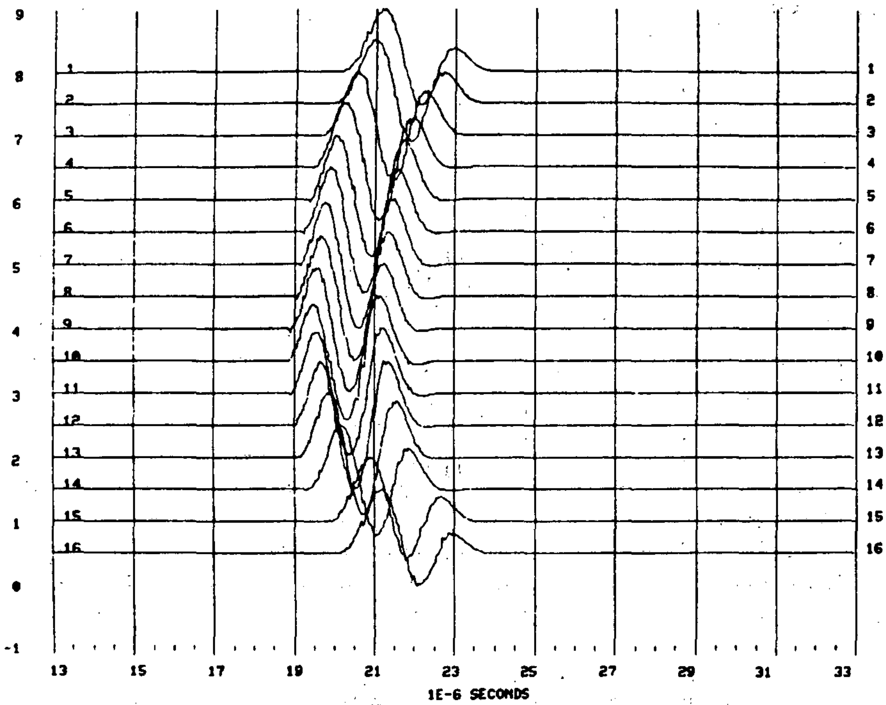
STRIPA 89, S-WAVES TRUNCATED WITH 1+2 E-6 SEC WIND, SATURATED, 821003

Fig. E:4.9d



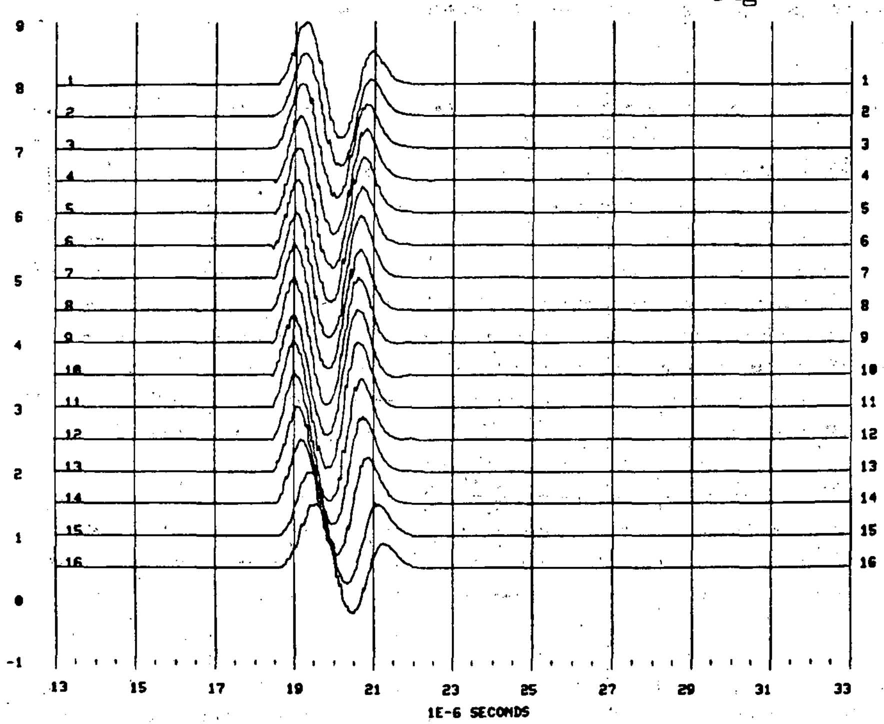
STRIPA 810, TRUNCATED P-WAVES 4E-6 SEC, M7-M9, 820921

Fig. E:4.10a



STRIPA 810, TRUNCATED P-WAVES WITH 4E-6 SEC WIND., SATURATED, M7-M9, 821003

Fig. E:4.10b



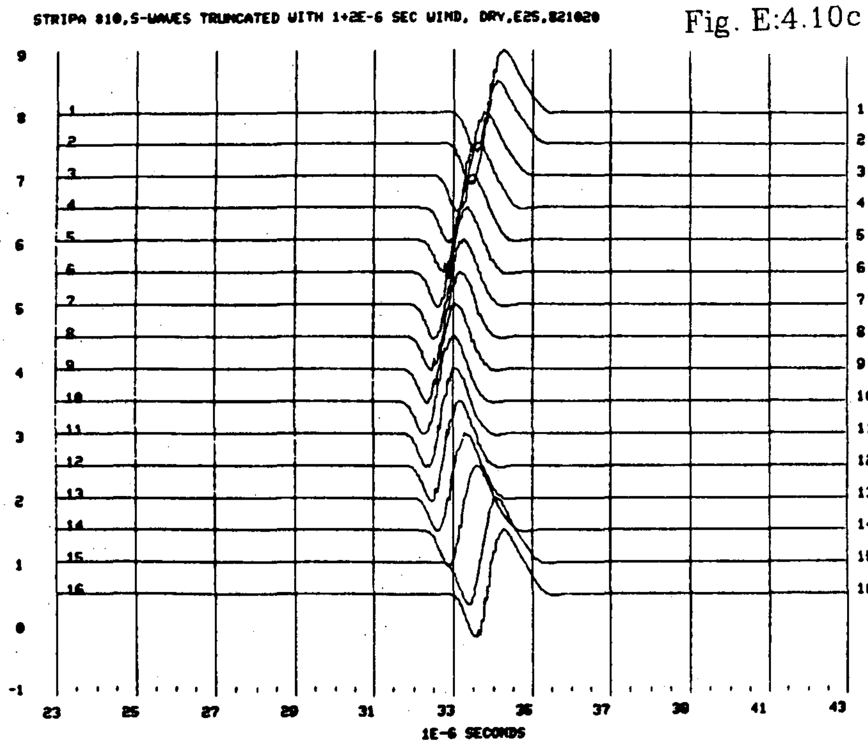


Fig. E:4.10c

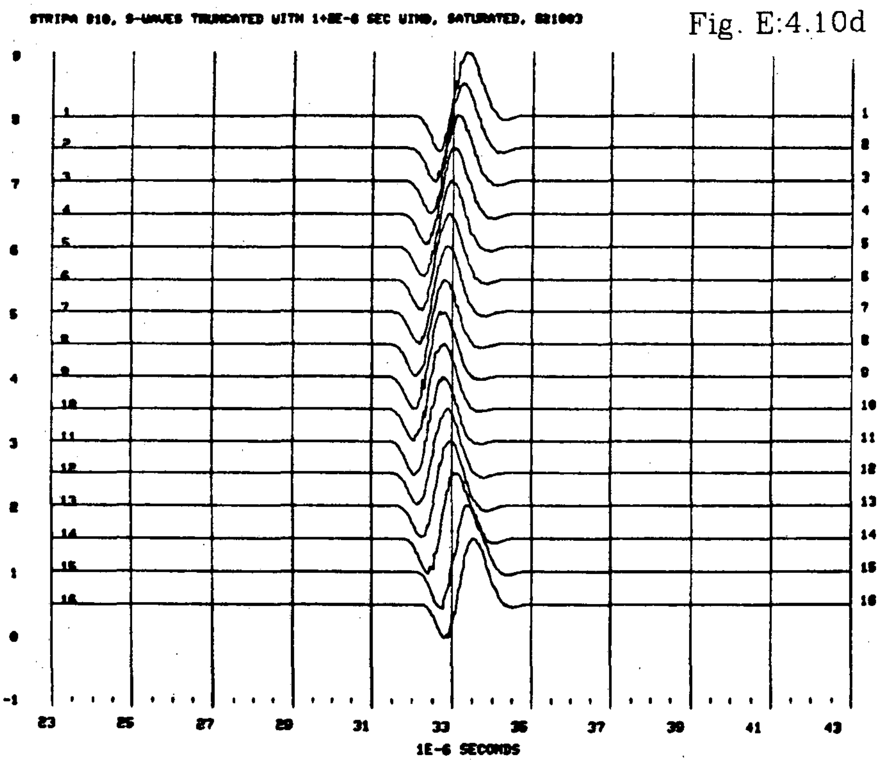
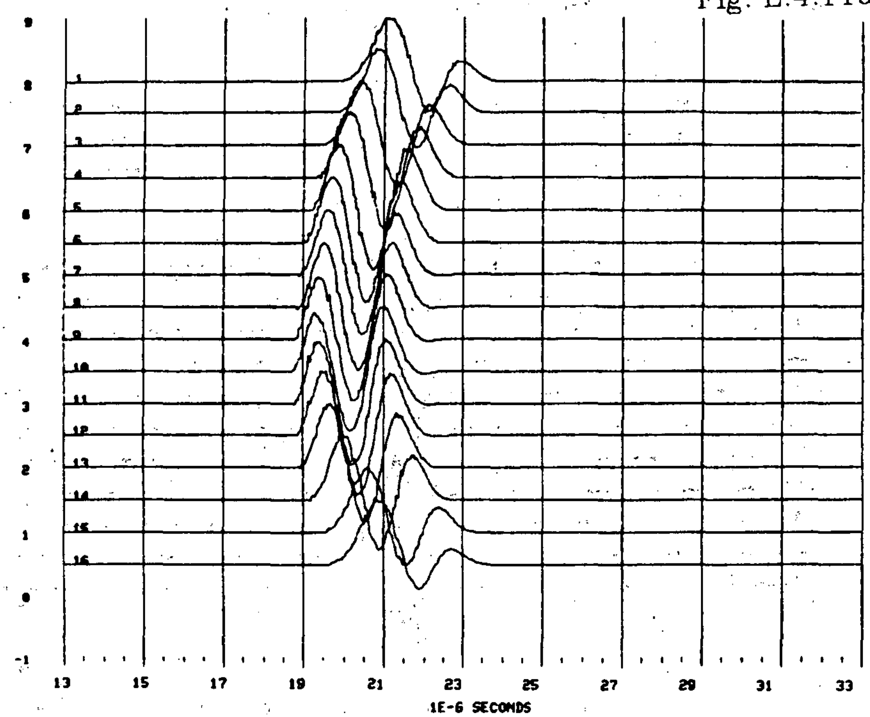


Fig. E:4.10d

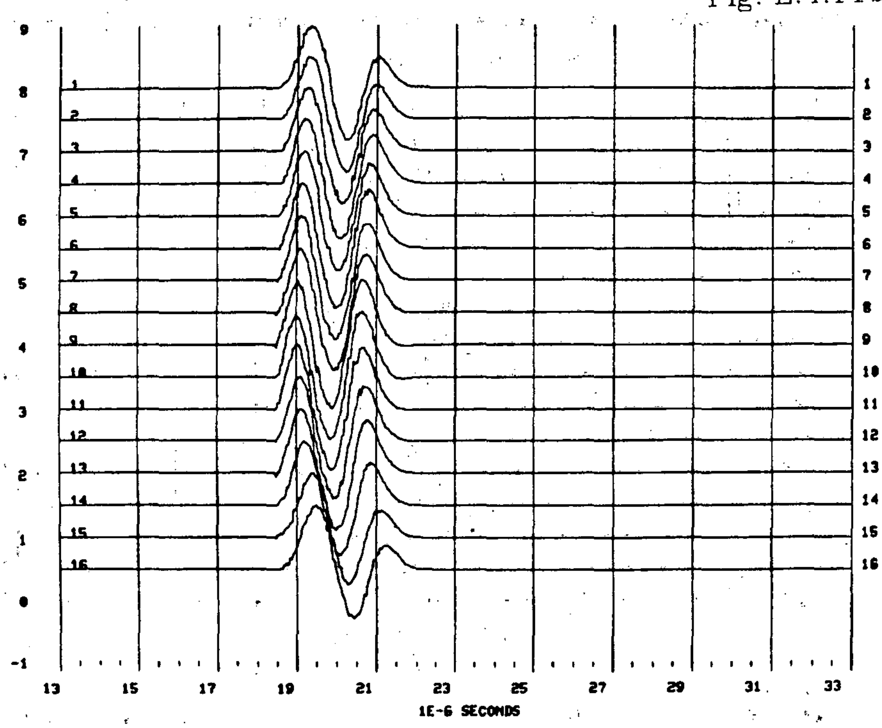
STRIPA 811, TRUNCATED P-WAVES WITH 4E-6, H7-H9, 880081

Fig. E:4.11a



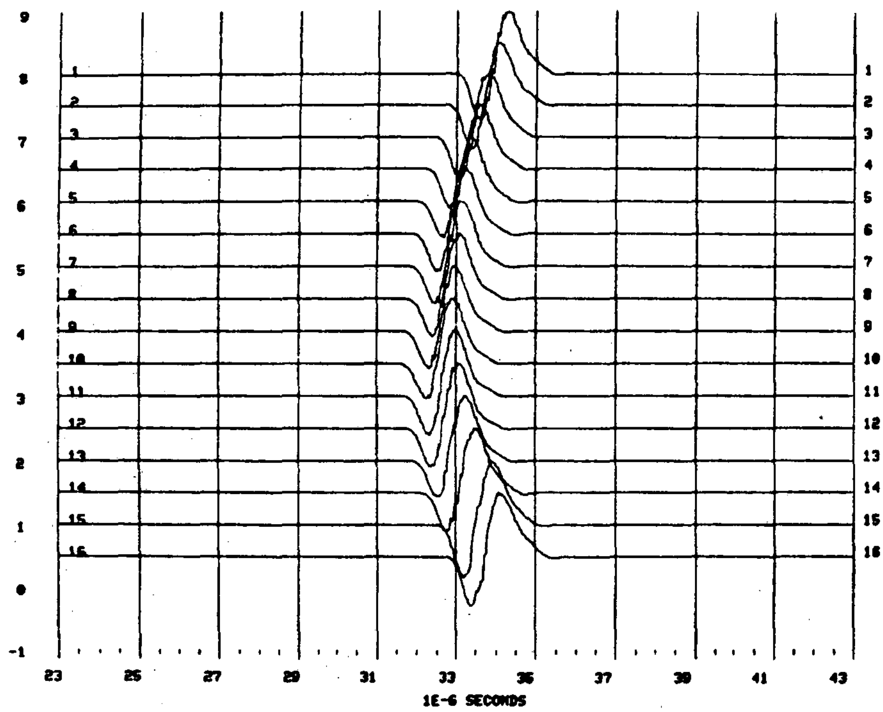
STRIPA 811, TRUNCATED P-WAVES WITH 4E-6 SEC WIND., SATURATED, H7-H9, 821003

Fig. E:4.11b



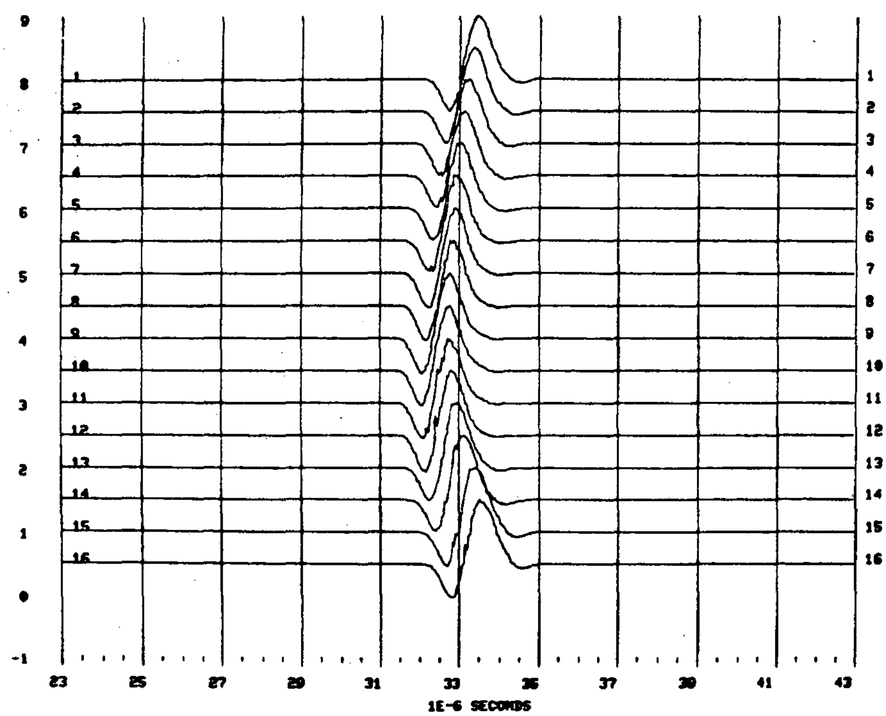
STRIPA 811, N7-N9, S-WAVES TRUNCATED WITH 1+2E-6 SEC AT CROSSOVER,820923

Fig. E:4.11c



STRIPA 811, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND, SATURATED, 821003

Fig. E:4.11d



Appendix E:5 - Fourier Amplitude spectra for P and S waves from laboratory test.

In this appendix the Fourier amplitude spectra for the truncated P and S waveforms in Appendix 4 are shown.

Figure captions for Appendix E:5

Fig. E:5.1a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 1

Fig. E:5.1b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 1

Fig. E:5.1c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 1

Fig. E:5.1d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 1

Fig. E:5.2a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 2

Fig. E:5.2b Amplitude, spectra for P waves as function of uniaxial stress for the saturated specimen # 2

Fig. E:5.2c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 2

Fig. E:5.2d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 2

Fig. E:5.3a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 3

Fig. E:5.3b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 3

Fig. E:5.3c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 3

Fig. E:5.3d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 3

Fig. E:5.4a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 4

Fig. E:5.4b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 4

Fig. E:5.4c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 4

Fig. E:5.4d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 4

Fig. E:5.5a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 5

Fig. E:5.5b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 5

Fig. E:5.5c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 5

Fig. E:5.5d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 5

Fig. E:5.6a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 6

Fig. E:5.6b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 6

Fig. E:5.6c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 6

Fig. E:5.6d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 6

Fig. E:5.7a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 7

Fig. E:5.7b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 7

Fig. E:5.7c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 7

Fig. E:5.7d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 7

Fig. E:5.8a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 8

Fig. E:5.8b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 8

Fig. E:5.8c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 8

Fig. E:5.8d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 8

Fig. E:5.9a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 9

Fig. E:5.9b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 9

Fig. E:5.9c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 9

Fig. E:5.9d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 9

Fig. E:5.10a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 10

Fig. E:5.10b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 10

Fig. E:5.10c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 10

Fig. E:5.10d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 10

Fig. E:5.11a Amplitude spectra for P waves as function of uniaxial stress for the dry specimen # 11

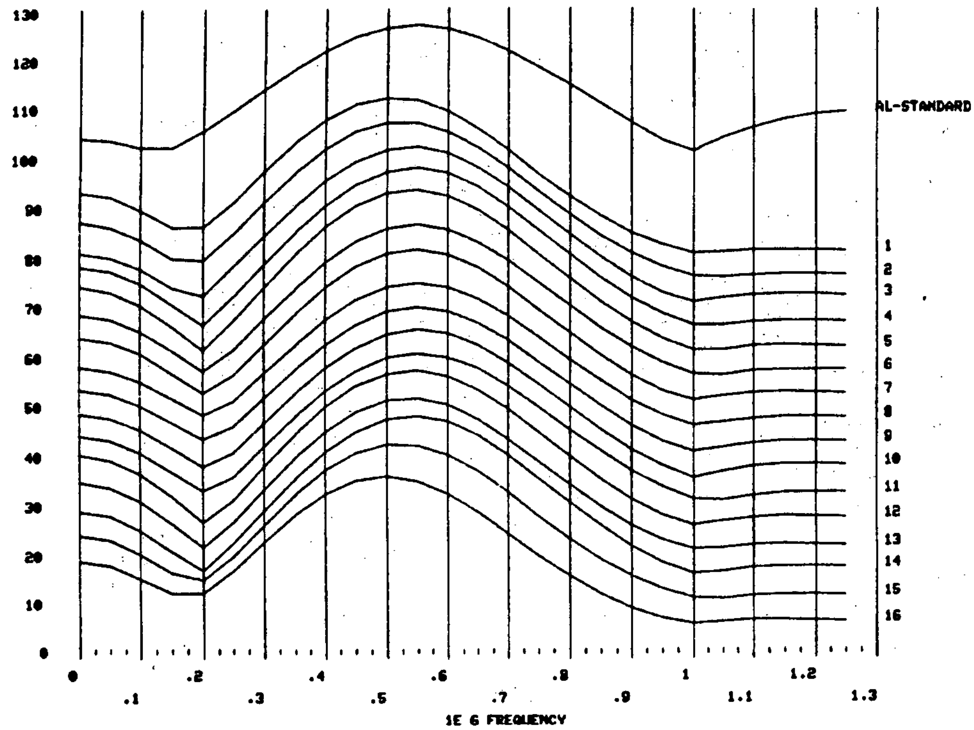
Fig. E:5.11b Amplitude spectra for P waves as function of uniaxial stress for the saturated specimen # 11

Fig. E:5.11c Amplitude spectra for S waves as function of uniaxial stress for the dry specimen # 11

Fig. E:5.11d Amplitude spectra for S waves as function of uniaxial stress for the saturated specimen # 11

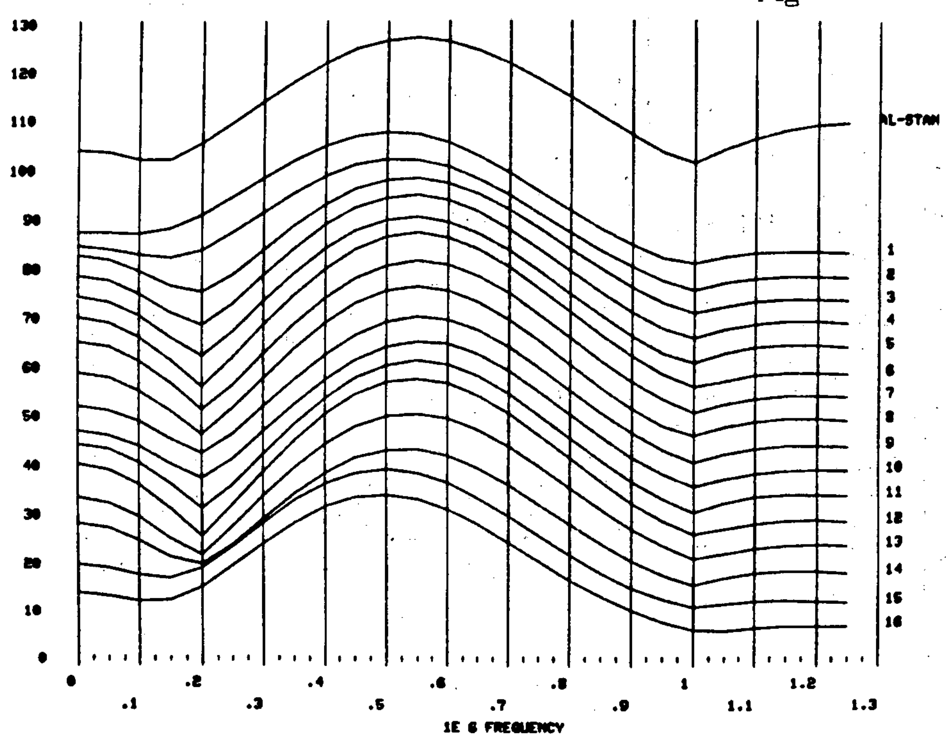
SPECIMEN : STRIPA 81,DRY,M8-M6 CONDITION : DRY WINDOW : 4E-6
SMOOTH : 0 FILE : STRPA1.
P-WAVES DATE : 7 SEPTEMBER,1982

Fig. E:5.1a



SPECIMEN : STRIPA 81 CONDITION : SATURATED WINDOW : 4E-6
SMOOTH : 0 FILE : STPAW1.
P-WAVES DATE : 31 AUGUST 1982

Fig. E:5.1b



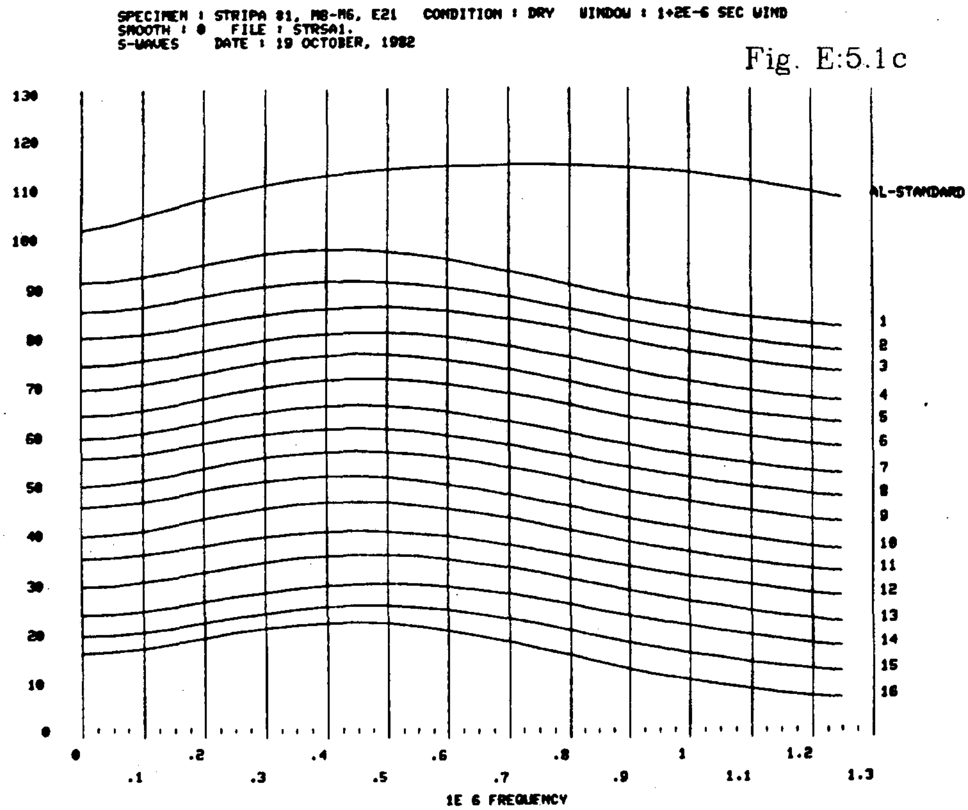


Fig. E:5.1c

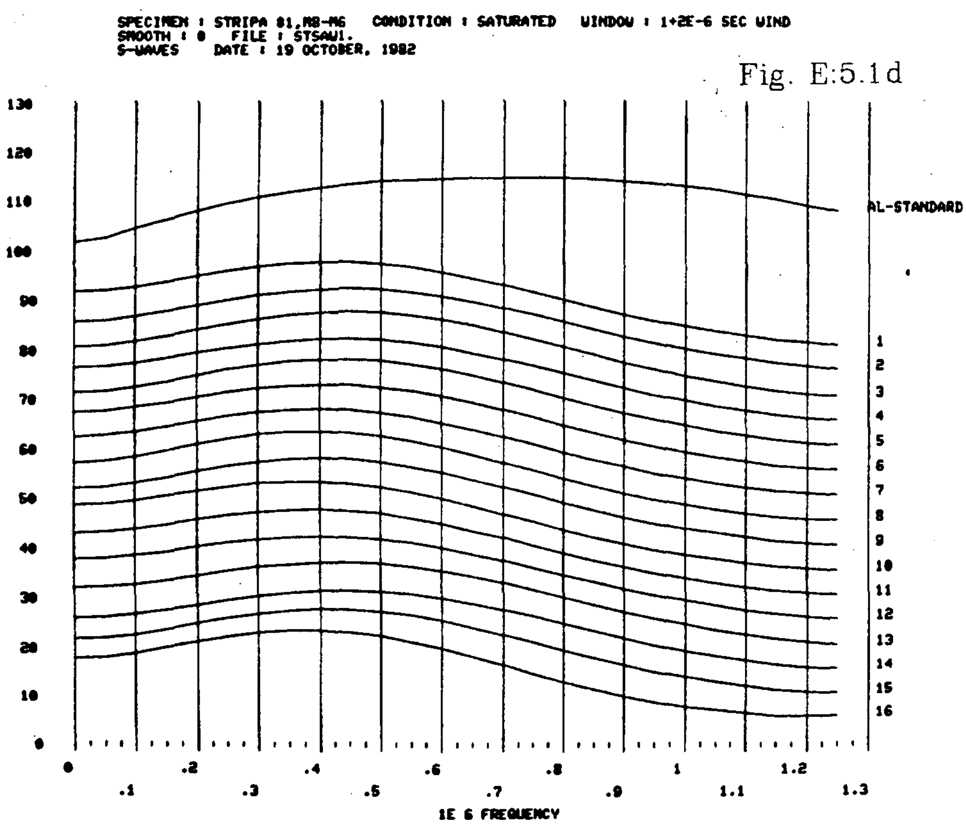
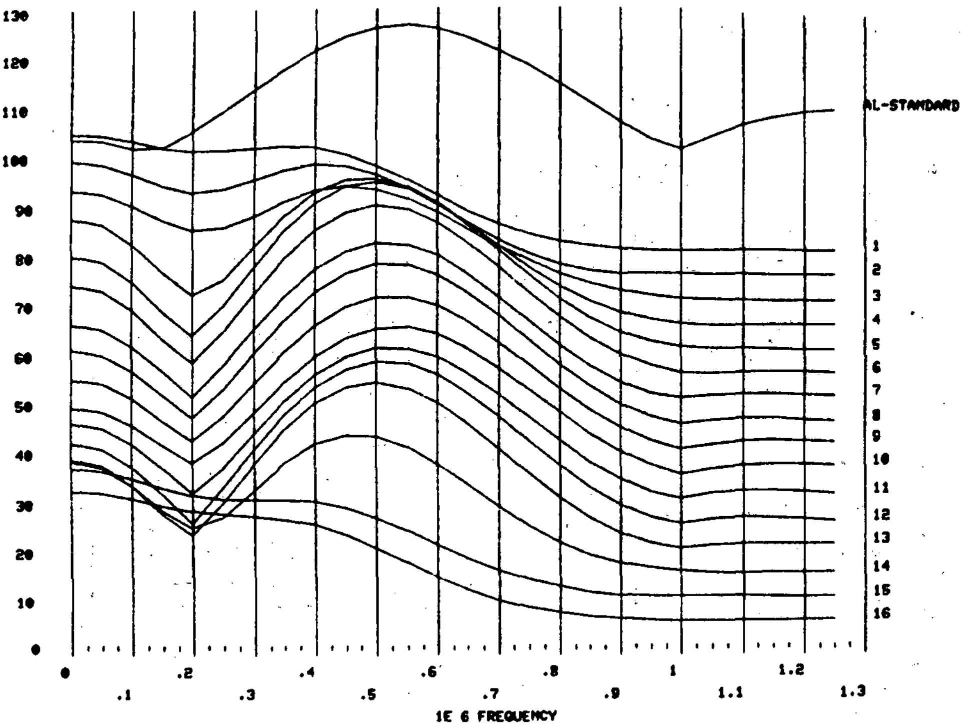


Fig. E:5.1d

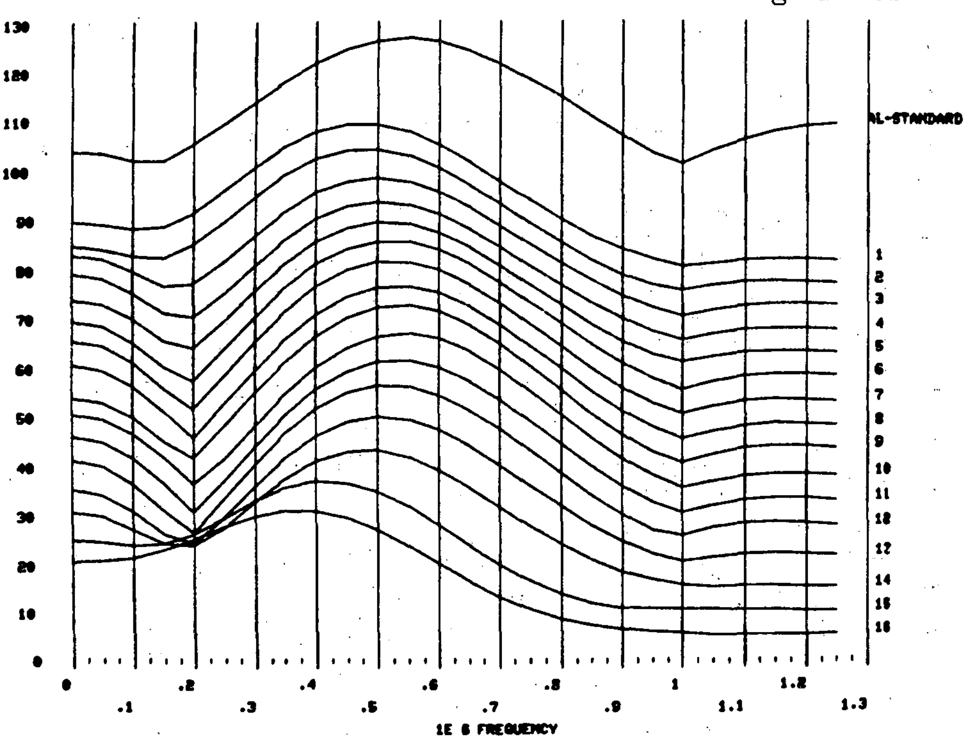
SPECIMEN : STRIPA 82,P-WAVES,WIND:4E-6 SEC CONDITION : DRY WINDOW : 4E-6
SMOOTH : 0 FILE : STRPA2.
P-WAVES DATE : 7 SEPTEMBER, 1982

Fig. E:5.2a



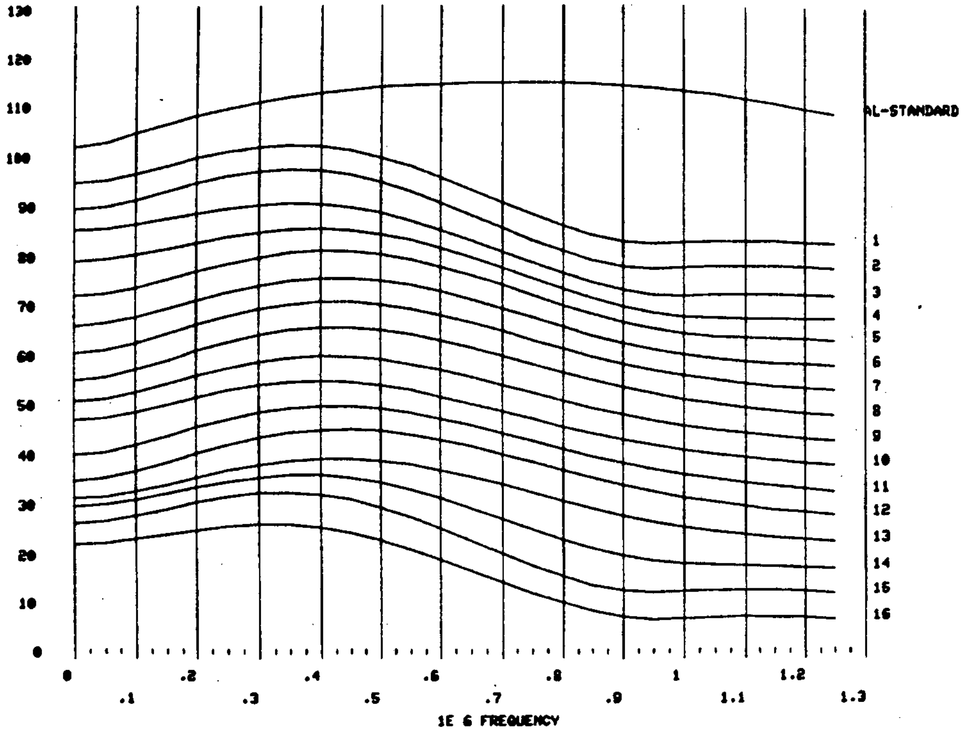
SPECIMEN : STRIPA 82 CONDITION : SATURATED WINDOW : 4E-6 SEC
SMOOTH : 0 FILE : STPAW2.
P-WAVES DATE : 31 AUGUST, 1982

Fig. E:5.2b



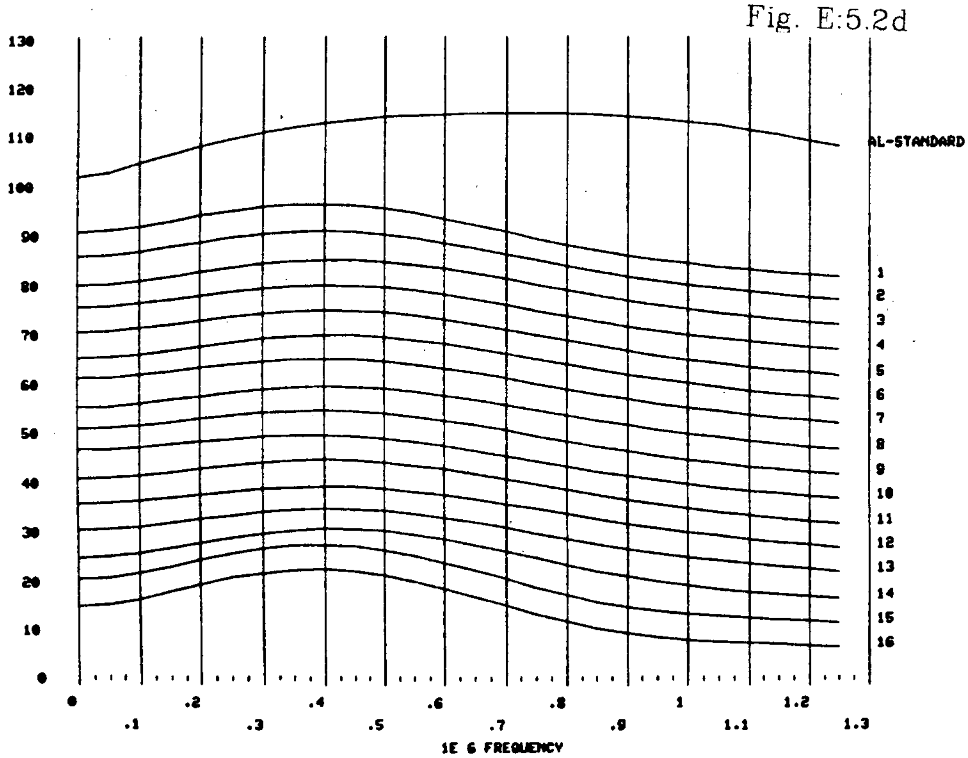
SPECIMEN : STRIPA 82, M7-M9 CONDITION : DRY WINDOW : 1+2E-6 SEC WIND
SMOOTH : 0 FILE : STSAD2.
S-WAVES DATE : 19 OCTOBER, 1982

Fig. E:5.2c



SPECIMEN : STRIPA 82, M7-M9, E24 CONDITION : SATURATED WINDOW : 1+2E-6 SEC WIND
SMOOTH : 0 FILE : STSAW2.
S-WAVES DATE : 19 OCTOBER, 1982

Fig. E:5.2d



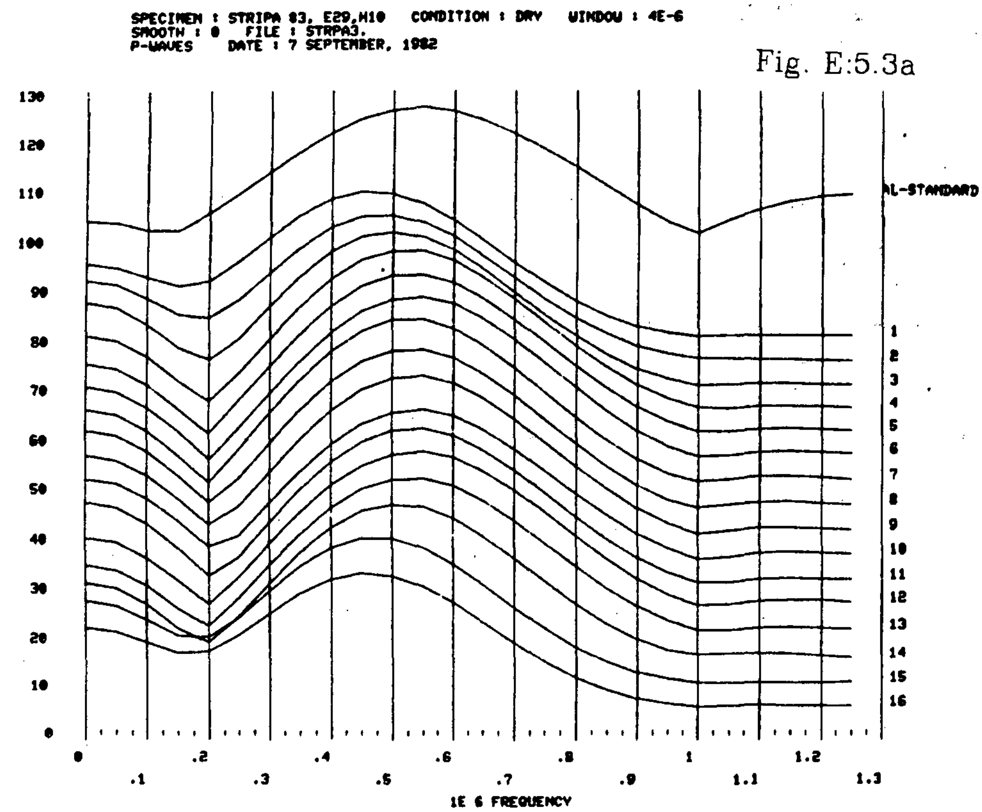


Fig. E:5.3a

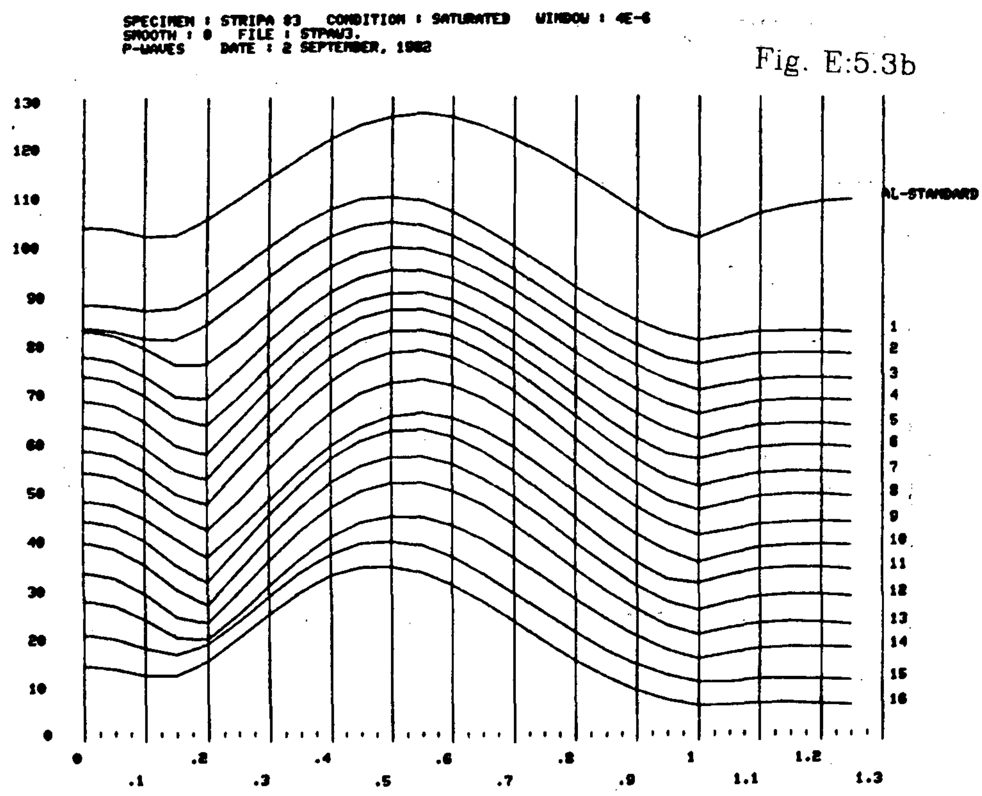
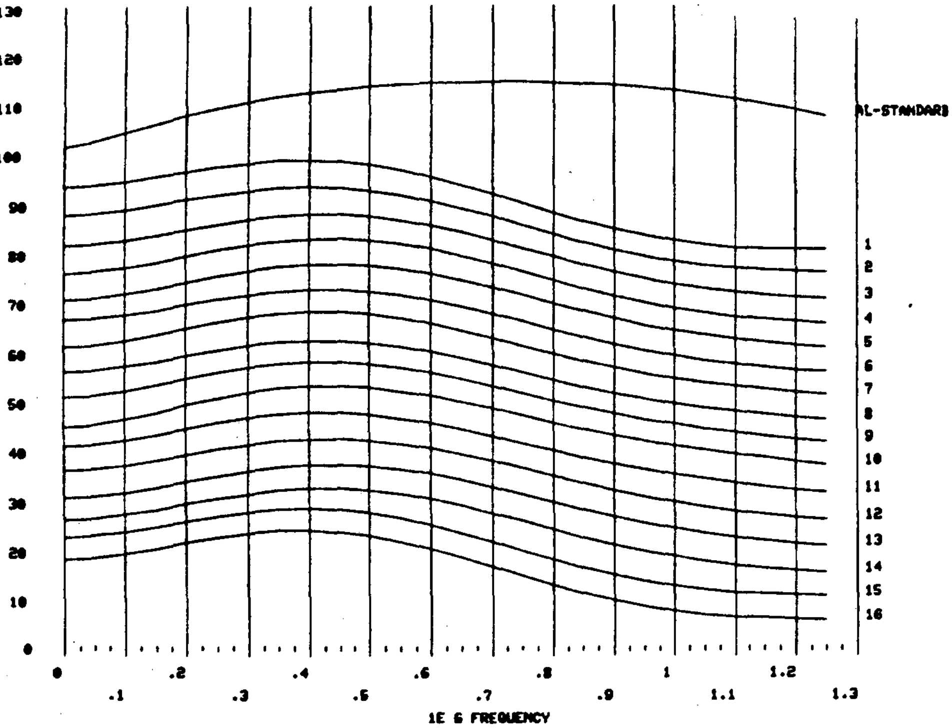


Fig. E:5.3b

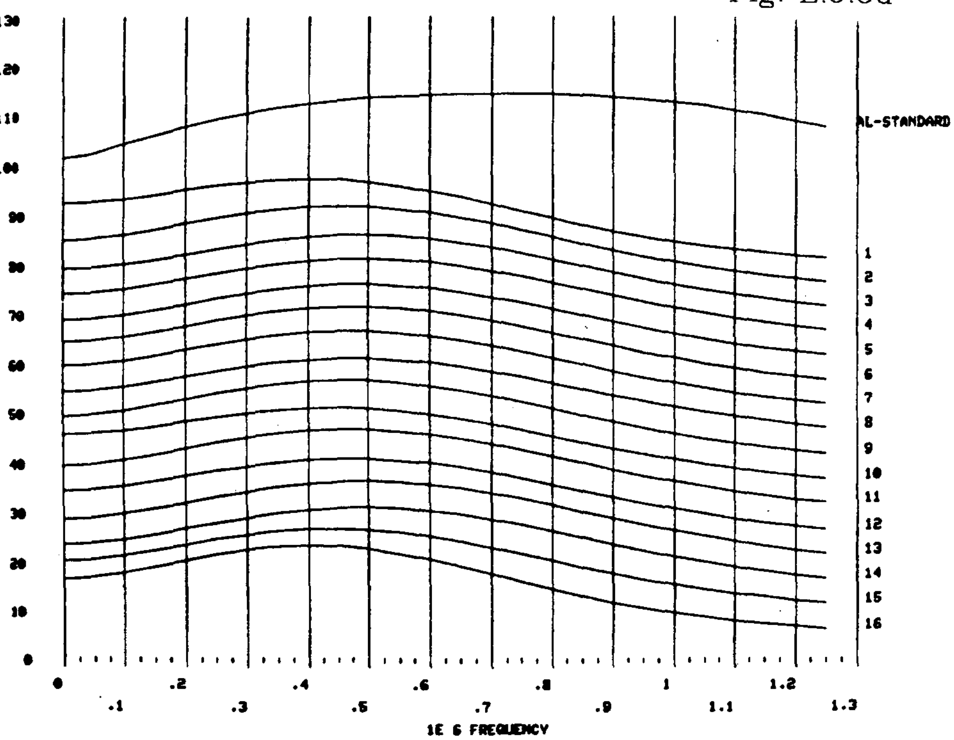
SPECIMEN : STRIPA 83, E29/H10 CONDITION : DRY WINDOW : 1+2E-6 SEC WIND
SMOOTH : 0 FILE : STSAD3.
S-WAVES DATE : 19 OCTOBER, 1982

