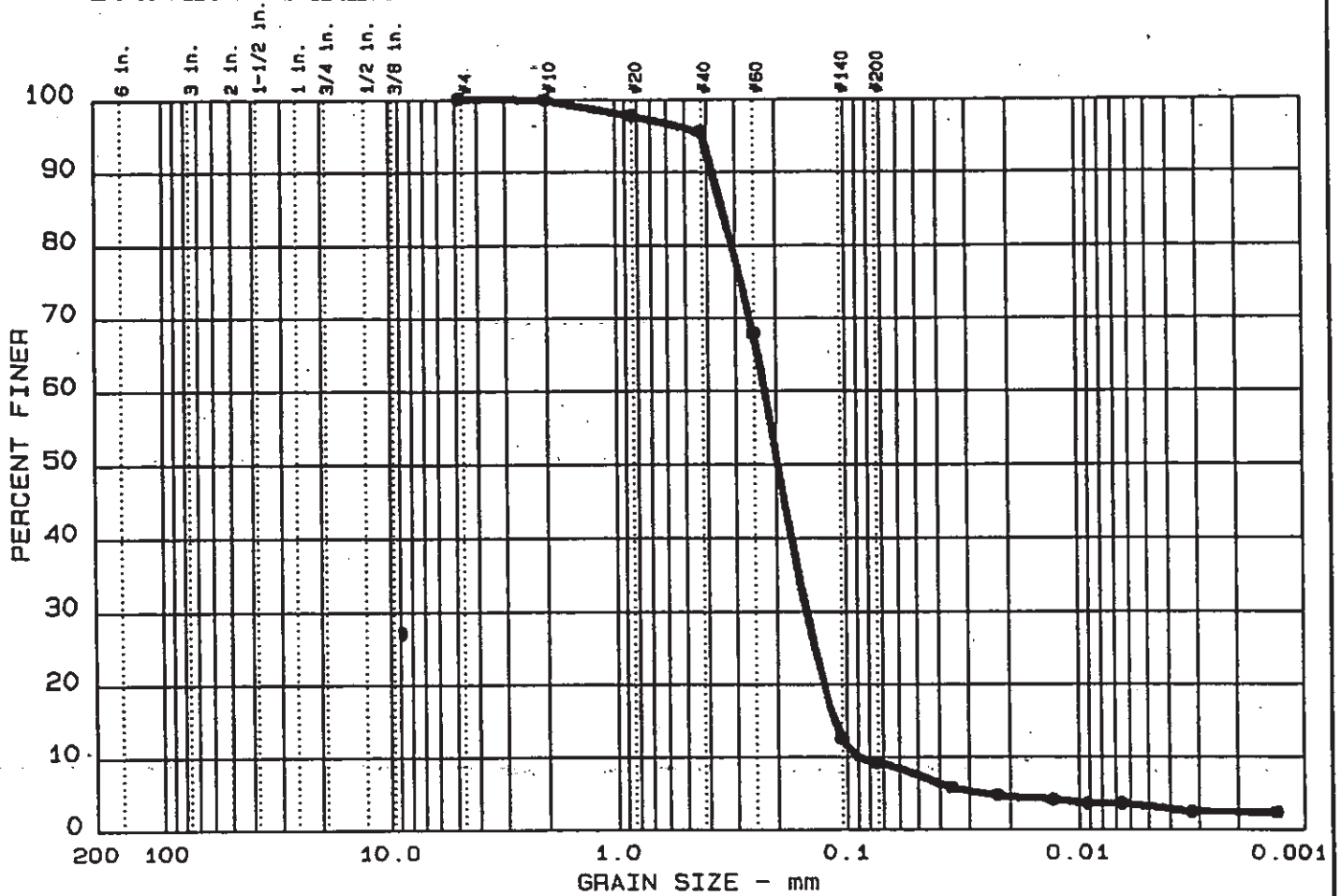


# GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	90.8	5.1	3.1

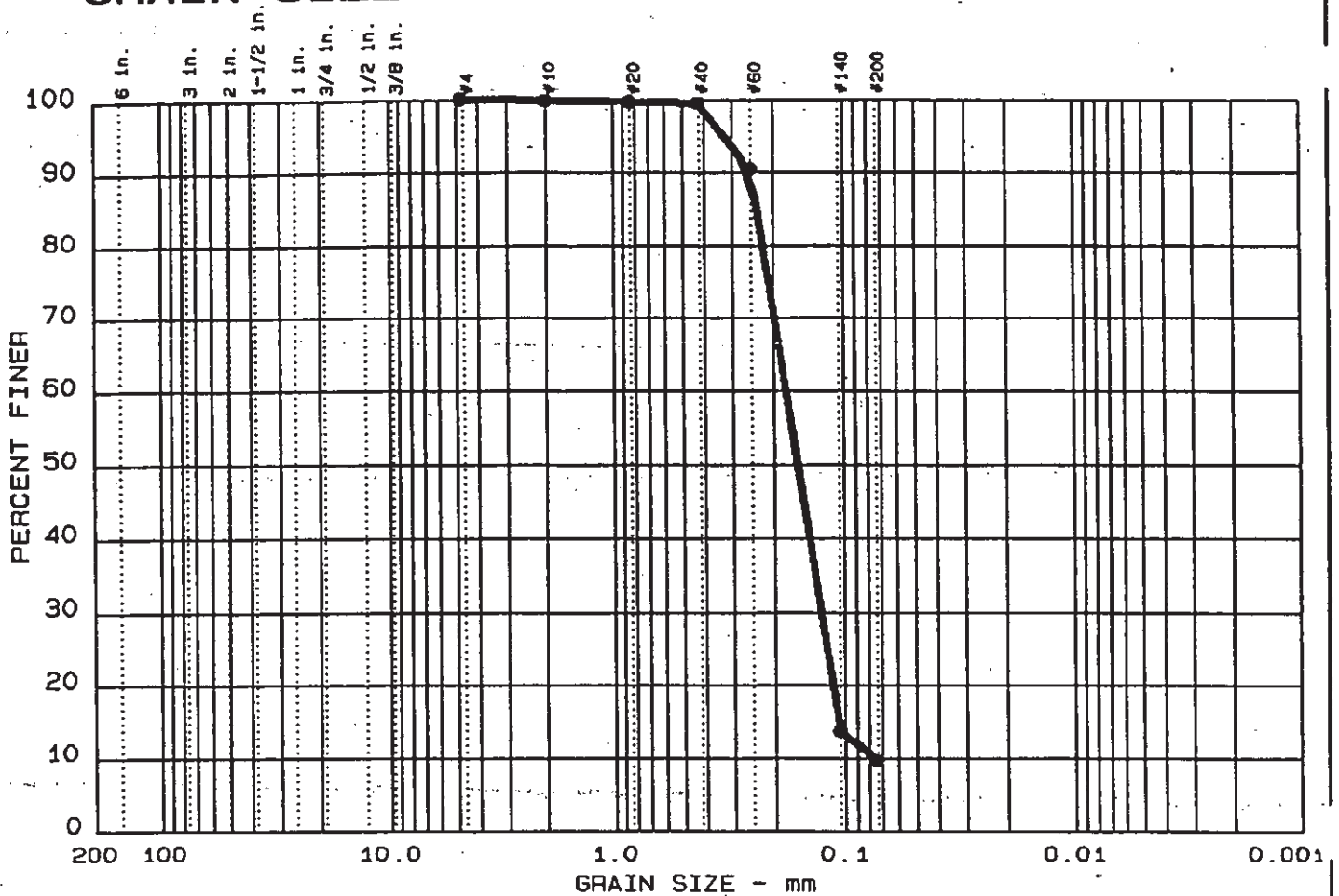
LL	PI	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
NL	NP	0.34	0.22	0.20	0.150	0.1132	0.0899	1.11	2.5

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21  
 Project: F-Area Northeast Expansion  
 ● Location: FB-22 SS-65 @ 104.5-105.83 Ft.  
 Date: July 5, 1998

Remarks:  
 Tested by: *SCJ/DM*  
 Reviewed by: *HS*  
 Moisture Content = 21.0%  
 ASTM D422, D4318 & D2216

# GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 1	0.0	0.0	90.3	9.7	

LL	PI	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
●		0.23	0.18	0.16	0.126	0.1064	0.0753	1.19	2.3

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Poorly Graded Sand with Silt	SP-SM	A-3

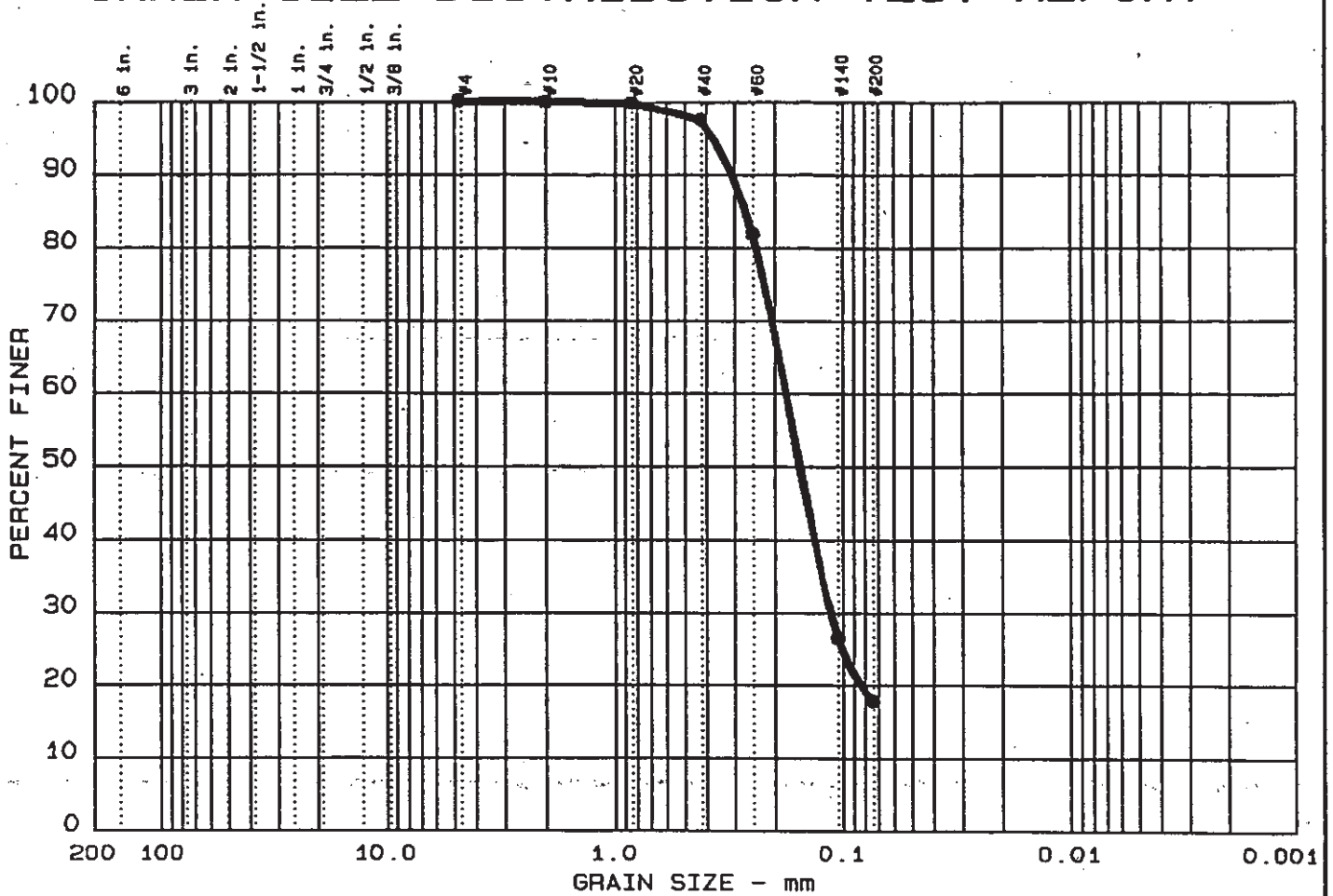
Project No.: 50161-7-0108 Task 21  
 Project: F-Area Northeast Expansion  
 ● Location: FB-22 SS-67 @ 107.5-109.0 Ft.  
 Date: June 25, 1998

Remarks:  
 Tested by: SC  
 Reviewed by: HS  
 Moisture Content = 24.9%  
 ASTM D422 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT  
**LAW ENGINEERING, INC.**

Figure No.

# GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 2	0.0	0.0	82.2	17.8	

LL	PI	D85	D60	D50	D30	D15	D10	Cc	Cu
		0.27	0.18	0.16	0.114				

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21  
 Project: F-Area Northeast Expansion  
 ● Location: FB-22 SS-70 @ 112.0-113.5 Ft.  
 Date: June 25, 1998

Remarks:  
 Tested by: SC  
 Reviewed by: HD  
 Moisture Content = 34.1%  
 ASTM D422 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT  
**LAW ENGINEERING, INC.**

Figure No.

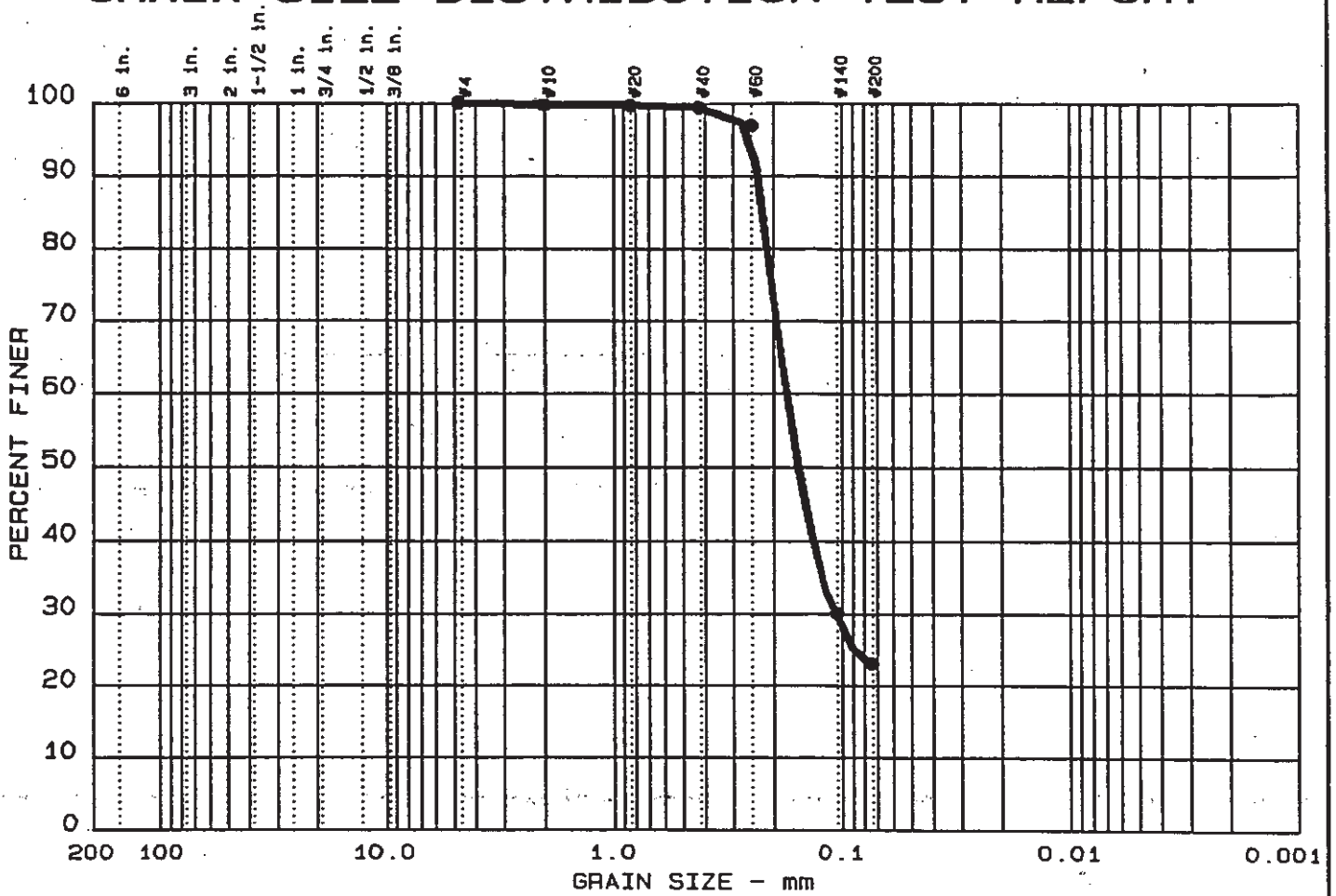








# GRAIN SIZE DISTRIBUTION TEST REPORT <sup>B/P</sup>



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 12	0.0	0.0	76.9	23.1	

LL	PI	D85	D60	D50	D30	D15	D10	Cc	Cu
●		0.22	0.18	0.16	0.105				

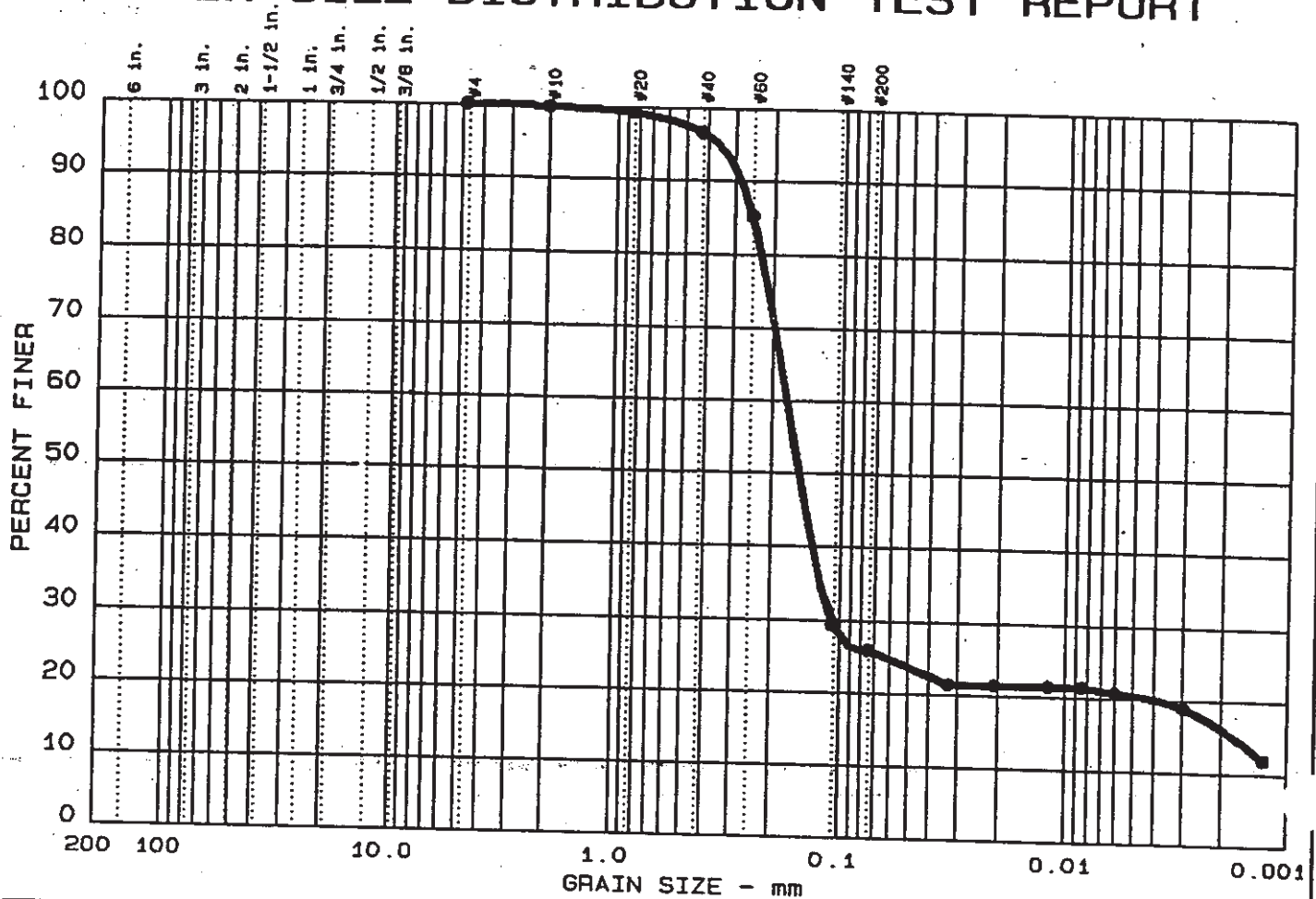
MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21  
 Project: F-Area Northeast Expansion  
 ● Location: FB-22 SS-78 @ 124.0-125.5 Ft.  
 Date: June 25, 1998

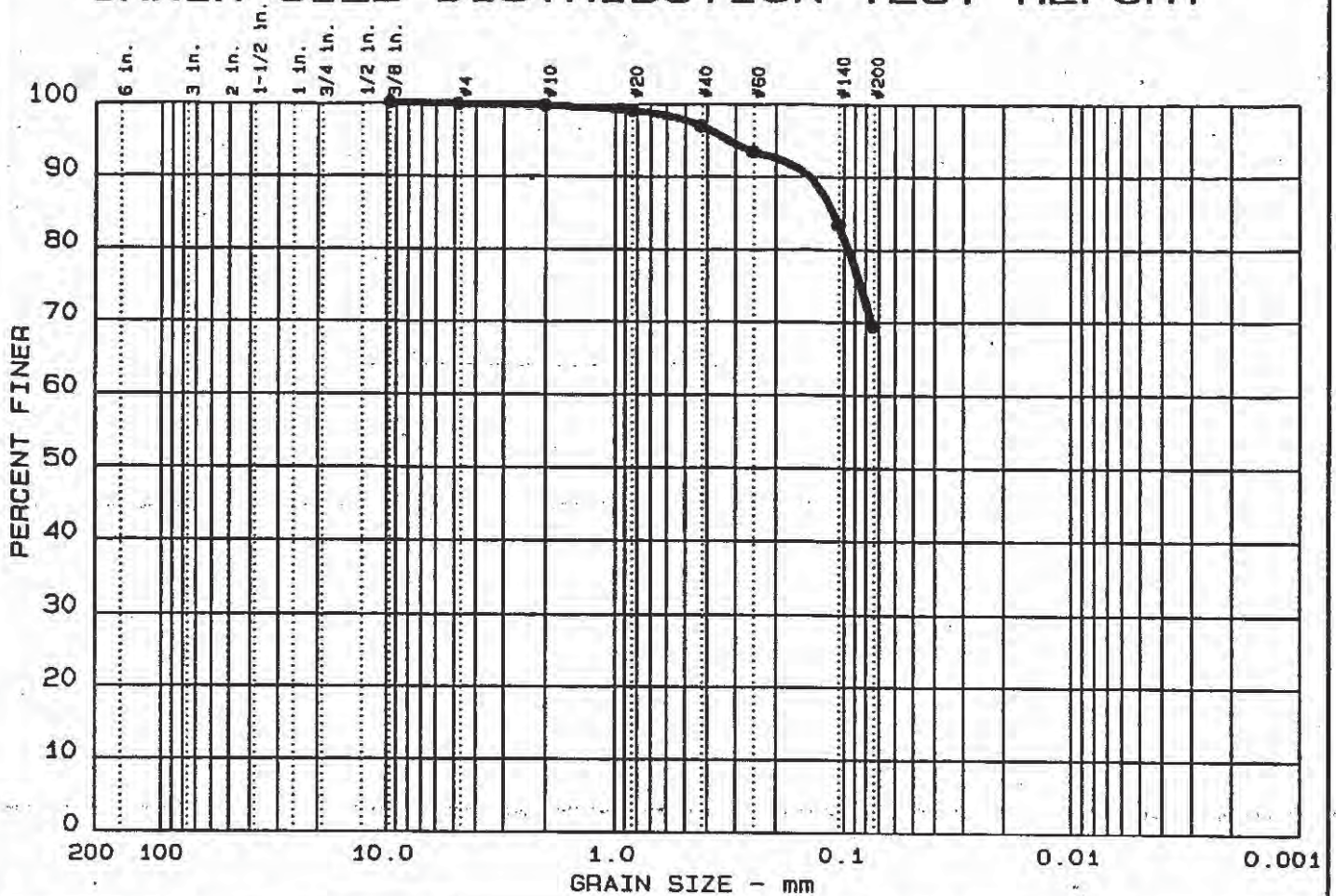
Remarks:  
 Tested by: *CS & SC*  
 Reviewed by: *HO*  
 Moisture Content = 37.7%  
 ASTM D422 & D2216



# GRAIN SIZE DISTRIBUTION TEST REPORT



# GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 10	0.0	0.1	30.4	69.5	

LL	PI	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
		0.11							

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Sandy Silt	ML	A-4 (0.0)

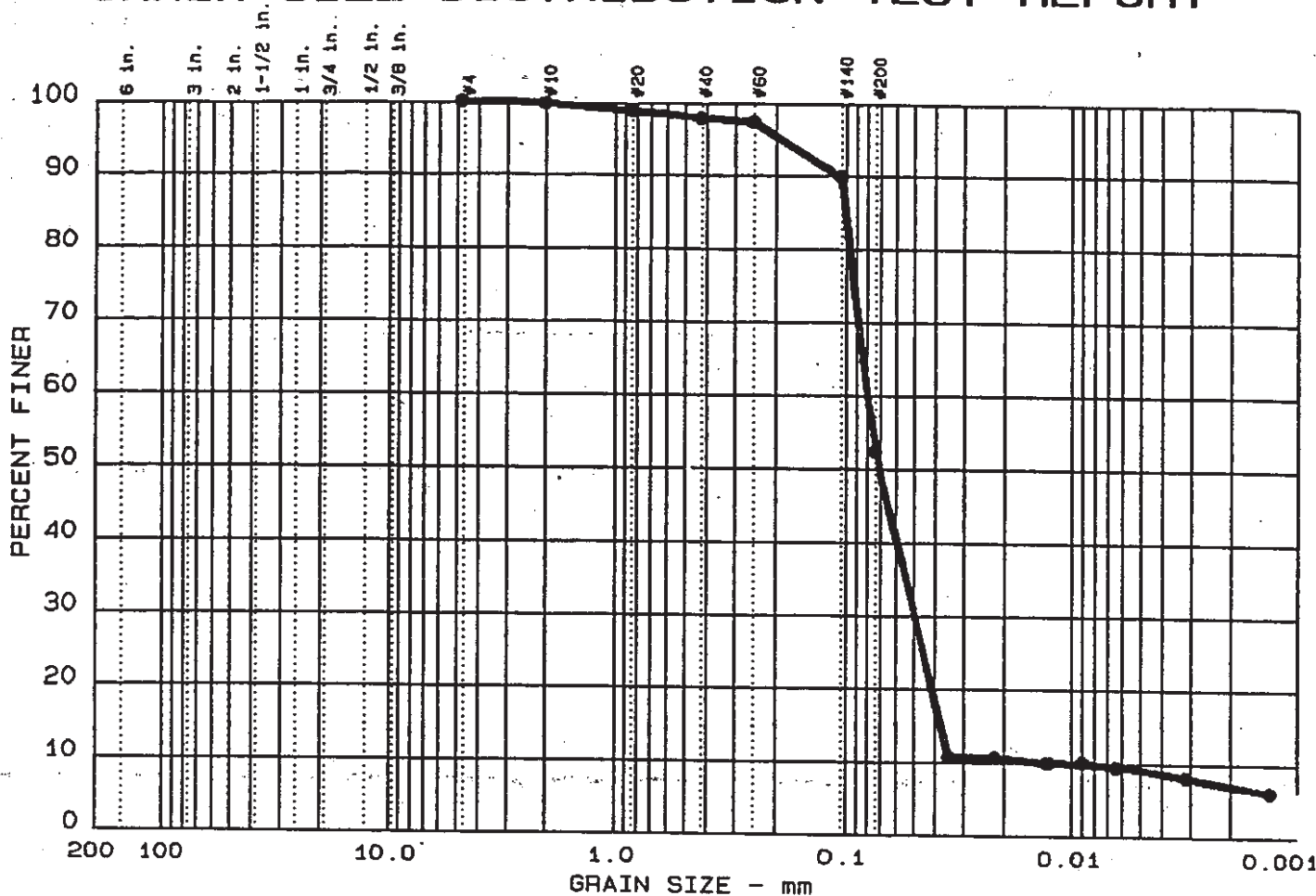
Project No.: 50161-7-0108 Task 21  
 Project: F-Area Northeast Expansion  
 ● Location: FB-22 SS-84 @ 133.0-134.5 Ft.  
  
 Date: June 25, 1998

Remarks:  
 Tested by: *SC & ES*  
 Reviewed by: *HD*  
 Moisture Content = 34.0%  
 ASTM D422 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT  
**LAW ENGINEERING, INC.**

Figure No.

# GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 20	0.0	0.0	47.6	43.2	9.2

LL	PI	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
● NL	NP	0.10	0.08	0.07	0.049	0.0374	0.0100	3.03	8.0

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Sandy Silt	ML	A-4 (0.0)

Project No.: 50161-7-0108 Task 21  
 Project: F-Area Northeast Expansion  
 ● Location: FB-22 SS-B5 @ 134.5-136.0 Ft.  
 Date: July 9, 1998

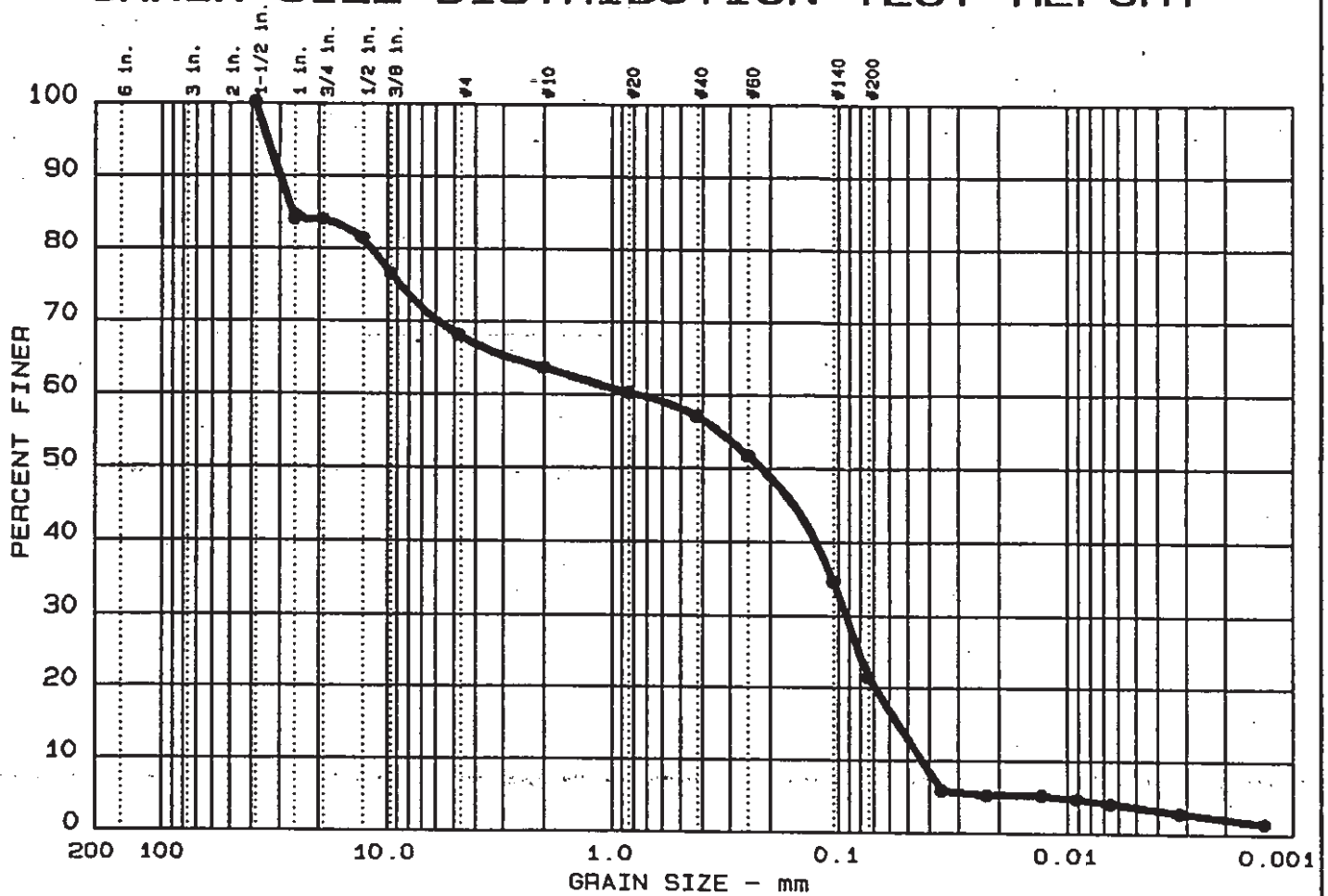
Remarks:  
 Tested by: *JTM/SC*  
 Reviewed by: *HJ*  
 Moisture Content = 38.7%  
 ASTM D422 & D4318

GRAIN SIZE DISTRIBUTION TEST REPORT  
**LAW ENGINEERING, INC.**

Figure No.



# GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 2	0.0	31.9	46.6	17.9	3.6

LL	PI	D <sub>85</sub>	D <sub>60</sub>	D <sub>50</sub>	D <sub>30</sub>	D <sub>15</sub>	D <sub>10</sub>	C <sub>c</sub>	C <sub>u</sub>
● NL	NP	26.00	0.74	0.22	0.092	0.0542	0.0430	0.27	17.3

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Silty Sand with Gravel	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21  
 Project: F-Area Northeast Expansion  
 ● Location: FB-22 SS-86 @ 136-137.5 Ft.  
 Date: July 9, 1998

Remarks:  
 Tested by: *JTM/SC*  
 Reviewed by: *JD*  
 Moisture Content = 34.7%  
 ASTM D422, D4318 & D2216











**APPLIED  
RESEARCH  
ASSOCIATES, INC.**

Engineering and Applied Science

Appendix C

K-TRT-F-00001  
R/O

July 31, 1998

L. Bruce Triplett  
Westinghouse Savannah River Company  
Building 730-2B, Rm. 1086  
Aiken, SC 29808

Dear Mr. Triplett:

Attached is the cone penetrometer data from the 40 test locations conducted as part of the F-Area Expansion Investigation at the Savannah River Site, performed under WSRC subcontract AA82276N, task 10. The tests conducted under this task are summarized in table 1.1.

The information provided for each cone penetration test includes: corrected tip stress, sleeve stress, friction ratio, pore pressure, soil classification based on friction ratio and estimated blow counts. Information provided for the seismic tests include: the recorded compression and shear wave forms, the summary distance versus time of peak graphs for the shear waveforms, and the summary wavespeeds versus depth graphs for the compression and shear waveforms. The computer disks provides the ECP files which contain the plotted data in ASCII format and the seismic velocity files (\*.vel).

This data presented on the attached sheets was obtained and interpreted by qualified ARA personnel in accordance with the requirements of SRS Subcontract No. AA82276N and contained in Specification K-SP-G-00005, Rev. 0. Any special data considerations that should be brought to your attention are summarized in table 1.2. All information contained on the data sheets and computer disks shall be considered as final and correct.

Please feel free to call us if you have any questions regarding the enclosed information.

Sincerely,

David A. Timian, P.E.  
Principal Engineer

DAT:bef

d:\4569\Task reports\4569\_10\_itr\_rpt2.doc



Table 1.1 Summary of Cone Penetrometer at the F Area, Task 10.

K-TRT-F-00001  
R/O

Test Id.	Filename	Type of Test	Date of Test	Maximum Depth (ft)	Northing (ft)	Easting (ft)	Elevation (ft)	GWT Depth (ft)
CPT-53	404M801.DAT 404M802.DAT	P/S-CPT	3/4/98	149.9	79180.00	54845.00	289.9	66
CPT-103	423F801.DAT 423F802.DAT	P/S-CPT	2/23/98	156.0	79915.18	55260.95	271.7	80
CPT-104	420F802.DAT	P/S-CPT	2/20/98	131.4	79915.04	55385.03	274.2	80
CPT-113	519F801.DAT 519F802.DAT	P/S-CPT	2/19/98	145.7	79781.00	54825.10	276.7	80
CPT-114	519F804.DAT 519F805.DAT	P/S-CPT	2/19/98	145.5	79781.01	54975.05	273.6	80
CPT-115	520F801.DAT	P/S-CPT	2/20/98	144.0	79780.85	55125.05	272.0	80
CPT-116	520F803.DAT	P/S-CPT	2/20/98	132.6	79781.17	55261.01	270.1	80
CPT-126	524F805.DAT 524F806.DAT	P/S-CPT	2/24/98	153.0	79650.07	54825.03	278.9	80
CPT-127	524F802.DAT 524F803.DAT	P/S-CPT	2/24/98	164.7	79650.01	54975.00	279.3	80
CPT-128	523F804.DAT 523F805.DAT	P/S-CPT	2/23/98	147.4	79650.01	55124.95	279.3	80
CPT-129	523F801.DAT 523F802.DAT	P/S-CPT	2/23/98	148.2	79650.00	55261.00	277.2	80
CPT-143	525F804.DAT 525F805.DAT	P/S-CPT	2/25/98	156.1	79442.50	55195.00	286.1	80
CPT-147	424F801.DAT 424F802.DAT	P/S-CPT	2/24/98	157.5	79372.00	55261.00	284.8	61
CPT-148	427F801.DAT 427F802.DAT	P/S-CPT	2/27/98	157.5	79372.07	55385.00	284.1	80
CPT-149	404M804.DAT 405M803.DAT	P/S-CPT	3/4/98	143.3	79372.04	55517.96	274.8	80
CPT-151	424F804b.DAT 424F805b.DAT	P/S-CPT	2/24/98	156.1	79305.00	55195.00	290.1	80
CPT-155	518F801.DAT 518F802.DAT	P/S-CPT	2/18/98	162.0	79245.00	55261.00	289.1	80
CPT-156	518F804.DAT 518F805.DAT	P/S-CPT	2/18/98	161.0	79244.97	55384.98	289.2	80
CPT-157	405M804.DAT 405M805.DAT	P/S-CPT	3/5/98	152.4	79244.98	55517.98	283.1	80
CPT-159	417F801.DAT 417F802.DAT	P/S-CPT	2/17/98	164.8	79171.10	55195.00	293.7	80
CPT-163	525F801.DAT 525F802.DAT	P/S-CPT	2/25/98	165.0	79095.10	55261.00	293.9	80
CPT-167	411M801b.DAT	P/S-CPT	3/11/98	116.0	79029.91	55330.05	196.7	80
CPT-171	419M804.DAT 419M805.DAT	P/S-CPT	3/19/98	132.6	78900.00	55385.00	298.5	80
CPT-172	325M801.DAT 325M802.DAT	P/S-CPT	3/25/98	162.5	78900.00	55518.00	295.4	80

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Table 1.1 Summary of Cone Penetrometer at the F Area, Task ~~16~~- TRT-F-00001  
R/O

Test Id.	Filename	Type of Test	Date of Test	Maximum Depth (ft)	Northing (ft)	Easting (ft)	Elevation (ft)	GWT Depth (ft)
CPT-173	327M804.DAT 327M805.DAT	P/S-CPT	3/27/98	150.3	78900.00	55650.00	297.6	80
CPT-174	410M804b.DAT 410M805b.DAT	P/S-CPT	3/10/98	171.5	78770.00	55330.00	301.5	80
CPT-175	320M801.DAT 320M802.DAT	P/S-CPT	3/20/98	167.0	78770.00	55451.00	303.1	80
CPT-176	326M805.DAT 326M806.DAT	P/S-CPT	3/26/98	146.8	78770.00	55583.00	297.6	80
CPT-177	327M801.DAT 327M802.DAT	P/S-CPT	3/27/98	132.6	78770.00	55715.00	301.7	80
CPT-178	419M801.DAT 419M802.DAT	P/S-CPT	3/19/98	168.5	78640.00	55385.00	305.6	80
CPT-179	324M804.DAT 324M805.DAT	P/S-CPT	3/24/98	124.4	78640.00	55518.00	301.4	80
CPT-180	326M802.DAT 326M803.DAT	P/S-CPT	3/26/98	120.1	78640.00	55650.00	302.3	80
CPT-181	410M801.DAT 410M802.DAT	P/S-CPT	3/10/98	138.7	78510.00	55330.00	304.9	80
CPT-182	323M801.DAT 323M802.DAT	P/S-CPT	3/23/98	140.1	78510.00	55451.00	304.8	80
CPT-183	325M804.DAT 325M805.DAT	P/S-CPT	3/25/98	115.0	78510.00	55583.00	301.7	80
CPT-185	418M807.DAT 418M808.DAT	P/S-CPT	3/18/98	136.8	78380.00	55385.00	223.7	80
CPT-186	324M801.DAT 324M802.DAT	P/S-CPT	3/24/98	155.0	78380.00	55518.00	304.5	80
CPT-188	409M801.DAT 409M802.DAT	P/S-CPT	3/9/98	142.0	78250.00	55330.00	310.4	66
CPT-189	323M804.DAT 323M805.DAT	P/S-CPT	3/23/98	134.2	78250.00	55451.00	309.2	80
CPT-196	314A801.DAT 314A802.DAT	P/S-CPT	4/14/98	122.1	79330.00	55135.00	290.1	66

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**Task 10 –**  
**Addendum to Cover Letter**  
**Special Analysis Considerations**

Test Id.	Date	Special Analysis Considerations
CPT-53	3/4/98	The compression wave trace of this particular test displays shear wave noise. The compression wave "time of arrival" was chosen for analysis rather than the "time of peak".
CPT-103	2/23/98	Shear wave traces not reported due to broken source hammer. Due to the evolution of the compression wave form, the time of peak selection was changed between 18.3-24.4 ft (distance). Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale.
CPT-104	2/20/98	One of the two opposing shear wave traces was omitted from the analysis. The source hammer was partially broken on one side causing unreliable data gathered on one of the traces. Shear wave speeds recorded above 2000 ft/s are not shown on the "Shear Wave Speed" plot due to the scale.
CPT-113	2/19/98	Compression wave time histories contain background noise that could not be filtered. Note that the background noise has no effect on the resultant wavespeed.
CPT-114	2/19/98	Due to the evolution of the shear wave form, the time of peak selection was changed between 110.3-113.2 ft (distance). Compression wave time histories contain background noise that could not be filtered. Note that the background noise has no effect on the resultant wavespeed.
CPT-115	2/20/98	Compression wave time histories contain background noise that could not be filtered. Note that the background noise has no effect on the resultant wavespeed.
CPT-116	2/20/98	Due to the evolution of the shear wave form, the time of peak selection was changed between 65.4-68.4 ft (distance). Due to the evolution of the compression wave form, the time of peak selection was changed between 18.3-24.1 ft (distance).
CPT-126	2/24/98	Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale.
CPT-127	2/24/98	Compression wave time histories contain background noise that could not be filtered. Note that the background noise has no effect on the resultant wavespeed.
CPT-128	2/23/98	Due to the evolution of the compression wave form, the time of peak selection was changed between 18.3-21.2 ft (distance).
CPT-129	2/23/98	Due to the evolution of the compression wave form, the time of peak selection was changed between 15.5-19.3 ft (distance).
CPT-143	2/25/98	Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale.
CPT-147	2/24/98	Shear wave traces not reported due to broken source hammer. Due to the evolution of the compression wave form, the time of peak selection was changed between 21.2-24.0 ft (distance).

**Task 10 –**  
**Addendum to Cover Letter.**  
**Special Analysis Considerations**

Test Id.	Date	Special Analysis Considerations
CPT-148	2/27/98	<p>Due to the evolution of the shear wave form, the time of peak selection was changed between 35.6-38.6 ft (distance).</p> <p>Due to the evolution of the compression wave form, the time of peak selection was changed between 18.3-21.1 ft (distance).</p> <p>Only one shear trace was saved at 41.5 ft (distance).</p>
CPT-149	3/4/98 3/5/98 3/30/98	<p>Due to the evolution of the shear wave form, the time of peak selection was changed between 77.4-80.4 ft (distance).</p> <p>Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale.</p> <p>The shear traces and profile were recorded on two separate dates, combining the files at 77.4//80.4.</p> <p>The compression test was re-pushed on a later date.</p>
CPT-151	2/24/98	<p>Shear wave traces not reported due to broken source hammer.</p> <p>Due to the evolution of the compression wave form, the time of peak selection was changed between 18.3-21.2, 27.0-29.9 ft (distance).</p>
CPT-155	2/18/98	<p>Missing 2-3 sets of shear wave seismic traces due to full computer memory. (131-137 ft, distance)</p> <p>Only one shear trace was saved at 113.4 ft (distance).</p>
CPT-156	2/18/98	<p>Due to the evolution of the compression wave form, the time of peak selection was changed between 21.2-24.1 ft (distance).</p>
CPT-157	3/5/98	<p>Due to the evolution of the shear wave form, the time of peak selection was changed between 26.6-29.6, 68.6-71.7, 128.4-131.4 ft (distance).</p> <p>Only one shear trace was saved at 80.4, 146.4 ft (distance).</p> <p>A portion of the compression wave at 10.3 ft (distance) exhibits the recorded signal exceeding its maximum. The analysis is not effected.</p>
CPT-159	2/17/98	<p>Due to the evolution of the shear wave form, the time of peak selection was changed between 68.4-74.4 ft (distance).</p> <p>Due to the evolution of the compression wave form, the time of peak selection was changed between 24.1-27.0 ft (distance).</p> <p>One of the two shear wave traces was omitted at the following distances : 14.9 - 23.7, 56.5, 74.4, 158.3, 164.1 ft. Symptoms of a partially broken source hammer were evident on the traces that were omitted.</p>
CPT-163	2/25/98	<p>Due to the evolution of the compression wave form, the time of peak selection was changed between 15.5-18.3 ft (distance).</p> <p>Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale.</p>
CPT-167	3/11/98	
CPT-171	3/19/98	<p>Shear wave speeds recorded above 2000 ft/s are not shown on the "Shear Wave Speed" plot due to the scale.</p>

## Task 10-

### Addendum to Cover Letter

### Special Analysis Considerations

Test Id.	Date	Special Analysis Considerations
CPT-172	3/25/98	Shear wave speeds recorded above 2000 ft/s are not shown on the "Shear Wave Speed" plot due to the scale. Only one shear trace was saved at 110.4, 140.4 ft (distance).
CPT-173	3/27/98	Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale. Due to the evolution of the compression wave form, the time of peak selection was changed between 33.1-39.1 ft (distance).
CPT-174	3/10/98	Due to the evolution of the wave form, the shear wave time of peak selection was changed between 83.5-86.4, 140.4-143.4 ft (distance). Shear wave speeds recorded above 2000 ft/s are not shown on the "Shear Wave Speed" plot due to the scale. Due to the evolution of the compression wave form, the time of peak selection was changed between 15.9-18.7 ft (distance).
CPT-175	3/20/98	Due to the evolution of the shear wave form, the time of peak selection was changed between 143.3-146.4, 149.4-152.4 ft (distance). Due to the evolution of the wave form, the compression wave time of peak selection was changed between 18.7-21.6 ft (distance).
CPT-176	3/26/98	Shear wave speeds recorded above 2000 ft/s are not shown on the "Shear Wave Speed" plot due to the scale. Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale.
CPT-177	3/27/98	Due to the evolution of the compression wave form, the time of peak selection was changed between 18.8-21.5 ft (distance).
CPT-178	3/19/98	Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale.
CPT-179	3/24/98	Shear wave speeds recorded above 2000 ft/s are not shown on the "Shear Wave Speed" plot due to the scale. Due to the evolution of the shear wave form, the time of peak selection was changed between 110.4-113.4 ft (distance).
CPT-180	3/26/98	Due to the evolution of the shear wave form, the time of peak selection was changed between 74.5-80.5 ft (distance). Due to the evolution of the compression wave form, the time of peak selection was changed between 16.0-18.8 ft (distance).
CPT-181	3/10/98	The compression wave trace of this particular test displays shear wave noise. The compression wave "time of arrival" was chosen for analysis rather than the "time of peak".
CPT-182	3/23/98	Due to the evolution of the shear wave form, the time of peak selection was changed between 80.4-83.4, 107.4-110.4 ft (distance). Only one shear trace was saved at 128.4 ft. (distance). Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale.



**Task 10 -**  
**Addendum to Cover Letter**  
**Special Analysis Considerations**

Test Id.	Date	Special Analysis Considerations
CPT-183	3/25/98	Due to the evolution of the shear wave form, the time of peak selection was changed between 104.7-107.4 ft (distance). Due to the evolution of the compression wave form, the time of peak selection was changed between 18.8-21.5 ft (distance).
CPT-185	3/18/98	Only one shear trace was saved at 23.8, 122.5, 131.4 ft (distance). Compression wave speeds recorded above 5000 ft/s are not shown on the "Compression Wave Speed" plot due to the scale.
CPT-186	3/24/98	Due to the evolution of the shear wave form, the time of peak selection was changed between 116.4-119.4, 128.4-131.4 ft (distance). Shear wave speeds recorded above 2000 ft/s are not shown on the "Shear Wave Speed" plot due to the scale. Only one shear trace was saved at 140.4 ft. (distance).
CPT-188	3/9/98 3/26/98	The compression test was re-pushed on a later date.
CPT-189	3/23/98	Due to the evolution of the shear wave form, the time of peak selection was changed between 50.4-53.5, 65.5-68.5 ft (distance). Due to the evolution of the compression wave form, the time of peak selection was changed between 16.0-18.7 ft (distance).
CPT-196	4/14/98	Shear wave speeds recorded above 2000 ft/s are not shown on the "Shear Wave Speed" plot due to the scale.

7 of 522

CPT-53

APPLIED RESEARCH ASSOCIATES, INC.

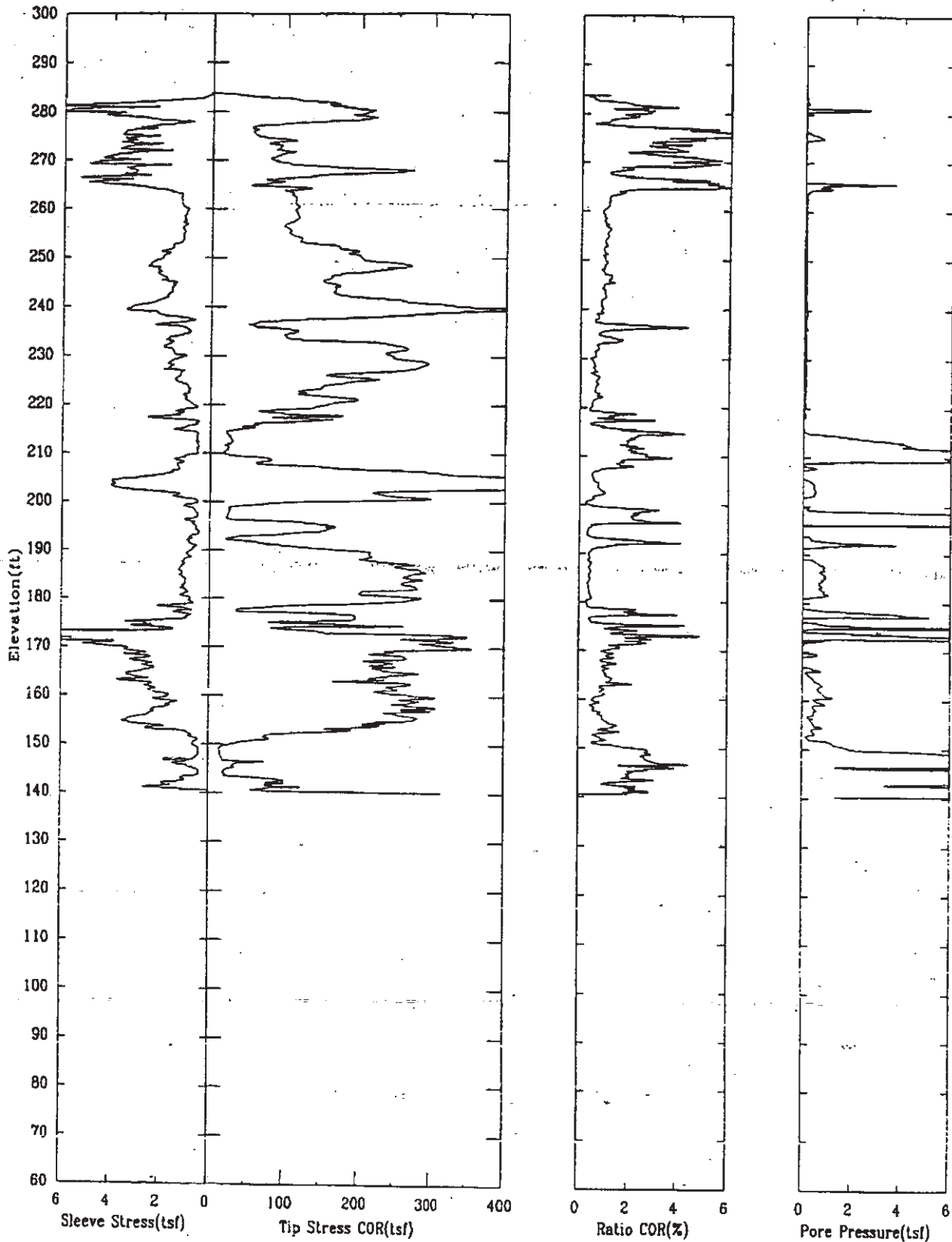
K-TRT-F-00001

03/04/98 R/O

North 79180.0

East 54845.0

Elevation 289.9



CPT-53

APPLIED RESEARCH ASSOCIATES, INC.

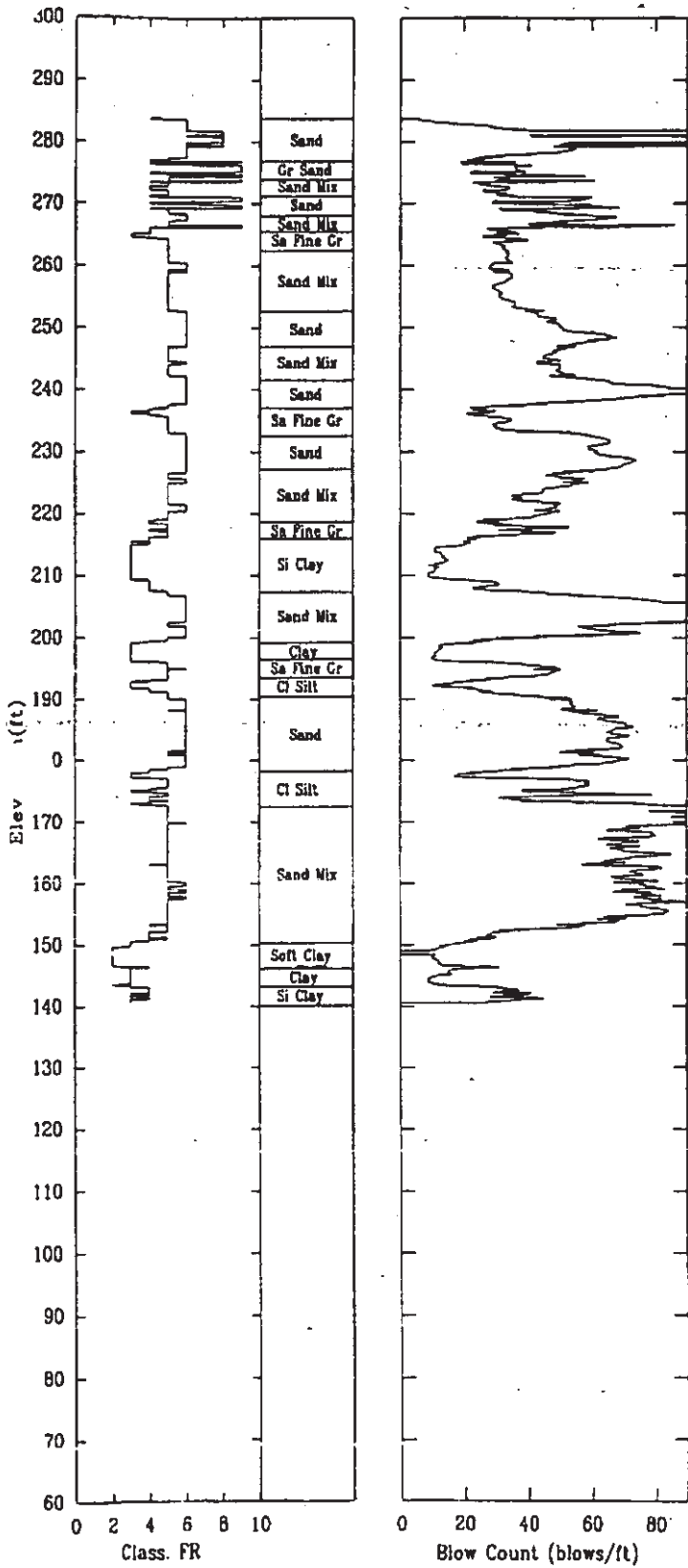
K-TRT-F-00001

03/04/98<sup>R/O</sup>

North 79180.0

East 54845.0

Elevation 289.9

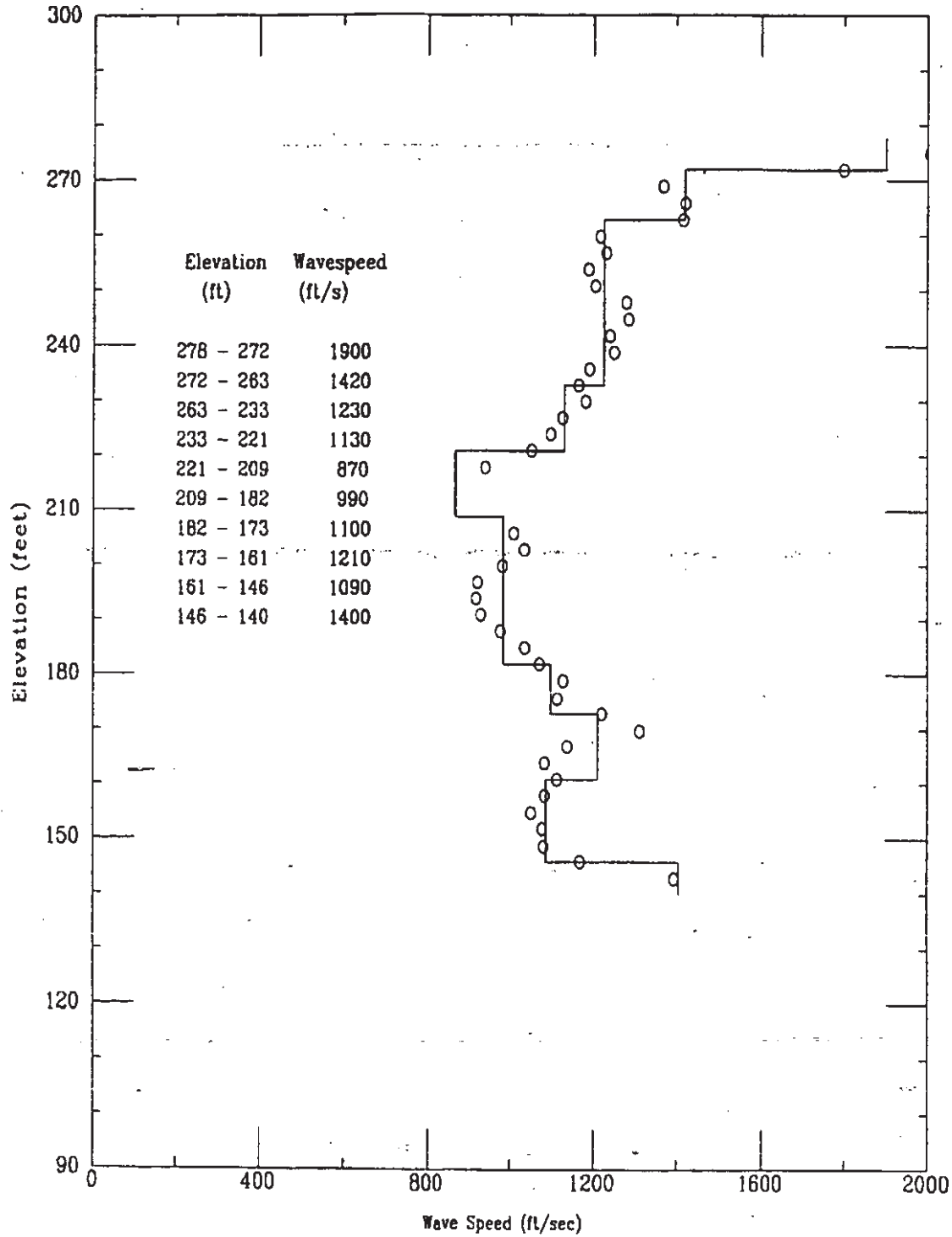


CPT-53

APPLIED RESEARCH ASSOCIATES, INC.