Fig. E:5.3c



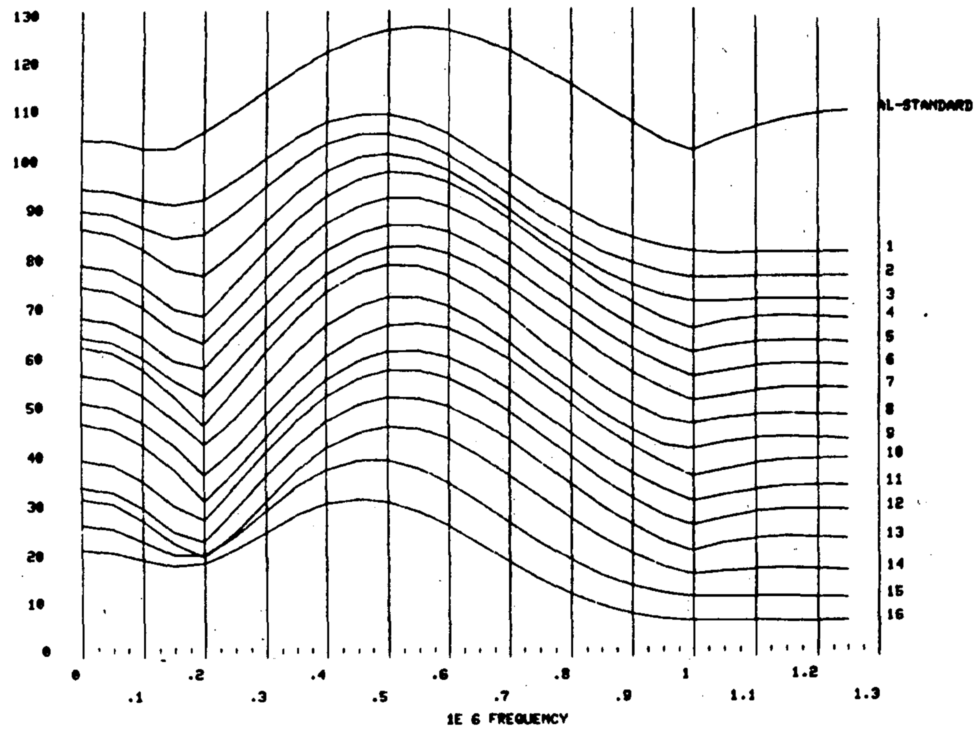
SPECIMEN : STRIPA 83, H10/E29 CONDITION : SATURATED WINDOW : 1+2E-6 SEC WIND
SMOOTH : 0 FILE : STSAW3.
S-WAVES DATE : 20 OCTOBER, 1982

Fig. E:5.3d



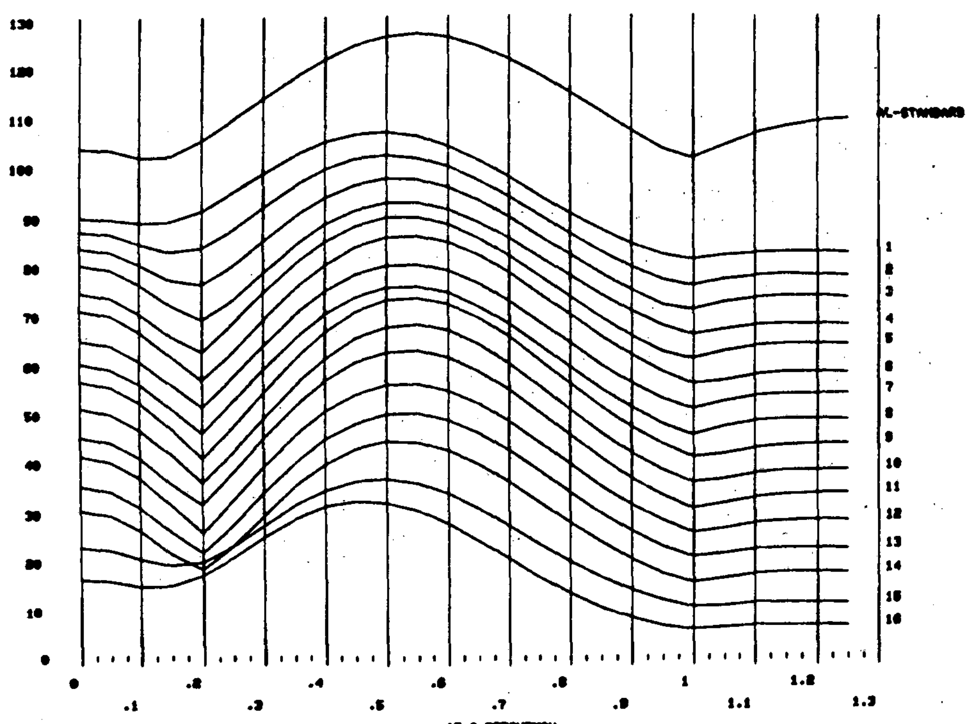
SPECIMEN : STRIPA 84,E29,H10 CONDITION : DRY WINDOW : 4E-6 SEC
SMOOTH : 0 FILE : STRPA4.
P-WAVES DATE : 7 SEPTEMBER,1982

Fig. E:5.4a



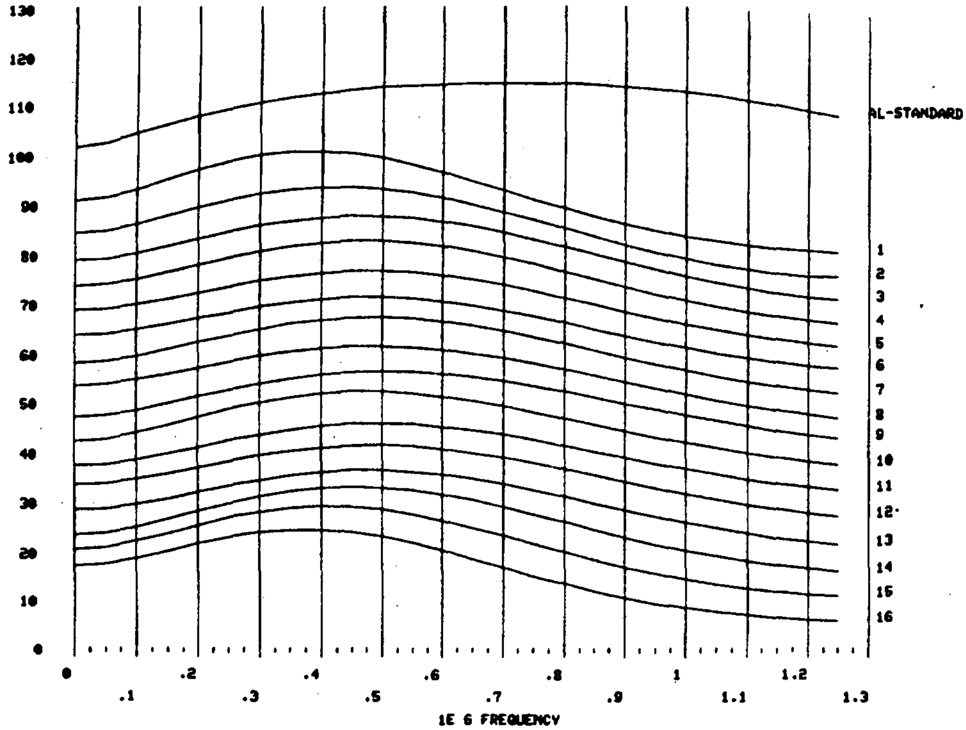
SPECIMEN : STRIPA 84 CONDITION : SATURATED WINDOW : 4E-6
SMOOTH : 0 FILE : STPAW4.
P-WAVES DATE : 3 SEPTEMBER , 1982

Fig. E:5.4b



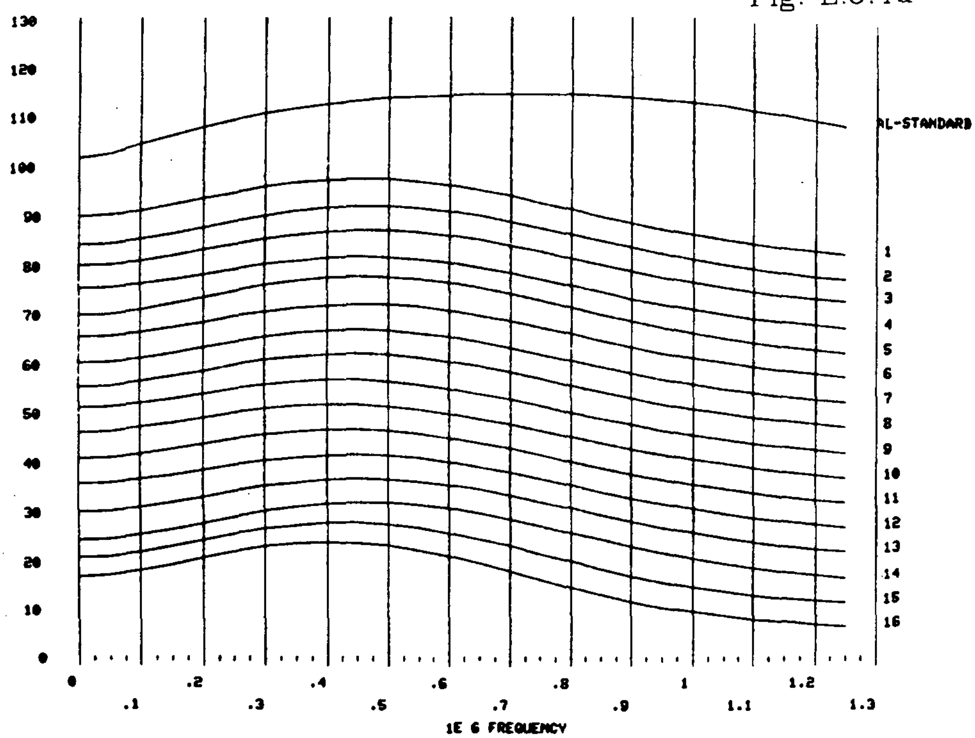
SPECIMEN : STRIPA 84, DBEX-1, 1.45 FROM H10, 130 C CONDITION : DRY WINDOW : 1+2E-6 SEC
SMOOTH : 0 FILE : STSAD4.
S-WAVES DATE : 20 OCTOBER, 1982

Fig. E:5.4c



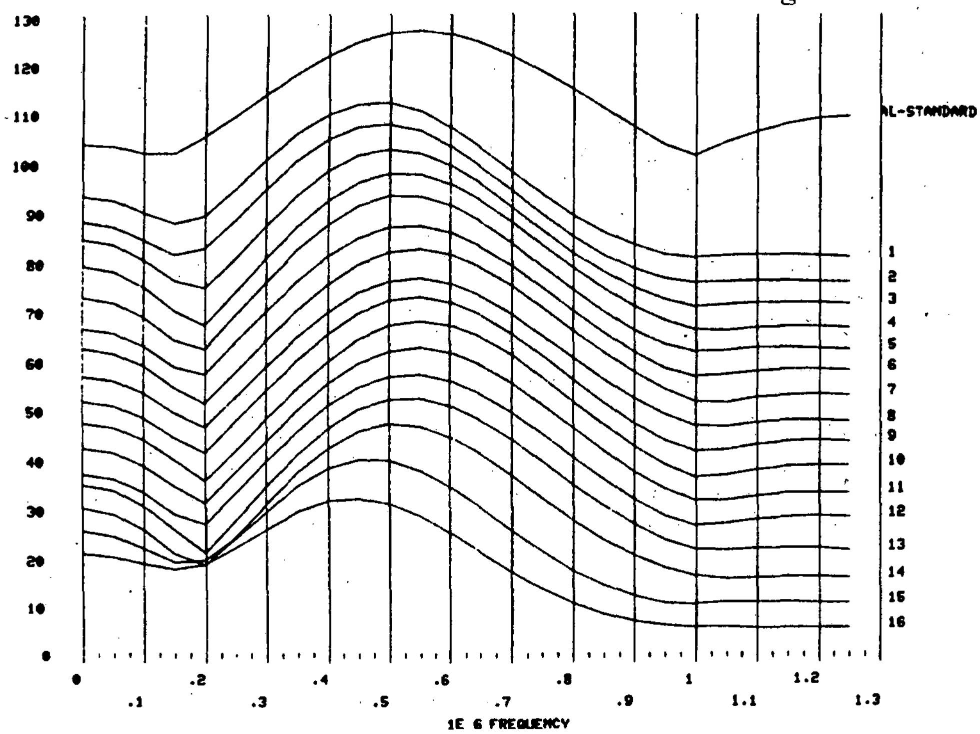
SPECIMEN : STRIPA 84, DBEX-1 1.45 F. H10, 130 C CONDITION : SATURATED WINDOW : 1+2E-6 SEC
SMOOTH : 0 FILE : STSAW4.
S-WAVES DATE : 20 OCTOBER, 1982

Fig. E:5.4d



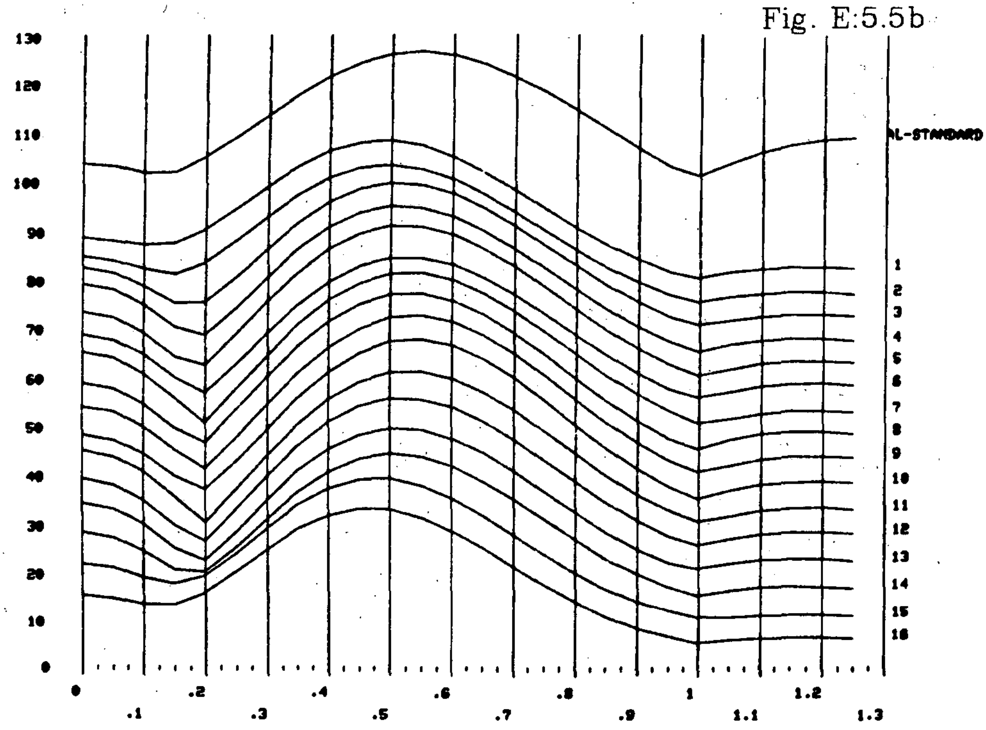
SPECIMEN : STRIPA 85,DRY,DRILLBACL 0.75M FROM H10, 820907 CONDITION : DRY WINDOW : 4-6 SEC
SMOOTH : 0 FILE : STRPAS.
P-WAVES DATE : 7 SEPTEMBER, 1982

Fig. E:5.5a



SPECIMEN : STRIPA 85, DRILLBACK 0.75 H10 CONDITION : SATURATED WINDOW : 4E-6
SMOOTH : 0 FILE : STPAWS.
P-WAVES DATE : 3 SEPTEMBER,1982

Fig. E:5.5b



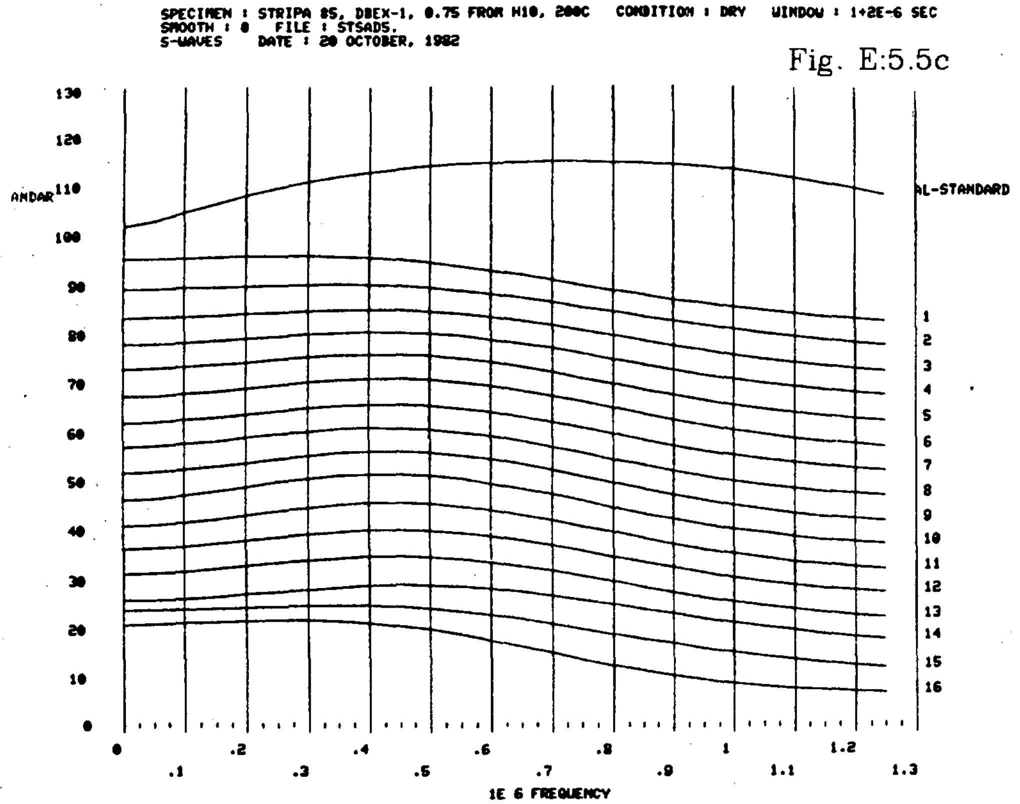


Fig. E:5.5c

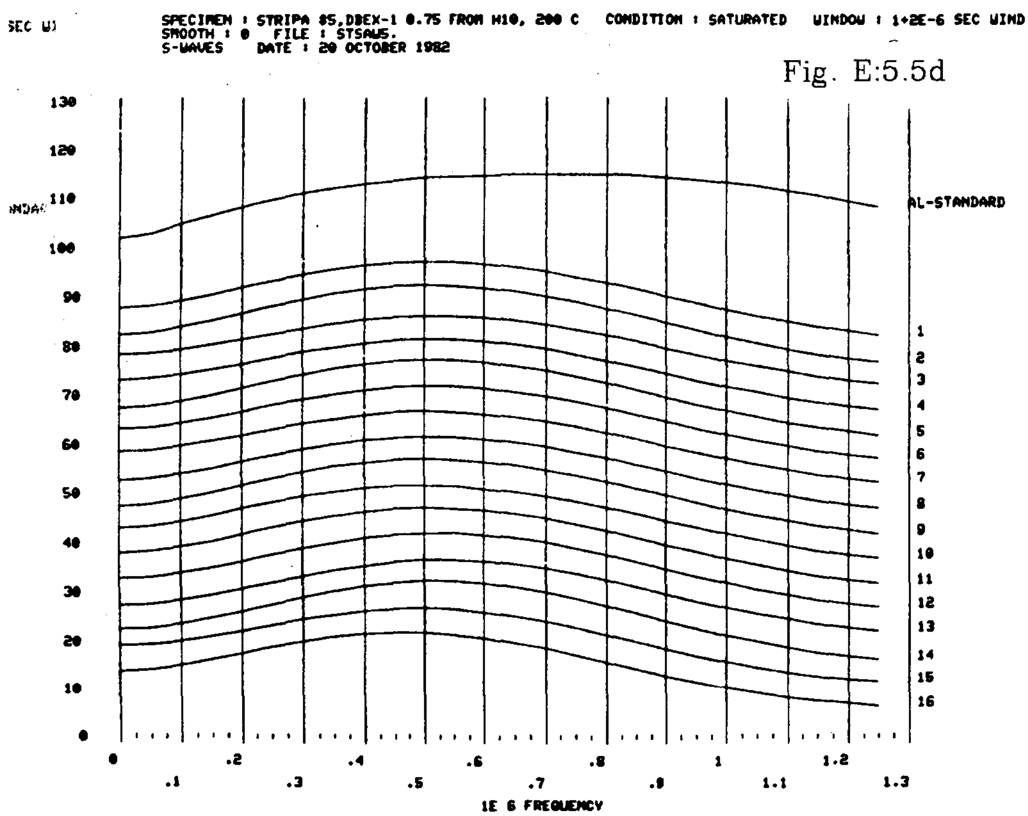


Fig. E:5.5d

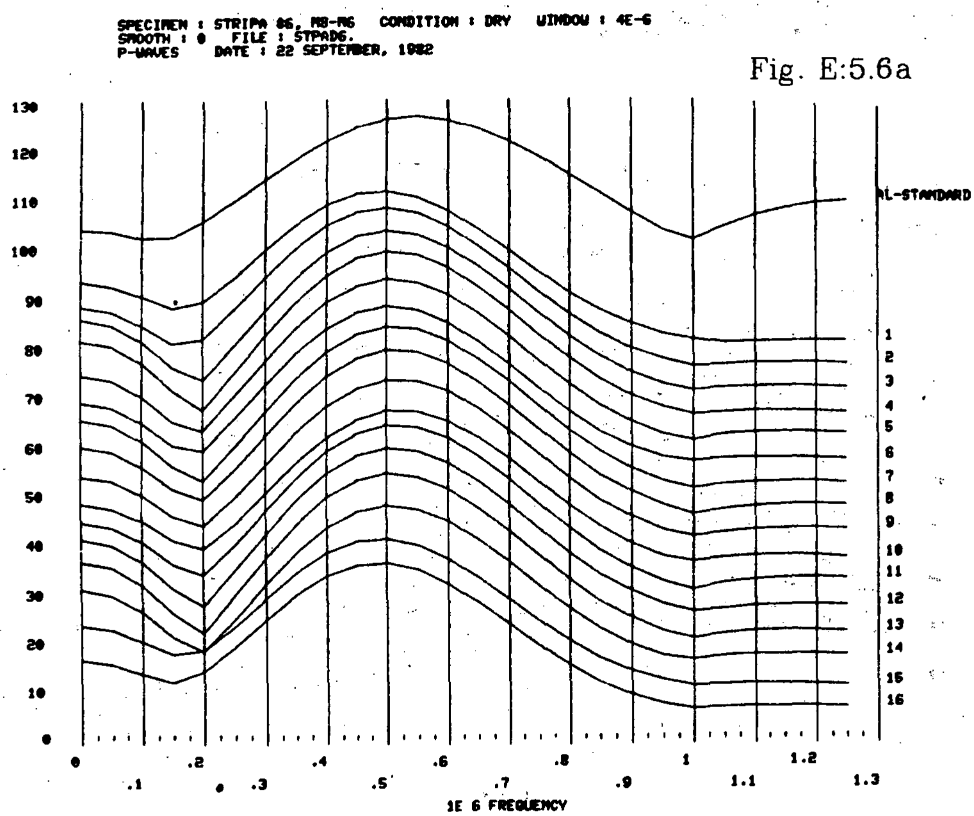


Fig. E:5.6a

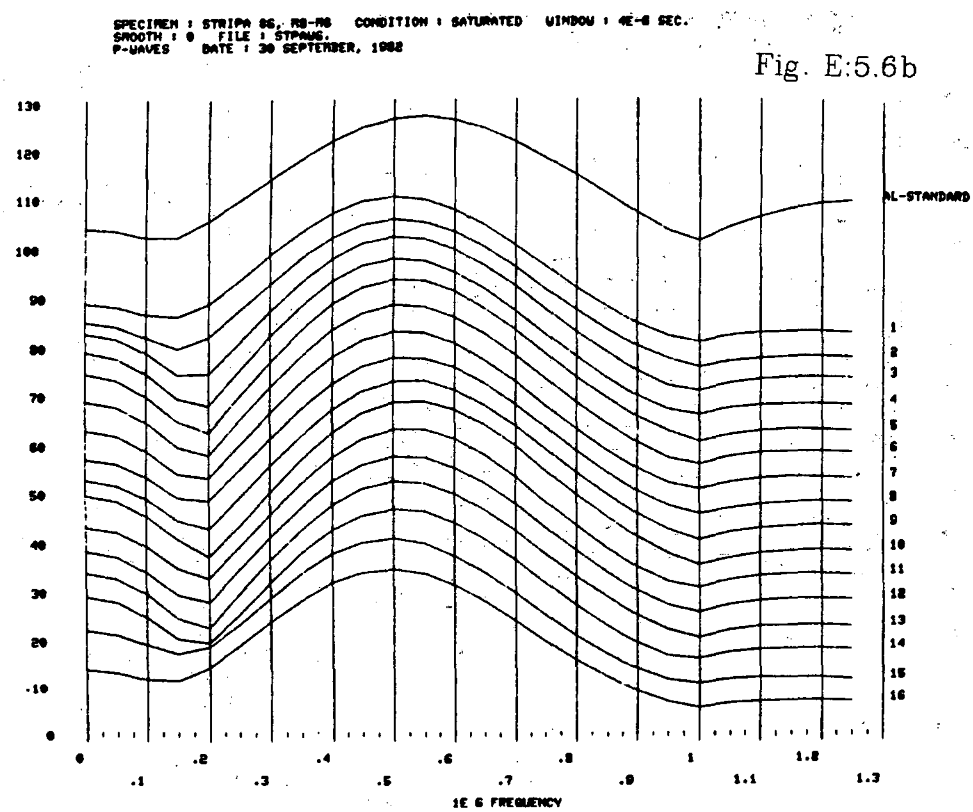
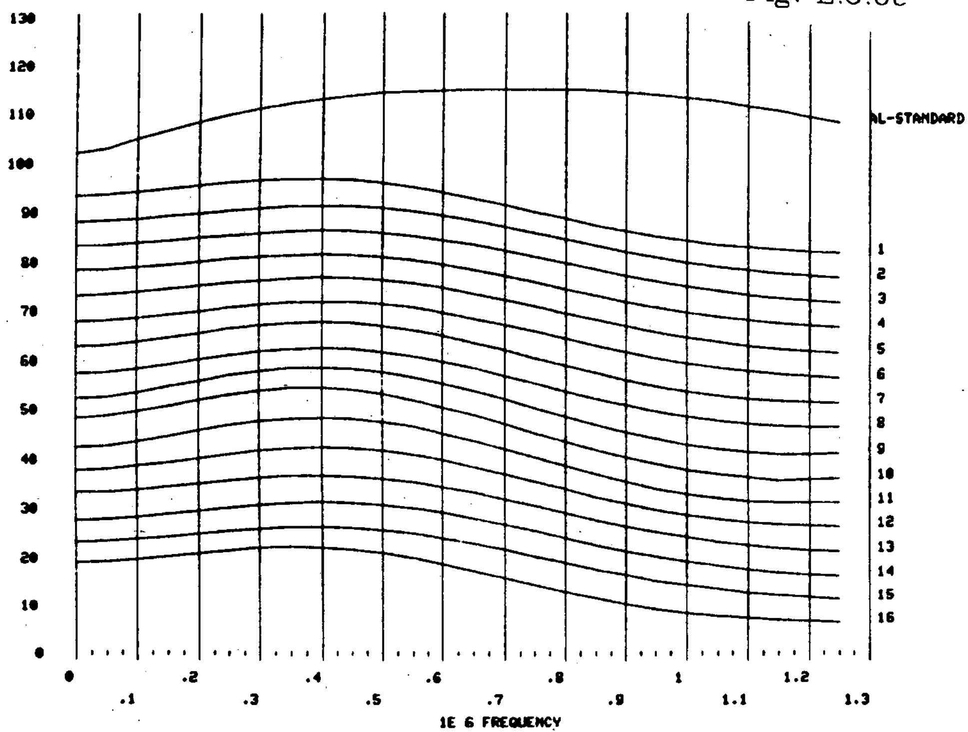


Fig. E:5.6b

SPECIMEN : STRIPA 86, E22, M8-M6 CONDITION : DRY WINDOW : 1+2E-6 SEC
SMOOTH : 0 FILE : STSAD6.
S-WAVES DATE : 20 OCTOBER, 1982

Fig. E:5.6c



SPECIMEN : STRIPA 86, M8-M6 CONDITION : SATURATED WINDOW : 1+2E-6
SMOOTH : 0 FILE : STSAW6.
S-WAVES DATE : 3 OCTOBER, 1982

Fig. E:5.6d

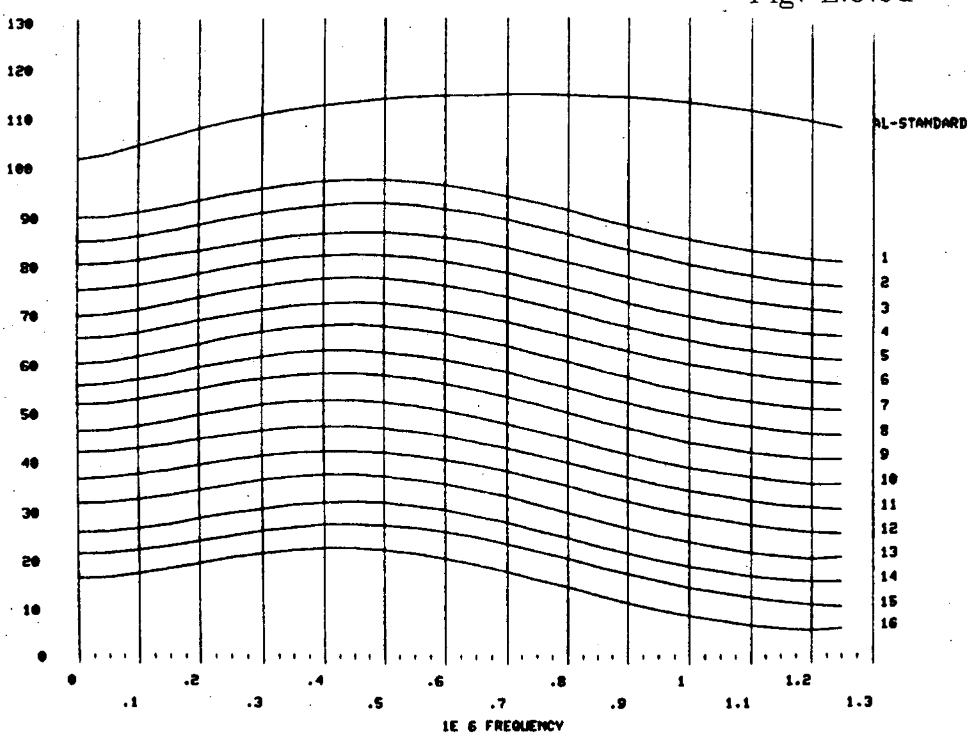


Fig. E:5.7a

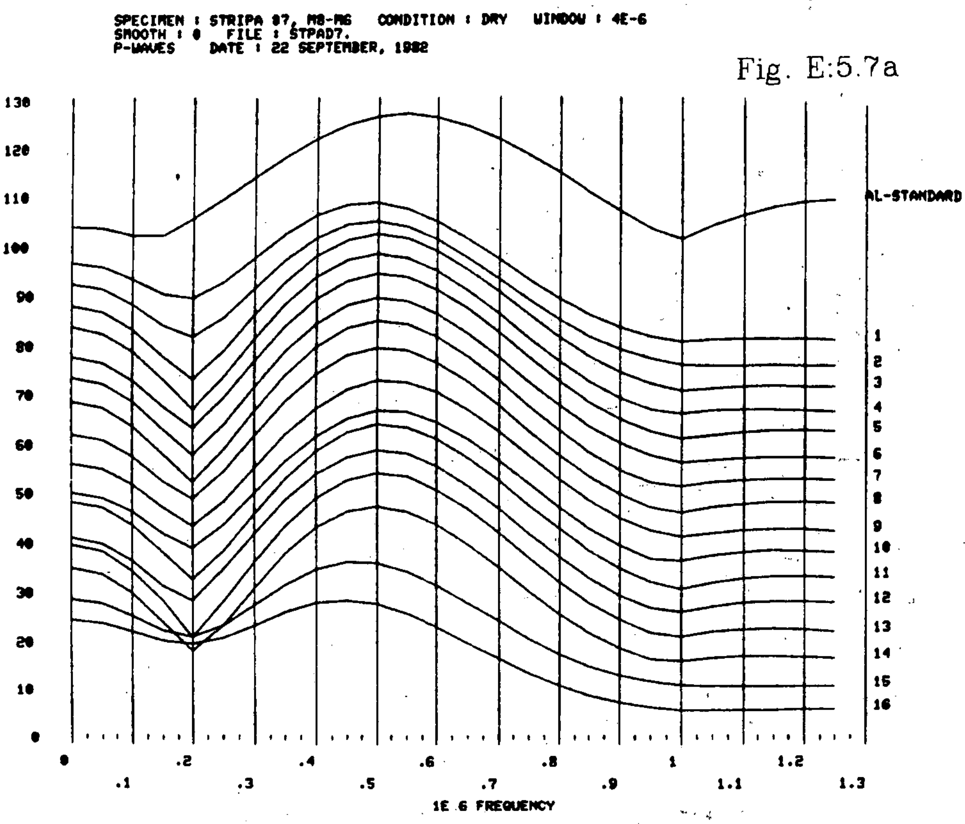
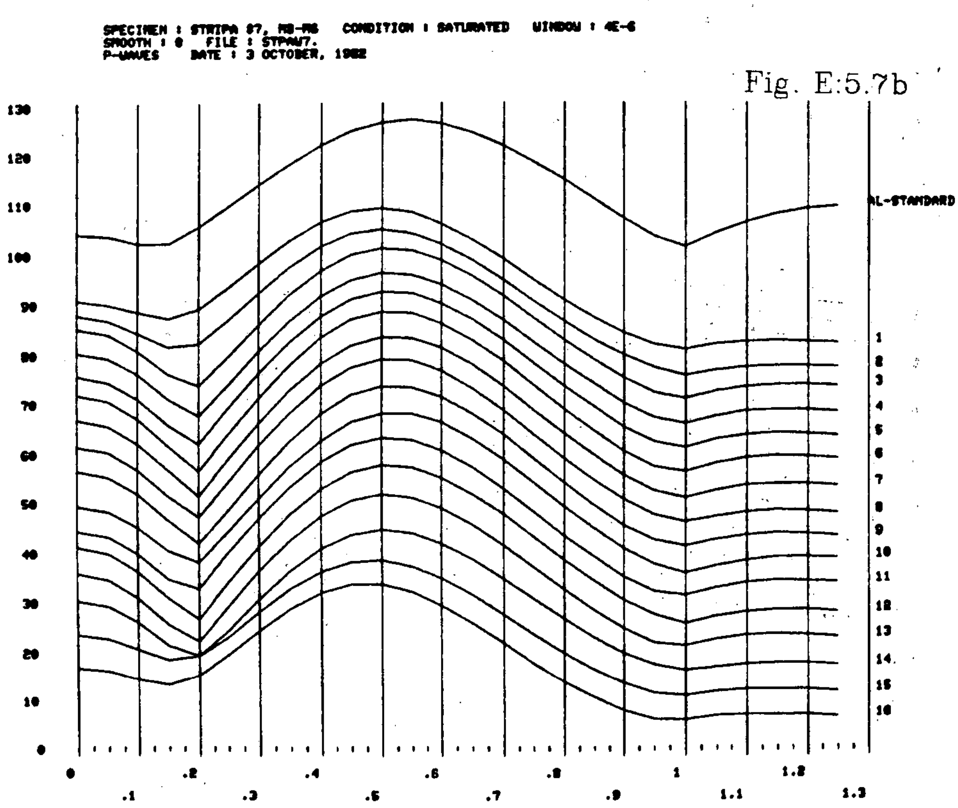


Fig. E:5.7b



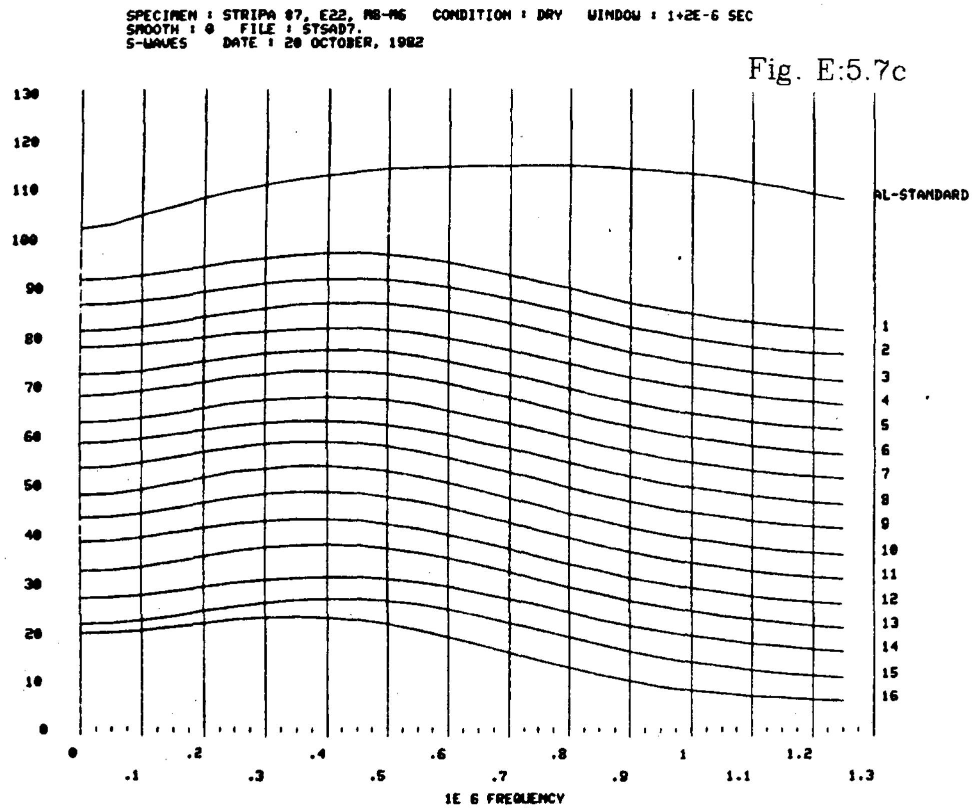


Fig. E:5.7c

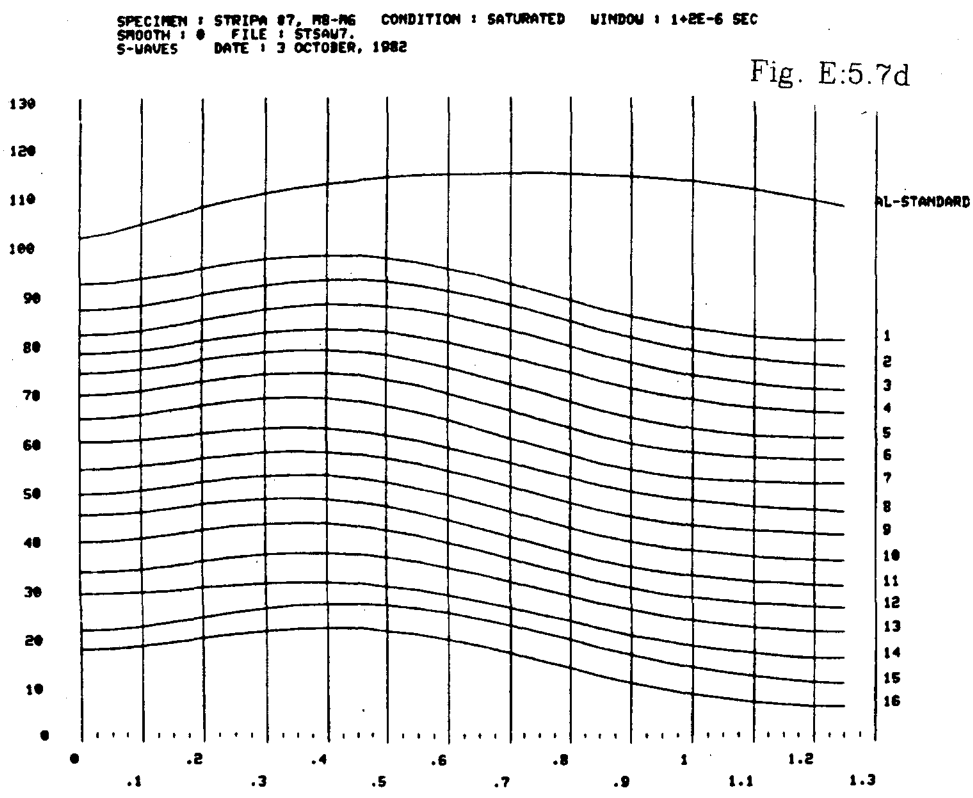


Fig. E:5.7d

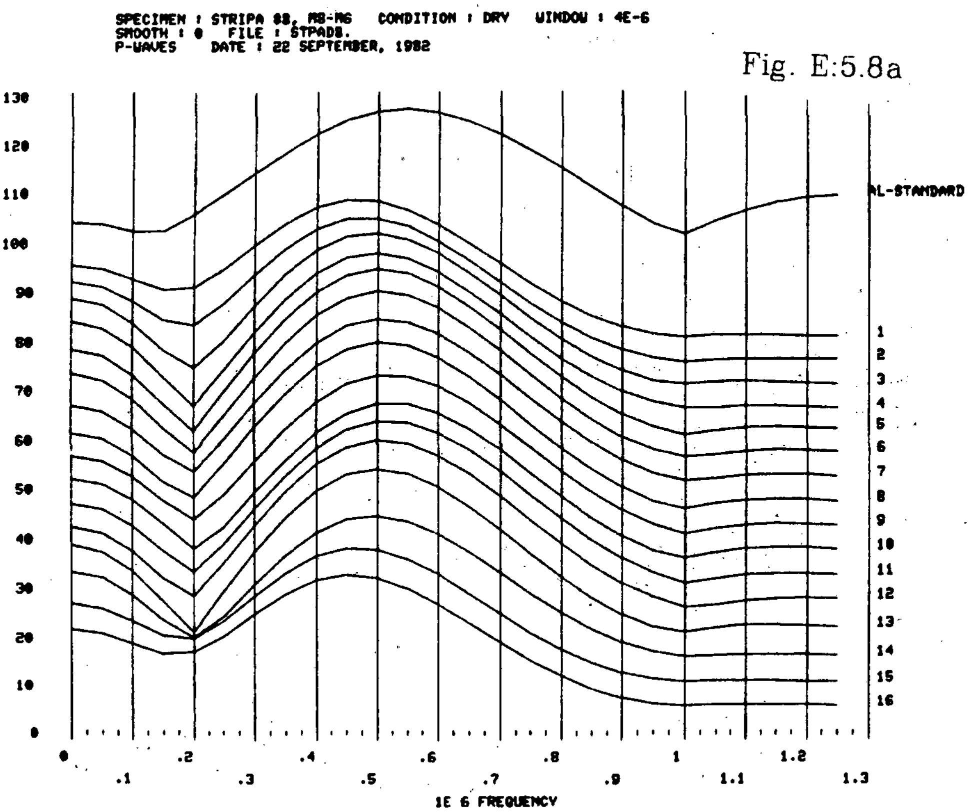


Fig. E:5.8a

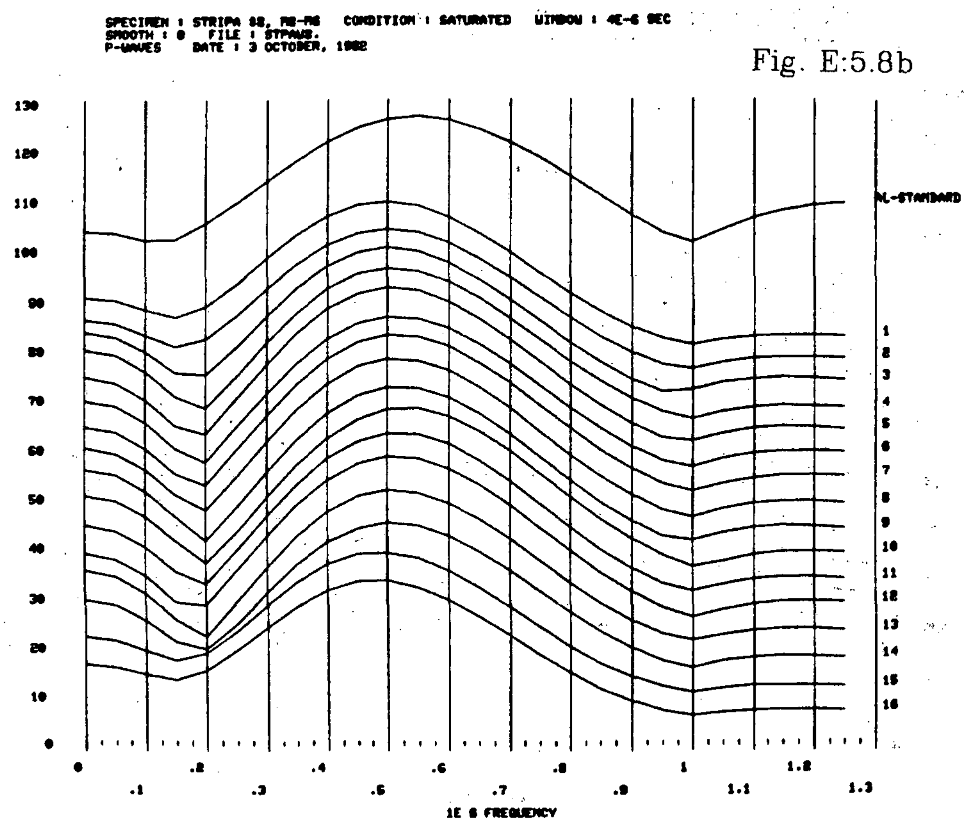
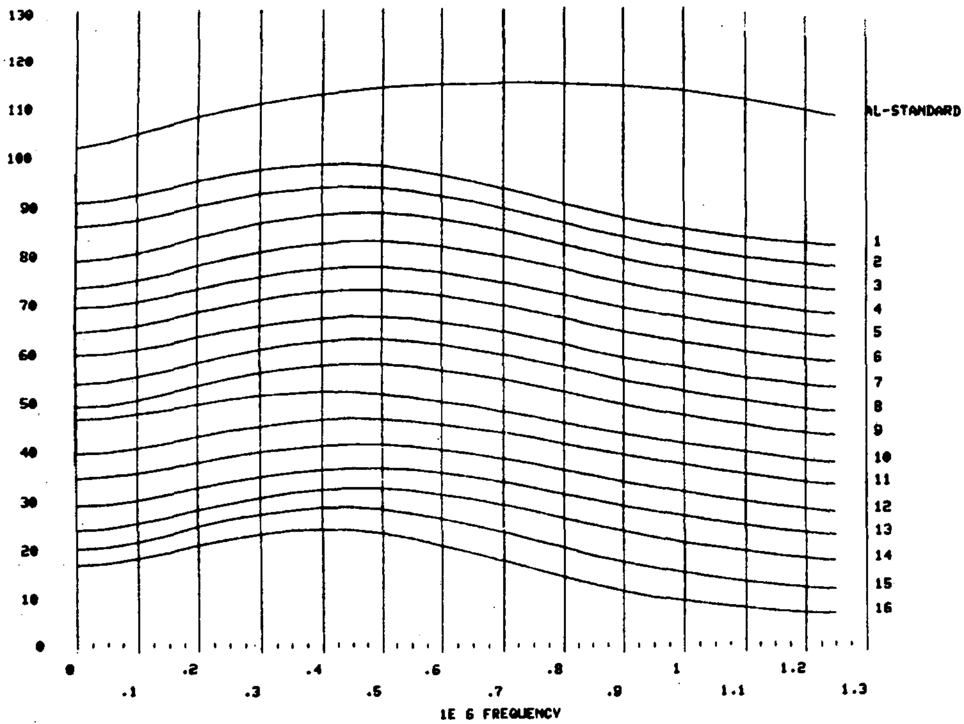


Fig. E:5.8b

SPECIMEN : STRIPA #8, E22, M8-M6 CONDITION : DRY WINDOW : 1+2E-6 SEC
SMOOTH : 0 FILE : STSAD8.
S-WAVES DATE : 20 OCTOBER, 1982