03/04/98

Shear Wave Speeds

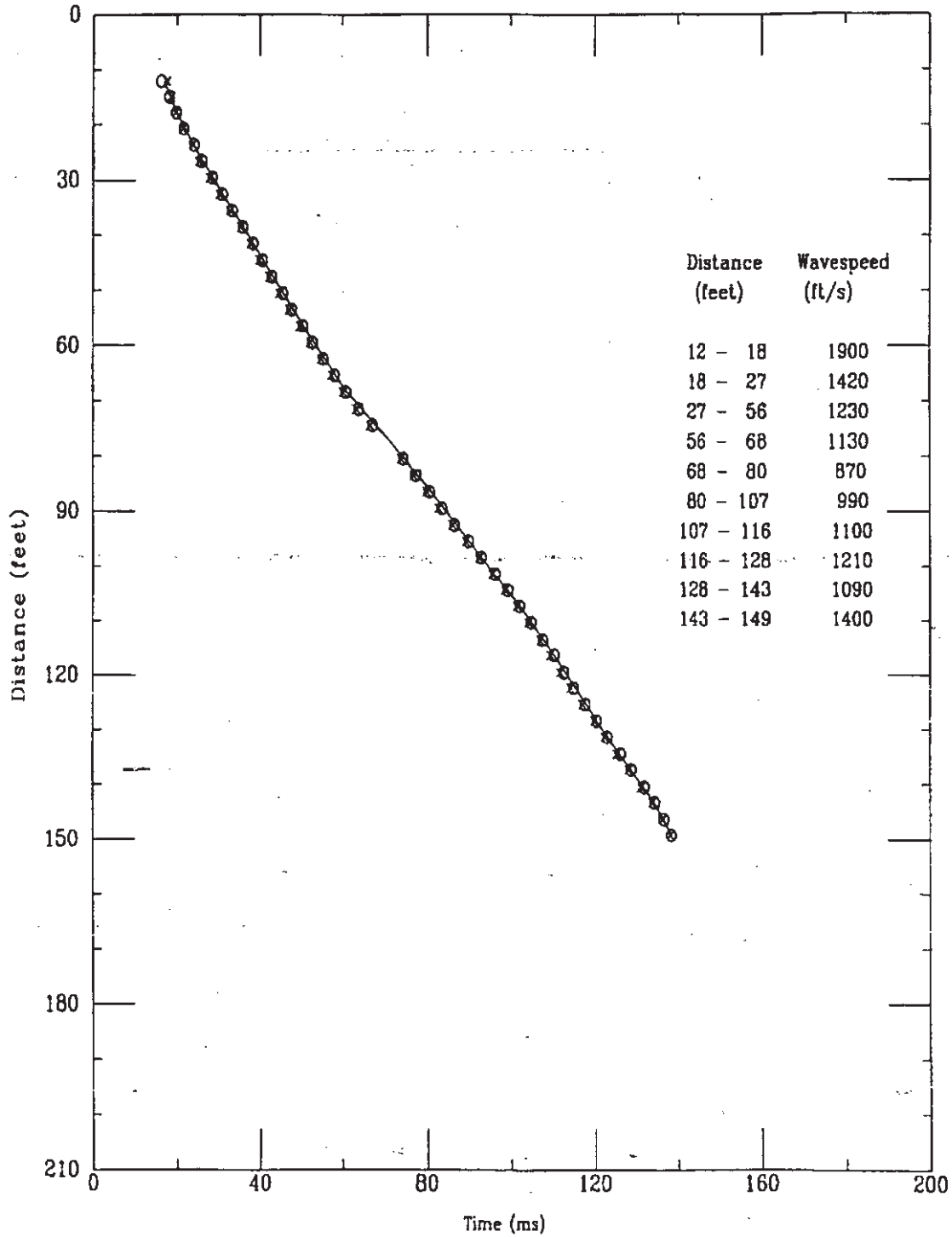


CPT-53

APPLIED RESEARCH ASSOCIATES, INC.

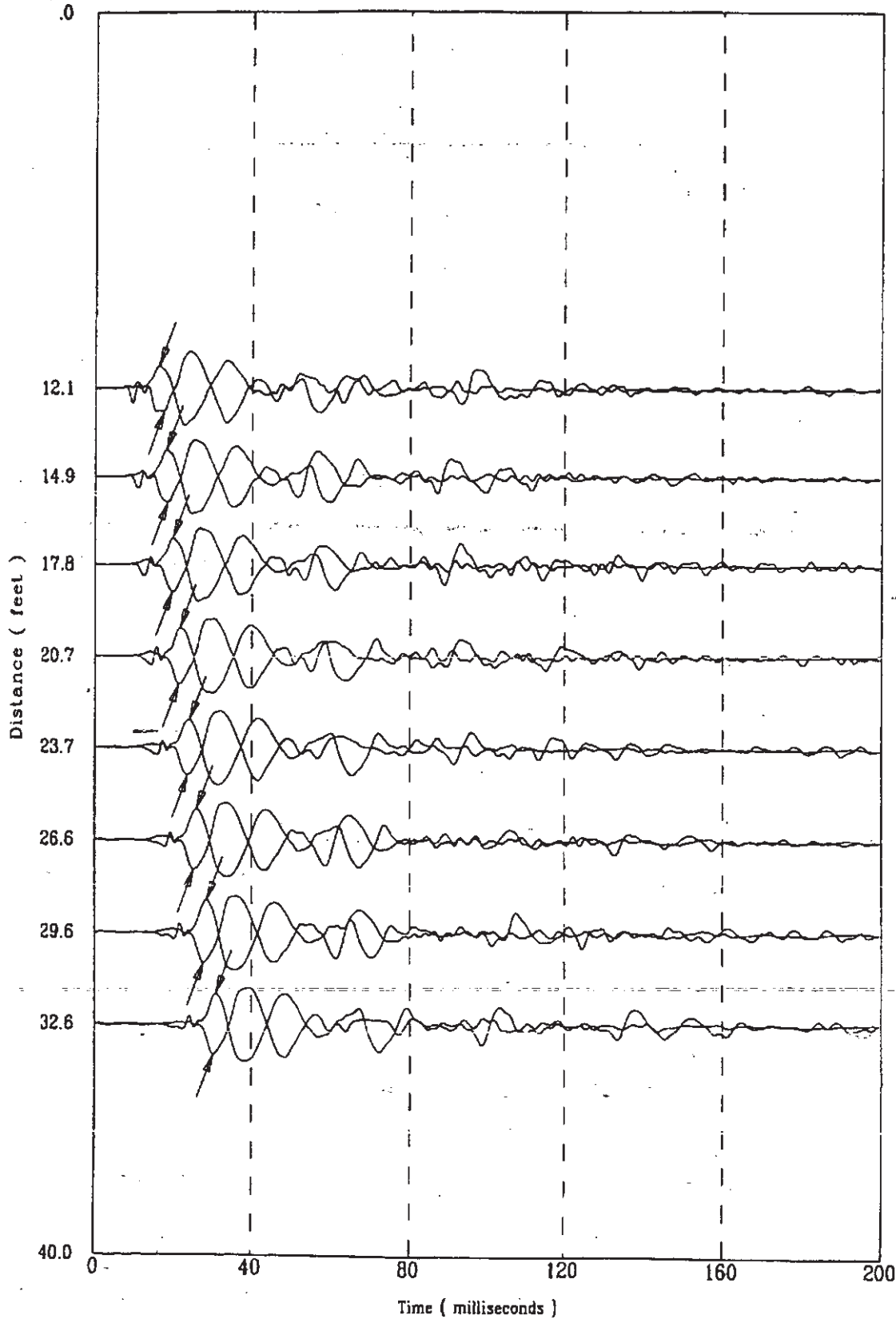
03/04/98

Shear Wave Time of Peak



Applied Research Associates, Inc.  
CPT-53

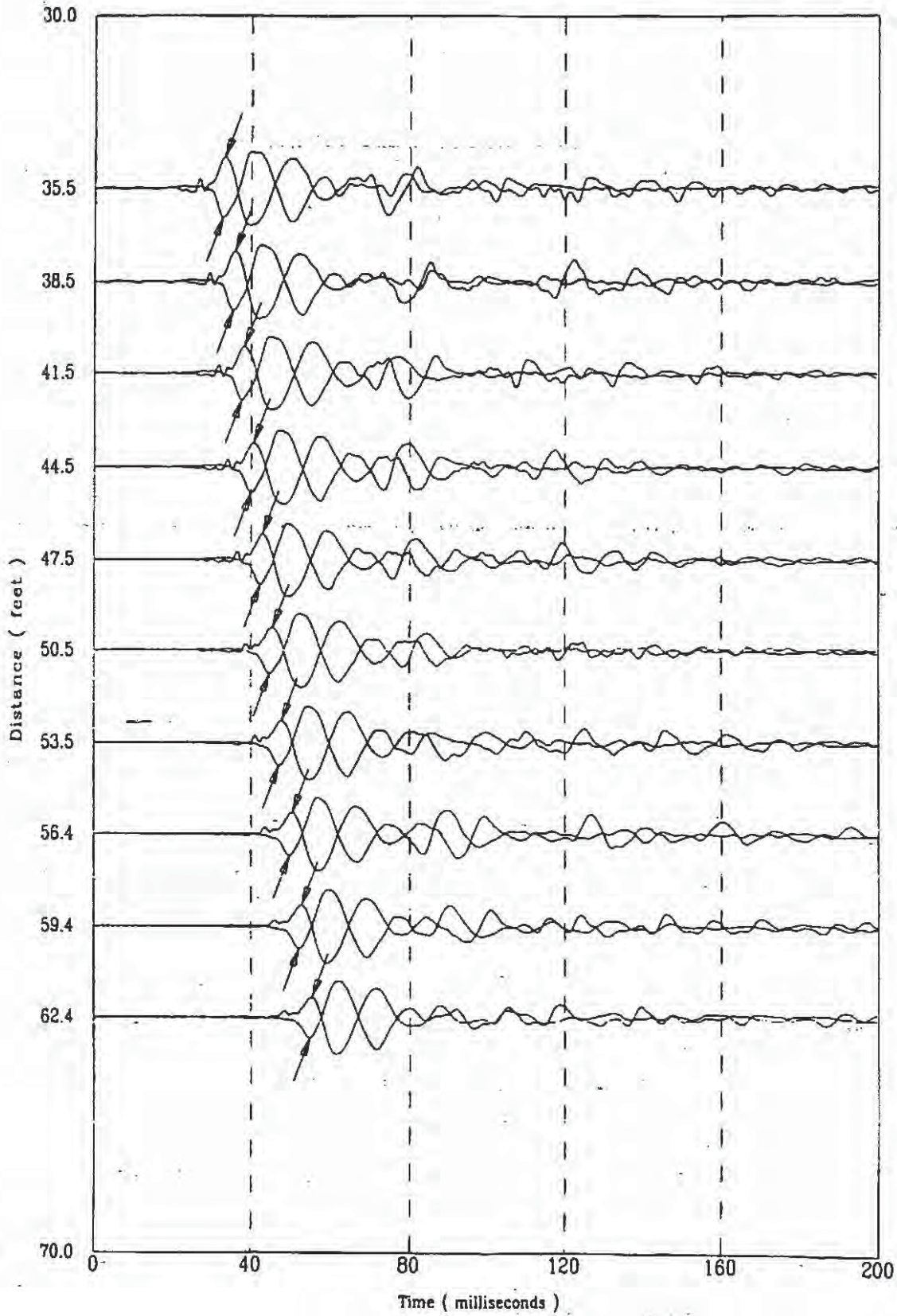
S Wave  
03/04/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-53

S Wave  
03/04/98



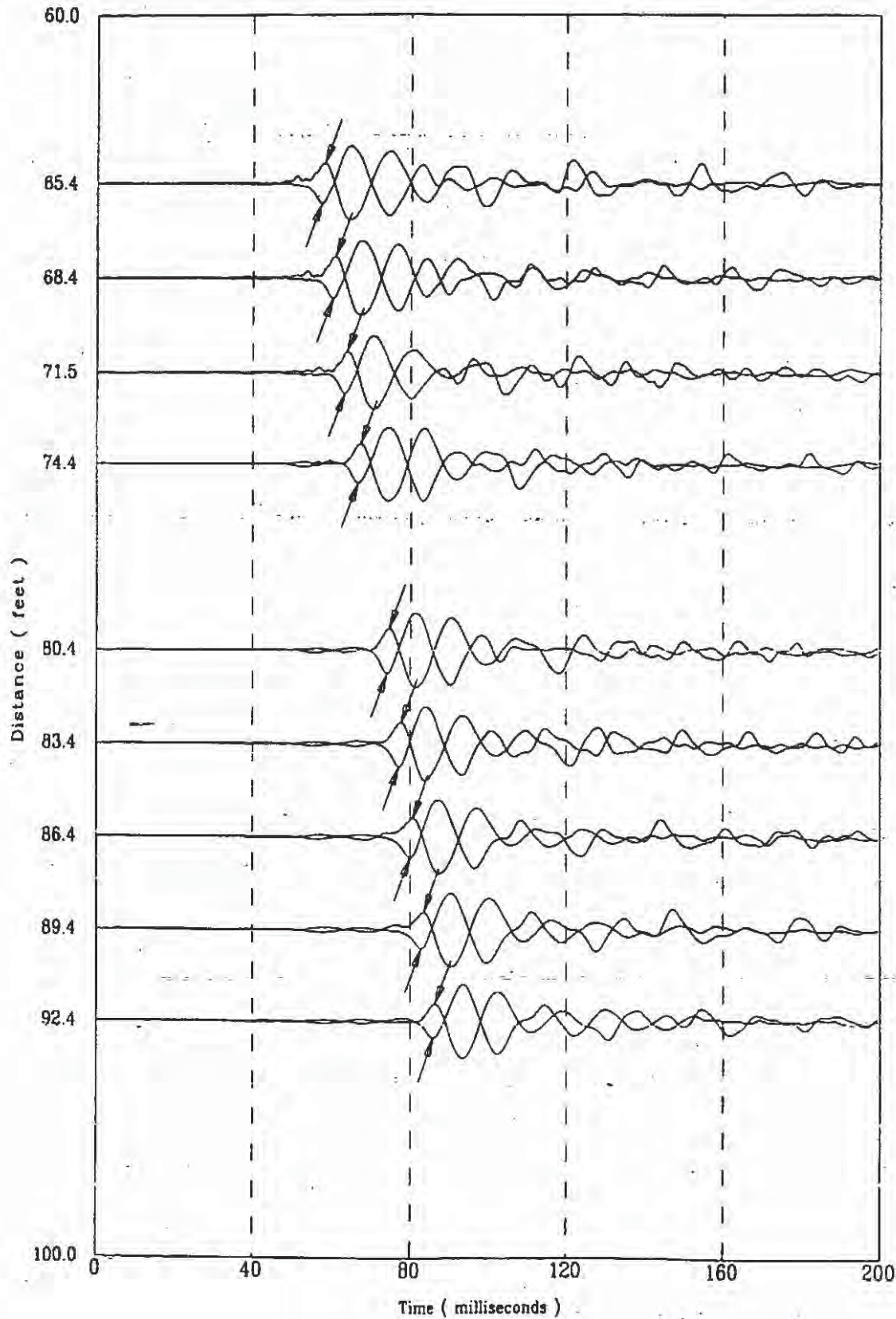
File 404m801S



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-53

S Wave  
03/04/98



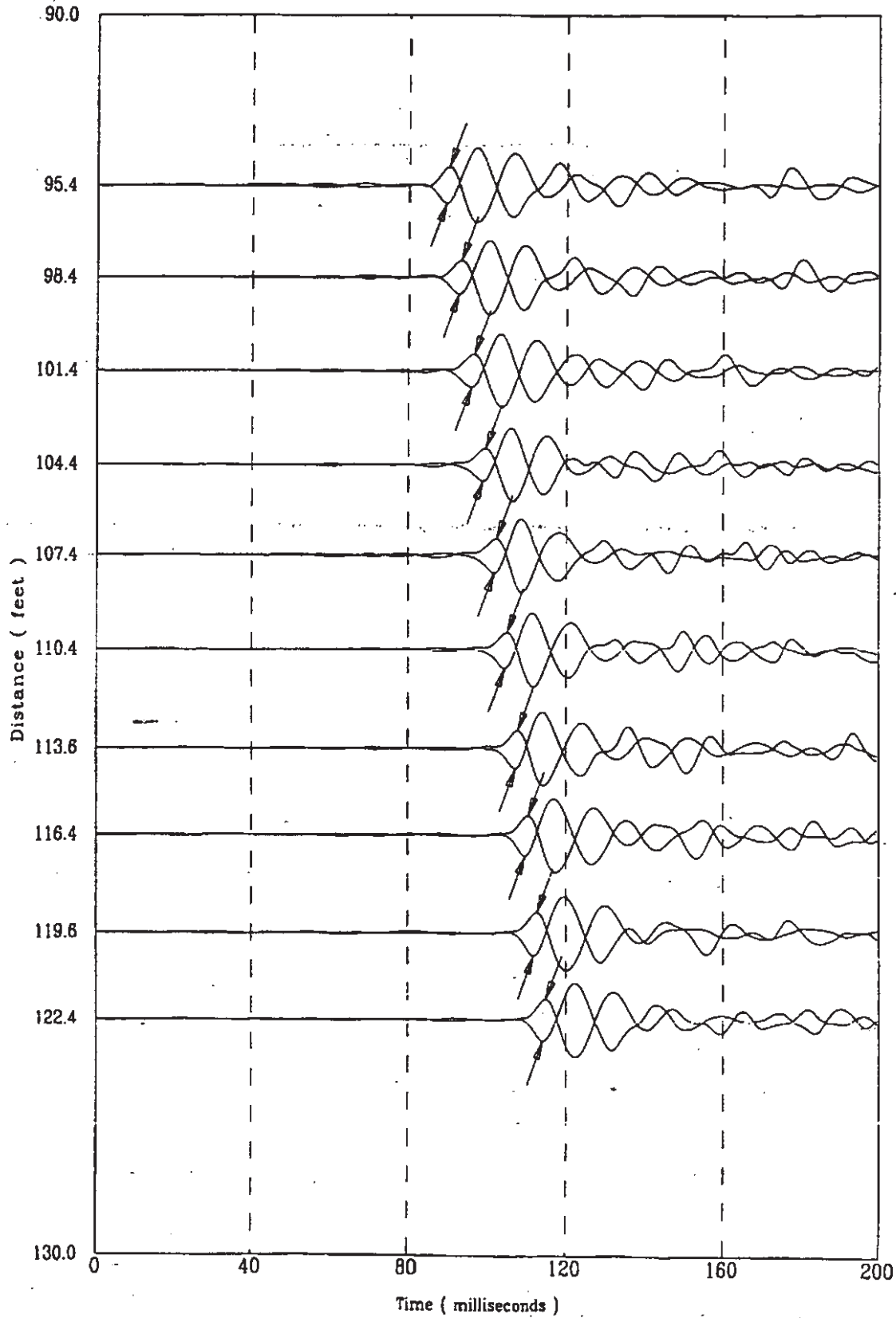
File 404m801S



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-53

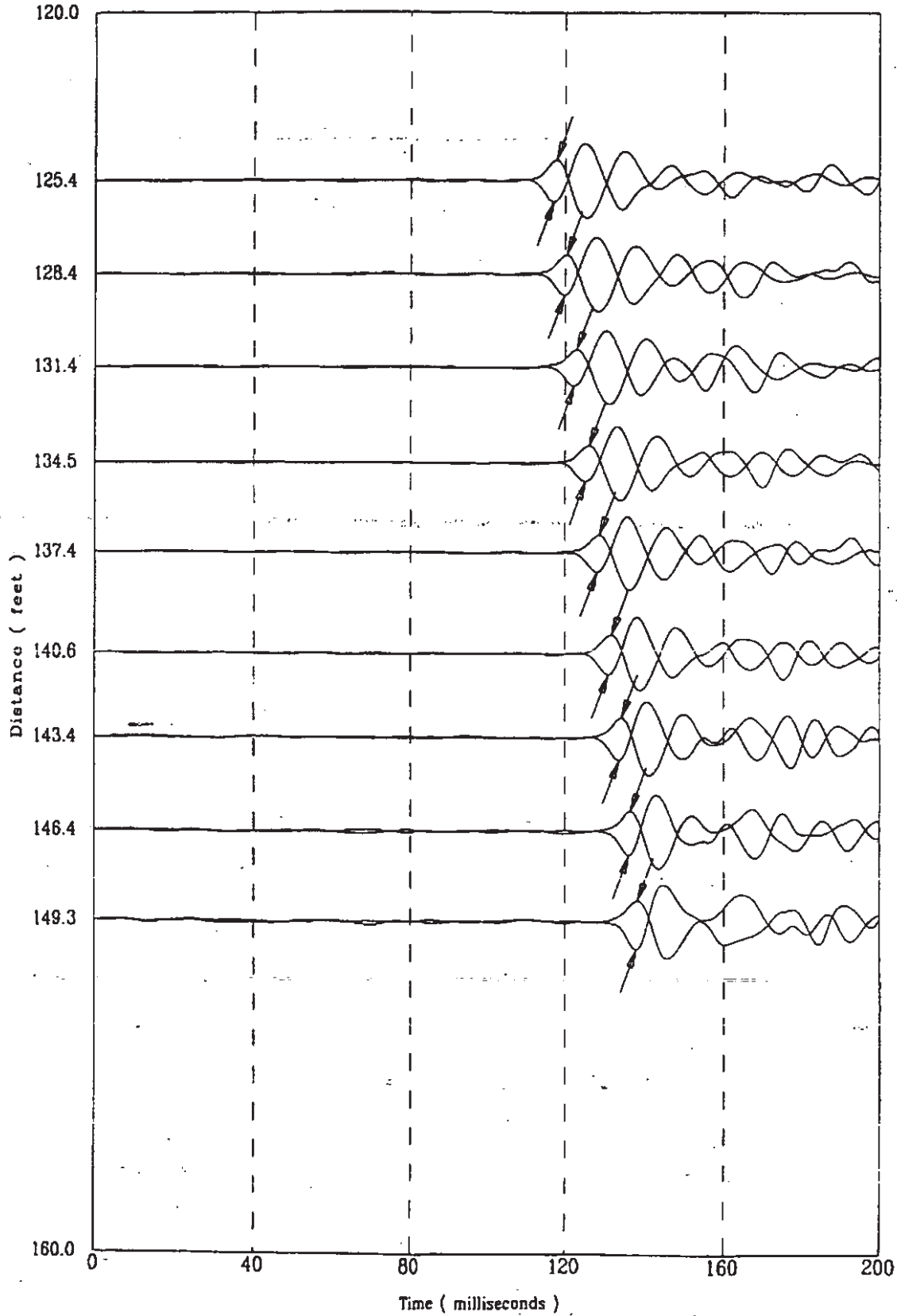
S Wave  
03/04/98



File 404m801S

Applied Research Associates, Inc.  
CPT-53

S Wave  
03/04/98

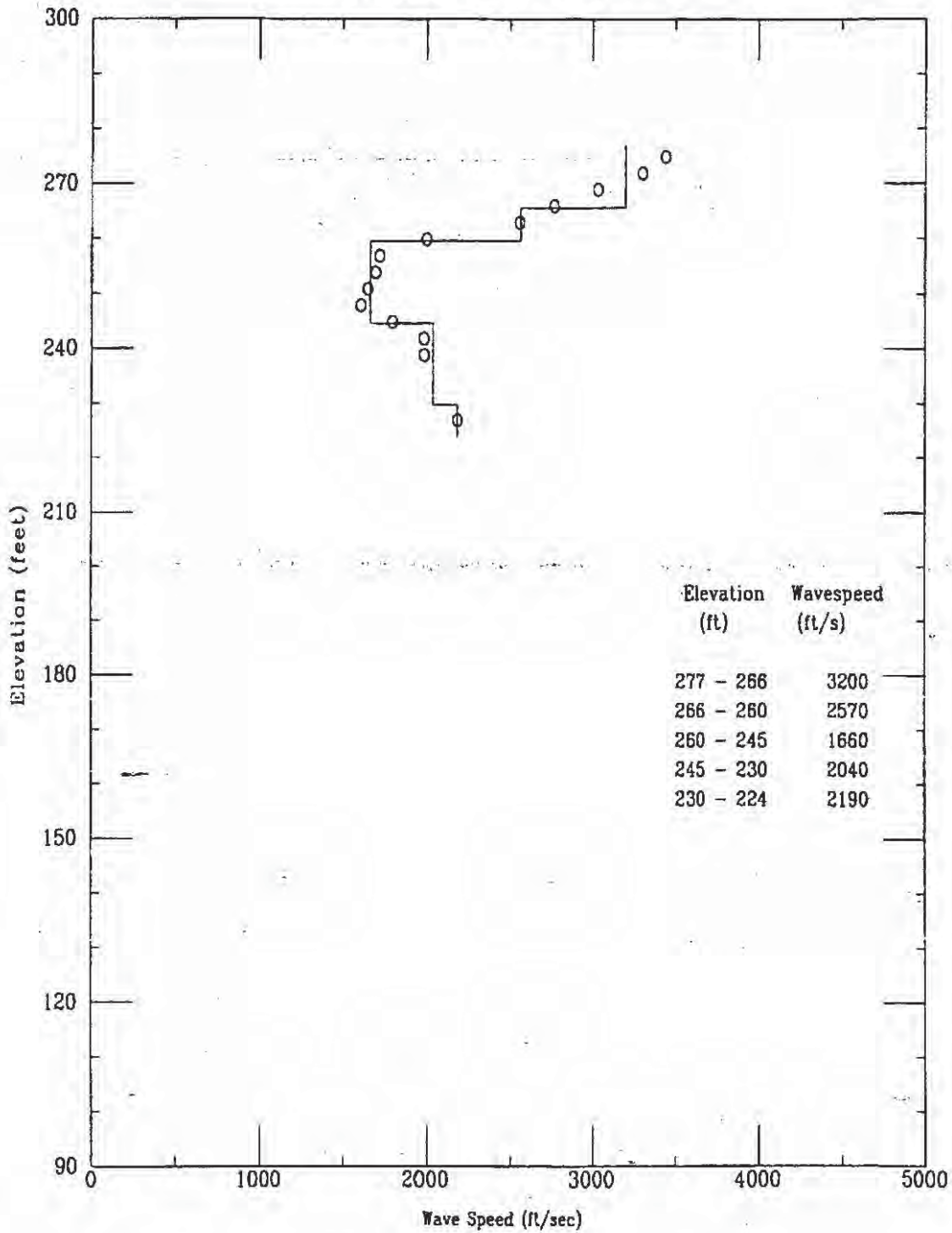


CPT-53

APPLIED RESEARCH ASSOCIATES, INC.

03/04/98

Compression Wave Speeds

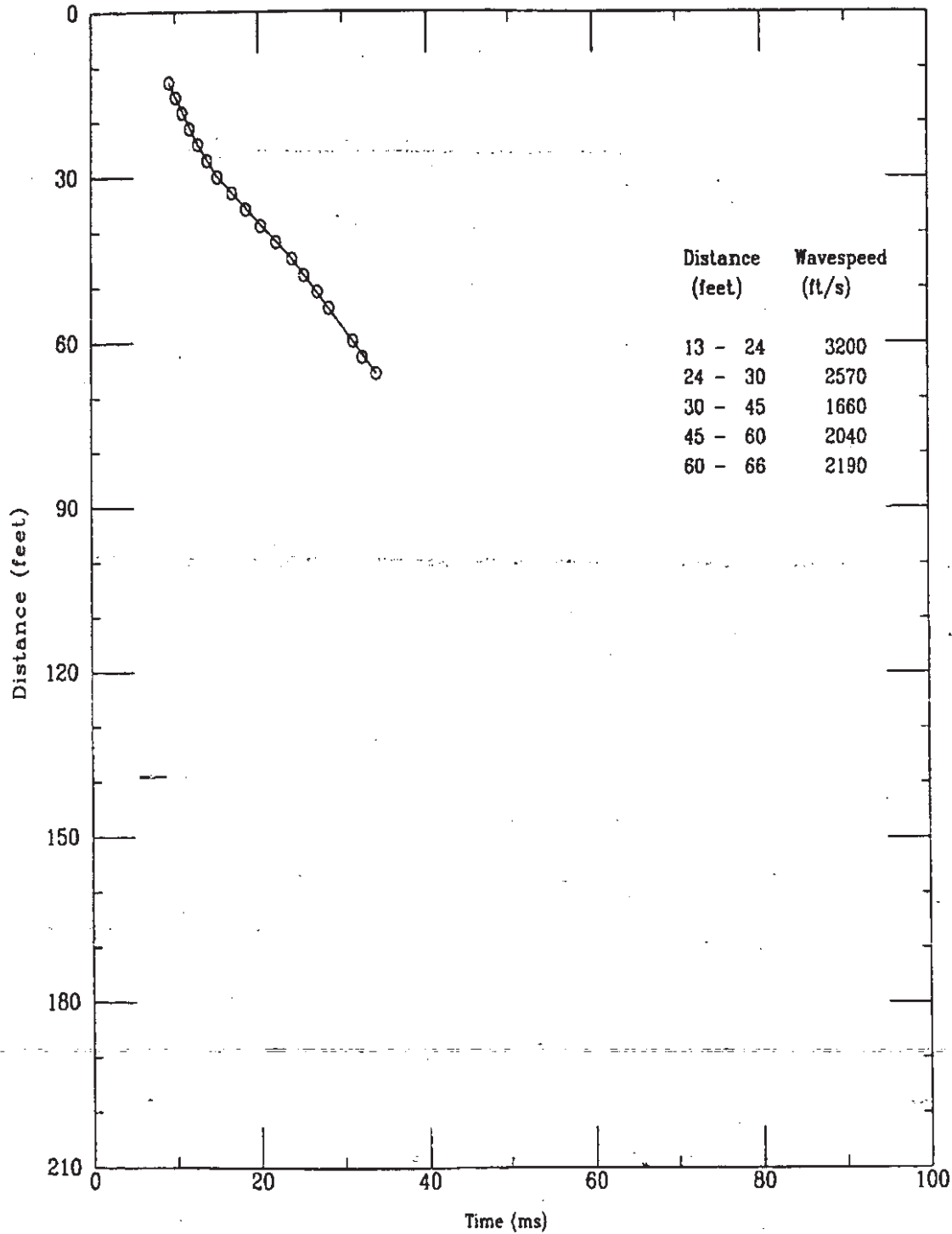


File 404m801S

CPT-53

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/04/98



File 404m801S

CPT-103

APPLIED RESEARCH ASSOCIATES, INC.

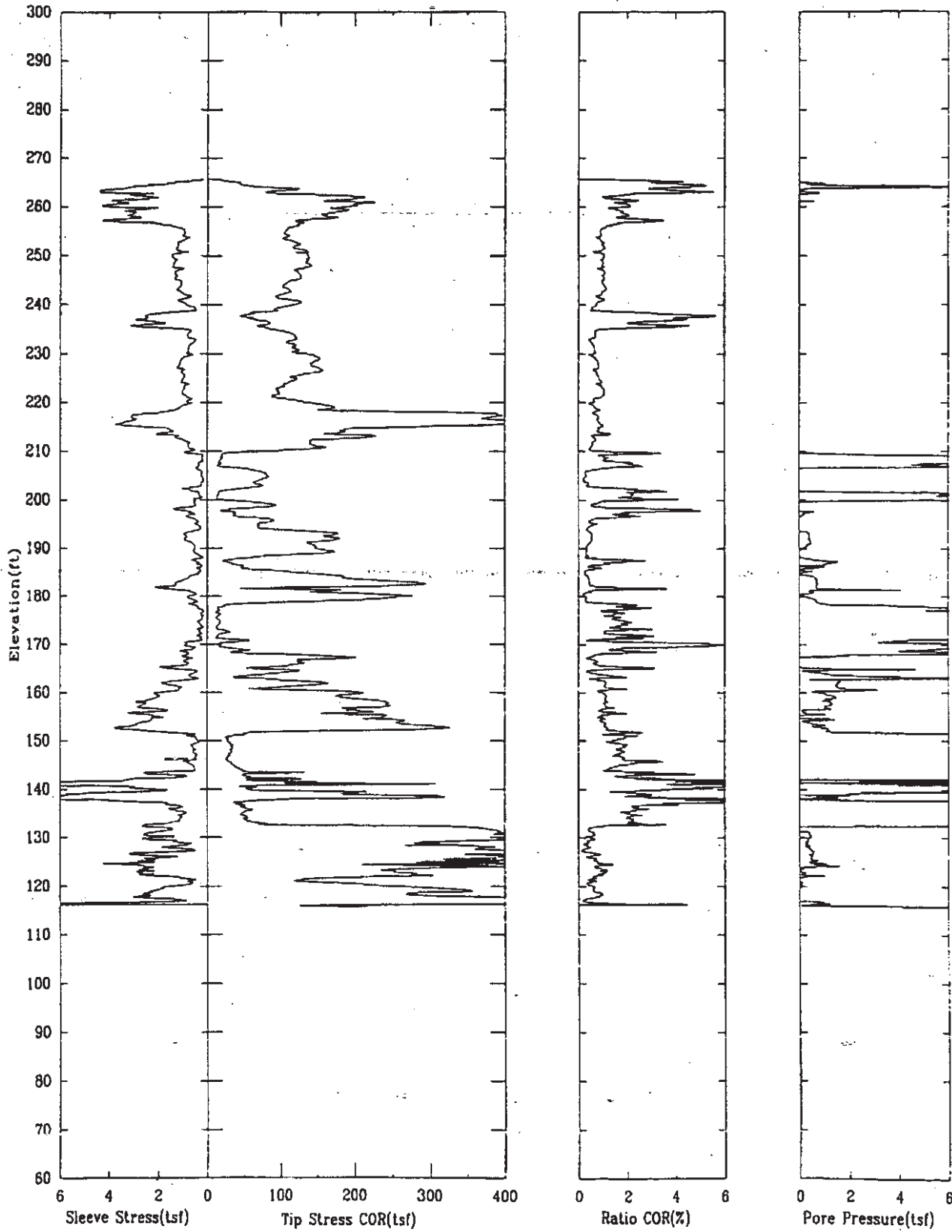
K-TRT-F-00001

02/23/98 / 0

North 79915.18

East 55260.95

Elevation 271.7



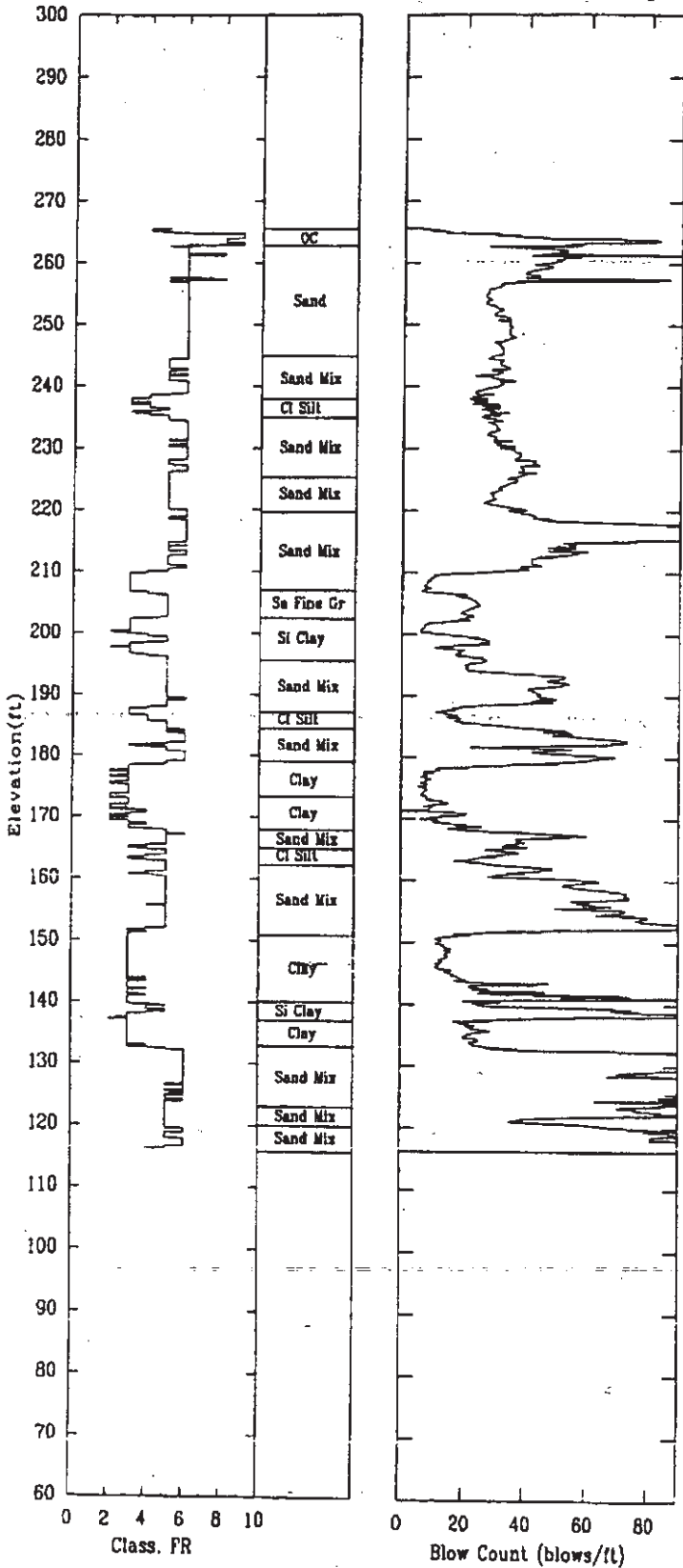
CPT-103

APPLIED RESEARCH ASSOCIATES, INC.

North 79915.18

East 55260.95

Elevation 271.7

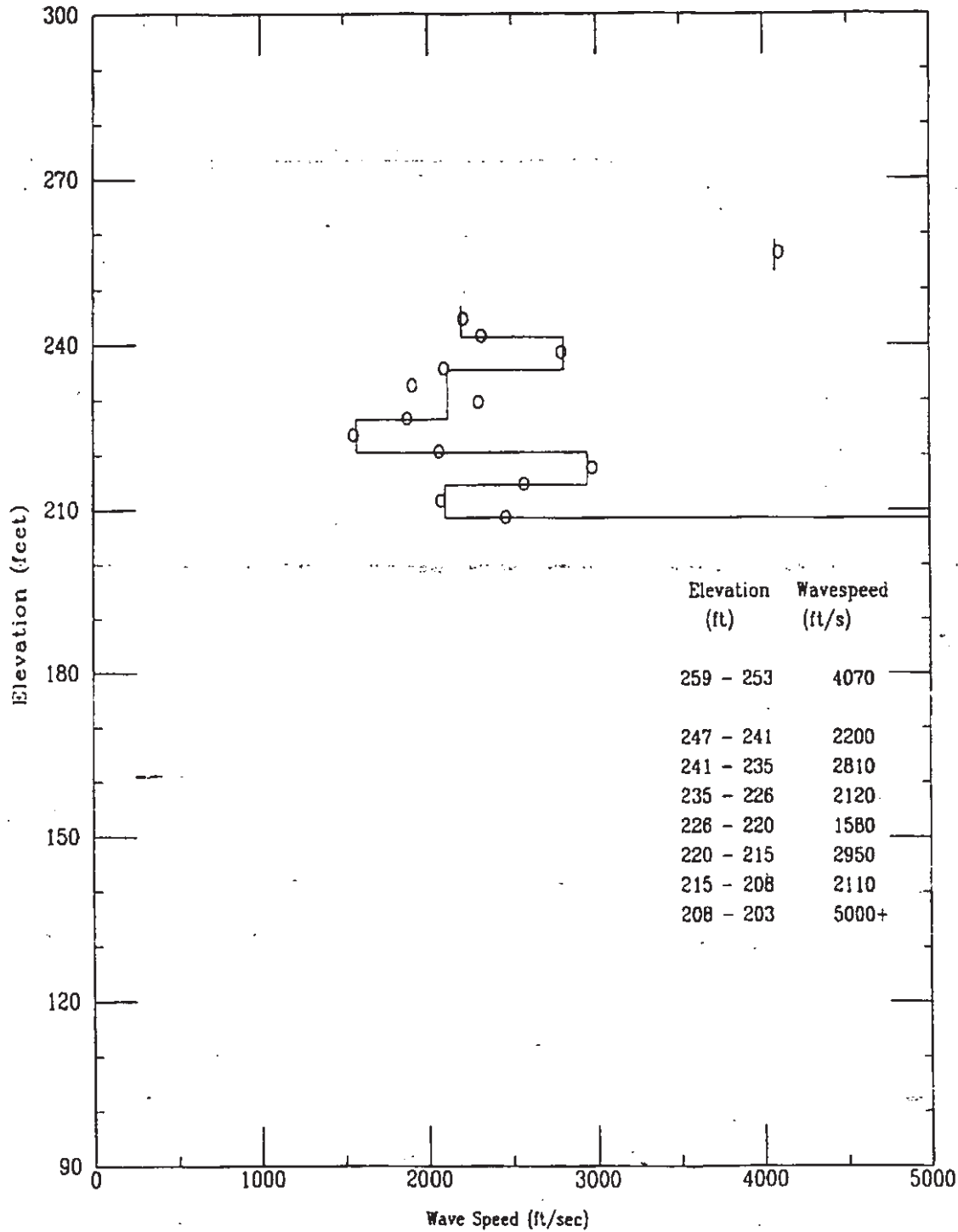


cpt-103

APPLIED RESEARCH ASSOCIATES, INC.

02/23/98

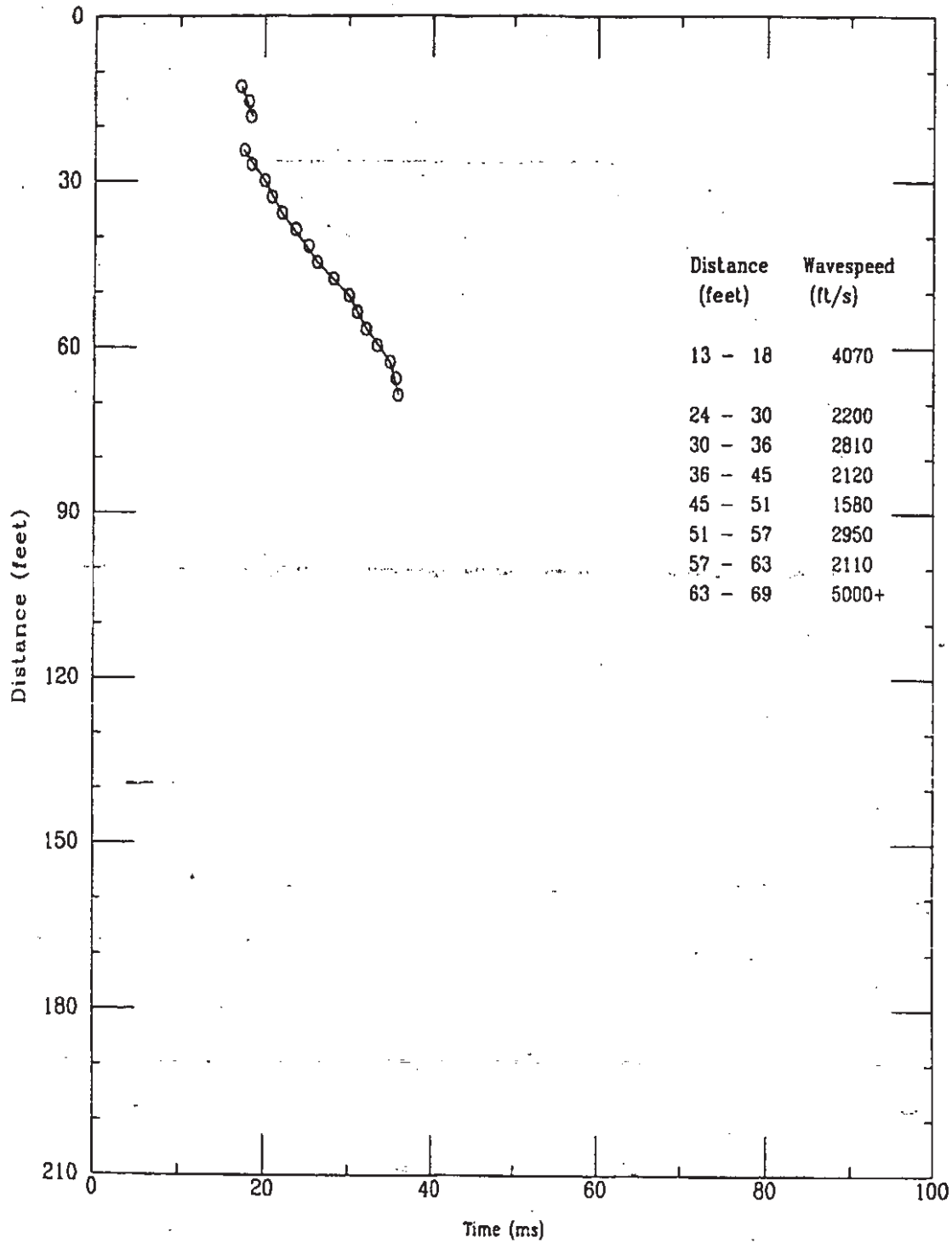
Compression Wave Speeds



cpt-103

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/23/98

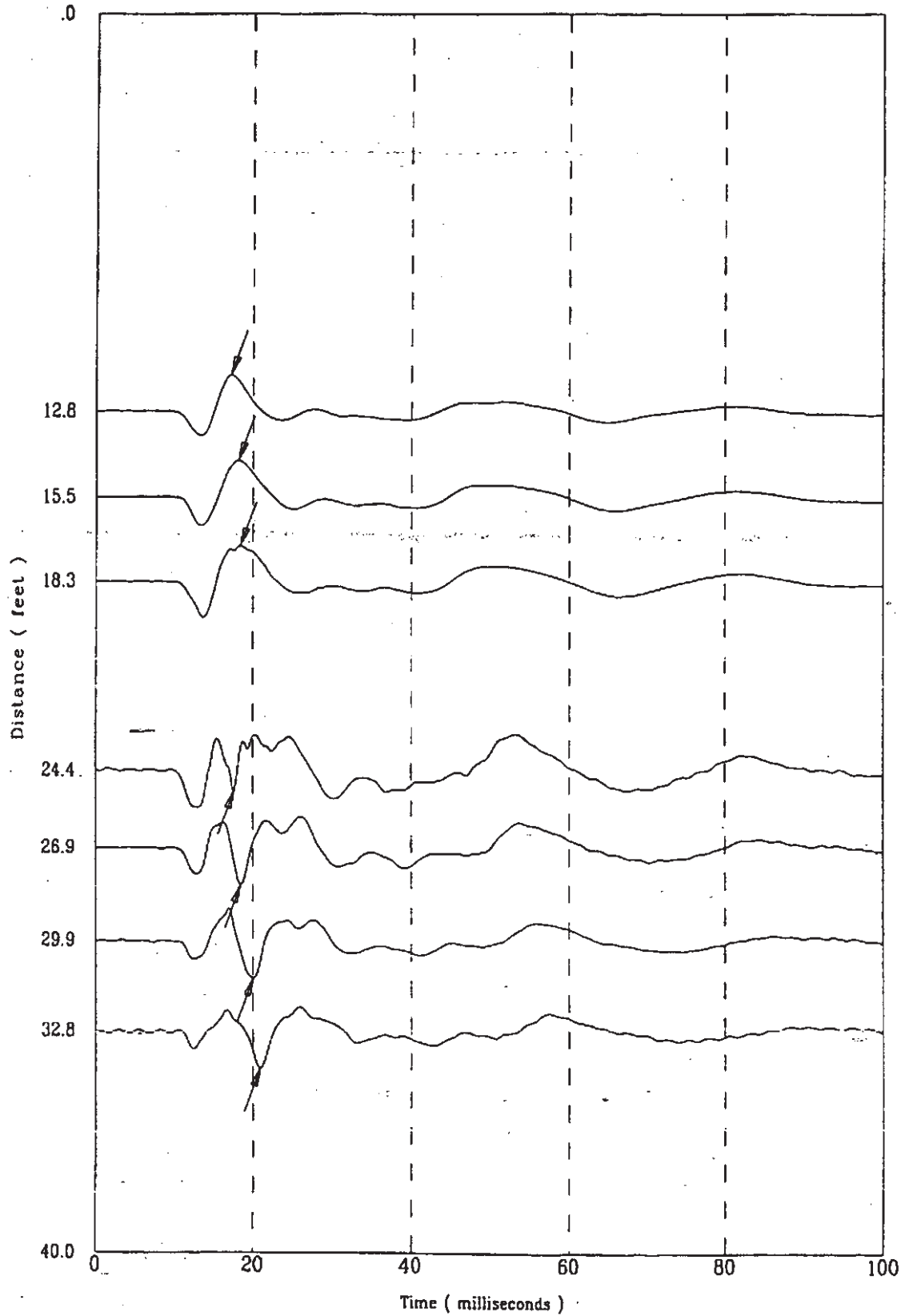




K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-103

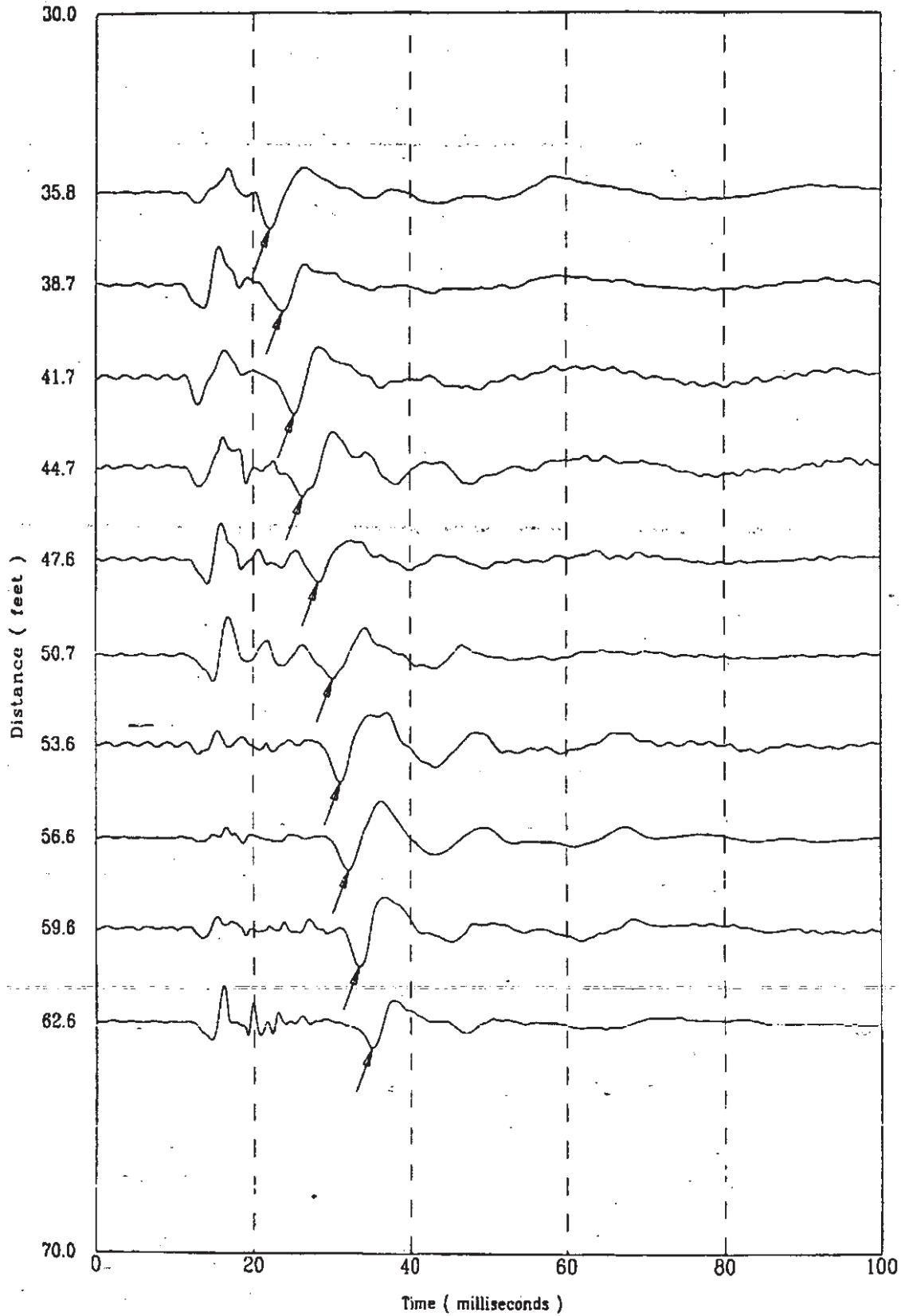
P Wave  
02/23/98



File 423/0015

Applied Research Associates, Inc.  
CPT-103

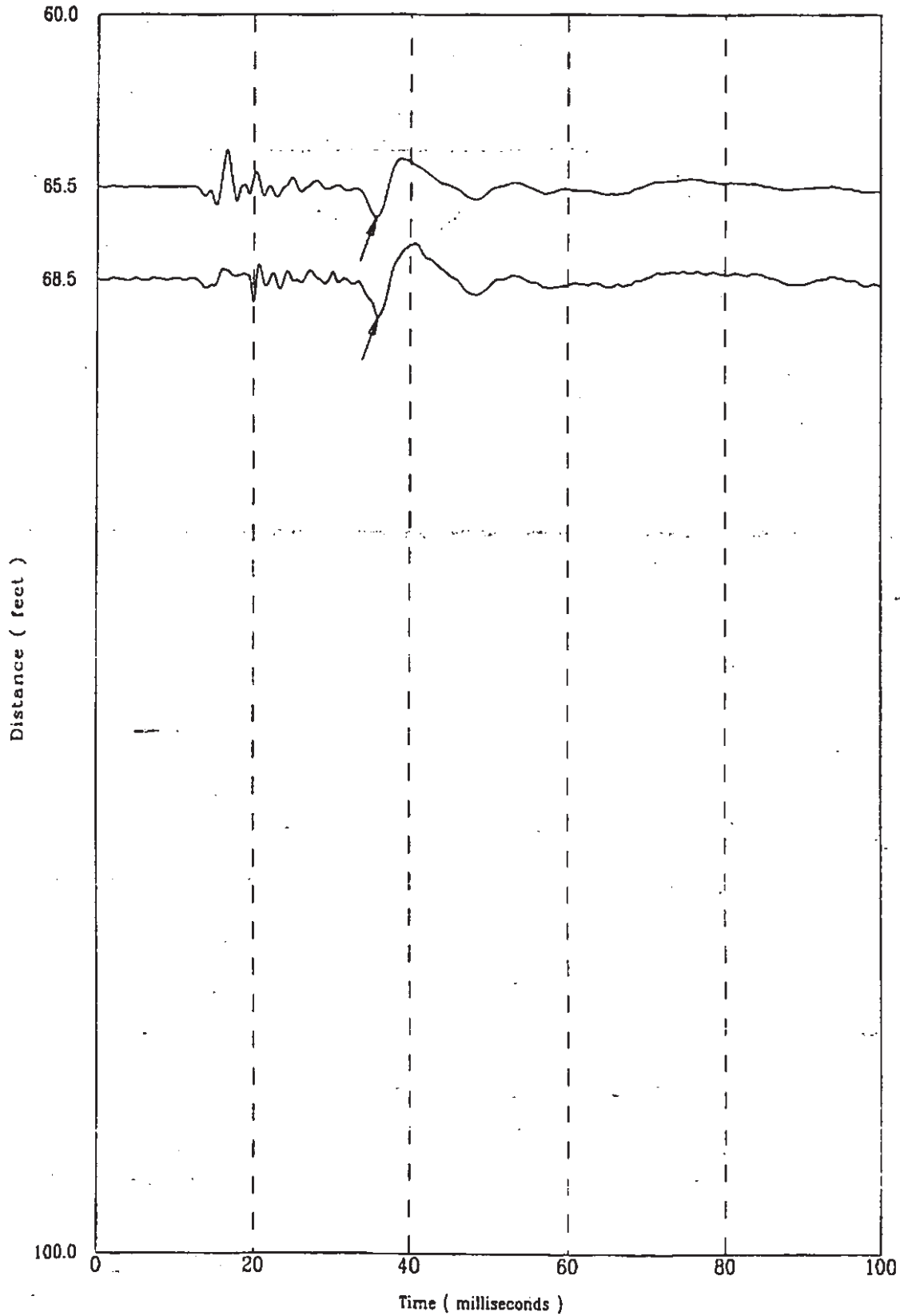
P Wave  
02/23/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-103

P Wave  
02/23/98



CPT-104

APPLIED RESEARCH ASSOCIATES, INC.

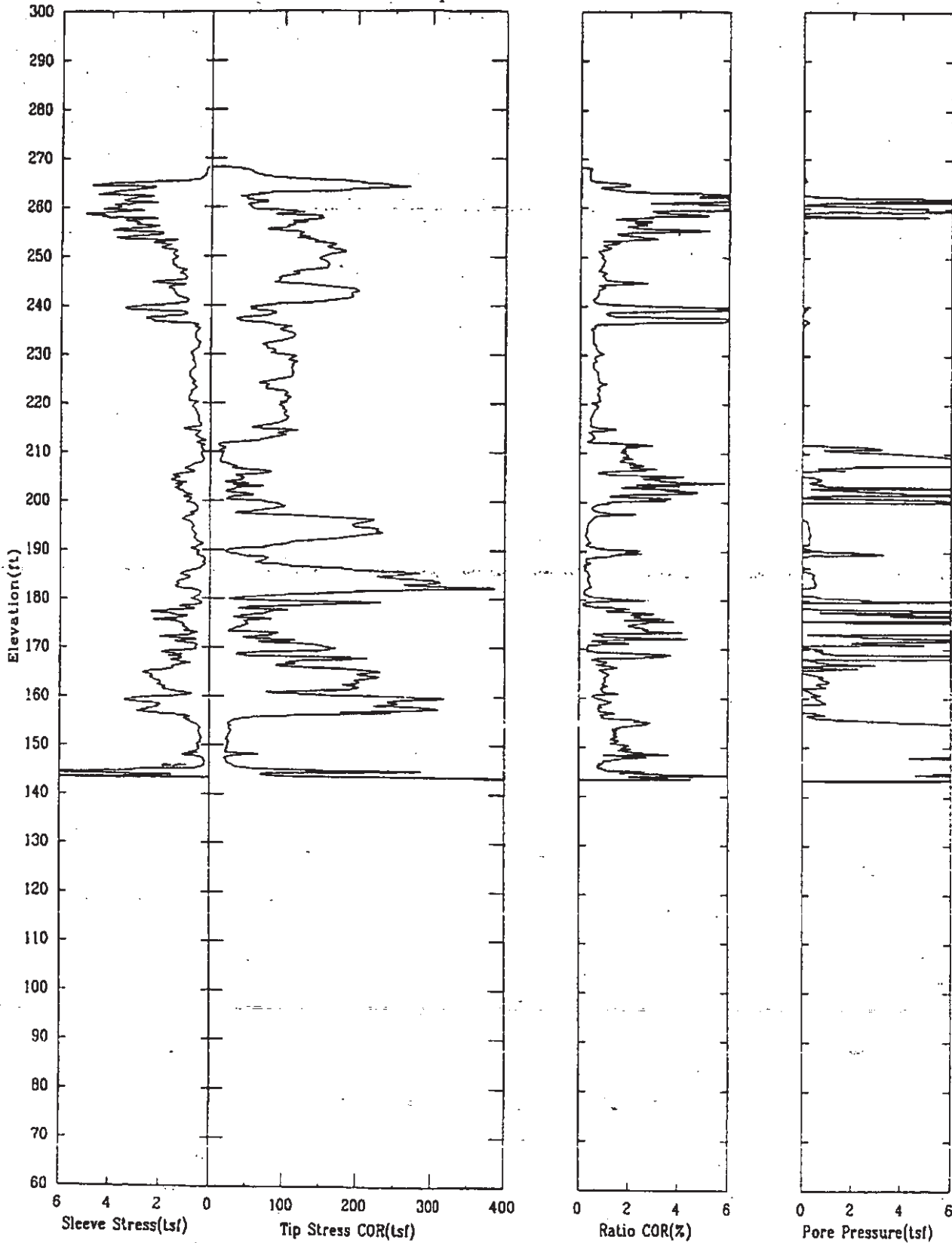
K-TRT-F-0000/

02/20/98<sup>R/O</sup>

North 79915.04

East 55385.03

Elevation 274.2



CPT-104

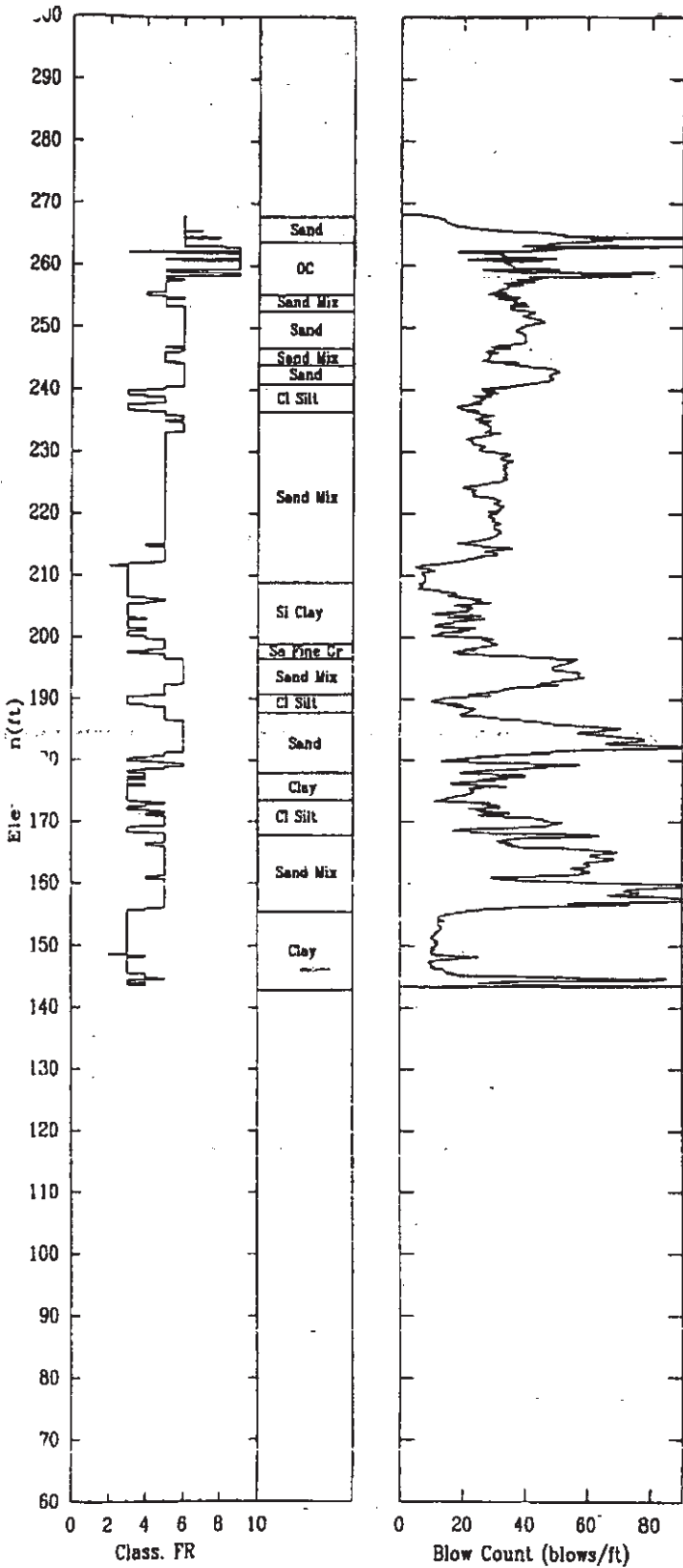
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-0000/  
02/20/98 R/O

North 79915.04

East 55385.03

Elevation 274.2



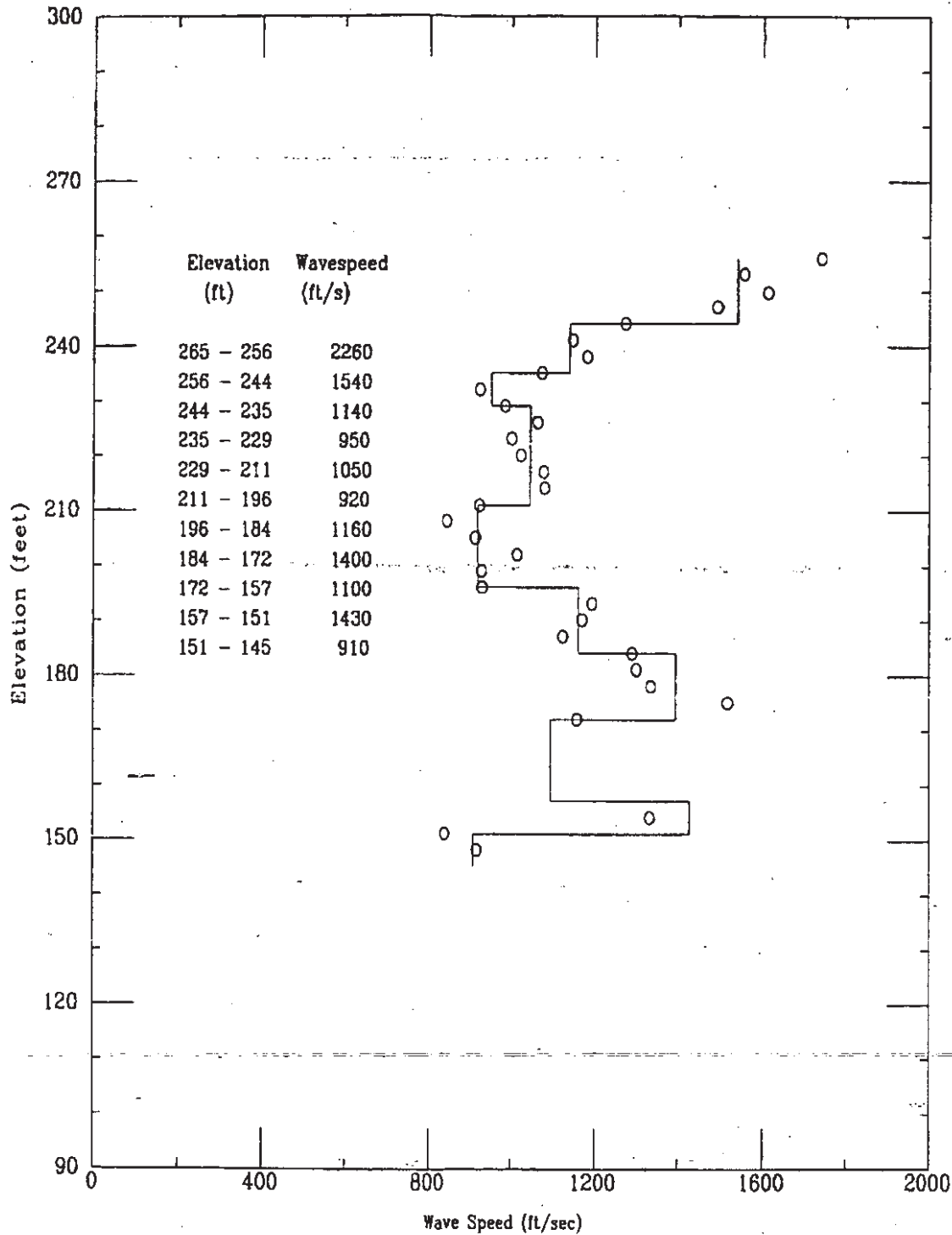


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APPLIED RESEARCH ASSOCIATES, INC.

02/20/98

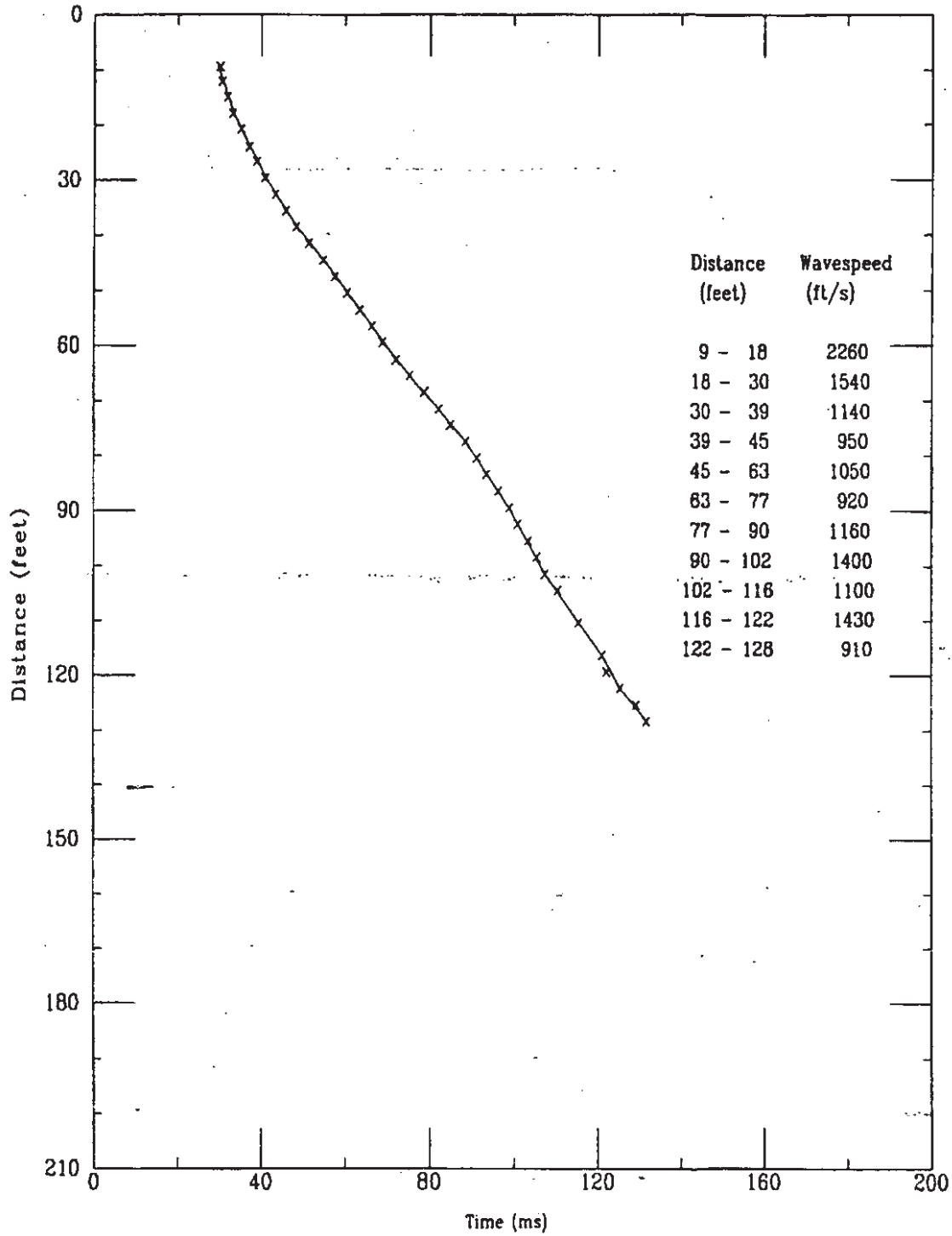
Shear Wave Speeds



CPT-104

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

02/20/98

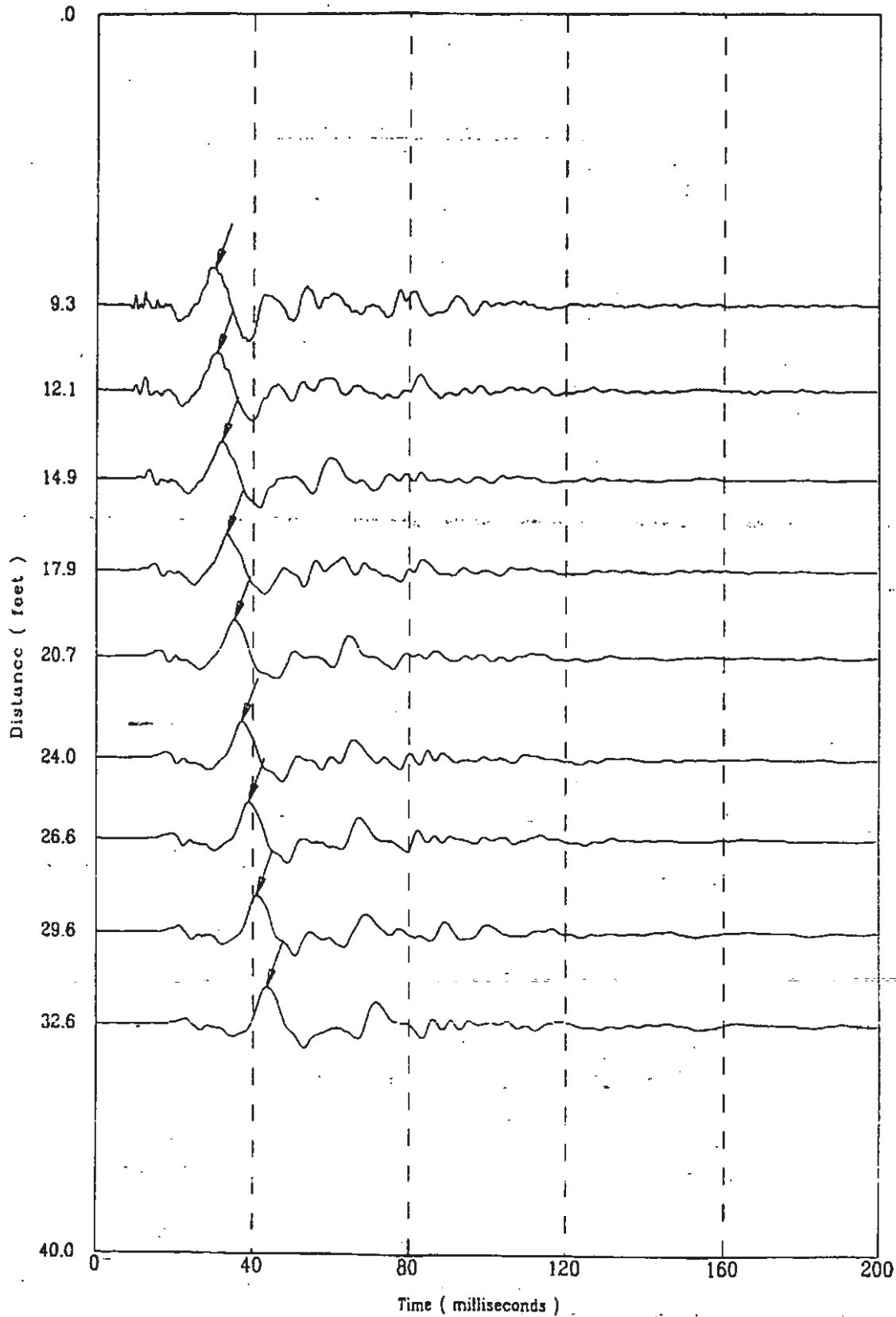


File 420F802S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-104

S Wave  
02/20/98

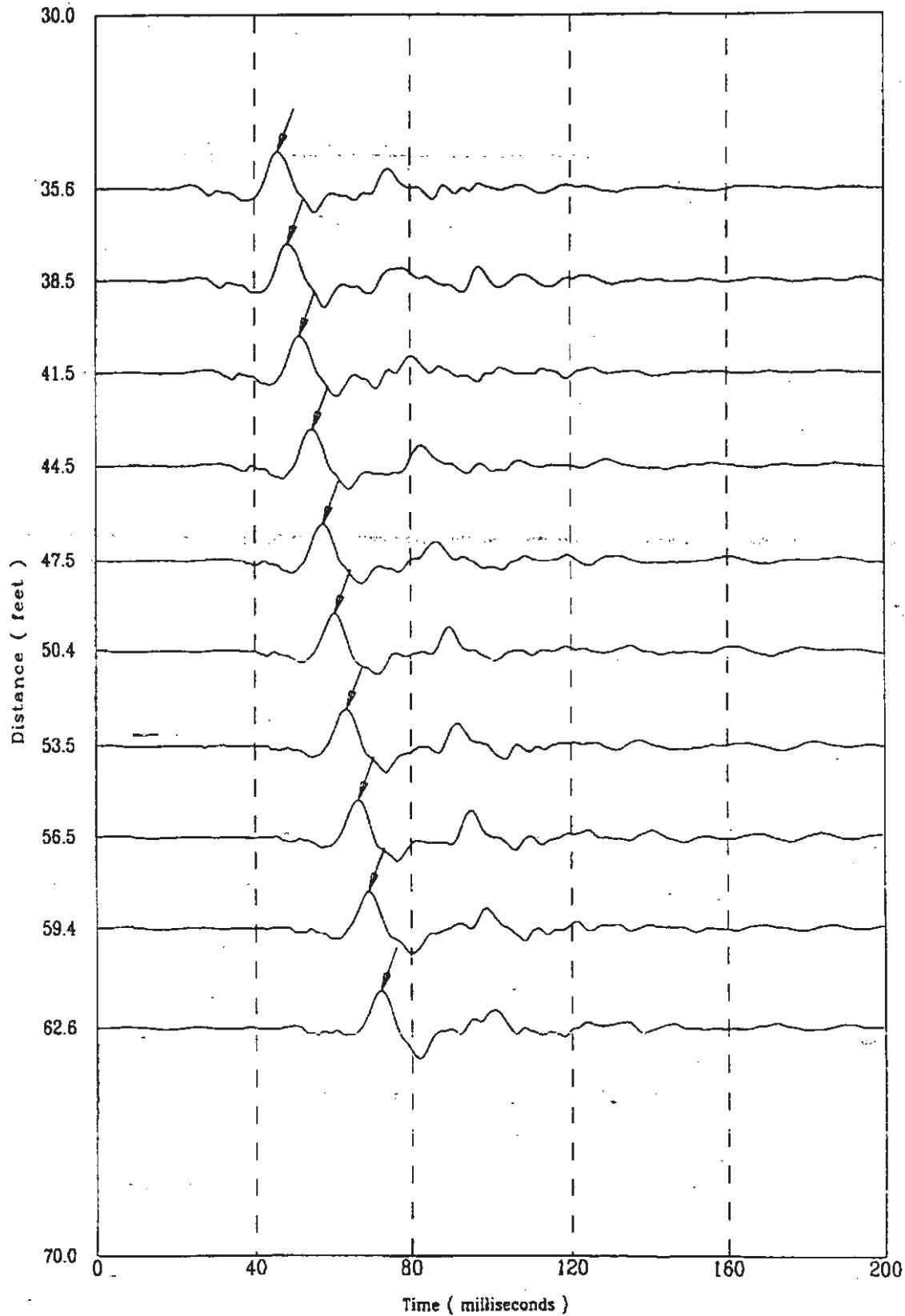


File 4201802S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-104

S Wave  
02/20/98

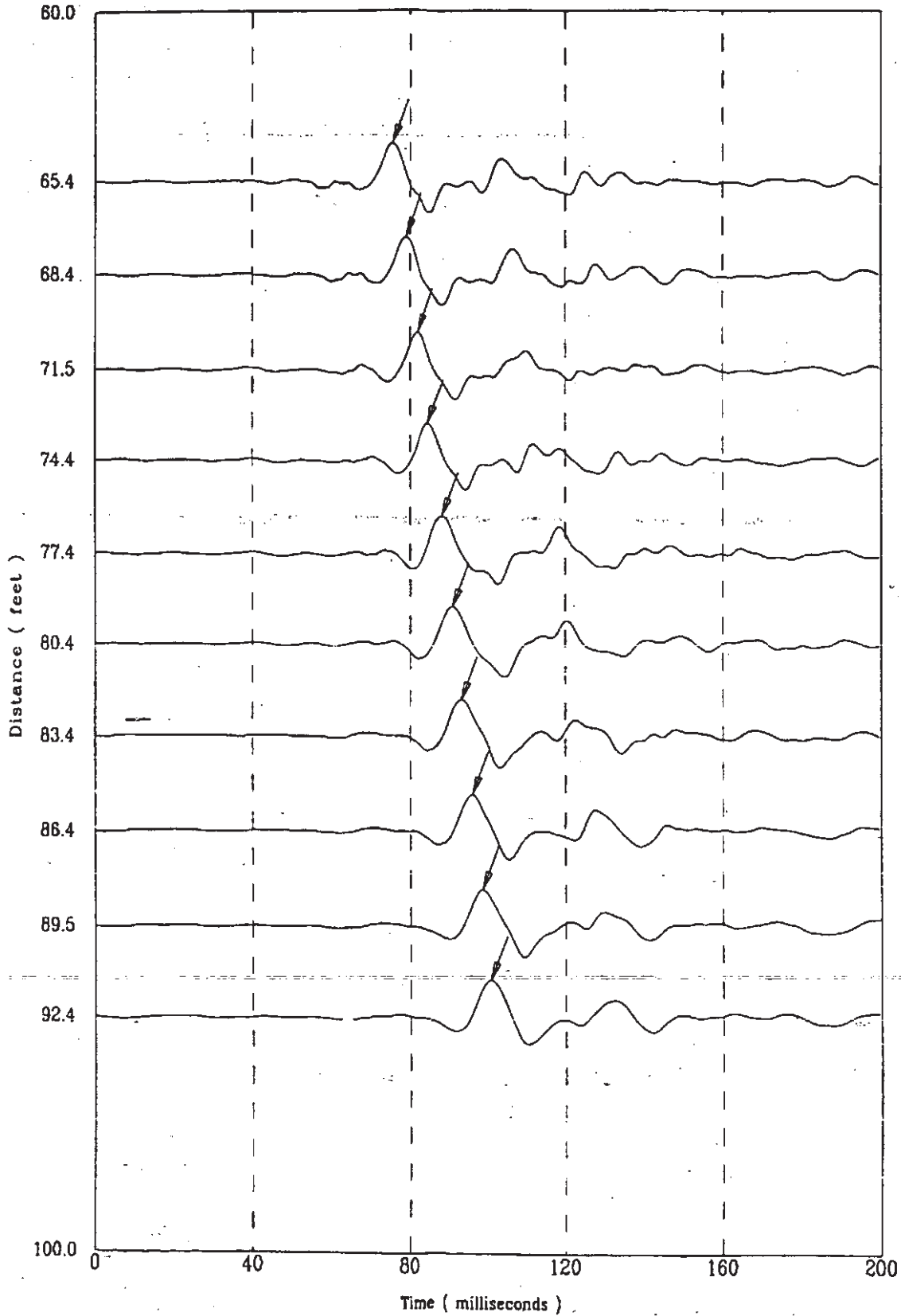


File #201802S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-104

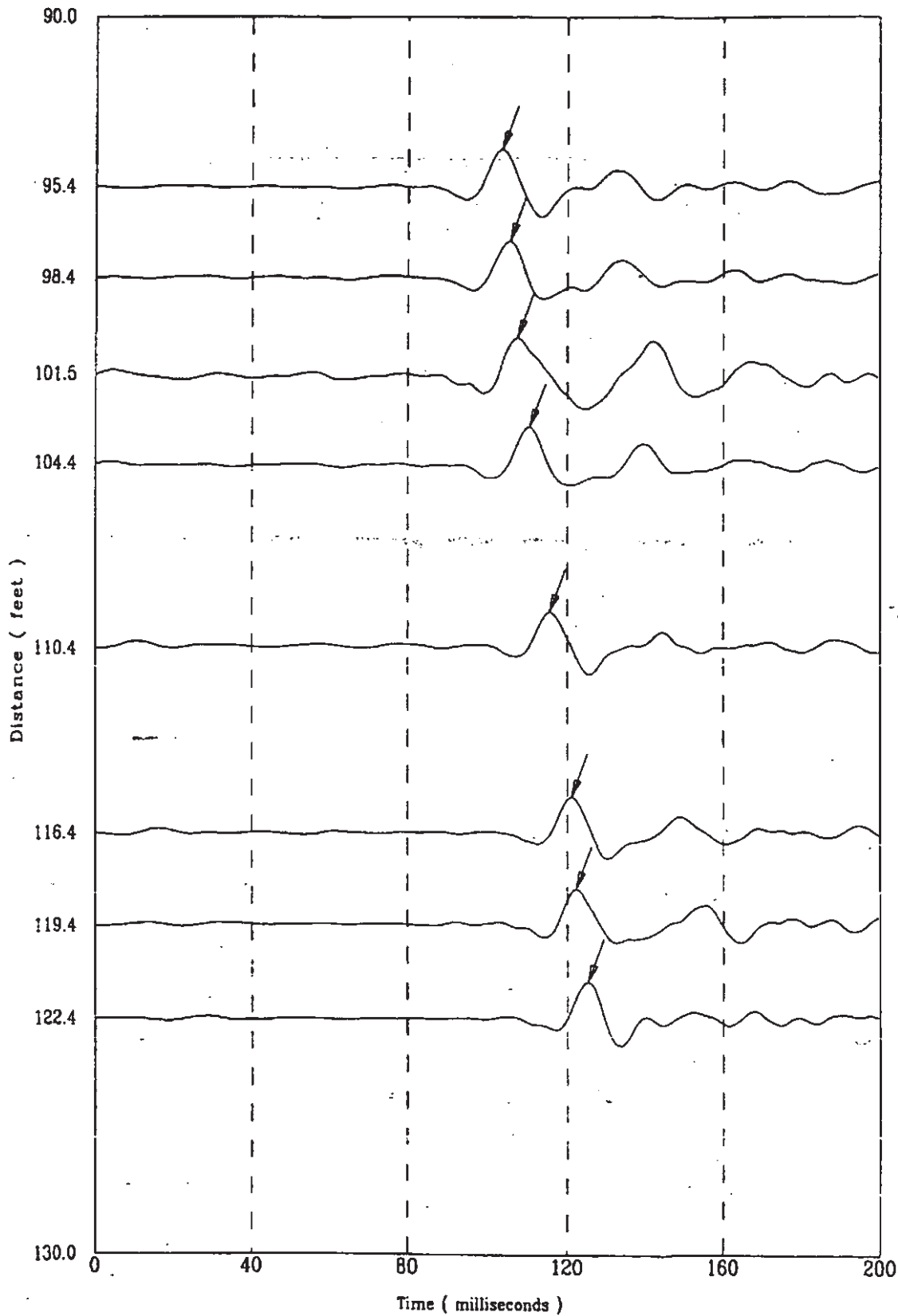
S Wave  
02/20/98





Applied Research Associates, Inc.  
CPT-104

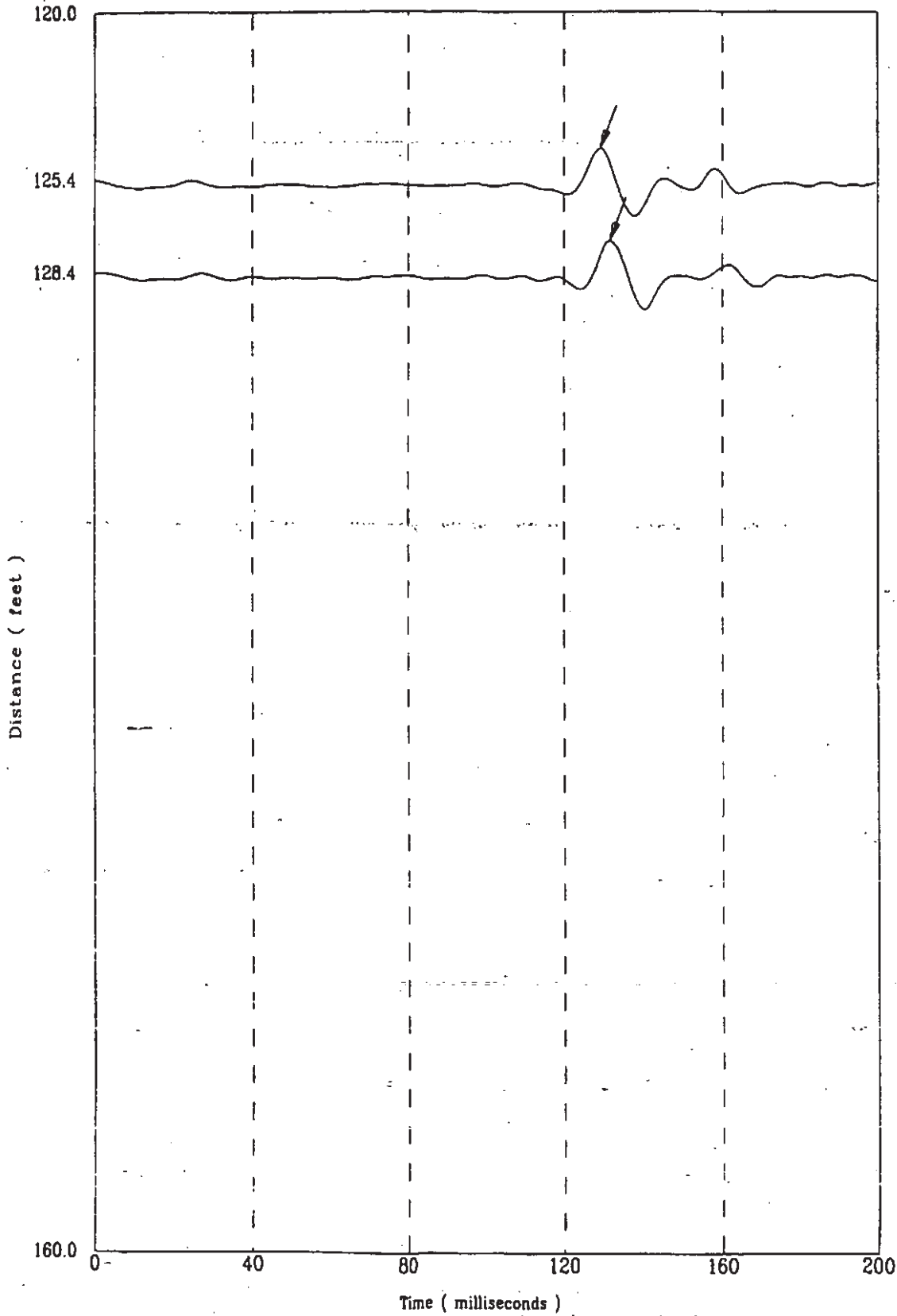
S Wave  
02/20/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-104

S Wave  
02/20/98



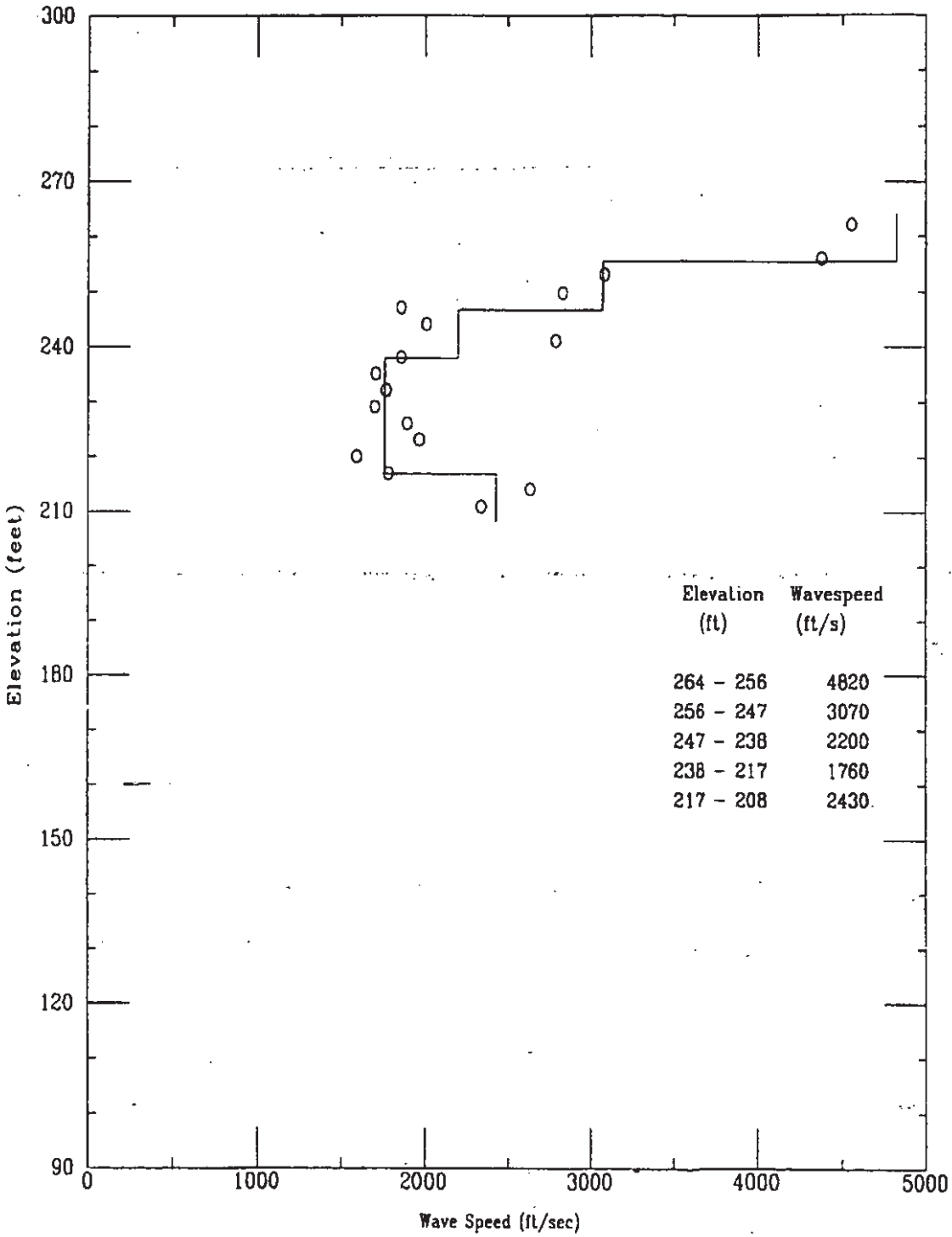
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CPT-104

APPLIED RESEARCH ASSOCIATES, INC.

02/20/98

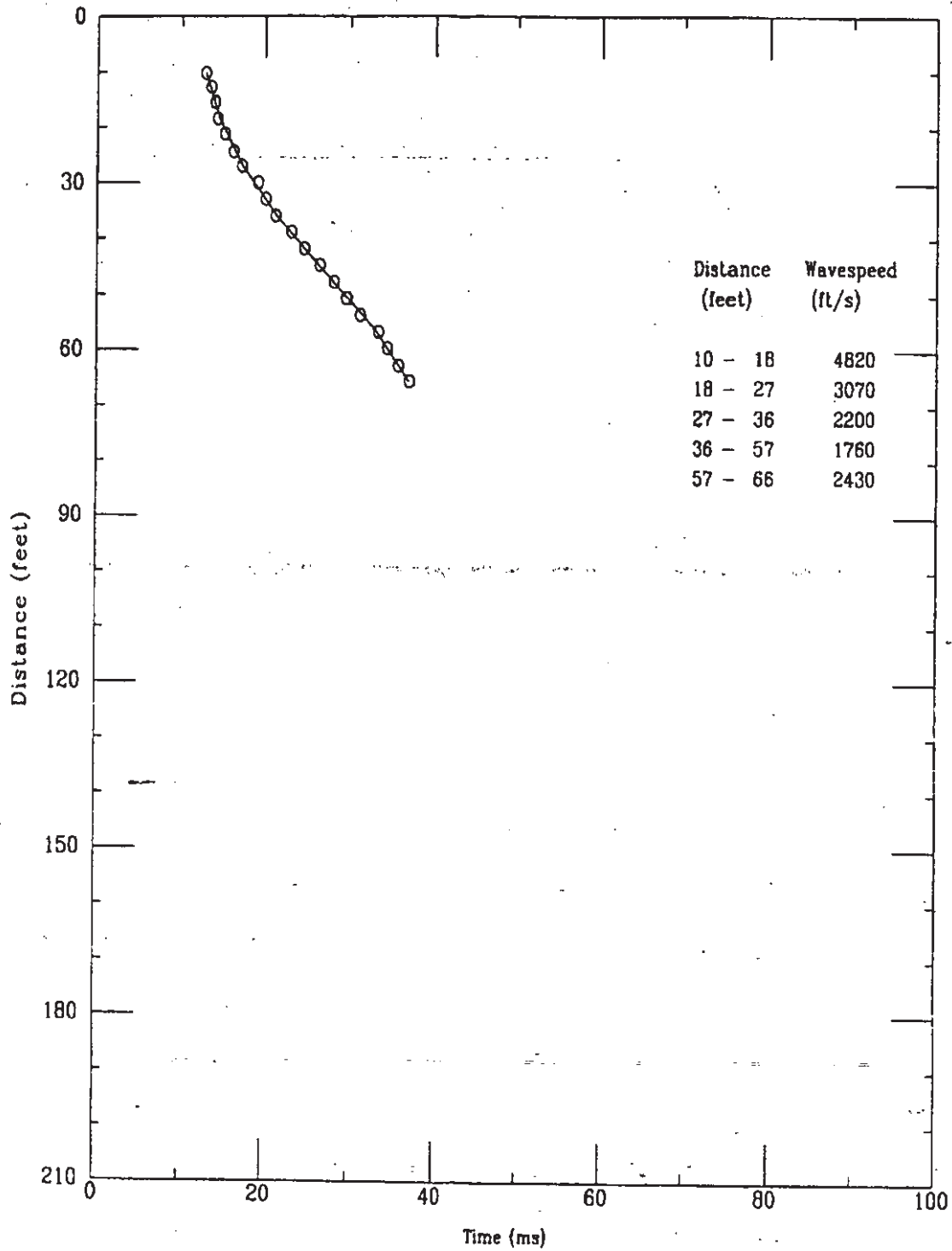
Compression Wave Speeds



CPT-104

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

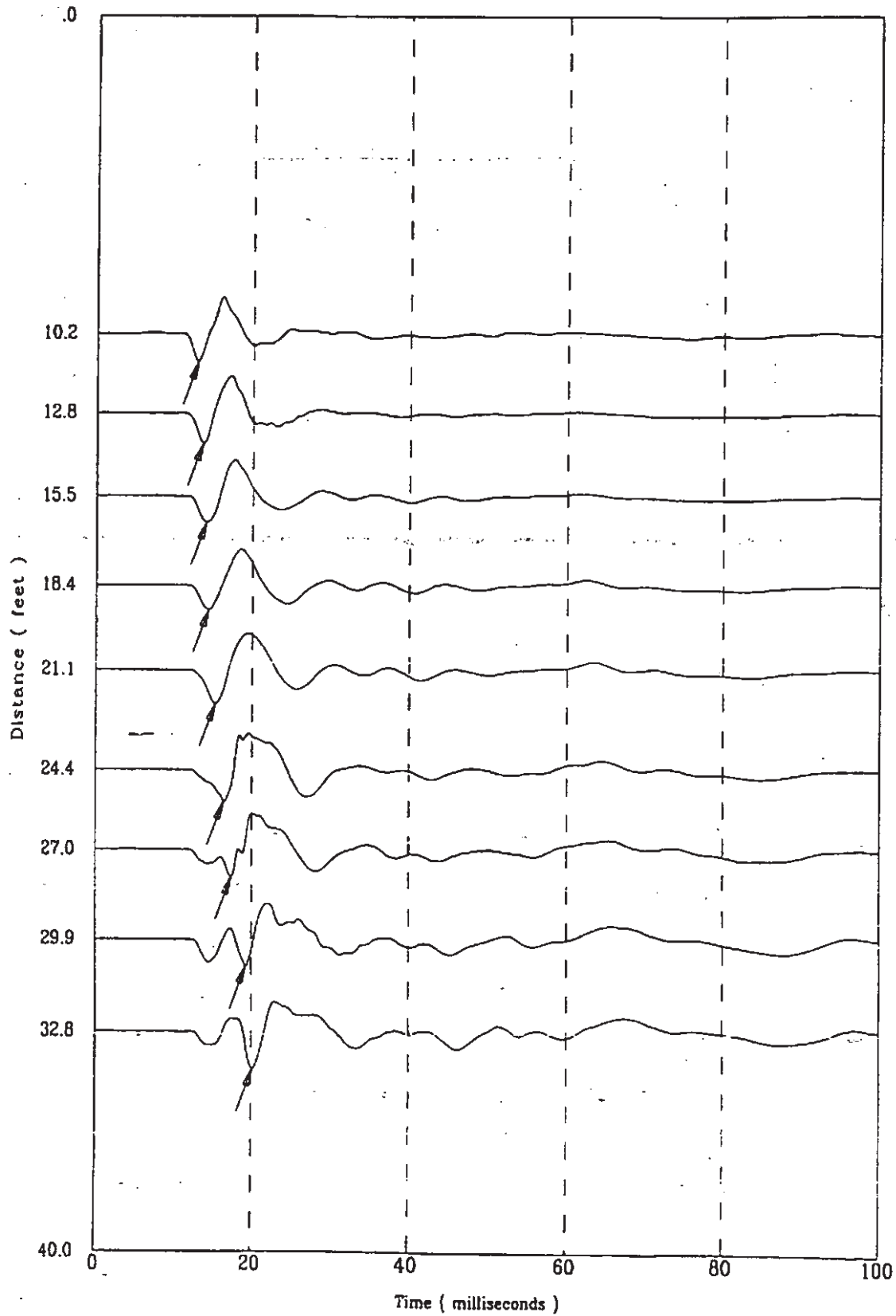
02/20/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-104

P Wave  
02/20/98

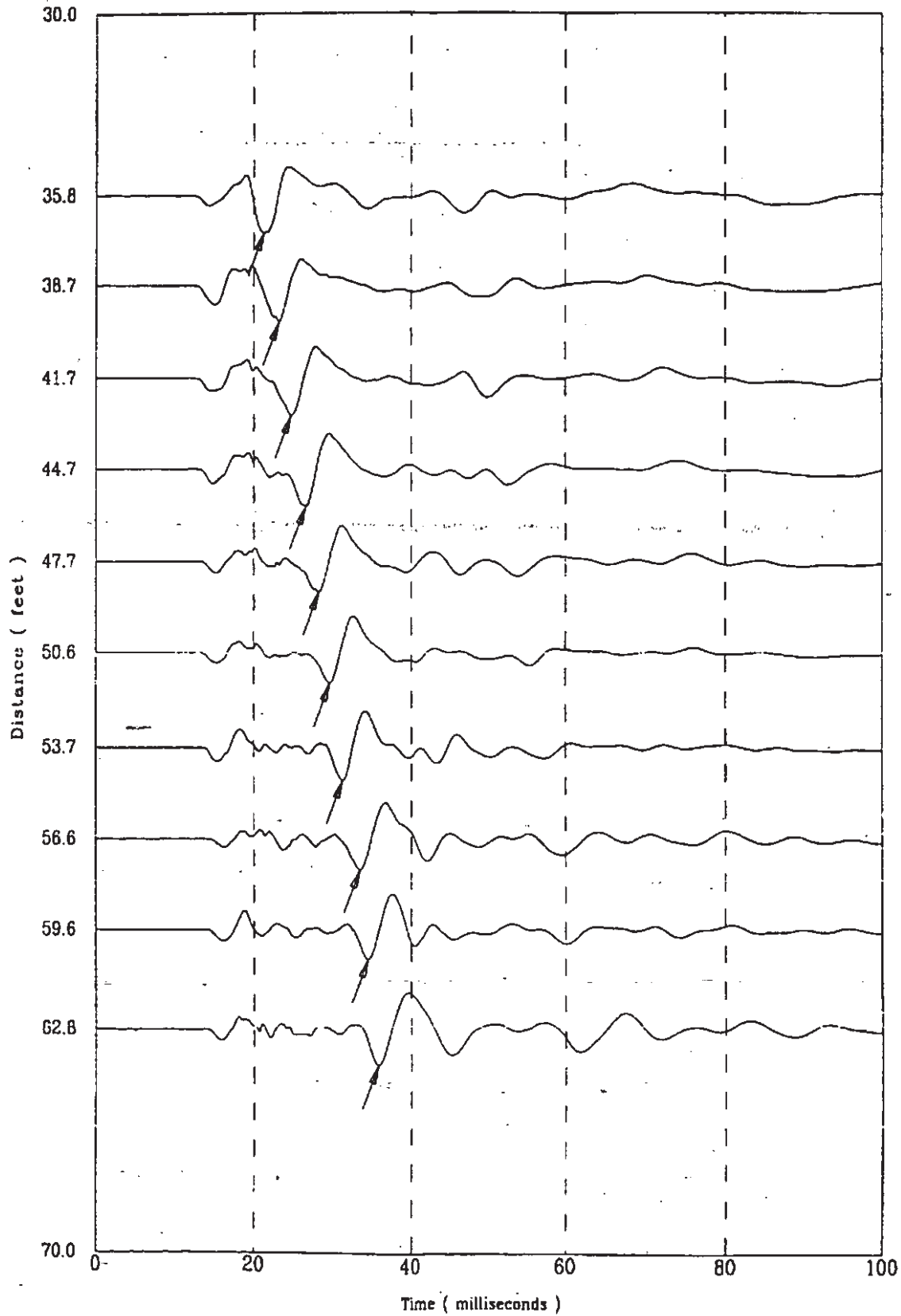


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Applied Research Associates, Inc.  
CPT-104

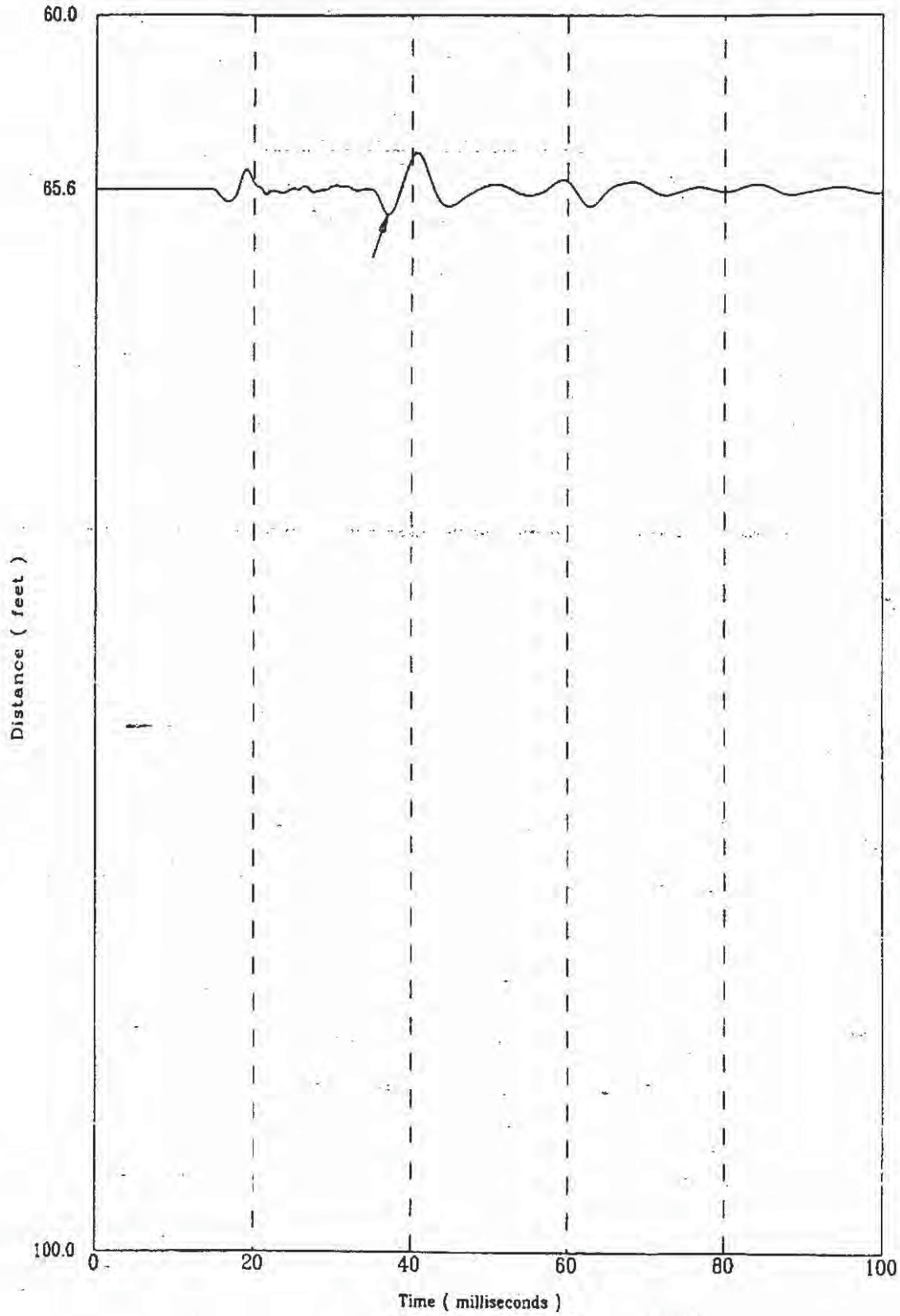
P Wave  
02/20/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-104

P Wave  
02/20/98



File 4201802S

CPT-113

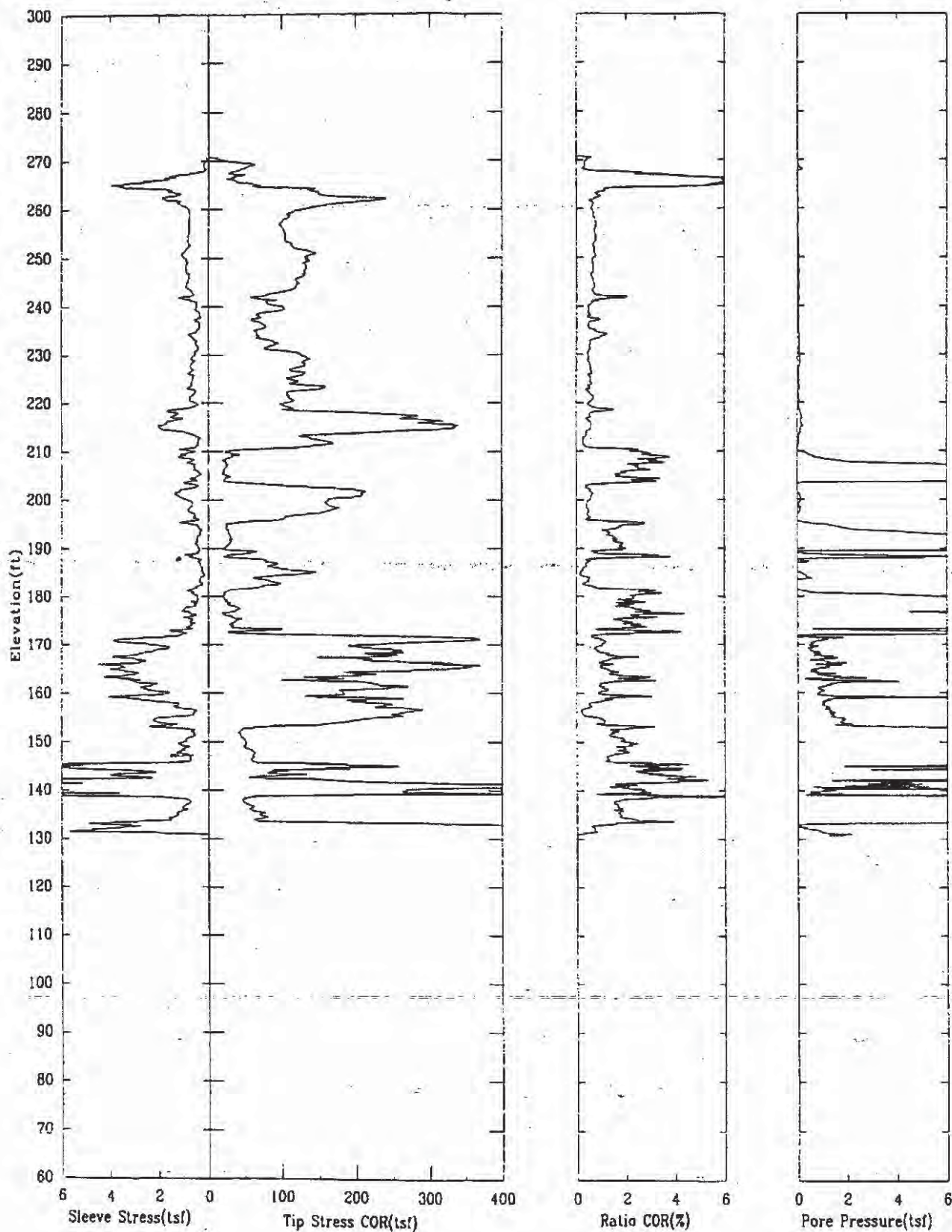
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
02/19/98 R/O

North 79781.00

East 54825.10

Elevation 276.7



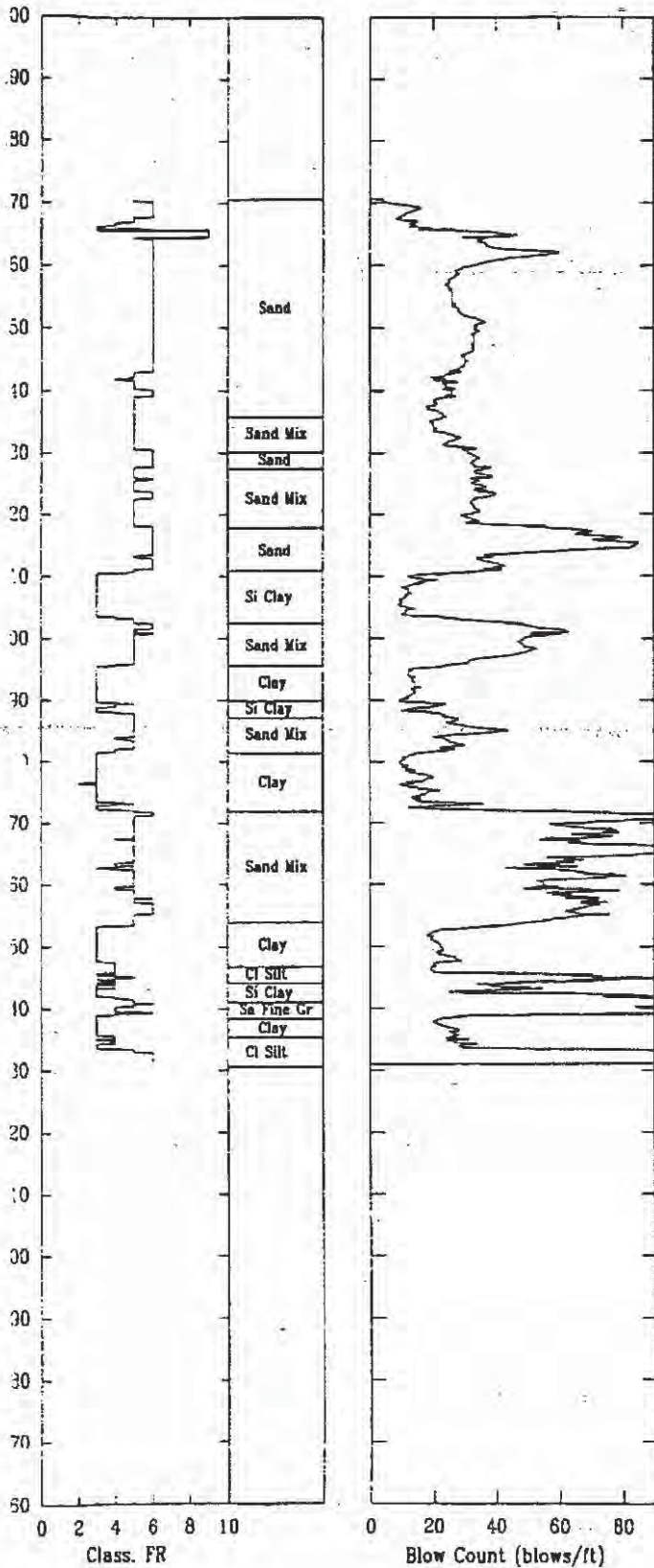
CPT-113

APPLIED RESEARCH ASSOCIATES, INC.