Fig. E:5.8c



SPECIMEN : STRIPA #8, M8-M6 CONDITION : SATURATED WINDOW : 1+2E-6 SEC
SMOOTH : 0 FILE : STSAW8.
S-WAVES DATE : 3 OCTOBER, 1982

Fig. E:5.8d

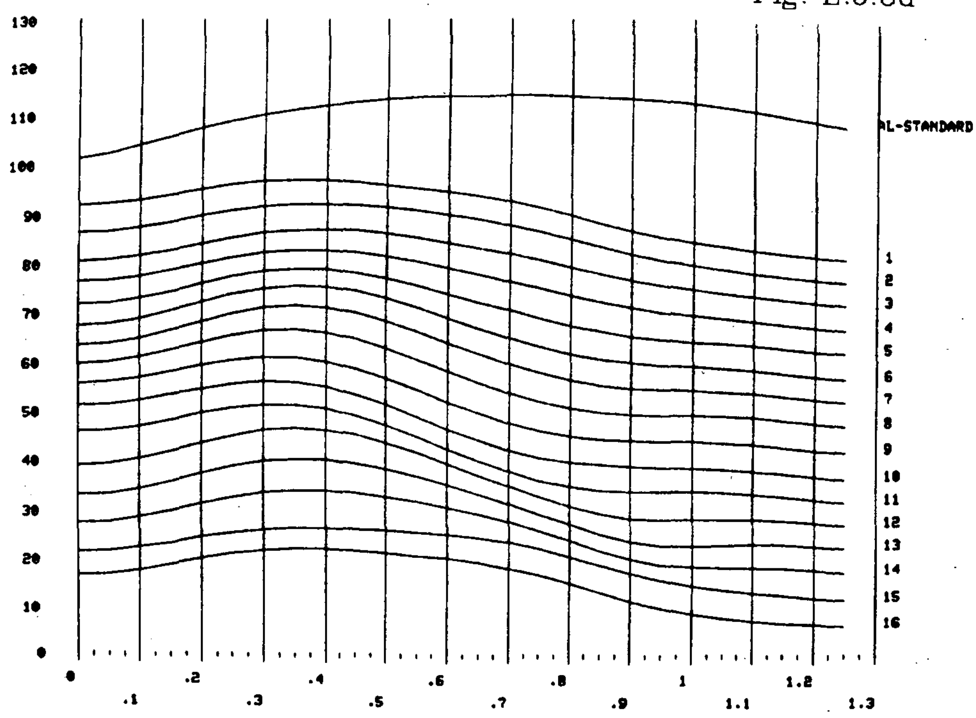


Fig. E:5.9a

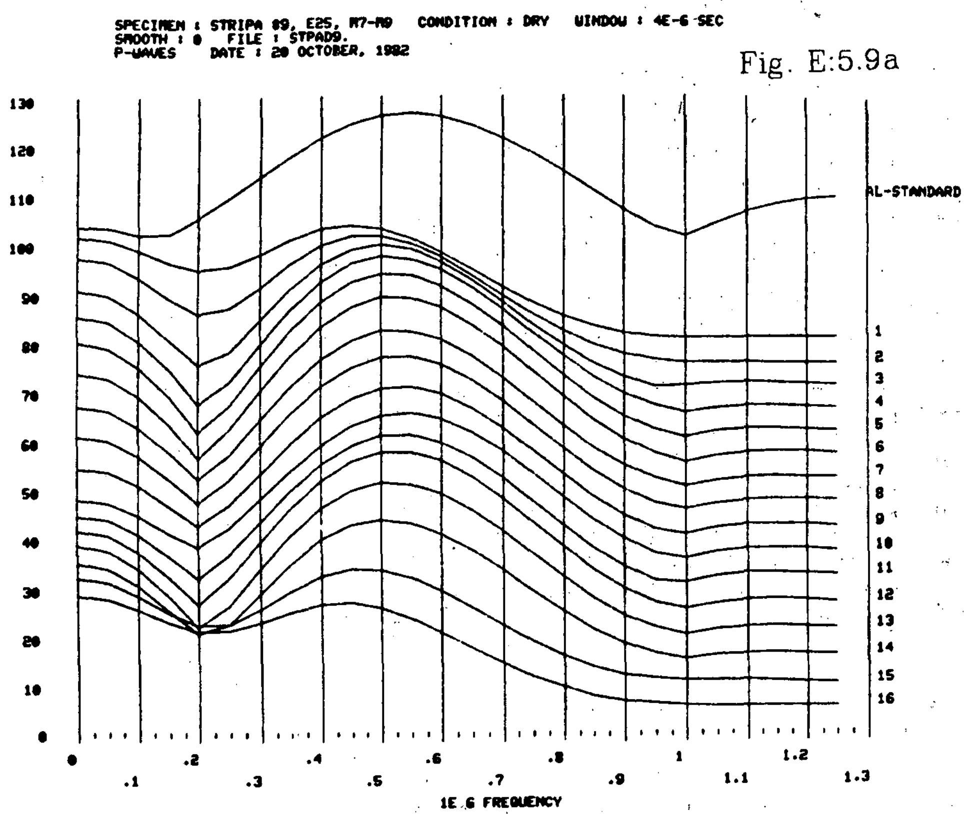
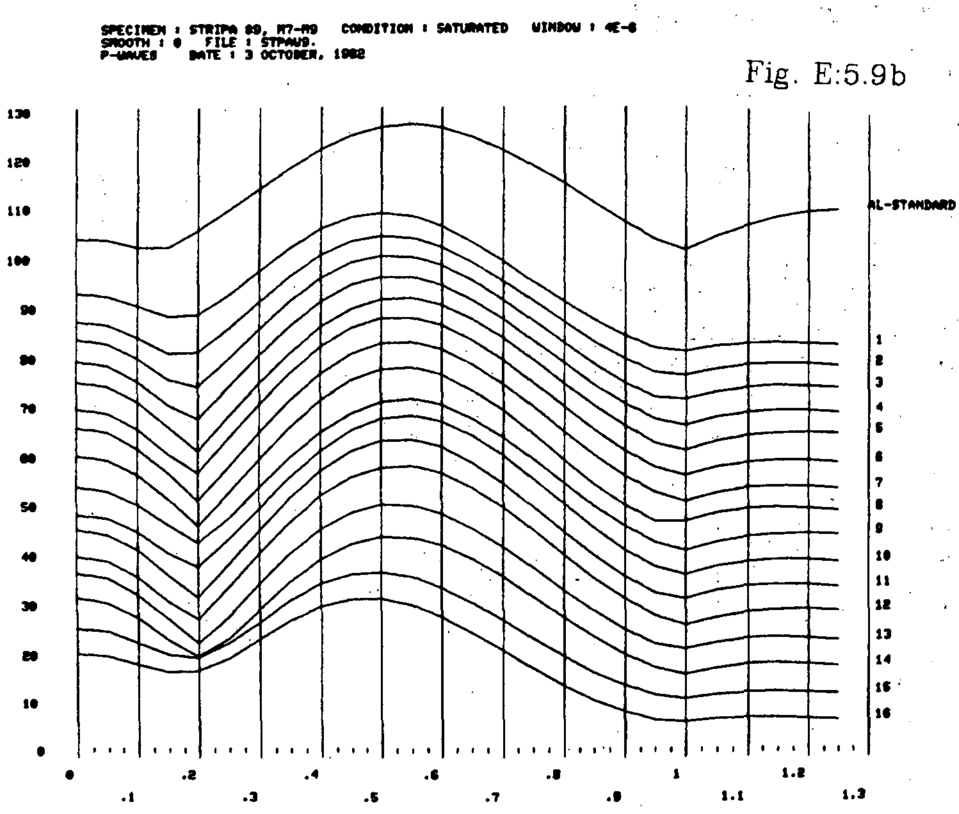


Fig. E:5.9b



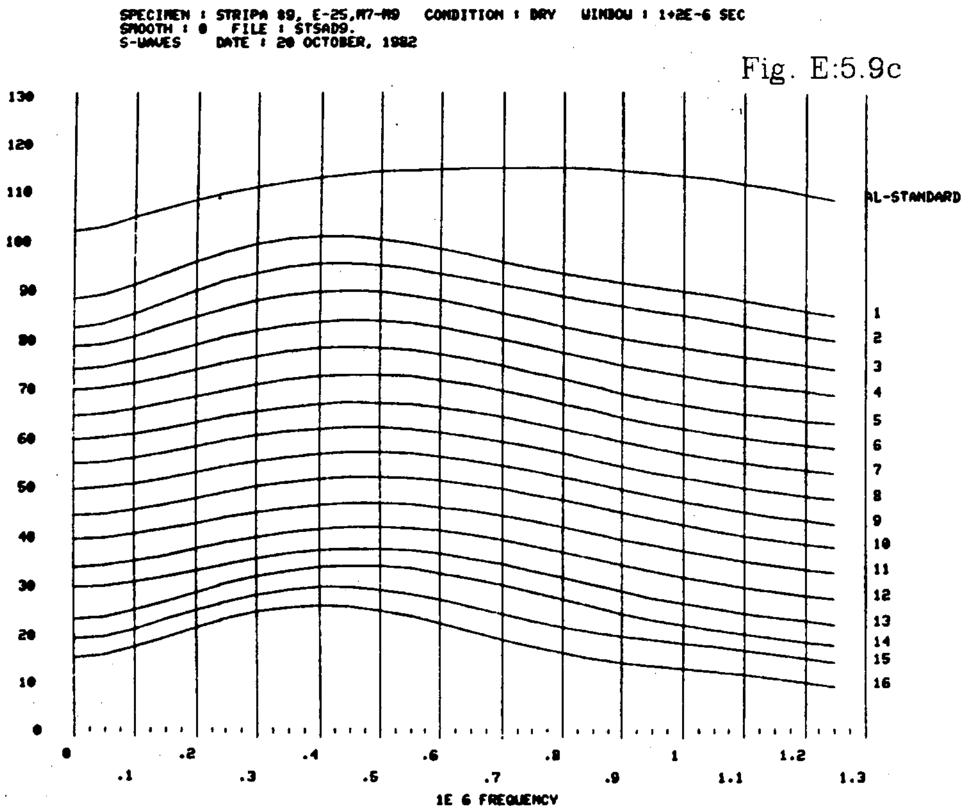


Fig. E:5.9c

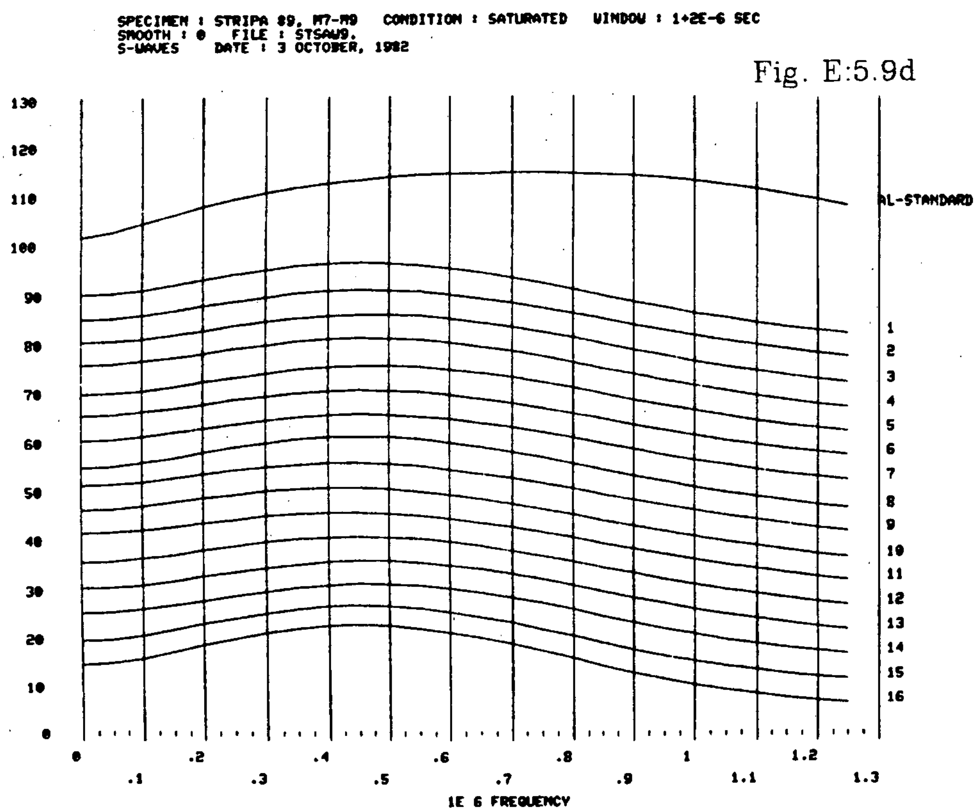
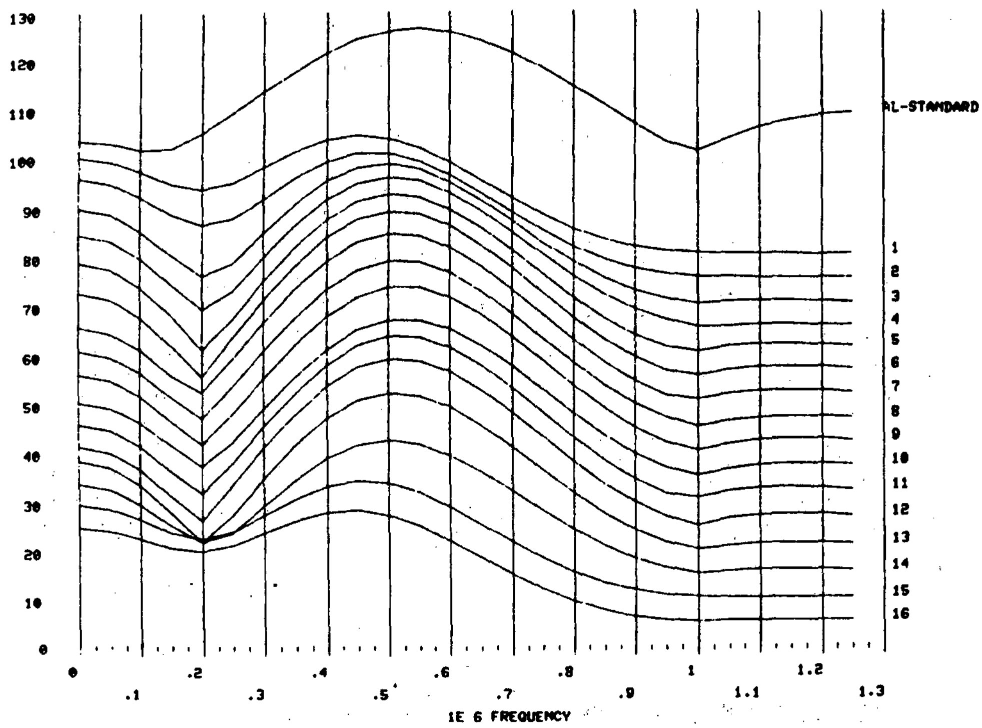


Fig. E:5.9d

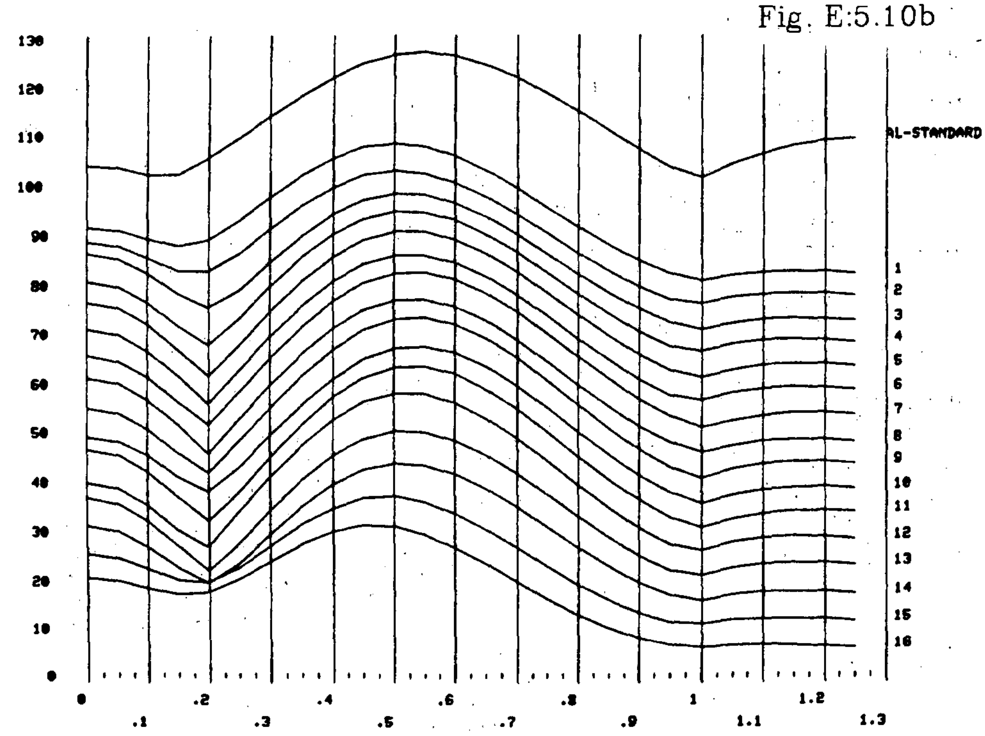
SPECIMEN : STRIPA 810 CONDITION : DRY WINDOW : 4E-6
SMOOTH : 0 FILE : SPAD10.
P-WAVES DATE : 21 SEPTEMBER, 1982

Fig. E:5.10a



SPECIMEN : STRIPA 810, M7-M9 CONDITION : SATURATED WINDOW : 4EE-6
SMOOTH : 0 FILE : SPAW10.
P-WAVES DATE : 3 OCTOBER, 1982

Fig. E:5.10b



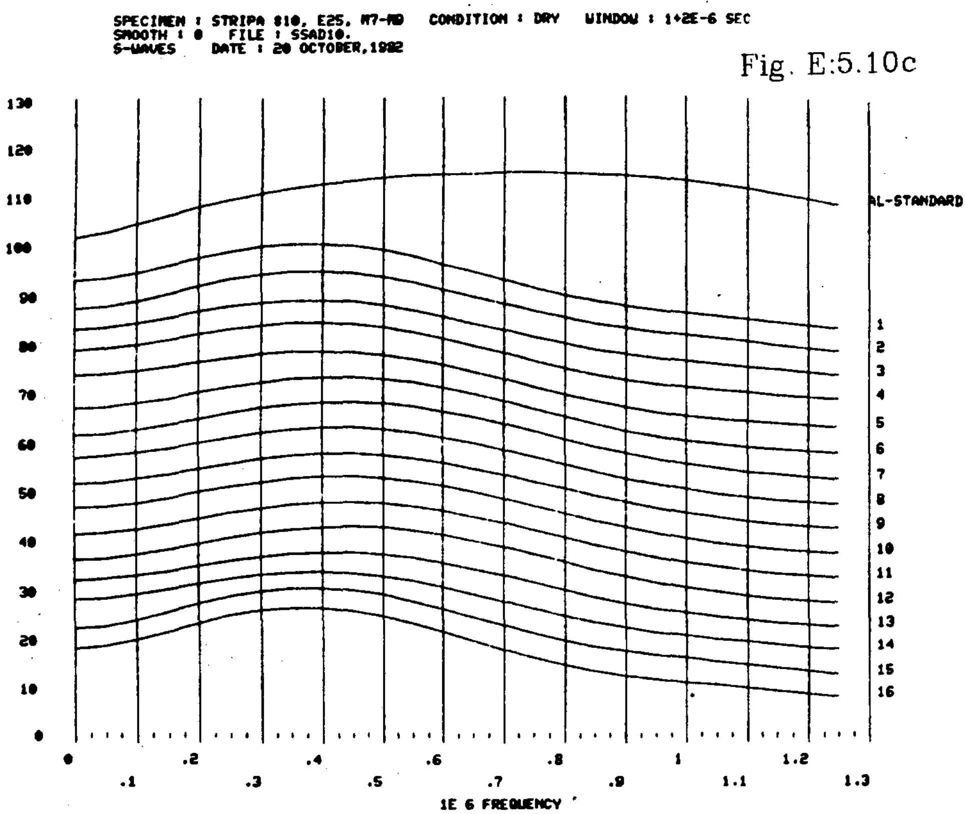


Fig. E:5.10c

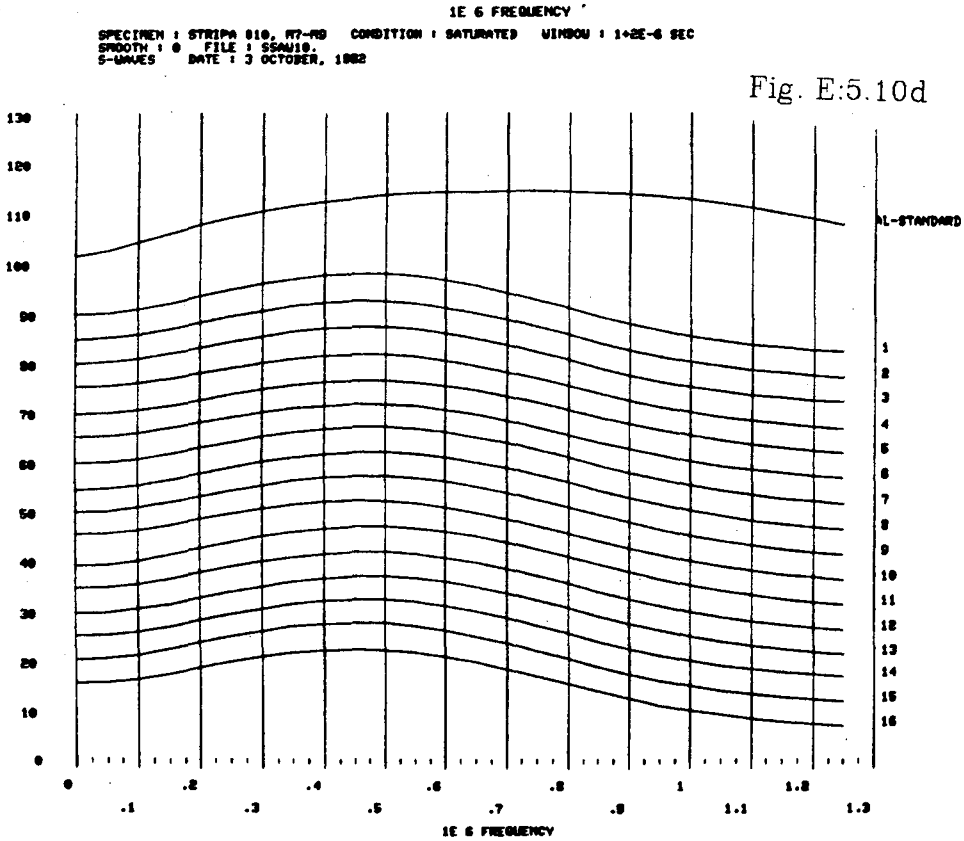
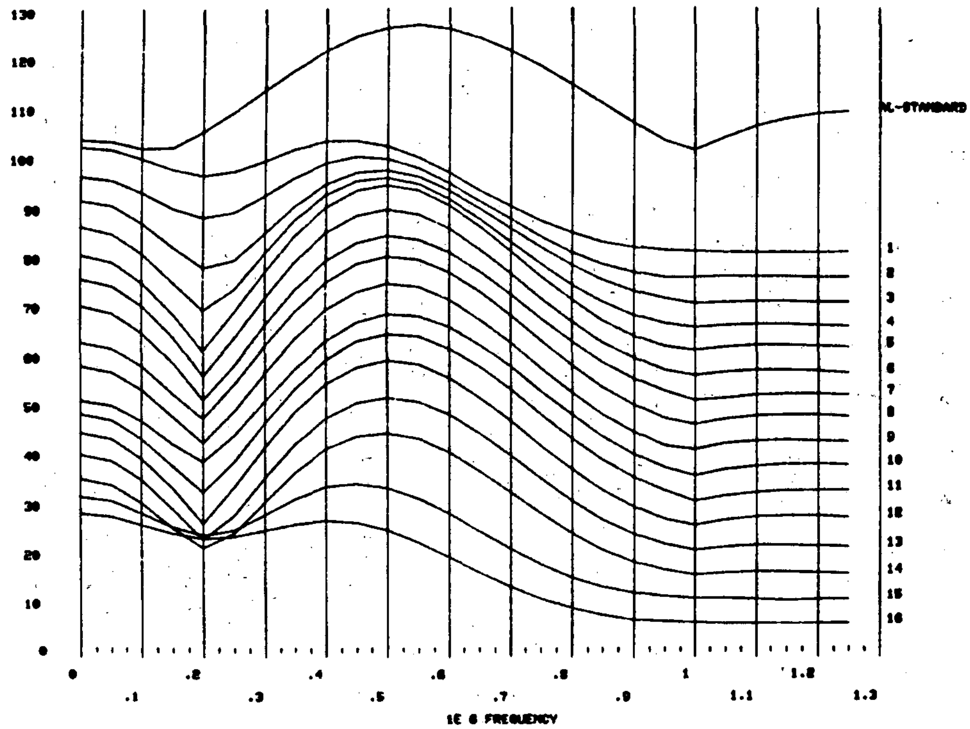


Fig. E:5.10d

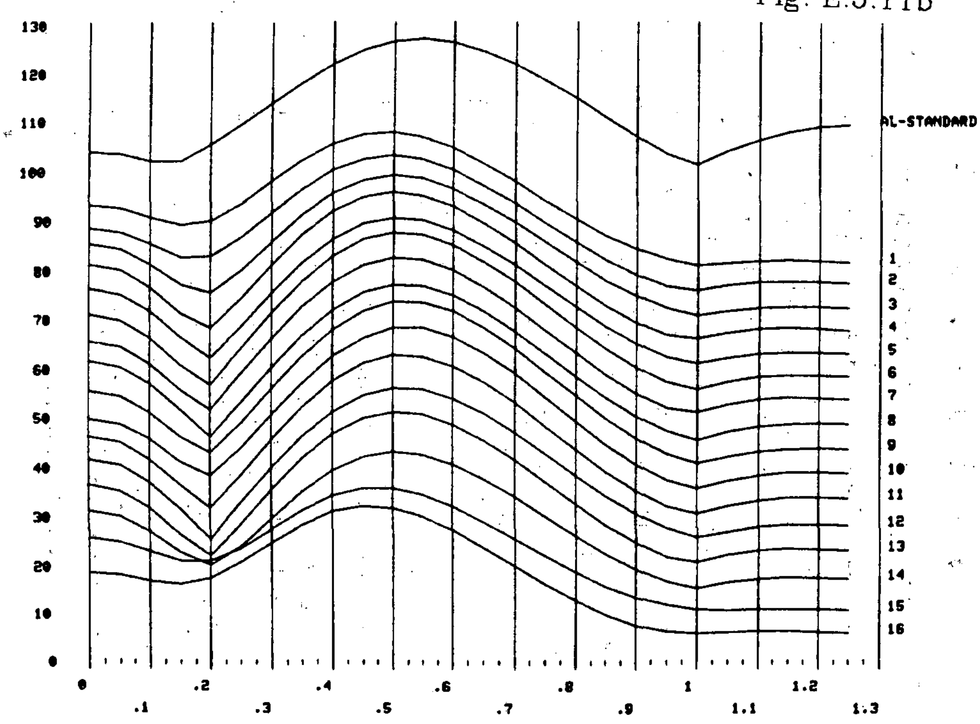
SPECIMEN : STRIPA 811, M7-M9 CONDITION : DRY WINDOW : 4E-6
SMOOTH : 0 FILE : SPAD11.
P-WAVES DATE : 21 SEPTEMBER, 1982

Fig. E:5.11a



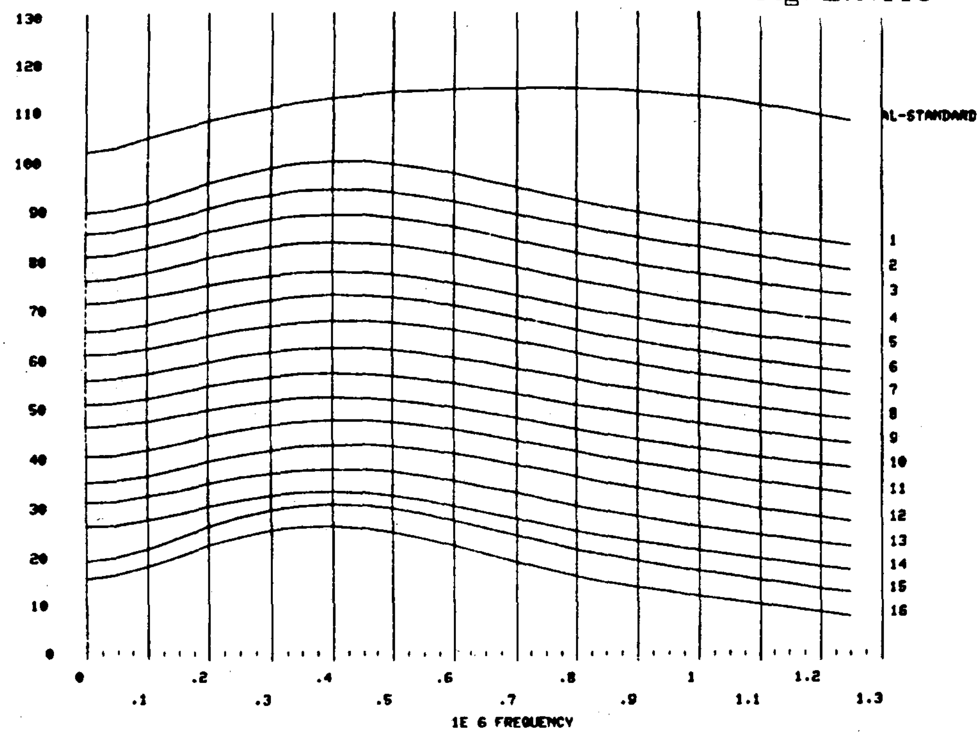
SPECIMEN : STRIPA 811, M7-M9 CONDITION : SATURATED WINDOW : 4E-6
SMOOTH : 0 FILE : SPAW11.
P-WAVES DATE : 3 OCTOBER, 1982

Fig. E:5.11b



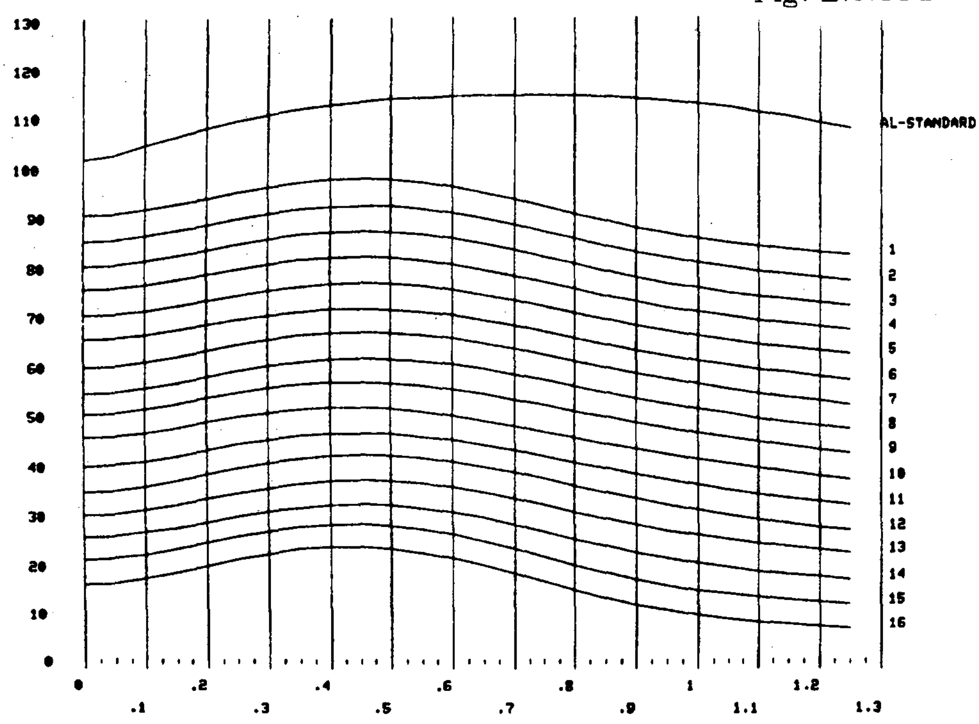
SPECIMEN : STRIPA 811, M7-M9 CONDITION : DRY WINDOW : 1+2E-6 AT CROSSOVER
SMOOTH : 0 FILE : SSAD11.
S-WAVES DATE : 23 SEPTEMBER, 1982

Fig. E:5.11c



SPECIMEN : STRIPA 811, M7-M9 CONDITION : SATURATED WINDOW : 1+2E-6 SEC
SMOOTH : 0 FILE : SSAW11.
S-WAVES DATE : 3 OCTOBER, 1982

Fig. E:5.11d



Appendix E:6 - Q_α and Q_β from laboratory test of Stripa core specimen.

In this appendix the Q_α and Q_β are graphed as function of σ_{ua} for 11 core specimens both under a saturated as well as dry state.

Figure captions for Appendix E:6

Fig. E:6.1a Q_α as function of uniaxial stress for the dry specimen # 1

Fig. E:6.1b Q_α as function of uniaxial stress for the saturated specimen # 1

Fig. E:6.1c Q_β as function of uniaxial stress for the dry specimen # 1

Fig. E:6.1d Q_β as function of uniaxial stress for the saturated specimen # 1

Fig. E:6.2a Q_α as function of uniaxial stress for the dry specimen # 2

Fig. E:6.2b Q_α as function of uniaxial stress for the saturated specimen # 2

Fig. E:6.2c Q_β as function of uniaxial stress for the dry specimen # 2

Fig. E:6.2d Q_β as function of uniaxial stress for the saturated specimen # 2

Fig. E:6.3a Q_α as function of uniaxial stress for the dry specimen # 3

Fig. E:6.3b Q_α as function of uniaxial stress for the saturated specimen # 3

Fig. E:6.3c Q_β as function of uniaxial stress for the dry specimen # 3

Fig. E:6.3d Q_β as function of uniaxial stress for the saturated specimen # 3

Fig. E:6.4a Q_α as function of uniaxial stress for the dry specimen # 4

Fig. E:6.4b Q_α as function of uniaxial stress for the saturated specimen # 4

Fig. E:6.4c Q_β as function of uniaxial stress for the dry specimen # 4

Fig. E:6.4d Q_β as function of uniaxial stress for the saturated specimen # 4

Fig. E:6.5a Q_α as function of uniaxial stress for the dry specimen # 5

Fig. E:6.5b Q_α as function of uniaxial stress for the saturated specimen # 5

Fig. E:6.5c Q_β as function of uniaxial stress for the dry specimen # 5

Fig. E:6.5d Q_β as function of uniaxial stress for the saturated specimen # 5

Fig. E:6.6a Q_α as function of uniaxial stress for the dry specimen # 6

Fig. E:6.6b Q_α as function of uniaxial stress for the saturated specimen # 6

Fig. E:6.6c Q_β as function of uniaxial stress for the dry specimen # 6

Fig. E:6.6d Q_β as function of uniaxial stress for the saturated specimen # 6

Fig. E:6.7a Q_α as function of uniaxial stress for the dry specimen # 7

Fig. E:6.7b Q_α as function of uniaxial stress for the saturated specimen # 7

Fig. E:6.7c Q_β as function of uniaxial stress for the dry specimen # 7

Fig. E:6.7d Q_β as function of uniaxial stress for the saturated specimen # 7

Fig. E:6.8a Q_α as function of uniaxial stress for the dry specimen # 8

Fig. E:6.8b Q_α as function of uniaxial stress for the saturated specimen # 8

Fig. E:6.8c Q_β as function of uniaxial stress for the dry specimen # 8

Fig. E:6.8d Q_β as function of uniaxial stress for the saturated specimen # 8

Fig. E:6.9a Q_α as function of uniaxial stress for the dry specimen # 9

Fig. E:6.9b Q_α as functionof uniaxial stress for the saturated specimen # 9

Fig. E:6.9c Q_β as function of uniaxial stress for the dry specimen # 9

Fig. E:6.9d Q_β as function of uniaxial stress for the saturated specimen # 9

Fig. E:6.10a Q_α as function of uniaxial stress for the dry specimen # 10

Fig. E:6.10b Q_α as function of uniaxial stress for the saturated specimen # 10

Fig. E:6.10c Q_β as function of uniaxial stress for the dry specimen # 10

Fig. E:6.10d Q_β as function of uniaxial stress for the saturated specimen # 10

Fig. E:6.11a Q_α as function of uniaxial stress for the dry specimen # 11

Fig. E:6.11b Q_α as function of uniaxial stress for the saturated specimen # 11

Fig. E:6.11c Q_β as function of uniaxial stress for the dry specimen # 11

Fig. E:6.11d Q_β as function of uniaxial stress for the saturated specimen # 11

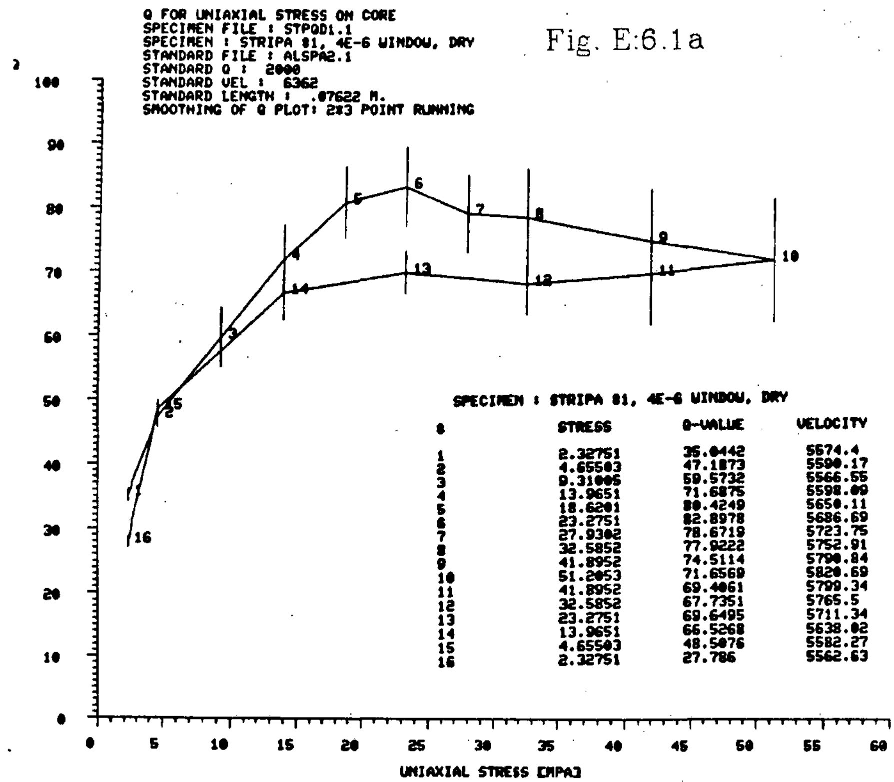


Fig. E:6.1a

SPECIMEN : STRIPA #1, 4E-6 WINDOW, DRY

#	STRESS	Q-VALUE	VELOCITY
1	2.32751	35.0442	5574.4
2	4.65503	47.1873	5590.17
3	9.31005	59.5732	5566.55
4	13.9651	71.6875	5598.09
5	18.6201	80.4249	5650.11
6	23.2751	82.8978	5686.69
7	27.9302	78.6719	5723.75
8	32.5852	77.9222	5752.91
9	41.8952	74.5114	5790.84
10	51.2053	71.6569	5820.69
11	41.8952	69.4061	5799.34
12	32.5852	67.7351	5765.5
13	23.2751	69.6495	5711.34
14	13.9651	66.5268	5638.02
15	4.65503	48.5076	5582.27
16	2.32751	27.786	5562.63

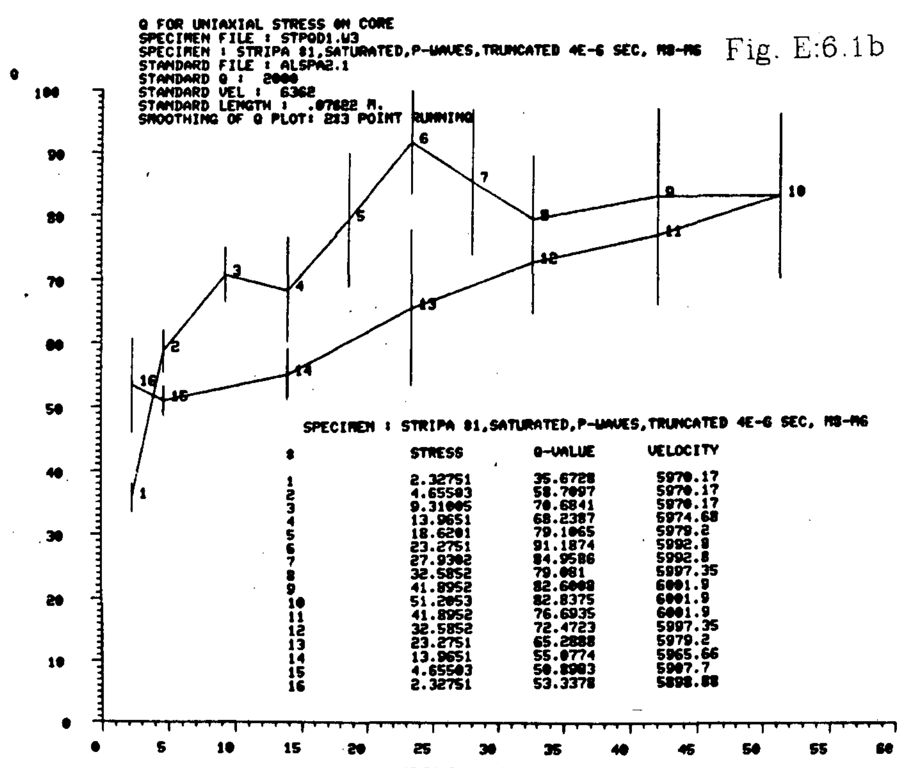


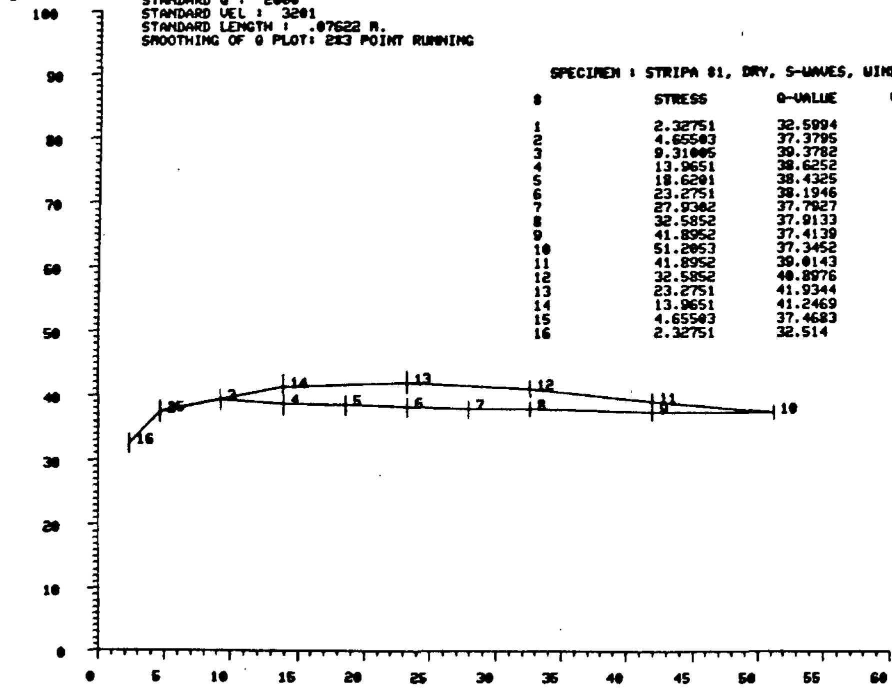
Fig. E:6.1b

SPECIMEN : STRIPA #1,SATURATED,P-WAVES,TRUNCATED 4E-6 SEC, M8-M6

#	STRESS	Q-VALUE	VELOCITY
1	2.32751	35.6728	5970.17
2	4.65503	58.7097	5970.17
3	9.31005	70.6841	5970.17
4	13.9651	68.2387	5974.68
5	18.6201	79.1065	5979.2
6	23.2751	91.1874	5992.8
7	27.9302	84.9586	5992.8
8	32.5852	79.081	5997.35
9	41.8952	82.6008	6001.9
10	51.2053	82.8375	6001.9
11	41.8952	76.6935	6001.9
12	32.5852	72.4723	5997.35
13	23.2751	65.2888	5979.2
14	13.9651	55.0774	5965.66
15	4.65503	50.8983	5907.7
16	2.32751	53.3378	5898.88

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQD1.3
SPECIMEN : STRIPA #1, DRY, S-WAVES, WINDOW 1+2E-6
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2X3 POINT RUNNING

Fig. E:6.1c

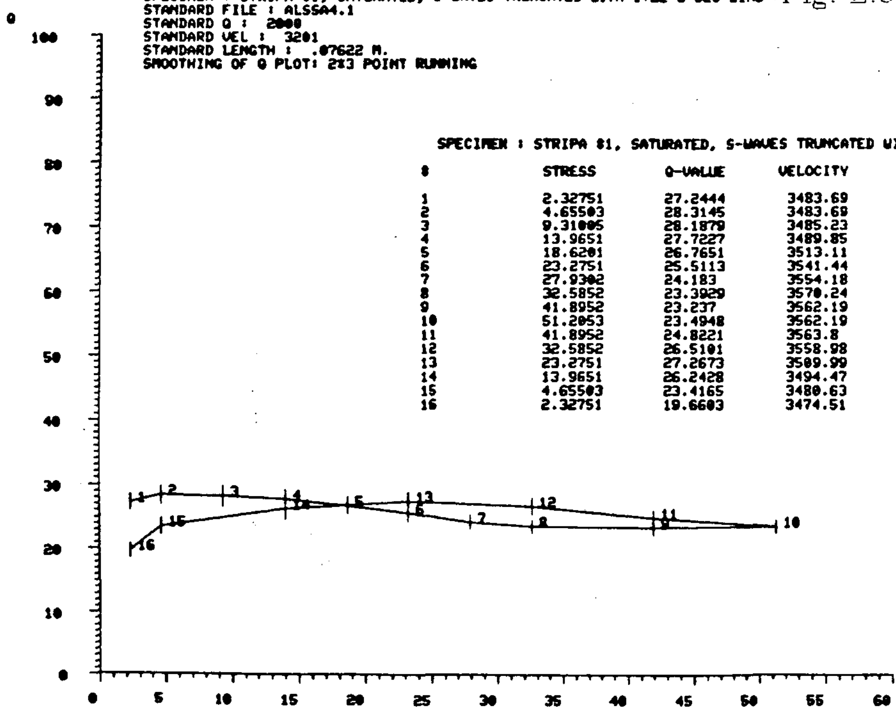


SPECIMEN : STRIPA #1, DRY, S-WAVES, WINDOW 1+2E-6

#	STRESS	Q-VALUE	VELOCITY
1	2.32751	32.5994	3346.53
2	4.65503	37.3795	3347.95
3	9.31005	39.3782	3353.63
4	13.9651	38.6252	3357.9
5	18.6201	38.4325	3377.99
6	23.2751	38.1946	3395.4
7	27.9302	37.7927	3415.95
8	32.5852	37.8133	3432.26
9	41.8952	37.4139	3456.27
10	51.2053	37.3452	3476.03
11	41.8952	39.0143	3460.81
12	32.5852	40.8976	3439.73
13	23.2751	41.9344	3401.25
14	13.9651	41.2469	3360.76
15	4.65503	37.4683	3350.78
16	2.32751	32.514	3345.11

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQU1.3
SPECIMEN : STRIPA #1, SATURATED, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2X3 POINT RUNNING

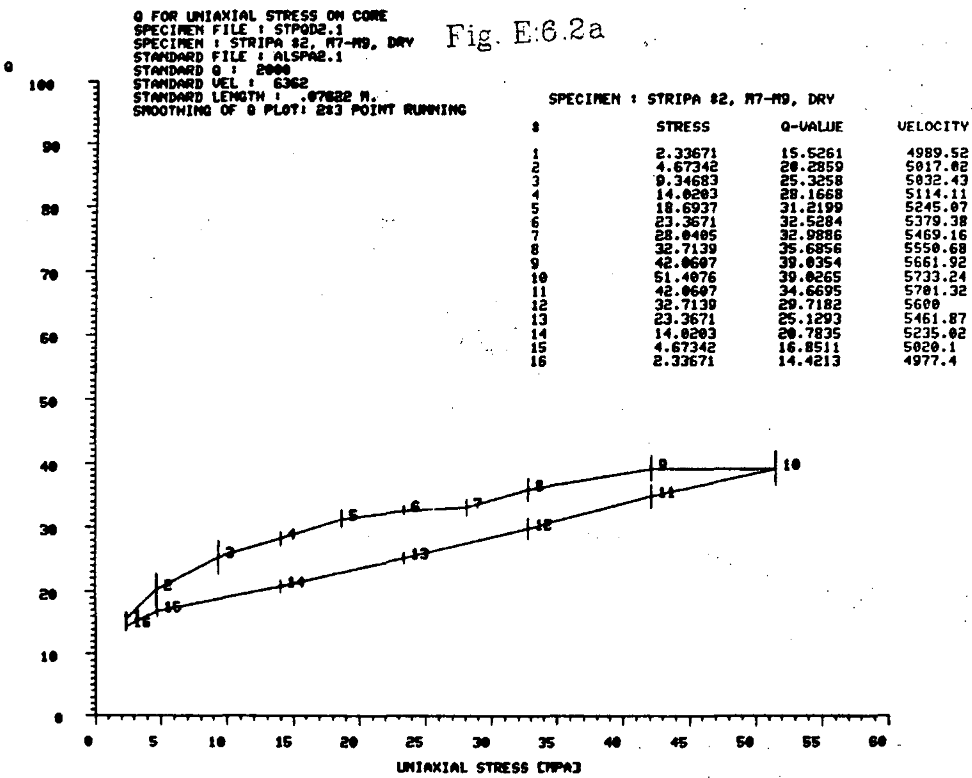
Fig. E:6.1d



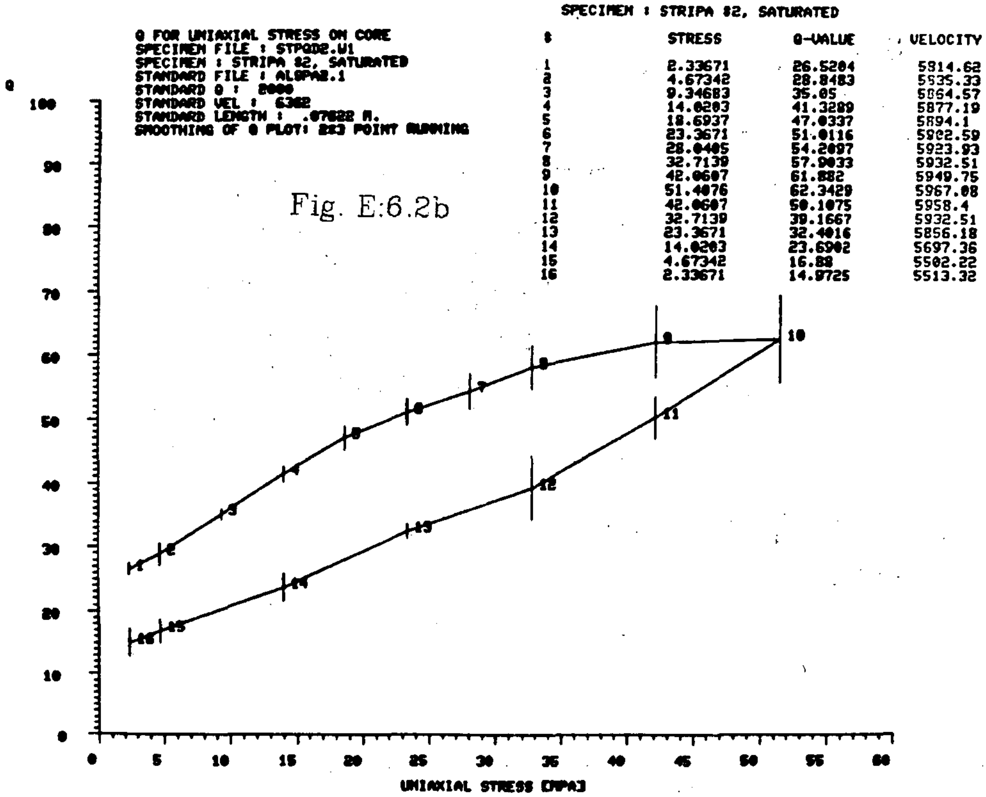
SPECIMEN : STRIPA #1, SATURATED, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND

#	STRESS	Q-VALUE	VELOCITY
1	2.32751	27.2444	3483.69
2	4.65503	28.3145	3483.69
3	9.31005	28.1879	3485.23
4	13.9651	27.7227	3489.85
5	18.6201	26.7651	3513.11
6	23.2751	25.5113	3541.44
7	27.9302	24.183	3554.18
8	32.5852	23.3929	3570.24
9	41.8952	23.237	3562.19
10	51.2053	23.4948	3562.19
11	41.8952	24.8221	3563.8
12	32.5852	26.5101	3558.98
13	23.2751	27.2673	3509.99
14	13.9651	26.2428	3494.47
15	4.65503	23.4165	3480.63
16	2.32751	19.6603	3474.51

Fig. E:6.2a



#	STRESS	Q-VALUE	VELOCITY
1	2.33671	15.5261	4989.52
2	4.67342	20.2859	5017.02
3	9.34683	25.3258	5032.43
4	14.0203	28.1668	5114.11
5	18.6937	31.2199	5245.07
6	23.3671	32.5284	5379.38
7	28.0405	32.9886	5469.16
8	32.7139	35.6856	5550.68
9	42.0607	39.0354	5661.92
10	51.4076	39.0265	5733.24
11	42.0607	34.6695	5701.32
12	32.7139	29.7182	5600
13	23.3671	25.1293	5461.87
14	14.0203	20.7835	5235.02
15	4.67342	16.8511	5020.1
16	2.33671	14.4213	4977.4

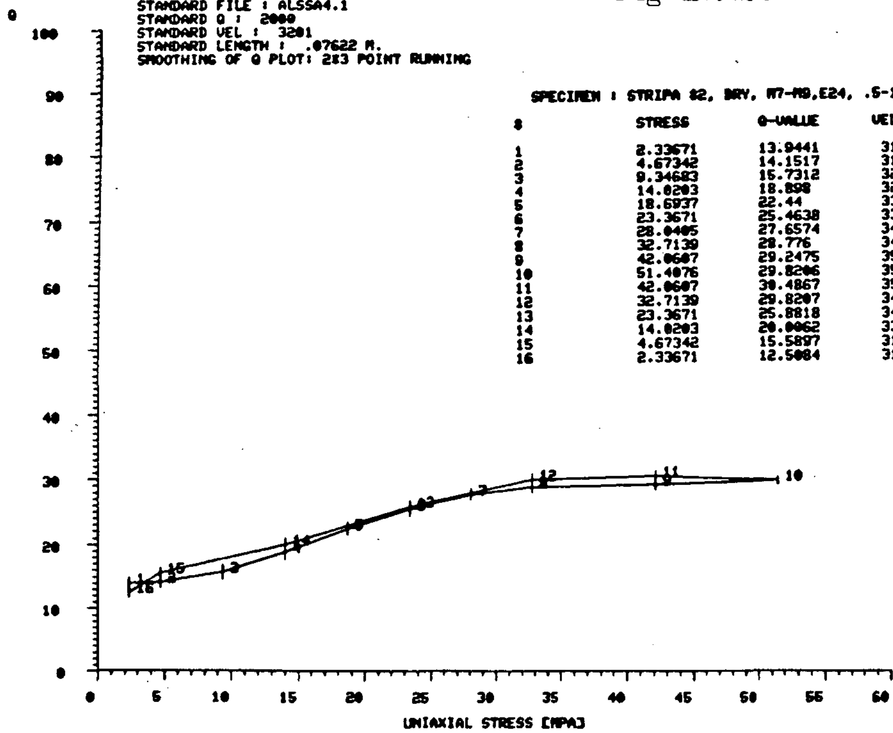


#	STRESS	Q-VALUE	VELOCITY
1	2.33671	26.5204	5314.62
2	4.67342	28.8483	5535.33
3	9.34683	35.05	5864.57
4	14.0203	41.3289	5877.19
5	18.6937	47.0337	5894.1
6	23.3671	51.0116	5902.59
7	28.0405	54.2097	5923.93
8	32.7139	57.9033	5932.51
9	42.0607	61.882	5949.75
10	51.4076	62.3429	5967.08
11	42.0607	50.1075	5958.4
12	32.7139	39.1667	5932.51
13	23.3671	32.4016	5856.18
14	14.0203	23.6902	5697.36
15	4.67342	16.88	5502.22
16	2.33671	14.9725	5513.32

Fig. E:6.2b

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQD2.3
SPECIMEN : STRIPA #2, DRY, M7-M9,E24, .5-1.0 MHZ,
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

Fig. E:6.2c

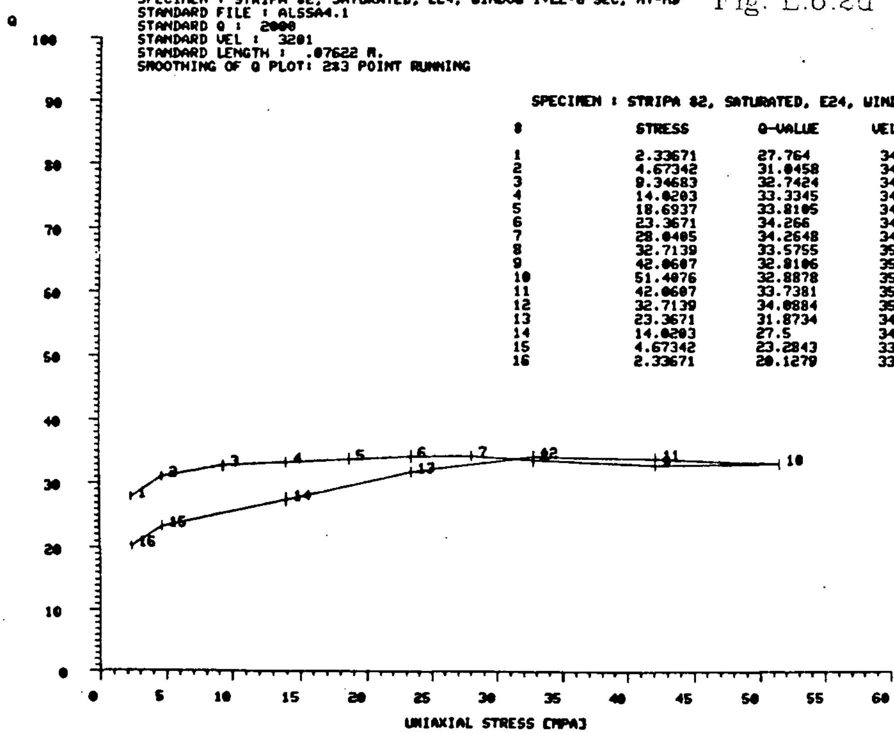


SPECIMEN : STRIPA #2, DRY, M7-M9,E24, .5-1.0 MHZ.

#	STRESS	Q-VALUE	VELOCITY
1	2.33671	13.9441	3180.43
2	4.67342	14.1517	3189.1
3	9.34683	15.7312	3217.91
4	14.0203	18.898	3264.06
5	18.6937	22.44	3325
6	23.3671	25.4638	3378.47
7	28.0405	27.6574	3419.37
8	32.7139	28.776	3458.34
9	42.0607	29.2475	3511.7
10	51.4076	29.8206	3542.07
11	42.0607	30.4867	3522.27
12	32.7139	29.8207	3480.37
13	23.3671	25.8818	3405.15
14	14.0203	20.0062	3303.55
15	4.67342	15.5897	3189.1
16	2.33671	12.5084	3174.27

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQW2.3
SPECIMEN : STRIPA #2, SATURATED, E24, WINDOW 1+2E-6 SEC, M7-M9
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

Fig. E:6.2d



SPECIMEN : STRIPA #2, SATURATED, E24, WINDOW 1+2E-6 SEC, M7-M9

#	STRESS	Q-VALUE	VELOCITY
1	2.33671	27.764	3423.65
2	4.67342	31.0458	3422.22
3	9.34683	32.7424	3430.82
4	14.0203	33.3345	3439.46
5	18.6937	33.8105	3462.72
6	23.3671	34.266	3480.37
7	28.0405	34.2648	3490.75
8	32.7139	33.5755	3514.71
9	42.0607	32.8106	3542.07
10	51.4076	32.8878	3571.4
11	42.0607	33.7381	3551.28
12	32.7139	34.0884	3516.22
13	23.3671	31.8734	3486.3
14	14.0203	27.5	3440.91
15	4.67342	23.2843	3359.08
16	2.33671	20.1279	3359.08

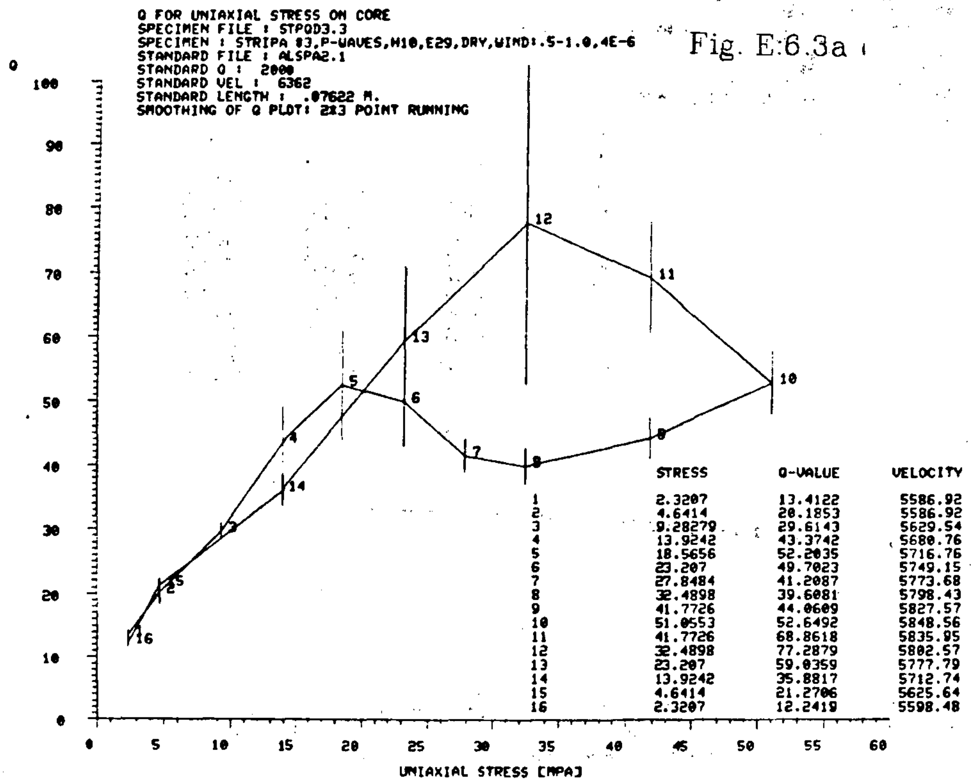


Fig. E:6.3a

	STRESS	Q-VALUE	VELOCITY
1	2.3207	13.4122	5586.92
2	4.6414	20.1853	5586.92
3	9.28279	29.6143	5629.54
4	13.9242	43.3742	5680.76
5	18.5656	52.2035	5716.76
6	23.207	49.7023	5749.15
7	27.8484	41.2087	5773.68
8	32.4898	39.6081	5798.43
9	41.7726	44.0609	5827.57
10	51.0553	52.6492	5848.56
11	41.7726	68.8618	5835.95
12	32.4898	77.2879	5802.57
13	23.207	59.0359	5777.79
14	13.9242	35.8817	5712.74
15	4.6414	21.2706	5625.64
16	2.3207	12.2419	5598.48

8	STRESS	Q-VALUE	VELOCITY
1	2.3207	29.1797	5865.46
2	4.6414	35.7219	5891
3	9.28279	43.2898	5921.08
4	13.9242	46.2008	5934.06
5	18.5656	46.1736	5942.75
6	23.207	47.5223	5947.11
7	27.8484	53.5949	5955.83
8	32.4898	62.2204	5960.21
9	41.7726	65.7252	5964.58
10	51.0553	53.934	5968.97
11	41.7726	44.0076	5968.97
12	32.4898	44.6555	5955.83
13	23.207	46.1874	5951.47
14	13.9242	42.9844	5934.06
15	4.6414	36.2729	5882.46
16	2.3207	29.0093	5865.46

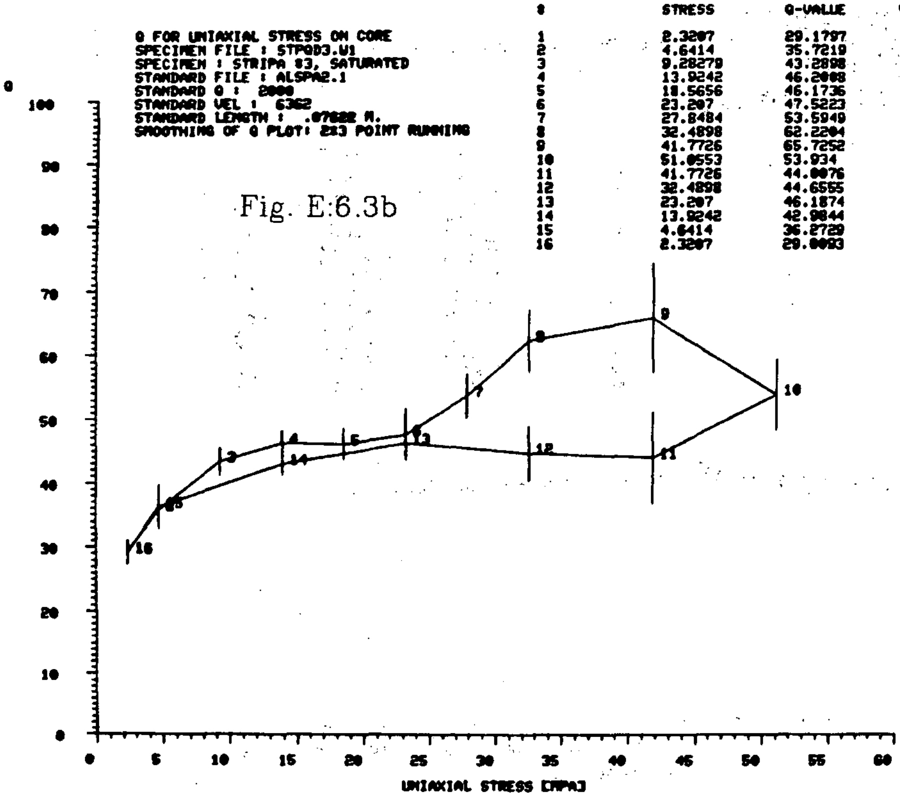


Fig. E:6.3b

Fig. E:6.3c

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQD3.3
SPECIMEN : STRIPA 83, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND, E29/H10, 821019
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2x3 POINT RUNNING

#	STRESS	Q-VALUE	VELOCITY
1	2.3207	19.9125	3307.99
2	4.6414	22.556	3318.81
3	9.28279	24.3006	3354.46
4	13.9242	25.6082	3373.98
5	18.5656	26.6142	3392.31
6	23.207	27.1302	3416.58
7	27.8484	27.8312	3429.57
8	32.4898	29.1918	3444.12
9	41.7726	31.0883	3461.75
10	51.0553	31.8939	3470.63
11	41.7726	31.0545	3460.27
12	32.4898	29.7808	3444.12
13	23.207	27.9201	3413.71
14	13.9242	25.0501	3371.18
15	4.6414	22.0924	3332.43
16	2.3207	19.8571	3313.39

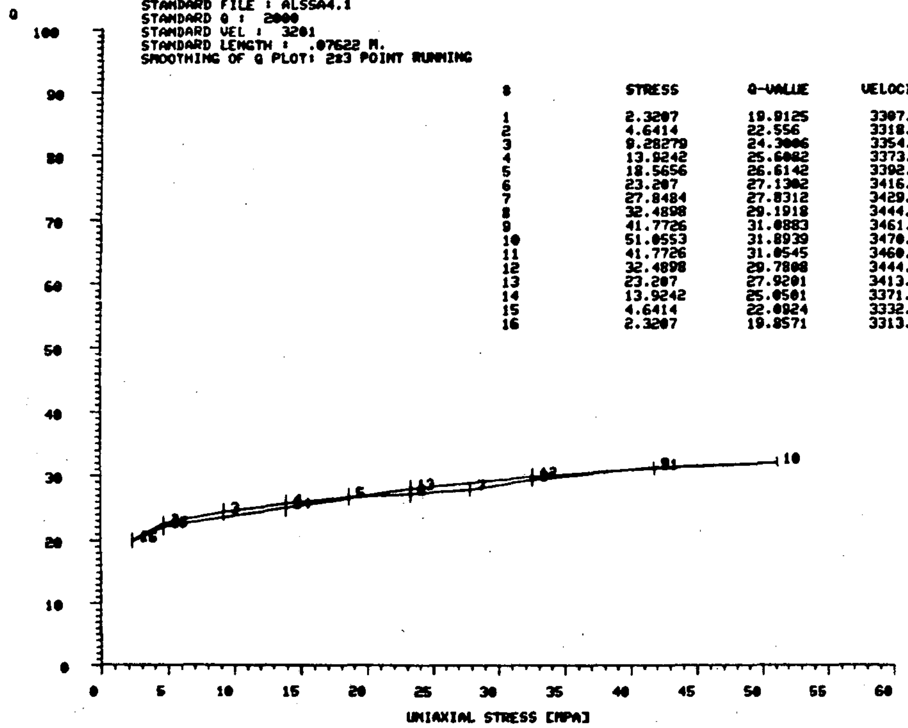
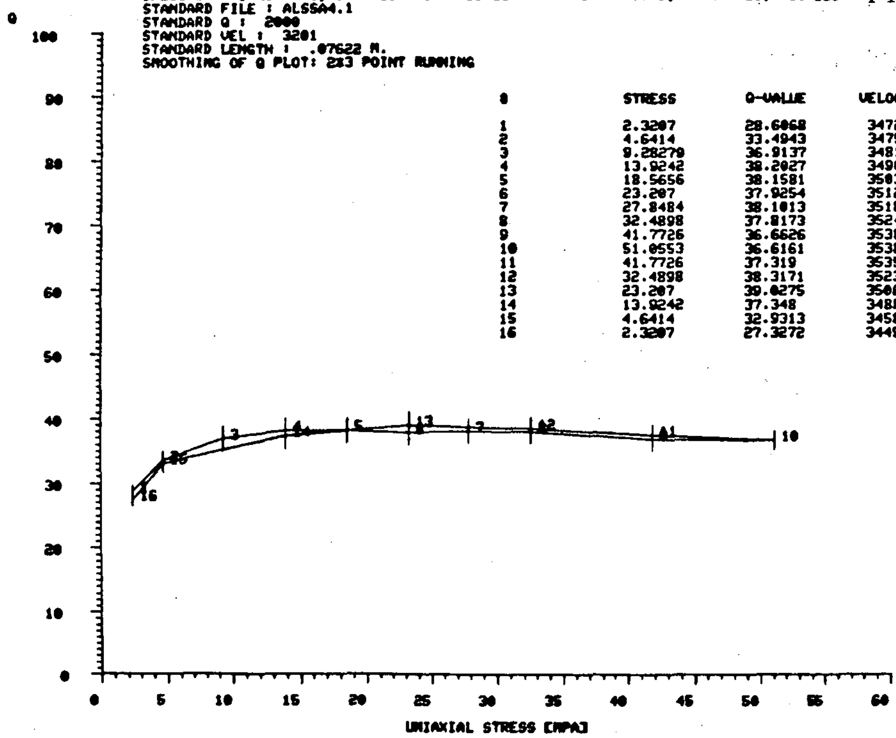
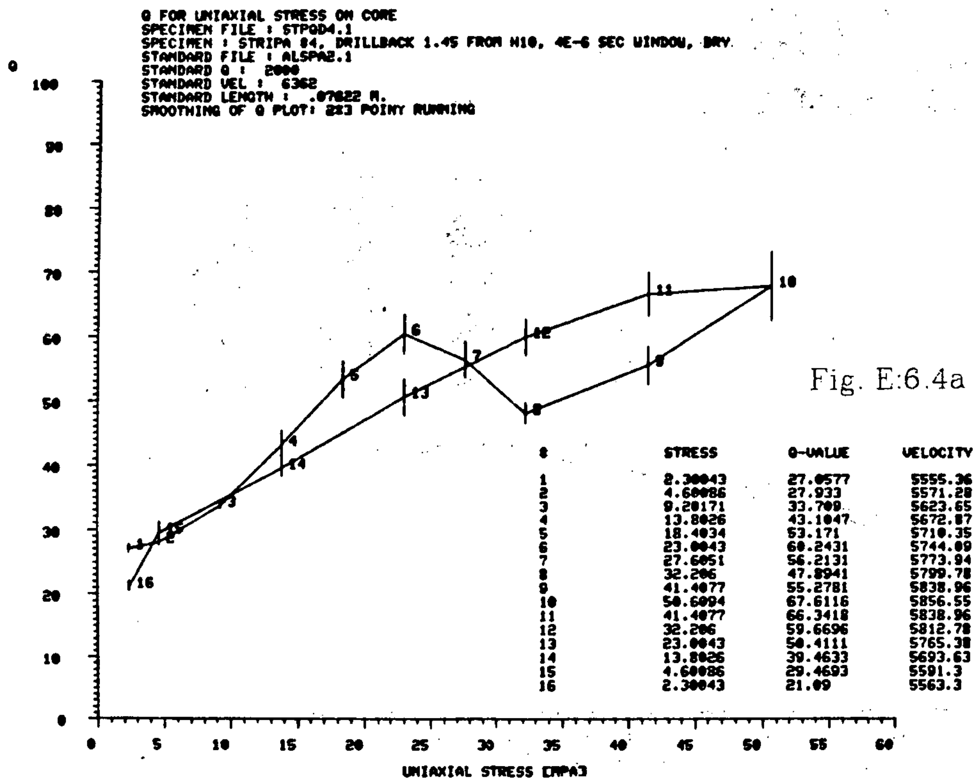


Fig. E:6.3d

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQD3.3
SPECIMEN : STRIPA 83, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND, SATURATED, H10/E29
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2x3 POINT RUNNING

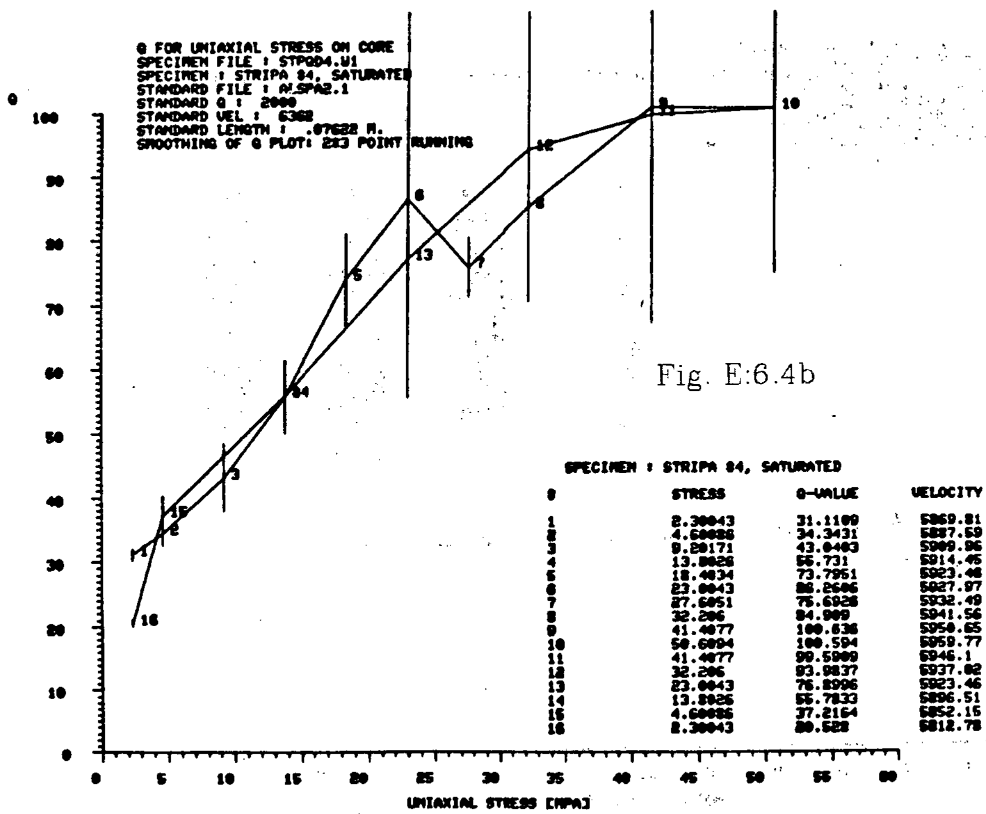
#	STRESS	Q-VALUE	VELOCITY
1	2.3207	28.6068	3472.11
2	4.6414	33.4943	3475.09
3	9.28279	36.9137	3481.05
4	13.9242	38.2027	3490.03
5	18.5656	38.1581	3503.58
6	23.207	37.9254	3512.68
7	27.8484	38.1013	3518.77
8	32.4898	37.8173	3524.88
9	41.7726	36.6626	3538.71
10	51.0553	36.6161	3538.71
11	41.7726	37.319	3535.63
12	32.4898	38.3171	3523.35
13	23.207	39.0275	3506.61
14	13.9242	37.348	3488.53
15	4.6414	32.9313	3458.8
16	2.3207	27.3272	3449.98





#	STRESS	Q-VALUE	VELOCITY
1	2.30043	27.0577	5555.36
2	4.60086	27.933	5571.28
3	9.20171	33.709	5623.65
4	13.8026	43.1047	5672.87
5	18.4034	53.171	5710.35
6	23.0043	60.2431	5744.09
7	27.6051	56.2131	5773.94
8	32.206	47.8941	5799.78
9	41.4077	55.2781	5838.96
10	50.6094	67.6116	5856.55
11	41.4077	66.3418	5838.96
12	32.206	59.6696	5812.78
13	23.0043	50.4111	5765.38
14	13.8026	39.4633	5693.63
15	4.60086	29.4693	5591.3
16	2.30043	21.09	5563.3

Fig. E:6.4a



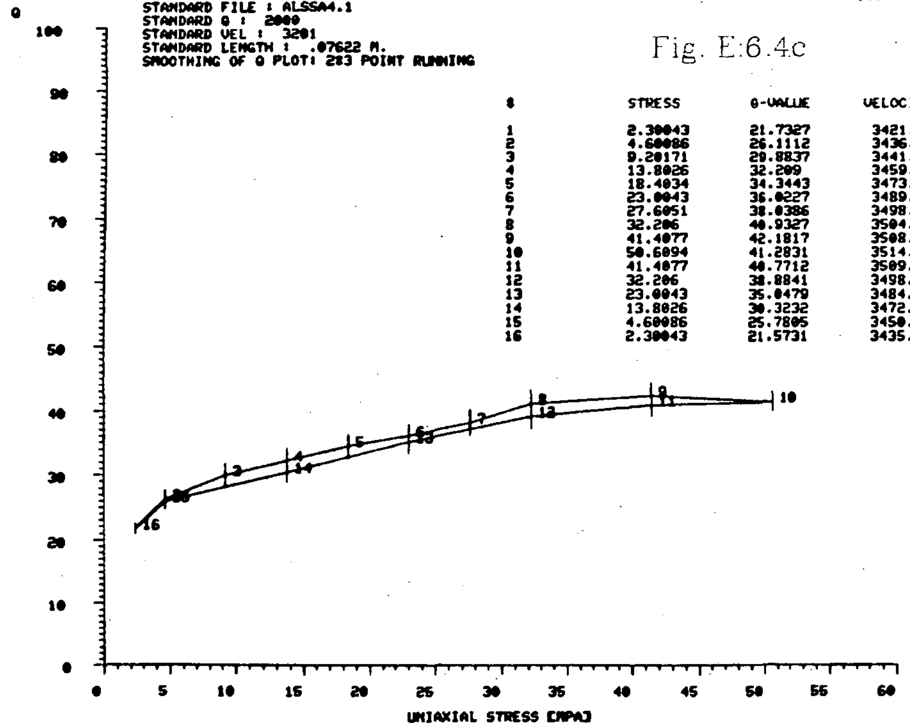
SPECIMEN : STRIPA 84, SATURATED

#	STRESS	Q-VALUE	VELOCITY
1	2.30043	31.1109	5869.81
2	4.60086	34.3431	5887.59
3	9.20171	43.0403	5909.06
4	13.8026	56.731	5914.45
5	18.4034	73.7951	5923.48
6	23.0043	86.2606	5927.97
7	27.6051	75.6928	5932.49
8	32.206	84.909	5941.56
9	41.4077	100.636	5950.65
10	50.6094	100.594	5959.77
11	41.4077	99.5909	5946.1
12	32.206	93.9837	5937.02
13	23.0043	76.8996	5923.46
14	13.8026	55.7833	5896.51
15	4.60086	37.2164	5852.15
16	2.30043	20.528	5812.78

Fig. E:6.4b

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQD4.3
SPECIMEN : STRIPA 84, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND, DBEX-1 1.45 FROM H10,130 C
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

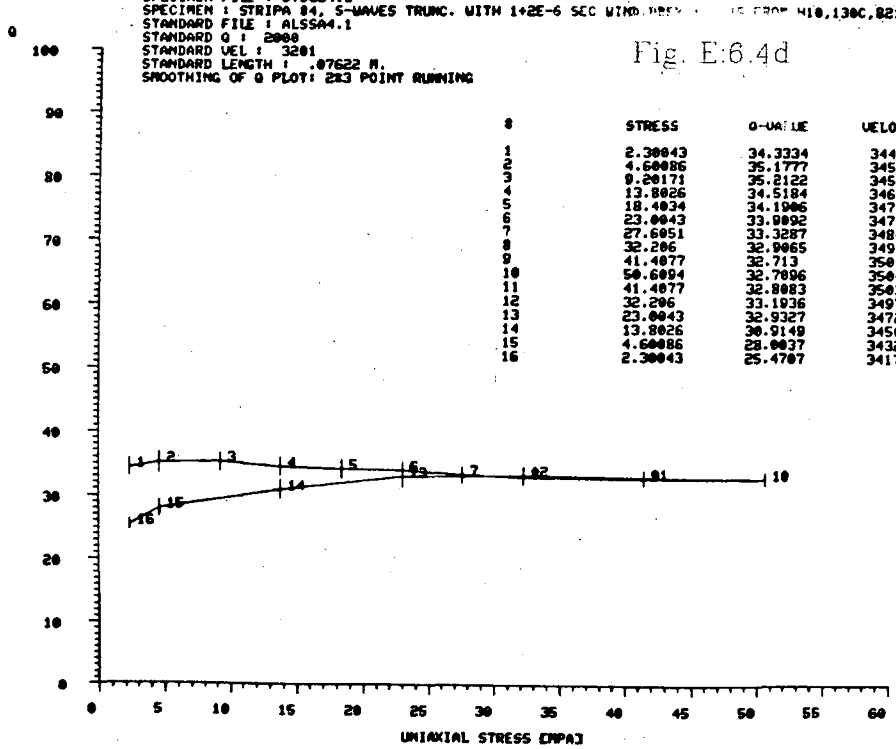
Fig. E:6.4c



#	STRESS	Q-VALUE	VELOCITY
1	2.30043	21.7327	3421.69
2	4.60086	26.1112	3436.81
3	9.20171	29.8837	3441.37
4	13.8026	32.209	3459.74
5	18.4034	34.3443	3473.65
6	23.0043	36.0227	3489.23
7	27.6051	38.0386	3498.65
8	32.206	40.9327	3504.96
9	41.4077	42.1817	3508.12
10	50.6094	41.2831	3514.46
11	41.4077	40.7712	3509.7
12	32.206	38.8841	3498.65
13	23.0043	35.0479	3484.54
14	13.8026	30.3232	3472.1
15	4.60086	25.7805	3450.53
16	2.30043	21.5731	3435.29

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQW4.3
SPECIMEN : STRIPA 84, S-WAVES TRUNC. WITH 1+2E-6 SEC WIND.DBEX ... FROM H10,130C,821020
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

Fig. E:6.4d



#	STRESS	Q-VALUE	VELOCITY
1	2.30043	34.3334	3449
2	4.60086	35.1777	3452.06
3	9.20171	35.2122	3456.67
4	13.8026	34.5184	3465.91
5	18.4034	34.1906	3473.65
6	23.0043	33.9092	3478.31
7	27.6051	33.3287	3484.54
8	32.206	32.9065	3493.94
9	41.4077	32.713	3503.38
10	50.6094	32.7096	3504.96
11	41.4077	32.8083	3503.38
12	32.206	33.1936	3497.08
13	23.0043	32.9327	3472.1
14	13.8026	30.9149	3450.53
15	4.60086	28.0037	3432.26
16	2.30043	25.4707	3417.18

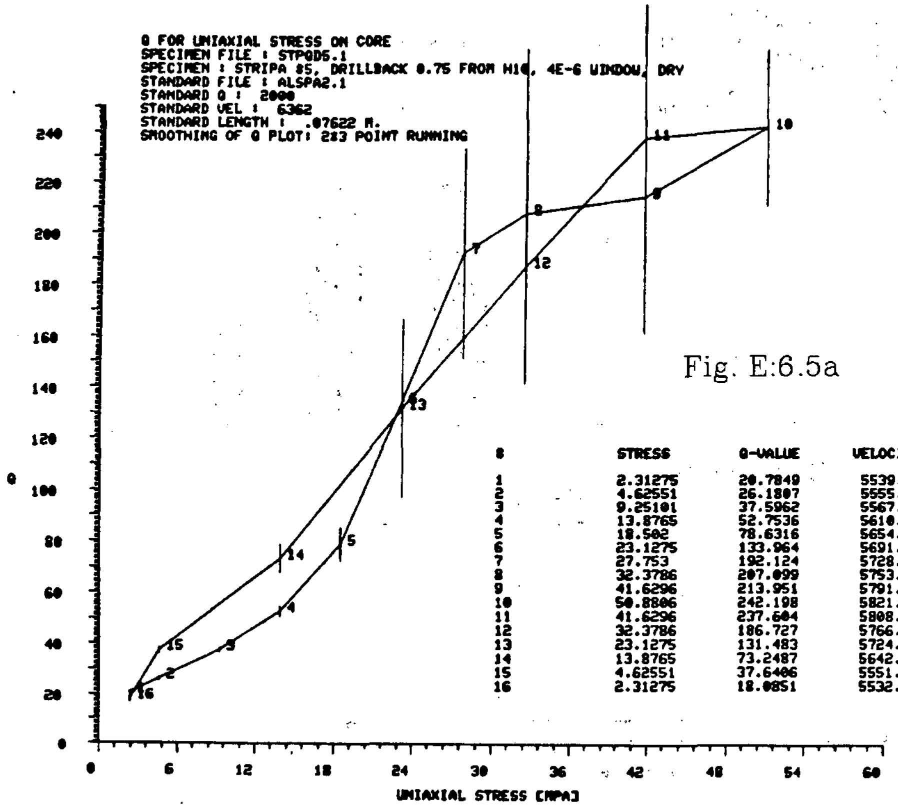


Fig. E:6.5a

#	STRESS	Q-VALUE	VELOCITY
1	2.31275	20.7849	5539.86
2	4.62551	26.1807	5555.45
3	9.25101	37.5962	5567.21
4	13.8765	52.7536	5610.73
5	18.502	78.6316	5654.94
6	23.1275	133.964	5691.64
7	27.753	192.124	5728.81
8	32.3786	207.099	5753.86
9	41.6296	213.951	5791.86
10	50.8806	242.198	5821.76
11	41.6296	237.604	5808.9
12	32.3786	186.727	5766.47
13	23.1275	131.483	5724.66
14	13.8765	73.2487	5642.82
15	4.62551	37.6406	5551.55
16	2.31275	18.0851	5532.1

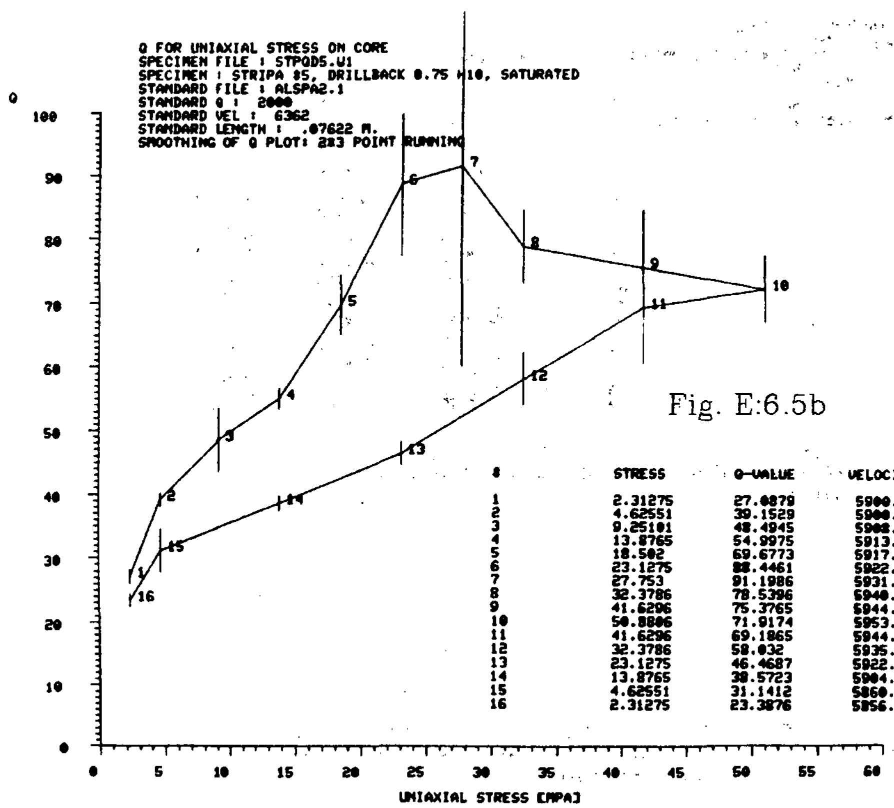
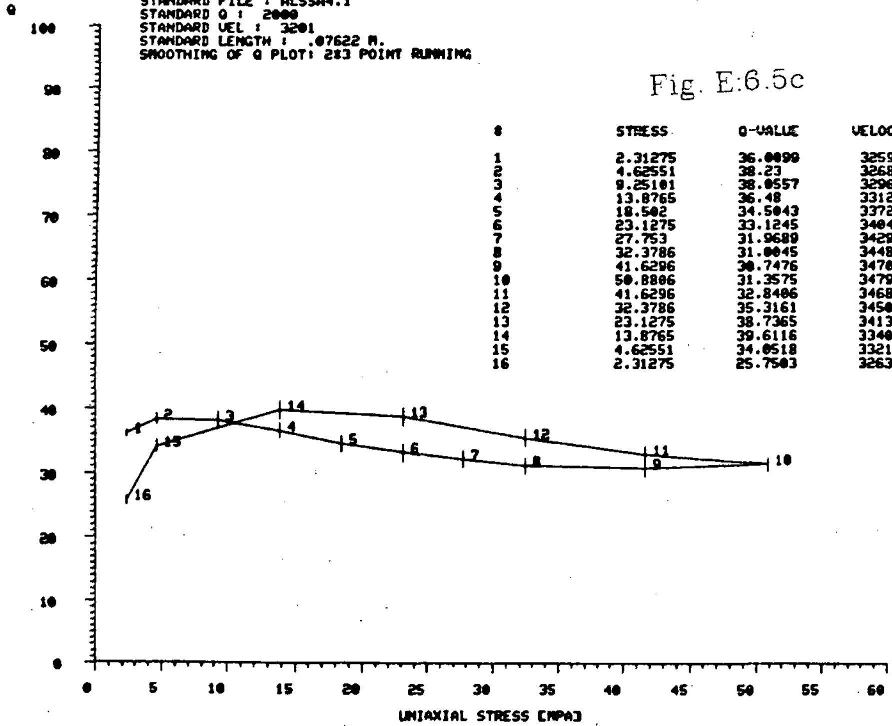


Fig. E:6.5b

#	STRESS	Q-VALUE	VELOCITY
1	2.31275	27.0879	5900.07
2	4.62551	39.1529	5900.07
3	9.25101	48.4945	5908.91
4	13.8765	54.9975	5913.33
5	18.502	69.6773	5917.77
6	23.1275	88.4461	5922.21
7	27.753	91.1986	5931.1
8	32.3786	78.5396	5940.03
9	41.6296	75.3765	5944.5
10	50.8806	71.9174	5953.47
11	41.6296	69.1865	5944.5
12	32.3786	58.032	5935.56
13	23.1275	46.4687	5922.21
14	13.8765	38.5723	5904.49
15	4.62551	31.1412	5860.65
16	2.31275	23.3876	5856.31

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQD5.3
SPECIMEN : STRIPA #5, S-WAVES TRUNC WITH 1+2E-6 SEC, DBEX-1 0.75M F H10, DRY,200,821020
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

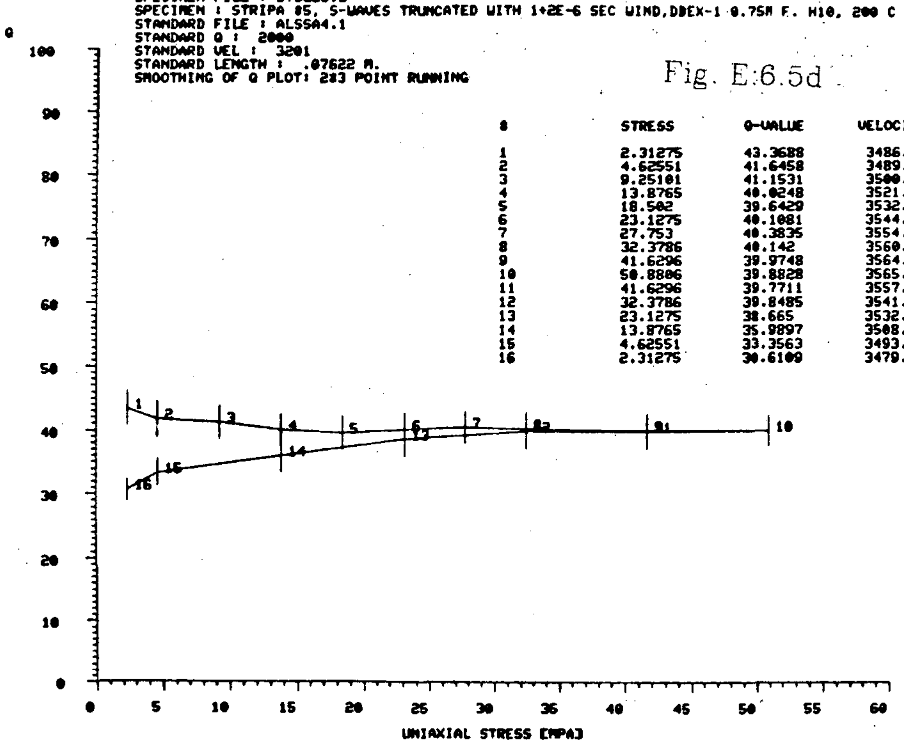
Fig. E:6.5c



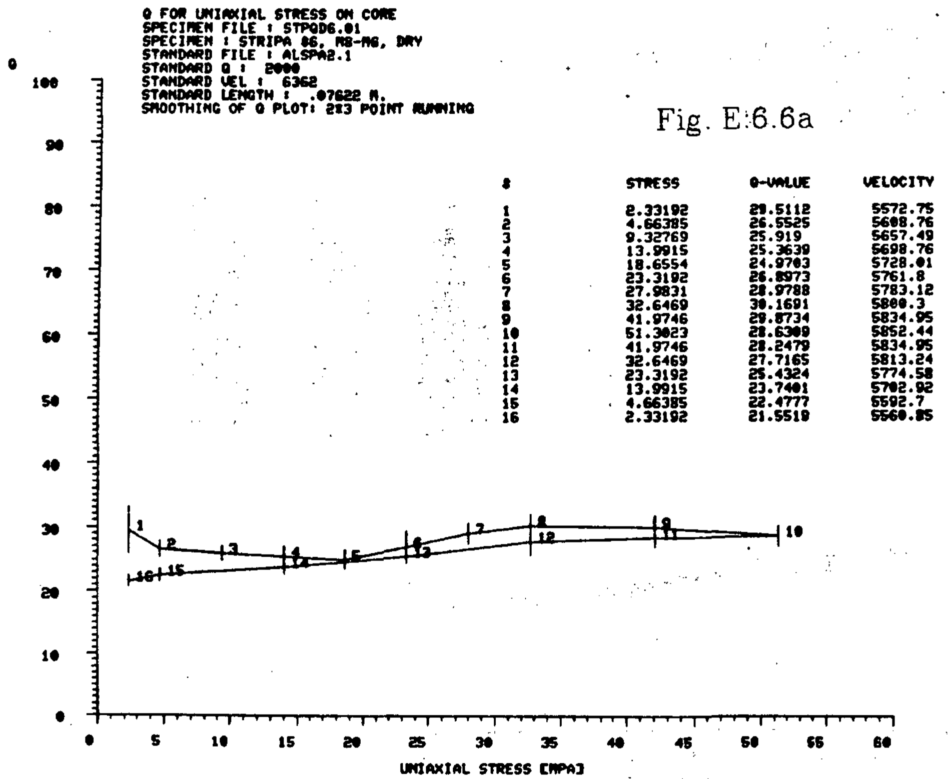
#	STRESS	Q-VALUE	VELOCITY
1	2.31275	36.0090	3259.41
2	4.62551	38.23	3268.86
3	9.25101	38.0557	3296.16
4	13.8765	36.48	3312.76
5	18.502	34.5043	3372.19
6	23.1275	33.1245	3404.18
7	27.753	31.9689	3429.32
8	32.3786	31.0045	3448.8
9	41.6296	30.7476	3470.02
10	50.8806	31.3575	3479.2
11	41.6296	32.8406	3468.5
12	32.3786	35.3161	3450.31
13	23.1275	38.7365	3413.01
14	13.8765	39.6116	3340.8
15	4.62551	34.0518	3321.12
16	2.31275	25.7503	3263.46