North 79781.00

East 54825.10

Elevation 276.7



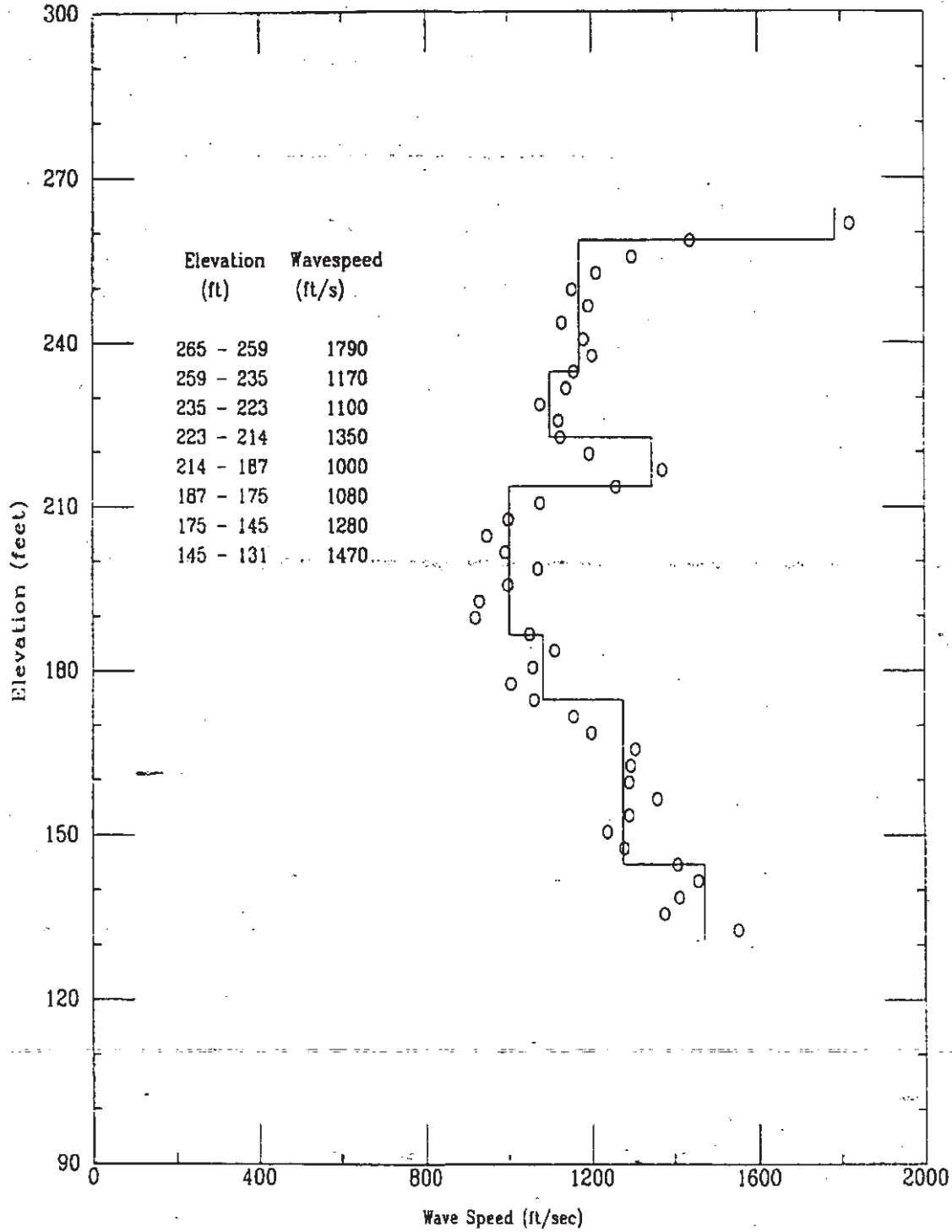


CPT-113

APPLIED RESEARCH ASSOCIATES, INC.

02/19/98

Shear Wave Speeds

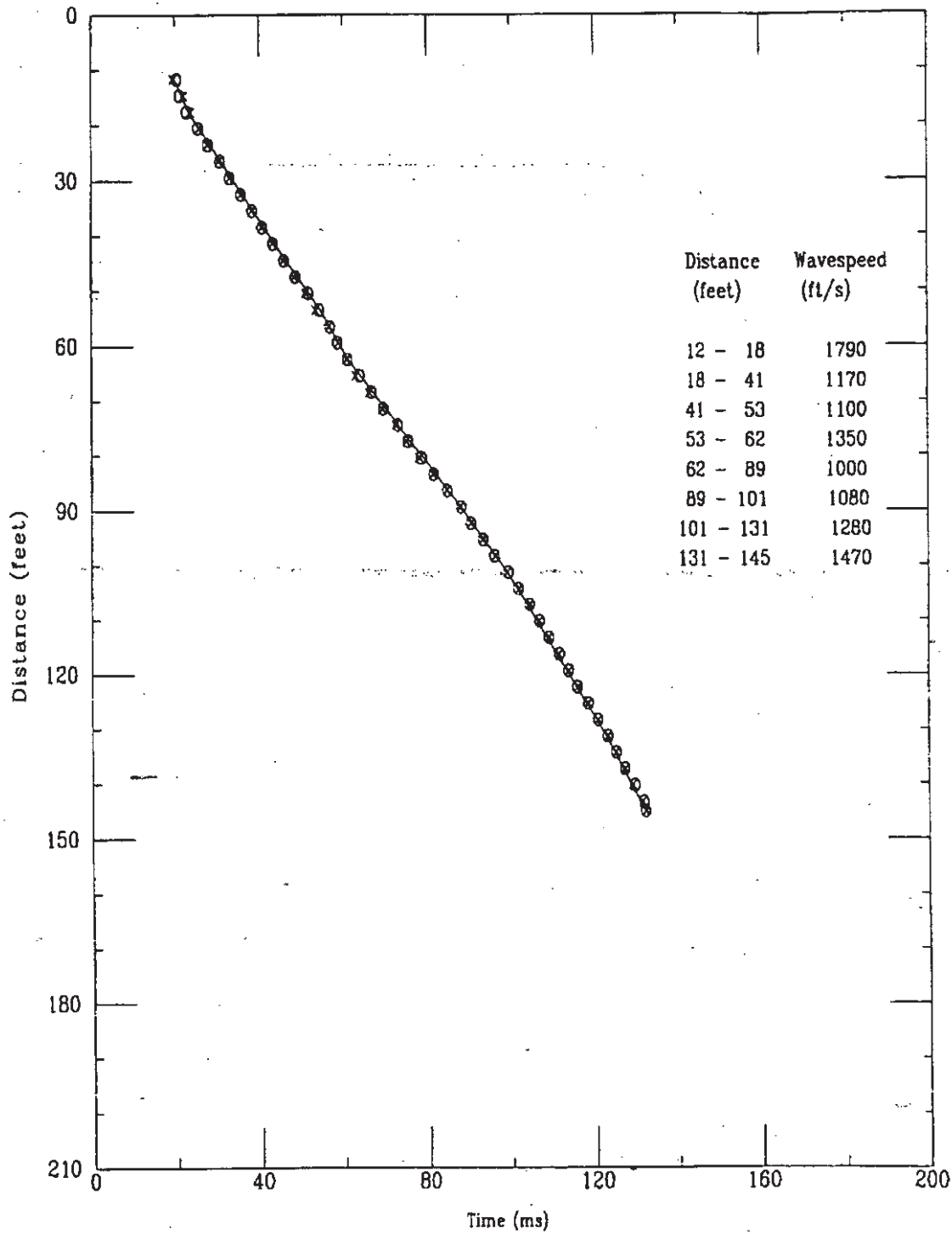




CPT-113

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

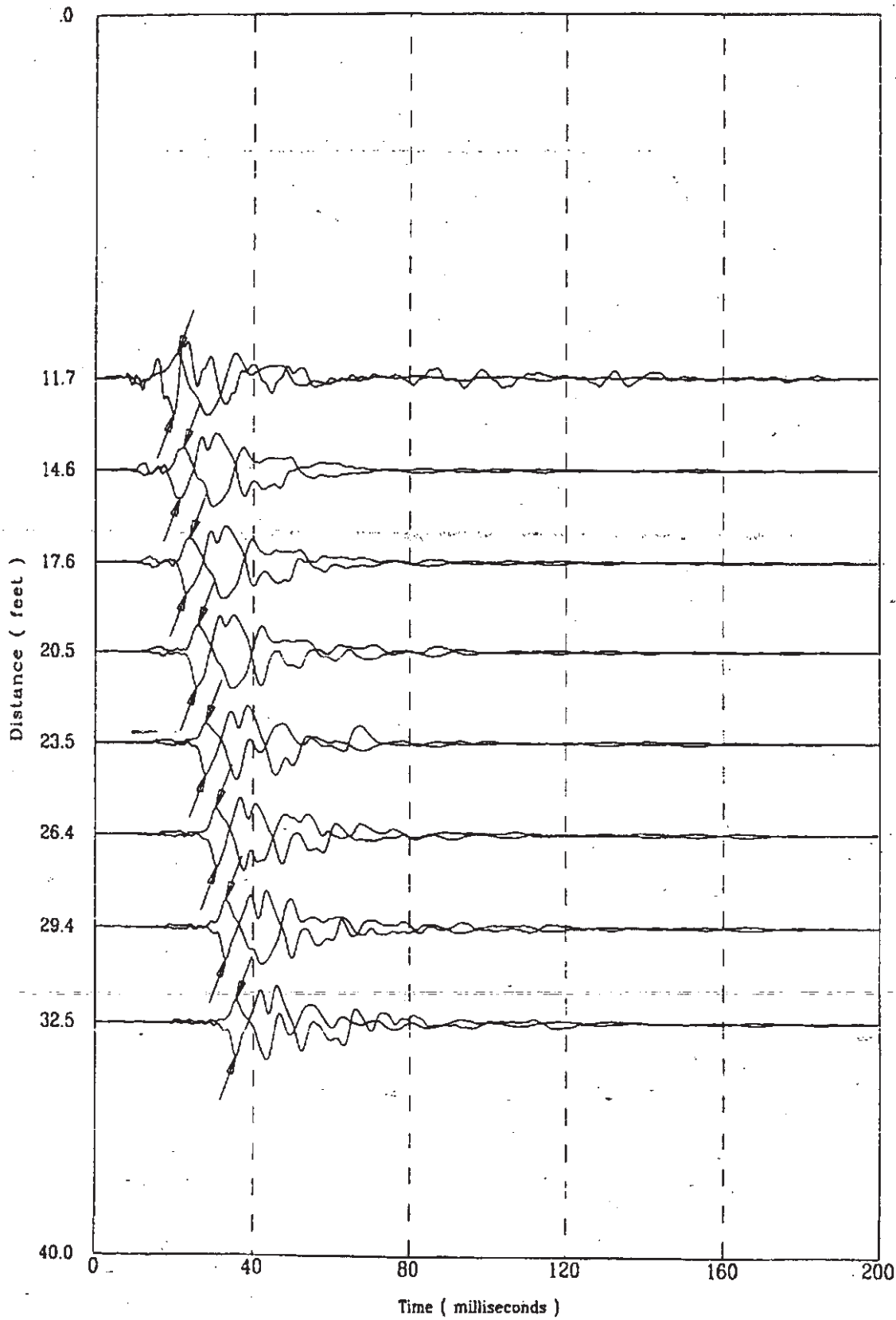
02/19/98



File 5197801S

Applied Research Associates, Inc.  
CPT-113

S Wave  
02/19/98

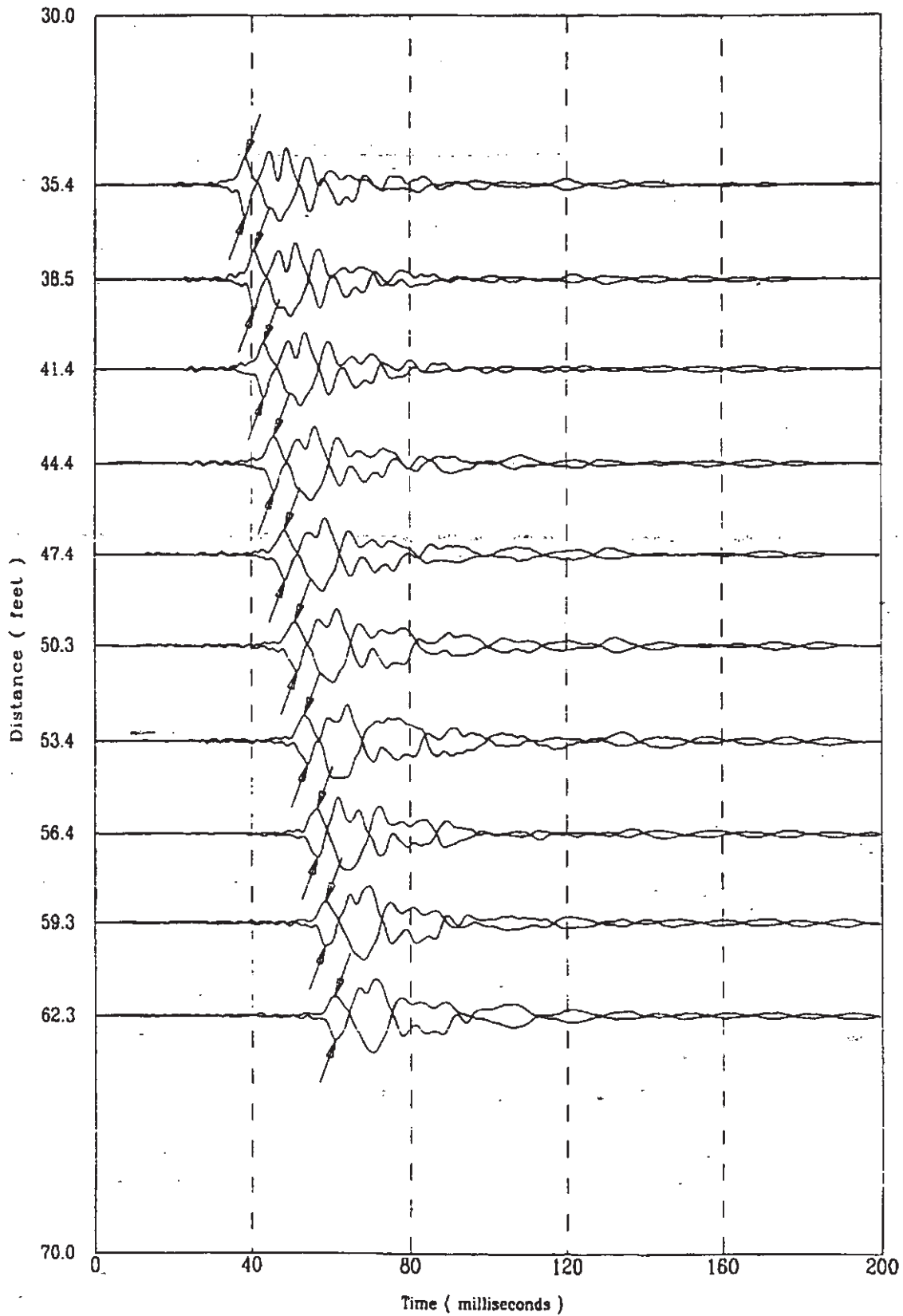


5197801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-113

S Wave  
02/19/98

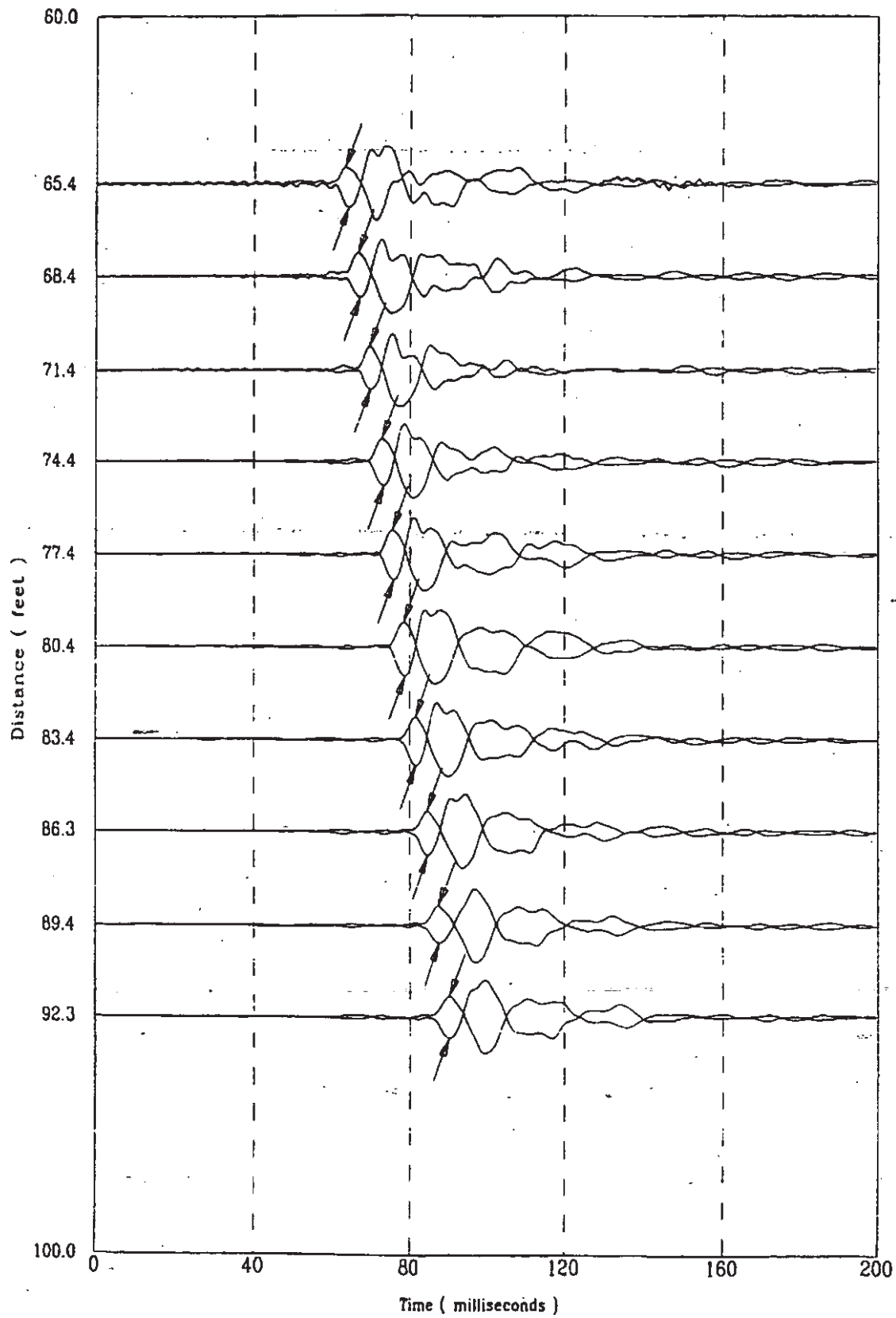


5191801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-113

S Wave  
02/19/98



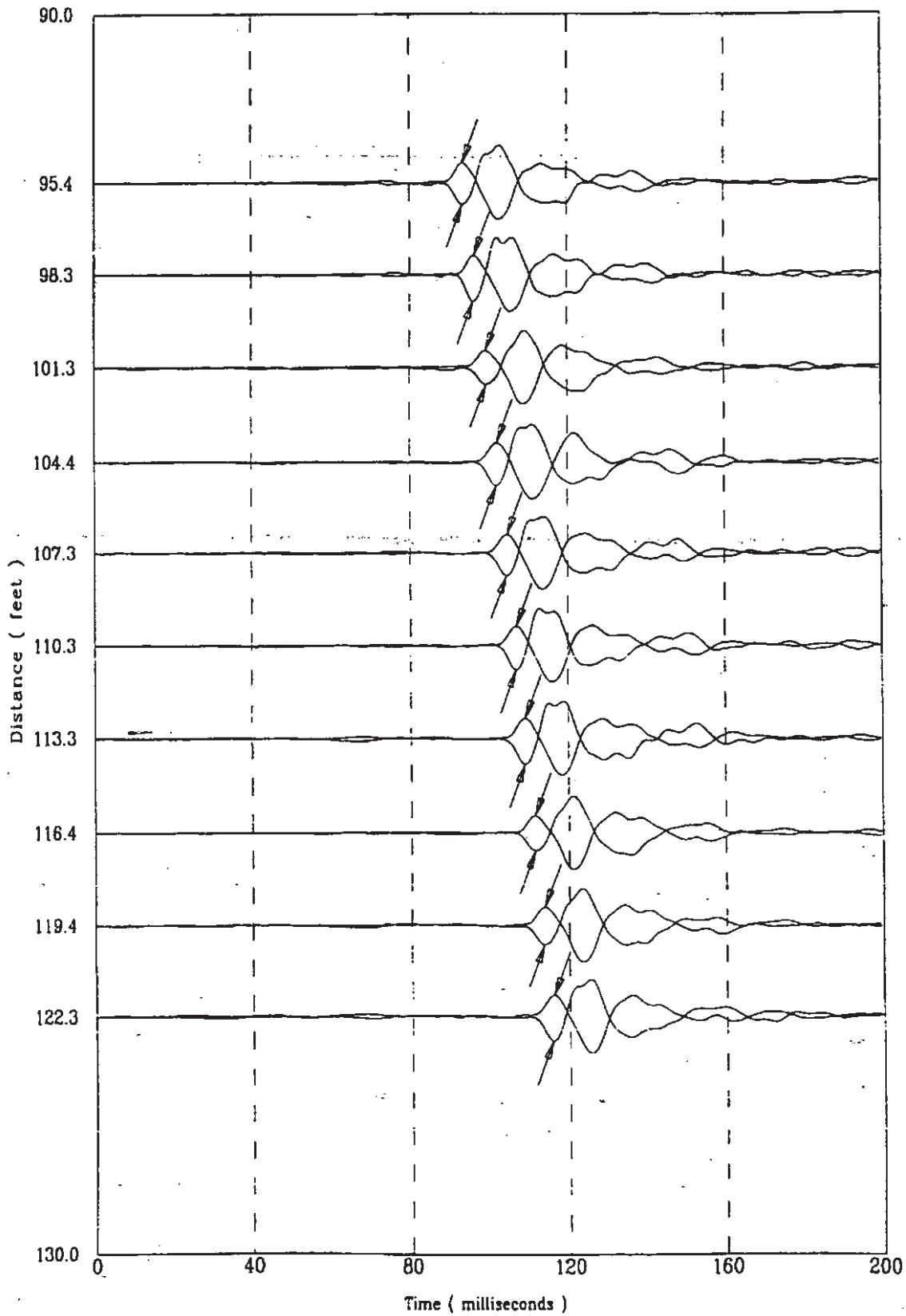
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46 of 522

K-TRT-F-00001  
R/0

Applied Research Associates, Inc.  
CPT-113

S Wave  
02/19/98

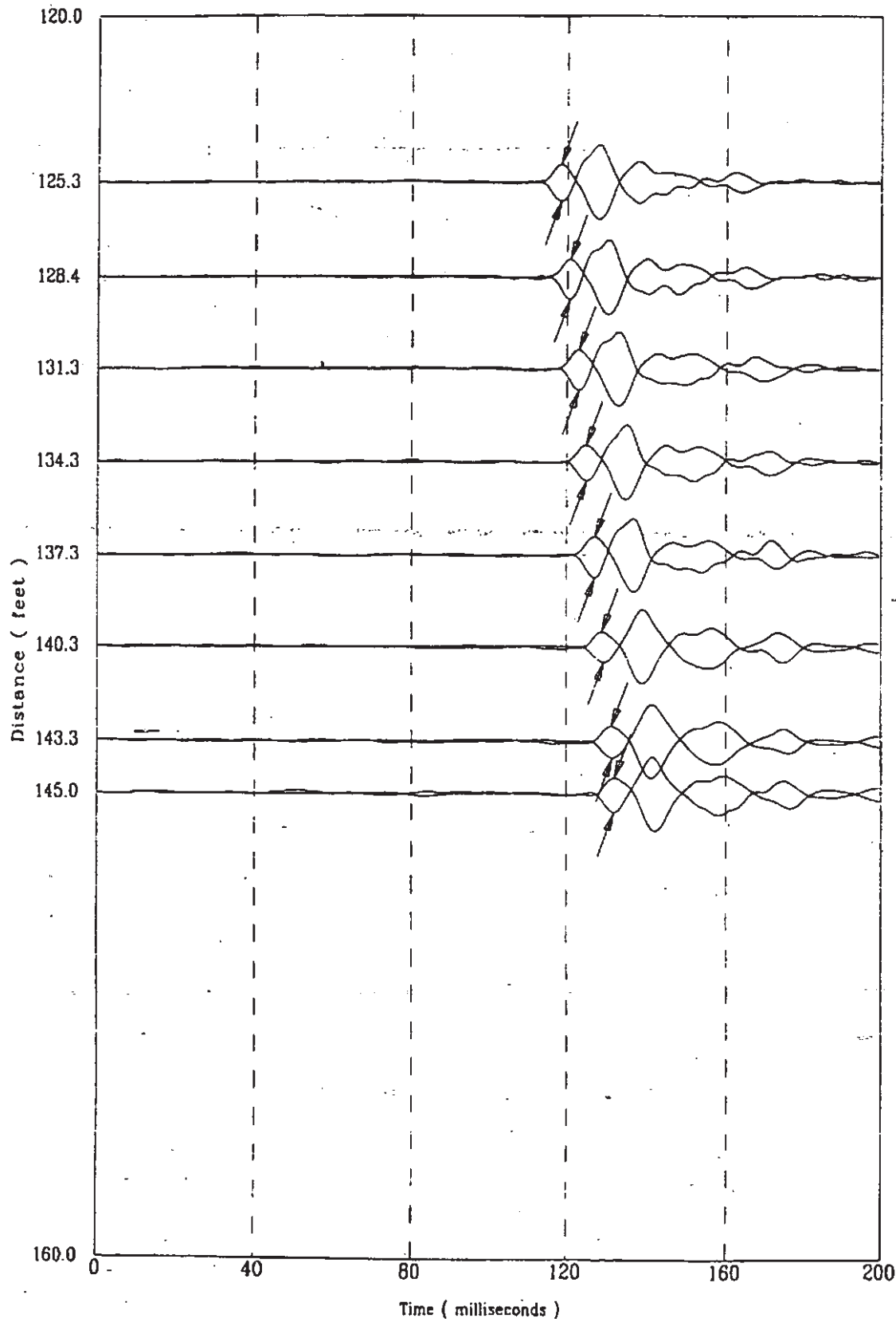


519801S

47 of 522

Applied Research Associates, Inc.  
CPT-113

S Wave  
02/19/98



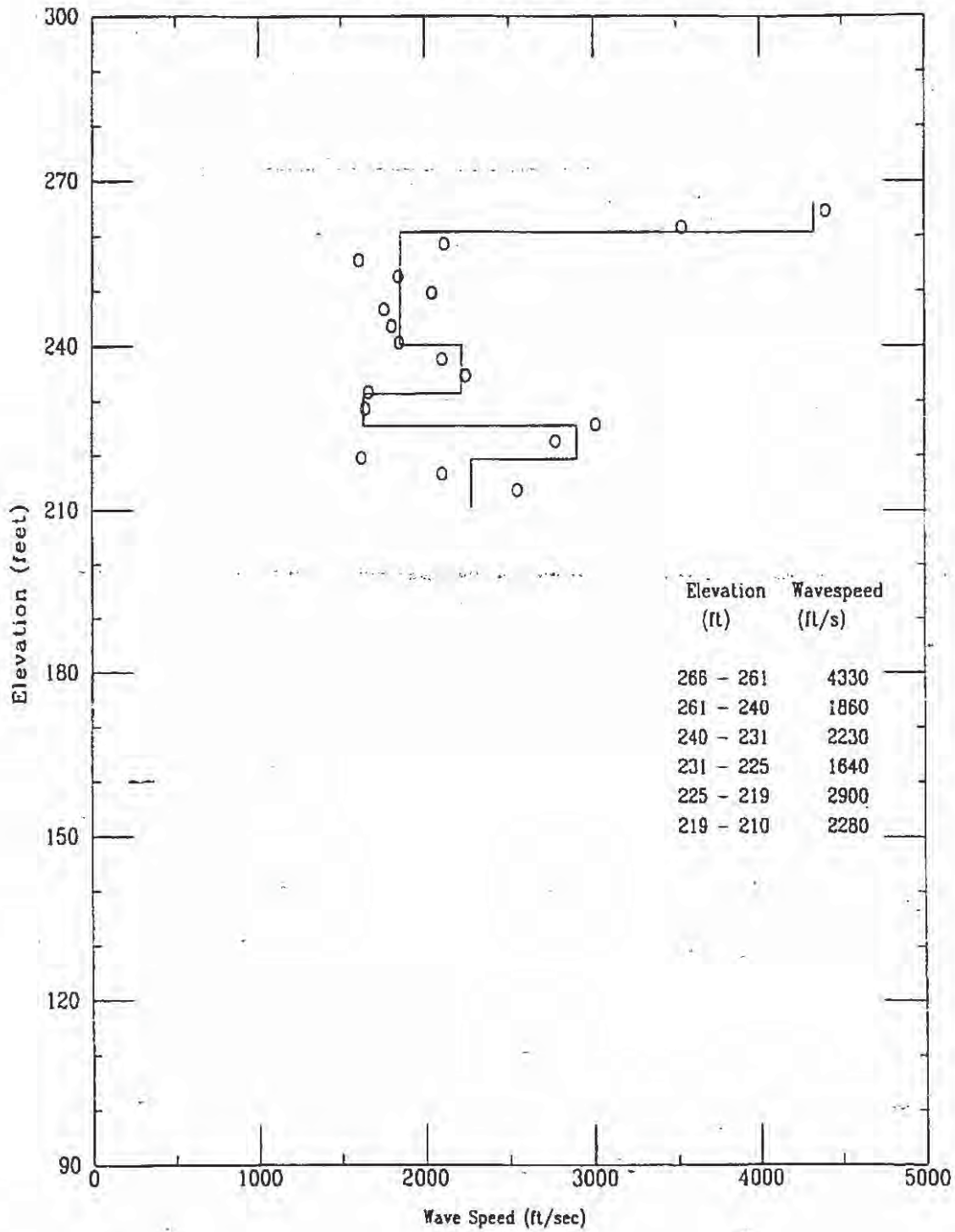


CPT-113

APPLIED RESEARCH ASSOCIATES, INC.

02/19/98

Compression Wave Speeds



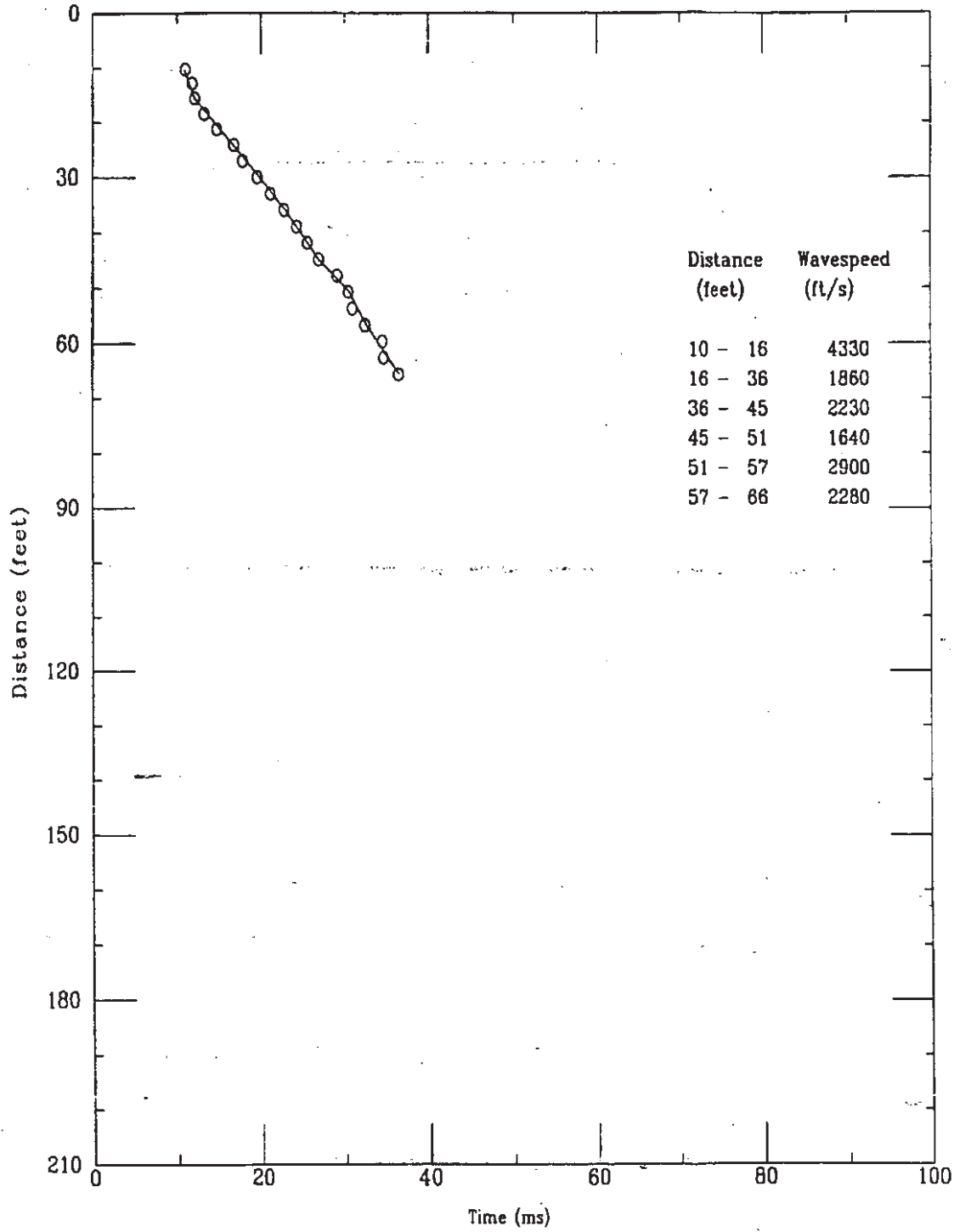
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CPT-113

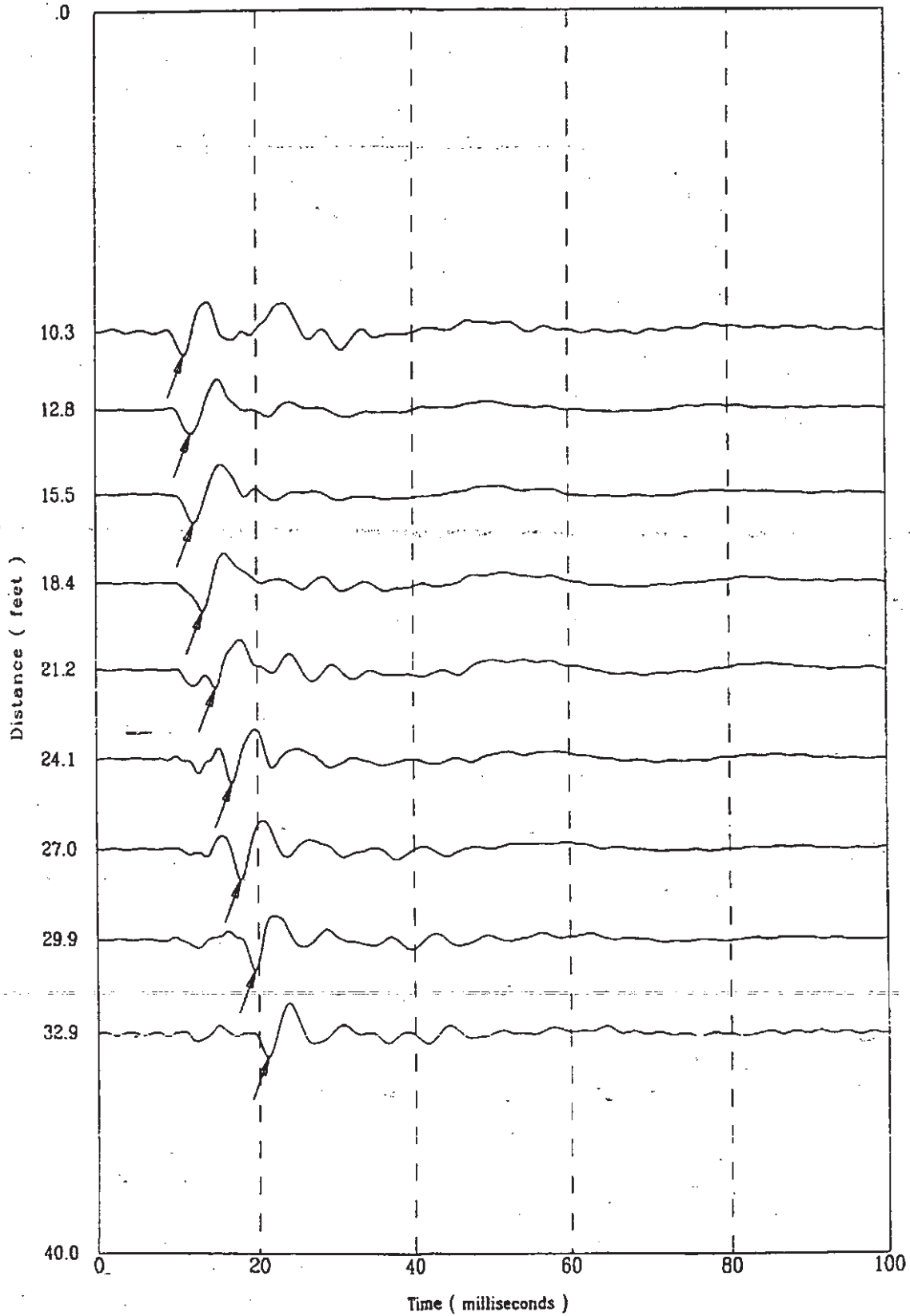
APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/19/98



Applied Research Associates  
CPT-113

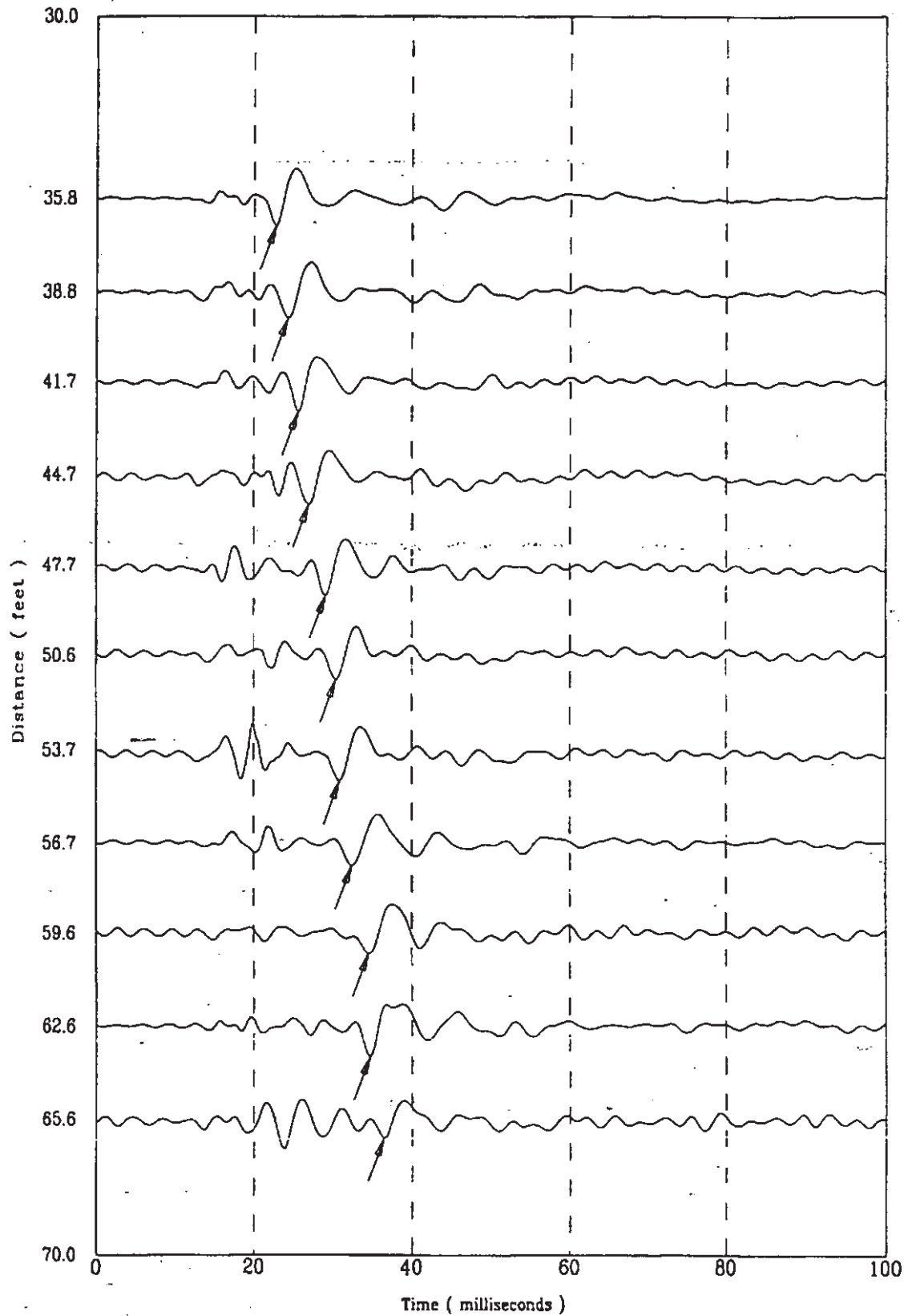
P Wave  
02/19/98



519801S

Applied Research Associates  
CPT-113

P Wave  
02/19/98



197801S

CPT-114

APPLIED RESEARCH ASSOCIATES, INC.

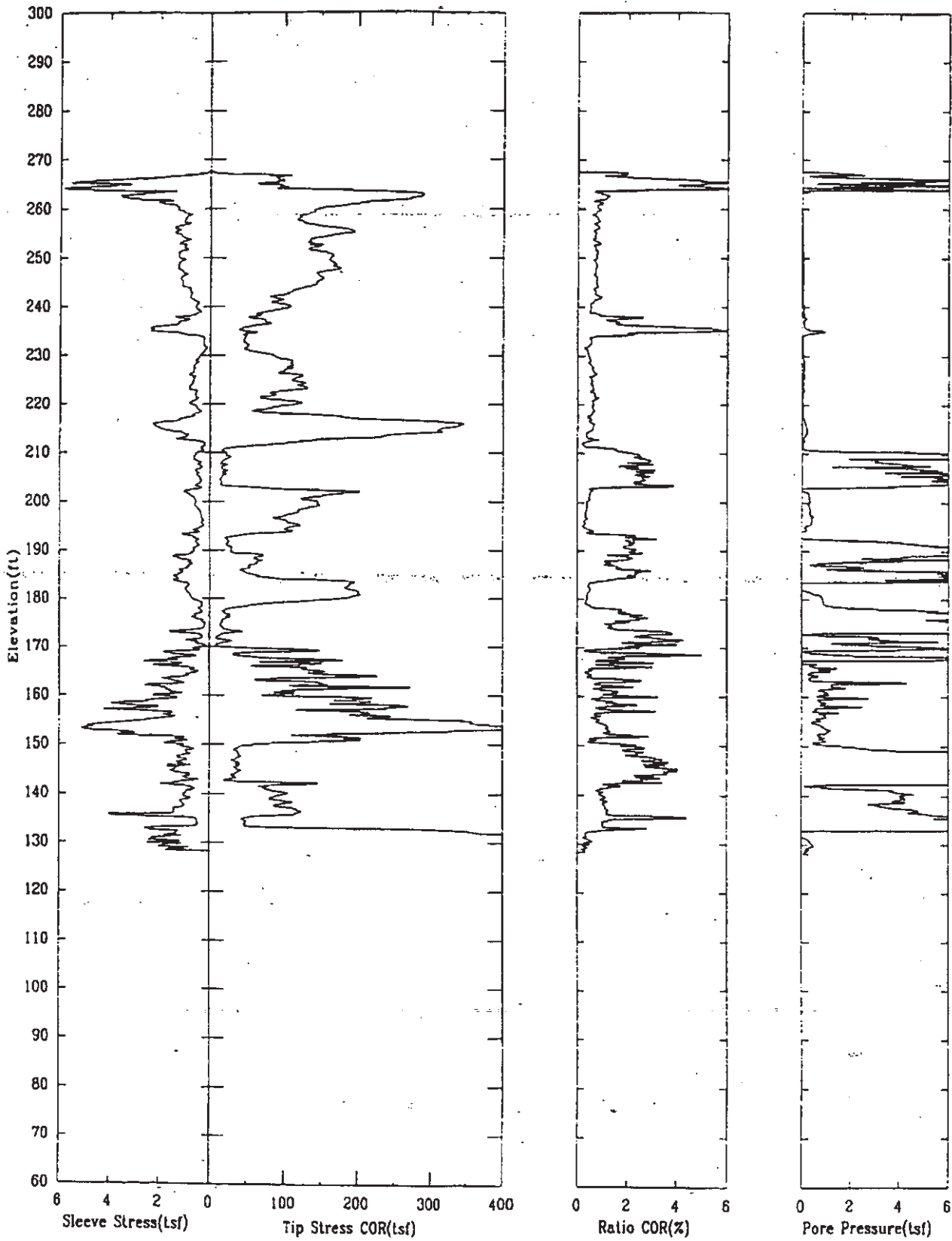
K-TRT-F-00001

02/19/98<sup>R</sup>/0

North 79781.01

East 54975.05

Elevation 273.6



CPT-114

APPLIED RESEARCH ASSOCIATES, INC.

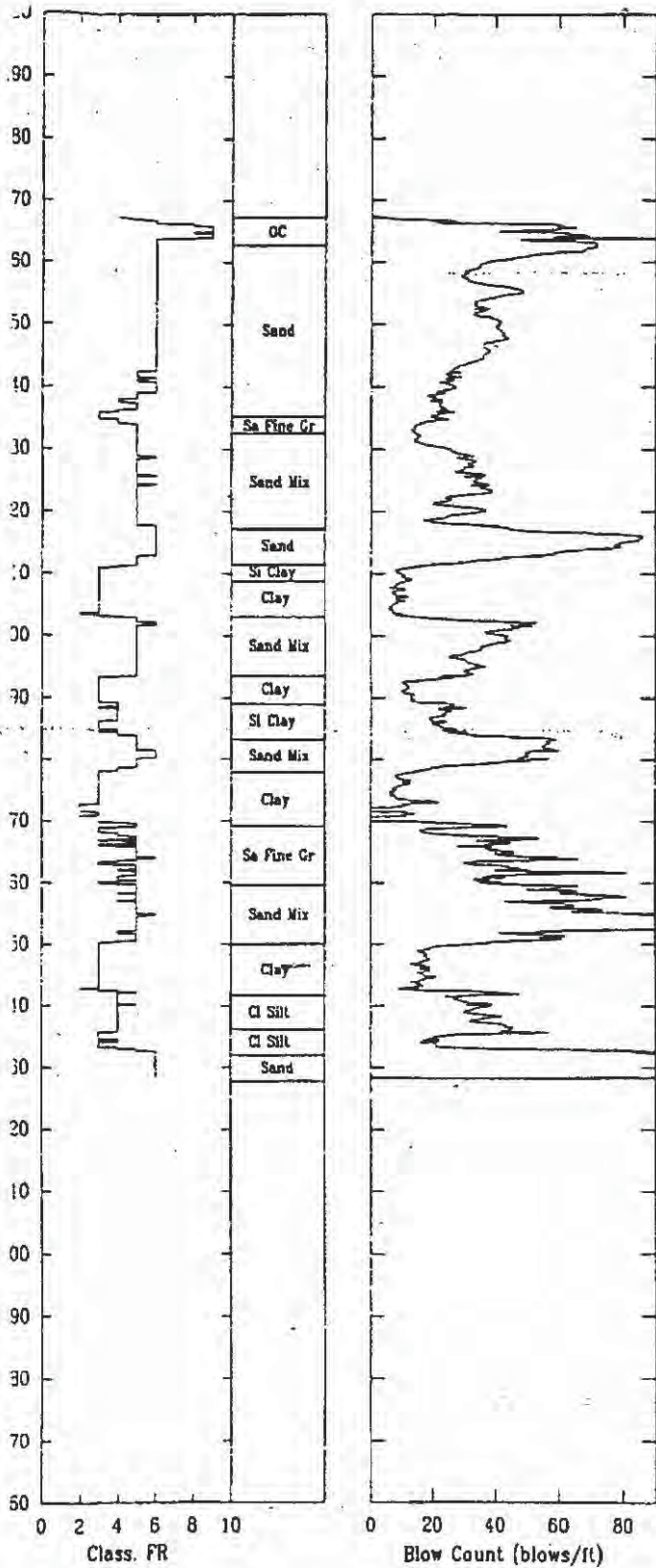
K-TRT-F-00001

02/19/98<sup>R</sup>/o

North 79781.01

East 54975.05

Elevation 273.6



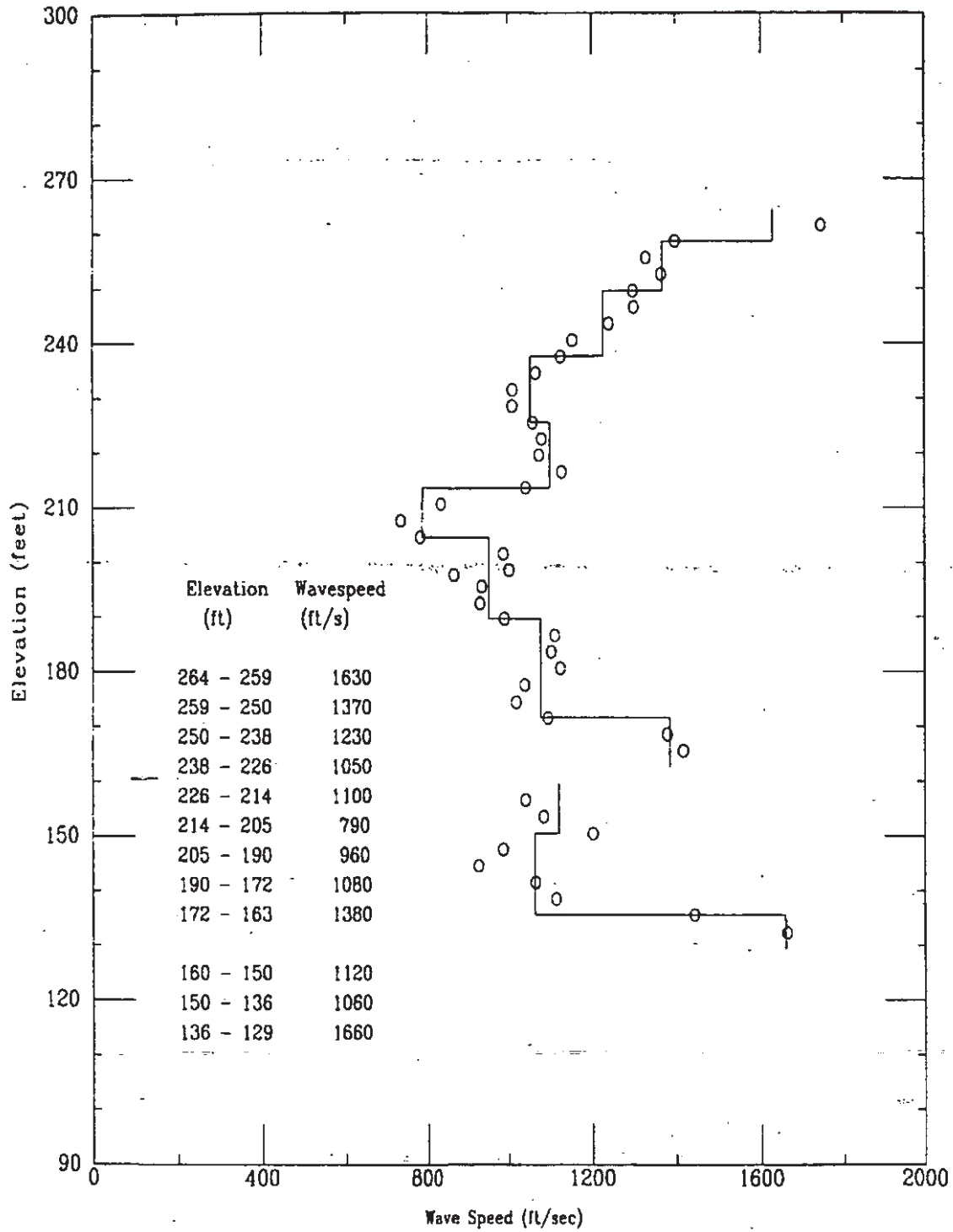


CPT-114

APPLIED RESEARCH ASSOCIATES, INC.