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQW5.3
SPECIMEN : STRIPA #5, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND,DBEX-1 0.75M F. H10, 200 C
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

Fig. E:6.5d

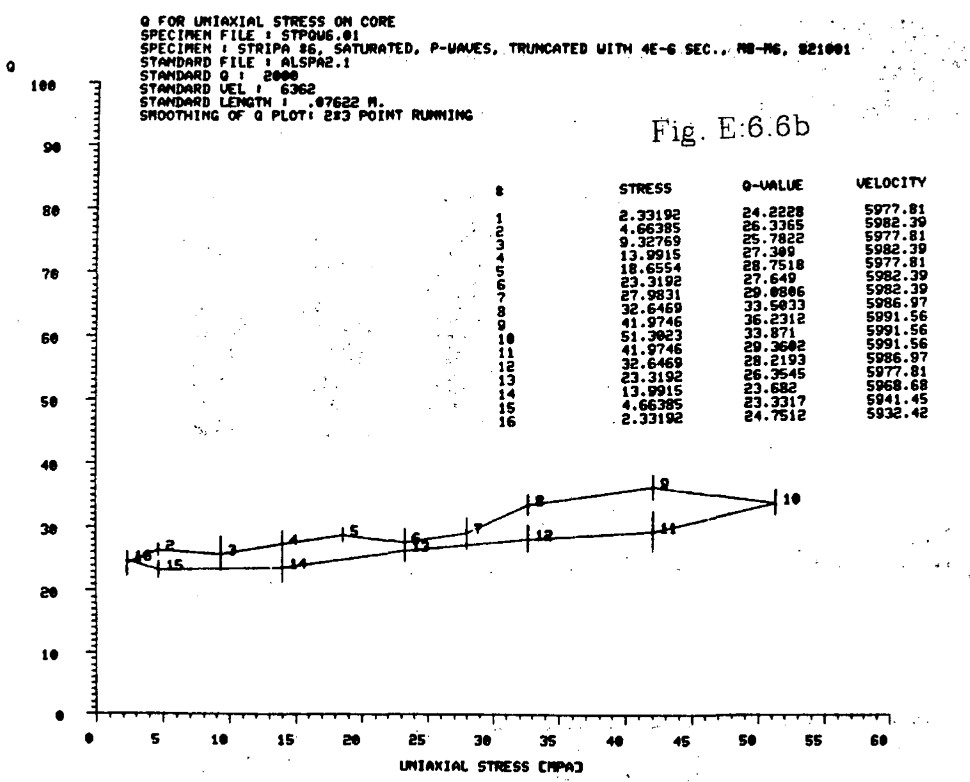


#	STRESS	Q-VALUE	VELOCITY
1	2.31275	43.3688	3486.88
2	4.62551	41.6458	3489.96
3	9.25101	41.1531	3500.8
4	13.8765	40.0248	3521.1
5	18.502	39.6429	3532.13
6	23.1275	40.1081	3544.81
7	27.753	40.3835	3554.39
8	32.3786	40.142	3560.8
9	41.6296	39.9748	3564.02
10	50.8806	39.8828	3565.63
11	41.6296	39.7711	3557.59
12	32.3786	39.8485	3541.63
13	23.1275	38.665	3532.13
14	13.8765	35.9897	3508.58
15	4.62551	33.3563	3493.05
16	2.31275	30.6109	3479.2



#	STRESS	Q-VALUE	VELOCITY
1	2.33192	29.5112	5572.75
2	4.66385	26.5525	5608.76
3	9.32769	25.919	5657.49
4	13.9915	25.3639	5698.76
5	18.6554	24.9703	5728.01
6	23.3192	26.8973	5761.8
7	27.9831	28.9788	5783.12
8	32.6469	30.1691	5800.3
9	41.9746	29.8734	5834.95
10	51.3023	28.6309	5852.44
11	41.9746	28.2479	5834.95
12	32.6469	27.7165	5813.24
13	23.3192	25.4324	5774.58
14	13.9915	23.7401	5702.92
15	4.66385	22.4777	5592.7
16	2.33192	21.5519	5560.85

Fig. E:6.6a



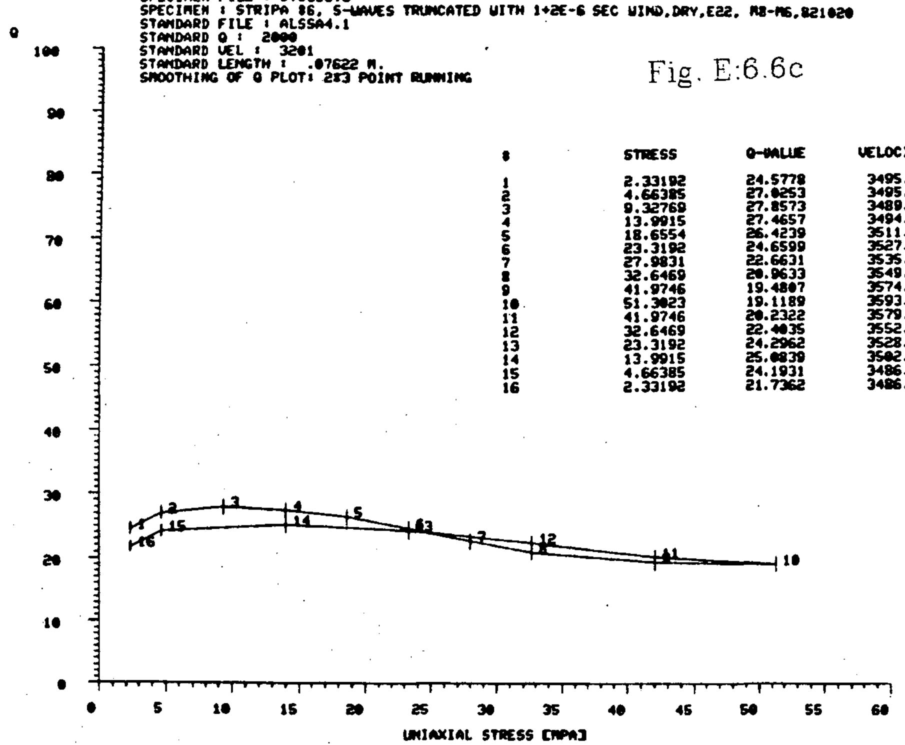
#	STRESS	Q-VALUE	VELOCITY
1	2.33192	24.2228	5977.81
2	4.66385	26.3365	5982.39
3	9.32769	25.7822	5977.81
4	13.9915	27.309	5982.39
5	18.6554	28.7518	5977.81
6	23.3192	27.649	5982.39
7	27.9831	29.0806	5982.39
8	32.6469	33.5033	5986.97
9	41.9746	36.2312	5991.56
10	51.3023	33.871	5991.56
11	41.9746	29.3602	5991.56
12	32.6469	28.2193	5986.97
13	23.3192	26.3545	5977.81
14	13.9915	23.682	5968.68
15	4.66385	23.3317	5941.45
16	2.33192	24.7512	5932.42

Fig. E:6.6b

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQD6.3
SPECIMEN : STRIPA #6, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND,DRY,E22, M8-M6,821020
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

Fig. E:6.6c

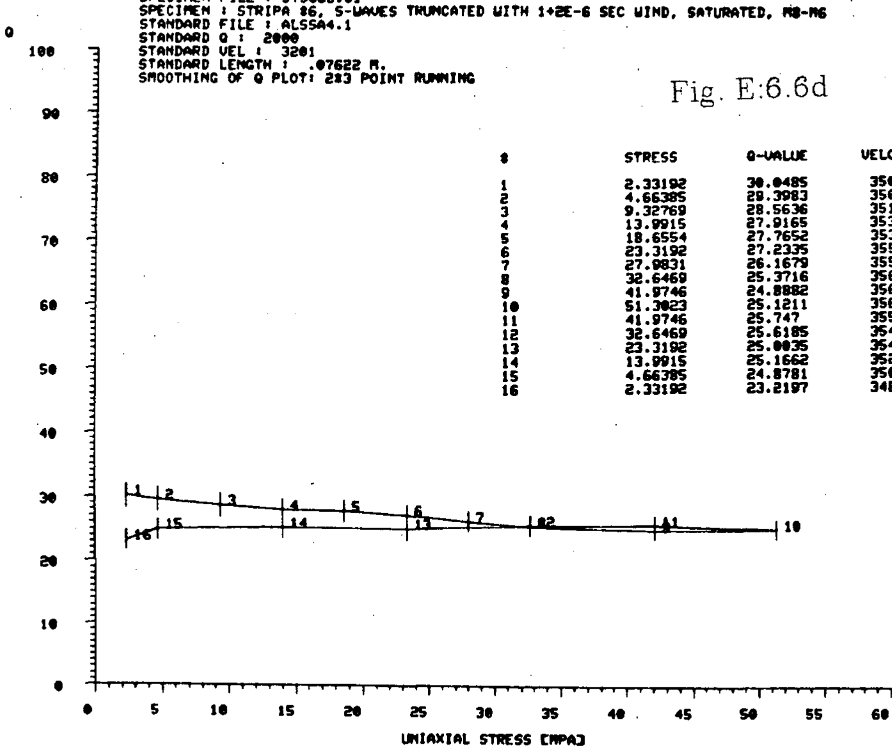
#	STRESS	Q-VALUE	VELOCITY
1	2.33192	24.5778	3495.75
2	4.66385	27.0253	3495.75
3	9.32769	27.8573	3489.5
4	13.9915	27.4657	3494.19
5	18.6554	26.4239	3511.46
6	23.3192	24.6599	3527.31
7	27.9831	22.6631	3535.29
8	32.6469	20.9633	3549.75
9	41.9746	19.4807	3574.11
10	51.3023	19.1189	3593.84
11	41.9746	20.2322	3579.02
12	32.6469	22.4035	3552.98
13	23.3192	24.2962	3528.91
14	13.9915	25.0839	3502.02
15	4.66385	24.1931	3486.39
16	2.33192	21.7362	3486.39



Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQW6.01
SPECIMEN : STRIPA #6, S-WAVES TRUNCATED WITH 1+2E-6 SEC WIND, SATURATED, M8-M6
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

Fig. E:6.6d

#	STRESS	Q-VALUE	VELOCITY
1	2.33192	30.0485	3506.73
2	4.66385	29.3983	3505.16
3	9.32769	28.5636	3514.62
4	13.9915	27.9165	3530.5
5	18.6554	27.7652	3538.5
6	23.3192	27.2335	3551.36
7	27.9831	26.1679	3554.6
8	32.6469	25.3716	3561.08
9	41.9746	24.8882	3561.08
10	51.3023	25.1211	3562.7
11	41.9746	25.747	3557.83
12	32.6469	25.6185	3549.75
13	23.3192	25.0035	3544.92
14	13.9915	25.1662	3524.13
15	4.66385	24.8781	3508.31
16	2.33192	23.2197	3487.95



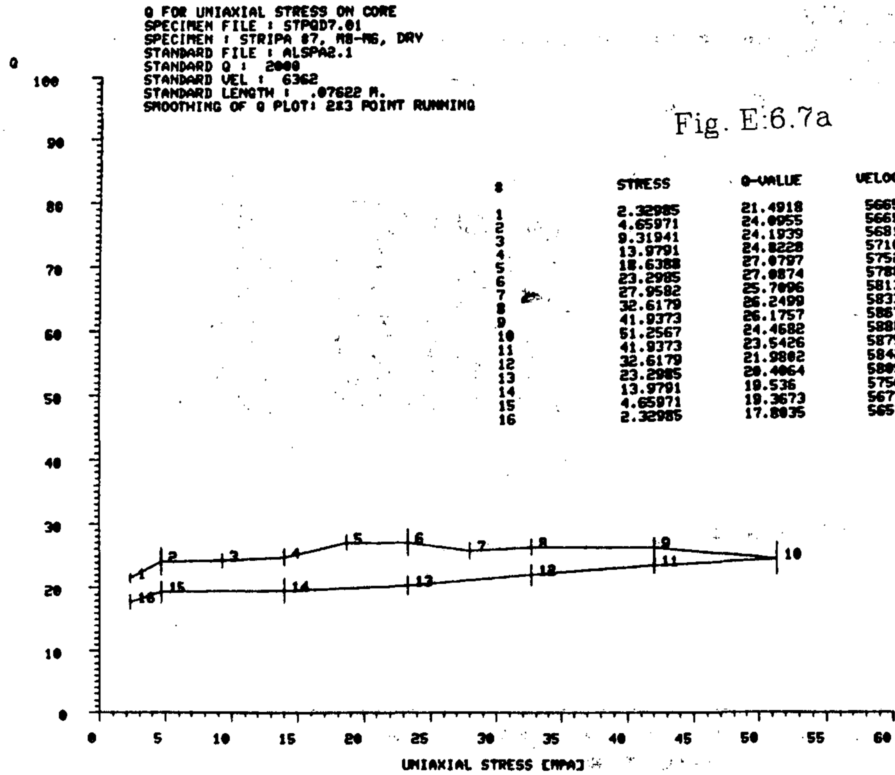


Fig. E:6.7a

#	STRESS	Q-VALUE	VELOCITY
1	2.32985	21.4918	5665.75
2	4.65971	24.0955	5669.64
3	9.31941	24.1939	5681.35
4	13.9791	24.8228	5716.76
5	18.6388	27.0797	5752.61
6	23.2985	27.0874	5788.92
7	27.9582	25.7096	5813.38
8	32.6179	26.2499	5833.92
9	41.9373	26.1757	5867.09
10	51.2567	24.4682	5888.02
11	41.9373	23.5426	5875.45
12	32.6179	21.9802	5842.18
13	23.2985	20.4064	5809.29
14	13.9791	19.536	5756.63
15	4.65971	19.3673	5677.44
16	2.32985	17.8035	5657.09

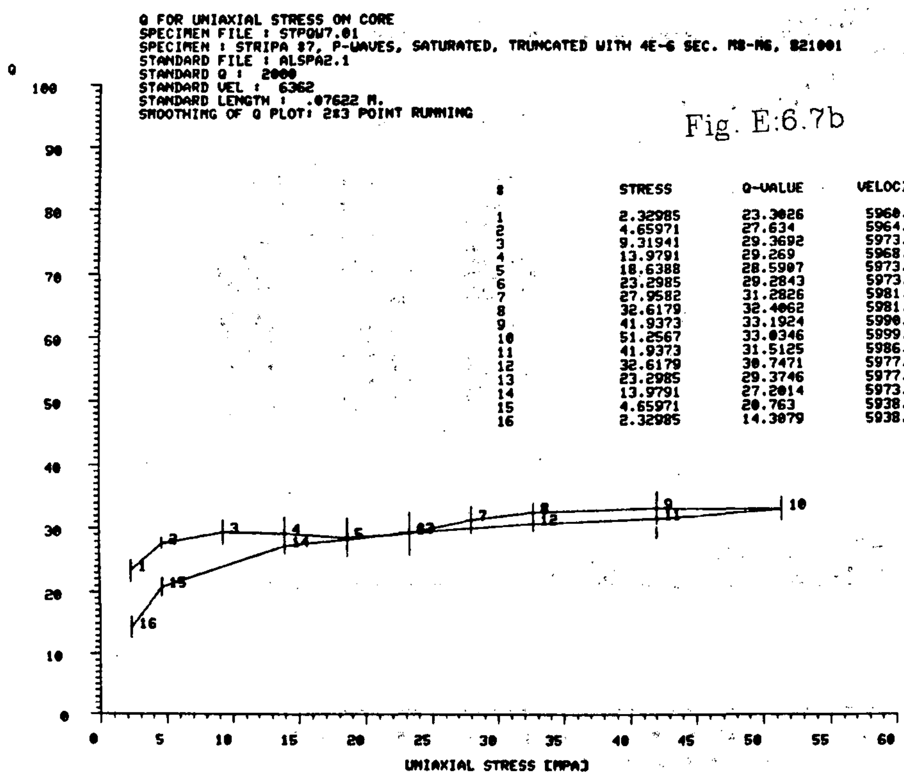


Fig. E:6.7b

#	STRESS	Q-VALUE	VELOCITY
1	2.32985	23.3026	5960.29
2	4.65971	27.634	5964.6
3	9.31941	29.3692	5973.23
4	13.9791	29.269	5968.91
5	18.6388	28.5907	5973.23
6	23.2985	29.2843	5973.23
7	27.9582	31.2826	5981.88
8	32.6179	32.4062	5981.88
9	41.9373	33.1924	5990.57
10	51.2567	33.0346	5999.27
11	41.9373	31.5125	5986.22
12	32.6179	30.7471	5977.55
13	23.2985	29.3746	5977.55
14	13.9791	27.2014	5973.23
15	4.65971	20.763	5938.85
16	2.32985	14.3079	5938.85

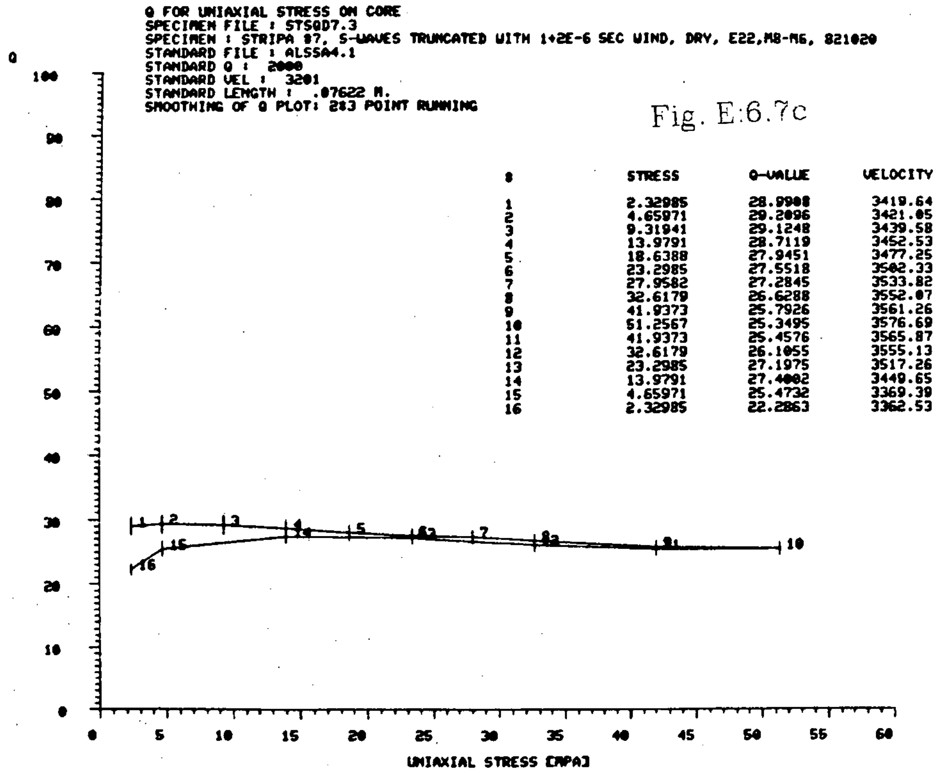


Fig. E:6.7c

#	STRESS	Q-VALUE	VELOCITY
1	2.32985	28.9908	3419.64
2	4.65971	29.2096	3421.05
3	9.31941	29.1248	3439.58
4	13.9791	28.7119	3452.53
5	18.6388	27.9451	3477.25
6	23.2985	27.5518	3502.33
7	27.9582	27.2845	3533.82
8	32.6179	26.6288	3552.07
9	41.9373	25.7926	3561.26
10	51.2567	25.3495	3576.69
11	41.9373	25.4576	3565.87
12	32.6179	26.1055	3555.13
13	23.2985	27.1975	3517.26
14	13.9791	27.4002	3449.65
15	4.65971	25.4732	3369.39
16	2.32985	22.2863	3362.53

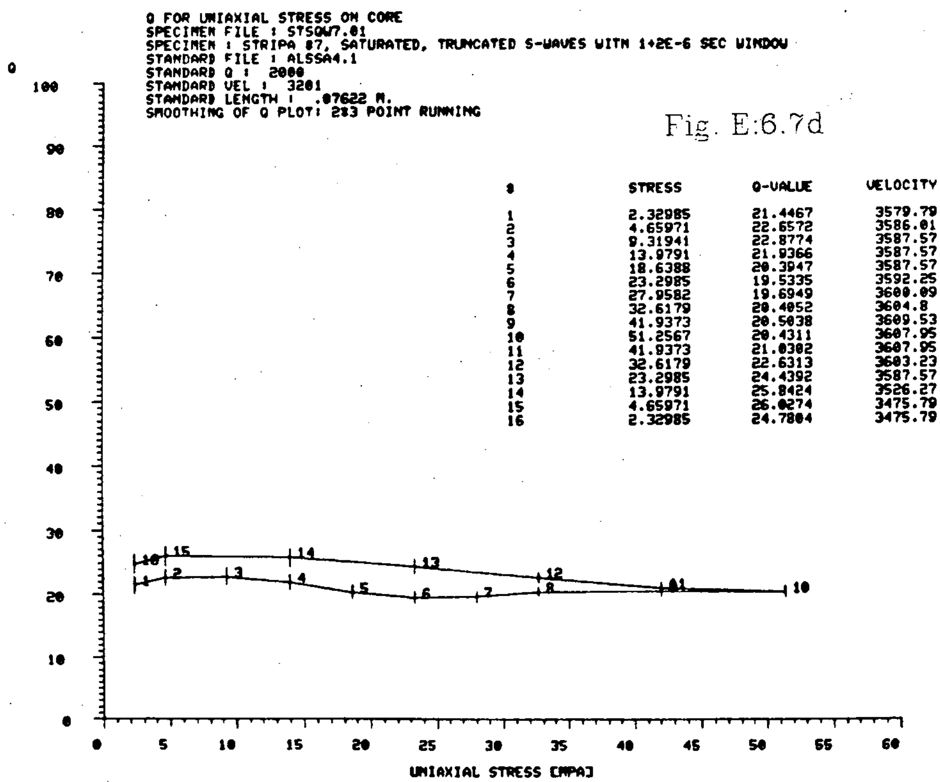
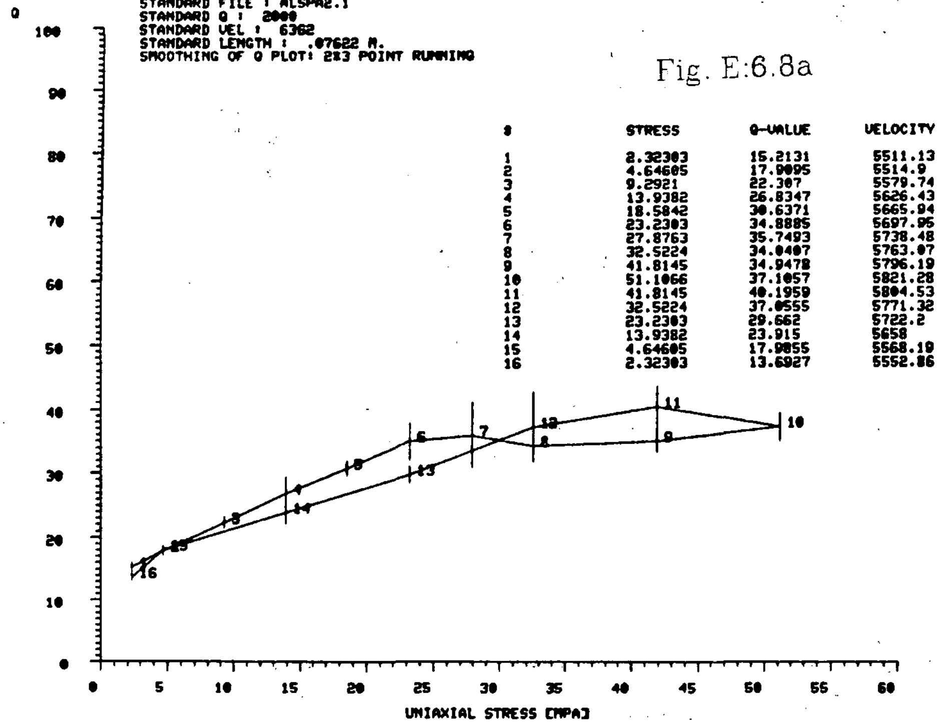


Fig. E:6.7d

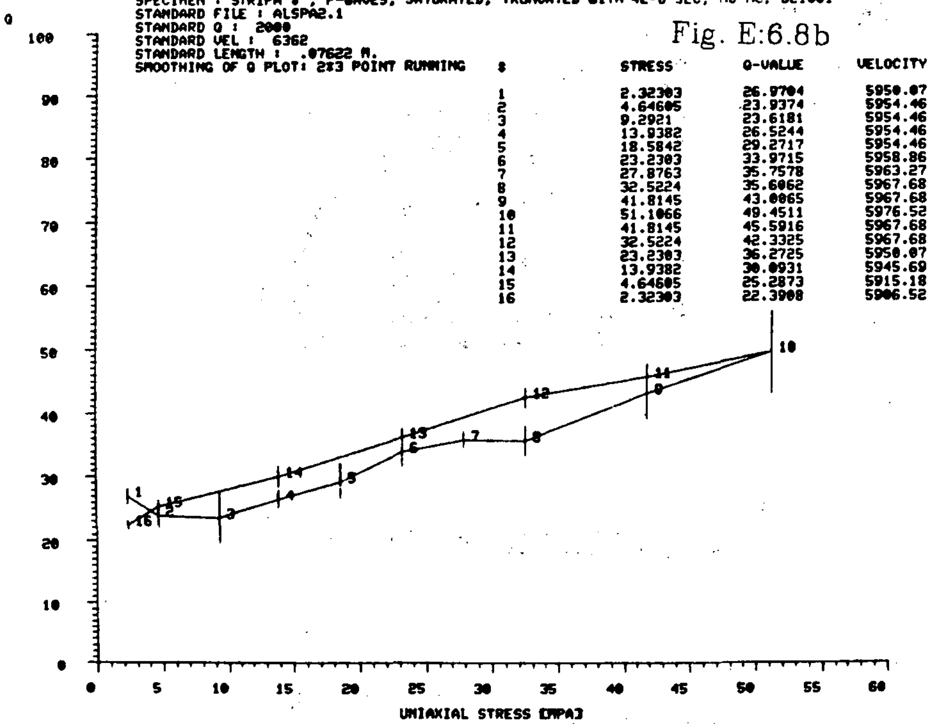
#	STRESS	Q-VALUE	VELOCITY
1	2.32985	21.4467	3579.79
2	4.65971	22.6572	3586.01
3	9.31941	22.8774	3587.57
4	13.9791	21.9366	3587.57
5	18.6388	20.3947	3587.57
6	23.2985	19.5335	3592.25
7	27.9582	19.6949	3600.09
8	32.6179	20.4052	3604.8
9	41.9373	20.5038	3609.53
10	51.2567	20.4311	3607.95
11	41.9373	21.0302	3607.95
12	32.6179	22.6313	3603.23
13	23.2985	24.4392	3587.57
14	13.9791	25.8424	3526.27
15	4.65971	26.0274	3475.79
16	2.32985	24.7804	3475.79



Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STPQD8.01
SPECIMEN : STRIPA #8, M8-M6, DRY
STANDARD FILE : ALSPA2.1
STANDARD Q : 2000
STANDARD VEL : 6362
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

Fig. E:6.8a

#	STRESS	Q-VALUE	VELOCITY
1	2.32303	15.2131	5511.13
2	4.64605	17.9095	5514.9
3	9.2921	22.307	5579.74
4	13.9382	26.8347	5626.43
5	18.5842	30.6371	5665.94
6	23.2303	34.8885	5697.95
7	27.8763	35.7493	5738.48
8	32.5224	34.0407	5763.07
9	41.8145	34.9478	5796.19
10	51.1066	37.1057	5821.28
11	41.8145	40.1959	5804.53
12	32.5224	37.0555	5771.32
13	23.2303	29.662	5722.2
14	13.9382	23.915	5658
15	4.64605	17.9855	5568.19
16	2.32303	13.6927	5552.86



Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STPQU8.01
SPECIMEN : STRIPA 8", P-WAVES, SATURATED, TRUNCATED WITH 4E-6 SEC, M8-M6, 821001
STANDARD FILE : ALSPA2.1
STANDARD Q : 2000
STANDARD VEL : 6362
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

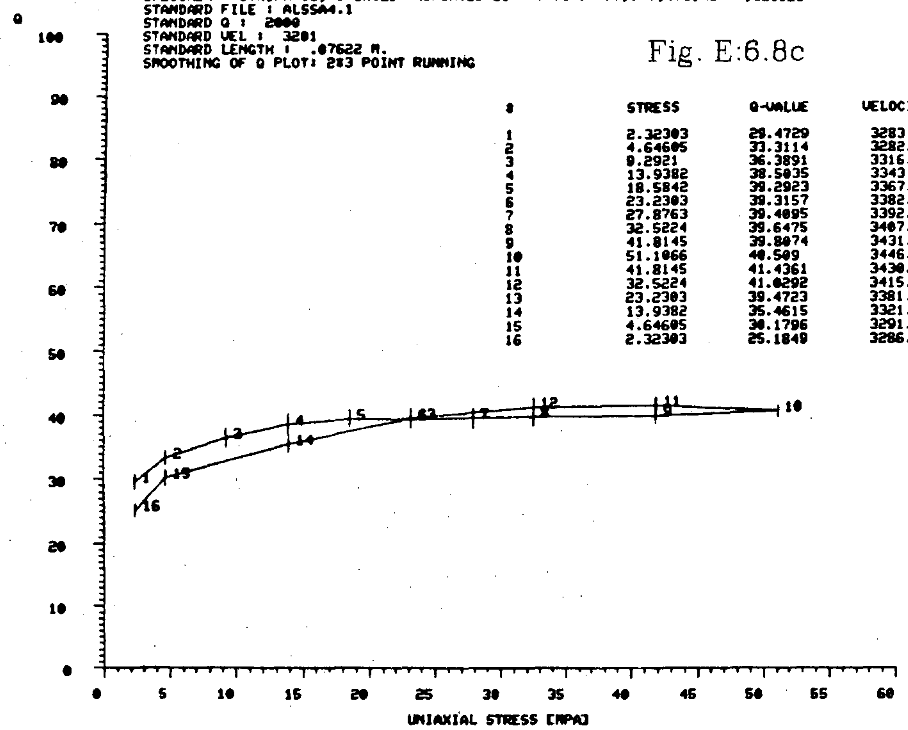
Fig. E:6.8b

#	STRESS	Q-VALUE	VELOCITY
1	2.32303	26.9704	5950.07
2	4.64605	23.9374	5954.46
3	9.2921	23.6181	5954.46
4	13.9382	26.5244	5954.46
5	18.5842	29.2717	5954.46
6	23.2303	33.9715	5958.86
7	27.8763	35.7578	5963.27
8	32.5224	35.6062	5967.68
9	41.8145	43.0065	5967.68
10	51.1066	49.4511	5976.52
11	41.8145	45.5916	5967.68
12	32.5224	42.3325	5967.68
13	23.2303	36.2725	5950.07
14	13.9382	30.0931	5945.69
15	4.64605	25.2873	5915.18
16	2.32303	22.3908	5906.52

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQD8.3
SPECIMEN : STRIPA 88, S-WAVES TRUNCATED WITH 1+2E-6 SEC,DRY,E22,M8-M6,821020
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

Fig. E:6.8c

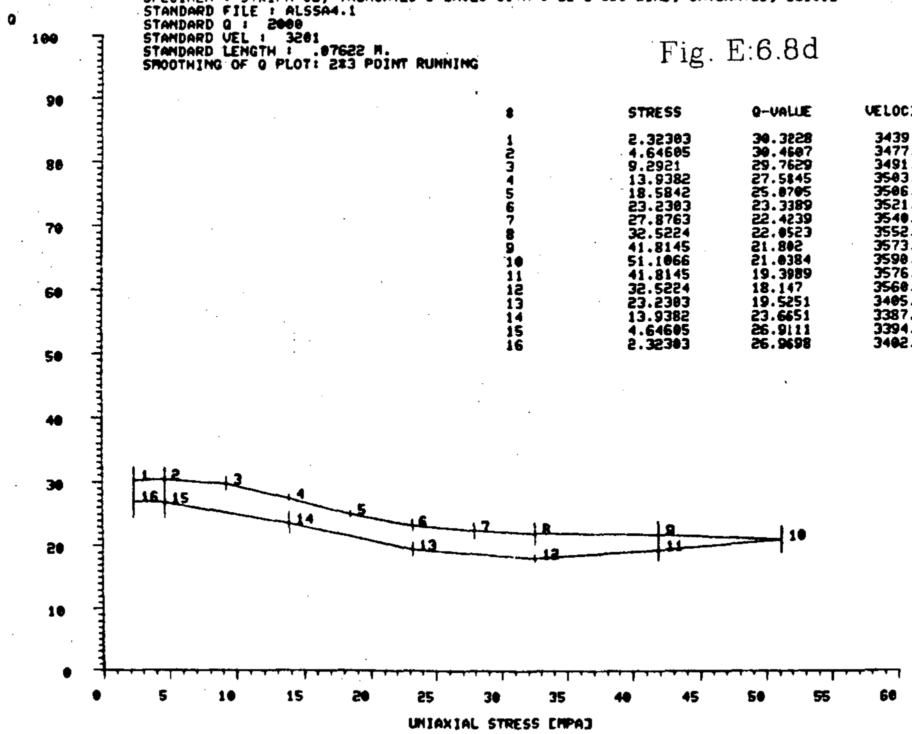
#	STRESS	Q-VALUE	VELOCITY
1	2.32303	29.4729	3283.8
2	4.64605	33.3114	3282.47
3	9.2921	36.3891	3316.19
4	13.9382	38.5035	3343.68
5	18.5842	39.2923	3367.4
6	23.2303	39.3157	3382.94
7	27.8763	39.4095	3392.89
8	32.5224	39.6475	3407.22
9	41.8145	39.8074	3431.86
10	51.1066	40.509	3446.52
11	41.8145	41.4361	3430.4
12	32.5224	41.0292	3415.88
13	23.2303	39.4723	3381.52
14	13.9382	35.4615	3321.66
15	4.64605	30.1796	3291.84
16	2.32303	25.1849	3286.48



Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STSQW8.01
SPECIMEN : STRIPA 88, TRUNCATED S-WAVES WITH 1+2E-6 SEC WIND, SATURATED, 821003
STANDARD FILE : ALSSA4.1
STANDARD Q : 2000
STANDARD VEL : 3201
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

Fig. E:6.8d

#	STRESS	Q-VALUE	VELOCITY
1	2.32303	30.3228	3439.17
2	4.64605	30.4607	3477.72
3	9.2921	29.7629	3491.26
4	13.9382	27.5845	3503.39
5	18.5842	25.0705	3506.43
6	23.2303	23.3389	3521.74
7	27.8763	22.4239	3540.28
8	32.5224	22.0523	3552.75
9	41.8145	21.802	3573.21
10	51.1066	21.0384	3590.7
11	41.8145	19.3989	3576.37
12	32.5224	18.147	3560.59
13	23.2303	19.5251	3405.78
14	13.9382	23.6651	3387.2
15	4.64605	26.9111	3394.32
16	2.32303	26.9698	3402.91



Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STPQD9.2
SPECIMEN : STRIPA #9, P-WAVES TRUNCATED WITH 4E-6 SEC,E25,M7-M9,821020
STANDARD FILE : ALSPA2.1
STANDARD Q : 2000
STANDARD VEL : 6362
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

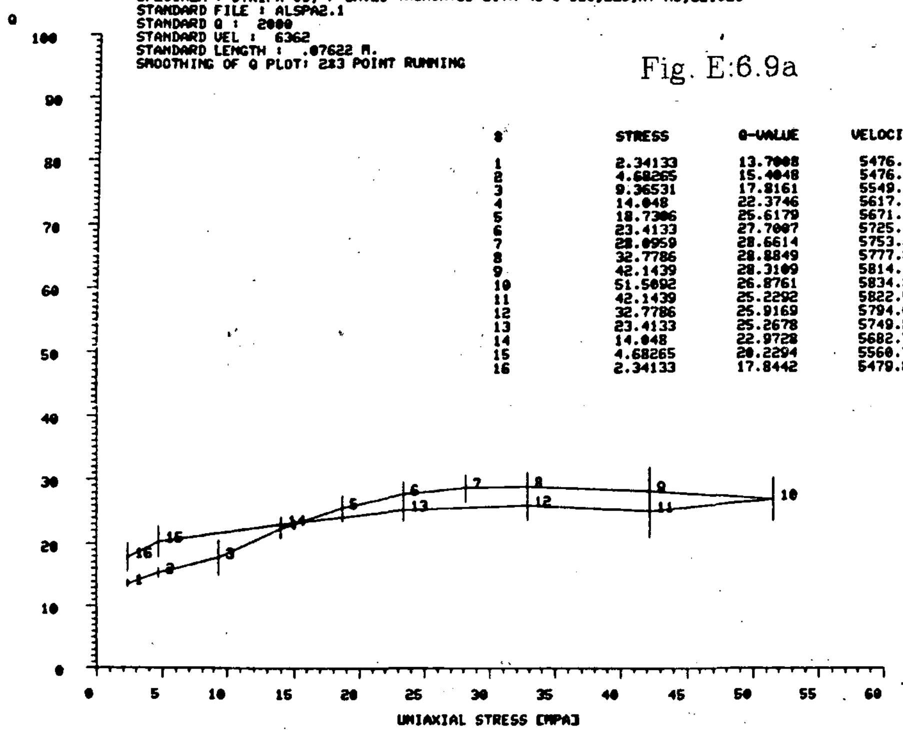


Fig. E:6.9a

#	STRESS	Q-VALUE	VELOCITY
1	2.34133	13.7008	5476.21
2	4.68265	15.4048	5476.21
3	9.36531	17.8161	5549.56
4	14.048	22.3746	5617.29
5	18.7306	25.6179	5671.12
6	23.4133	27.7007	5725.98
7	28.0959	28.6614	5753.82
8	32.7786	28.8849	5777.89
9	42.1439	28.3109	5814.39
10	51.5092	26.8761	5834.86
11	42.1439	25.2292	5822.56
12	32.7786	25.9169	5794.06
13	23.4133	25.2678	5749.83
14	14.048	22.9728	5682.79
15	4.68265	20.2294	5560.74
16	2.34133	17.8442	5479.83

Q FOR UNIAXIAL STRESS ON CORE
SPECIMEN FILE : STPQW9.01
SPECIMEN : STRIPA #9, M7-M9, SATURATED, P-WAVES
STANDARD FILE : ALSPA2.1
STANDARD Q : 2000
STANDARD VEL : 6362
STANDARD LENGTH : .07622 M.
SMOOTHING OF Q PLOT: 2*3 POINT RUNNING

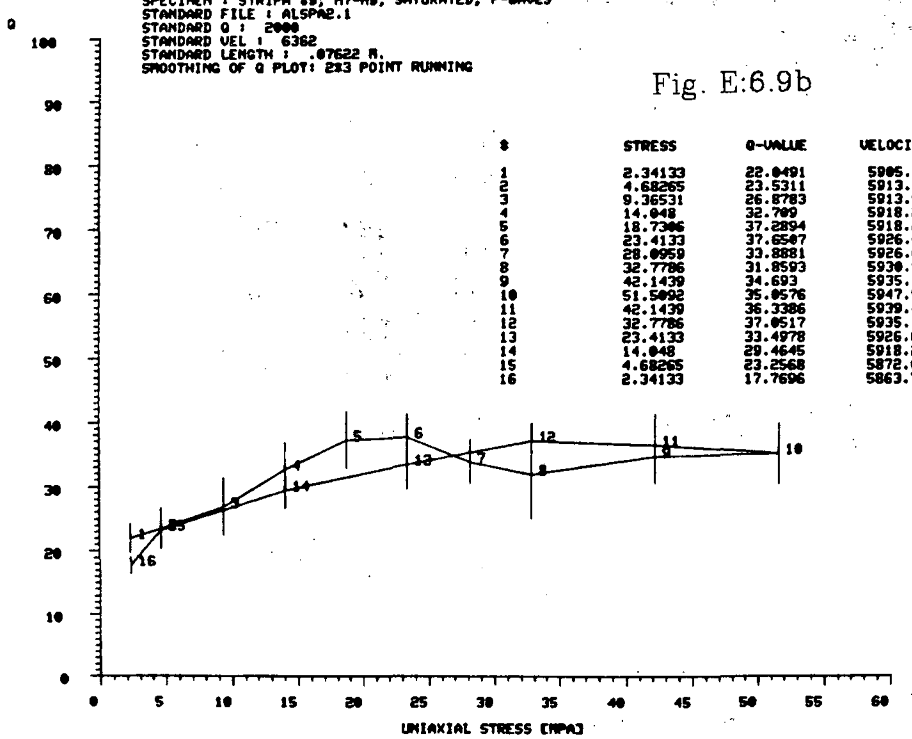


Fig. E:6.9b

#	STRESS	Q-VALUE	VELOCITY
1	2.34133	22.0491	5905.56
2	4.68265	23.5311	5913.99
3	9.36531	26.8783	5913.99
4	14.048	32.709	5918.21
5	18.7306	37.2894	5918.21
6	23.4133	37.6507	5926.68
7	28.0959	33.8881	5926.68
8	32.7786	31.8593	5930.92
9	42.1439	34.693	5935.17
10	51.5092	35.0576	5947.95
11	42.1439	36.3386	5939.43
12	32.7786	37.0517	5935.17
13	23.4133	33.4978	5926.68
14	14.048	29.4645	5918.21
15	4.68265	23.2568	5872.08
16	2.34133	17.7696	5863.76

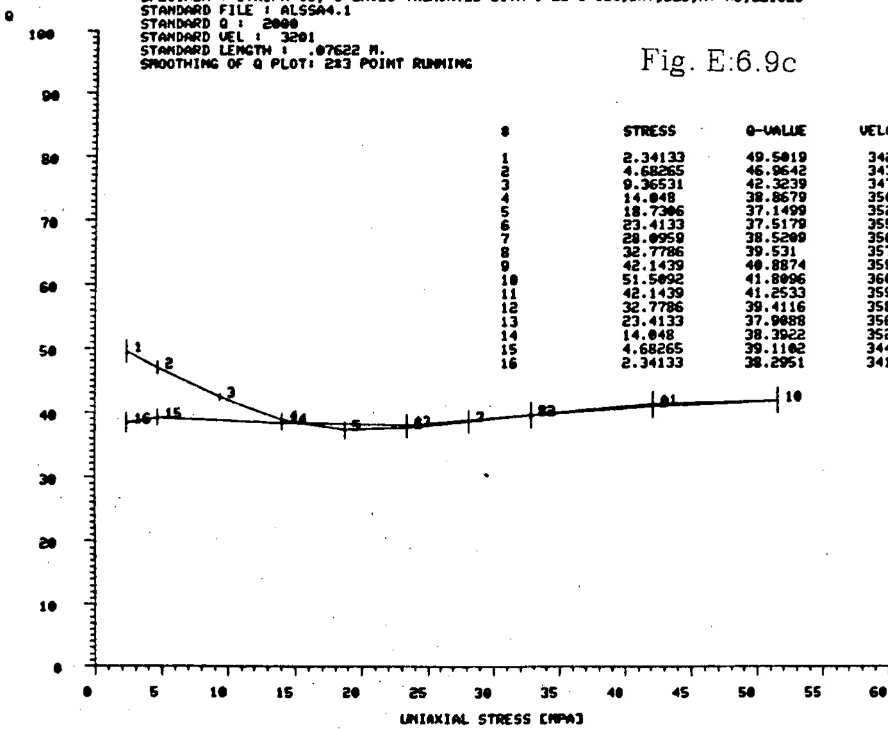


Fig. E:6.9c

#	STRESS	Q-VALUE	VELOCITY
1	2.34133	49.5019	3426.59
2	4.68265	46.9642	3433.69
3	9.36531	42.3239	3472.55
4	14.048	38.8679	3506.35
5	18.7306	37.1499	3528.75
6	23.4133	37.5179	3554.48
7	28.0959	38.5209	3563.66
8	32.7786	39.531	3572.88
9	42.1439	40.8874	3593.02
10	51.5092	41.8096	3607.1
11	42.1439	41.2533	3593.02
12	32.7786	39.4116	3580.6
13	23.4133	37.9088	3563.66
14	14.048	38.3922	3521.25
15	4.68265	39.1102	3446.55
16	2.34133	38.2951	3411.07

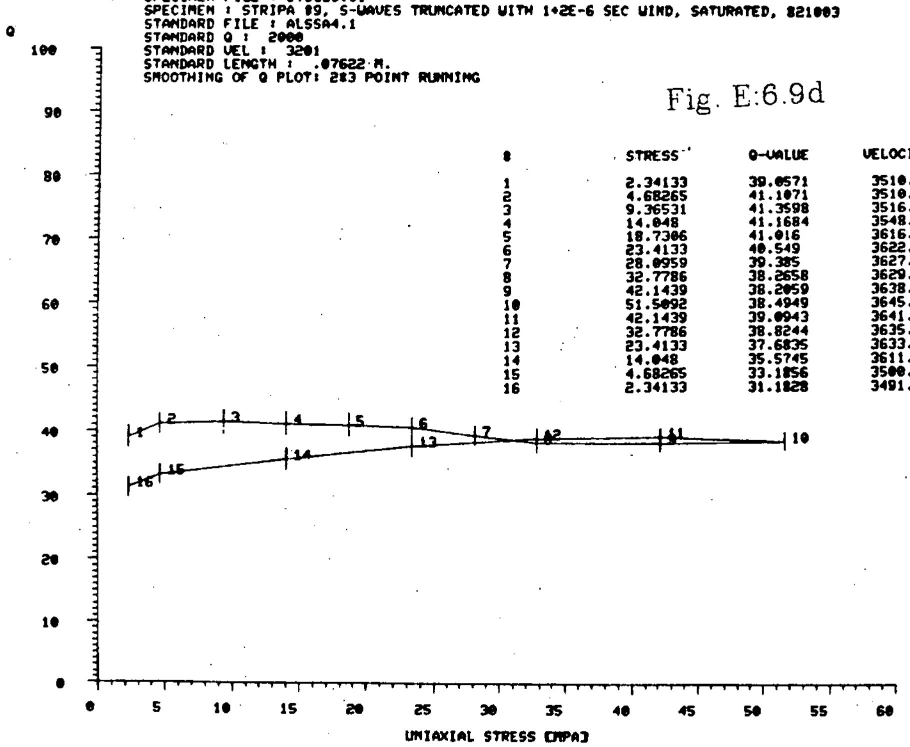


Fig. E:6.9d

#	STRESS	Q-VALUE	VELOCITY
1	2.34133	39.0571	3510.81
2	4.68265	41.1071	3510.81
3	9.36531	41.3598	3516.77
4	14.048	41.1684	3548.39
5	18.7306	41.016	3616.54
6	23.4133	40.549	3622.87
7	28.0959	39.385	3627.63
8	32.7786	38.2658	3629.22
9	42.1439	38.2059	3638.78
10	51.5092	38.4949	3645.18
11	42.1439	39.0943	3641.98
12	32.7786	38.8244	3635.59
13	23.4133	37.6835	3633.99
14	14.048	35.5745	3611.81
15	4.68265	33.1056	3500.42
16	2.34133	31.1828	3491.57