02/19/98

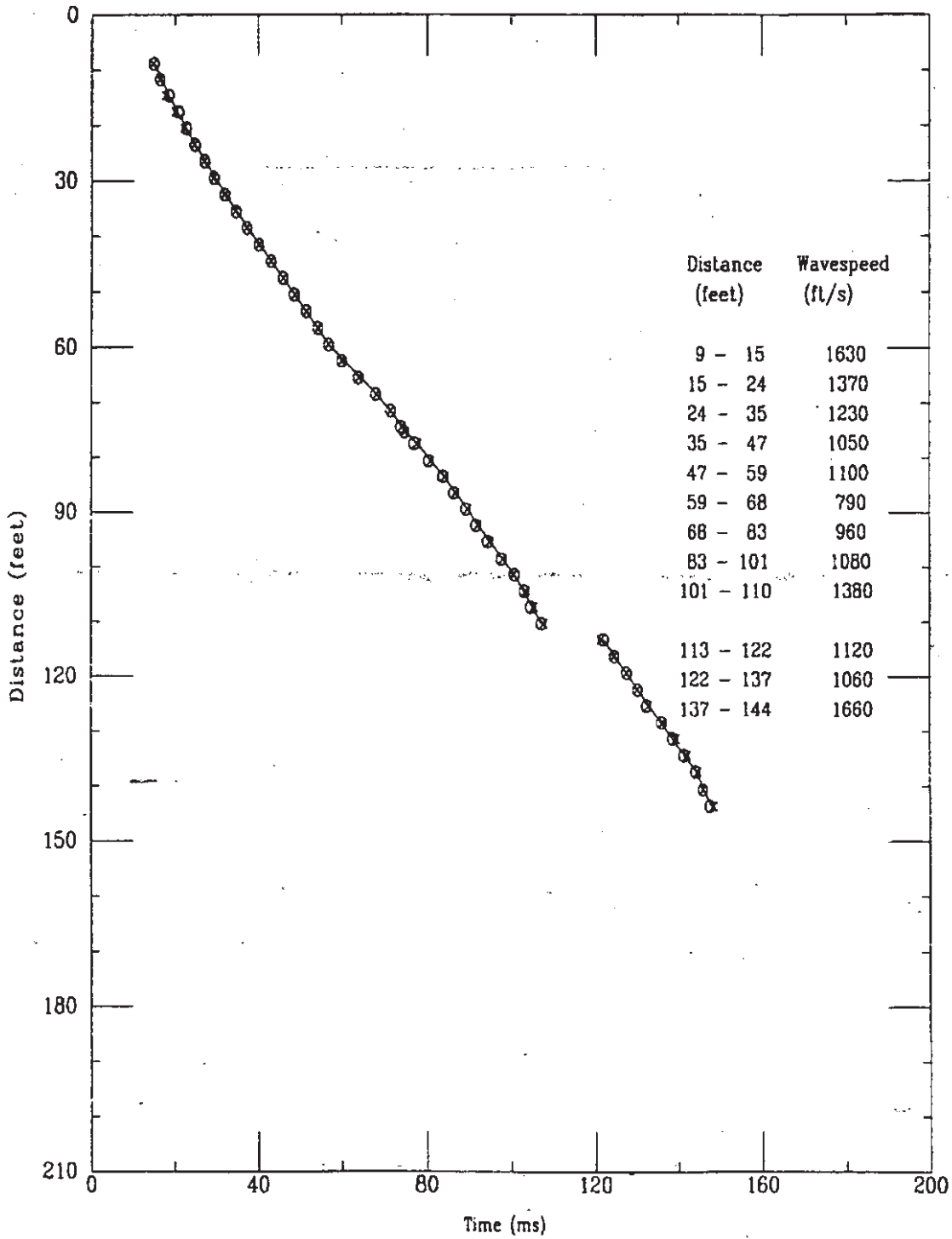
Shear Wave Speeds



CPT-114

APPLIED-RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

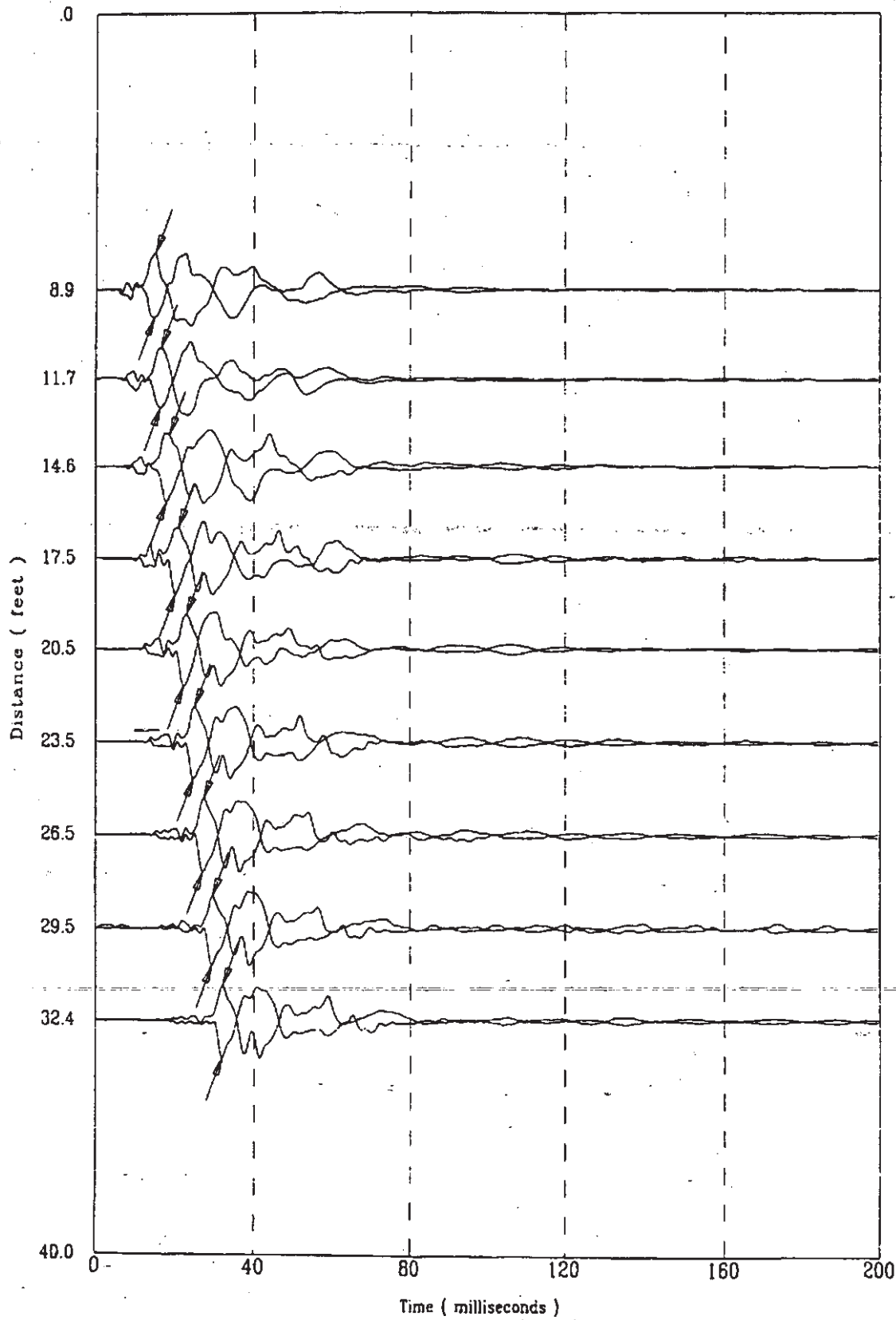
02/19/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-114

S Wave  
02/19/98

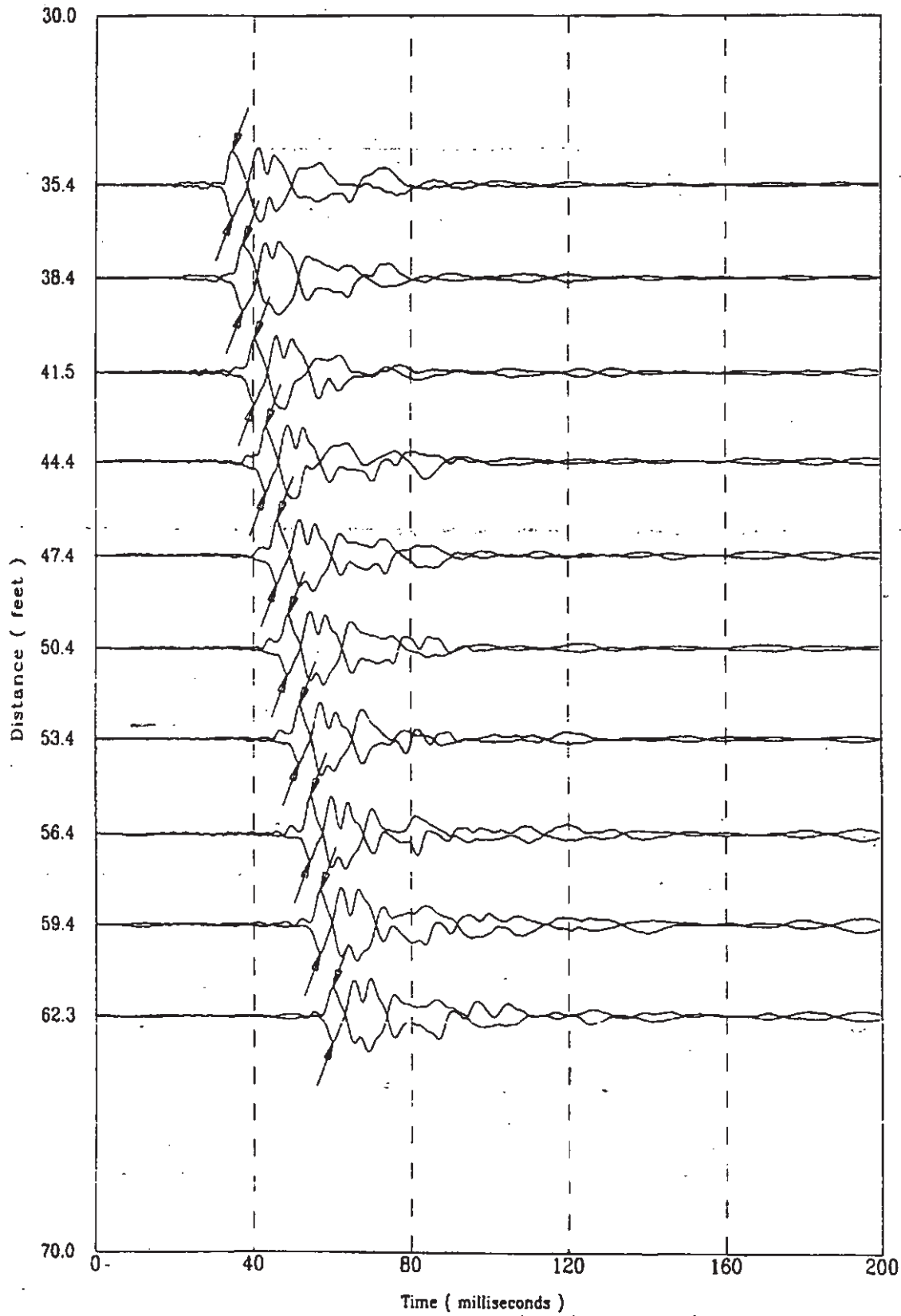


19/804S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-114

S Wave  
02/19/98

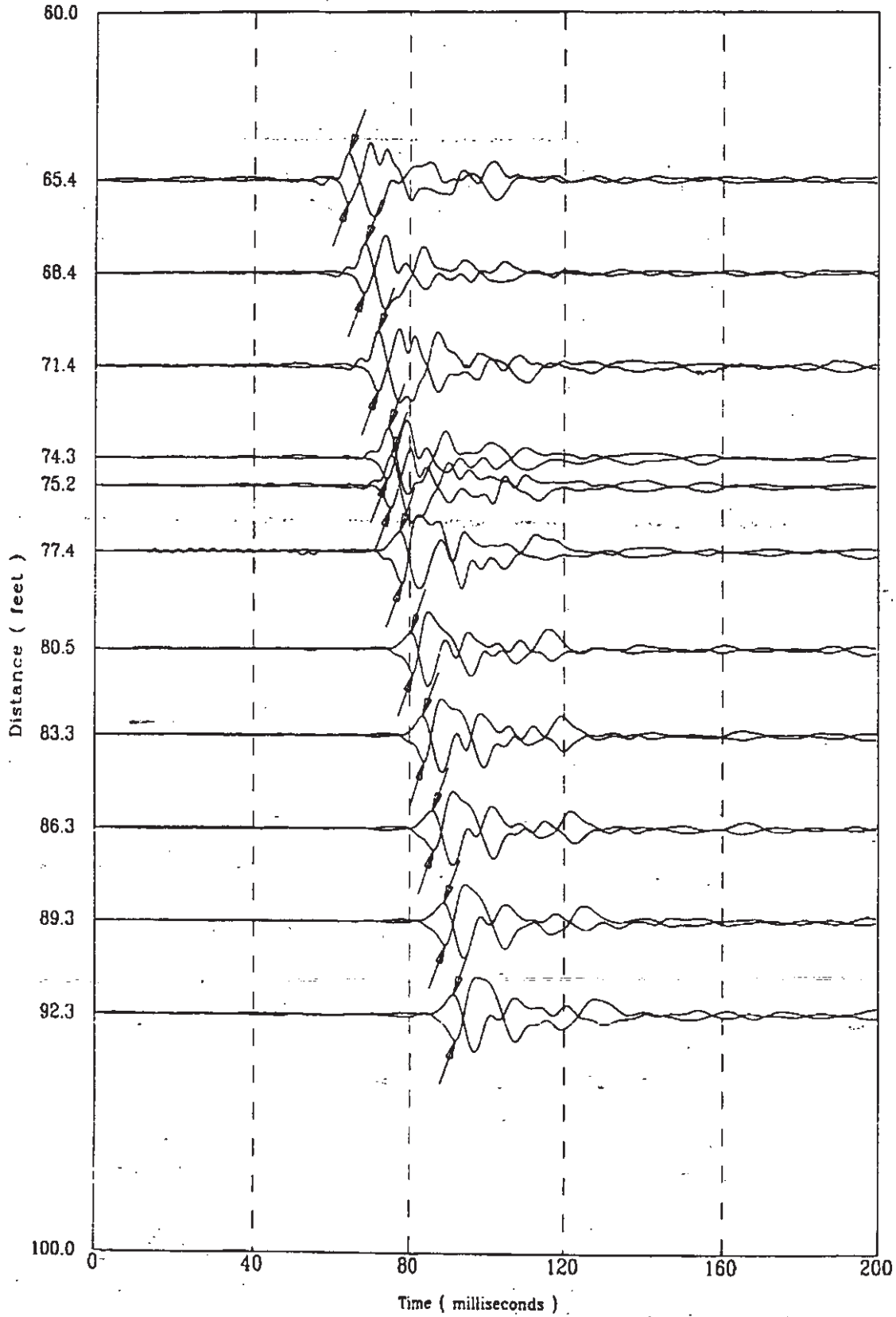


3197804S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-114

S Wave  
02/19/98

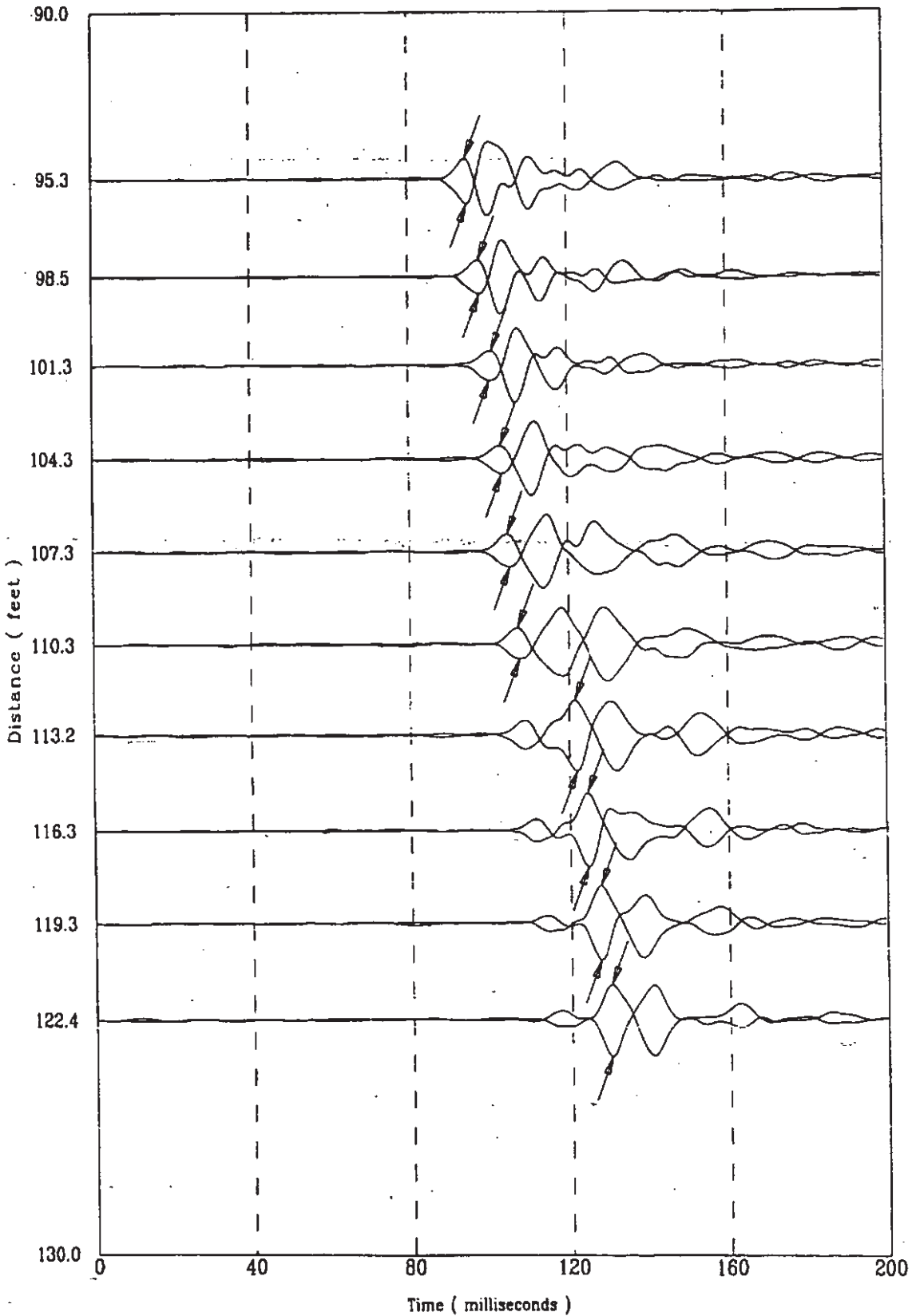


5197804S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-114

S Wave  
02/19/98



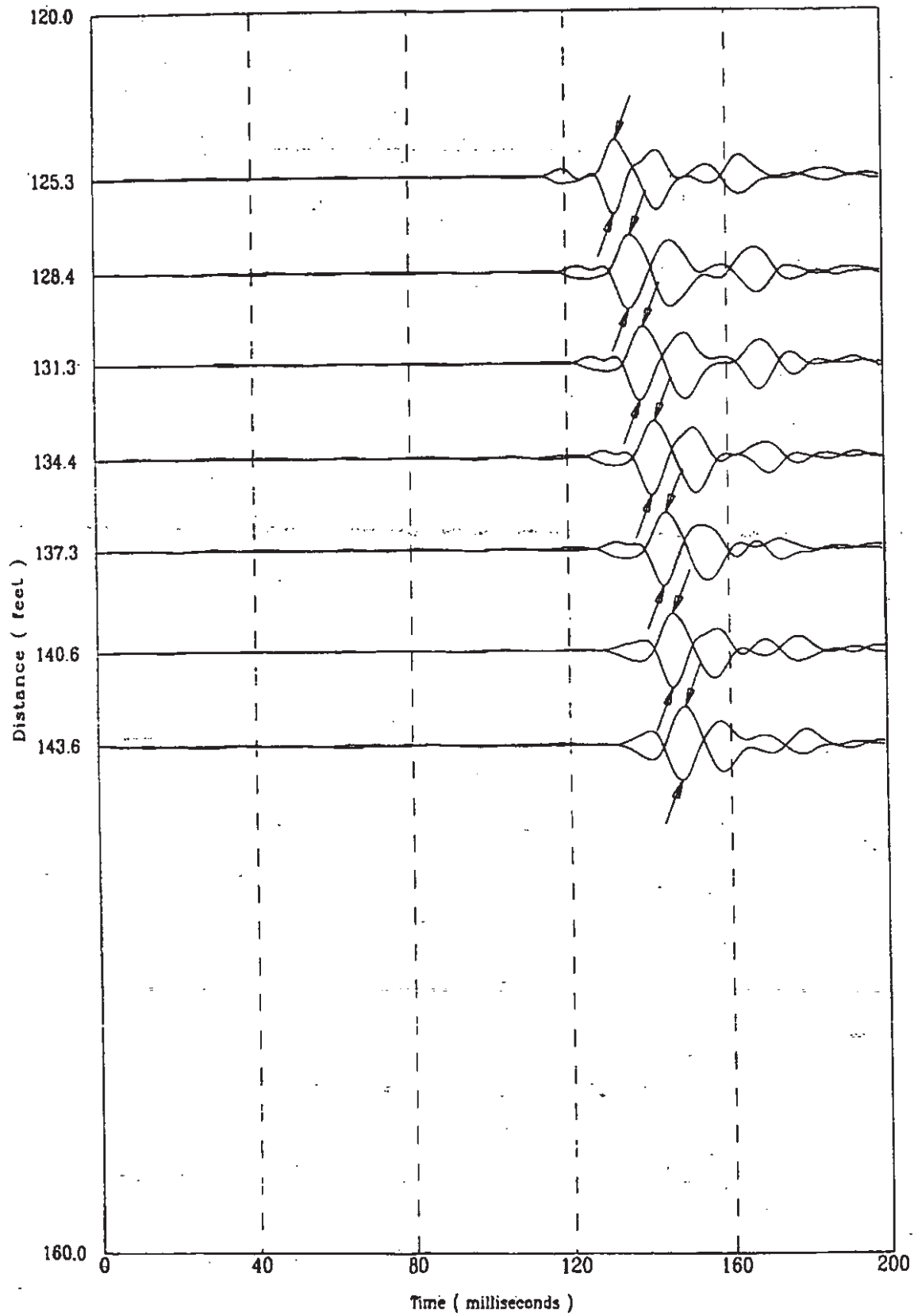
19/804S



K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-114

S Wave  
02/19/98



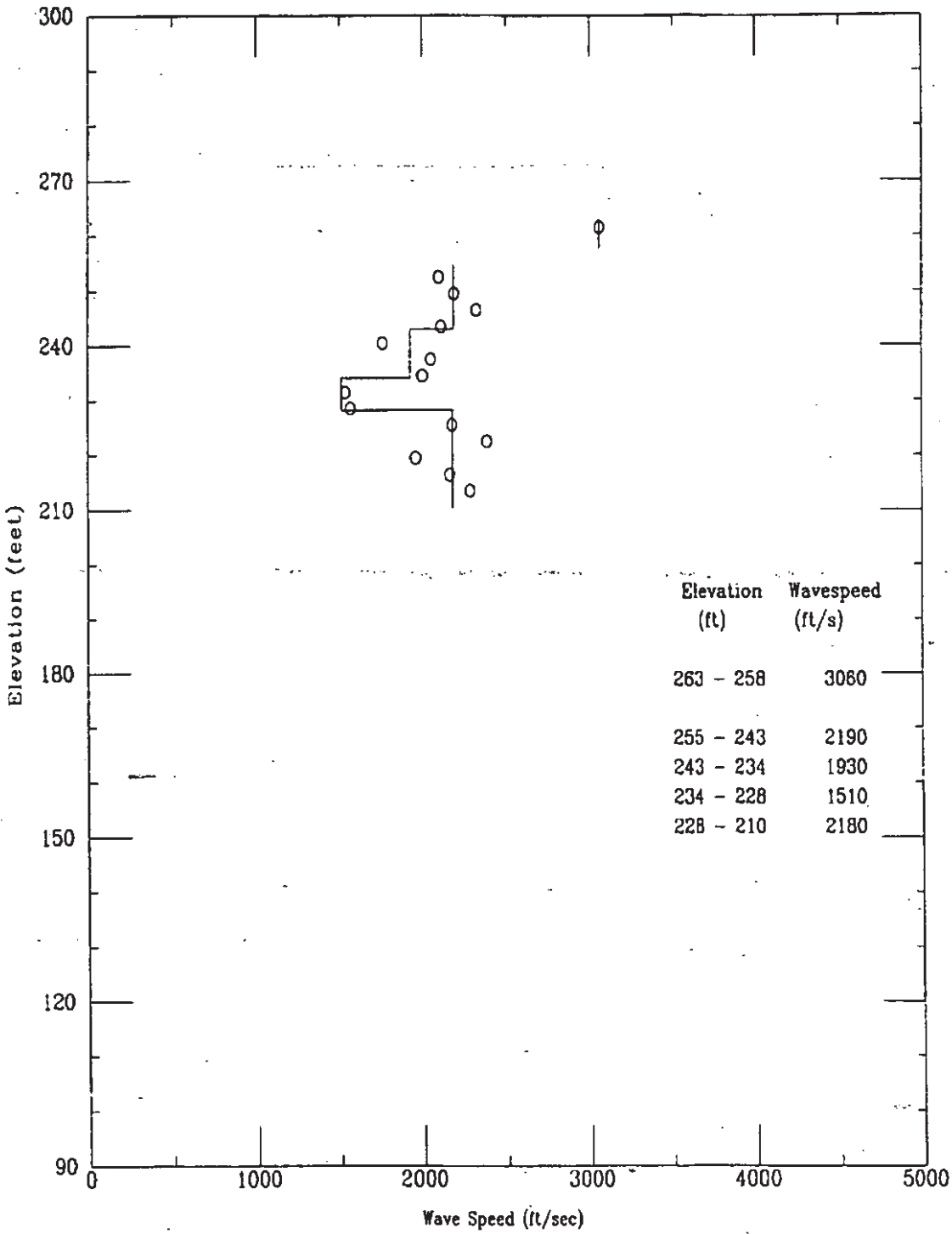
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CPT-114

APPLIED RESEARCH ASSOCIATES, INC.

02/19/98

Compression Wave Speeds

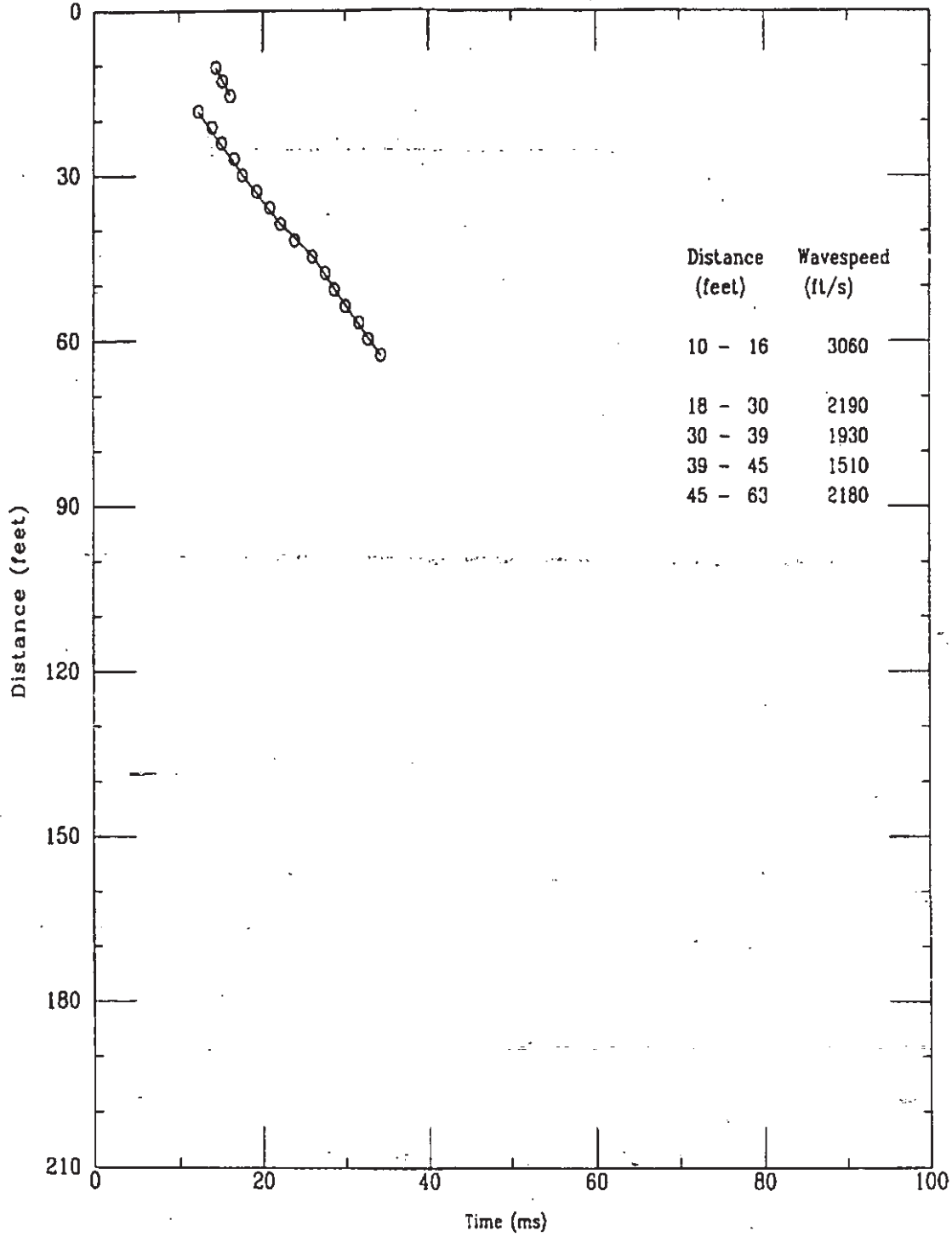


File 519f804S

CPT-114

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

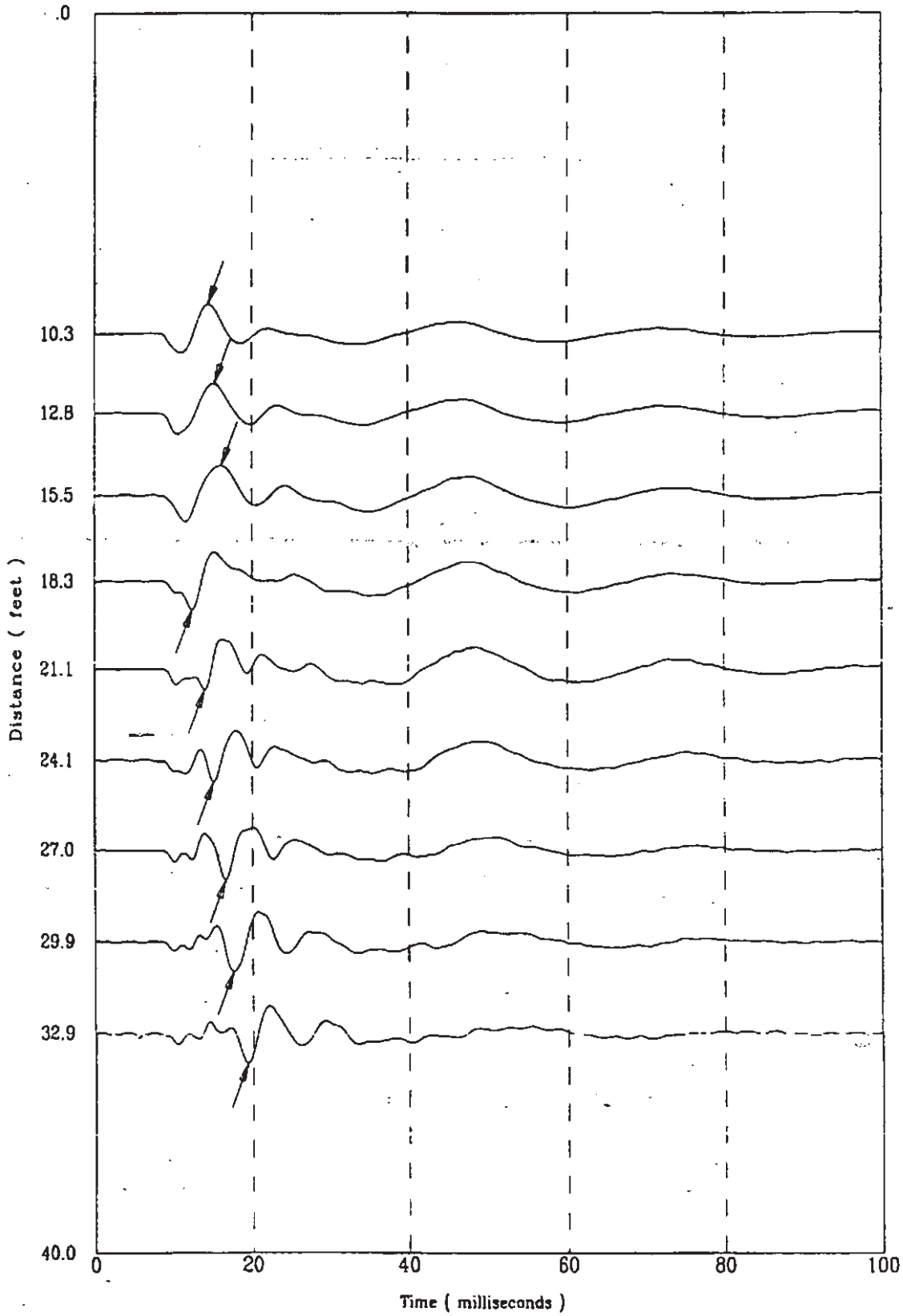
02/19/98



File 519804S

Applied Research Associates  
CPT-114

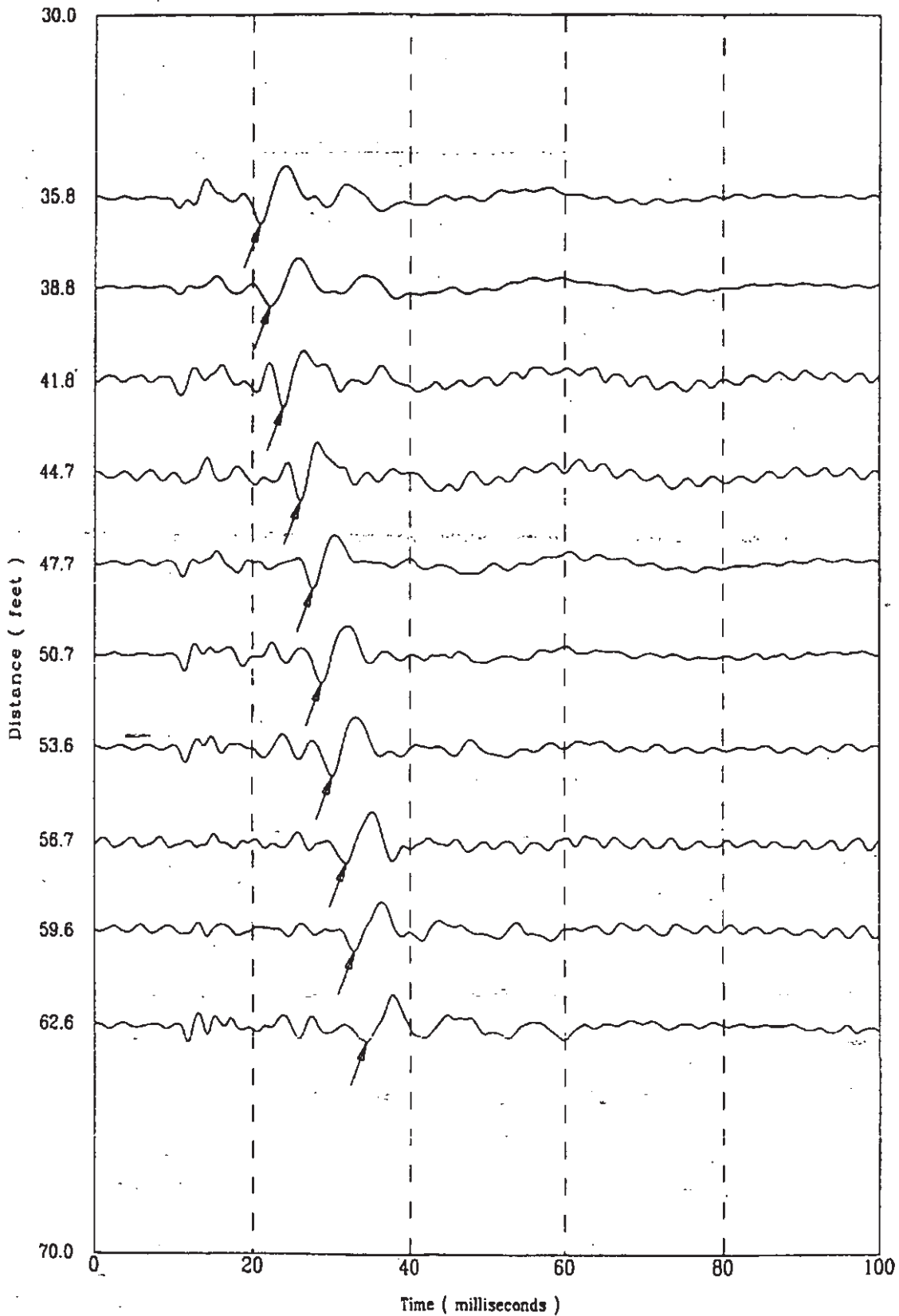
P Wave  
02/19/98



0191804S

Applied Research Associates  
CPT-114

P Wave  
02/19/98



CPT-115

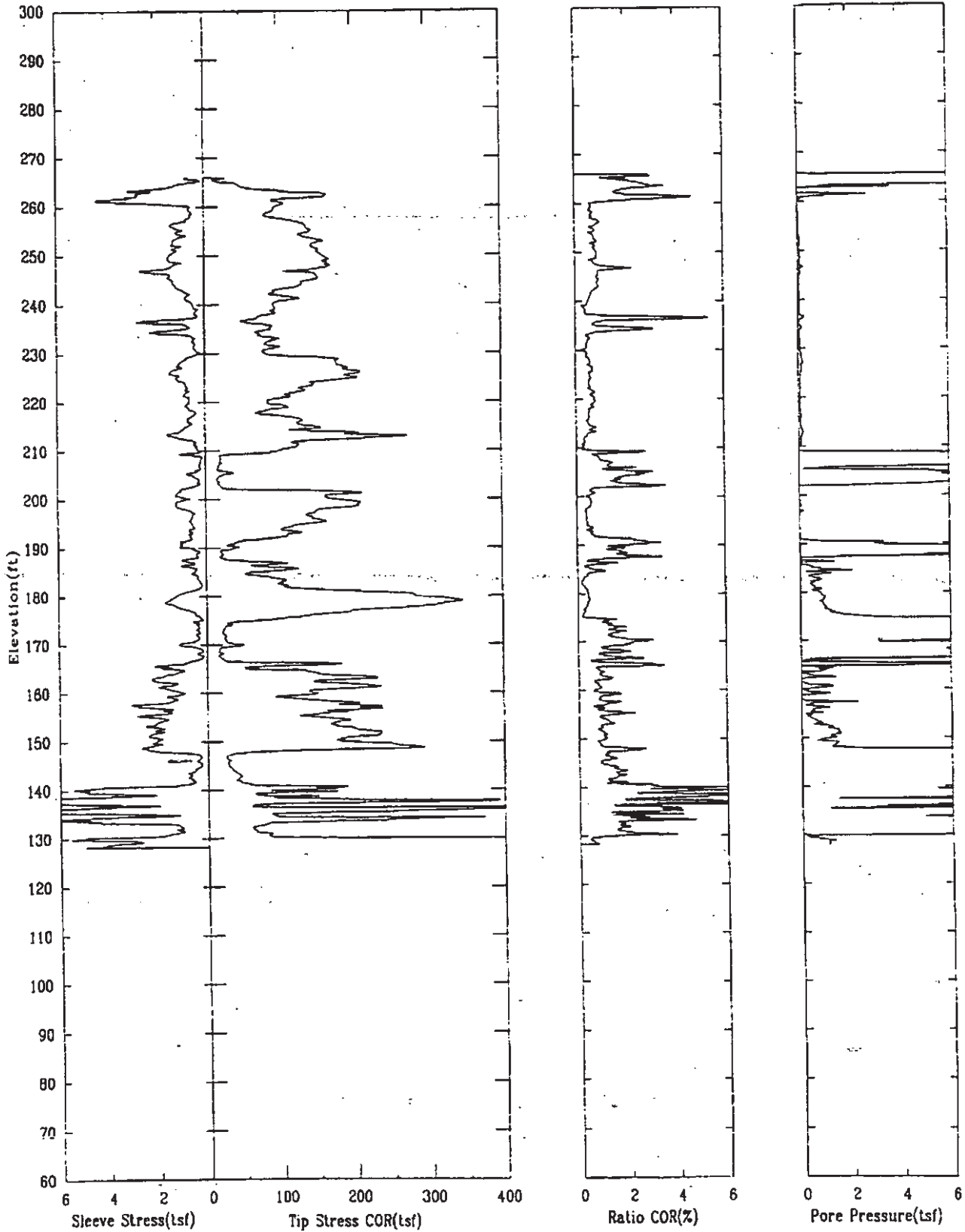
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
02/20/98R/o

North 79780.85

East 55125.05

Elevation 272.0



CPT-115

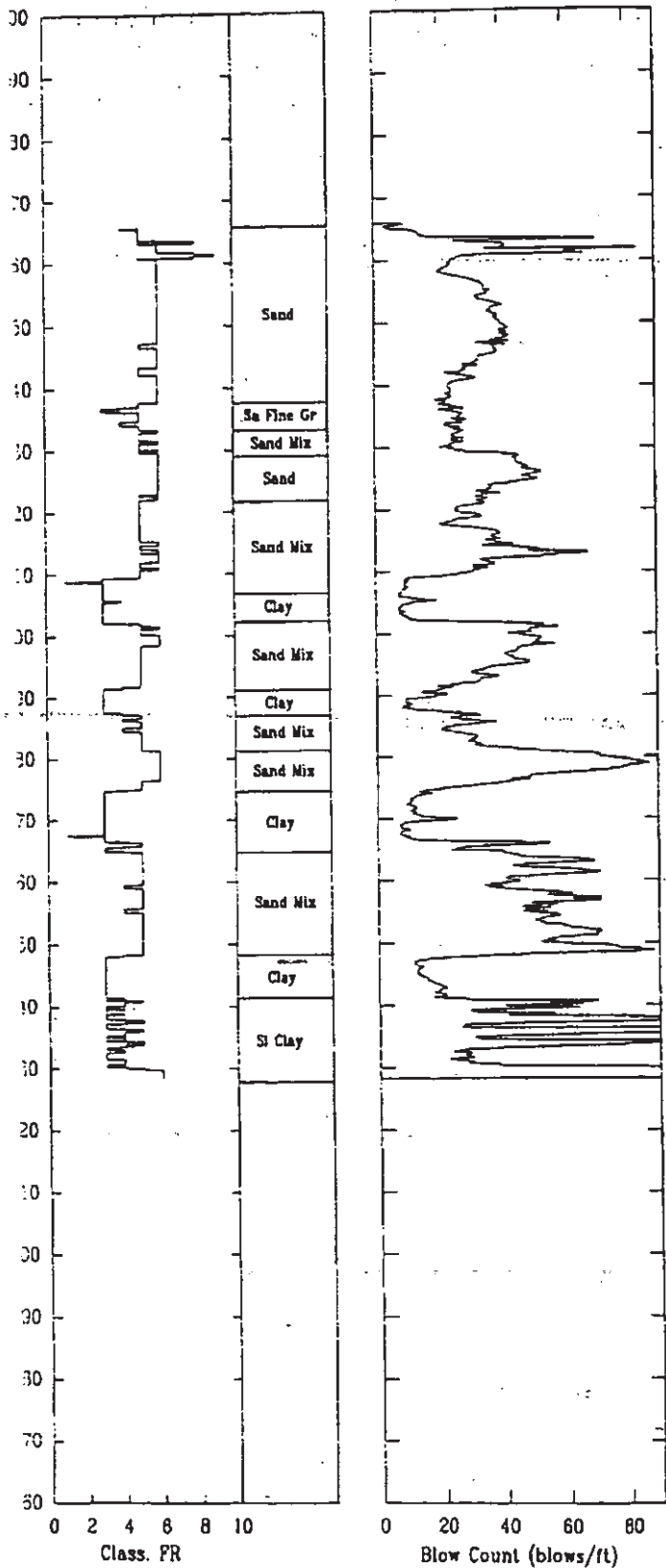
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-0000/  
02/20/98 R/O

North 79780.85

East 55125.05

Elevation 272.0



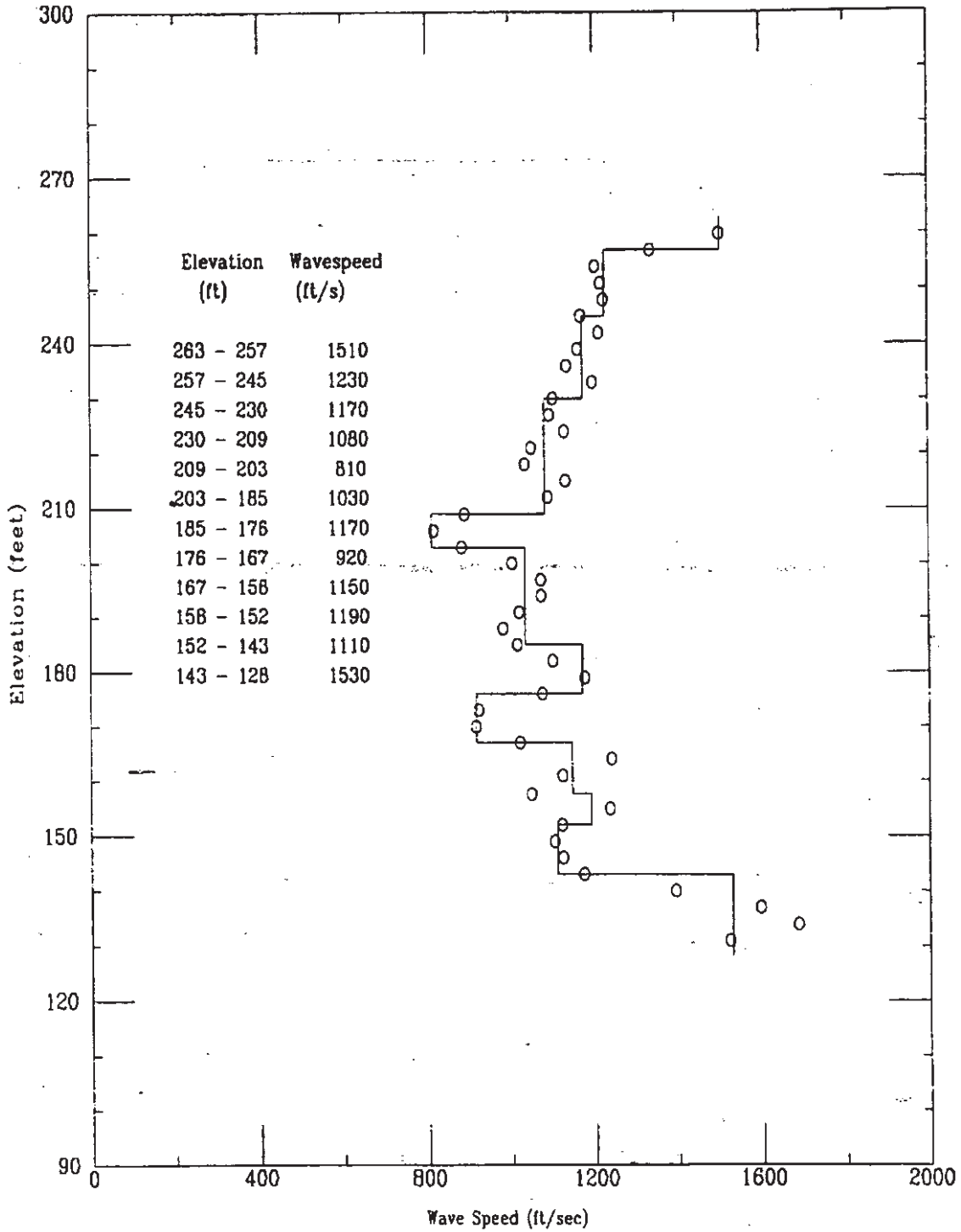


CPT-115

APPLIED RESEARCH ASSOCIATES, INC.

02/20/98

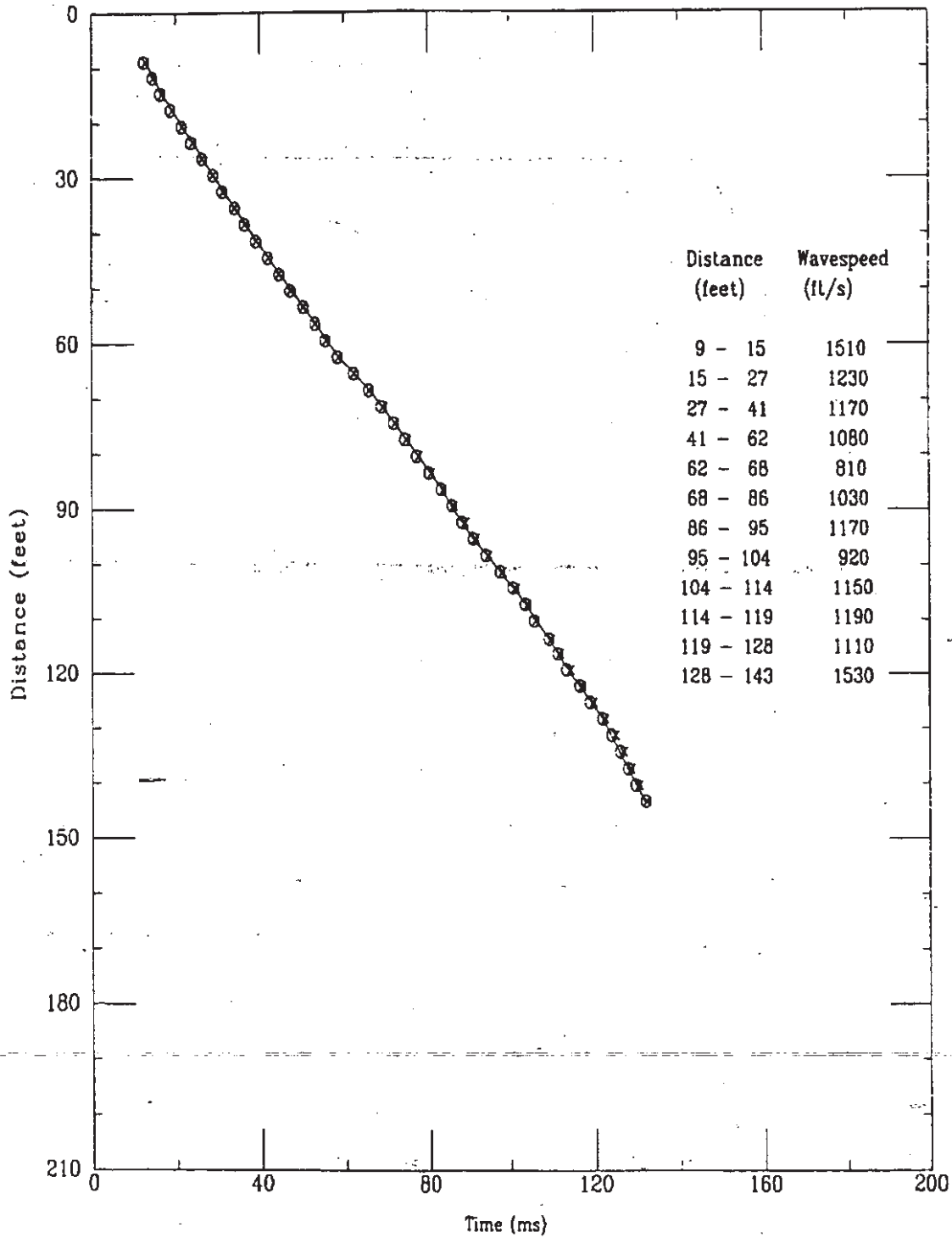
Shear Wave Speeds



CPT-115

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

02/20/98

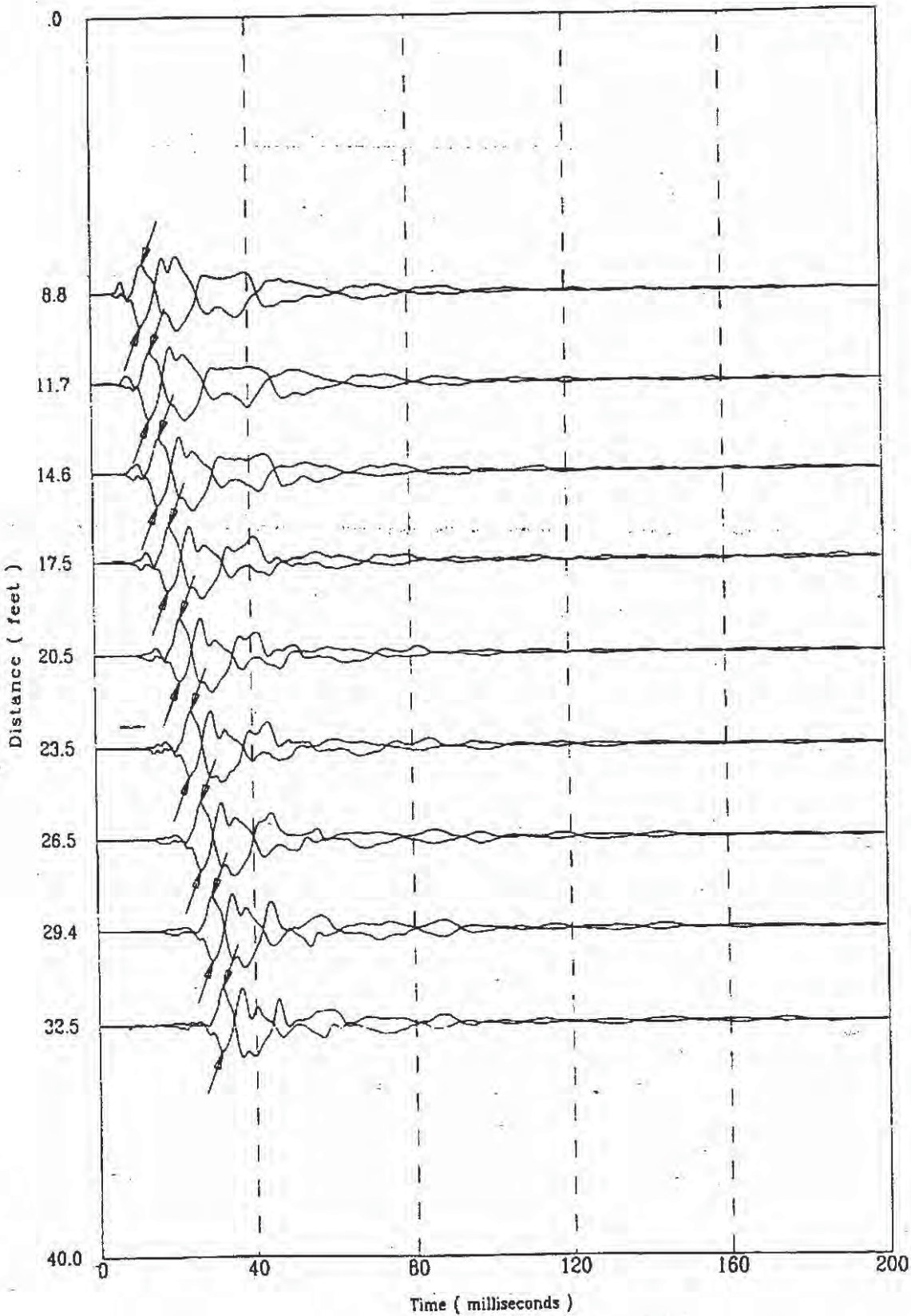


File 520f801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-115

S Wave  
02/20/98

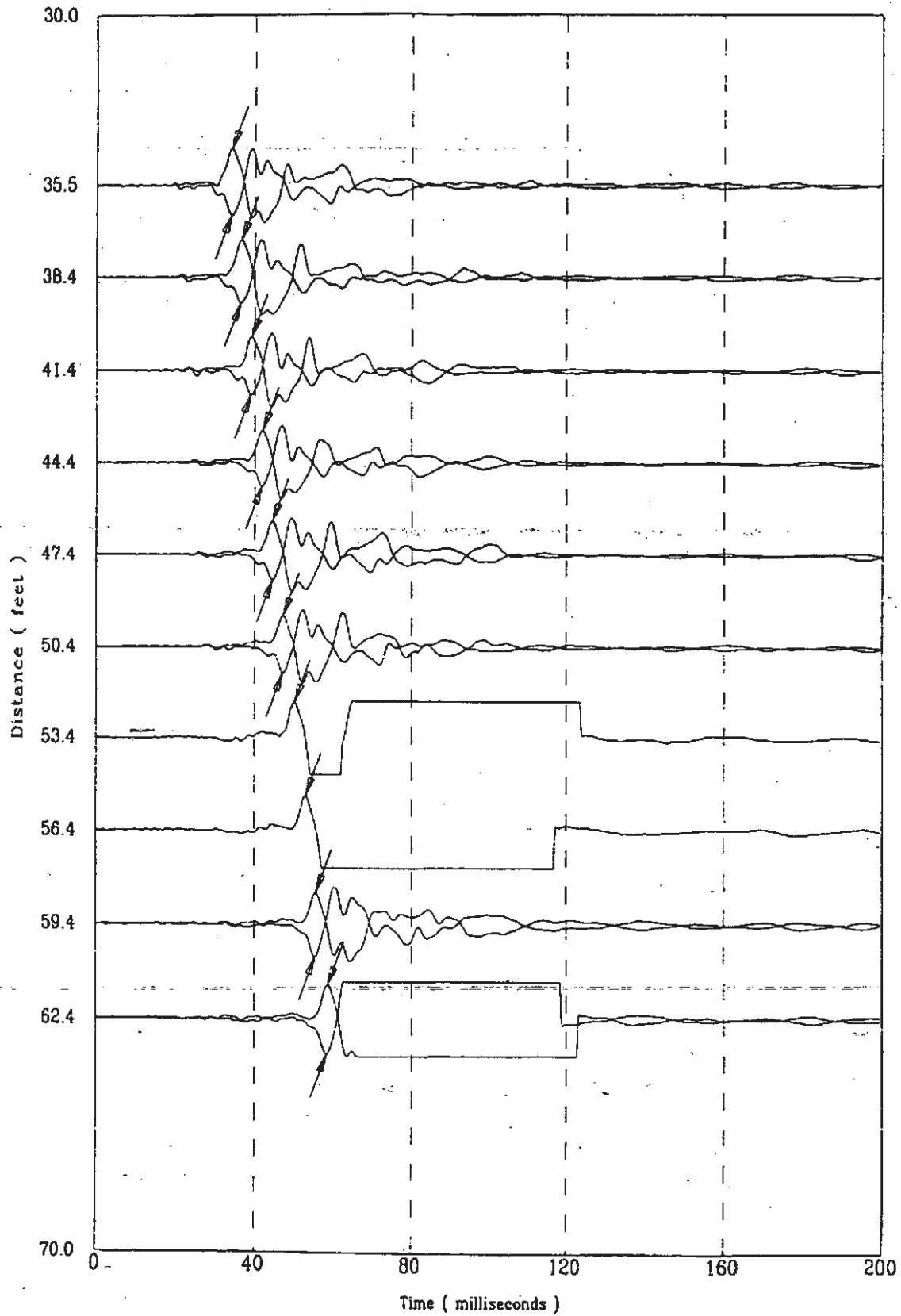


52018015

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Applied Research Associates, Inc.  
CPT-115

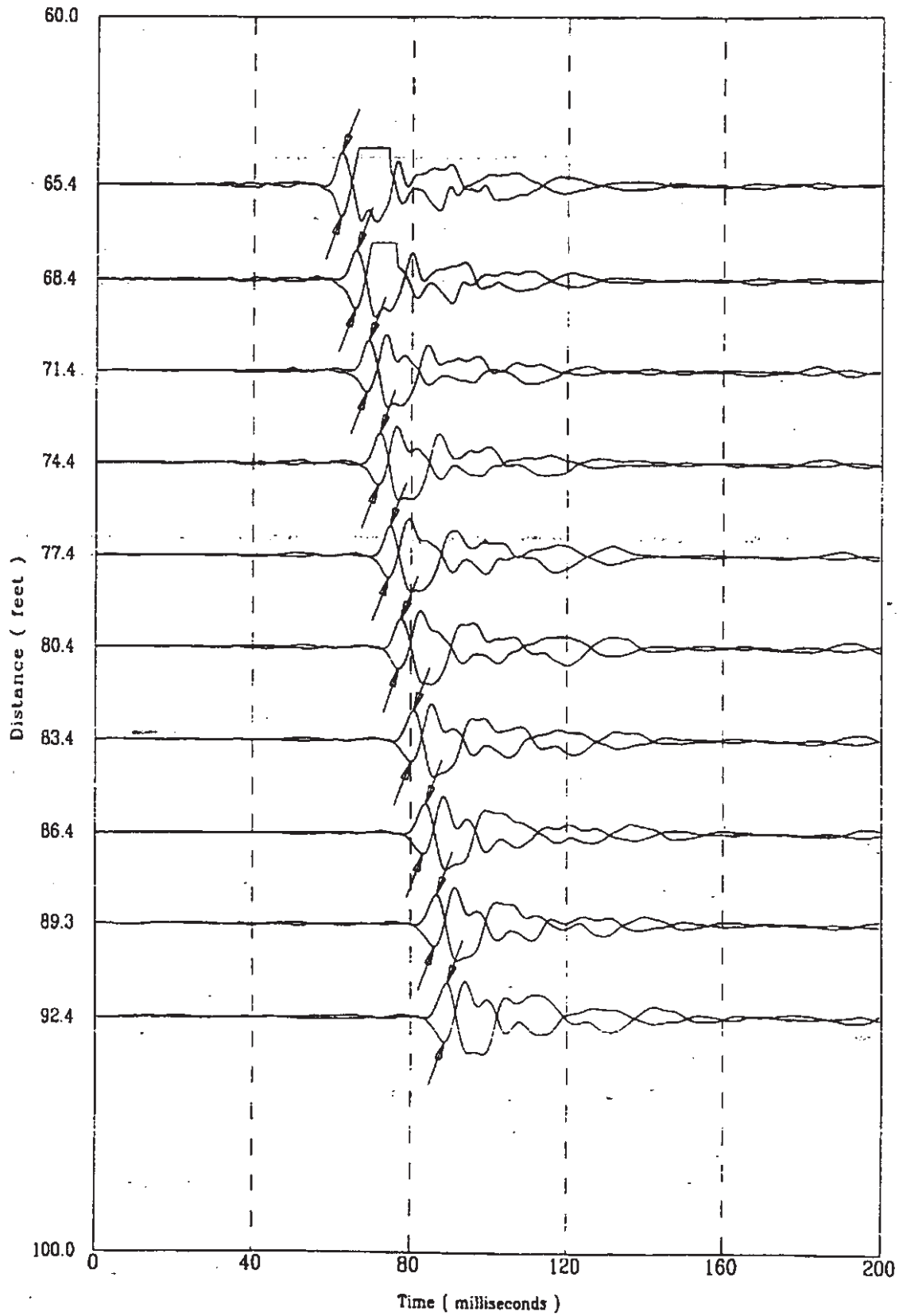
S Wave  
02/20/98



K-TRT-F-00001  
R/0

Applied Research Associates, Inc.  
CPT-115

S Wave  
02/20/98

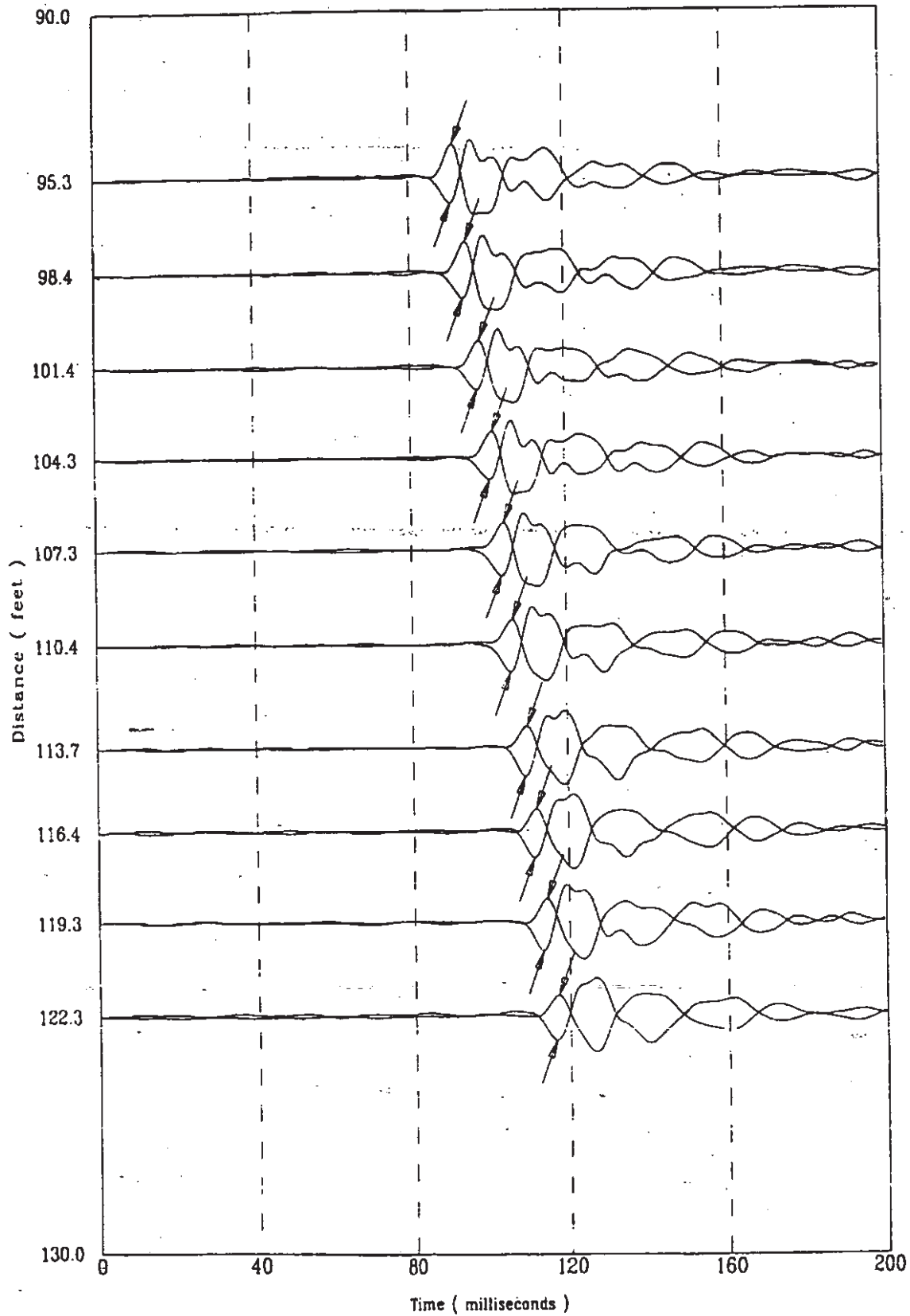


201801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-115

S Wave  
02/20/98



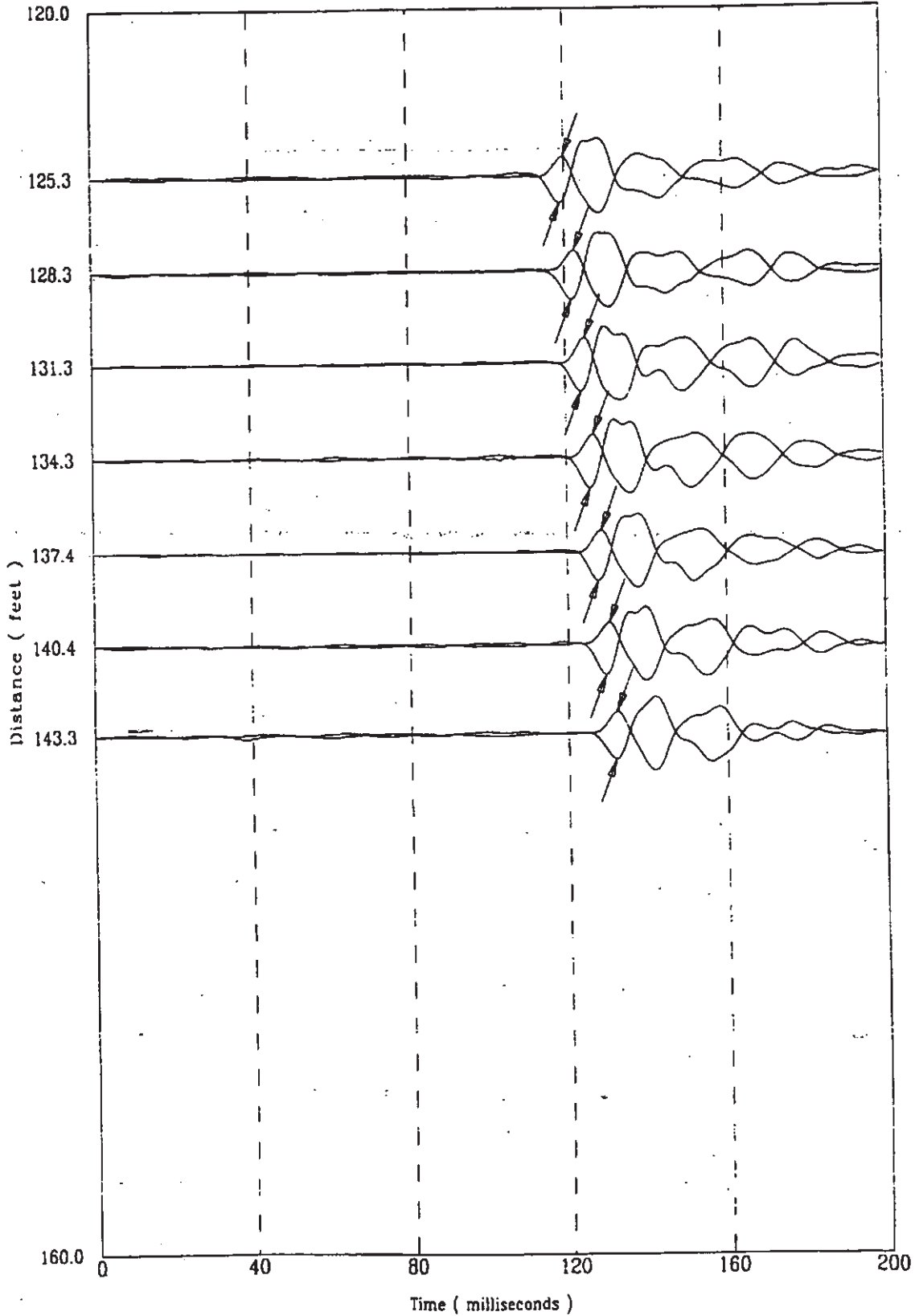
5201801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-115

S Wave  
02/20/98



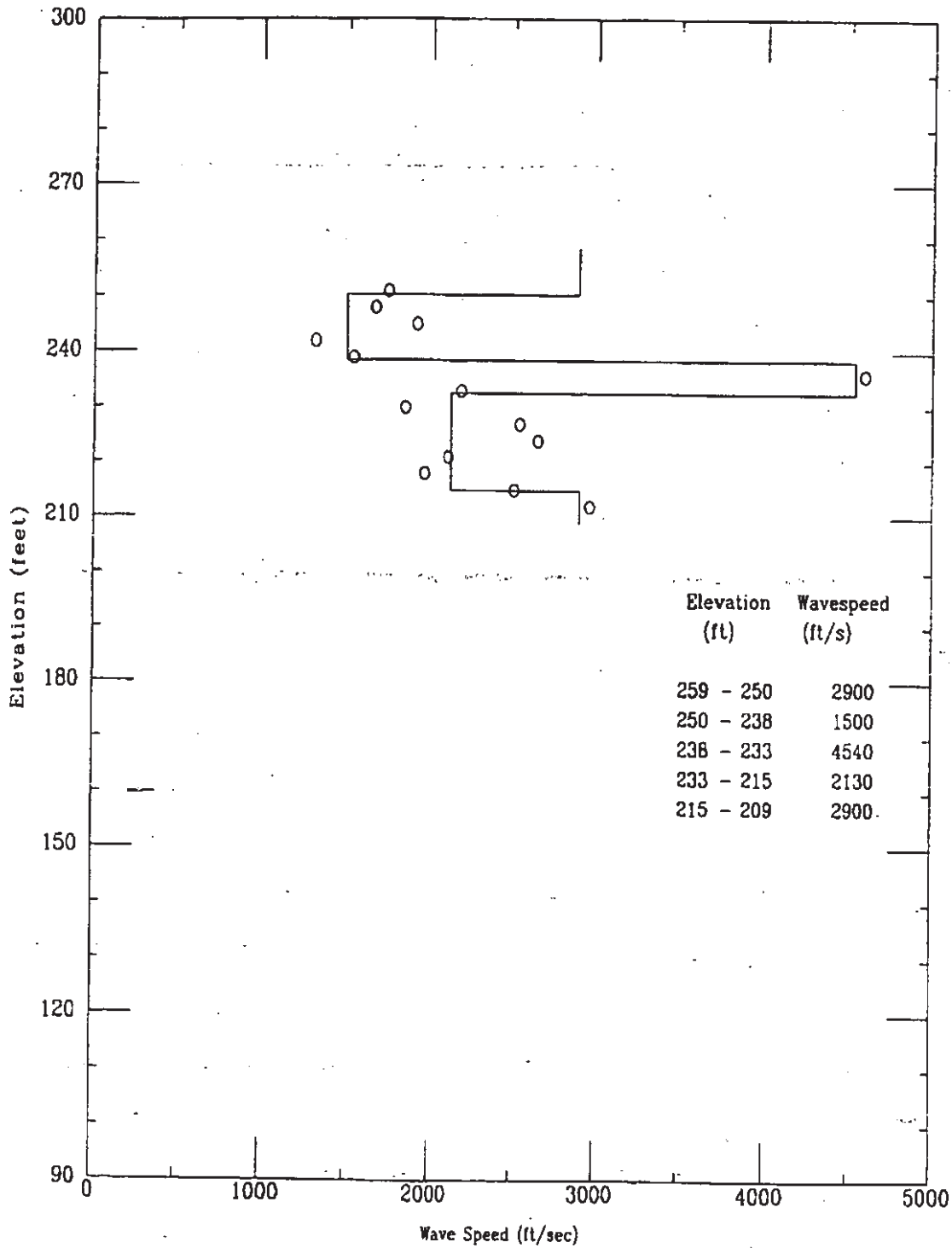
52018015



CPT-115

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

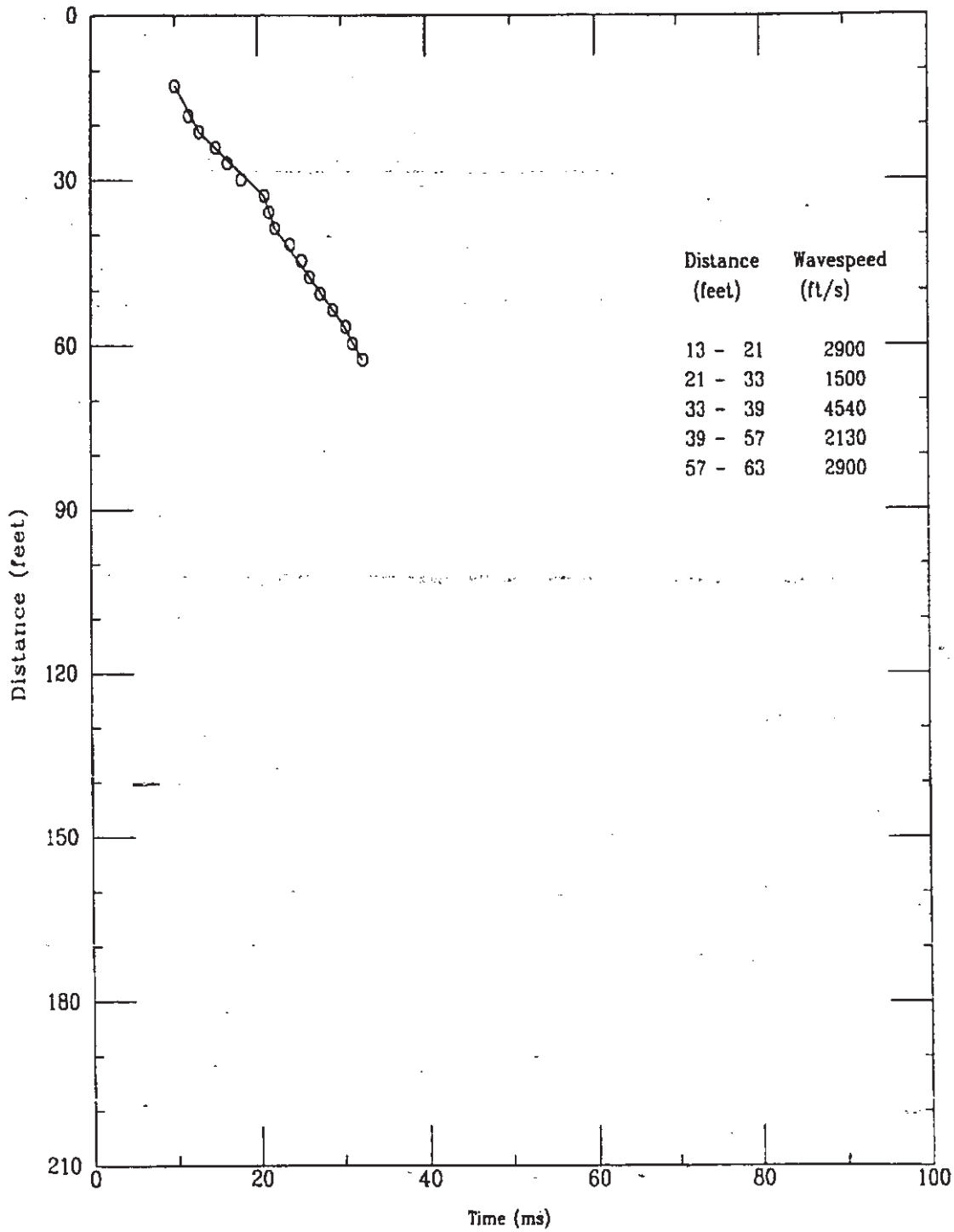
02/20/98



CPT-115

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/20/98

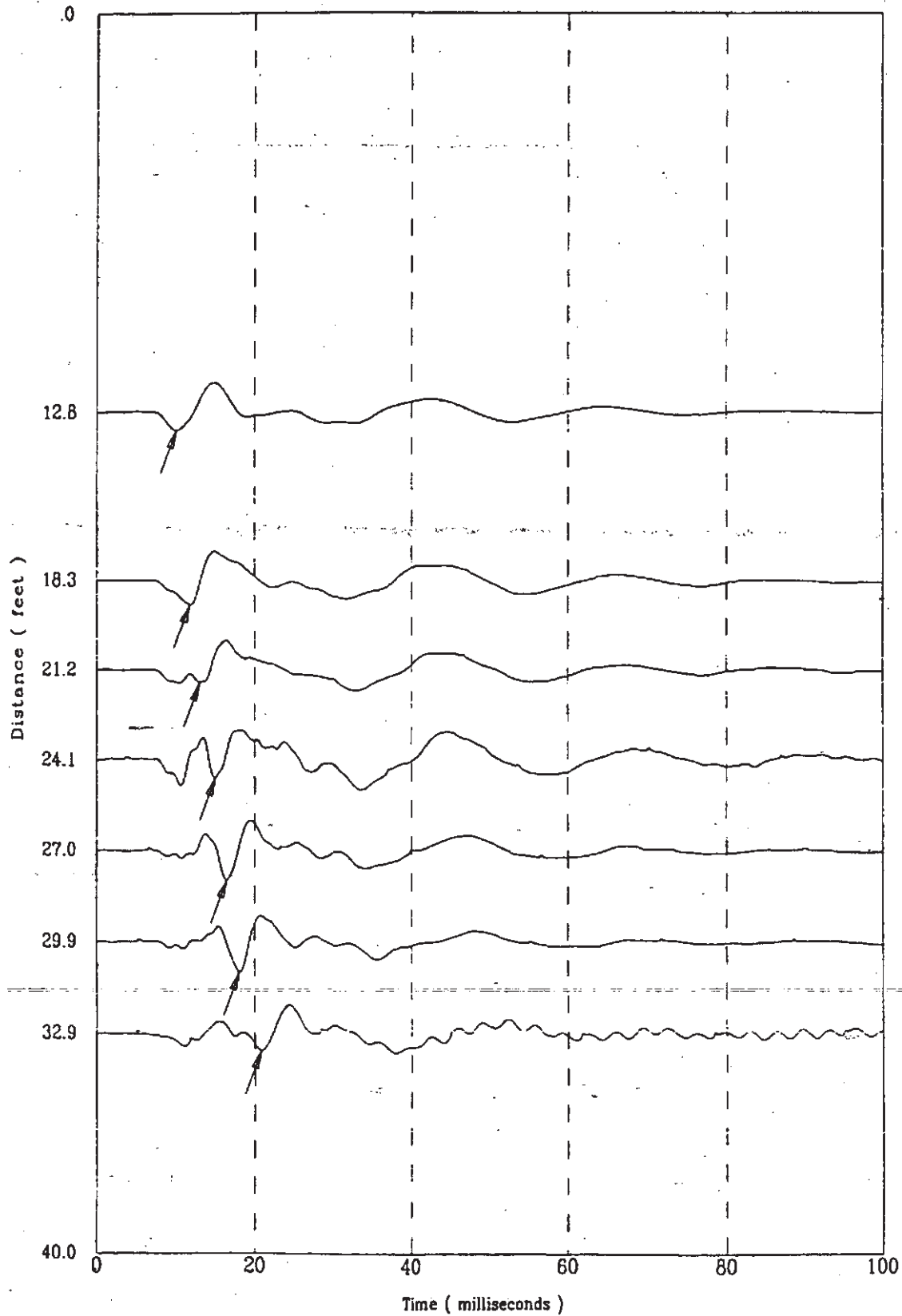


File 5201801S

K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-115

P Wave  
02/20/98



5201801S

CPT-116

APPLIED RESEARCH ASSOCIATES, INC.

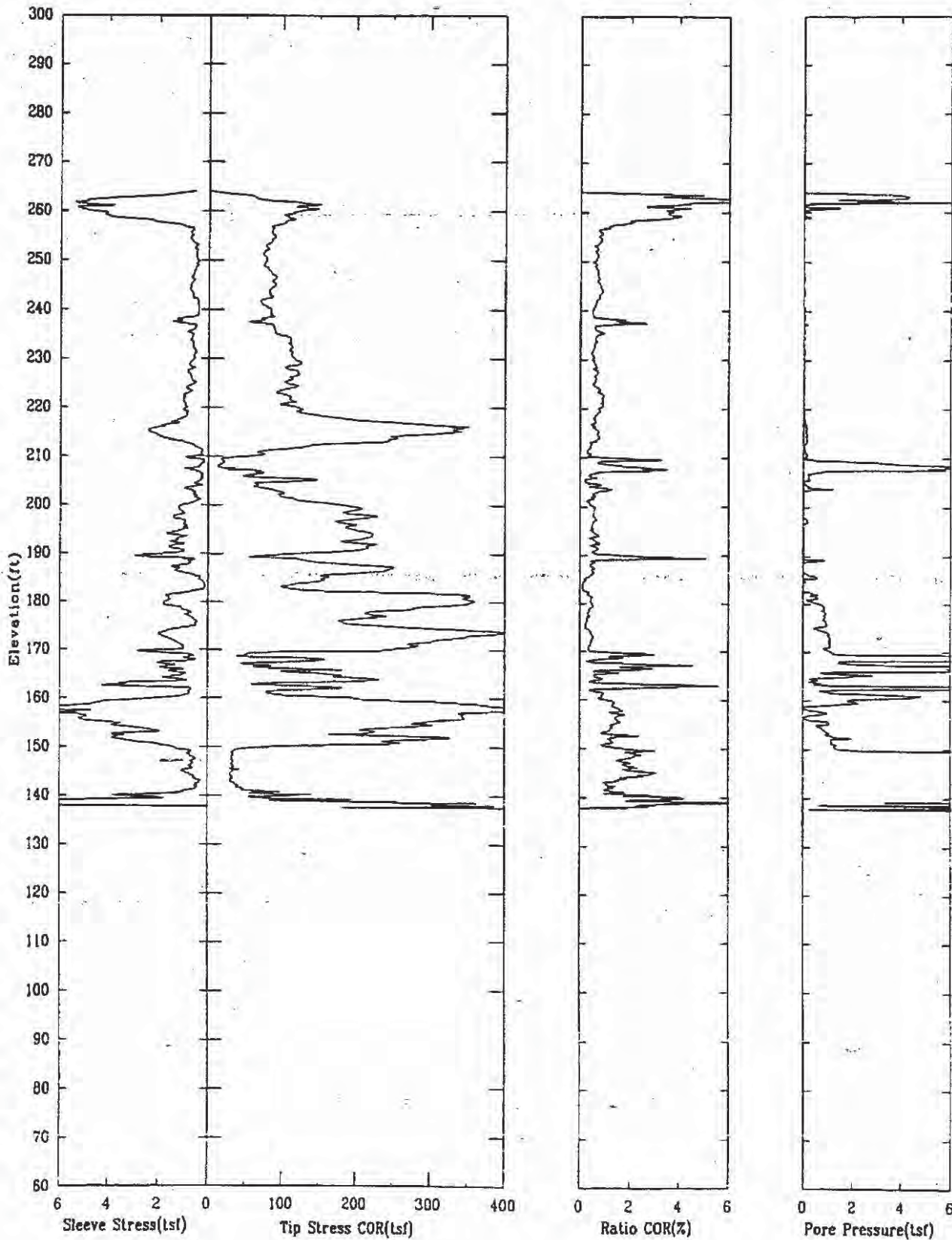
K-TRT-F-00001

02/20/98<sup>R/O</sup>

North 79781.17

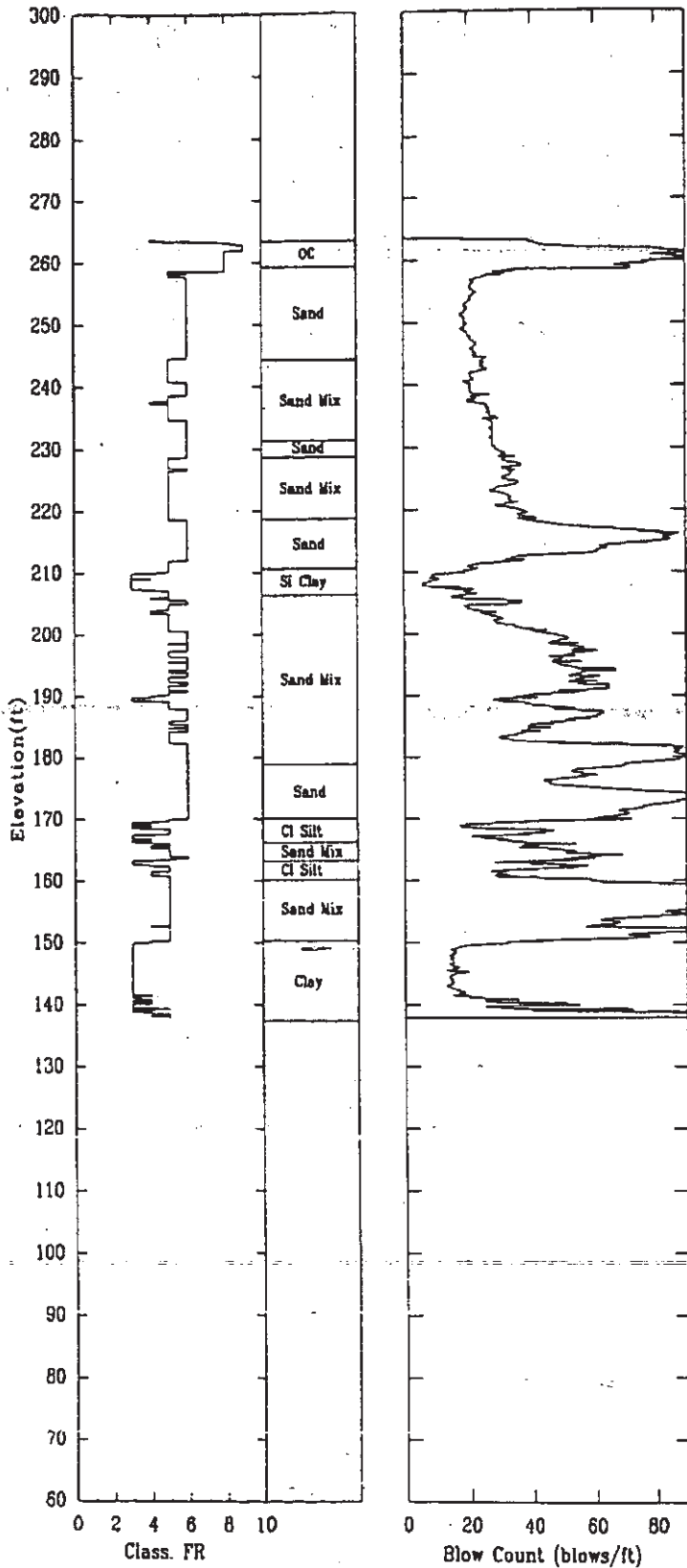
East 55261.01

Elevation 270.1



K-TRT-F-00001  
02/20/98<sup>R/O</sup>

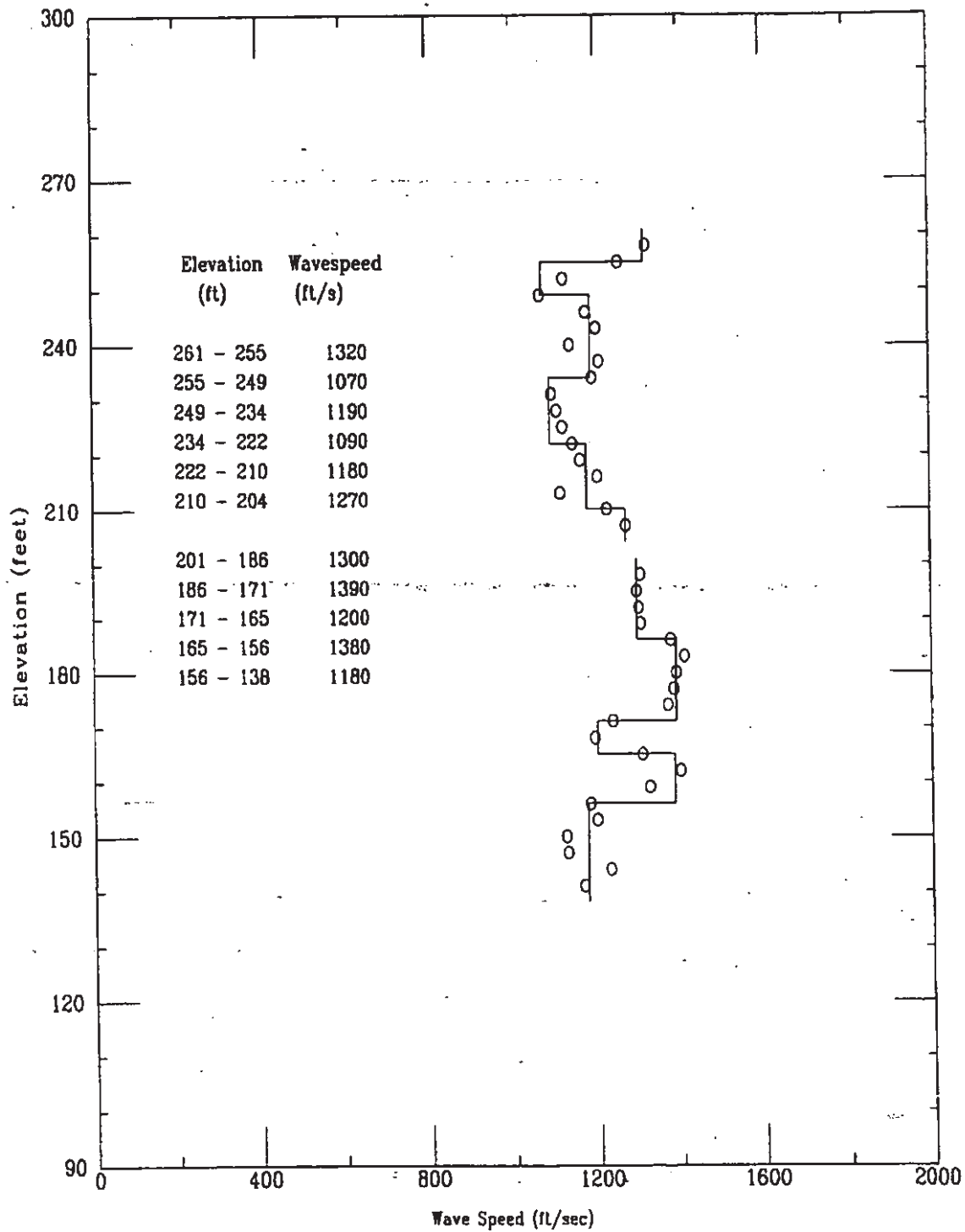
CPT-116 APPLIED RESEARCH ASSOCIATES, INC.  
North 79781.17 East 55261.01 Elevation 270.1



CPT-116

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Speeds

02/20/98

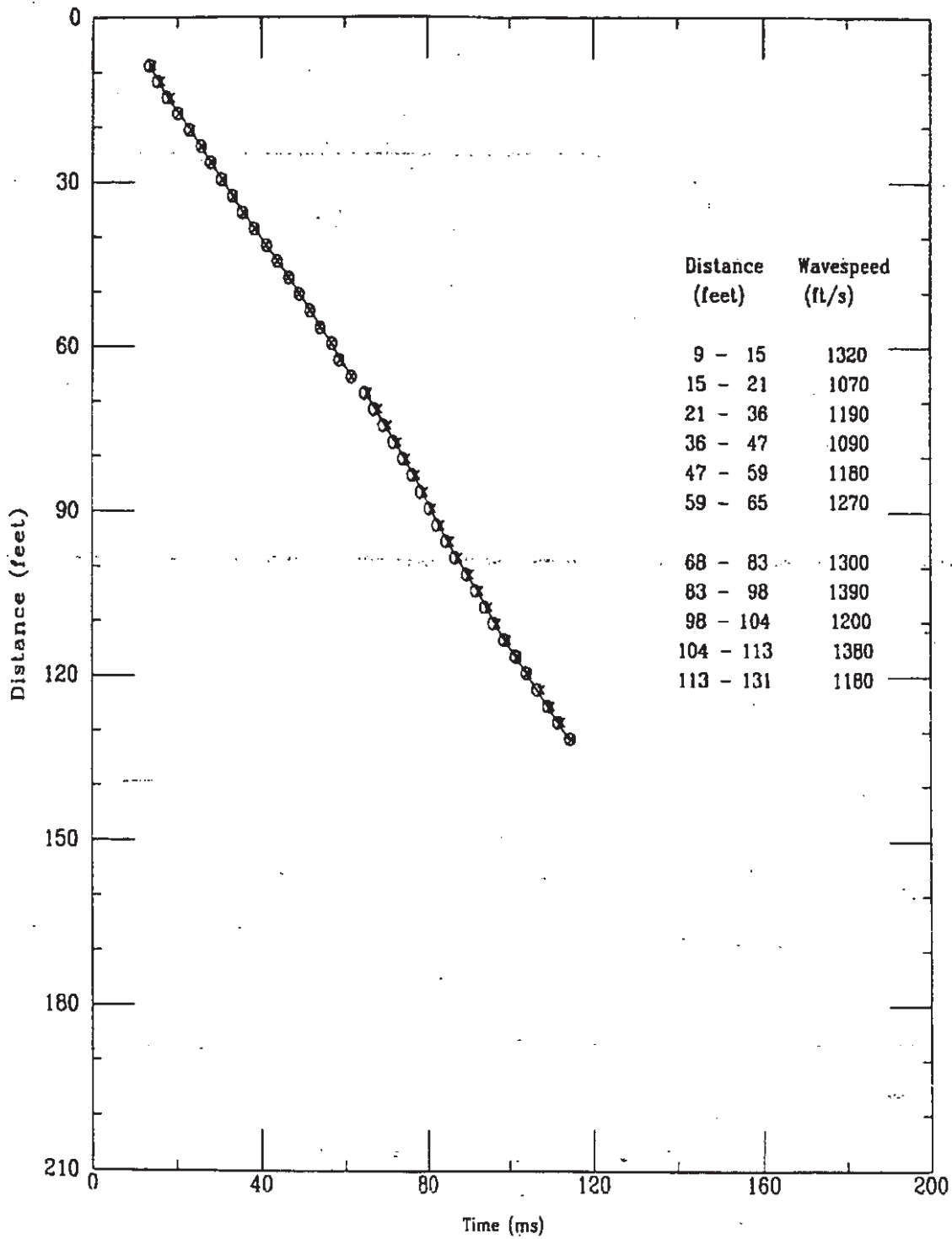


File 5201803S

CPT-116

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

02/20/98

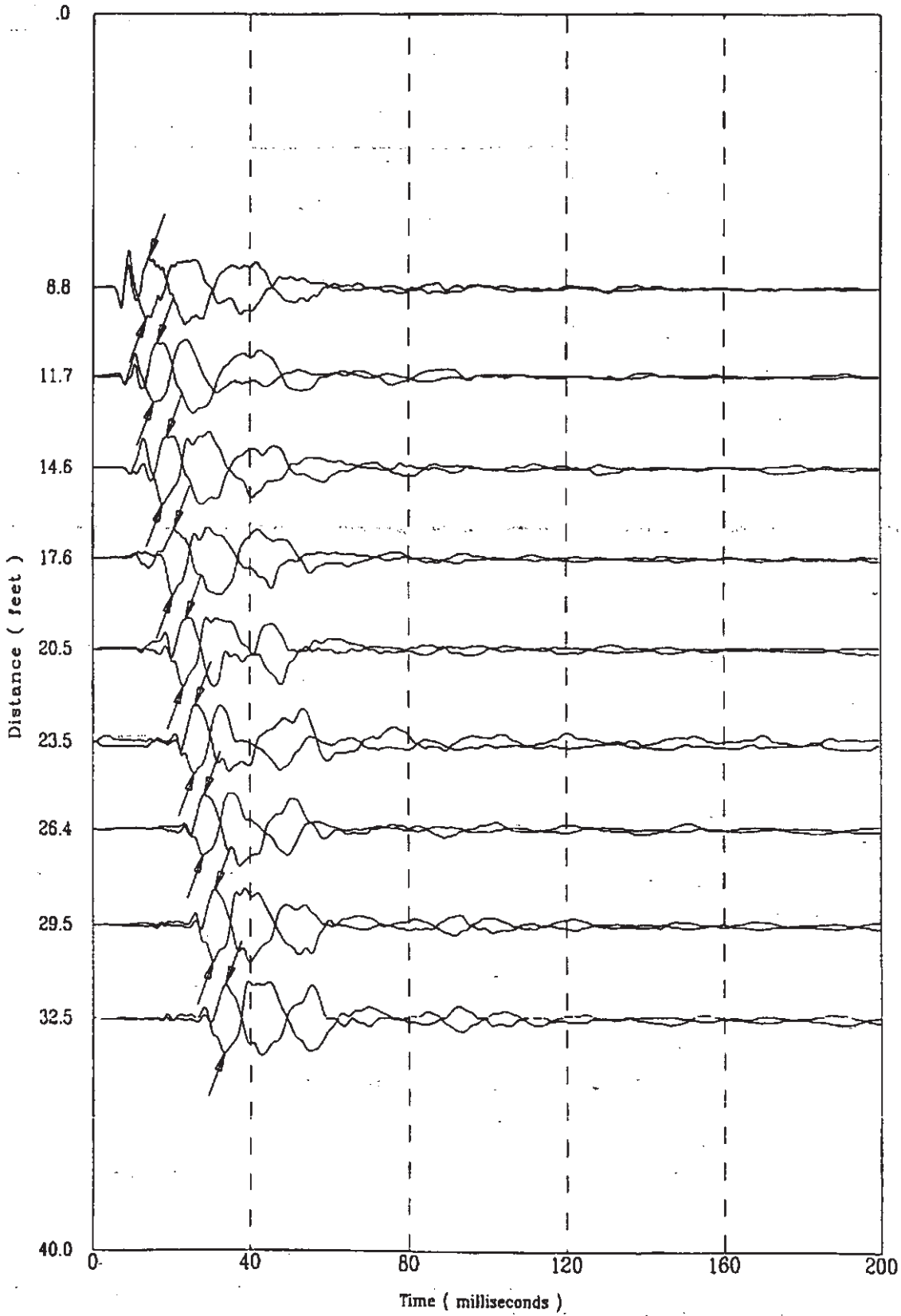




K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-116

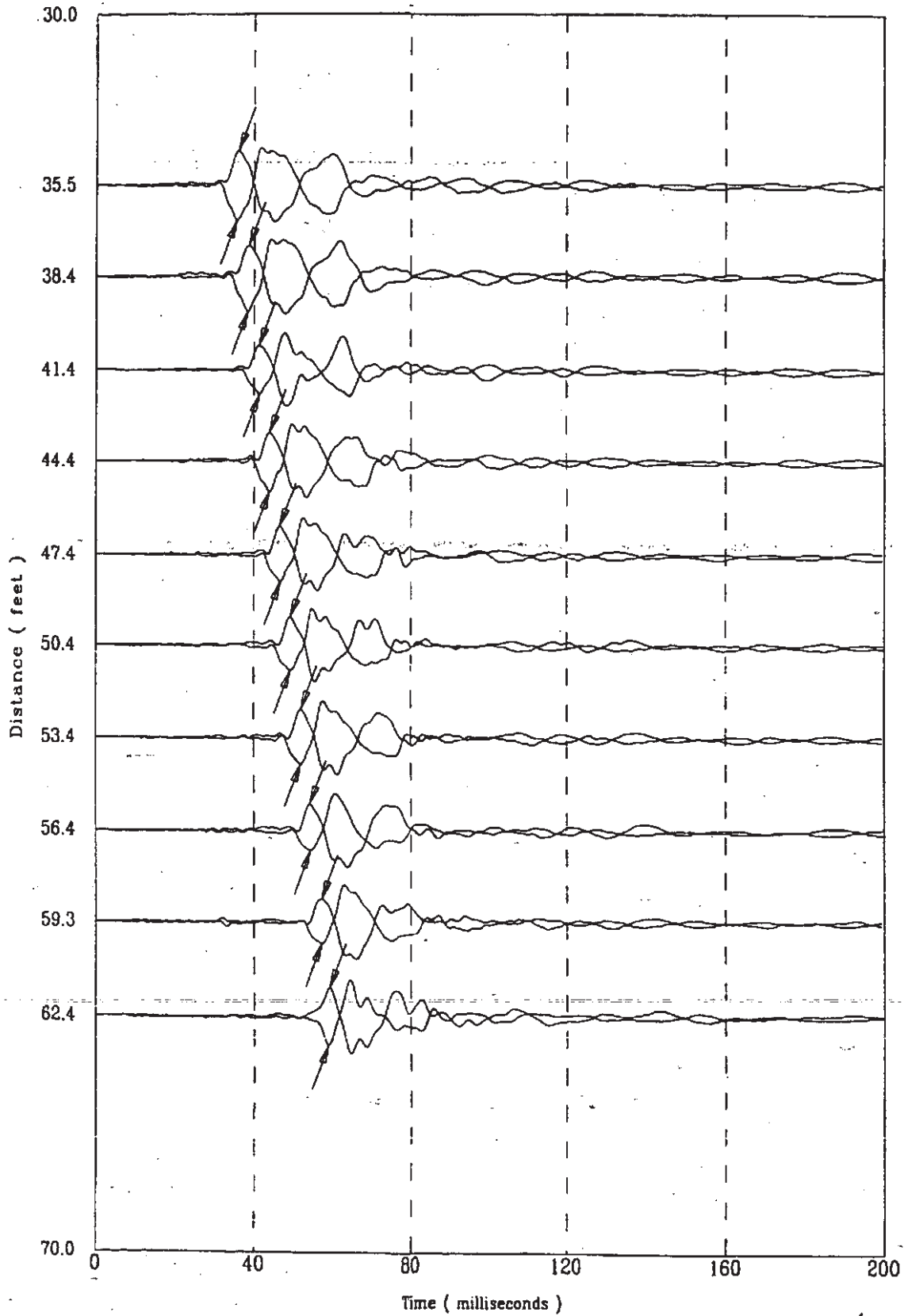
S Wave  
02/20/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-116

S Wave  
02/20/98



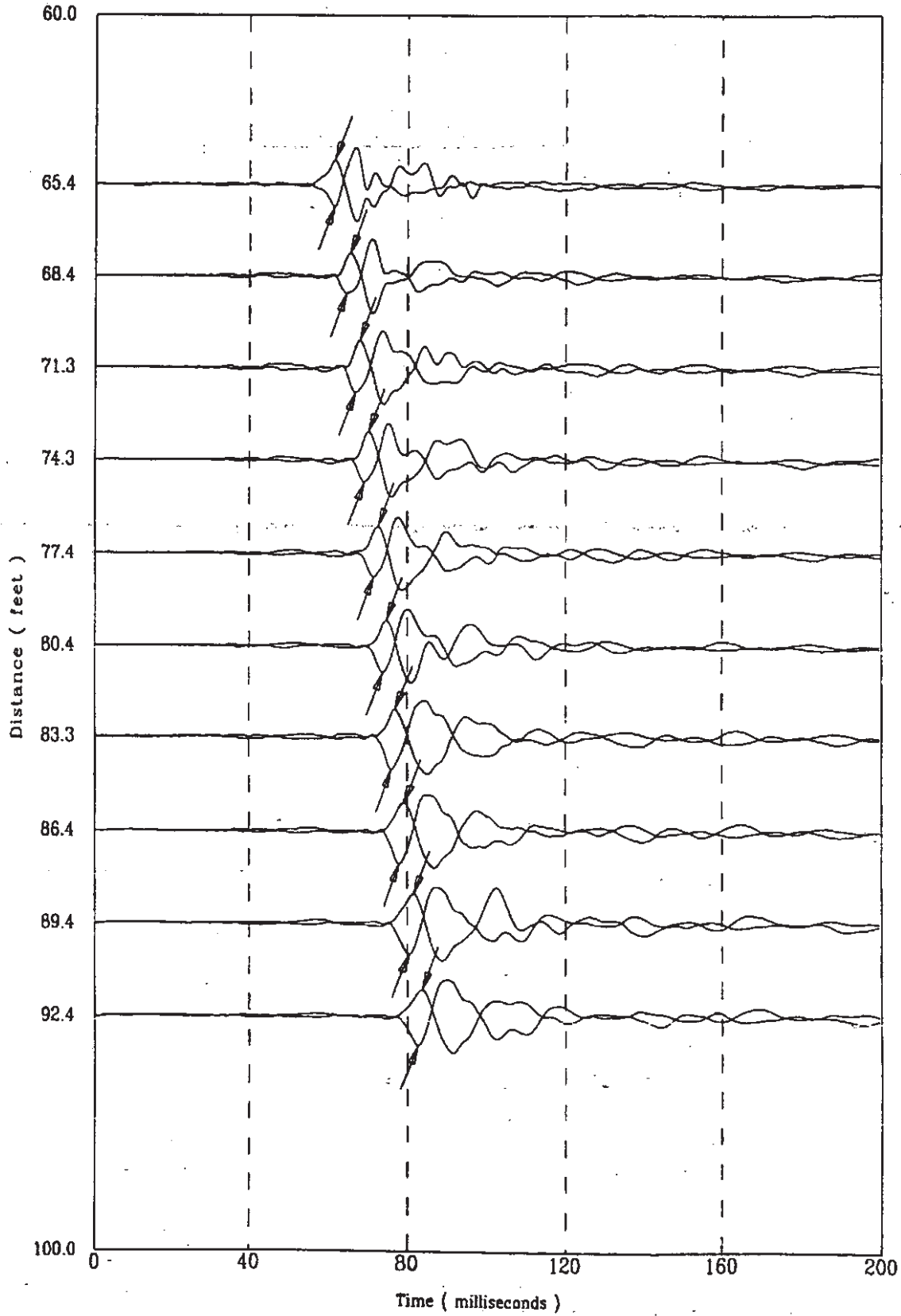
File 520r0035

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-116

S Wave  
02/20/98



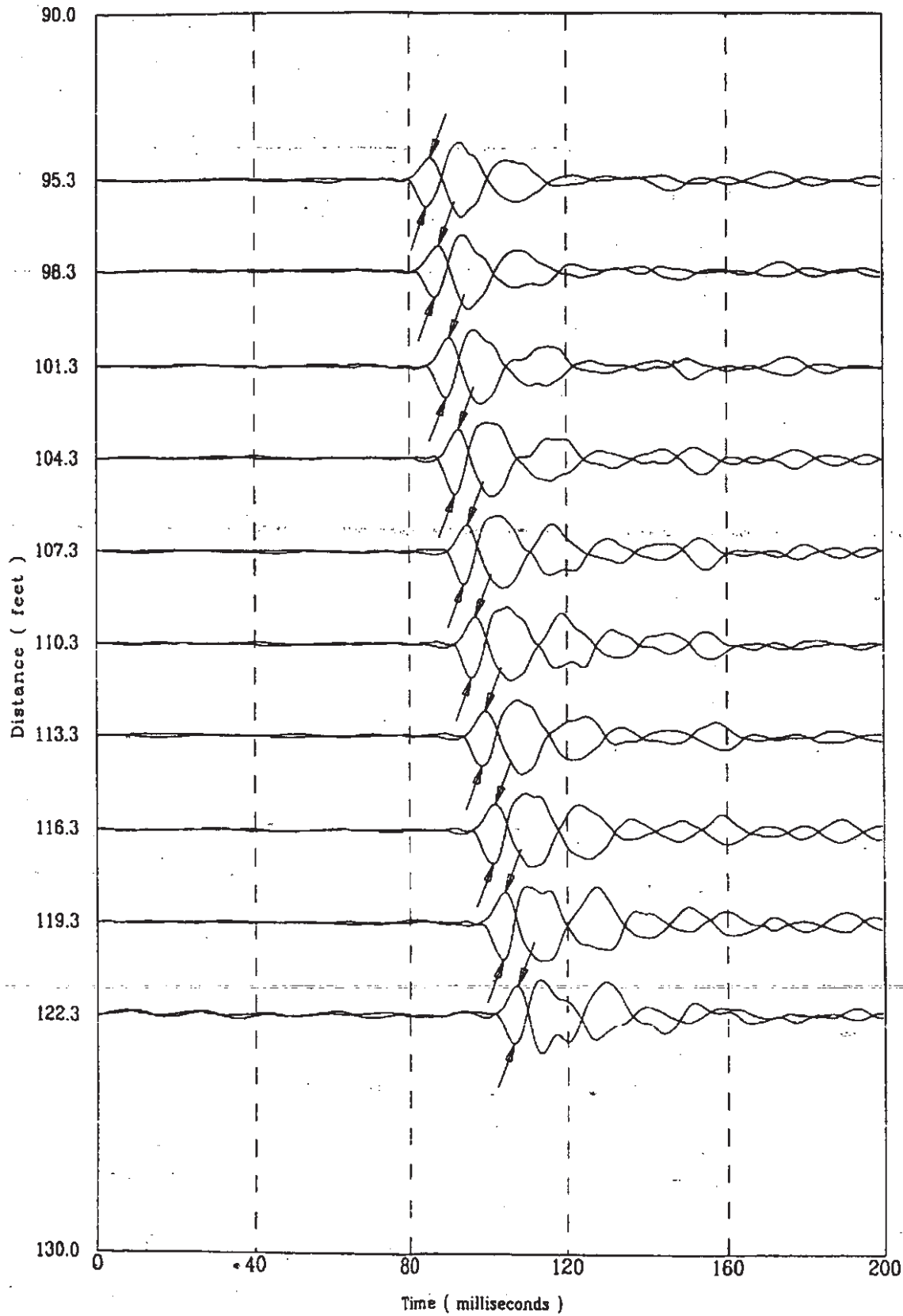
File 5201803S

85 of 522

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-116

S Wave  
02/20/98



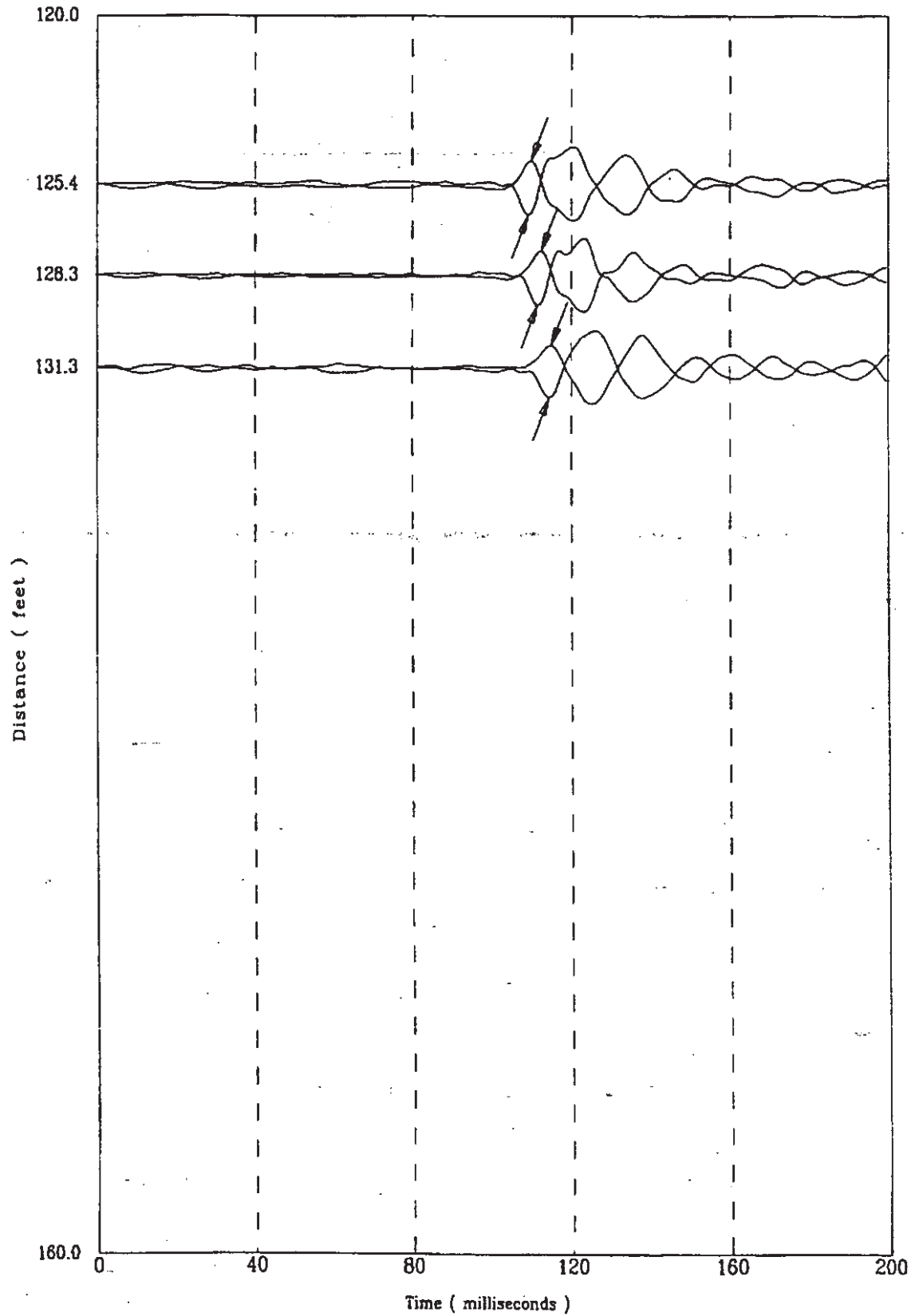
File 5207803S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-116

S Wave  
02/20/98

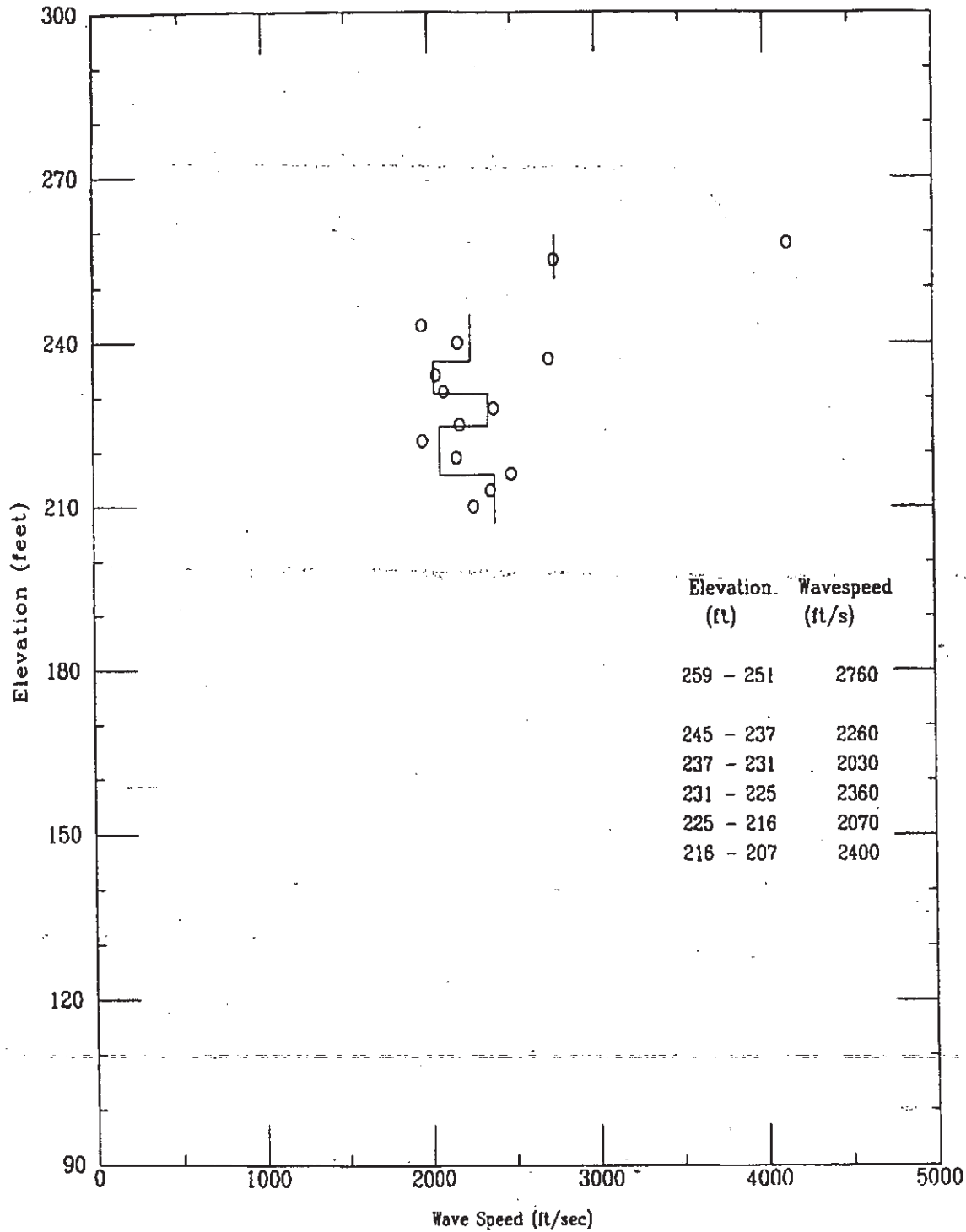


File 5201803S

CPT-116

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

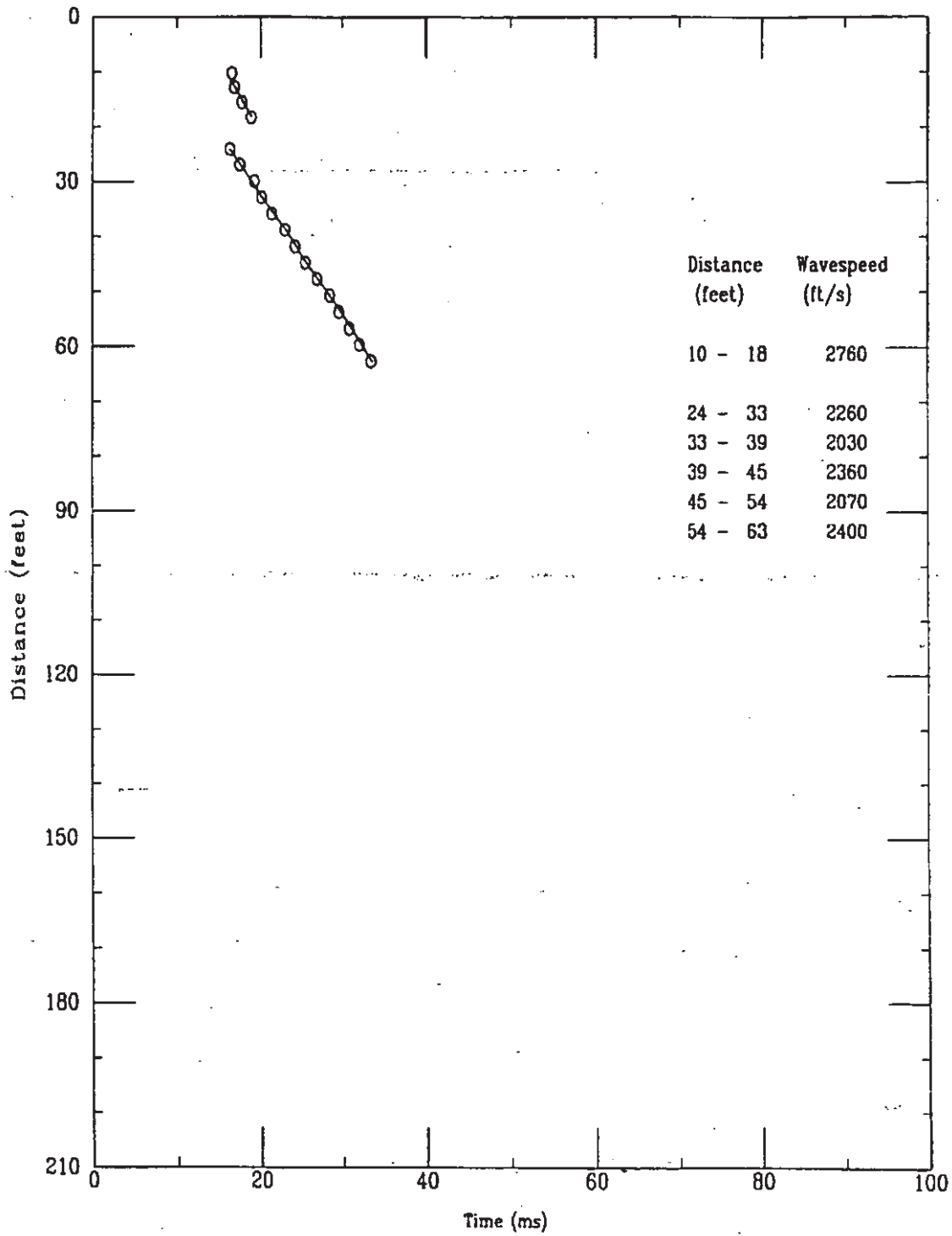
02/20/98



CPT-116

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/20/98

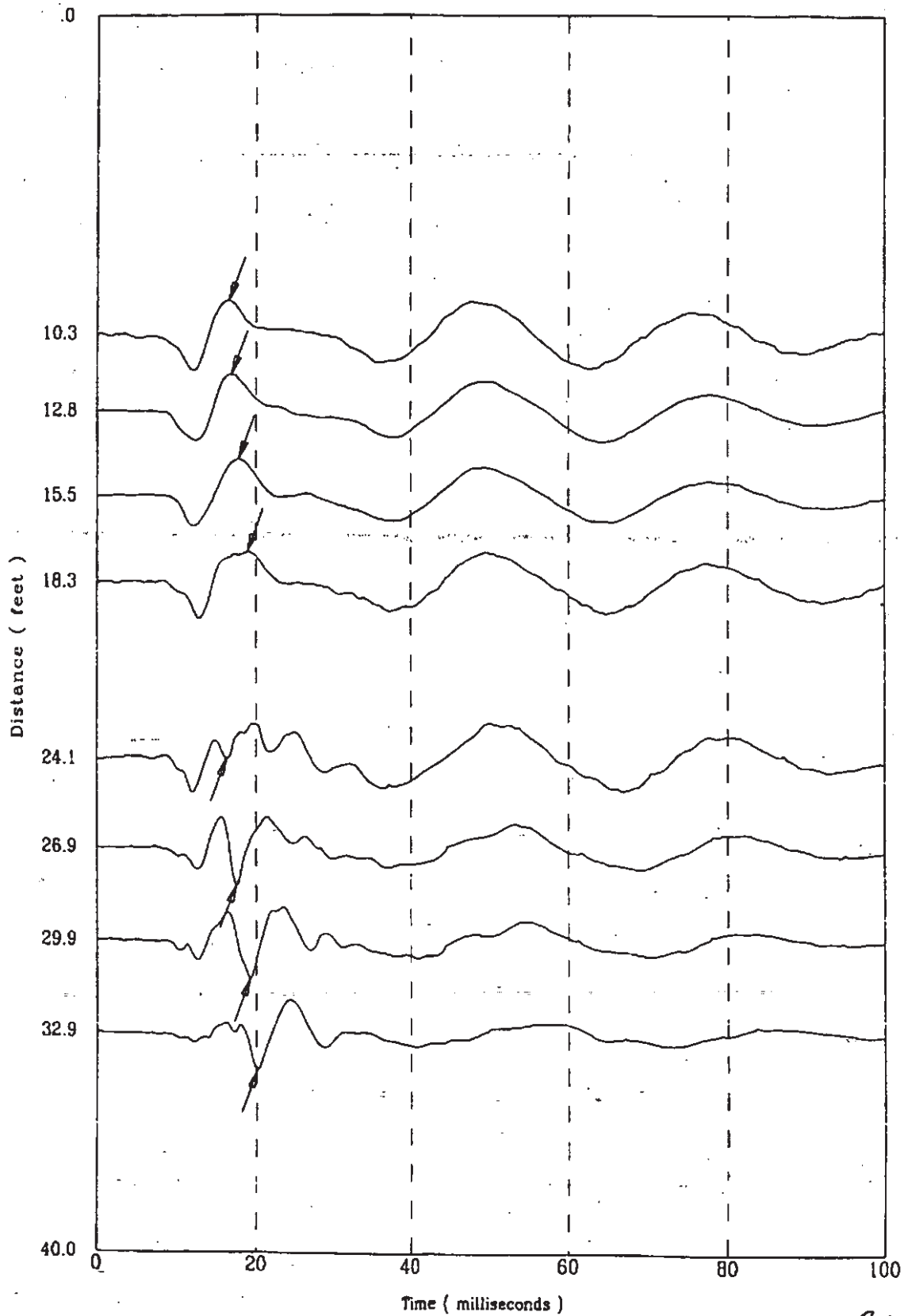




K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-116

P Wave  
02/20/98



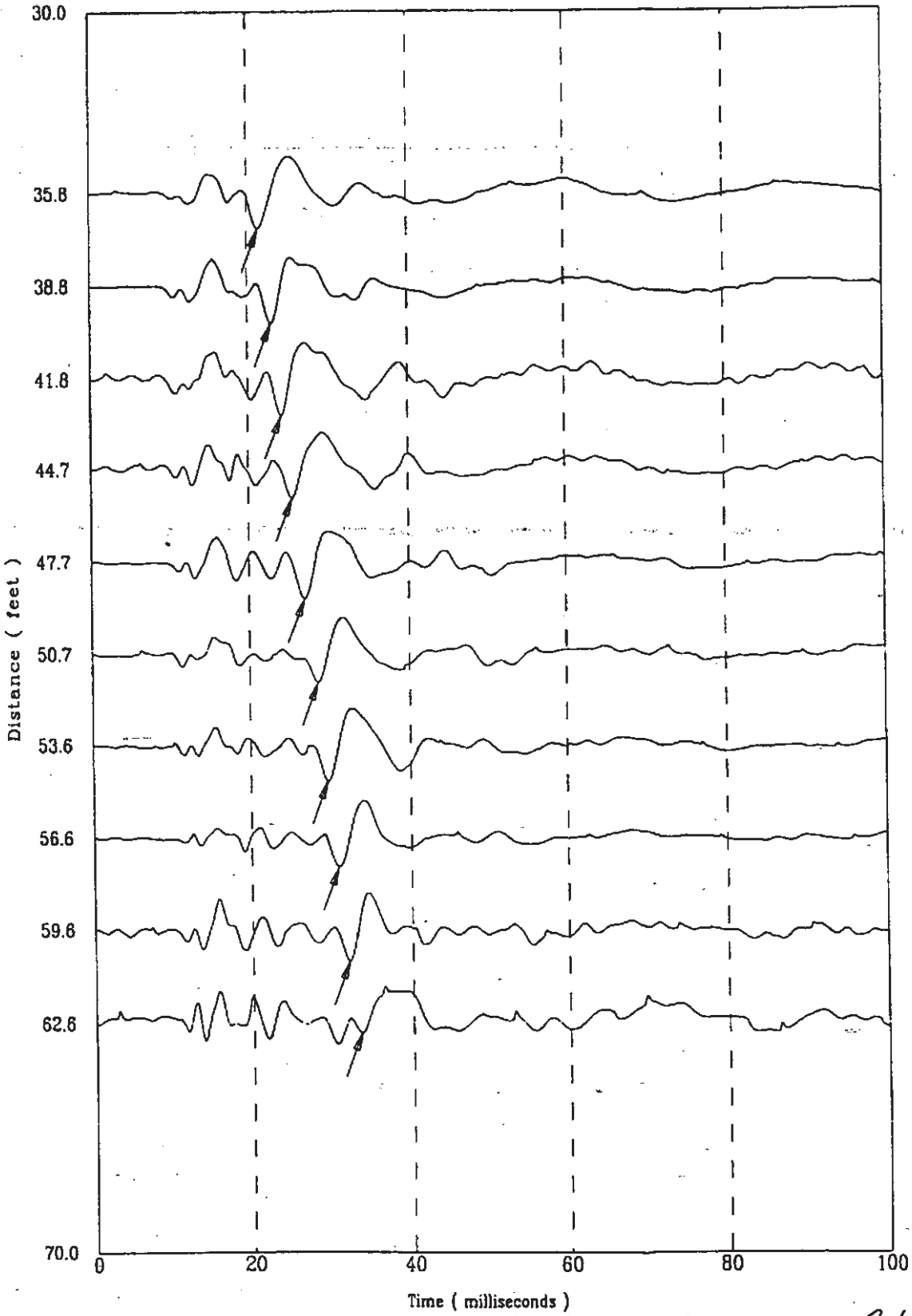
File 5207803S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-116

P Wave  
02/20/98



CPT-126

APPLIED RESEARCH ASSOCIATES, INC.