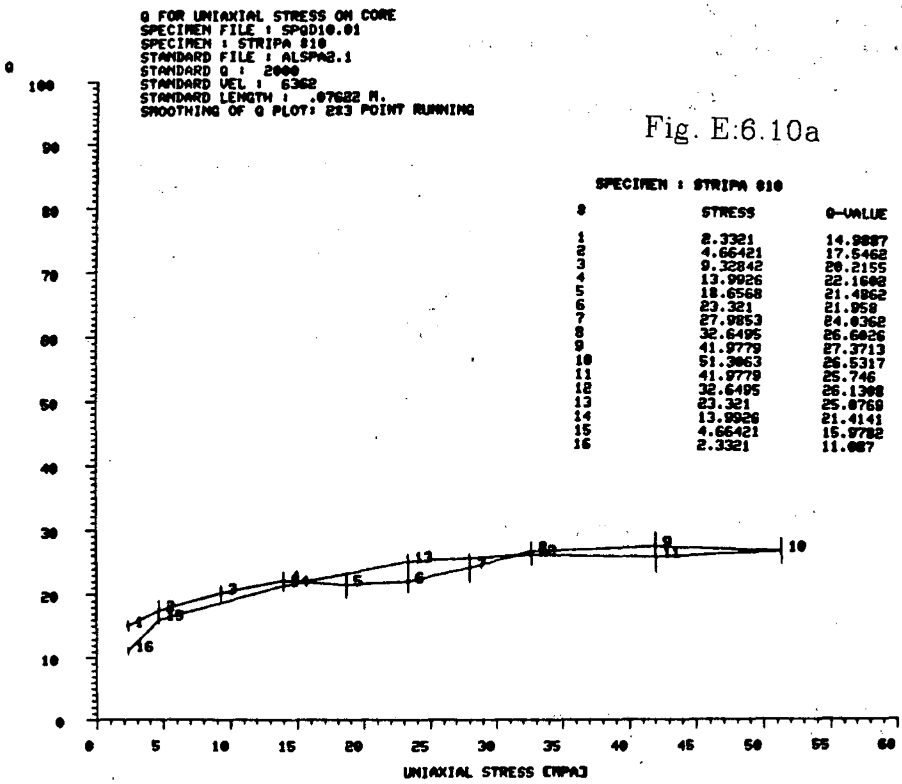


Fig. E:6.10a

SPECIMEN : STRIPA 810

#	STRESS	Q-VALUE	VELOCITY
1	2.3321	14.9007	5341.02
2	4.66421	17.5462	5392.14
3	9.32842	20.2155	5503.02
4	13.9926	22.1600	5587.27
5	18.6568	21.4862	5646.2
6	23.321	21.958	5698.3
7	27.9853	24.0362	5734.93
8	32.6495	26.6026	5755.48
9	41.9779	27.3713	5805.42
10	51.3063	26.5317	5830.72
11	41.9779	25.746	5809.62
12	32.6495	26.1308	5772.04
13	23.321	25.0769	5722.67
14	13.9926	21.4141	5622.48
15	4.66421	15.9782	5439.63
16	2.3321	11.007	5388.52

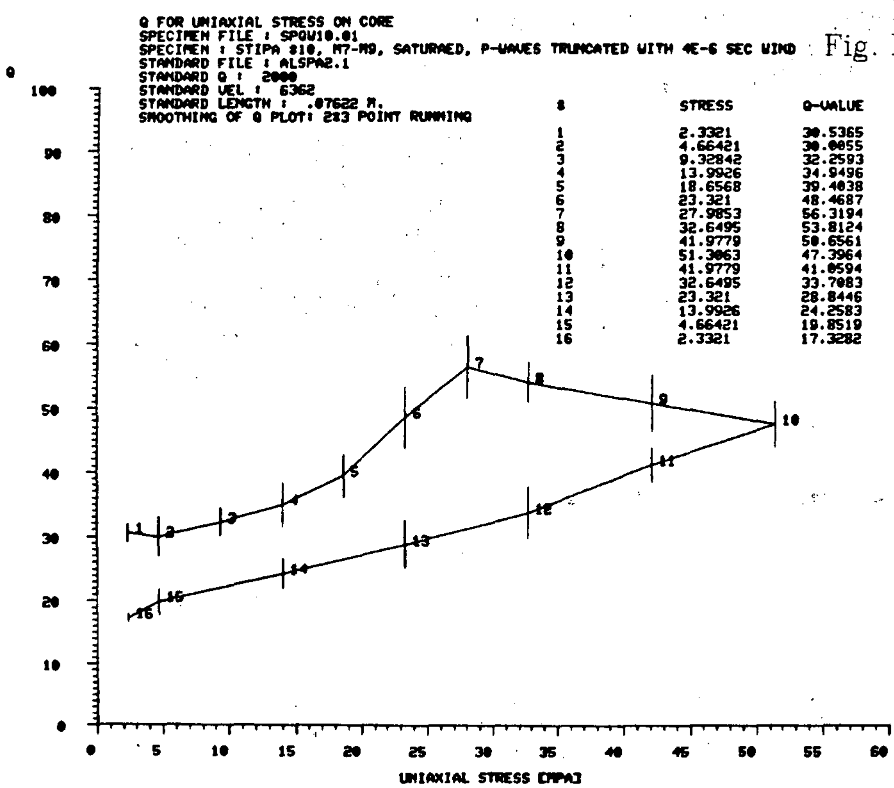
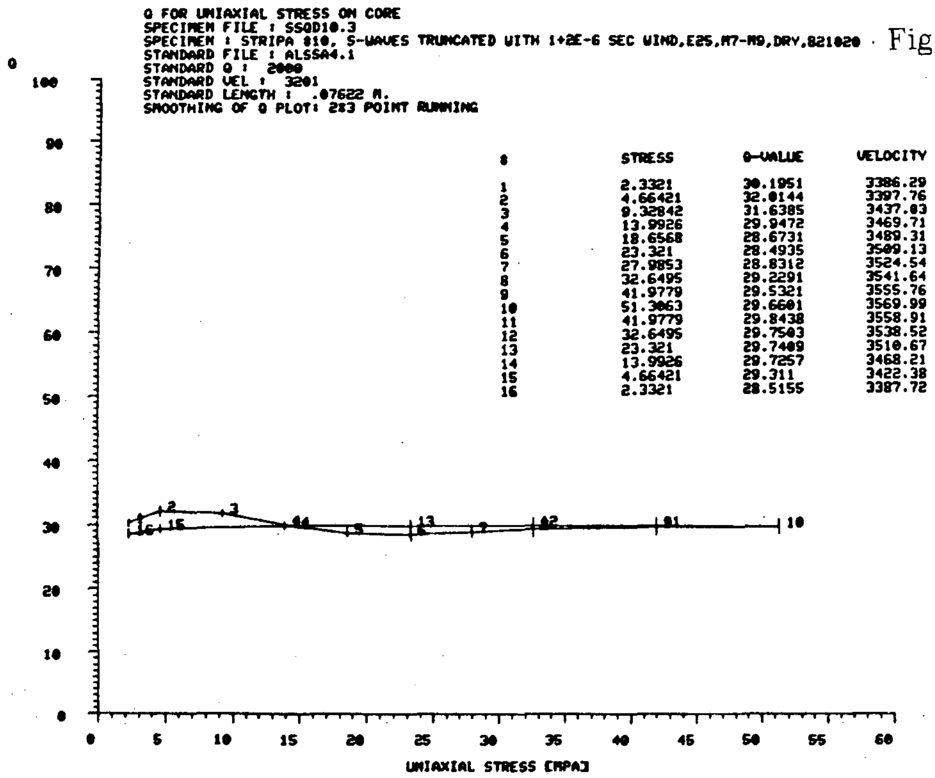


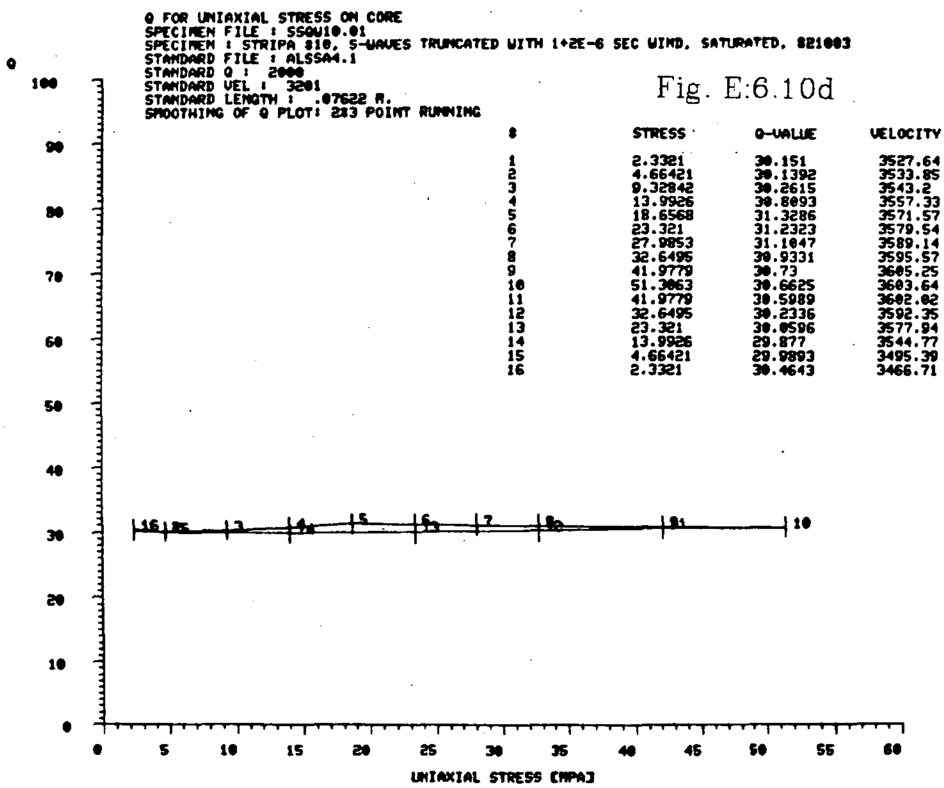
Fig. E:6.10b

#	STRESS	Q-VALUE	VELOCITY
1	2.3321	30.5365	5942.93
2	4.66421	30.0055	5942.93
3	9.32842	32.2593	5942.93
4	13.9926	34.9496	5942.93
5	18.6568	39.4038	5942.93
6	23.321	48.4687	5942.93
7	27.9853	56.3194	5951.74
8	32.6495	53.8124	5951.74
9	41.9779	50.6561	5960.58
10	51.3063	47.3964	5960.58
11	41.9779	41.0594	5956.16
12	32.6495	33.7083	5951.74
13	23.321	28.8446	5951.74
14	13.9926	24.2583	5942.93
15	4.66421	19.8519	5916.65
16	2.3321	17.3282	5894.93



#	STRESS	Q-VALUE	VELOCITY
1	2.3321	30.1951	3386.29
2	4.66421	32.0144	3397.76
3	9.32842	31.6385	3437.03
4	13.9926	29.9472	3469.71
5	18.6568	28.6731	3489.31
6	23.321	28.4935	3509.13
7	27.9853	28.8312	3524.54
8	32.6495	29.2291	3541.64
9	41.9779	29.5321	3555.76
10	51.3063	29.6601	3569.99
11	41.9779	29.8438	3558.91
12	32.6495	29.7503	3538.52
13	23.321	29.7409	3510.67
14	13.9926	29.7257	3468.21
15	4.66421	29.311	3422.38
16	2.3321	28.5155	3387.72

Fig. E:6.10c



#	STRESS	Q-VALUE	VELOCITY
1	2.3321	30.151	3527.64
2	4.66421	30.1392	3533.85
3	9.32842	30.2615	3543.2
4	13.9926	30.8093	3557.33
5	18.6568	31.3286	3571.57
6	23.321	31.2323	3579.54
7	27.9853	31.1047	3589.14
8	32.6495	30.9331	3595.57
9	41.9779	30.73	3605.25
10	51.3063	30.6625	3603.64
11	41.9779	30.5989	3602.02
12	32.6495	30.2336	3592.35
13	23.321	30.0596	3577.94
14	13.9926	29.877	3544.77
15	4.66421	29.9893	3495.39
16	2.3321	30.4643	3466.71

Fig. E:6.10d

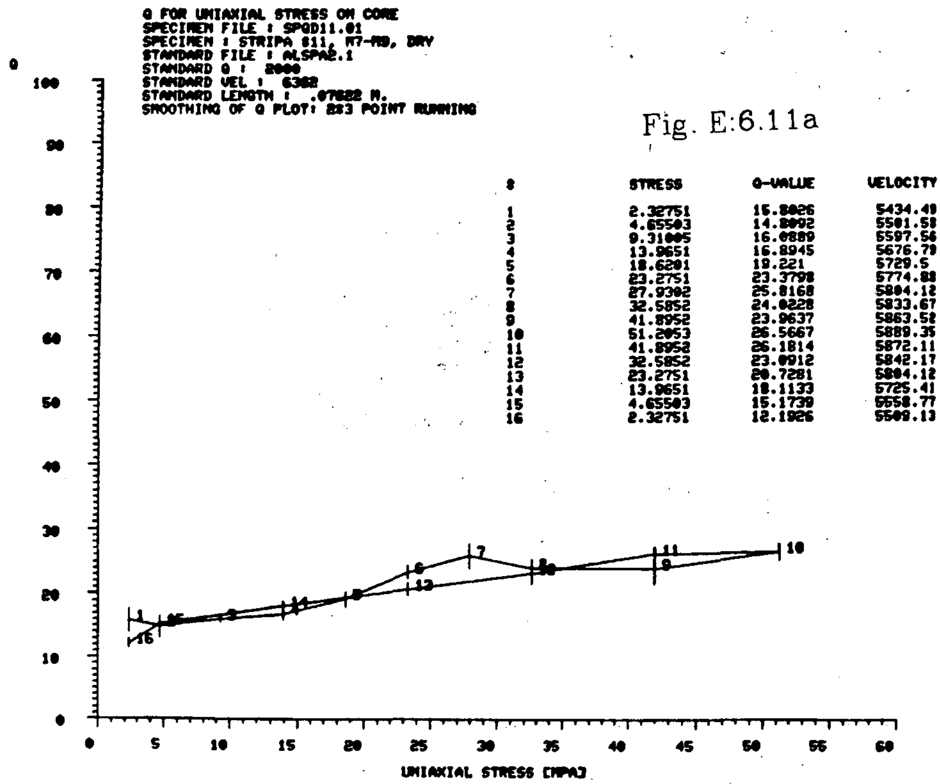


Fig. E:6.11a

#	STRESS	Q-VALUE	VELOCITY
1	2.32751	15.8026	5434.49
2	4.65503	14.8092	5501.58
3	9.31005	16.0889	5597.56
4	13.9651	16.8945	5676.79
5	18.6201	19.221	5729.5
6	23.2751	23.3798	5774.88
7	27.9302	25.8168	5804.12
8	32.5852	24.0228	5833.67
9	41.8952	23.9637	5863.58
10	51.2053	26.5667	5889.35
11	41.8952	26.1814	5872.11
12	32.5852	23.0912	5842.17
13	23.2751	20.7281	5804.12
14	13.9651	18.1133	5725.41
15	4.65503	15.1739	5658.77
16	2.32751	12.1926	5509.13

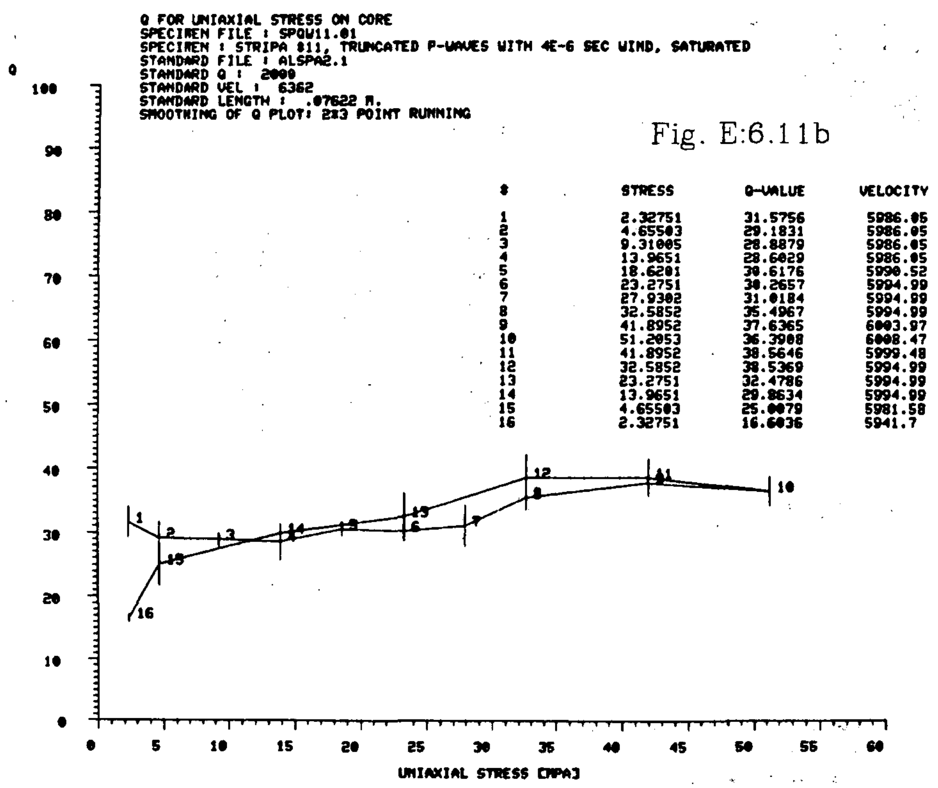


Fig. E:6.11b

#	STRESS	Q-VALUE	VELOCITY
1	2.32751	31.5756	5986.05
2	4.65503	29.1831	5986.05
3	9.31005	28.8879	5986.05
4	13.9651	28.6029	5986.05
5	18.6201	30.6176	5990.52
6	23.2751	30.2657	5994.99
7	27.9302	31.0184	5994.99
8	32.5852	35.4967	5994.99
9	41.8952	37.6365	6003.97
10	51.2053	36.3908	6008.47
11	41.8952	38.5646	5999.48
12	32.5852	38.5369	5994.99
13	23.2751	32.4786	5994.99
14	13.9651	29.8634	5994.99
15	4.65503	25.0079	5981.58
16	2.32751	16.6036	5941.7

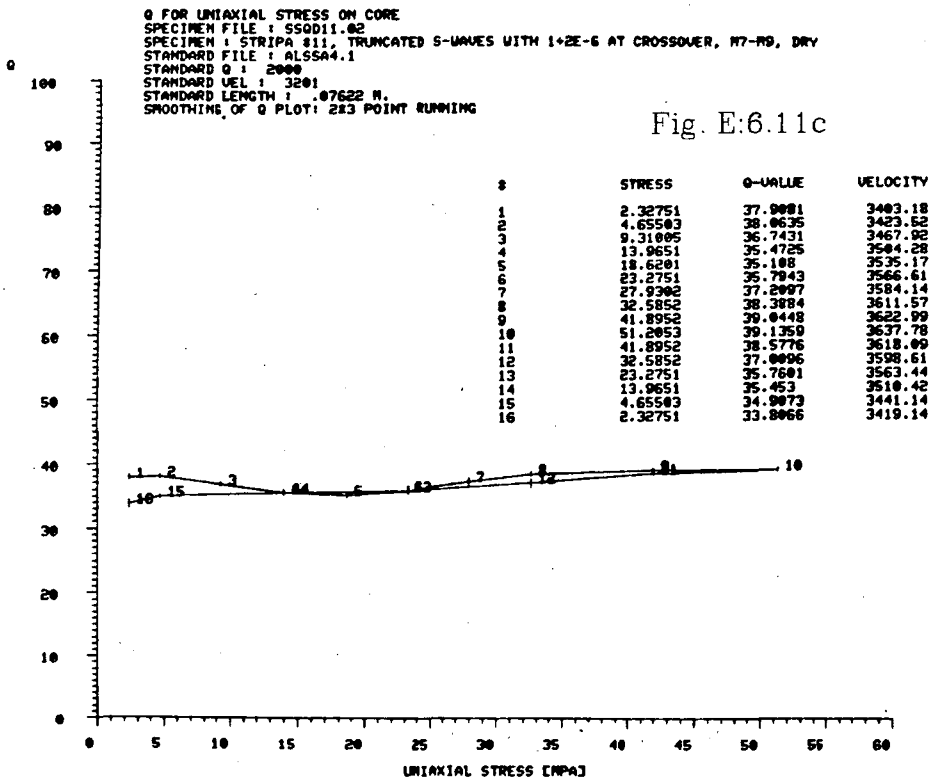


Fig. E:6.11c

#	STRESS	Q-VALUE	VELOCITY
1	2.32751	37.9001	3403.18
2	4.65503	38.0635	3423.52
3	9.31005	36.7431	3467.92
4	13.9651	35.4725	3504.28
5	18.6201	35.108	3535.17
6	23.2751	35.7943	3566.61
7	27.9302	37.2097	3584.14
8	32.5852	38.3884	3611.57
9	41.8952	39.0448	3622.99
10	51.2053	39.1359	3637.78
11	41.8952	38.5776	3618.09
12	32.5852	37.0096	3598.61
13	23.2751	35.7601	3563.44
14	13.9651	35.453	3510.42
15	4.65503	34.9073	3441.14
16	2.32751	33.8066	3419.14

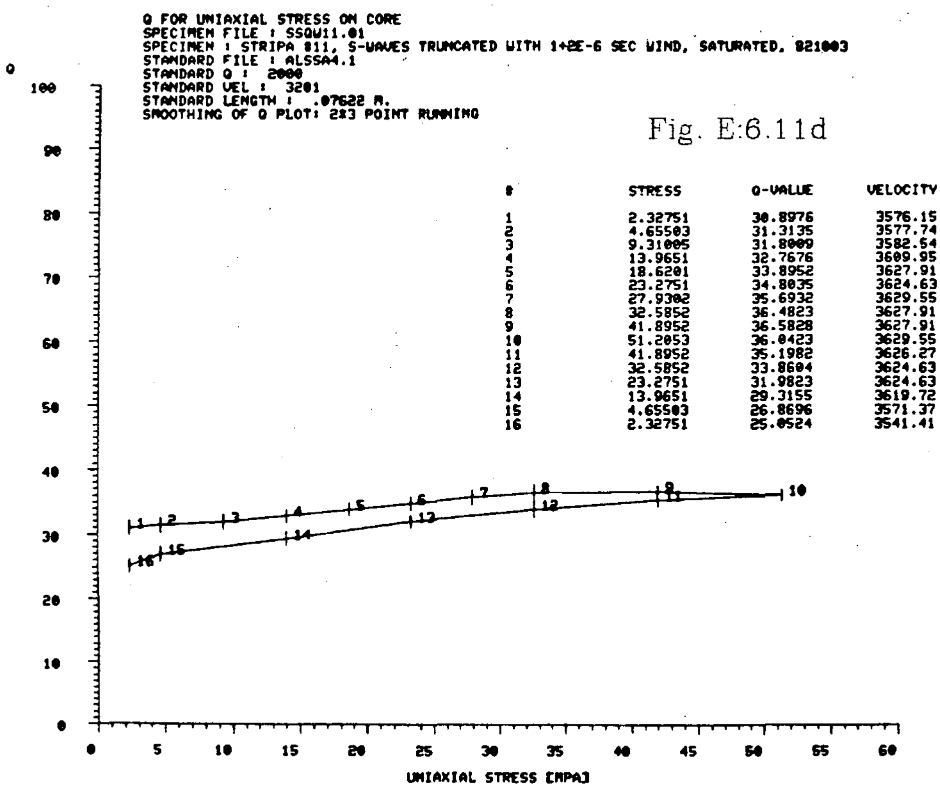


Fig. E:6.11d

#	STRESS	Q-VALUE	VELOCITY
1	2.32751	30.8976	3576.15
2	4.65503	31.3135	3577.74
3	9.31005	31.8009	3582.54
4	13.9651	32.7676	3609.95
5	18.6201	33.8952	3627.91
6	23.2751	34.8035	3624.63
7	27.9302	35.6932	3629.55
8	32.5852	36.4823	3627.91
9	41.8952	36.5828	3627.91
10	51.2053	36.0423	3629.55
11	41.8952	35.1982	3626.27
12	32.5852	33.8604	3624.63
13	23.2751	31.9823	3624.63
14	13.9651	29.3155	3619.72
15	4.65503	26.8696	3571.37
16	2.32751	25.0524	3541.41

Appendix E:7 - Saturation experiment for specimen # 1.

In this appendix the data for the saturation experiment from specimen # 1 is presented. For each saturation level the specimen was tested at four different uniaxial stresses. For the presentation of the data the waveforms and the amplitude spectra were assembled in their different stress groups.

SPECIMEN\FILE :STDAT2.WET

DATE :26 OCTOBER, 1982

LENGTH OF SPECIMEN : .079045 METER. DIAMETER OF SPECIMEN : 5.1791 CENTIMETER

NUMBER OF LOADS : 4

DENSITY OF SPECIMEN :

2626	2626	2626	2625	2625
2625	2625	2624	2624	2624
2623	2623 KG/M^3			

POROSITY : .897748 %

THE UNIAXIAL STRESS IS : 5 MPA

WEIGHT (GRAMS)	SATURATION (%)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
437.283	100	5979	3475	79	52	32	.245083
437.243	93	5890	3490	79	48	32	.229525
437.206	86	5778	3459	77	46	31	.220666
437.173	80	5720	3413	75	45	31	.223514
437.162	78	5601	3412	75	44	31	.219508
437.095	67	5626	3376	73	43	30	.218875
437.063	61	5590	3355	72	43	30	.218501
437.023	54	5485	3342	71	40	29	.204772
436.983	47	5501	3344	71	40	29	.206974
436.943	40	5505	3344	71	40	29	.20762
436.743	6	5374	3249	67	39	28	.211922
436.708	0	5306	3241	66	37	[illegible]	[illegible]

THE UNIAXIAL STRESS IS : 9 MPA

WEIGHT (GRAMS)	SATURATION (%)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
437.283	100	5979	3478	79	52	32	.244404
437.243	93	5903	3512	79	48	32	.226196
437.206	86	5834	3484	78	47	32	.22285
437.173	80	5791	3450	77	46	31	.224819
437.162	78	5757	3438	76	46	31	.222797
437.096	67	5703	3422	75	44	31	.21875
437.063	61	5634	3390	73	43	30	.216363
437.023	54	5551	3390	73	41	30	.202711
436.983	47	5559	3378	72	41	30	.207243
436.943	40	5570	3379	72	41	30	.208801
436.743	6	5448	3289	69	40	28	.213083
436.708	0	5326	3253	67	37	28	.20261

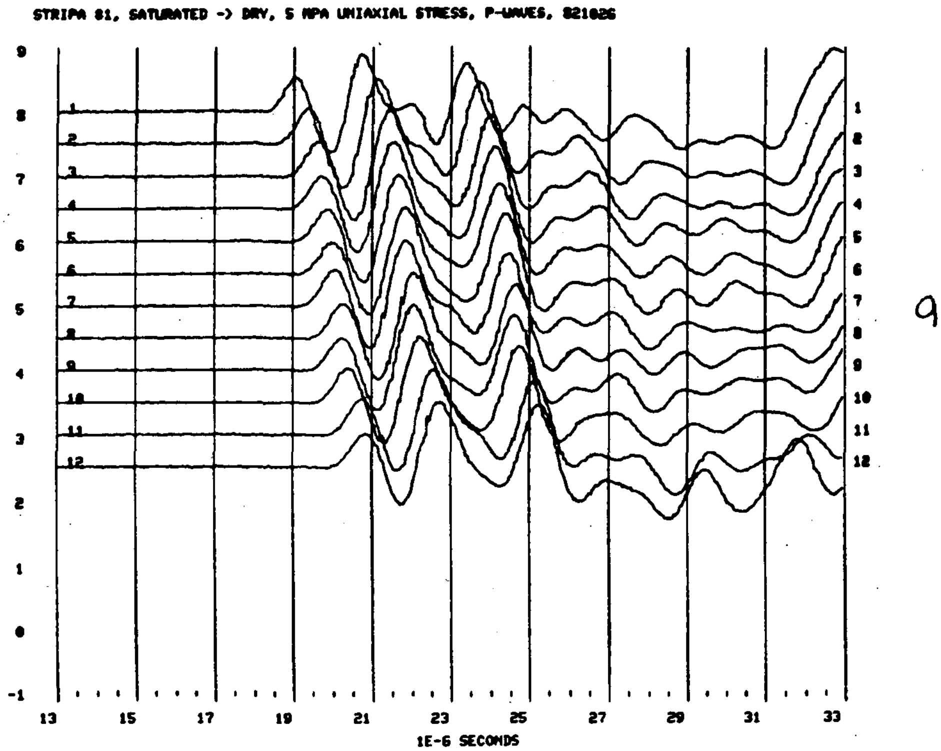
THE UNIAXIAL STRESS IS : 19 MPA

WEIGHT (GRAMS)	SATURATION (%)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
437.283	100	5979	3504	80	51	32	.238516
437.243	93	5934	3530	80	49	33	.226107
437.206	86	5890	3513	79	48	32	.223909
437.173	80	5864	3485	78	48	32	.226893
437.162	78	5842	3478	78	47	32	.225622
437.095	67	5791	3459	77	46	31	.222569
437.063	61	5728	3436	76	45	31	.219131
437.023	54	5662	3423	75	43	31	.211941
436.983	47	5670	3423	75	43	31	.213239
436.943	40	5670	3422	75	43	31	.213629
436.743	6	5574	3323	71	43	29	.224477
436.708	0	5578	3302	70	43	29	.230365

THE UNIAXIAL STRESS IS : 28 MPA

WEIGHT (GRAMS)	SATURATION (%)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
437.283	100	5979	3541	81	50	33	.229807
437.243	93	5957	3541	81	49	33	.22664
437.206	86	5925	3534	80	48	33	.224067
437.173	80	5912	3521	80	48	33	.225197
437.162	78	5894	3507	79	48	32	.226059
437.095	67	5851	3496	78	47	32	.222364
437.063	61	5799	3476	77	46	32	.21965
437.023	54	5745	3465	77	46	32	.213956
436.983	47	5753	3468	77	45	32	.214474
436.943	40	5753	3461	76	45	31	.216431
436.743	6	5666	3381	73	44	30	.223593
436.708	0	5602	3337	72	43	29	.225106

Table E:7.1 Data from specimen # 1 during saturation experiment.



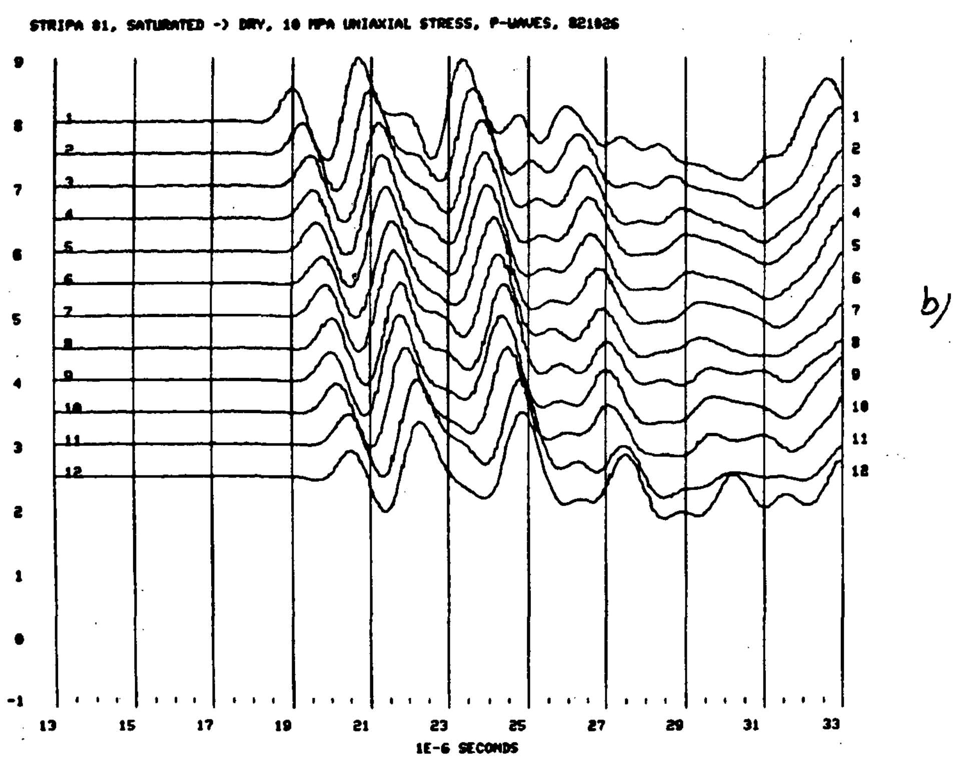
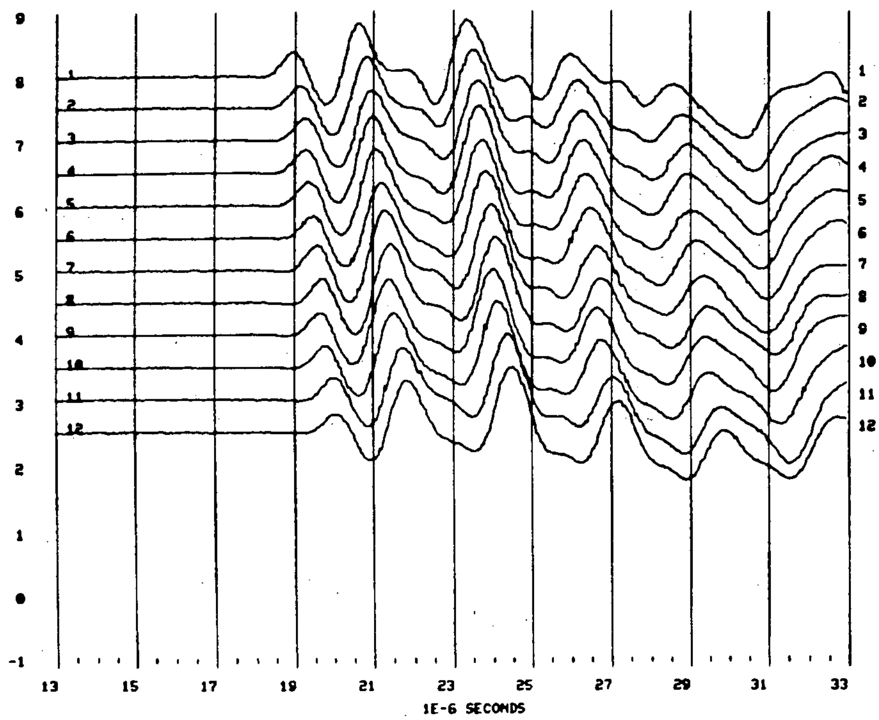


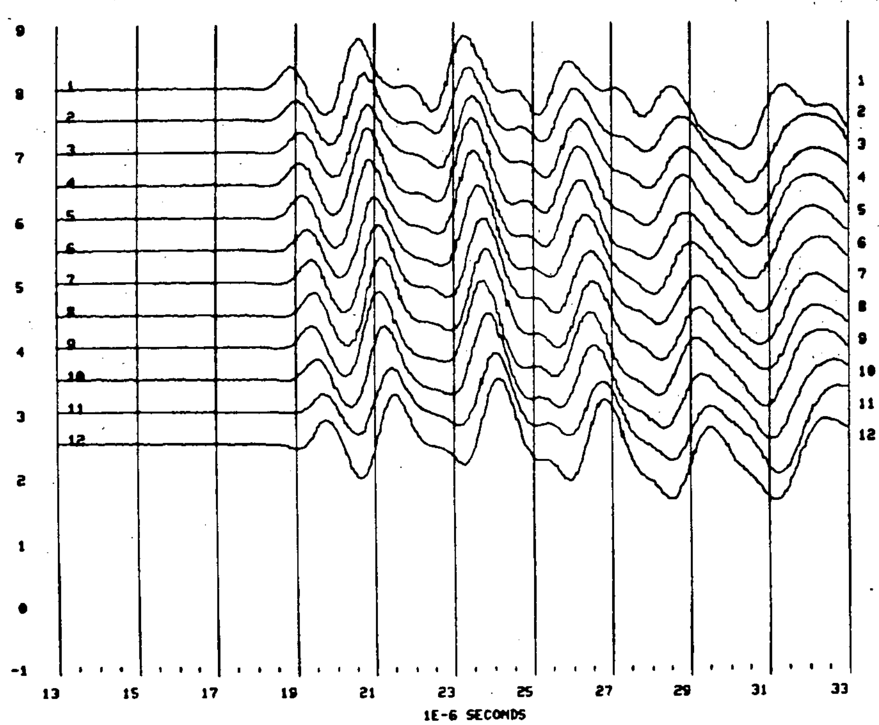
Fig. E:7.1 P waves for 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

STRIPA 81, SATURATED -> DRY, 20 MPA UNIAXIAL STRESS, P-WAVES, 821026

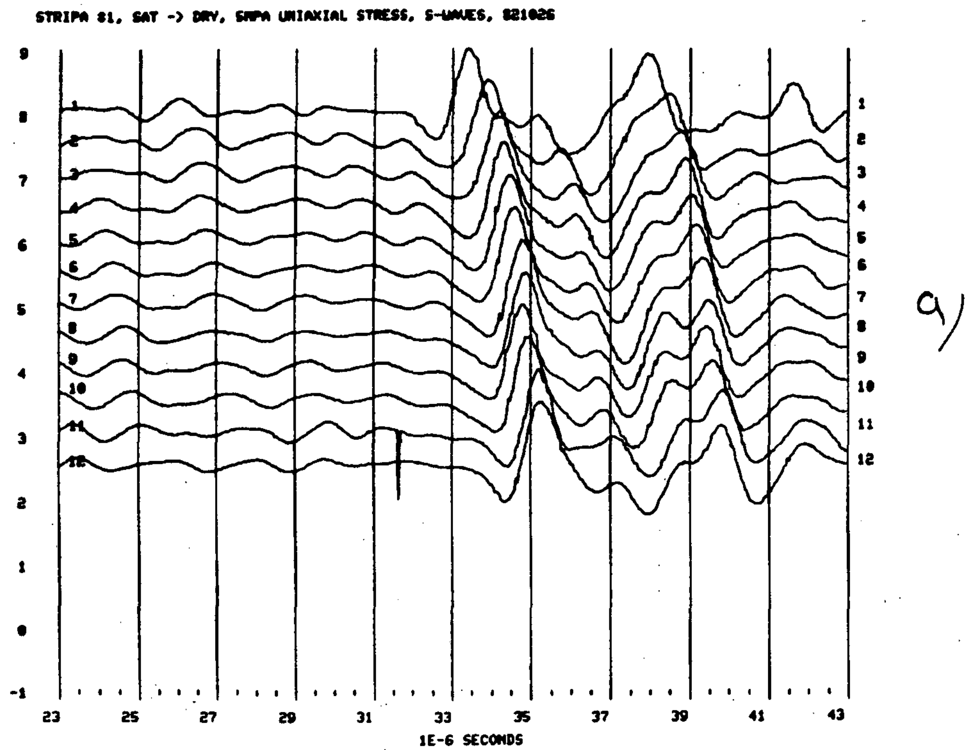


c)

STRIPA 81, SATURATED -> DRY, 30 MPA UNIAXIAL STRESS, P-WAVES, 821026



d)



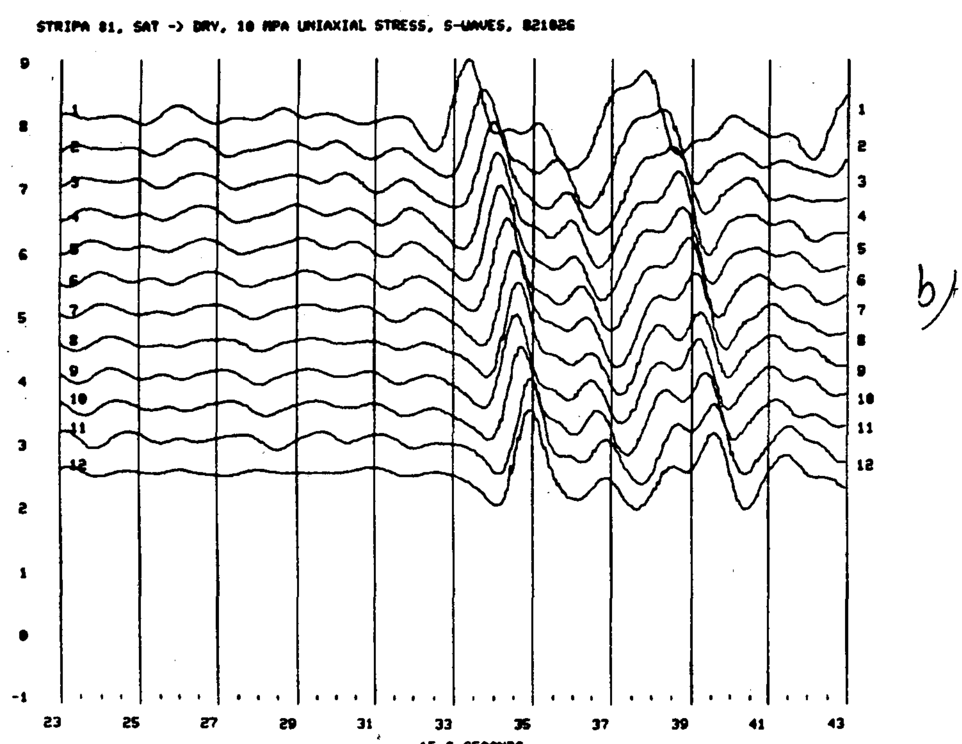
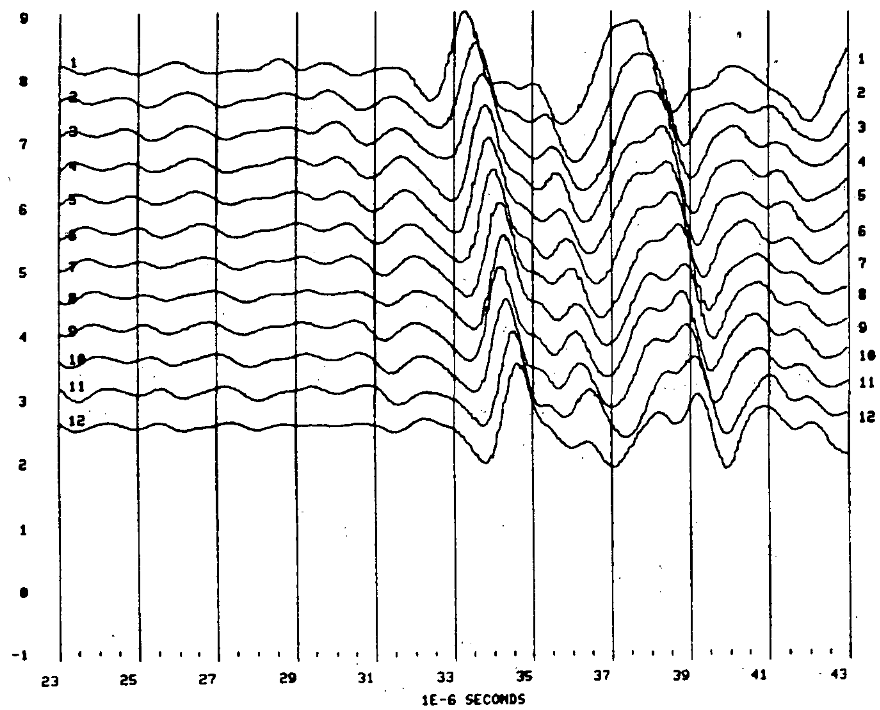


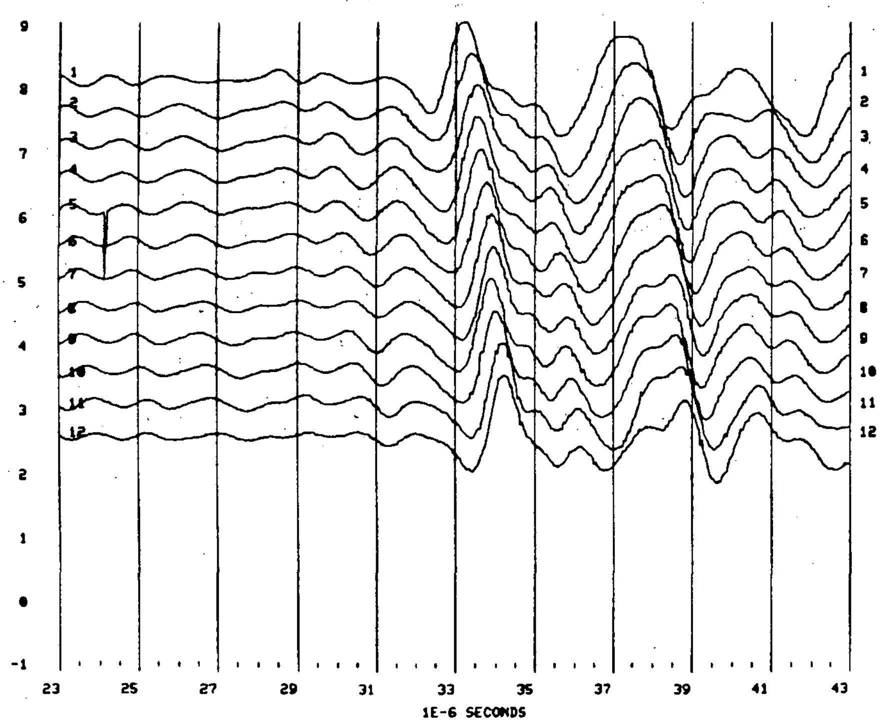
Fig. E:7.2 S waves for 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

STRIPA 81, SAT -> DRY, 20 MPA UNIAXIAL STRESS, S-WAVES, 821026

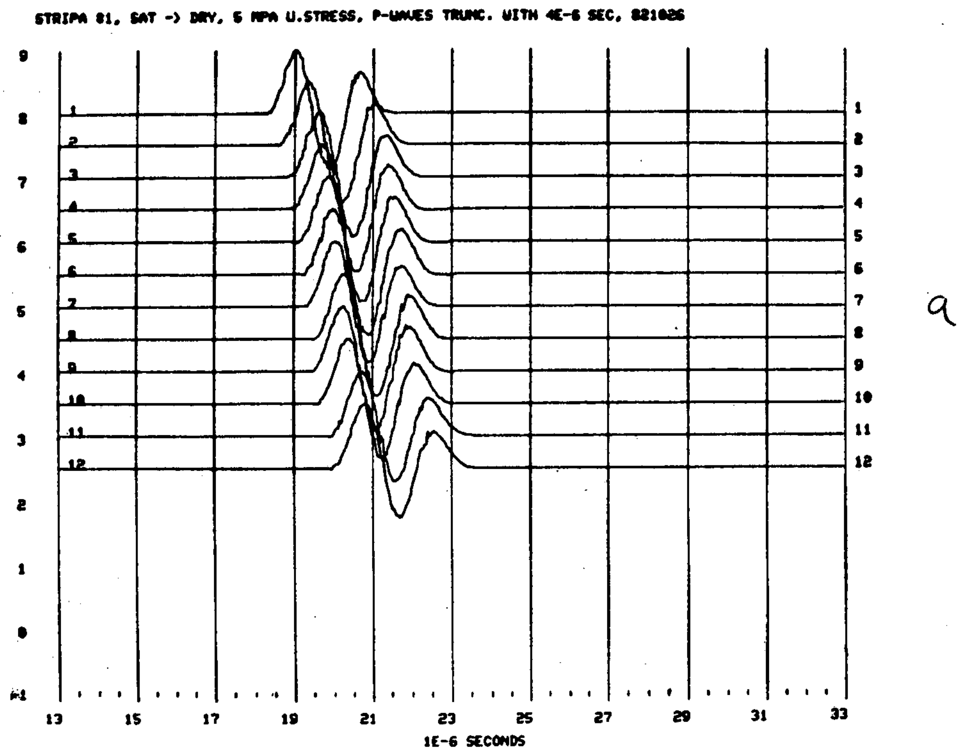


b)

STRIPA 81, SAT -> DRY, 30 MPA UNIAXIAL STRESS, S-WAVES 821026



c)