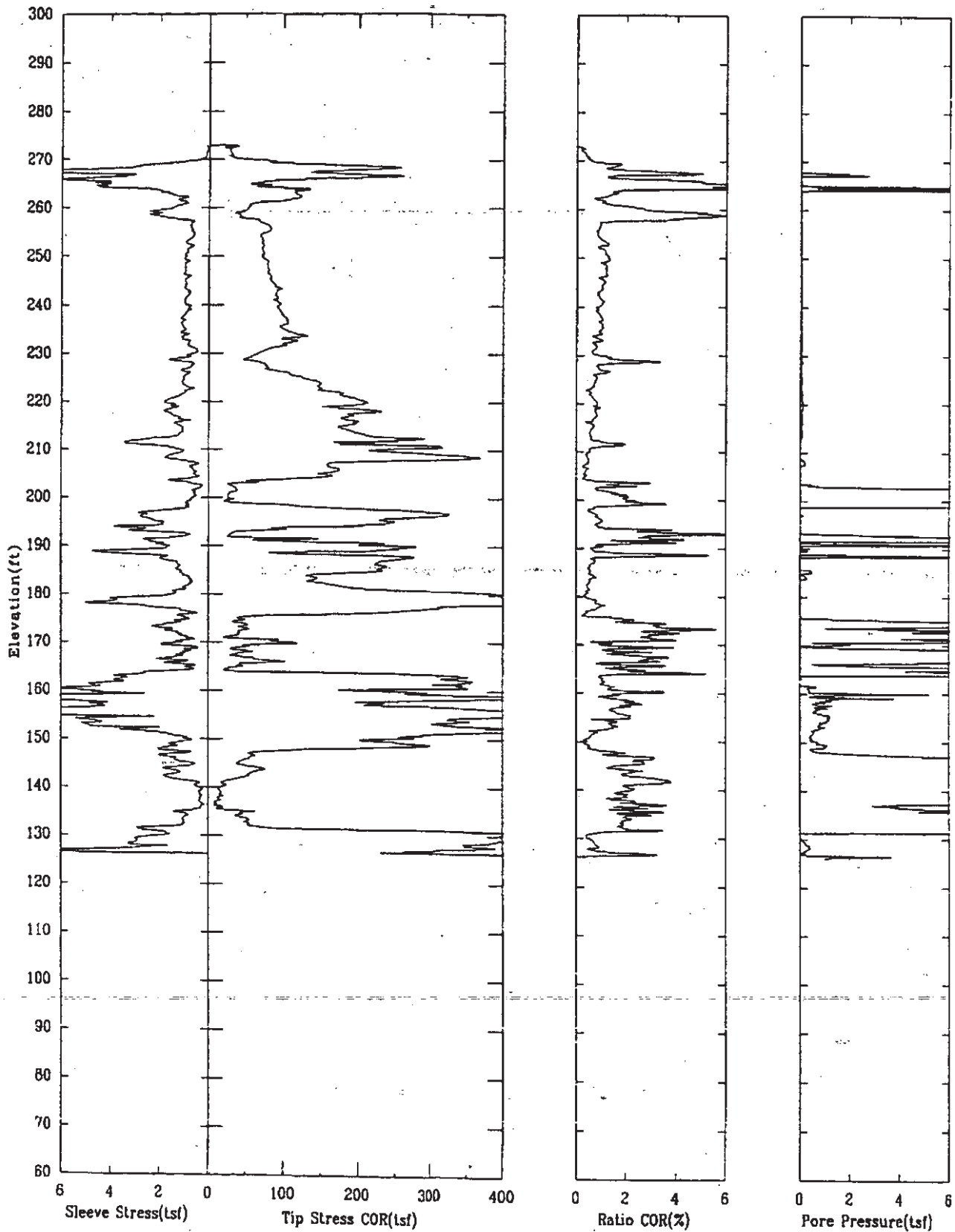
K-TRT-F-00001

02/24/98/0

North 79650.07

East 54825.03

Elevation 278.9



CPT-126

APPLIED RESEARCH ASSOCIATES, INC.

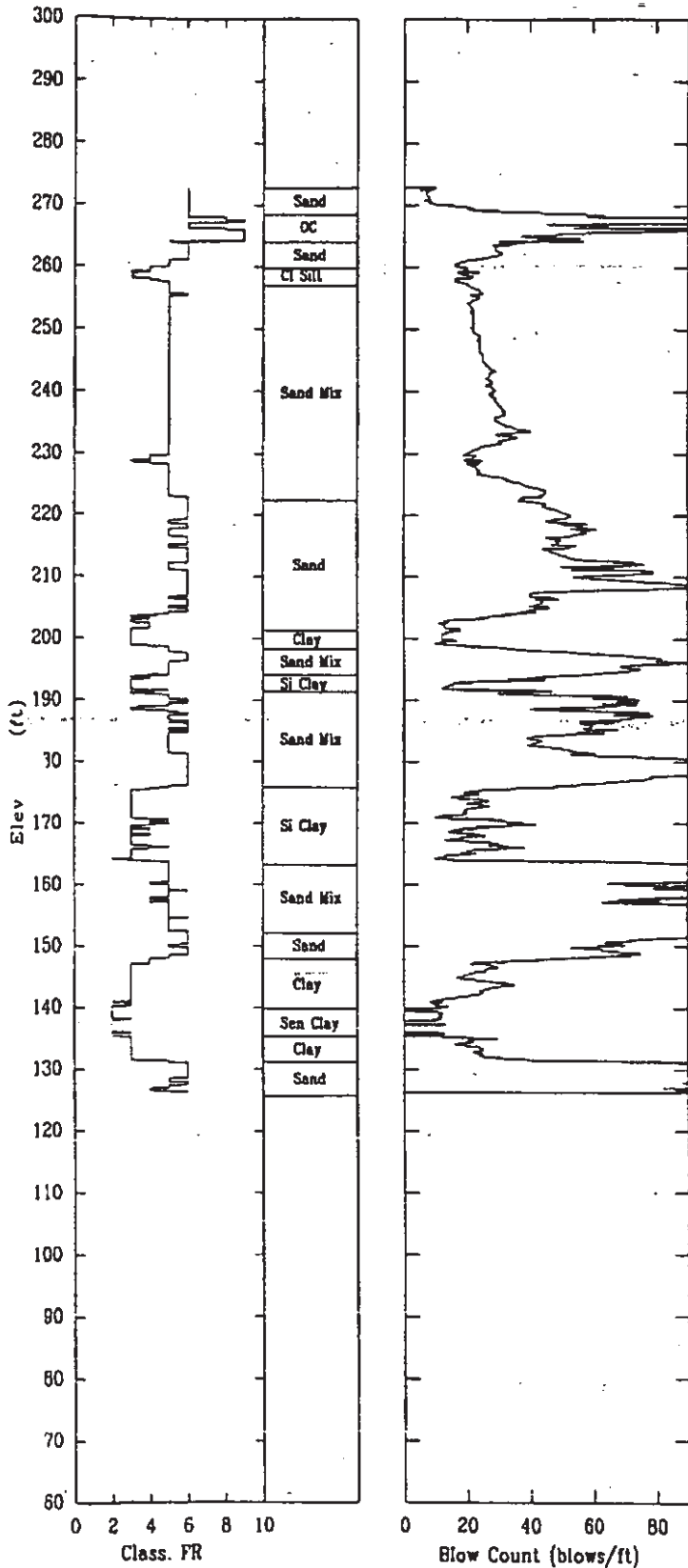
K-TRT-F-00001

02/24/98<sup>R/O</sup>

North 79650.07

East 54825.03

Elevation 278.9

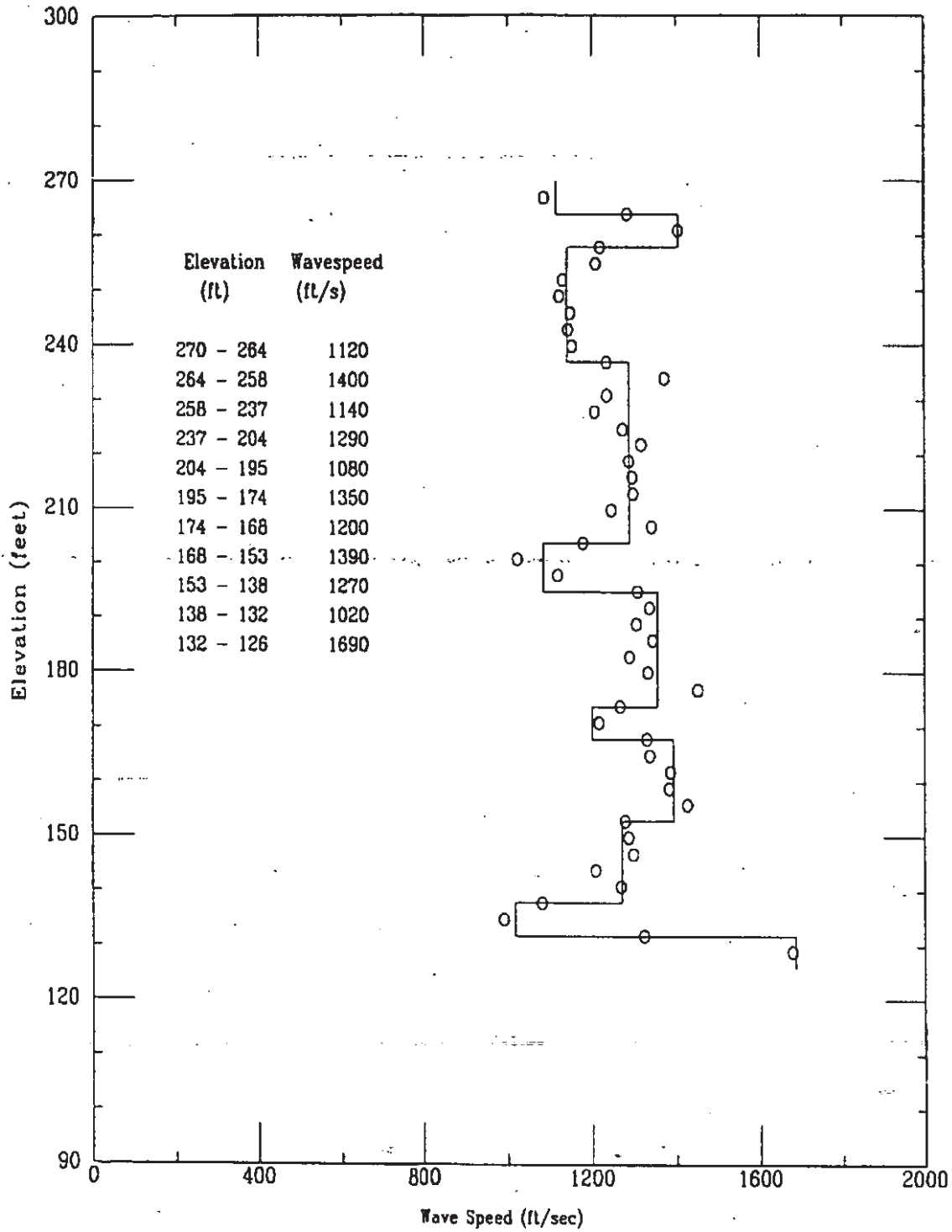


CPT-126

APPLIED RESEARCH ASSOCIATES, INC.

02/24/98

Shear Wave Speeds

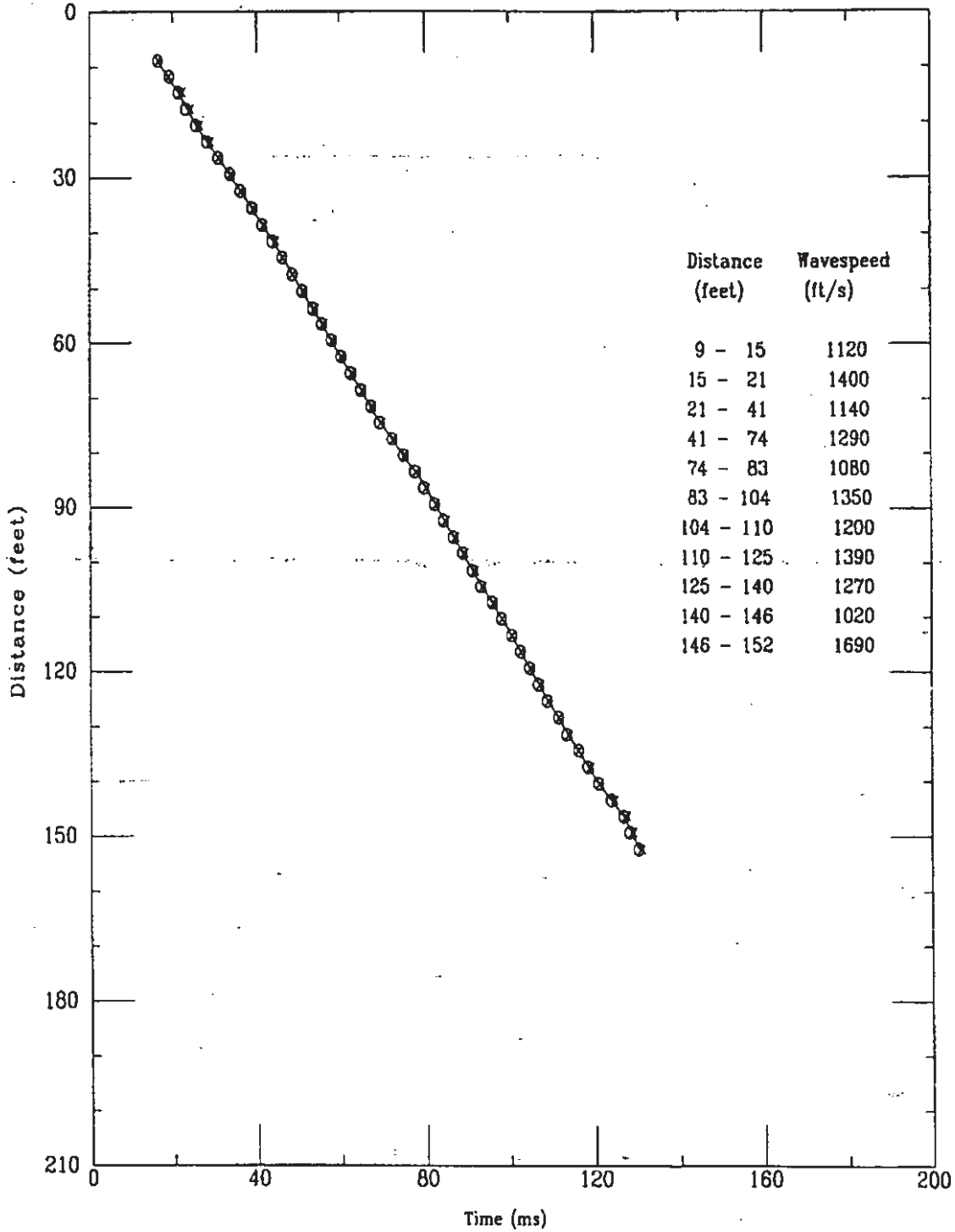


CPT-126

APPLIED-RESEARCH ASSOCIATES, INC.

02/24/98

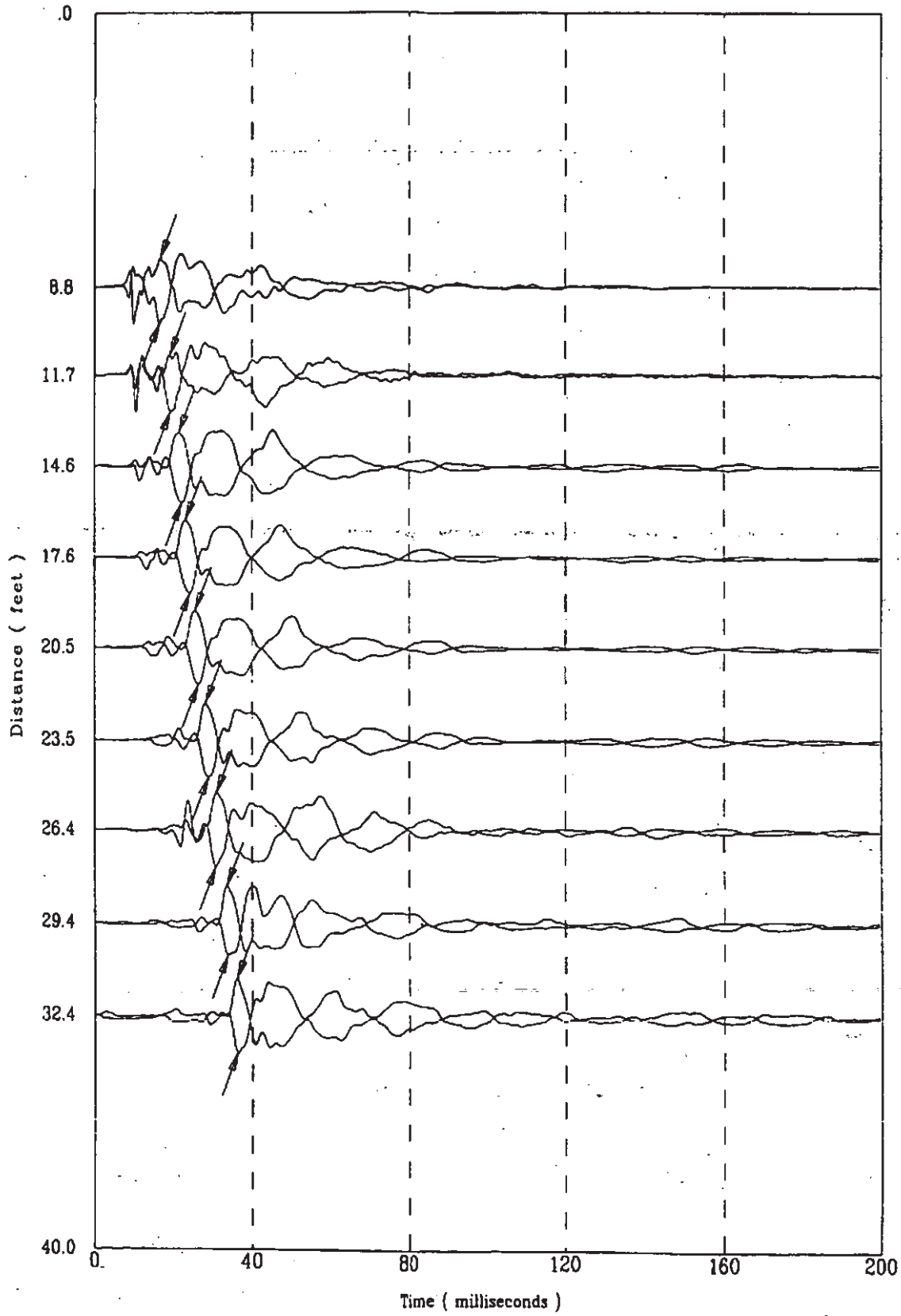
Shear Wave Time of Peak



K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-126

S Wave  
02/24/98

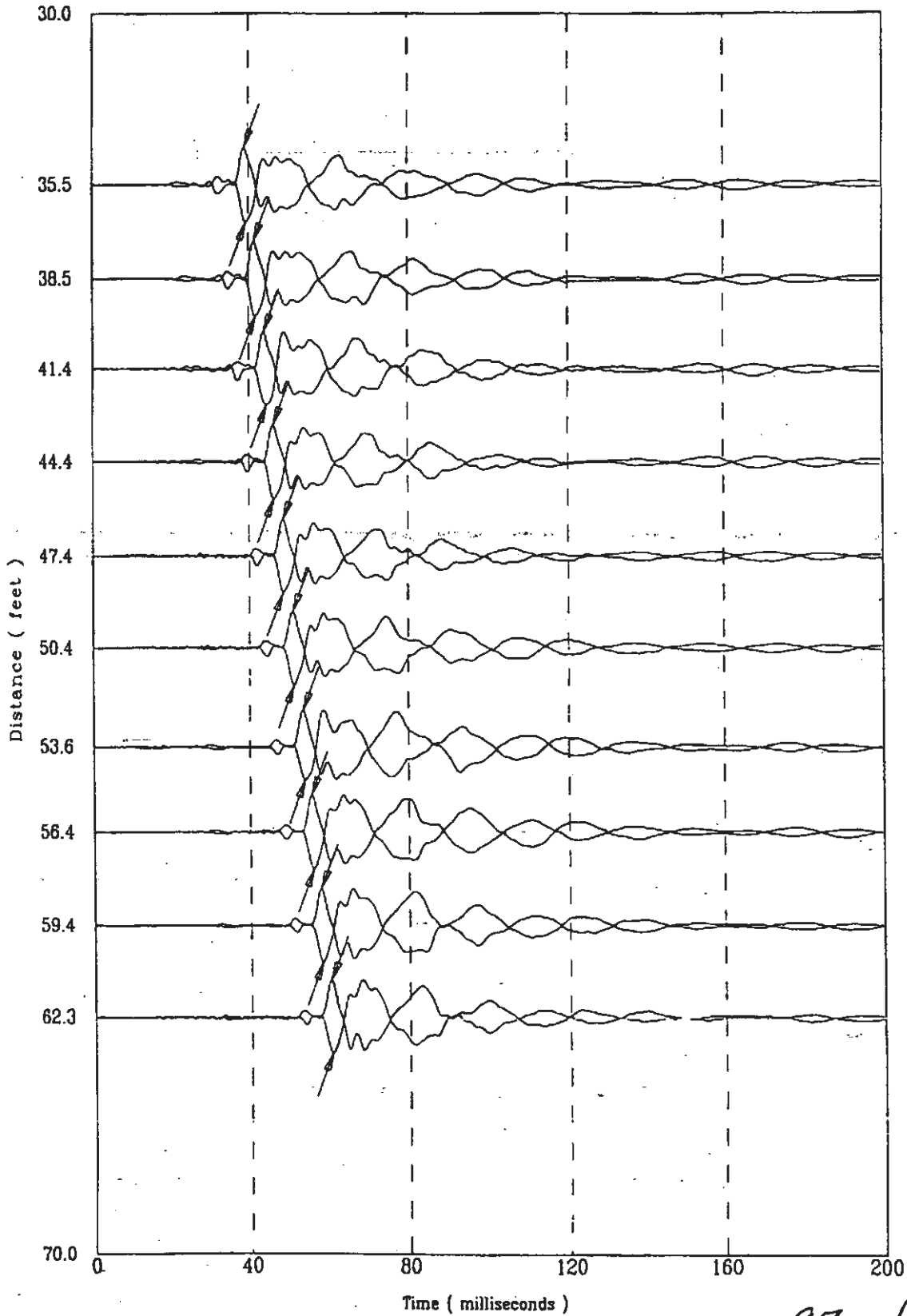


File 5247805S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-126

S Wave  
02/24/98



File 5247805S

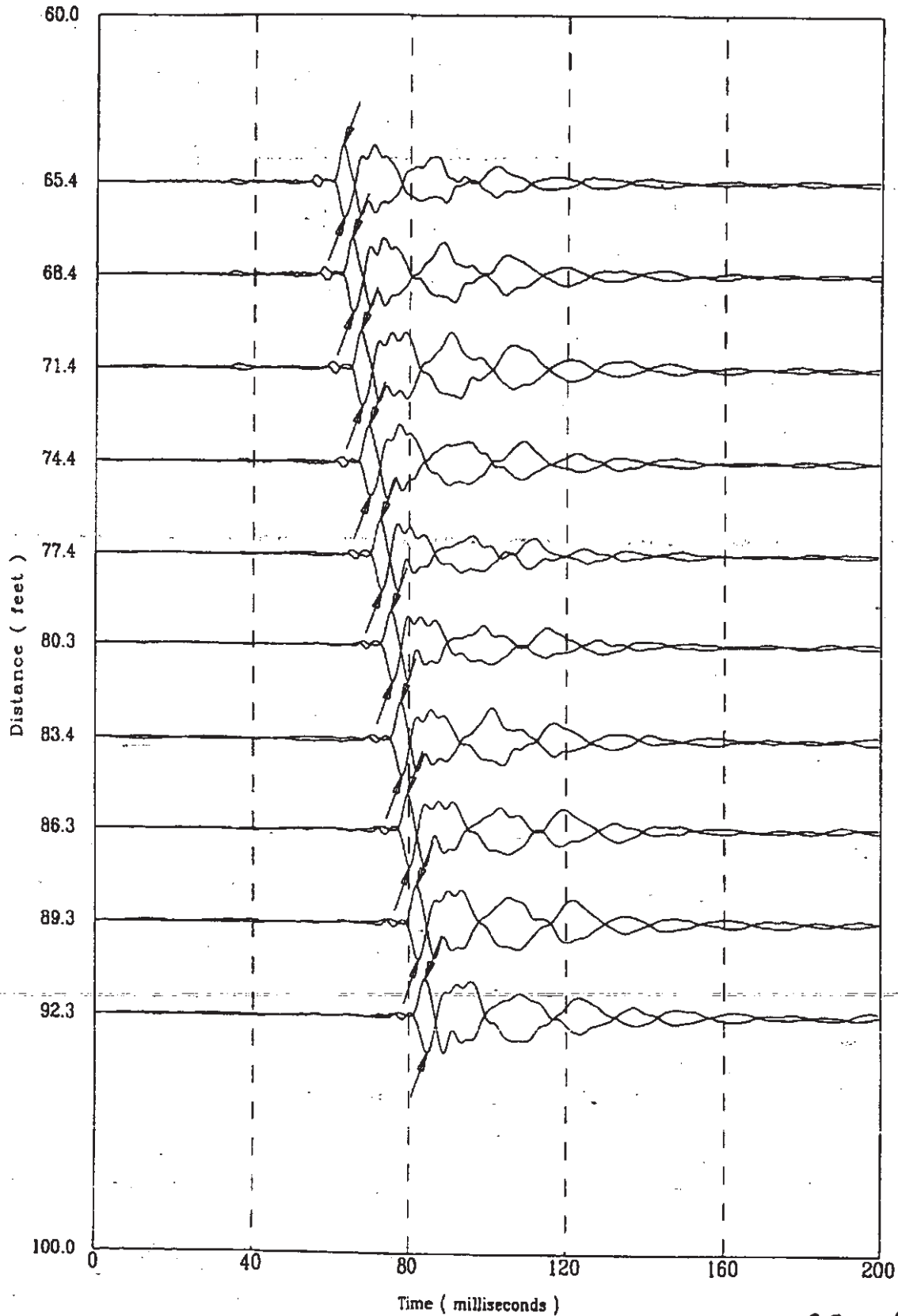
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K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-126

S Wave  
02/24/98



File 52418053

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-126

S Wave  
02/24/98

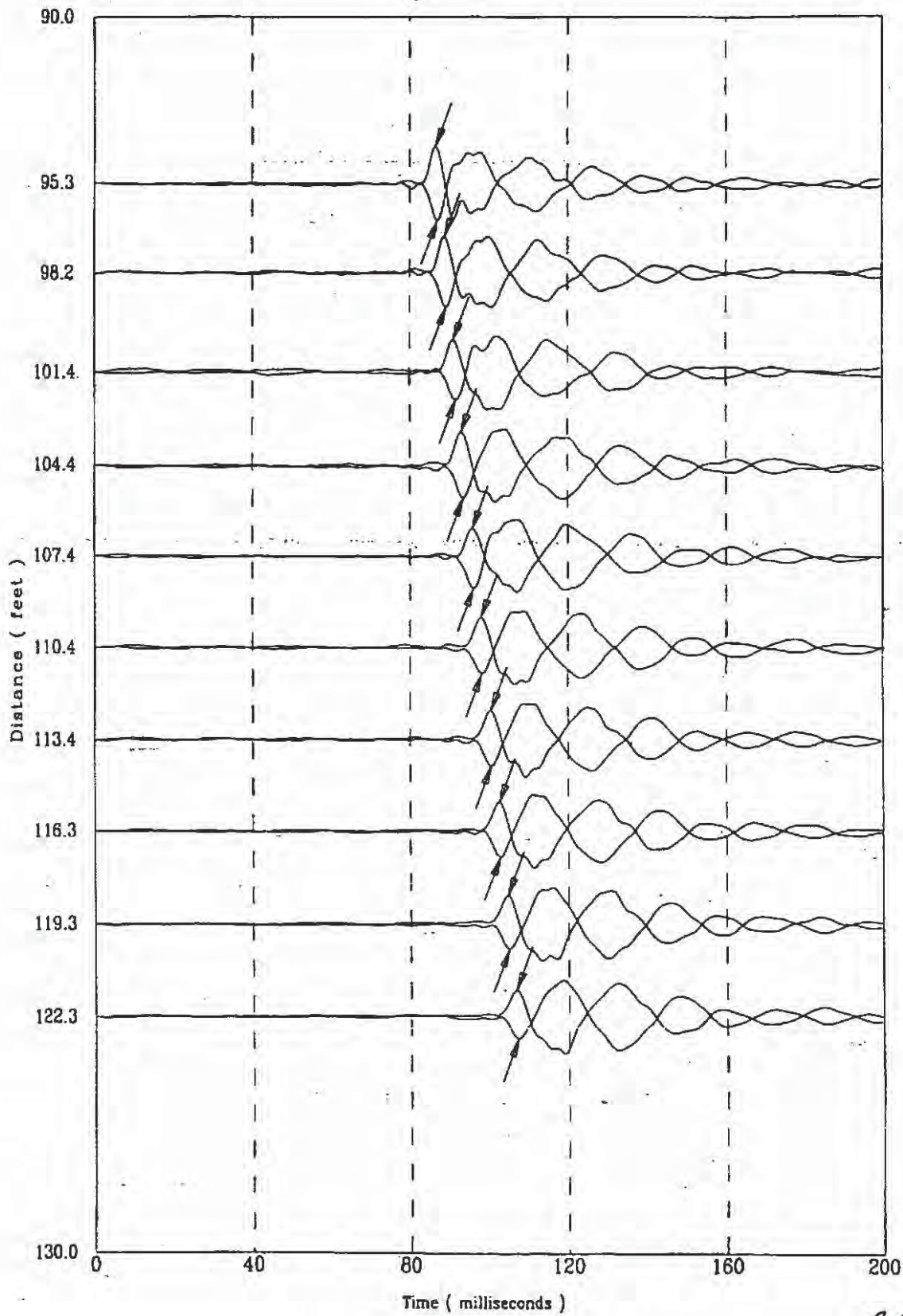
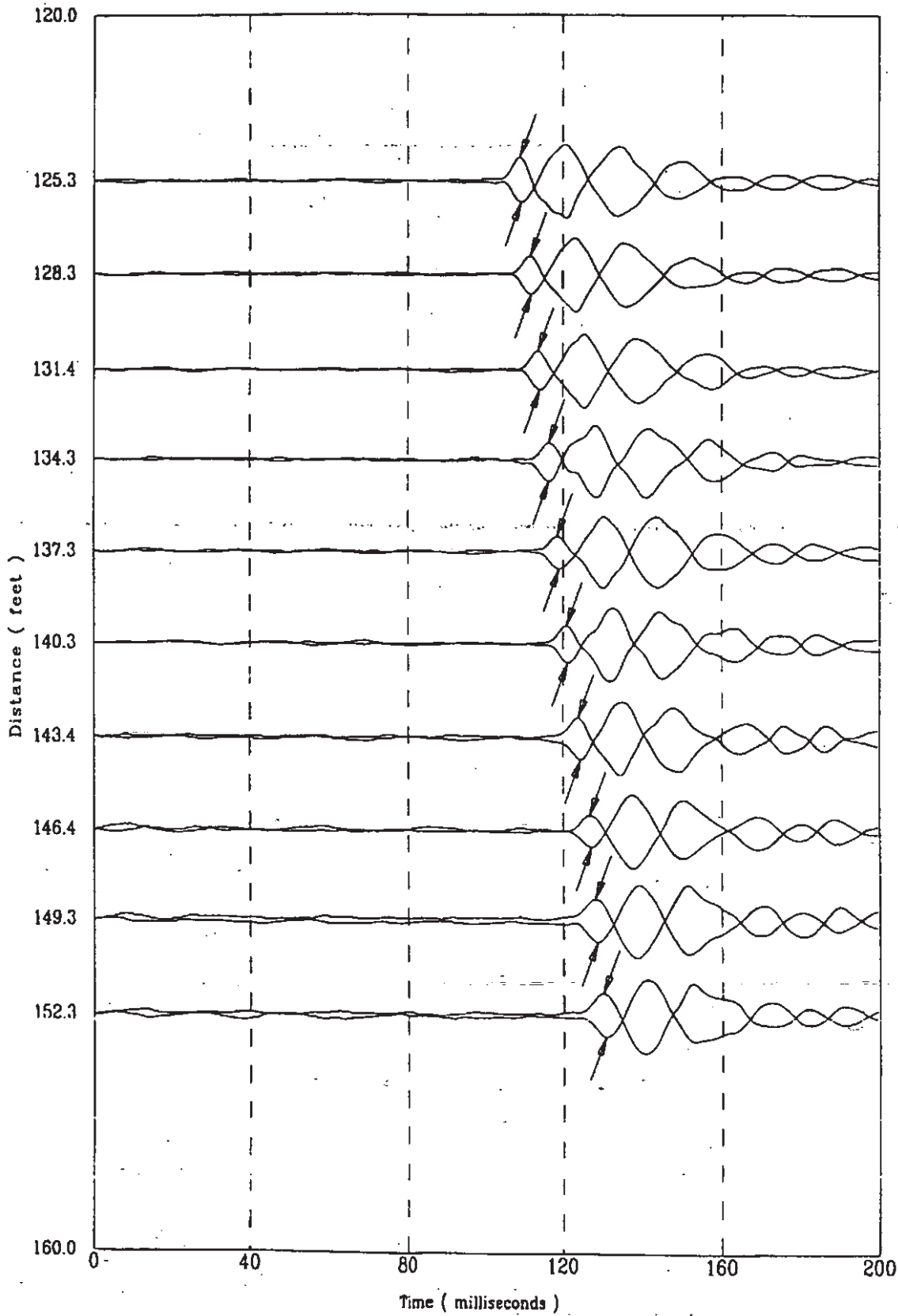


FIG. J247805S

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Applied Research Associates, Inc.  
CPT-126

S Wave  
02/24/98

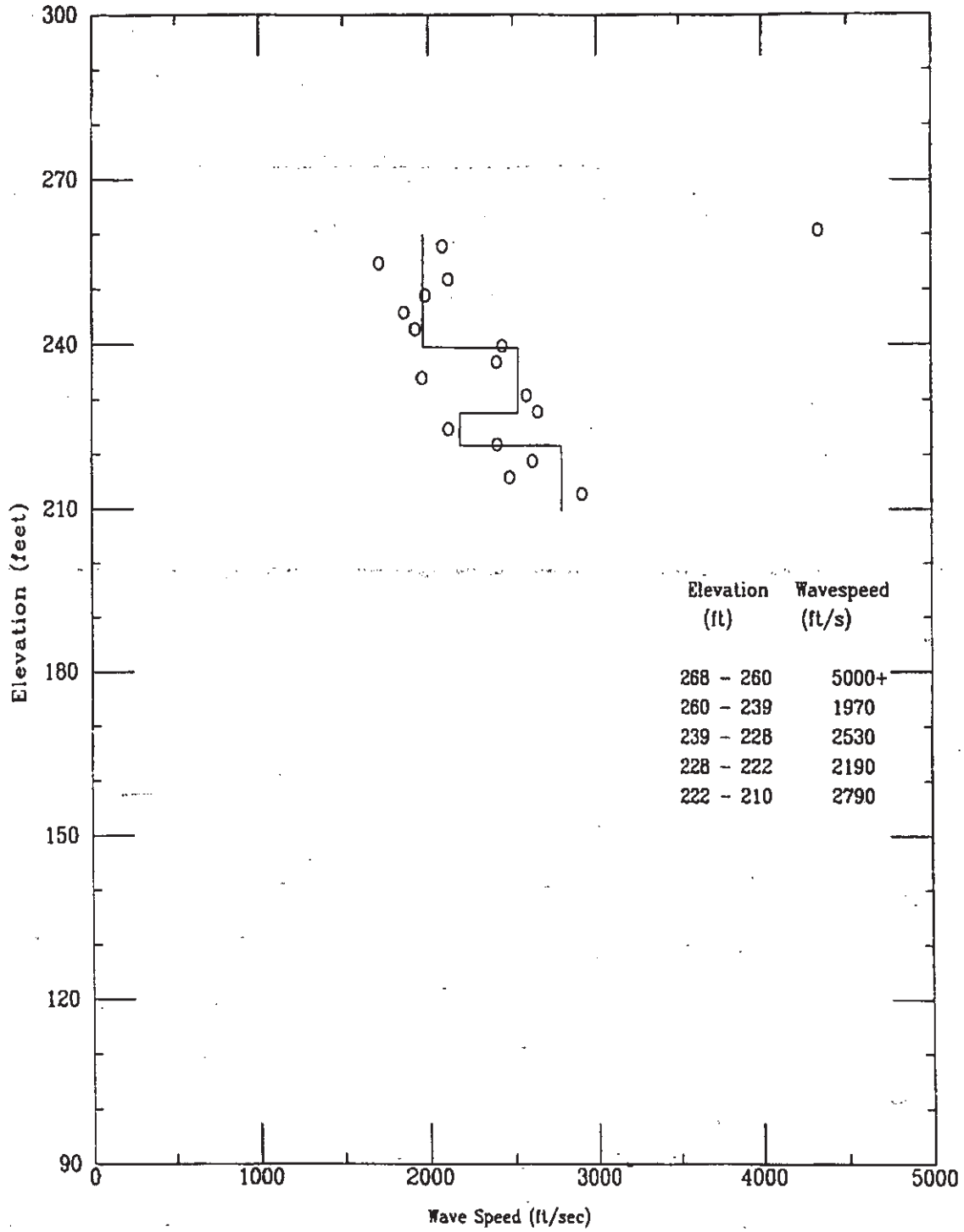


CPT-126

APPLIED RESEARCH ASSOCIATES, INC.

02/24/98

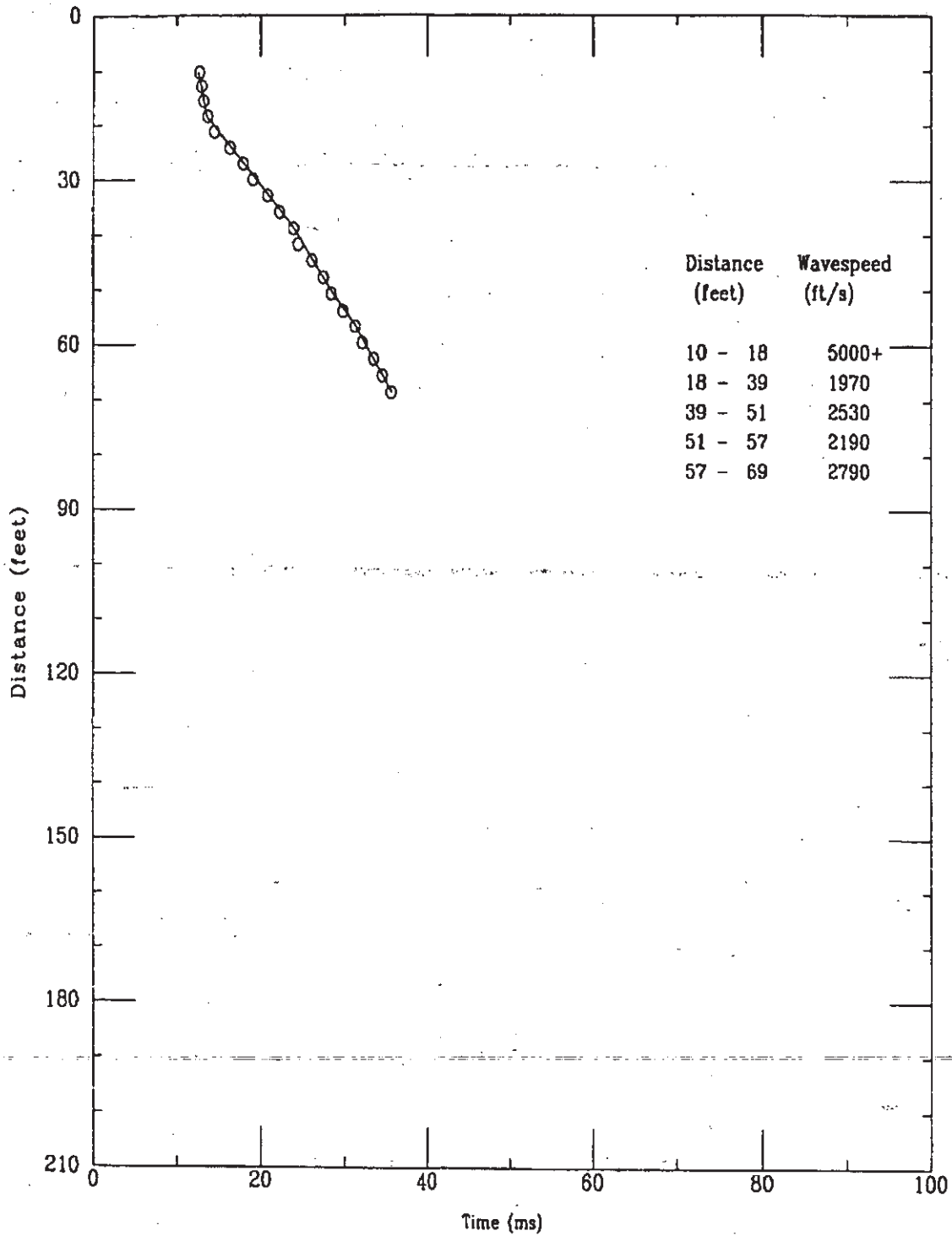
Compression Wave Speeds



CPT-126

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/24/98



K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-126

P Wave  
02/24/98

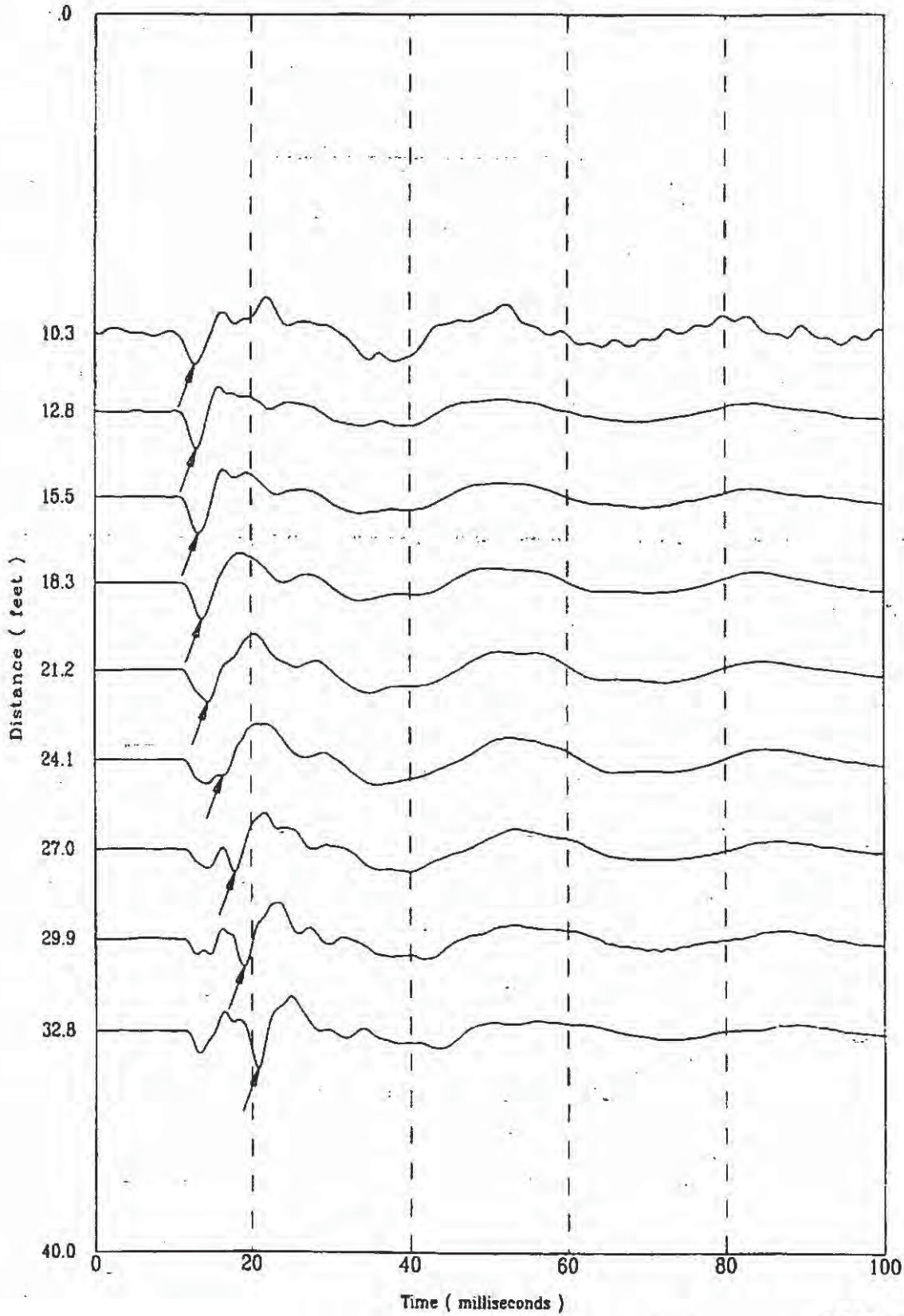


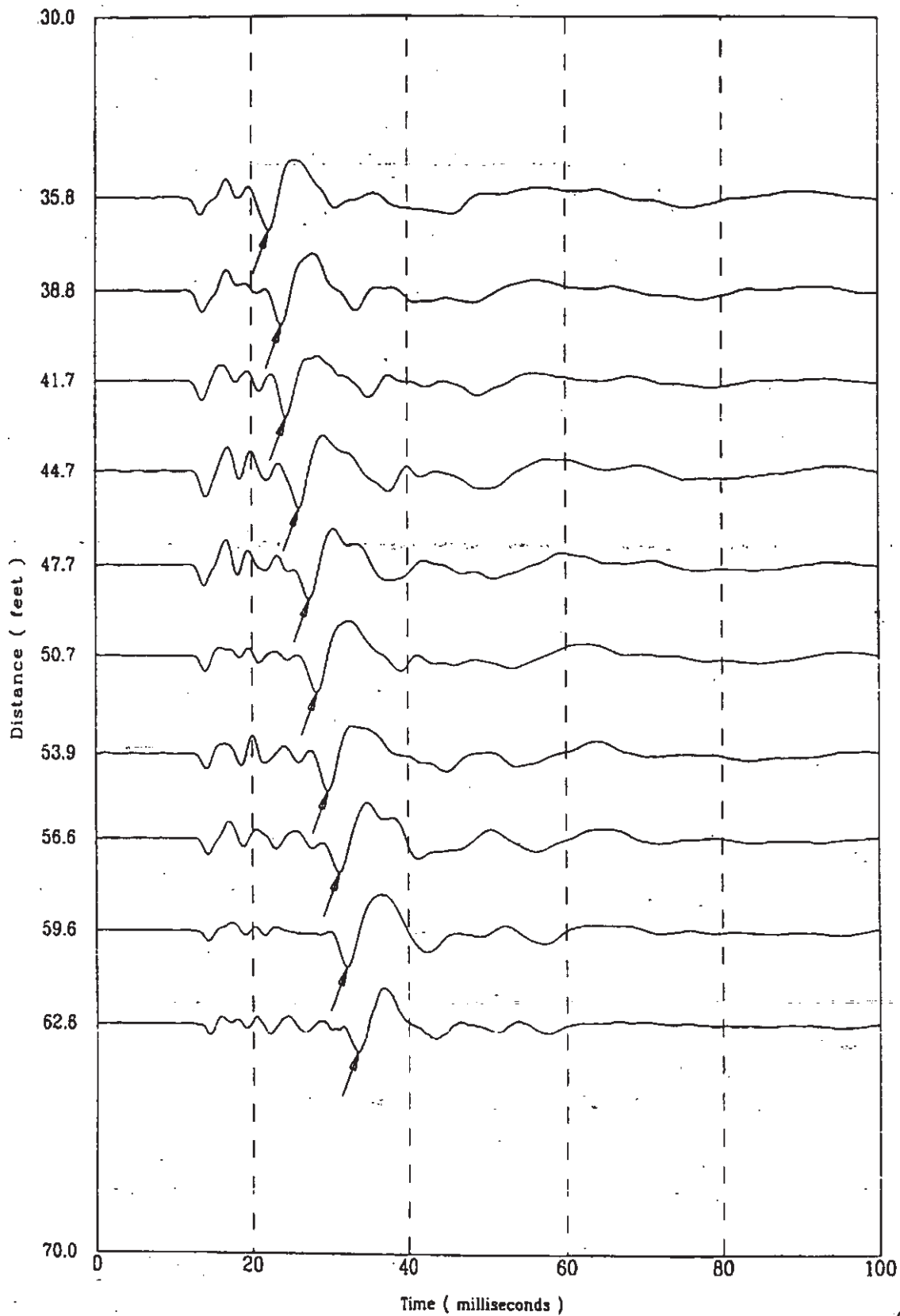
FIG 5241805S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-126

P Wave  
02/24/98



File 5241805S

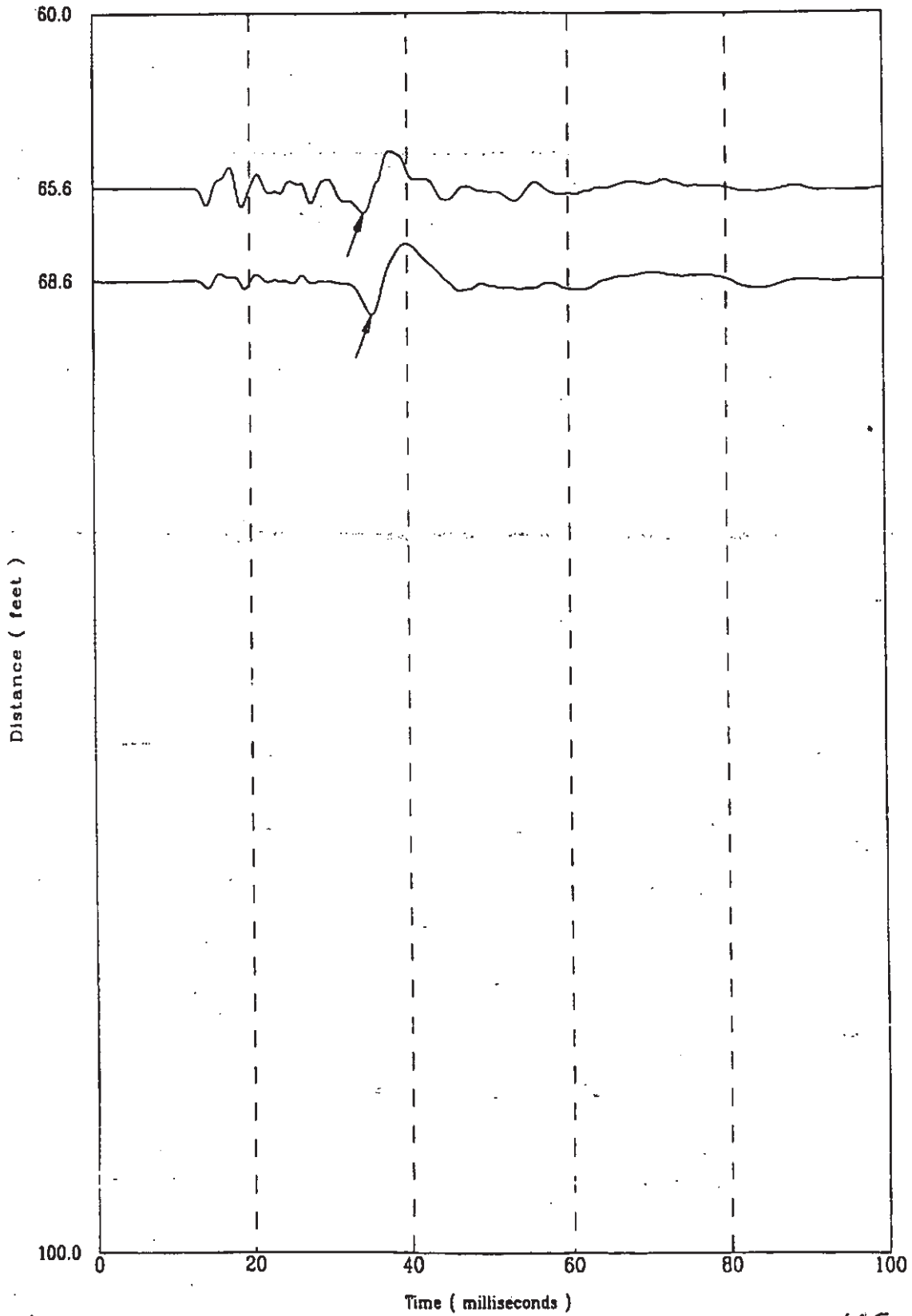
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-126

P Wave  
02/24/98



File 52418055

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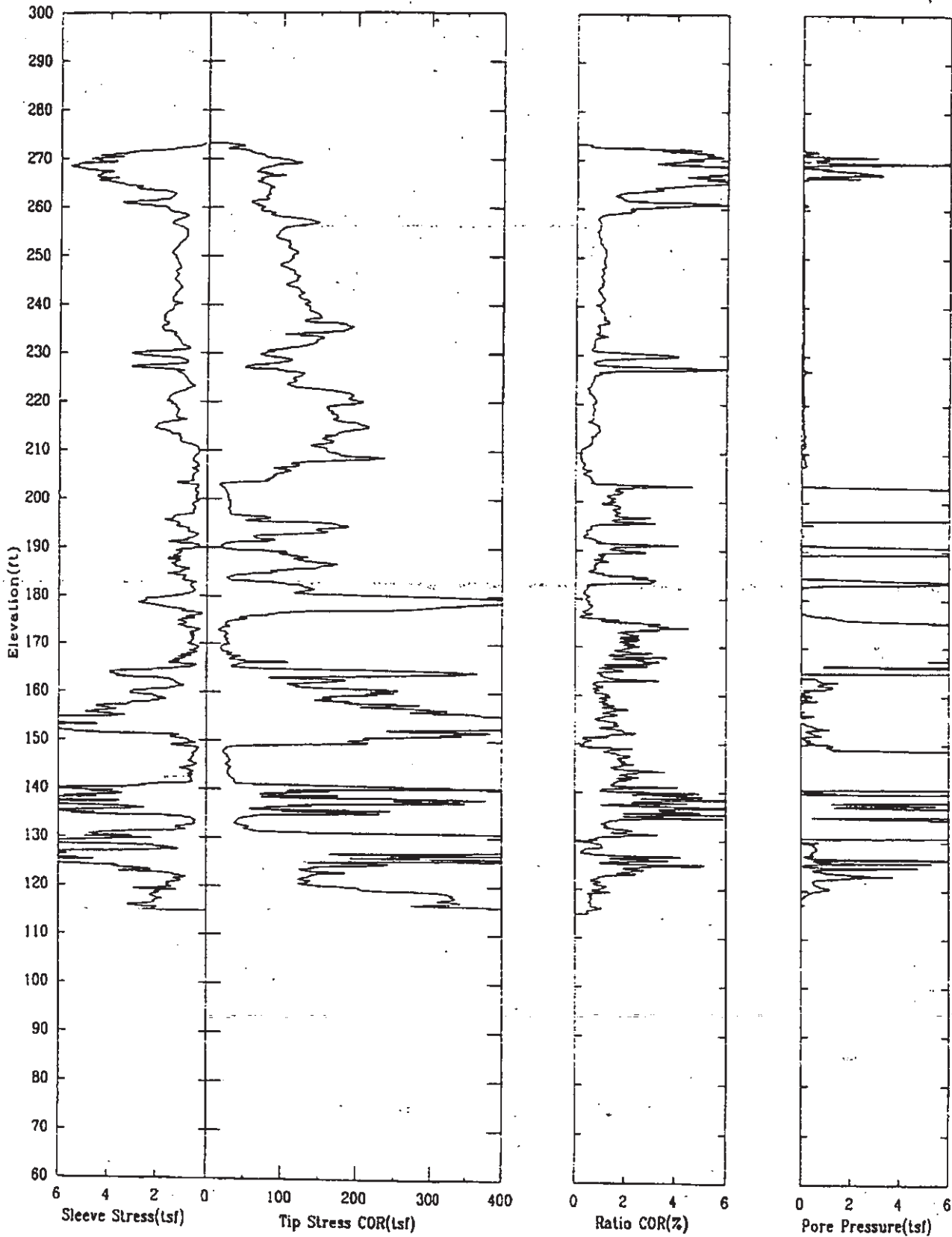
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
02/24/98 / 0

North 79650.01

East 54975.00

Elevation 279.3



CPT-127

APPLIED RESEARCH ASSOCIATES, INC.