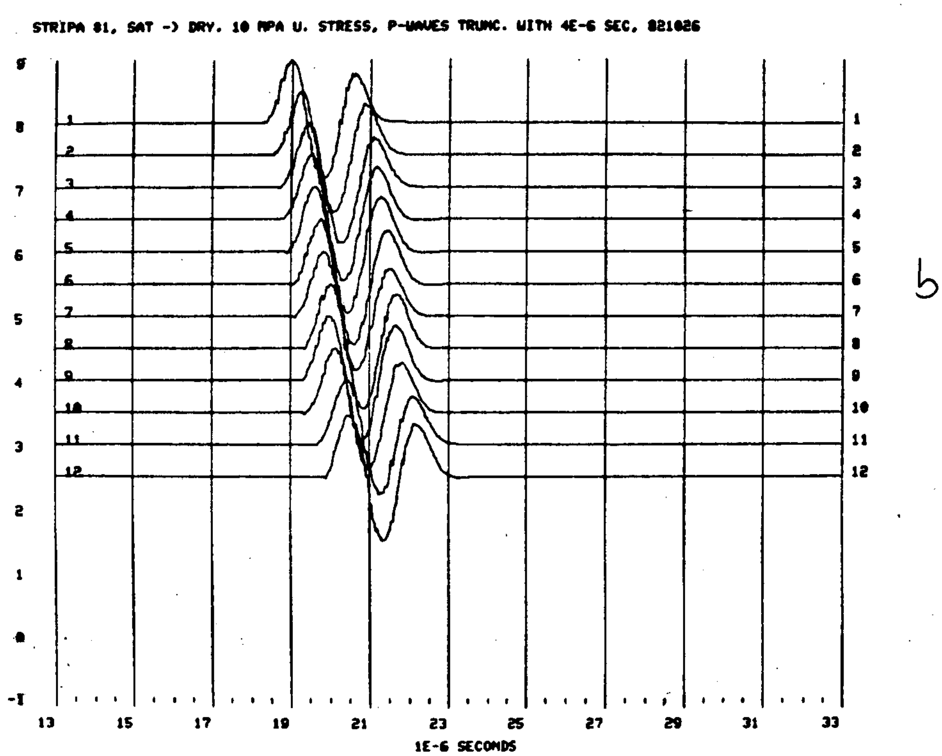
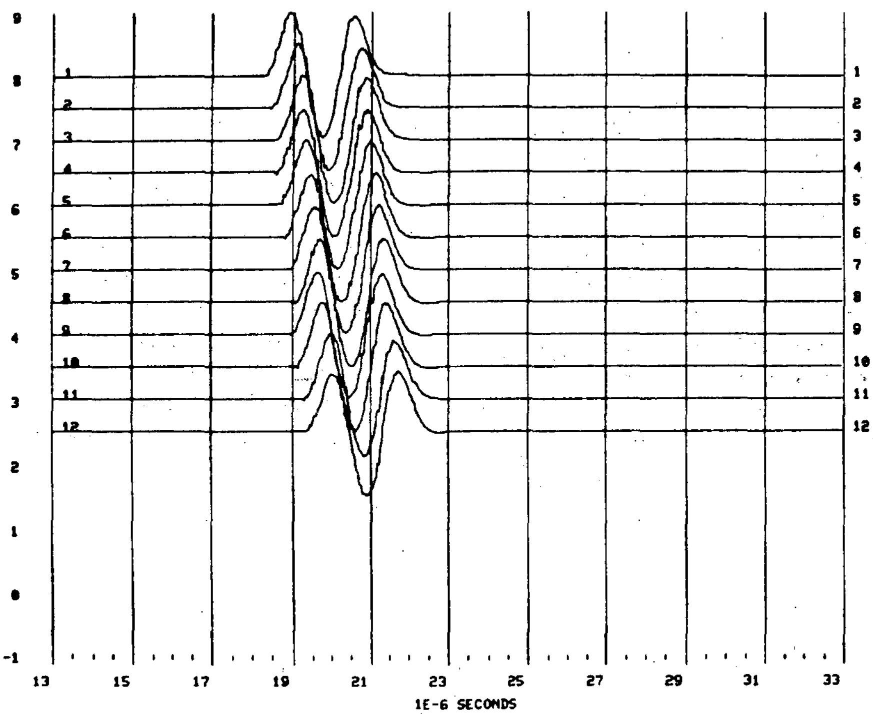


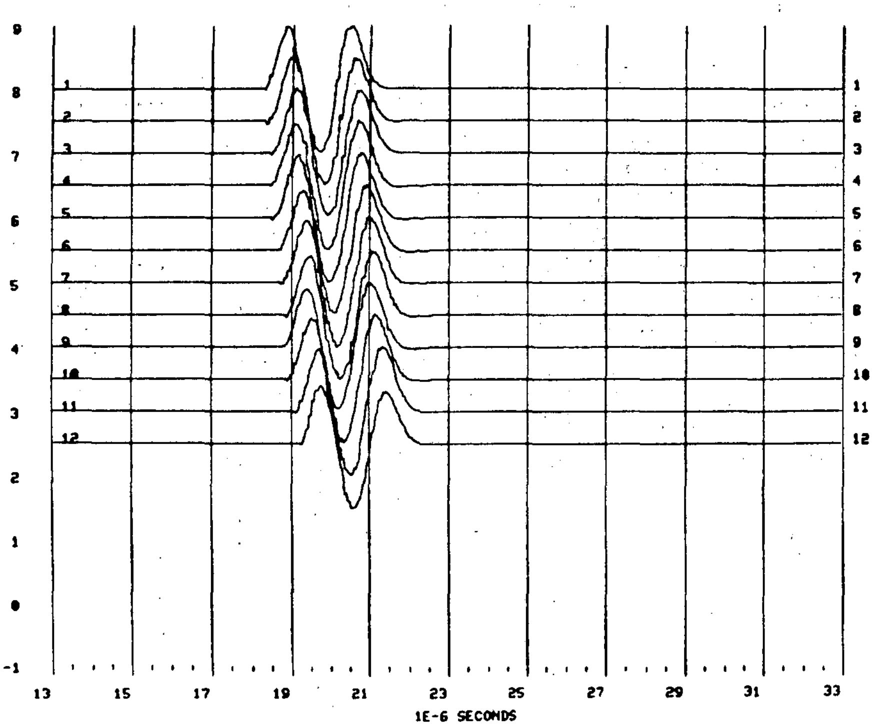
Fig. E:7.3 Truncated P waves for 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

STRIPA 81, SAT -> DRY, 20 MPA U.STRESS, P-WAVES TRUNC. WITH 4E-6 SEC, 821026

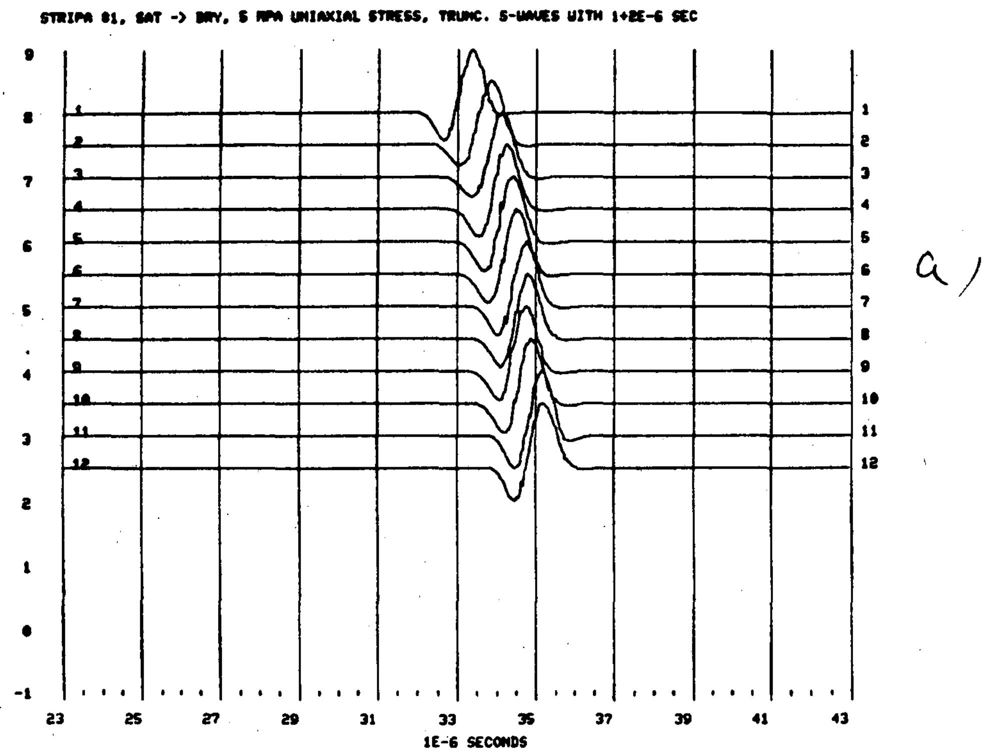


c)

STRIPA 81, SAT -> DRY, 30 MPA U.STRESS, P-WAVES TRUNC. WITH 4E-6 SEC, 821026



d)



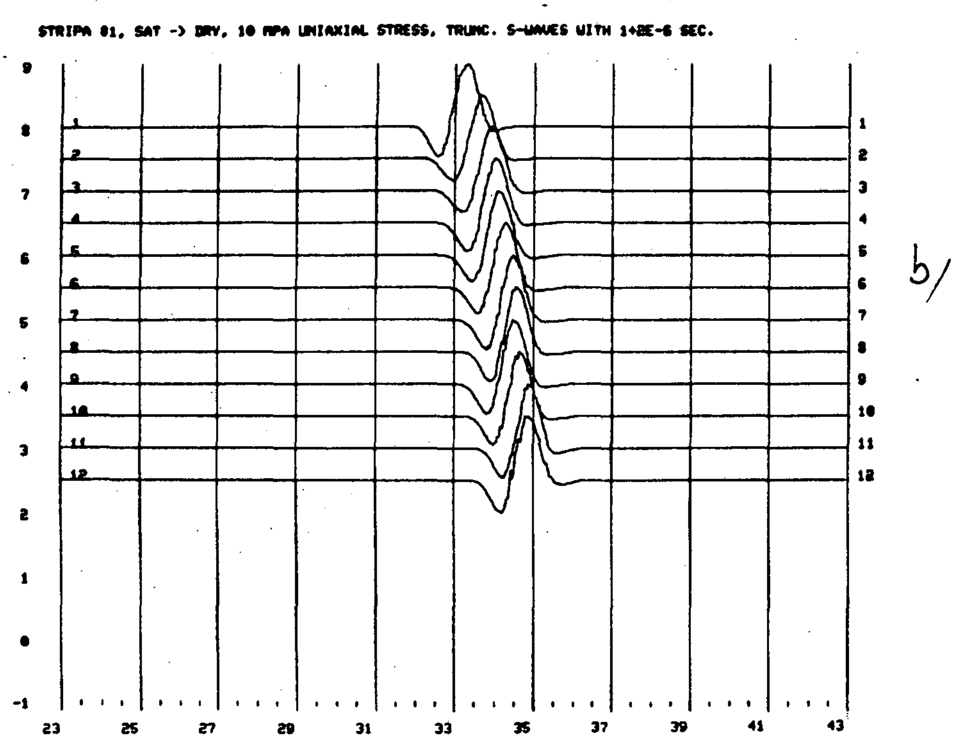
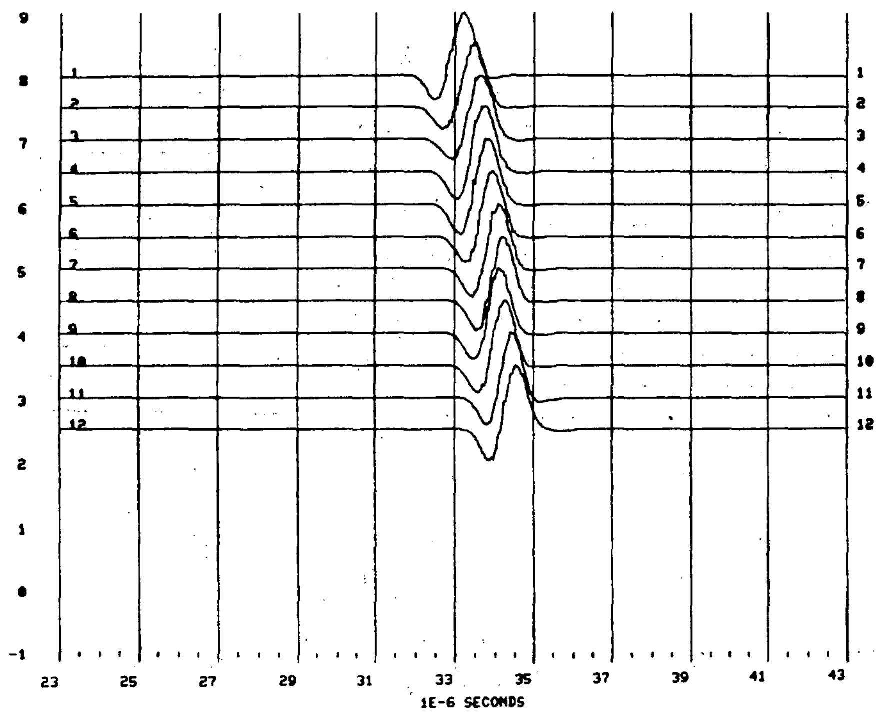


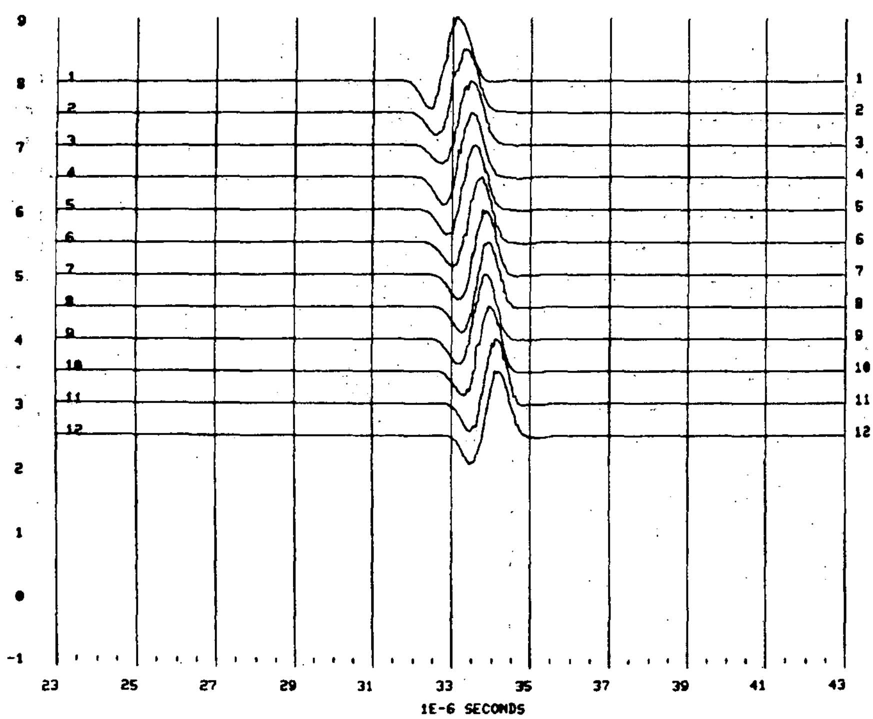
Fig. E.7.4 Truncated S waves for 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

STRIPA 81, SAT -> DRY, 20 MPA UNIAXIAL STRESS, TRUNC. S-WAVES WITH 1+2E-6 SEC.

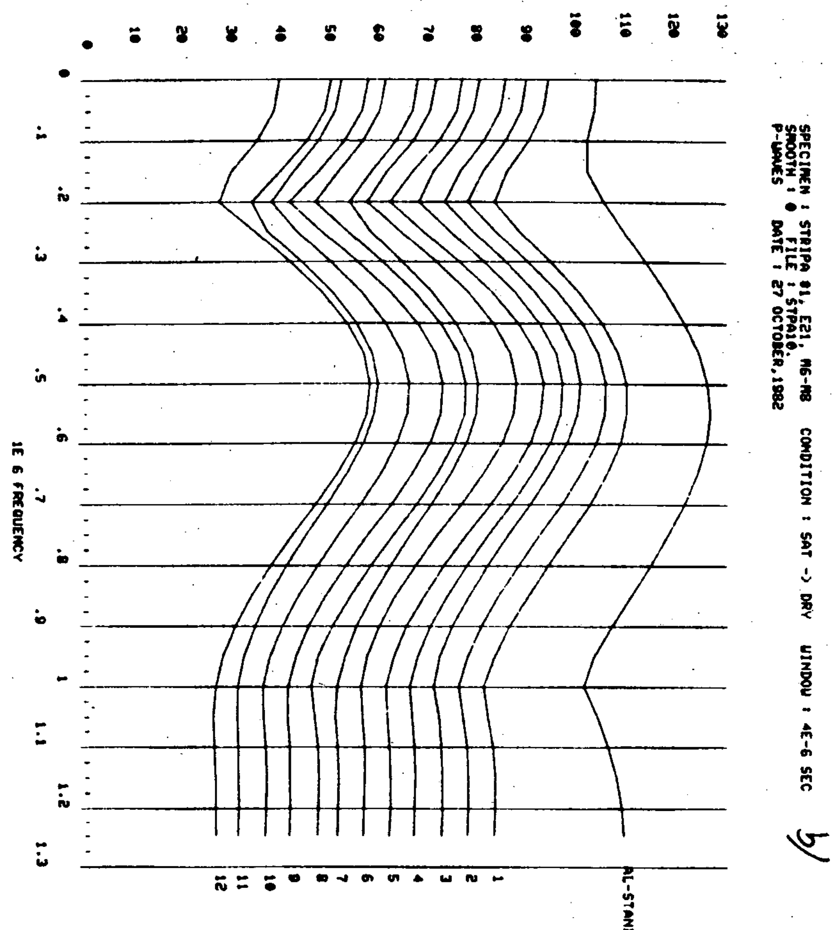


c/

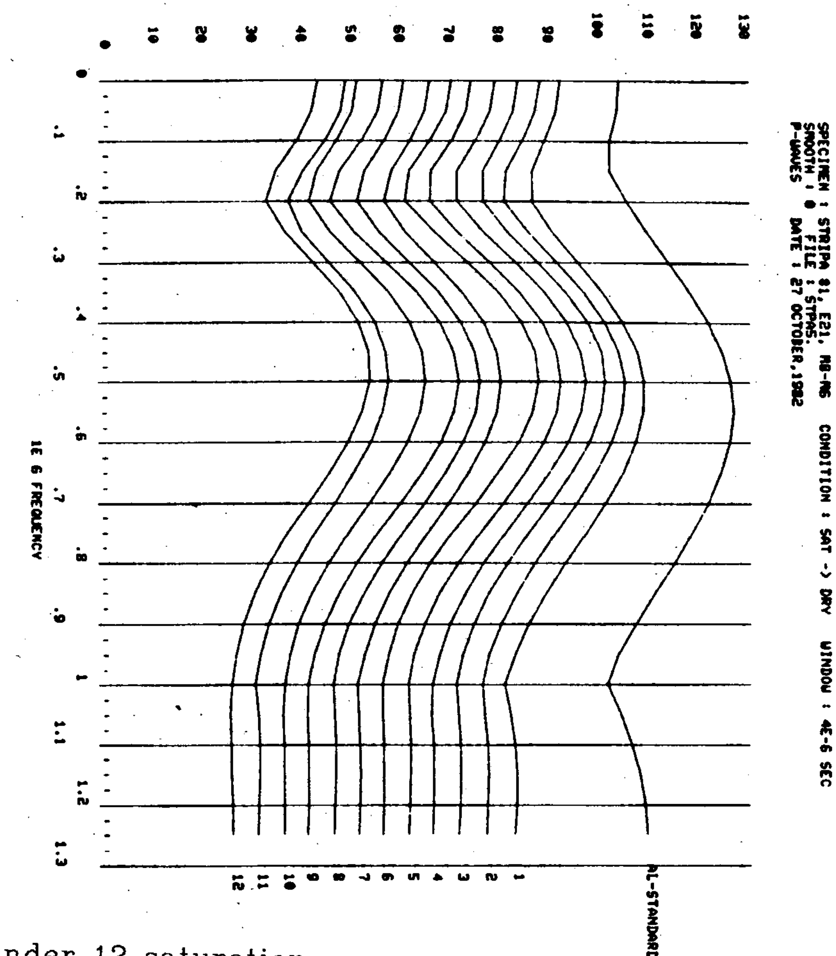
STRIPA 81, SAT -> DRY, 30 MPA UNIAXIAL STRESS, TRUNC. S-WAVES WITH 1+2E-6 SEC.



d/



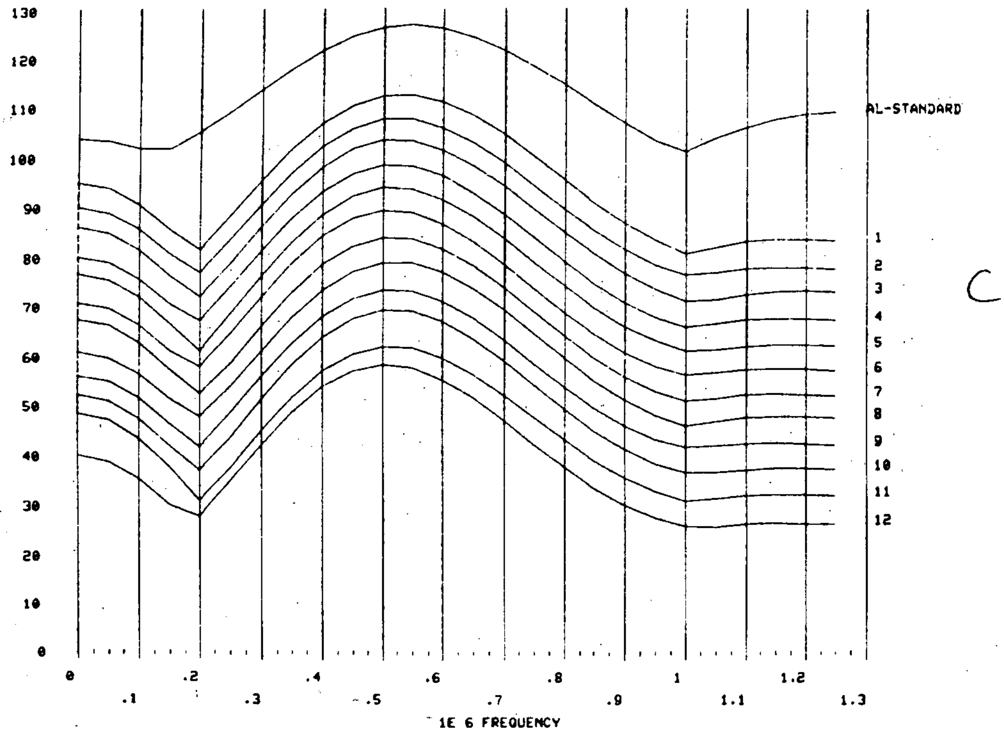
b)



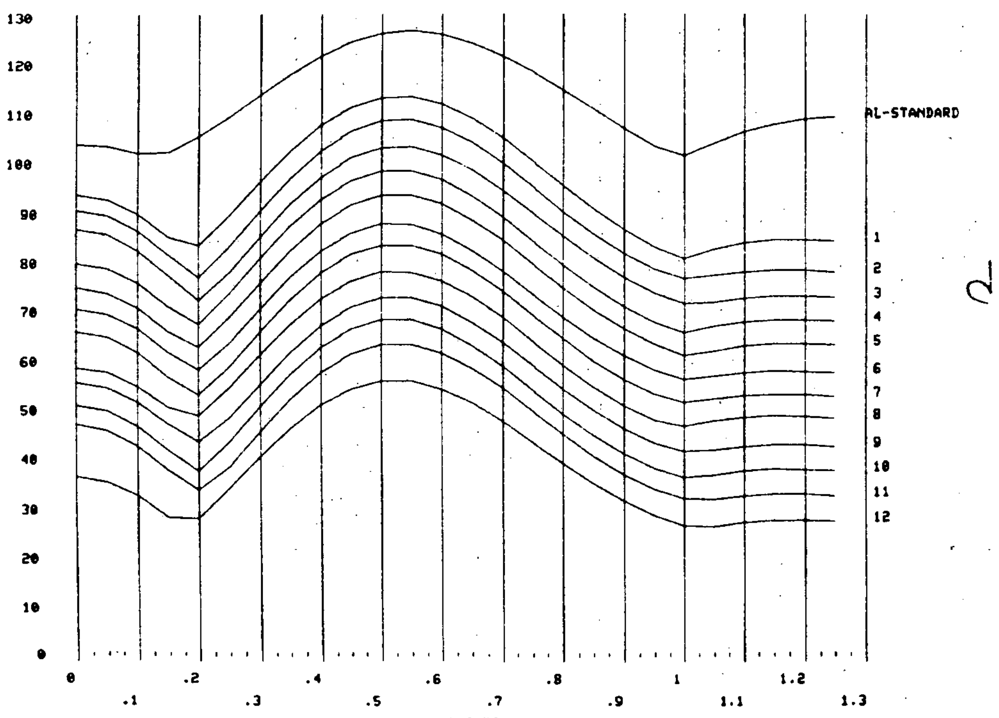
a)

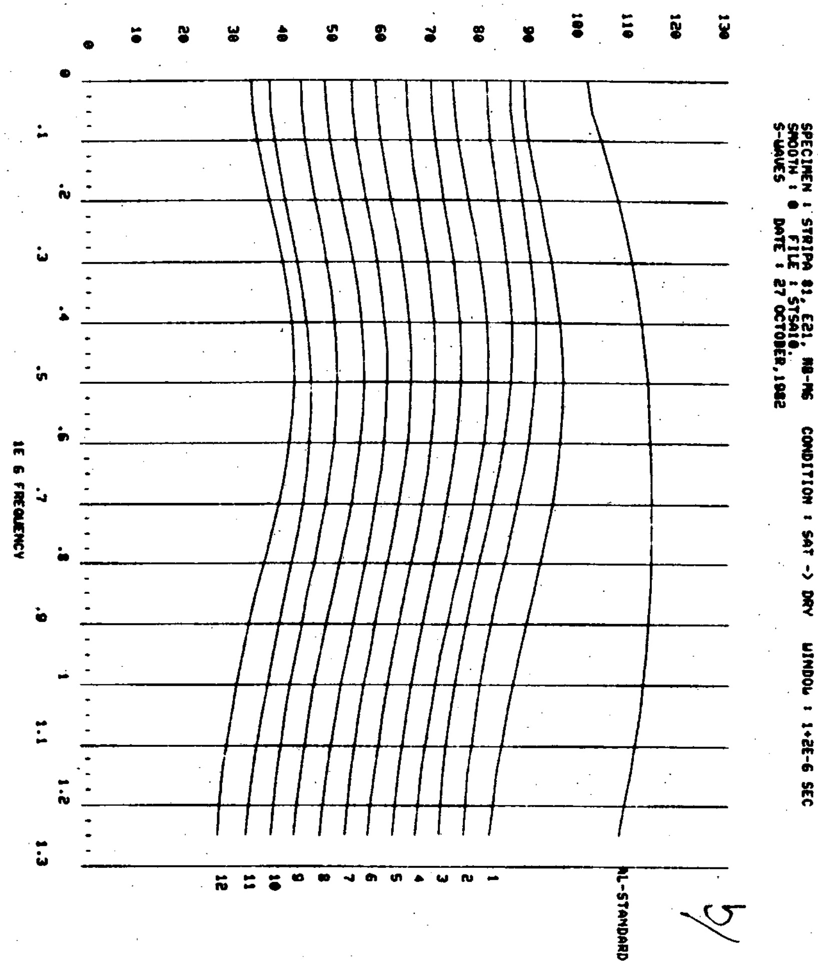
Fig. E:7.5 Fourier amplitude spectra for P waves under 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

SPECIMEN : STRIPA #1, E21, M8-M6 CONDITION : SAT -> DRY WINDOW : 4E-6 SEC
SMOOTH : 0 FILE : STPA20.
P-WAVES DATE : 27 OCTOBER,1982



SPECIMEN : STRIPA #1, E21, M8-M6 CONDITION : SAT -> DRY WINDOW : 4E-6 SEC
SMOOTH : 0 FILE : STPA30.
P-WAVES DATE : 27 OCTOBER,1982





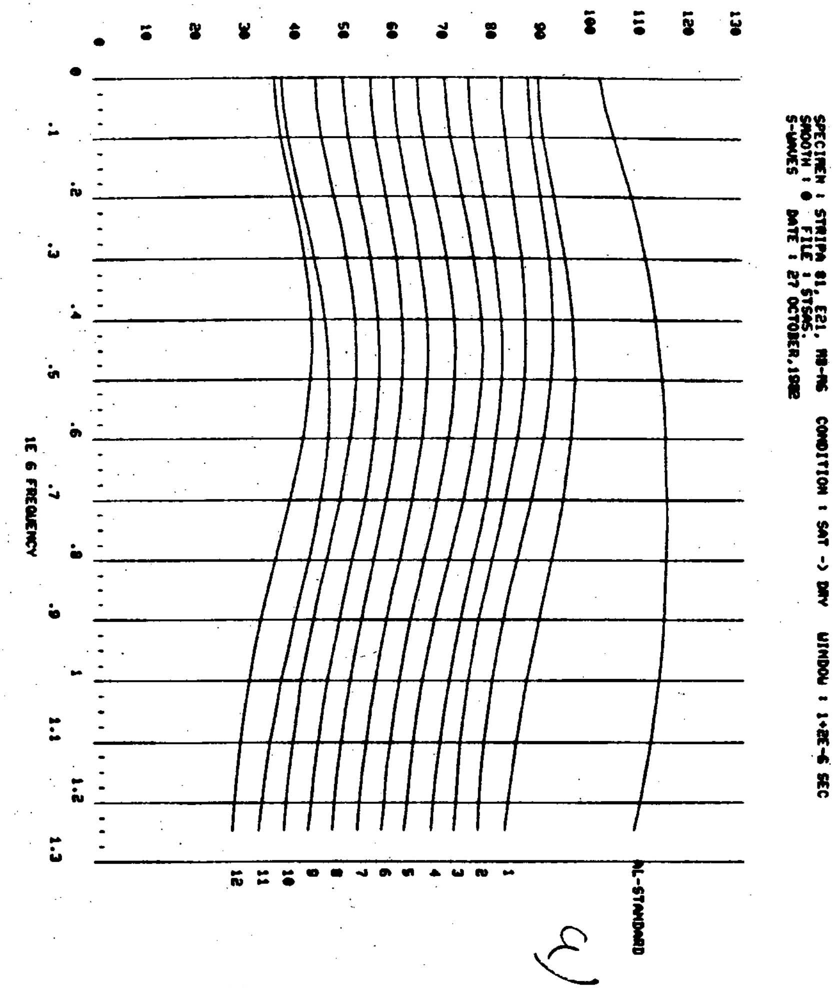
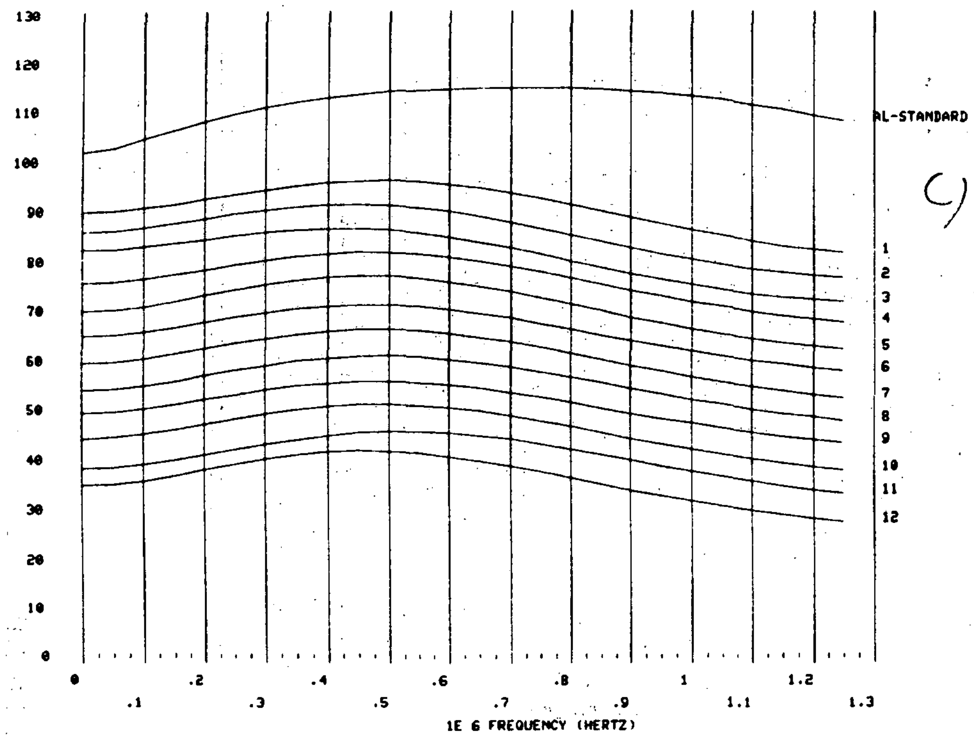
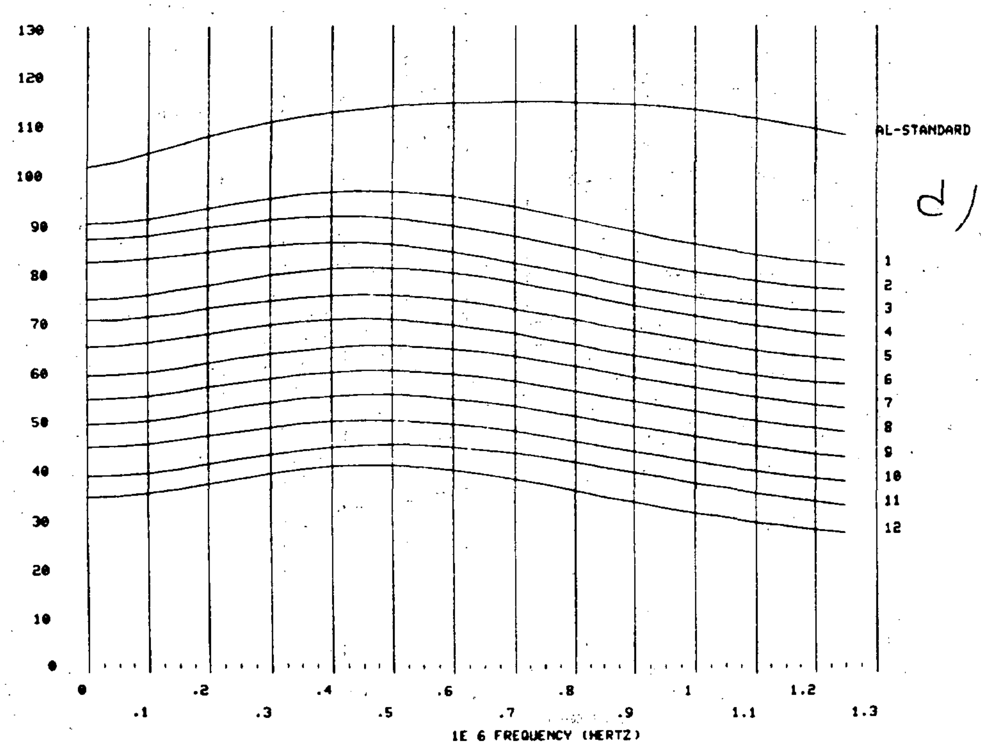


Fig. E:7.6 Fouries amplitude spectra for S waves under 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

SPECIMEN : STRIPA #1, E21, M8-M6   CONDITION : SAT -> DRY   WINDOW : 1+2E-6 SEC
SMOOTH : 0   FILE : STSA20.
S-WAVES   DATE : 27 OCTOBER,1982



SPECIMEN : STRIPA #1, E21, M8-M6   CONDITION : SAT -> DRY   WINDOW : 1+2E-6 SEC
SMOOTH : 0   FILE : STSA30.
S-WAVES   DATE : 27 OCTOBER,1982



Appendix E:8 - Saturation experiment for specimen # 2.

In this appendix the data for the saturation experiment from specimen # 2 is presented. For each saturation level the specimen was tested at four different uniaxial stresses. For the presentation of the data the waveforms and the amplitude spectra were assembled in their different stress groups.

SPECIMEN\FILE :STDAT2.WET

DATE :27 OCTOBER, 1982

LENGTH OF SPECIMEN : .081928 METER. DIAMETER OF SPECIMEN : 5.1689 CENTIMETER

NUMBER OF LOADS : 4

DENSITY OF SPECIMEN :

2631	2630	2630	2630	2630
2629	2629	2629	2629	2628
2628	2628 KG/M^3			

POROSITY : .949747 %

THE UNIAXIAL STRESS IS : 5 MPA

WEIGHT (GRAMS)	SATURATION (%)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
452.353	100	5852	3401	76	50	30	.24501
452.218	78	5451	3309	70	40	29	.208256
452.17	70	5252	3292	67	35	28	.176514
452.143	66	5105	3237	64	32	28	.163699
452.121	63	5098	3214	64	32	27	.170181
452.043	50	4974	3195	62	29	27	.148761
452.028	48	4932	3187	61	28	27	.141803
451.953	36	4814	3183	59	25	27	.11155
451.918	30	4752	3182	58	24	27	.0937929
451.871	23	4733	3171	58	24	26	.0929625
451.763	6	4608	3138	55	21	26	.0676624
451.725	0	4552	3116	54	20	26	.0587806

THE UNIAXIAL STRESS IS : 9 MPA

WEIGHT (GRAMS)	SATURATION (%)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
452.353	100	5865	3422	77	49	31	.241825
452.218	78	5510	3337	71	41	29	.210266
452.17	70	5369	3293	68	38	29	.198473
452.143	66	5212	3252	66	34	28	.18107
452.121	63	5215	3269	66	34	28	.176279
452.043	50	5101	3246	64	31	28	.159852
452.028	48	5057	3234	63	31	28	.153927
451.953	36	5054	3228	63	31	27	.155509
451.918	30	4868	3243	61	25	28	.100854
451.871	23	4845	3240	60	25	28	.0957026
451.763	6	4772	3194	59	24	27	.0940541
451.725	0	4695	3176	57	23	26	.0784116

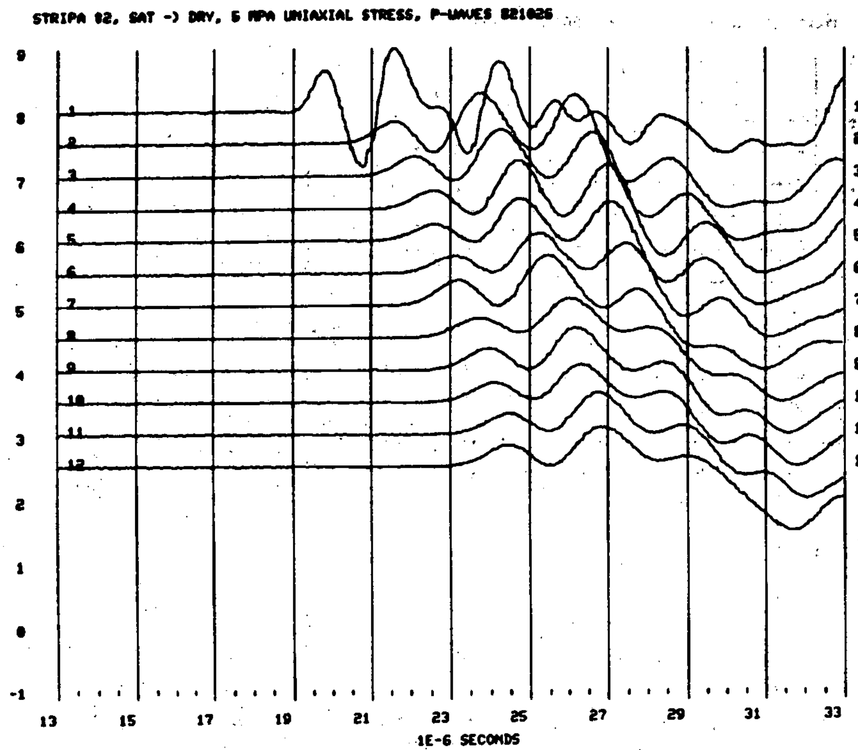
THE UNIAXIAL STRESS IS : 19 MPA

WEIGHT (GRAMS)	SATURATION (%)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
452.353	100	5890	3461	78	49	32	.236235
452.218	78	5733	3441	76	45	31	.218504
452.17	70	5642	3400	74	43	30	.215078
452.143	66	5510	3369	72	40	30	.201472
452.121	63	5499	3355	71	40	30	.203454
452.043	50	5401	3322	69	38	29	.195586
452.028	48	5330	3321	69	36	29	.182794
451.953	36	5317	3298	68	36	29	.187178
451.918	30	5215	3275	66	34	28	.174569
451.871	23	5215	3268	66	34	28	.176705
451.763	6	5086	3238	64	31	28	.159011
451.725	0	5076	3234	64	31	27	.158235

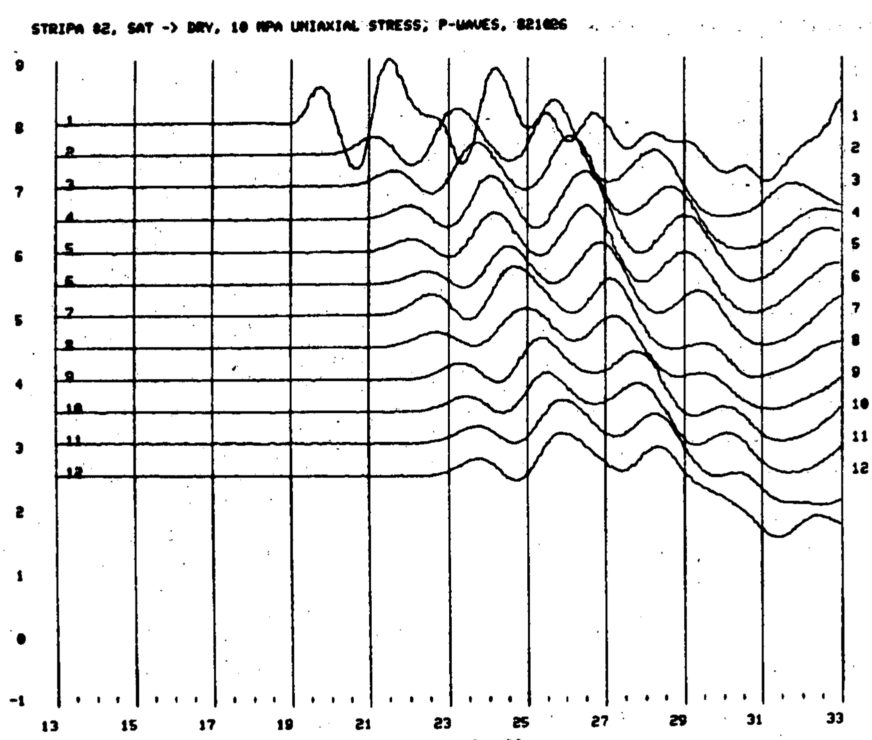
THE UNIAXIAL STRESS IS : 28 MPA

WEIGHT (GRAMS)	SATURATION (%)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (GPA)	BULK M (GPA)	SHEAR M (GPA)	PO. RA
452.353	100	5920	3489	79	49	32	.233791
452.218	78	5865	3533	80	47	33	.215189
452.17	70	5802	3503	78	46	32	.21331
452.143	66	5713	3473	77	44	32	.206949
452.121	63	5693	3463	76	43	32	.206467
452.043	50	5619	3427	74	42	31	.204025
452.028	48	5558	3424	74	40	31	.194314
451.953	36	5543	3392	73	40	30	.20057
451.918	30	5433	3376	71	38	30	.185579
451.871	23	5447	3370	71	38	30	.189943
451.763	6	5337	3326	69	36	29	.182462
451.725	0	5265	3336	68	34	29	.164737

Table E:8.1 Data from specimen # 2 during saturation experiment.



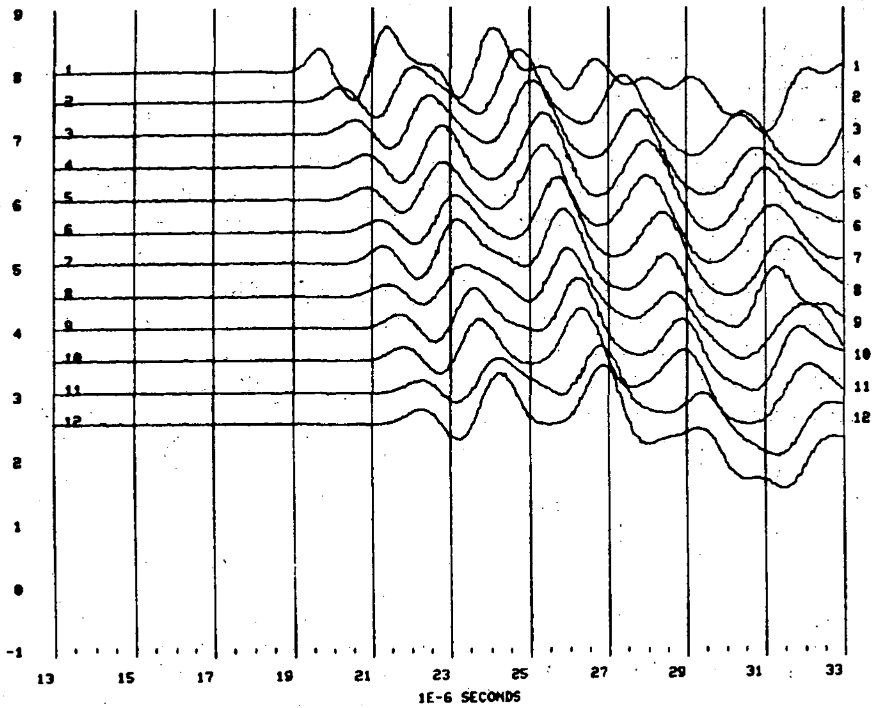
a/



b/

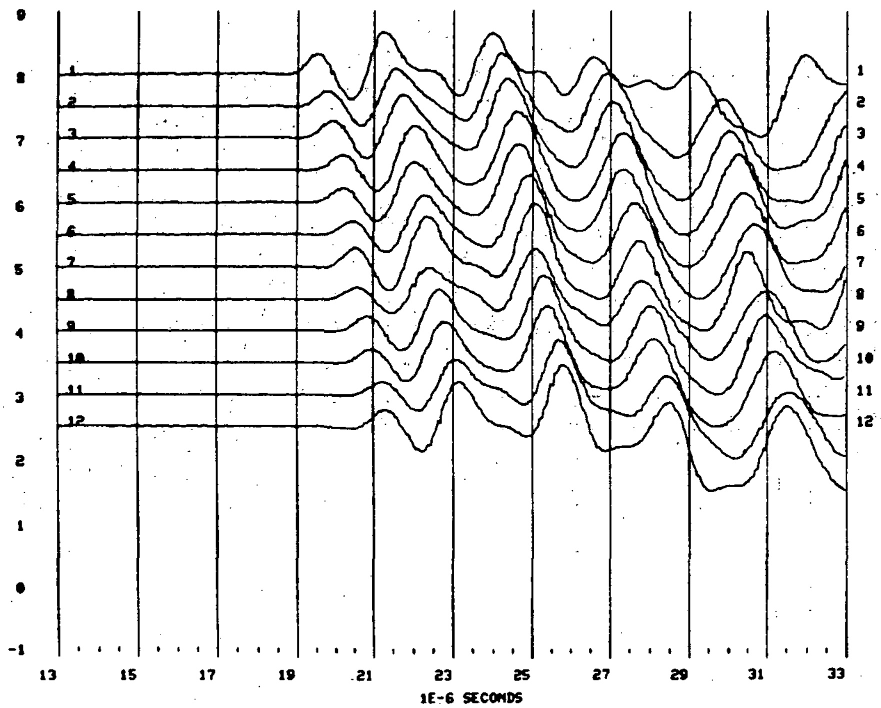
Fig. E.8.1 P waves for 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

STRIPA 82, SAT -> DRY, 20 MPA UNIAXIAL STRESS, P-WAVES, 821026

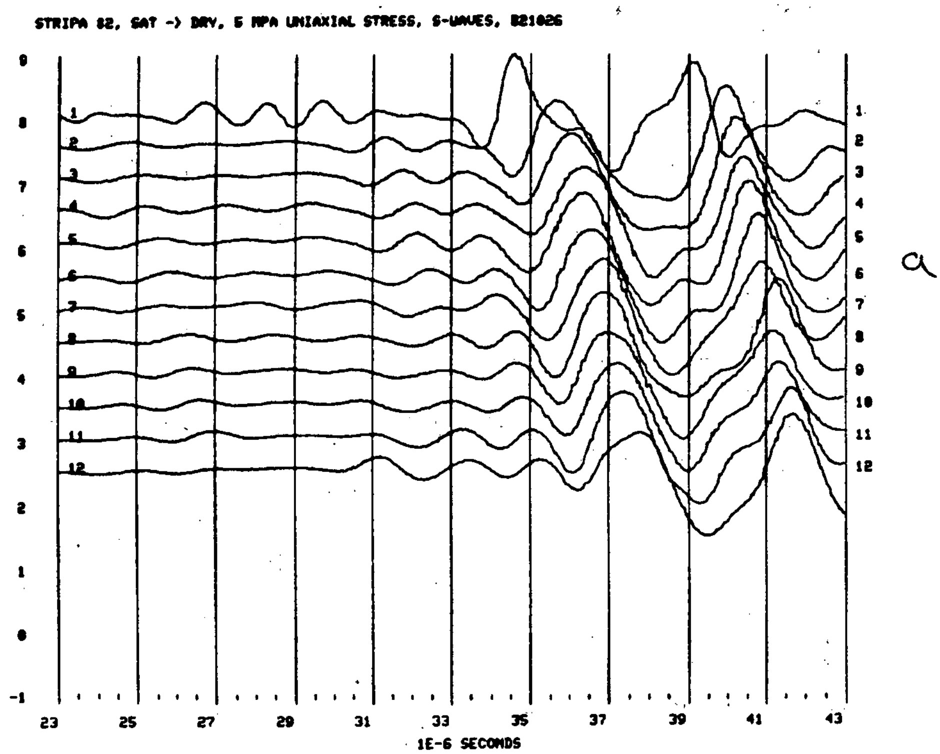


c/

STRIPA 82, SAT -> DRY, 30 MPA UNIAXIAL STRESS, P-WAVES, 821026



d/



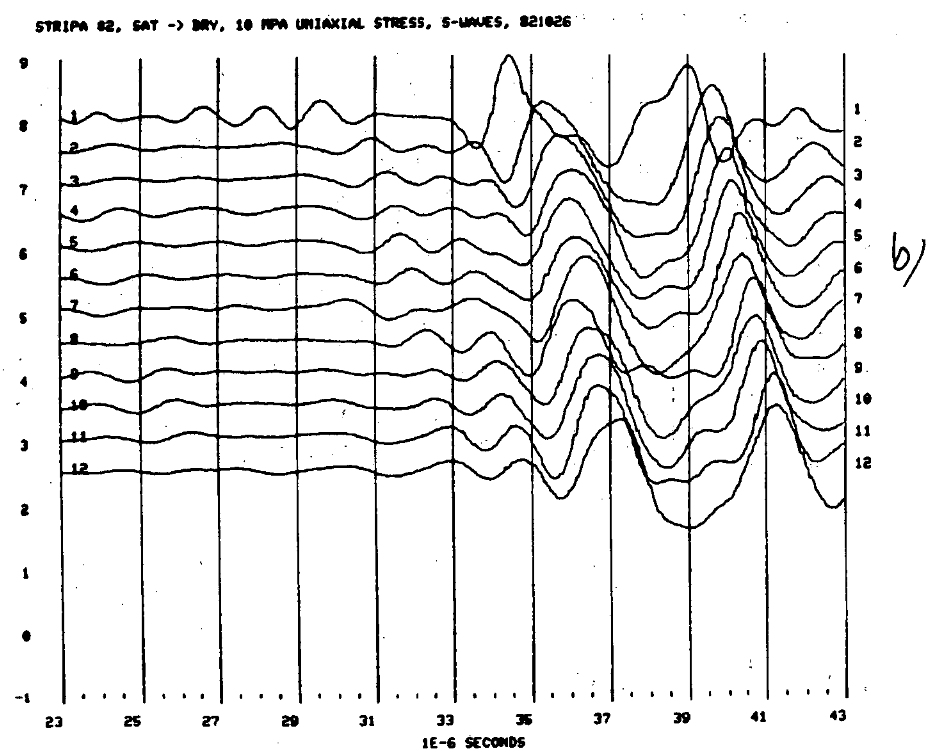
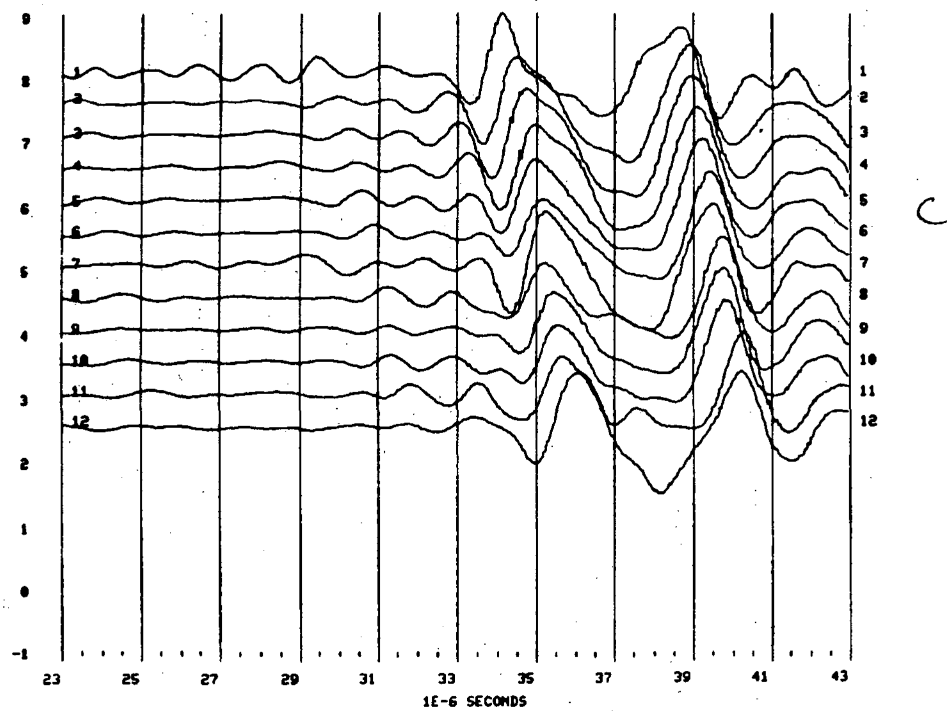
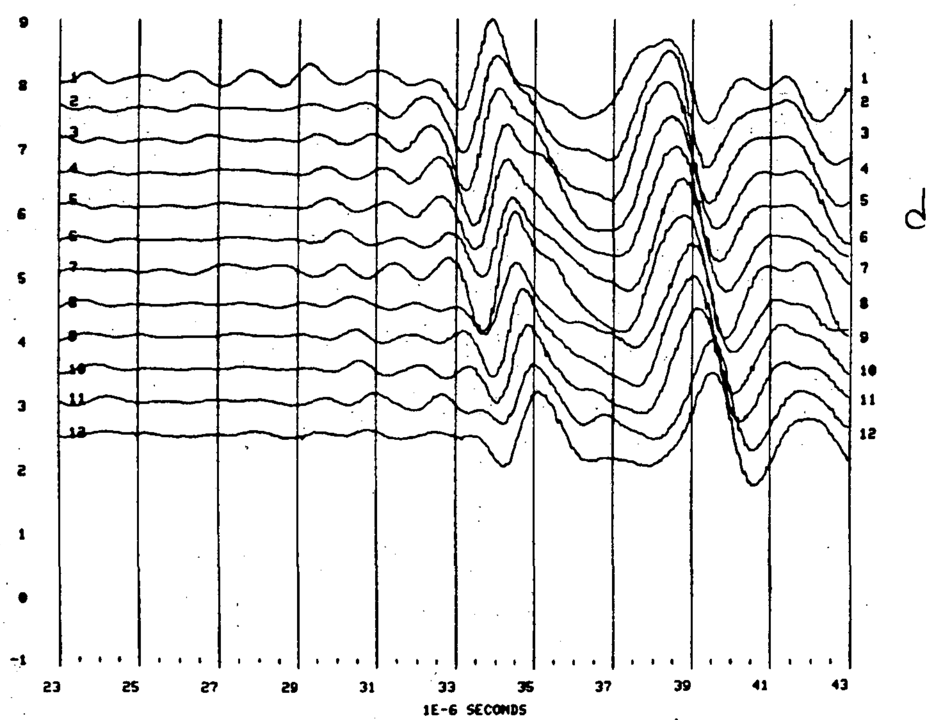


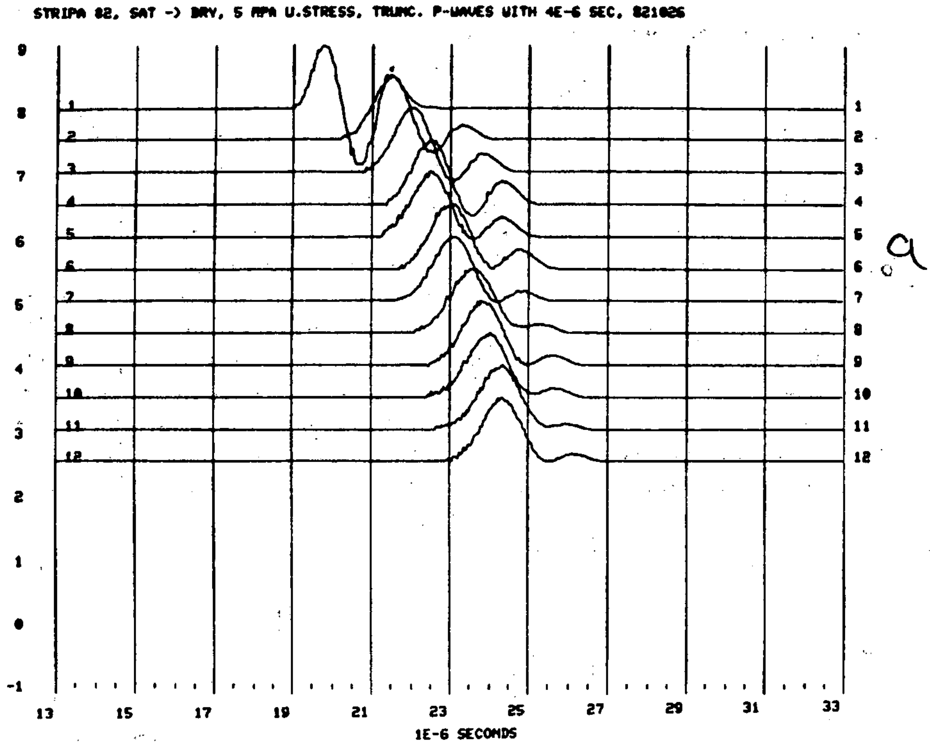
Fig. E:8.2 S waves for 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

STRIPA 82, SAT -> DRY, 20 MPA UNIAXIAL STRESS, S-WAVES, 821026



STRIPA 82, SAT -> DRY, 30 MPA UNIAXIAL STRESS, S-WAVES, 821026





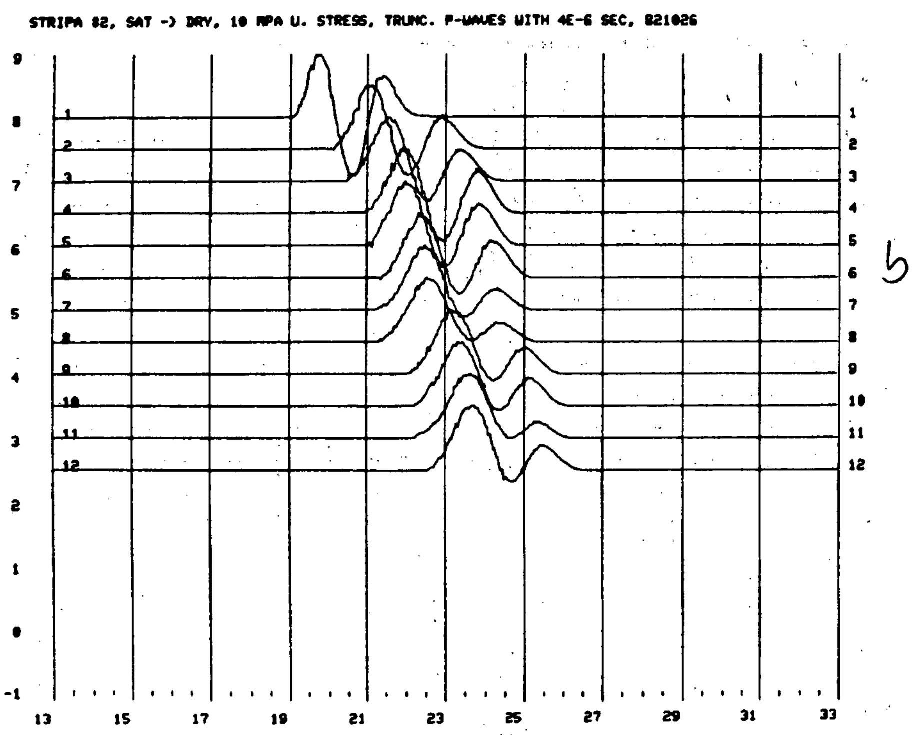
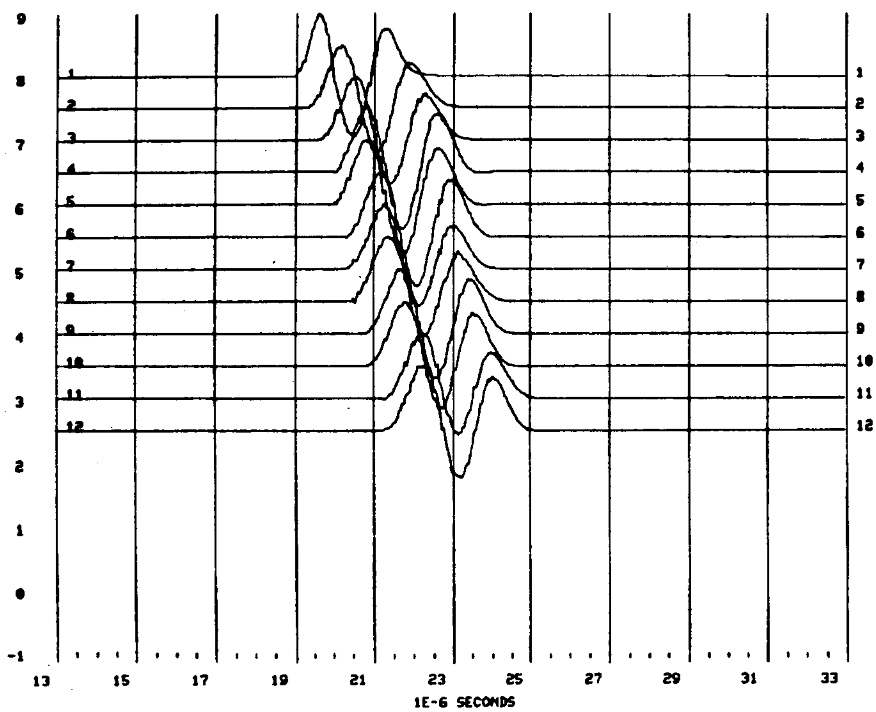


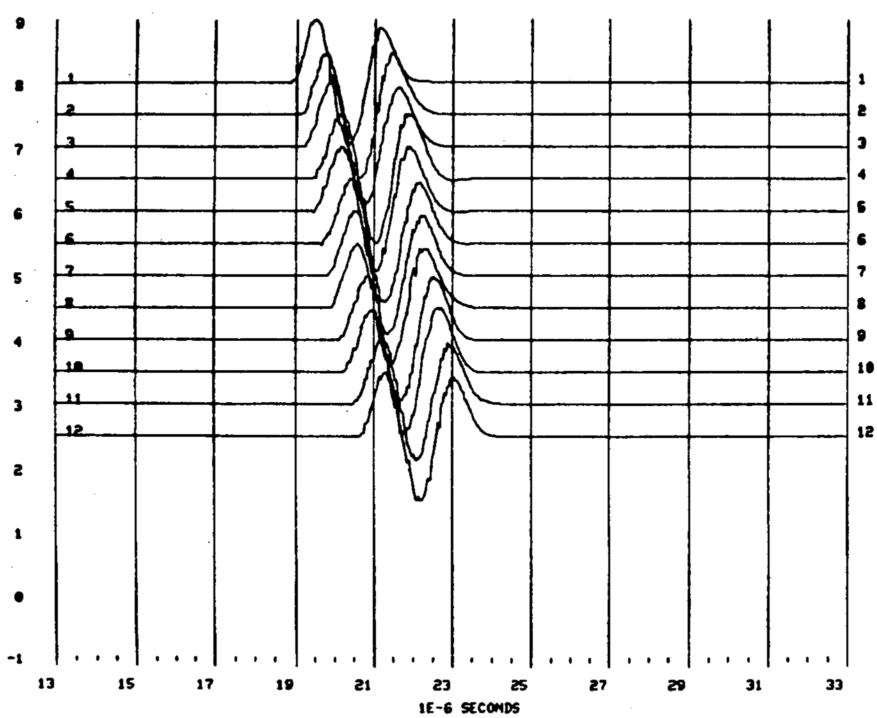
Fig. E:8.3 Truncated P waves for 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

STRIPA 82, SAT -> DRY, 20 MPA U. STRESS, TRUNC. P-WAVES WITH 4E-6 SEC, 821026

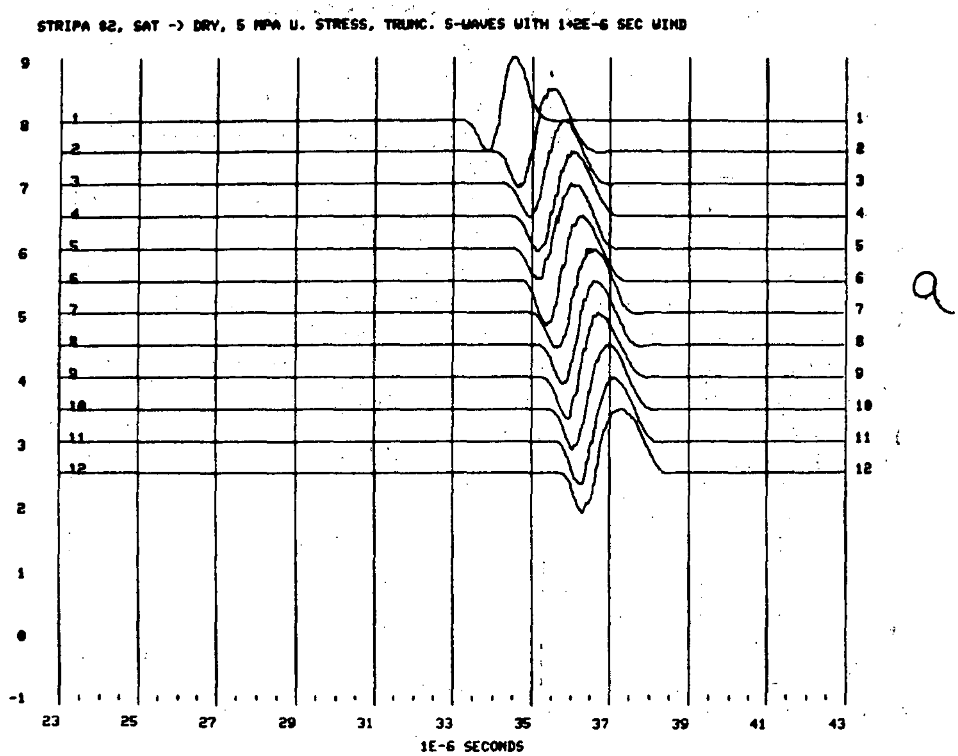


c)

STRIPA 82, SAT -> DRY, 30 MPA U.STRESS, TRUNC.P-WAVES WITH 4E-6 SEC WIND.821026



d)



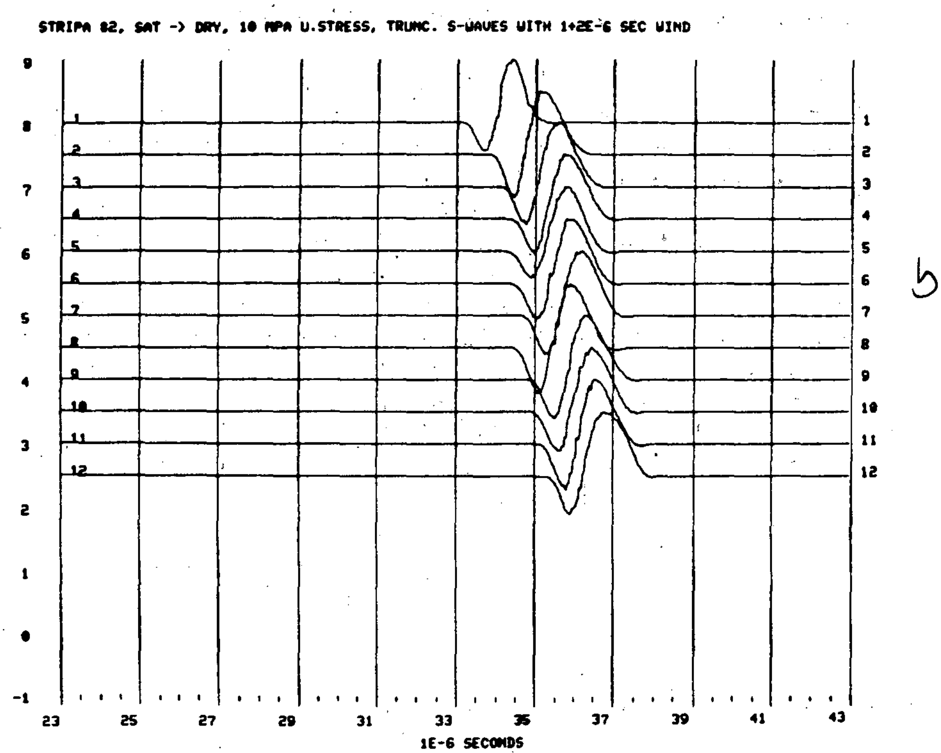
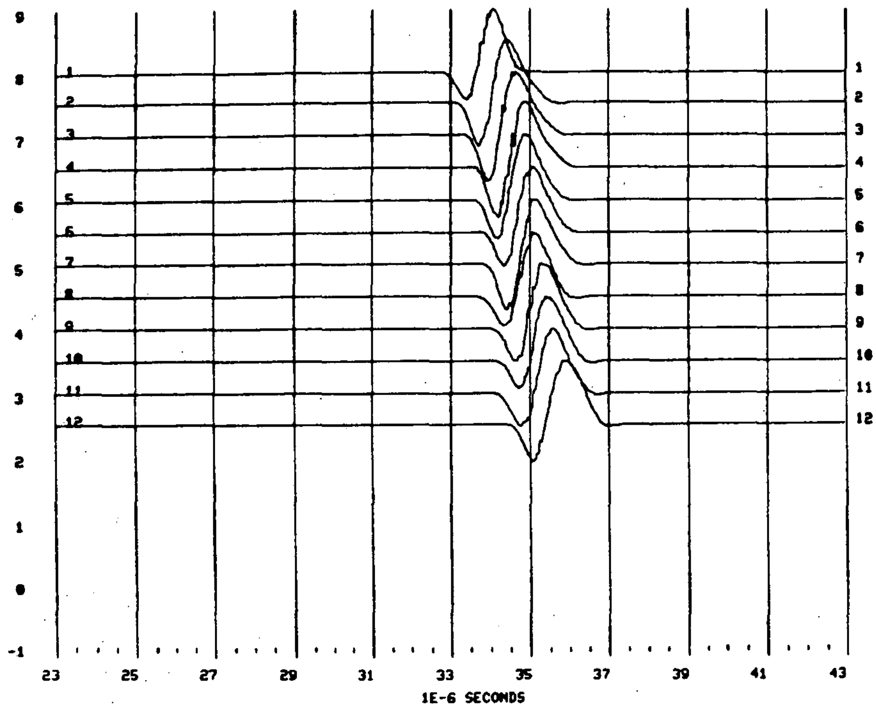


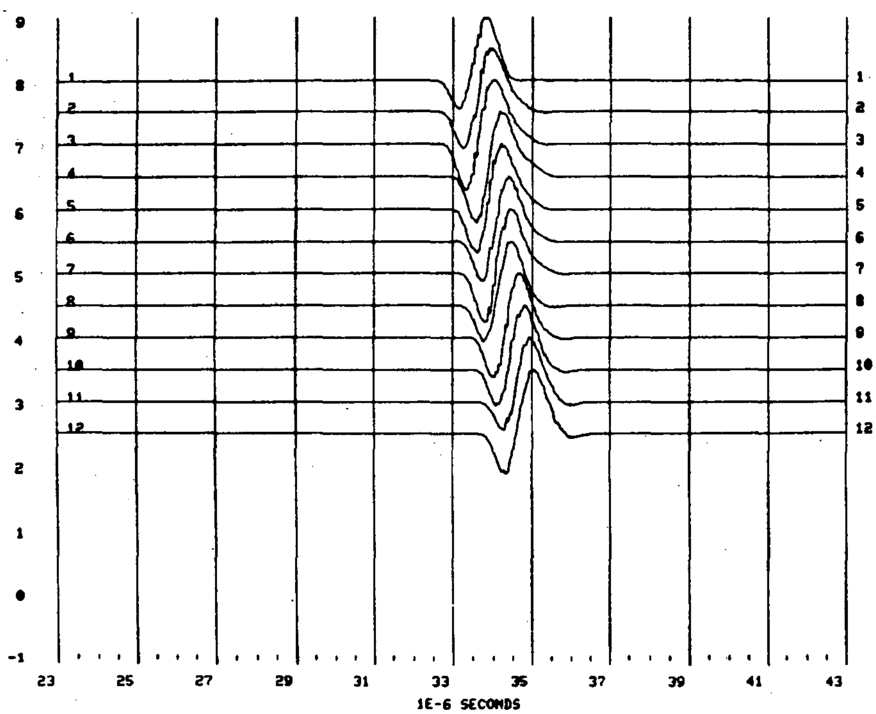
Fig. E:8.4 Truncated S waves for 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

STRIPA 82, SAT -> DRY, 20 MPA U. STRESS, TRUNC. S-WAVES WITH 1+2E-6 SEC WIND



c

STRIPA 82, SAT -> DRY, 30 MPA U.STRESS, TRUNC. S-WAVES WITH 1+2E-6 SEC WIND.



d

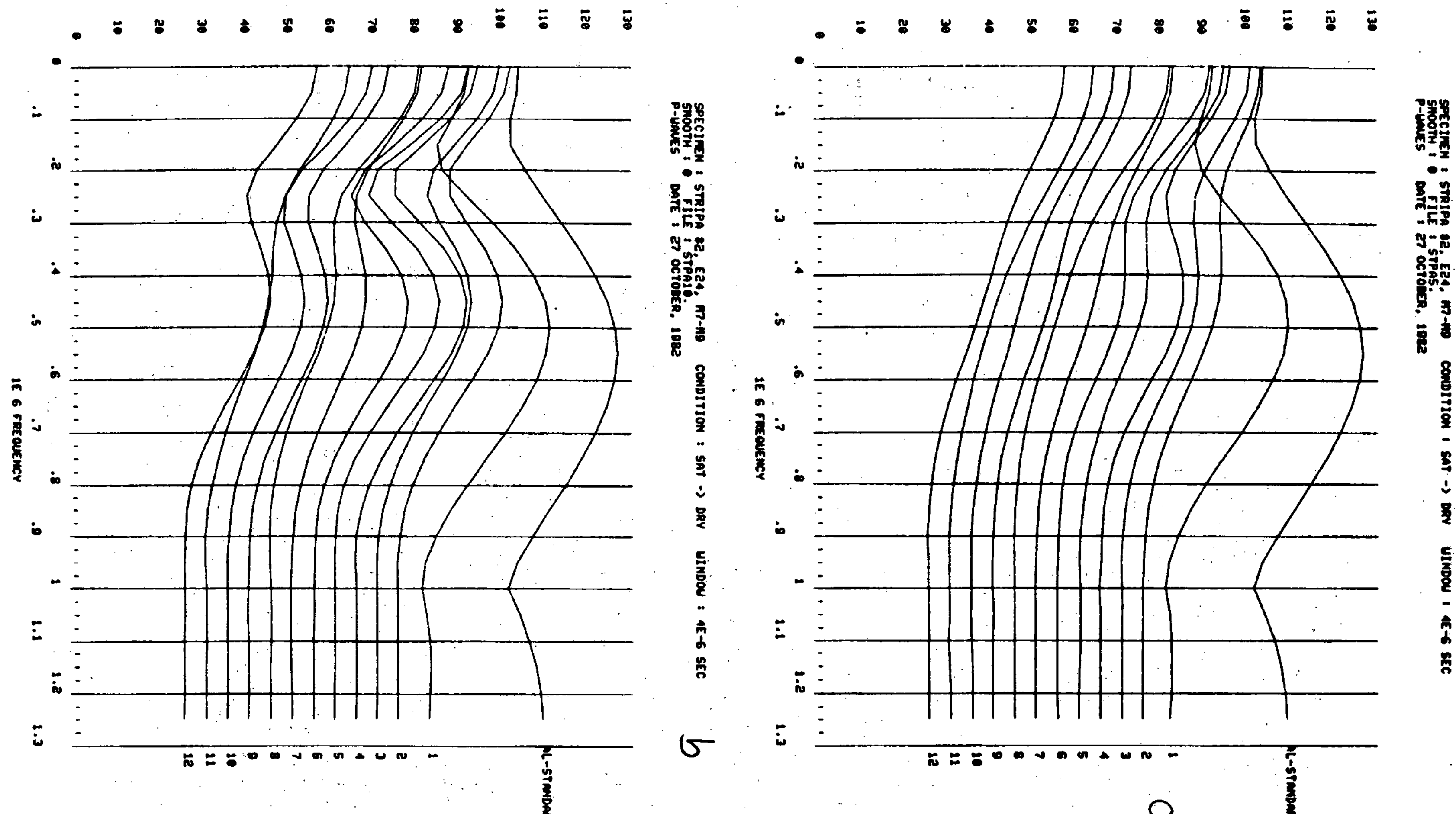
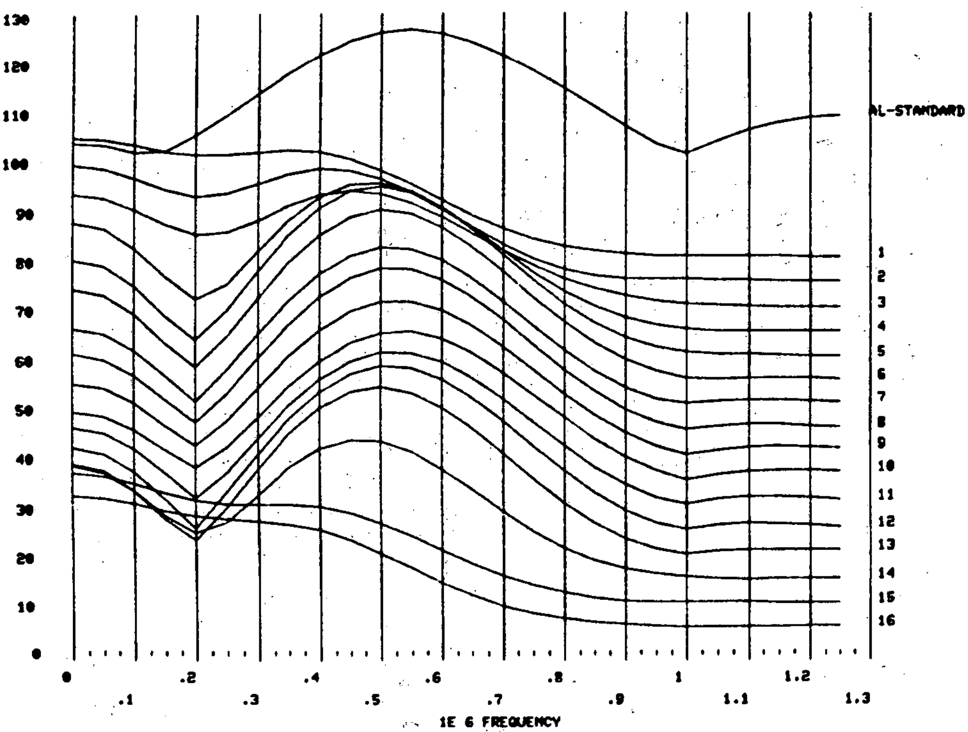


Fig. E:8.5 Fourier amplitude spectra for P waves under 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial stress.

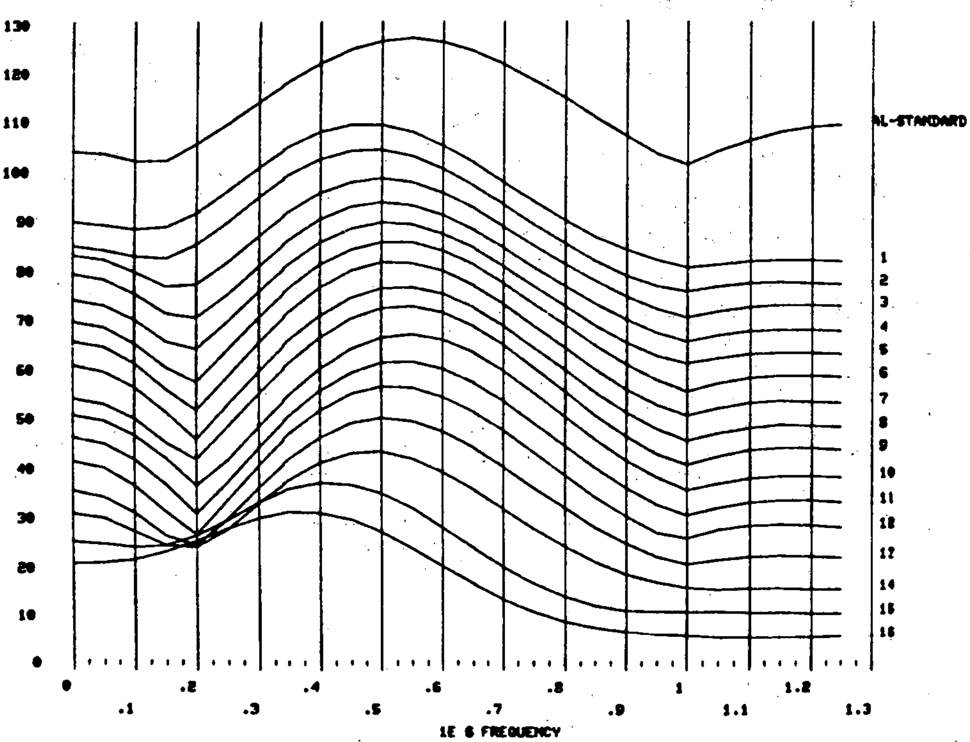
SPECIMEN : STRIPA 82,P-WAVES,WIND:4E-6 SEC CONDITION : DRY WINDOW : 4E-6
SMOOTH : 0 FILE : STRPA2.
P-WAVES DATE : 7 SEPTEMBER, 1982

c



SPECIMEN : STRIPA 82 CONDITION : SATURATED WINDOW : 4E-6 SEC
SMOOTH : 0 FILE : STPAW2.
P-WAVES DATE : 31 AUGUST, 1982

d



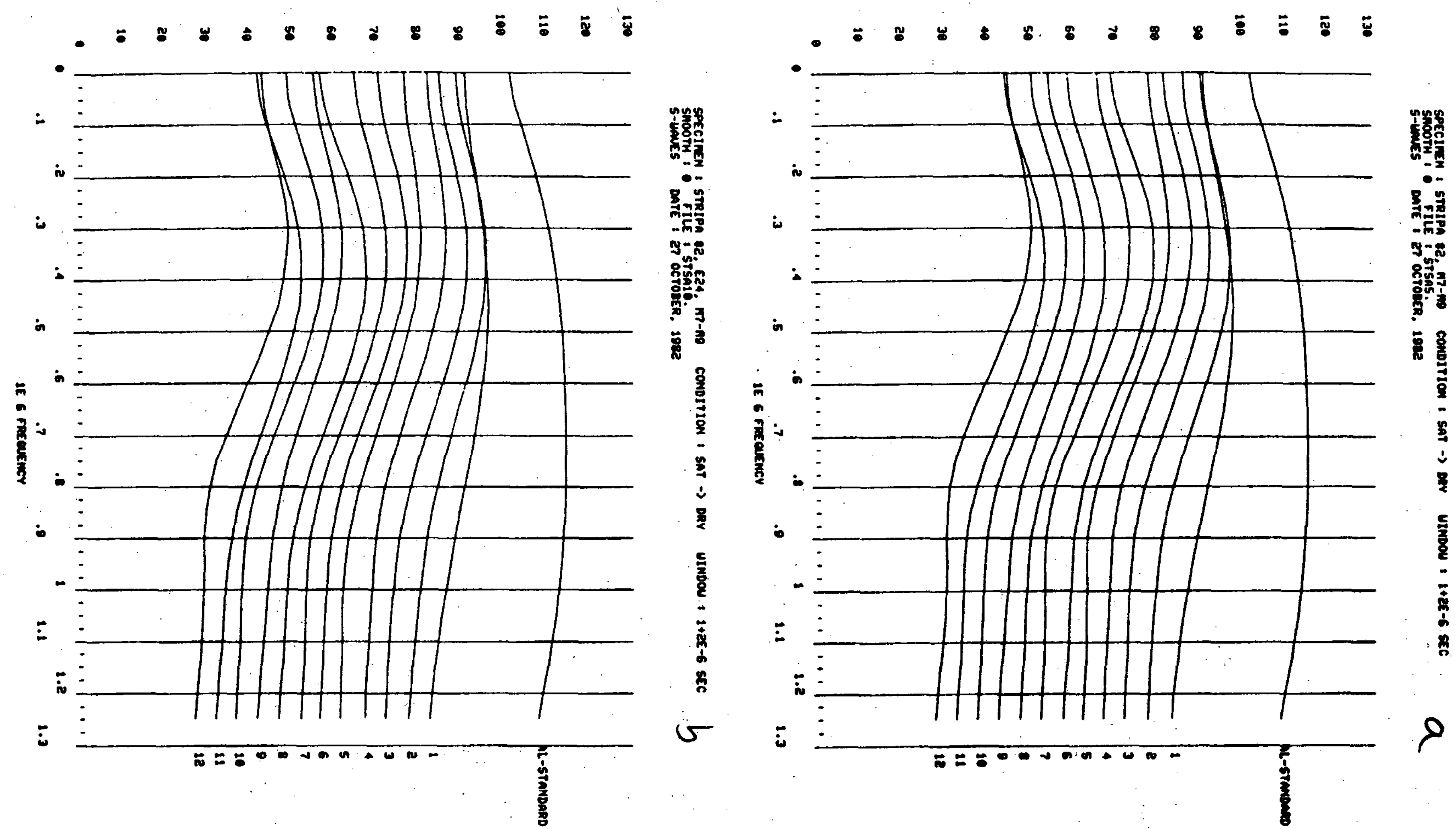
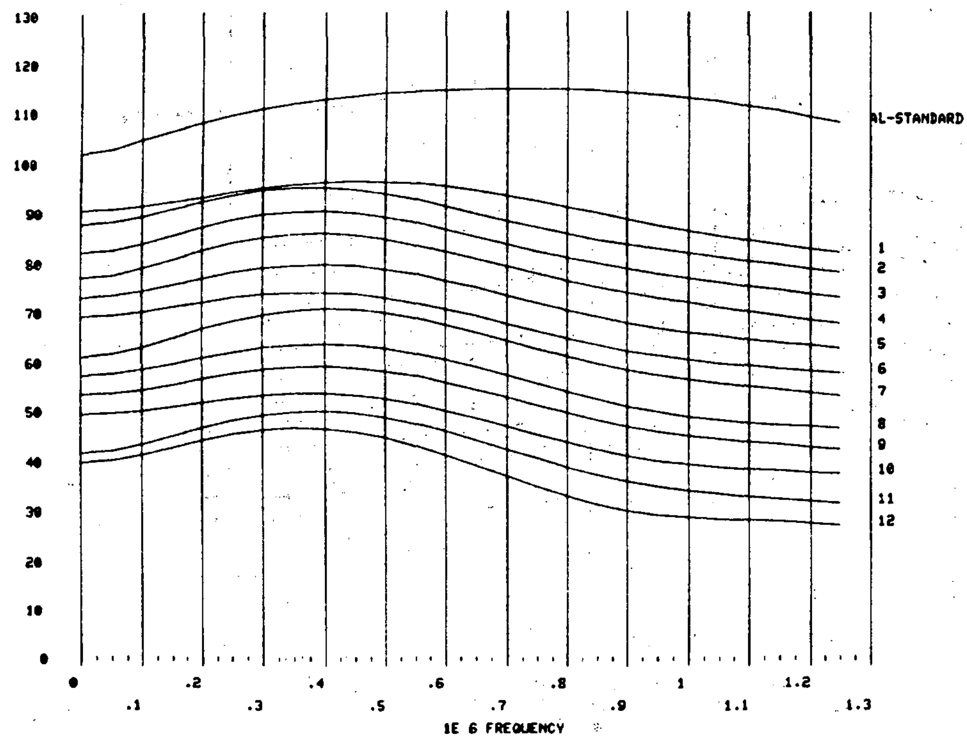


Fig. E:8.6 Fouries amplitude spectra for S waves under 12 saturation conditions under a) 5 MPa, b) 10 MPa, c) 20 MPa, d) 30 MPa uniaxial [illegible]

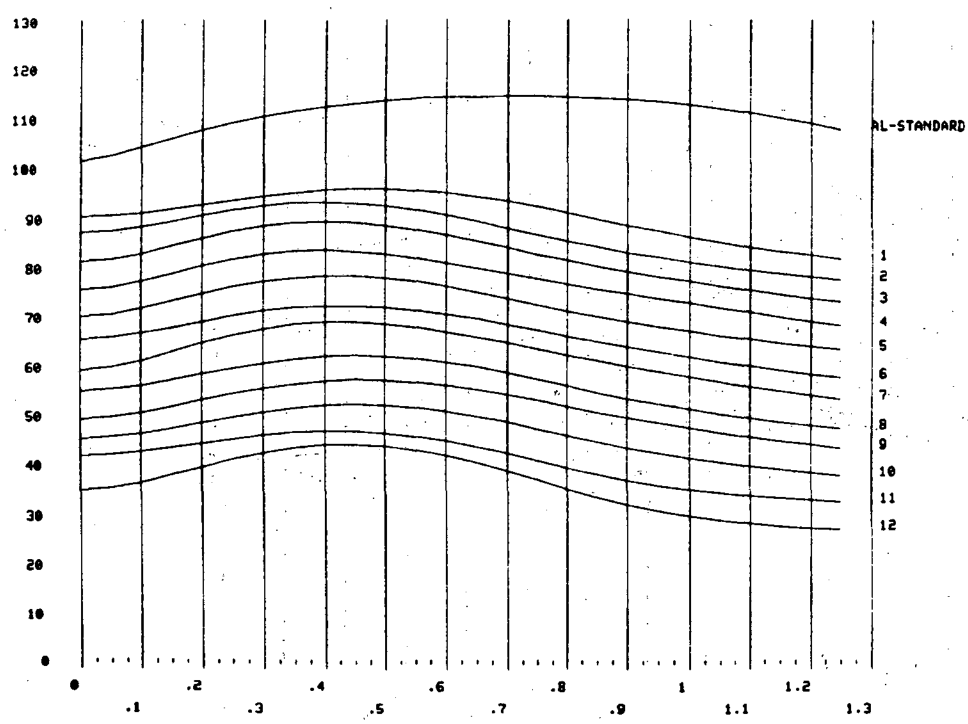
SPECIMEN : STRIPA #2, E24, M7-M9 CONDITION : SAT -> DRY WINDOW : 1+2E-6 SEC
SMOOTH : 0 FILE : STSA20.
S-WAVES DATE : 27 OCTOBER, 1982

c



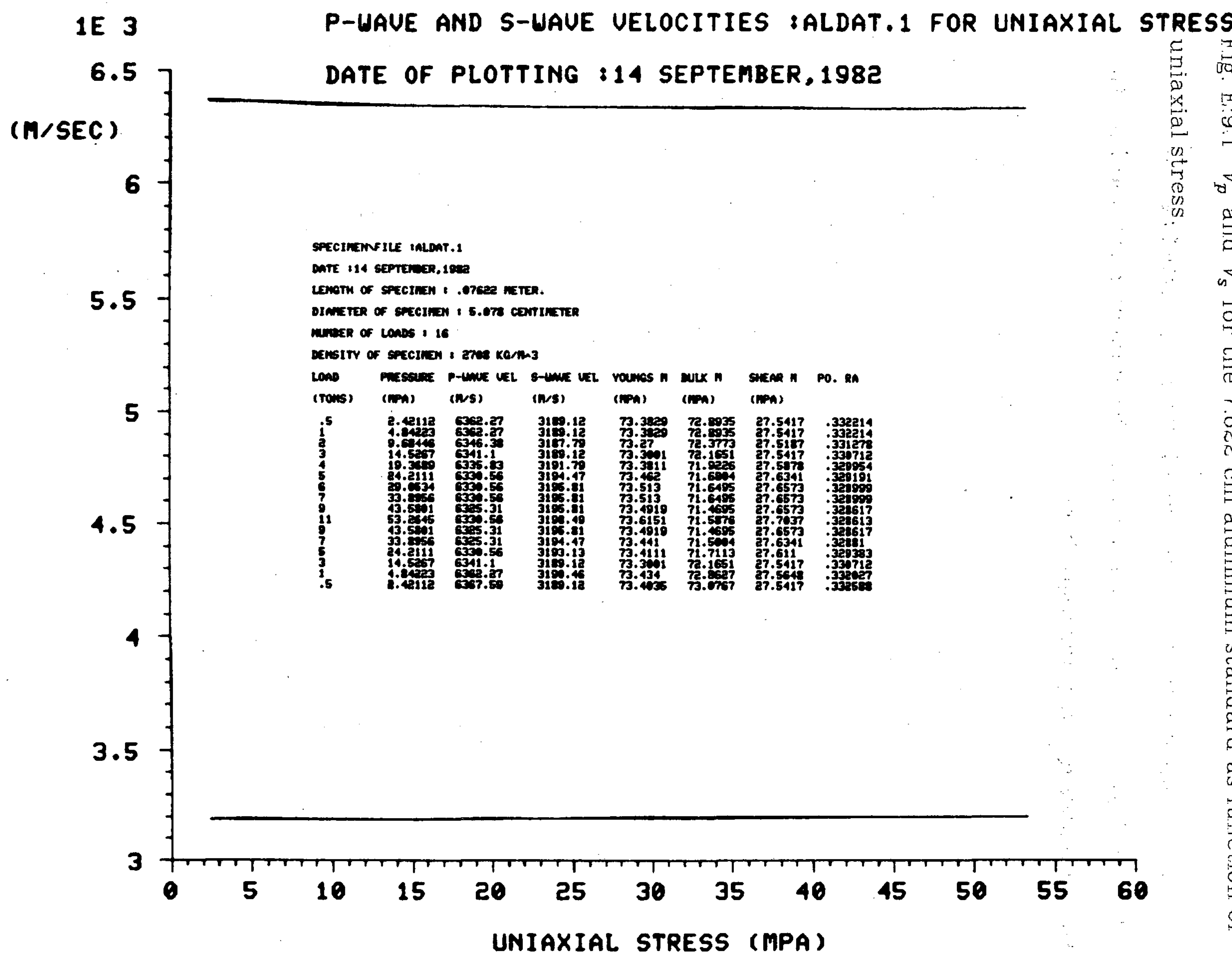
SPECIMEN : STRIPA #2, M7-M9, E24 CONDITION : SAT -> DRY WINDOW : 1+2E-6 SEC
SMOOTH : 0 FILE : STSA30.
S-WAVES DATE : 27 OCTOBER, 1982

d



Appendix E:9 - Test of the influence of the press.

In this appendix the response of testing a specimen with-out microfractures is obtained by subjecting the aluminum standard for the same test cycle as a granite specimen.



SPECIMEN\FILE :ALDAT.1
DATE :14 SEPTEMBER,1982
LENGTH OF SPECIMEN : .07622 METER.
DIAMETER OF SPECIMEN : 5.078 CENTIMETER
NUMBER OF LOADS : 16
DENSITY OF SPECIMEN : 2700 KG/M^3

LOAD (TONS)	PRESSURE (MPA)	P-WAVE VEL (M/S)	S-WAVE VEL (M/S)	YOUNGS M (MPA)	BULK M (MPA)	SHEAR M (MPA)	PO. RA
.5	2.42112	6362.27	3189.12	73.3829	72.8935	27.5417	.332214
1	4.84223	6362.27	3189.12	73.3829	72.8935	27.5417	.332214
2	9.68446	6346.38	3187.79	73.27	72.3773	27.5187	.331278
3	14.5267	6341.1	3189.12	73.3001	72.1651	27.5417	.330712
4	19.3689	6335.83	3191.79	73.3811	71.9226	27.5878	.329954
5	24.2111	6330.56	3194.47	73.462	71.6804	27.6341	.329191
6	29.0634	6330.56	3195.81	73.513	71.6495	27.6573	.328999
7	33.8956	6330.56	3195.81	73.513	71.6495	27.6573	.328999
9	43.5801	6325.31	3195.81	73.4919	71.4695	27.6573	.328617
11	53.2645	6330.56	3198.49	73.6151	71.5876	27.7037	.328613
9	43.5801	6325.31	3195.81	73.4919	71.4695	27.6573	.328617
7	33.8956	6325.31	3194.47	73.441	71.5004	27.6341	.32881
5	24.2111	6330.56	3193.13	73.4111	71.7113	27.611	.329383
3	14.5267	6341.1	3189.12	73.3001	72.1651	27.5417	.330712
1	4.84223	6362.27	3190.46	73.434	72.8627	27.5648	.332027
.5	2.42112	6367.59	3189.12	73.4036	73.0767	27.5417	.332588

Fig. E.9.1 V_p and V_s for the 7.622 cm aluminum standard as function of uniaxial stress.