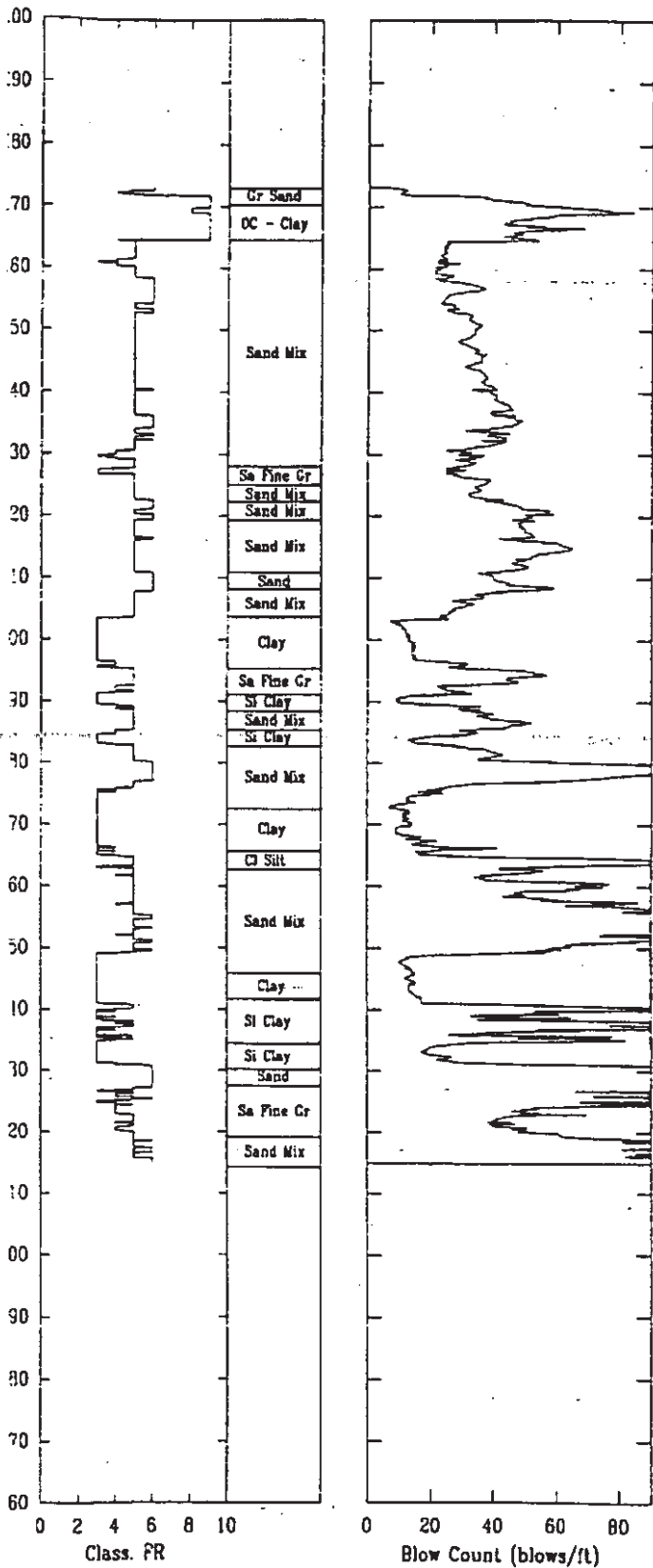
K-TRT-F-0000/

02/24/98/0

North 79650.01

East 54975.00

Elevation 279.3

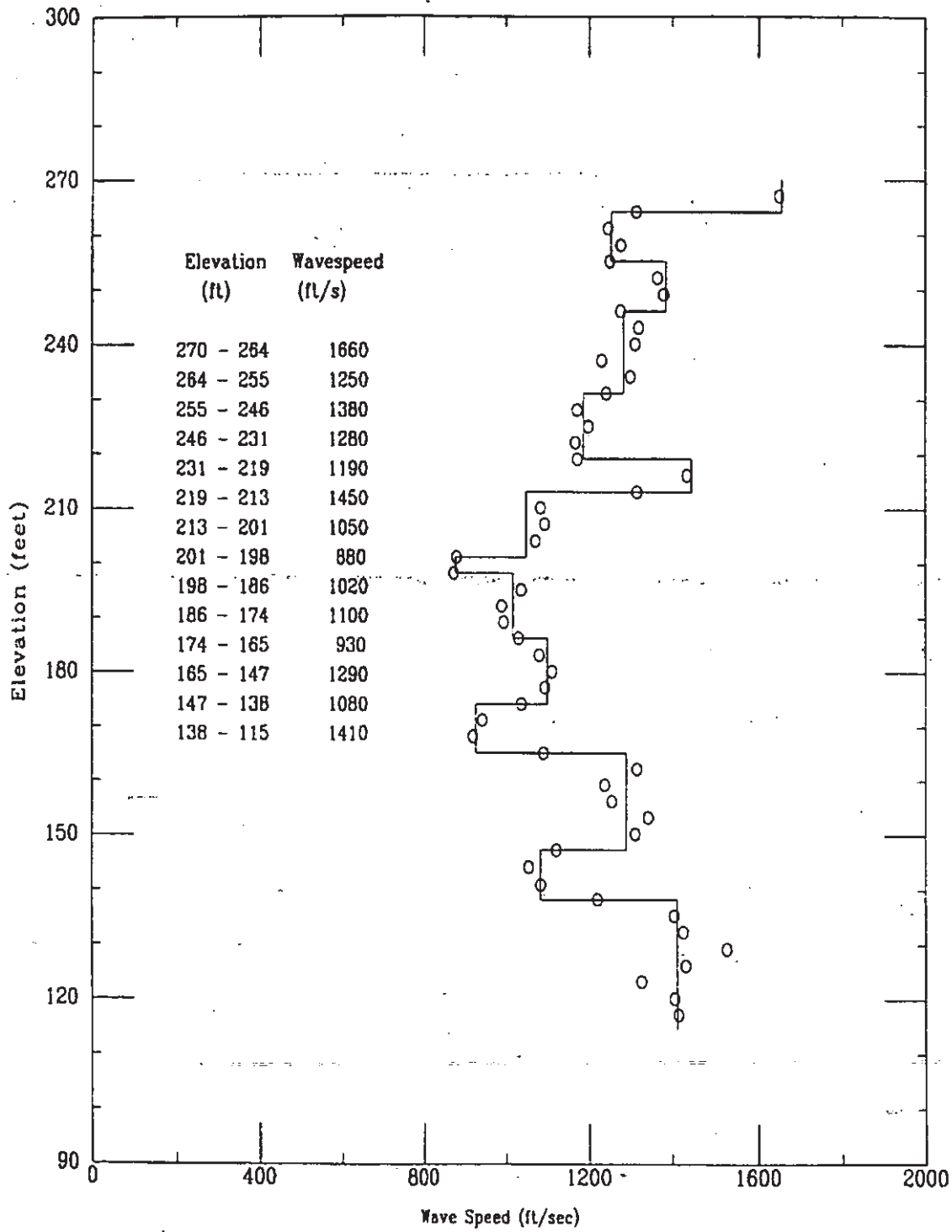


CPT-127

APPLIED RESEARCH ASSOCIATES, INC.

02/24/98

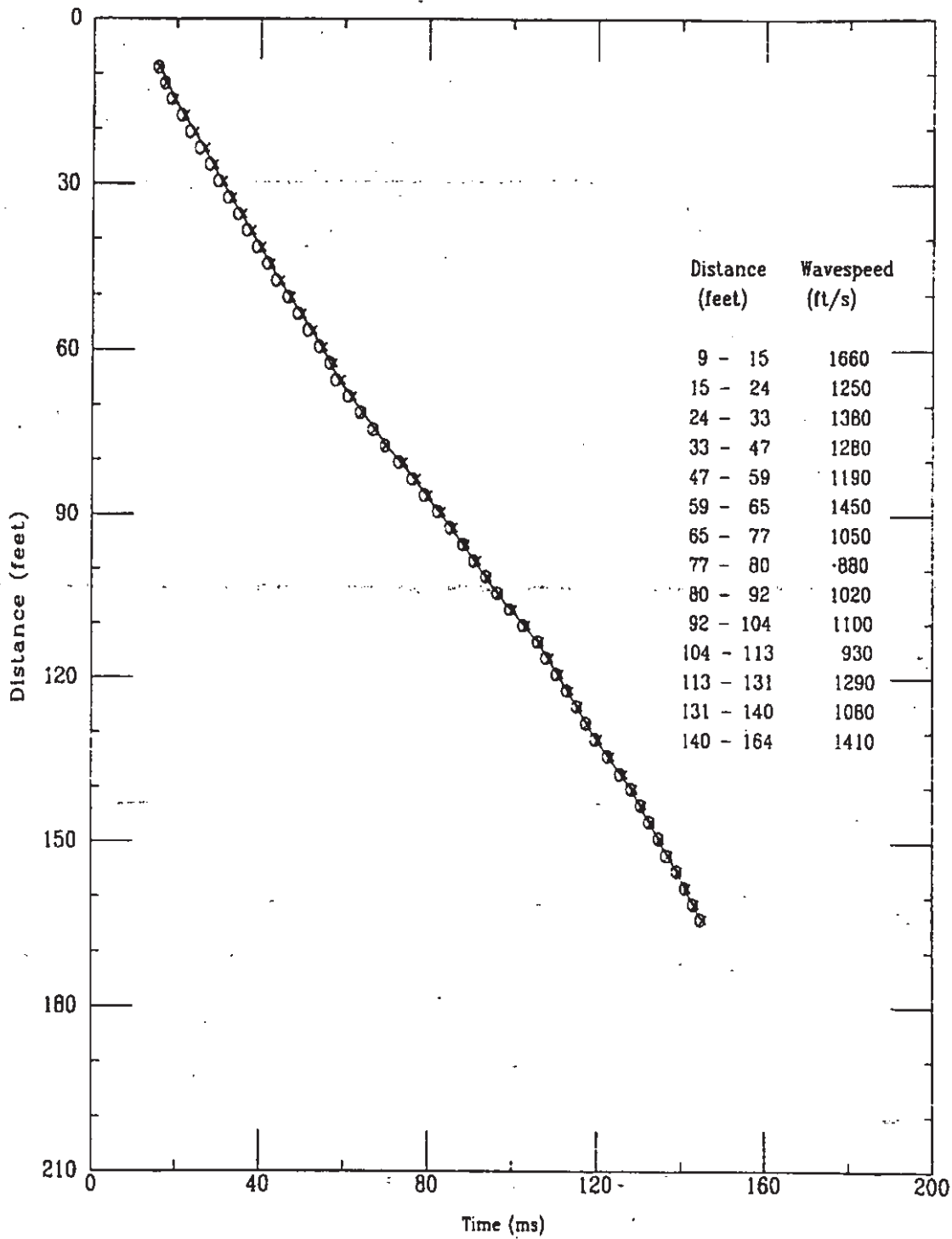
Shear Wave Speeds



CPT-127

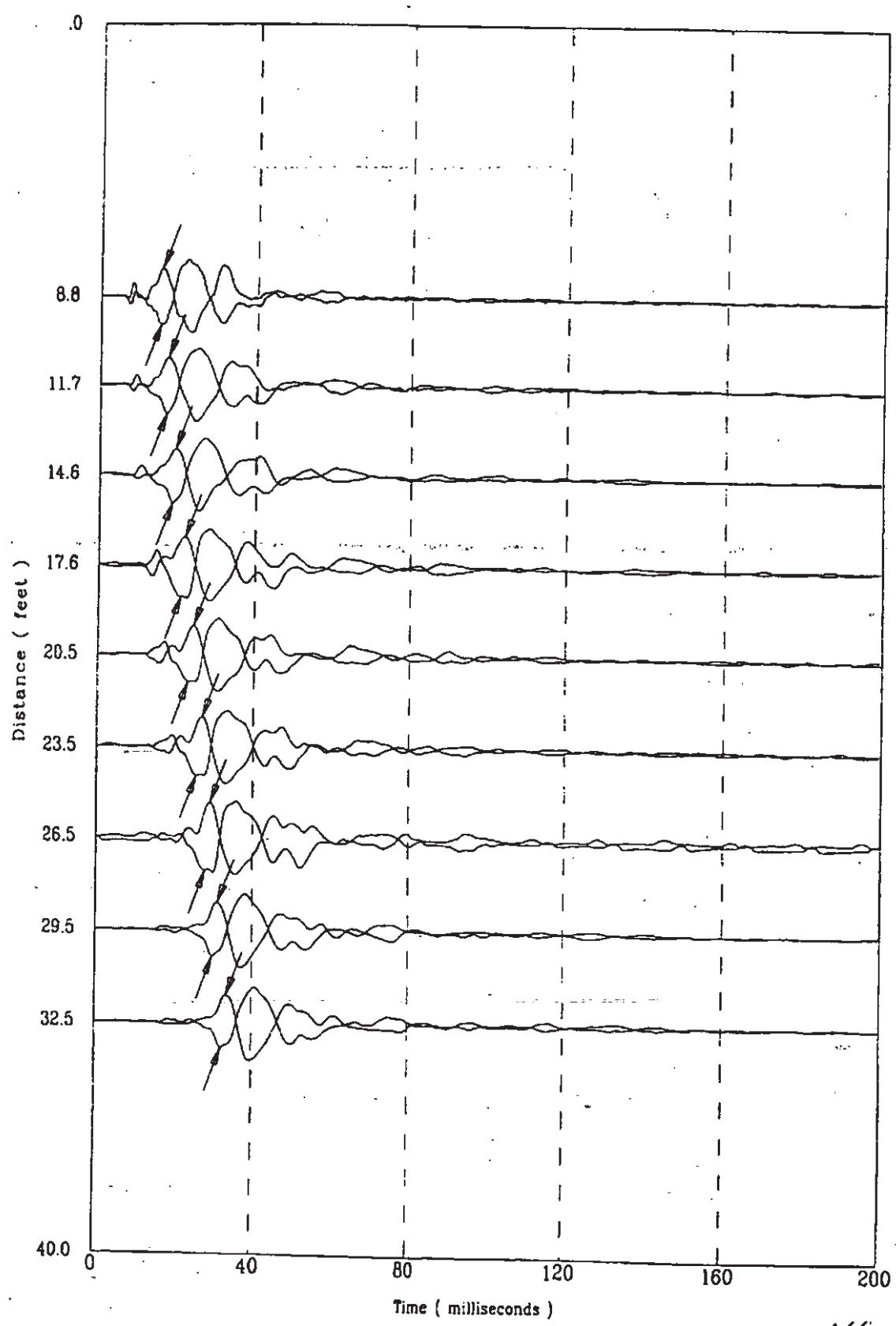
APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

02/24/98



Applied Research Associates, Inc.  
CPT-127

S Wave  
02/24/98

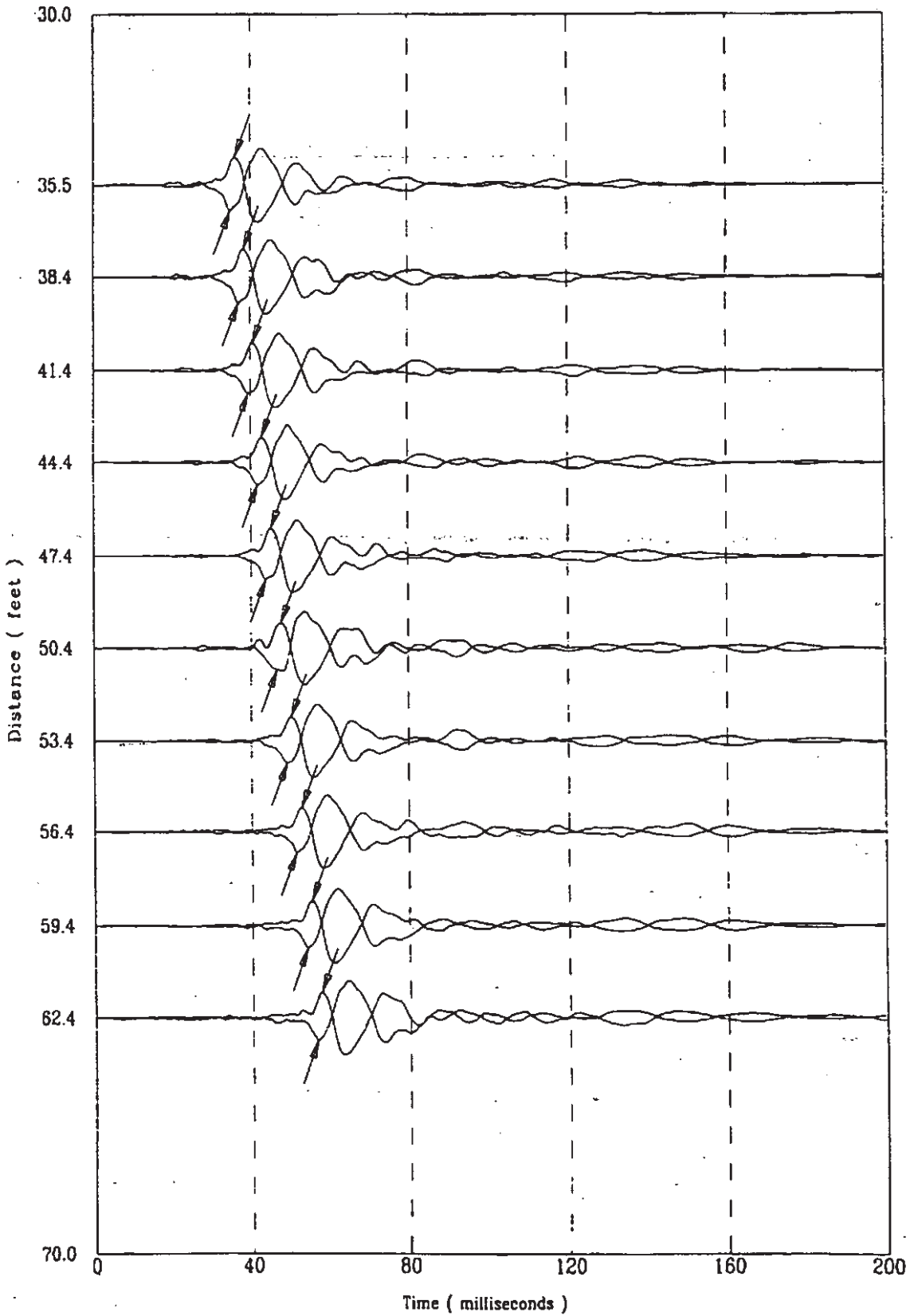


5241802S

K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-127

S Wave  
02/24/98



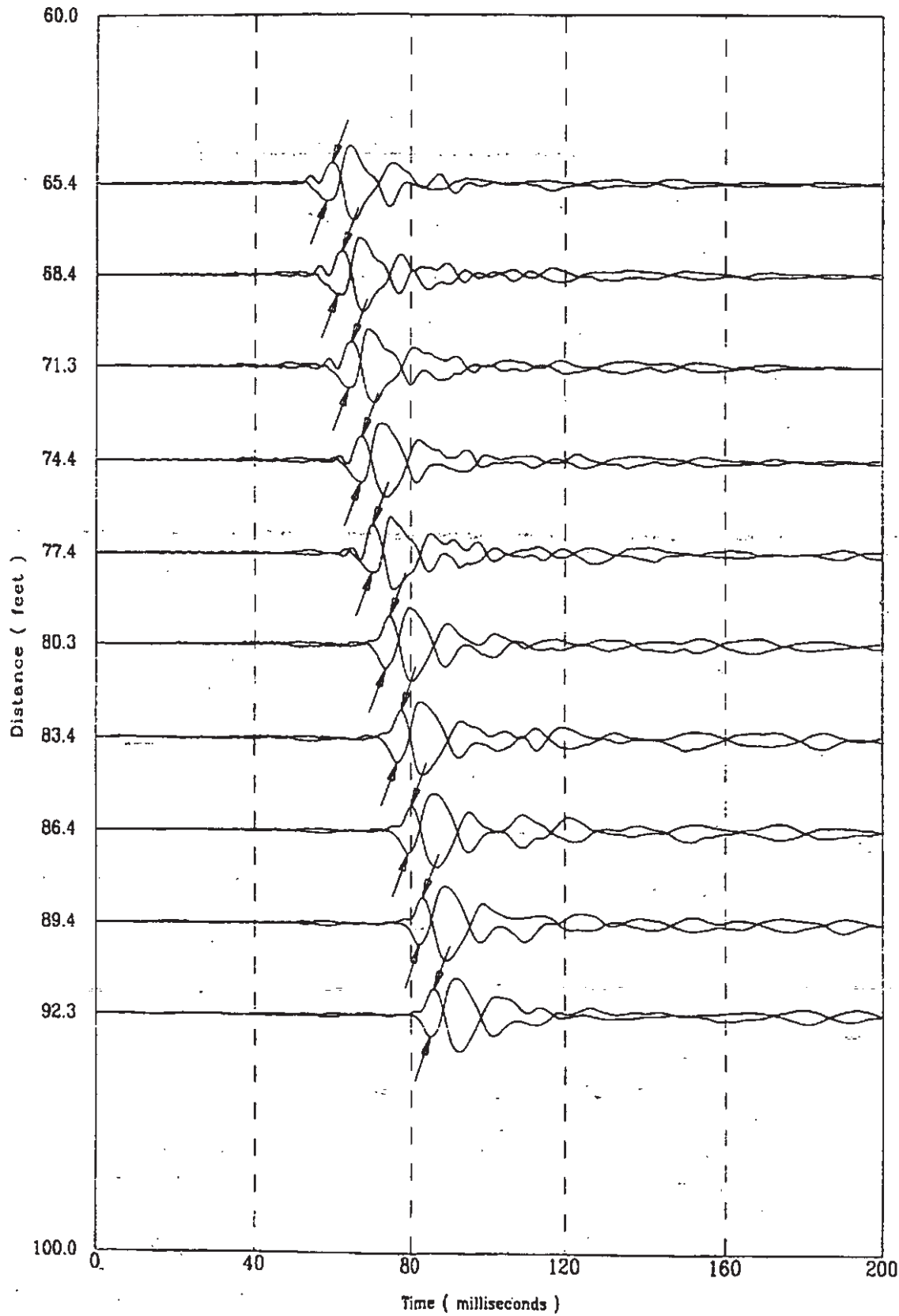
52478023

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K-TRT-F-0000/  
R/0

Applied Research Associates, Inc.  
CPT-127

S Wave  
02/24/98



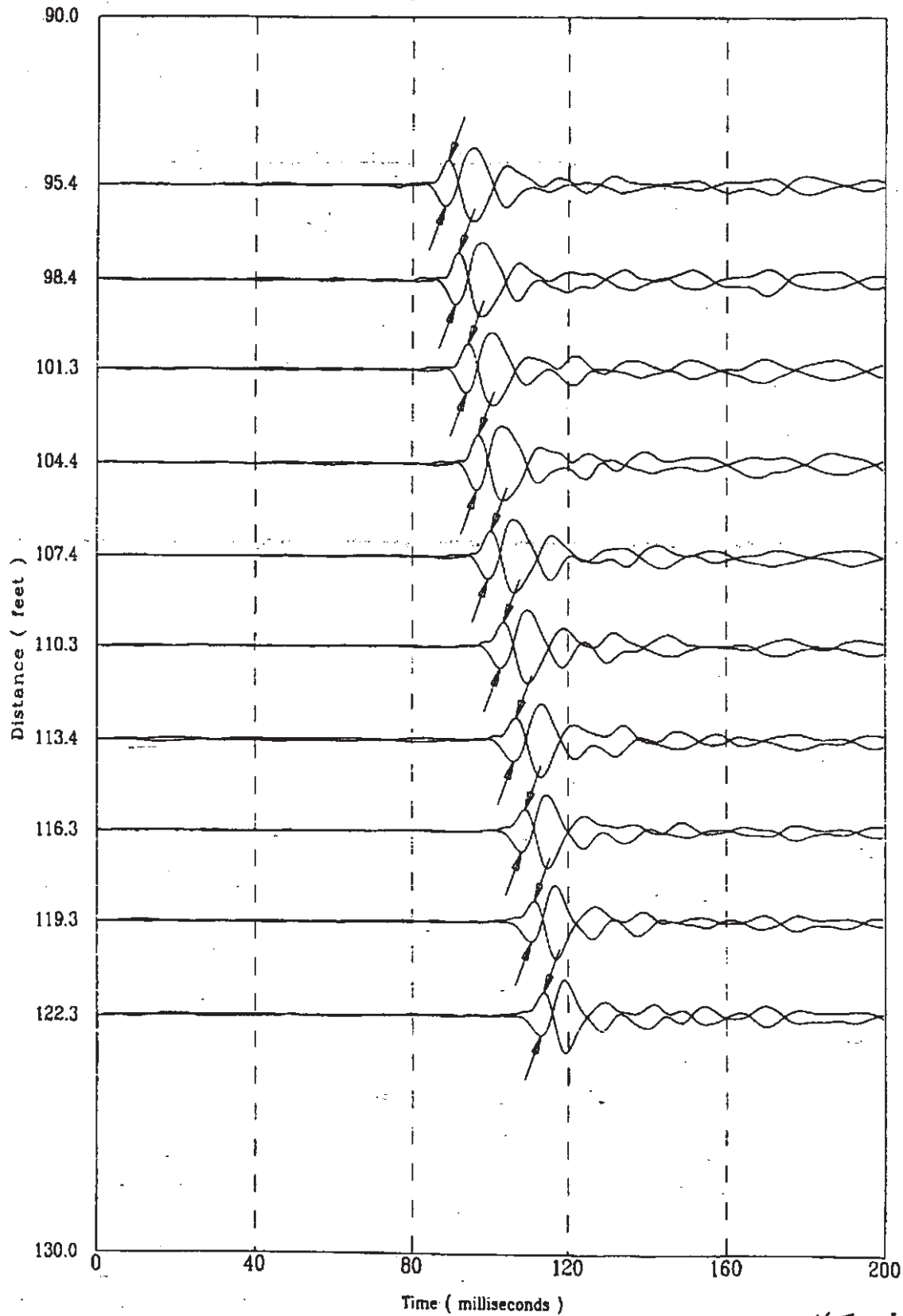
5247802S

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K-TRT-F-00001  
R/0

Applied Research Associates, Inc.  
CPT-127

S Wave  
02/24/98



J241802S

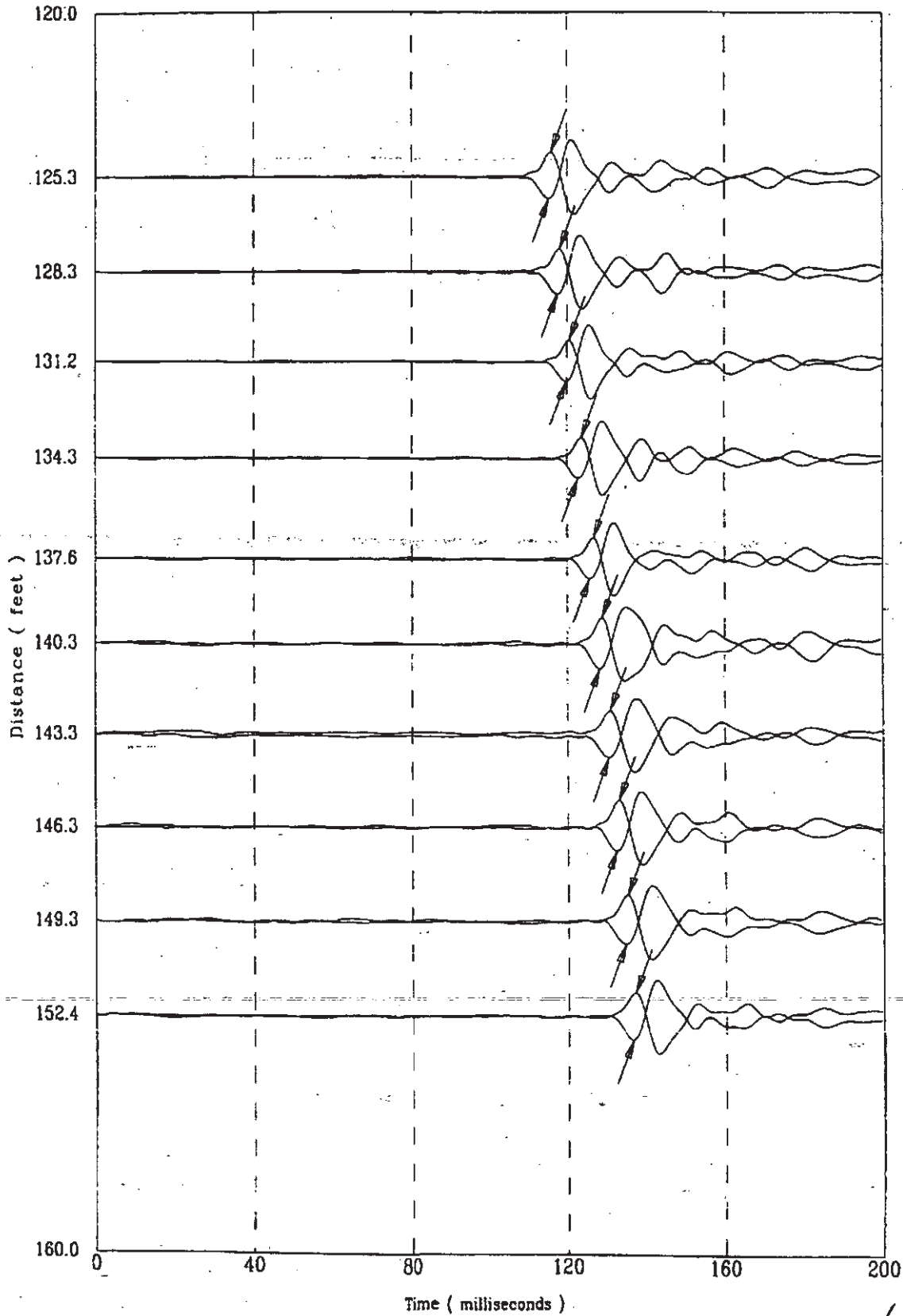
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K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-127

S Wave  
02/24/98



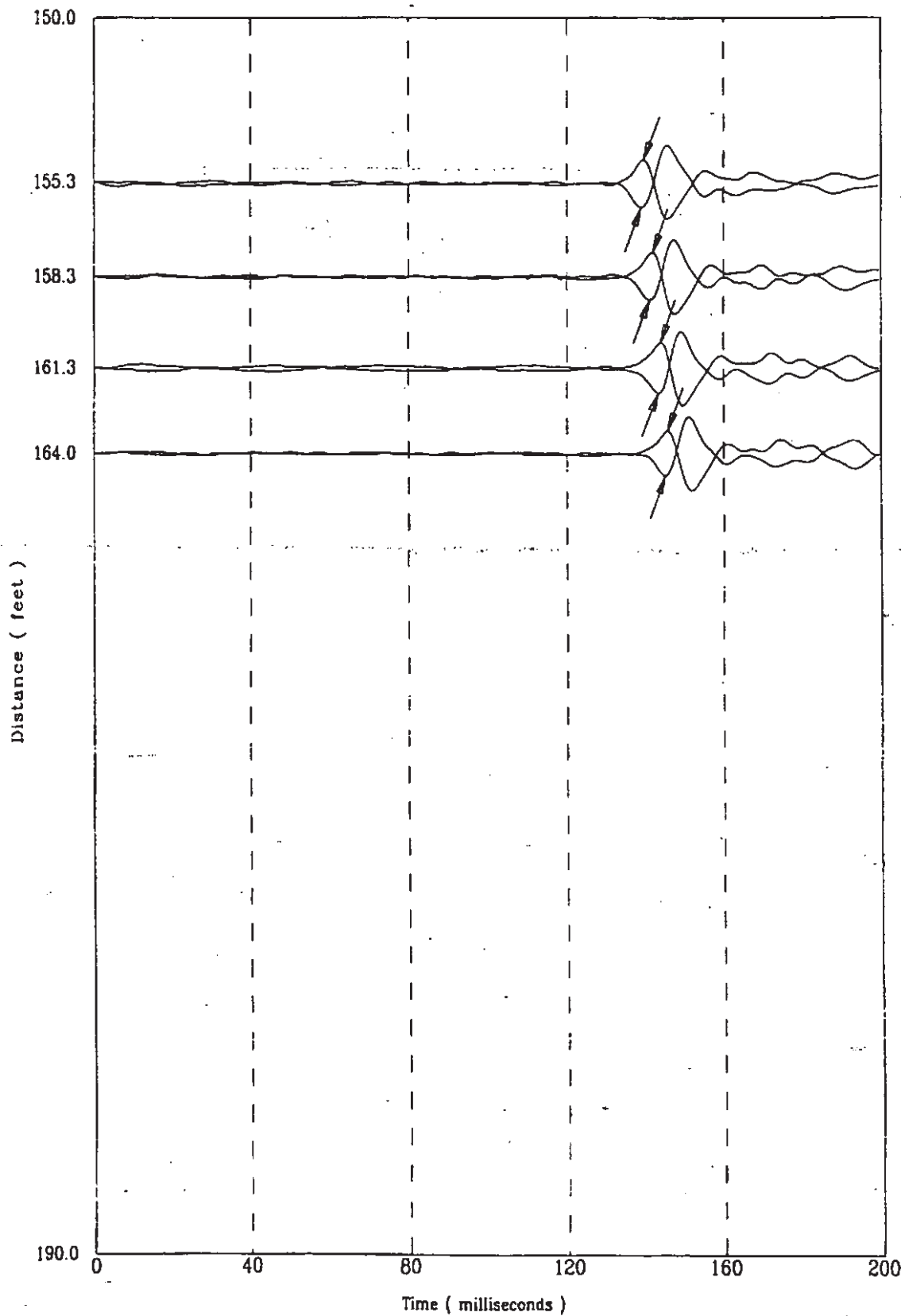
5241802S

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K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-127

S Wave  
02/24/98



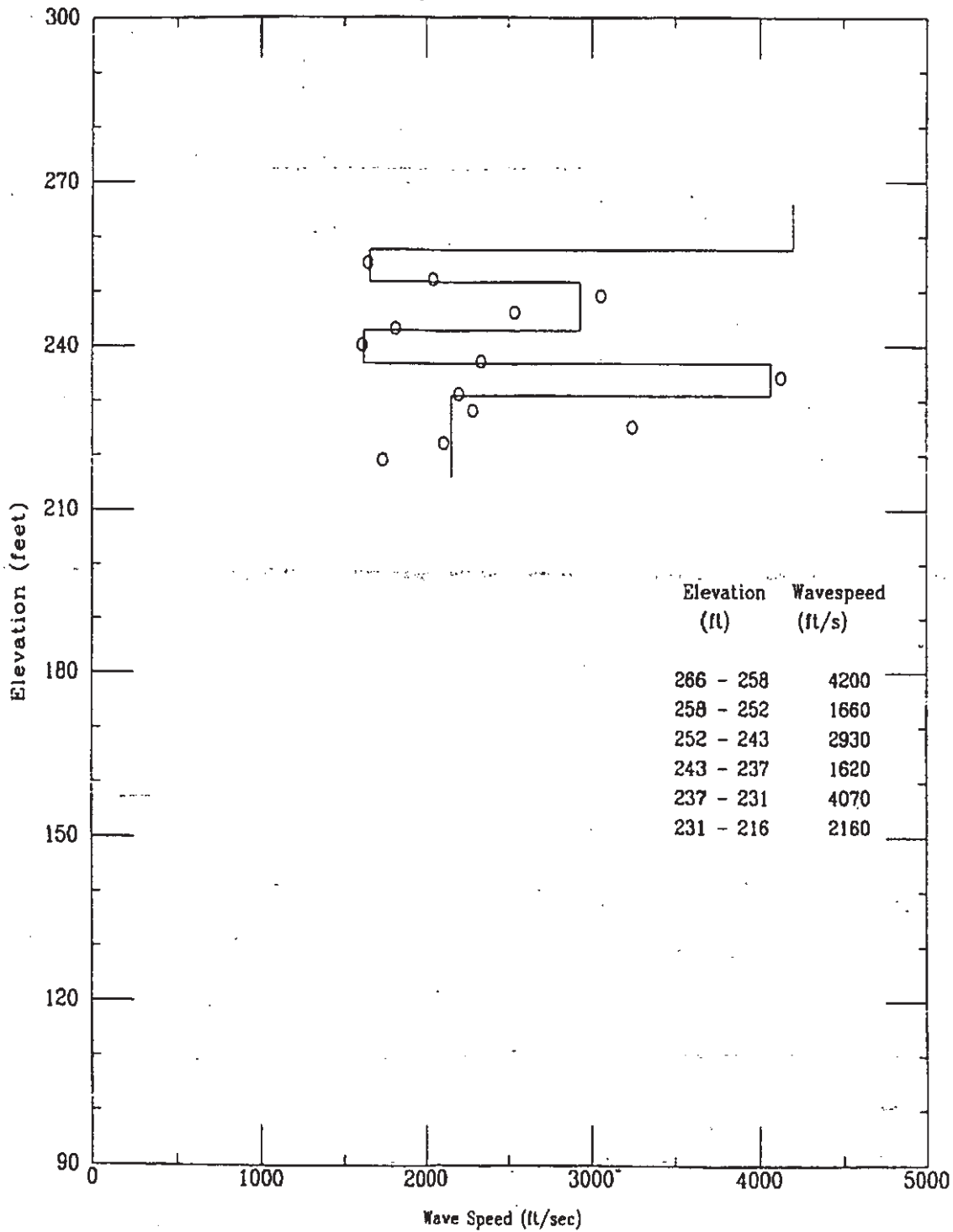
241802S

CPT-127

APPLIED RESEARCH ASSOCIATES, INC.

02/24/98

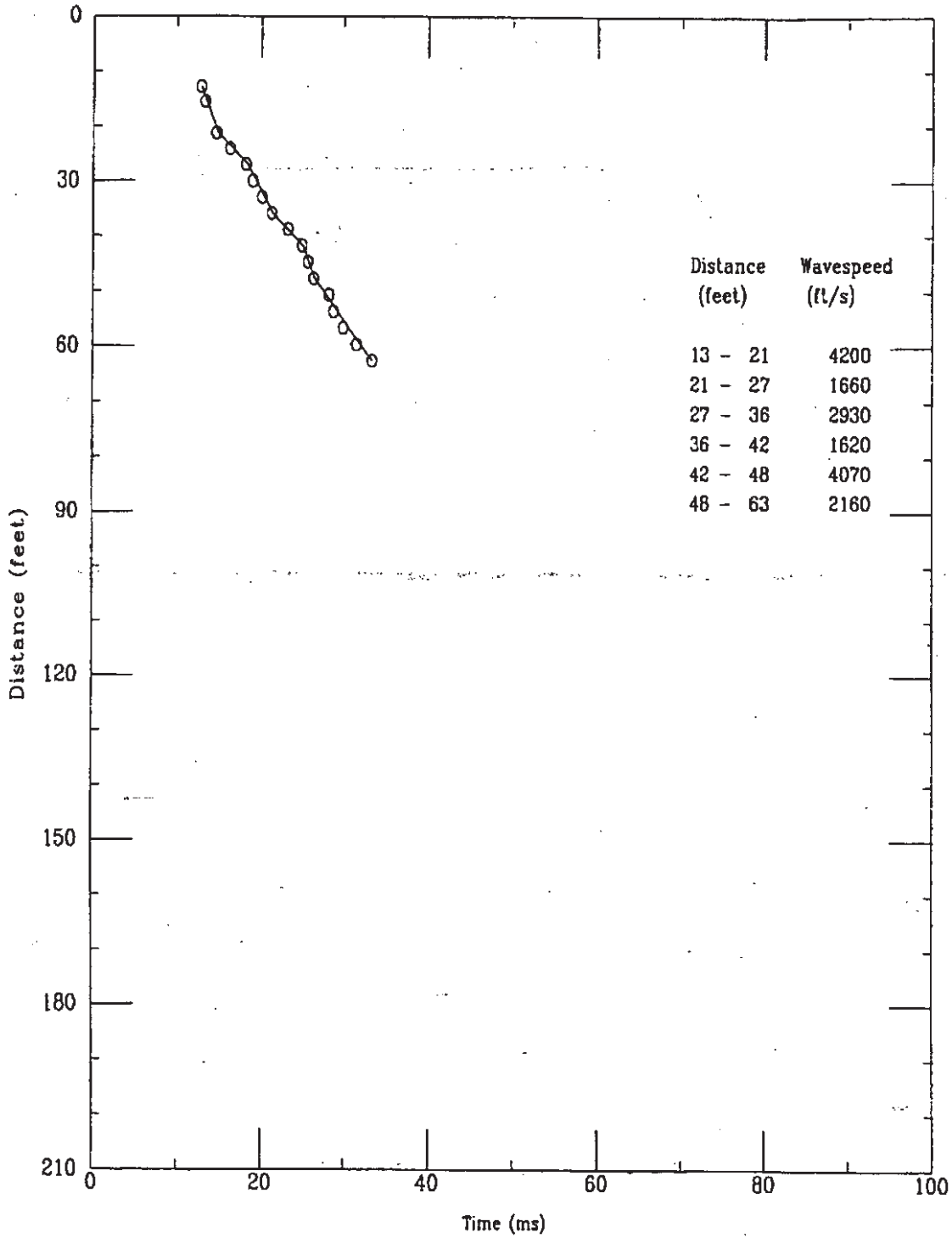
Compression Wave Speeds



CPT-127

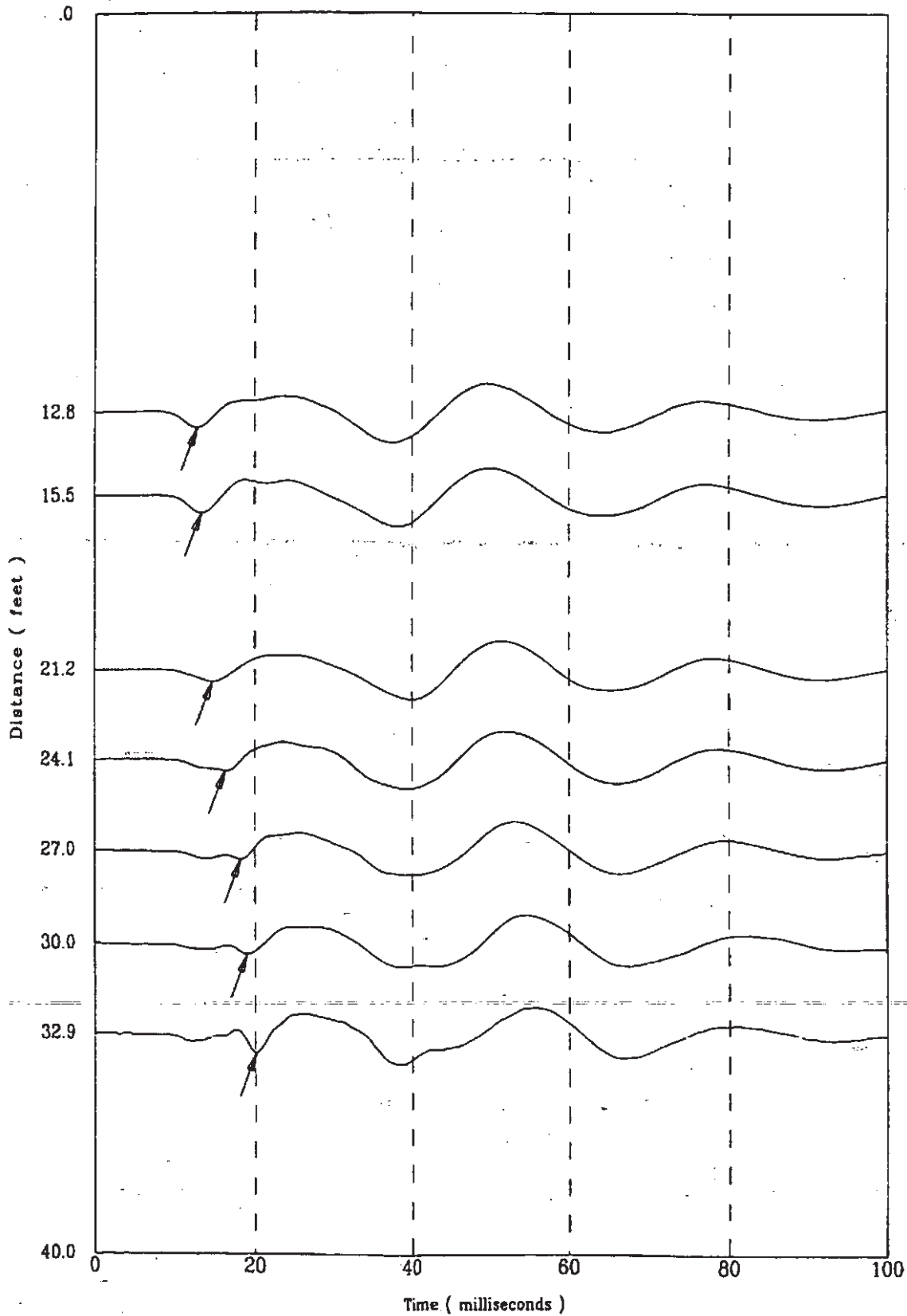
APPLIED-RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/24/98



Applied Research Associates  
CPT-127

P Wave  
02/24/98



CPT-128

APPLIED RESEARCH ASSOCIATES, INC.

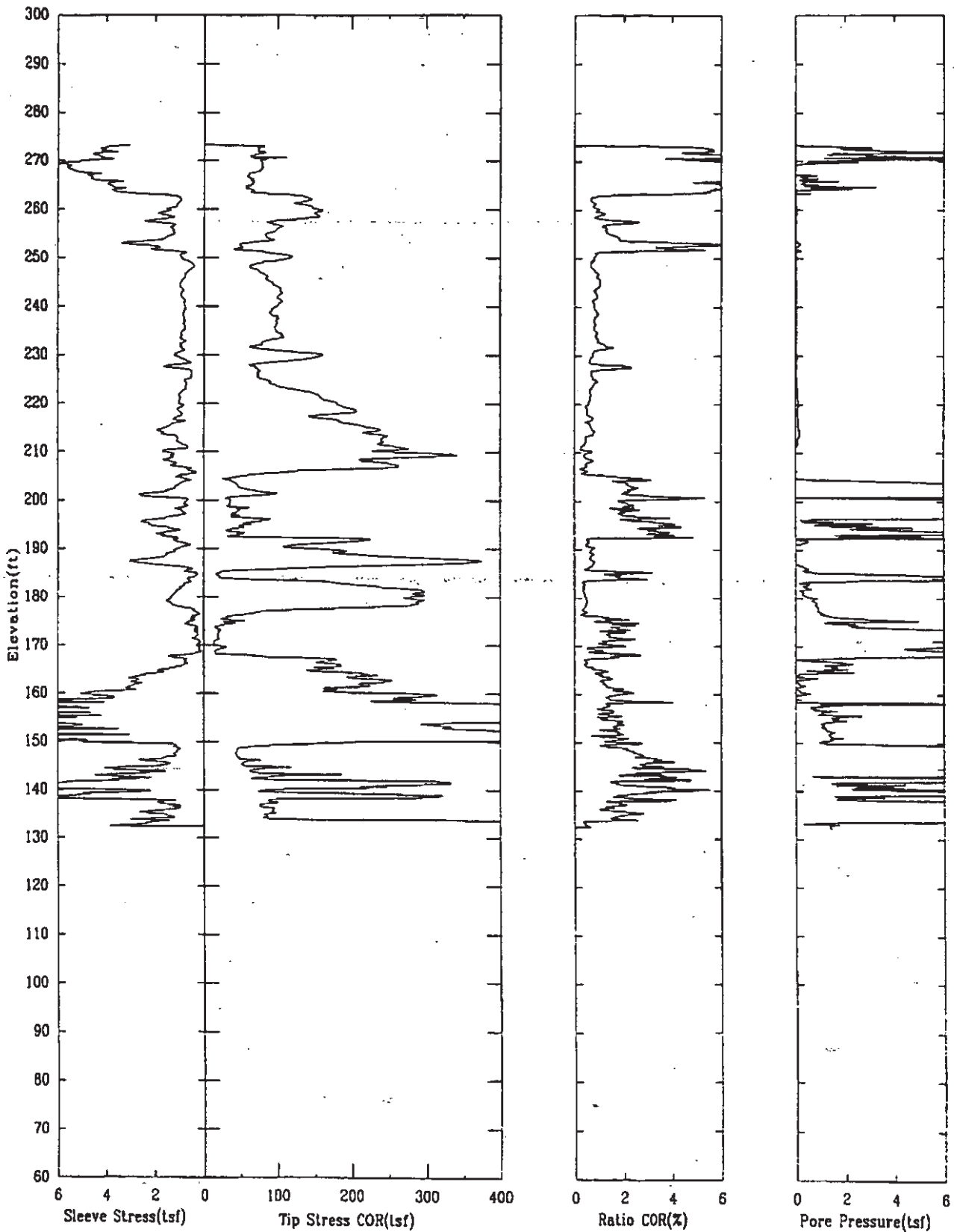
K-TRT-F-00001

02/23/98/0

North 79650.01

East 55124.95

Elevation 279.3



CPT-128

APPLIED RESEARCH ASSOCIATES, INC.

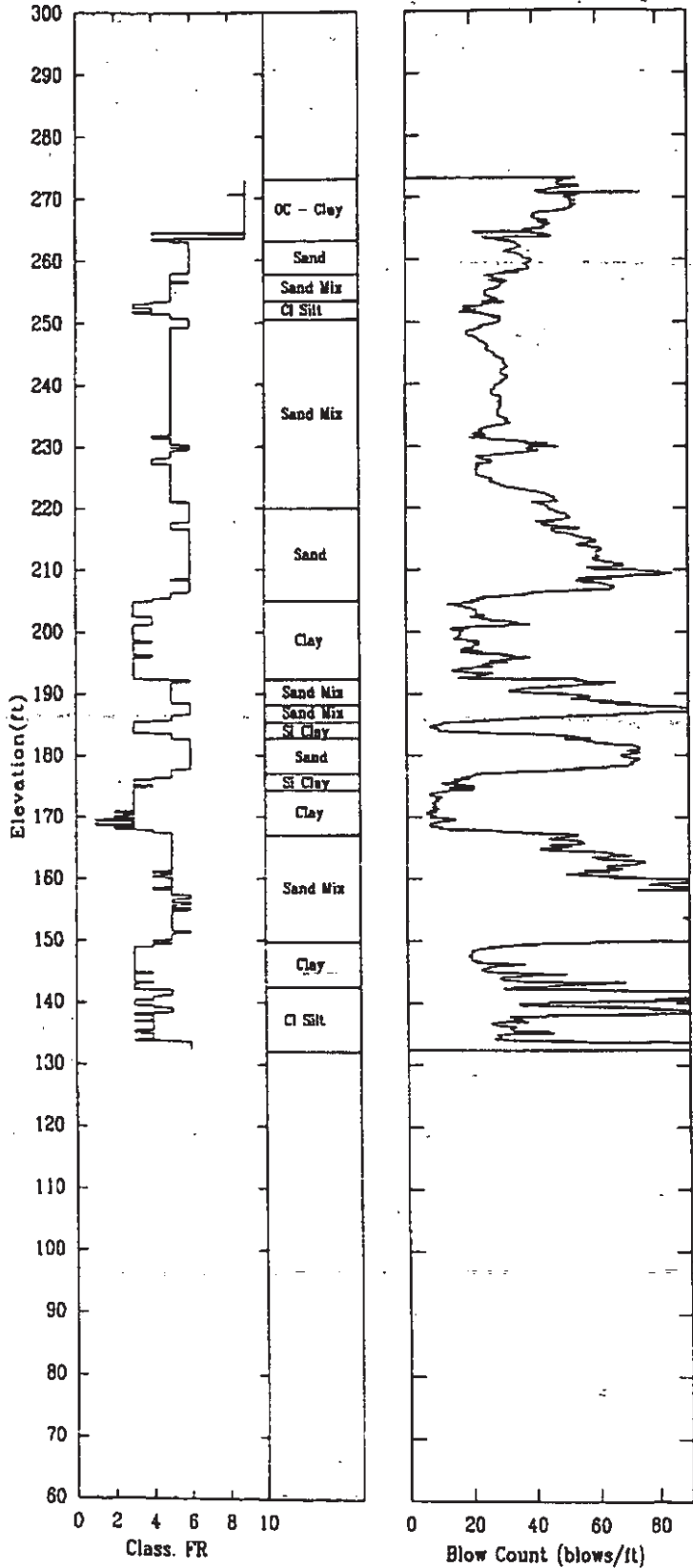
K-TRT-F-00001

02/23/98 R/O

North 79650.01

East 55124.95

Elevation 279.3



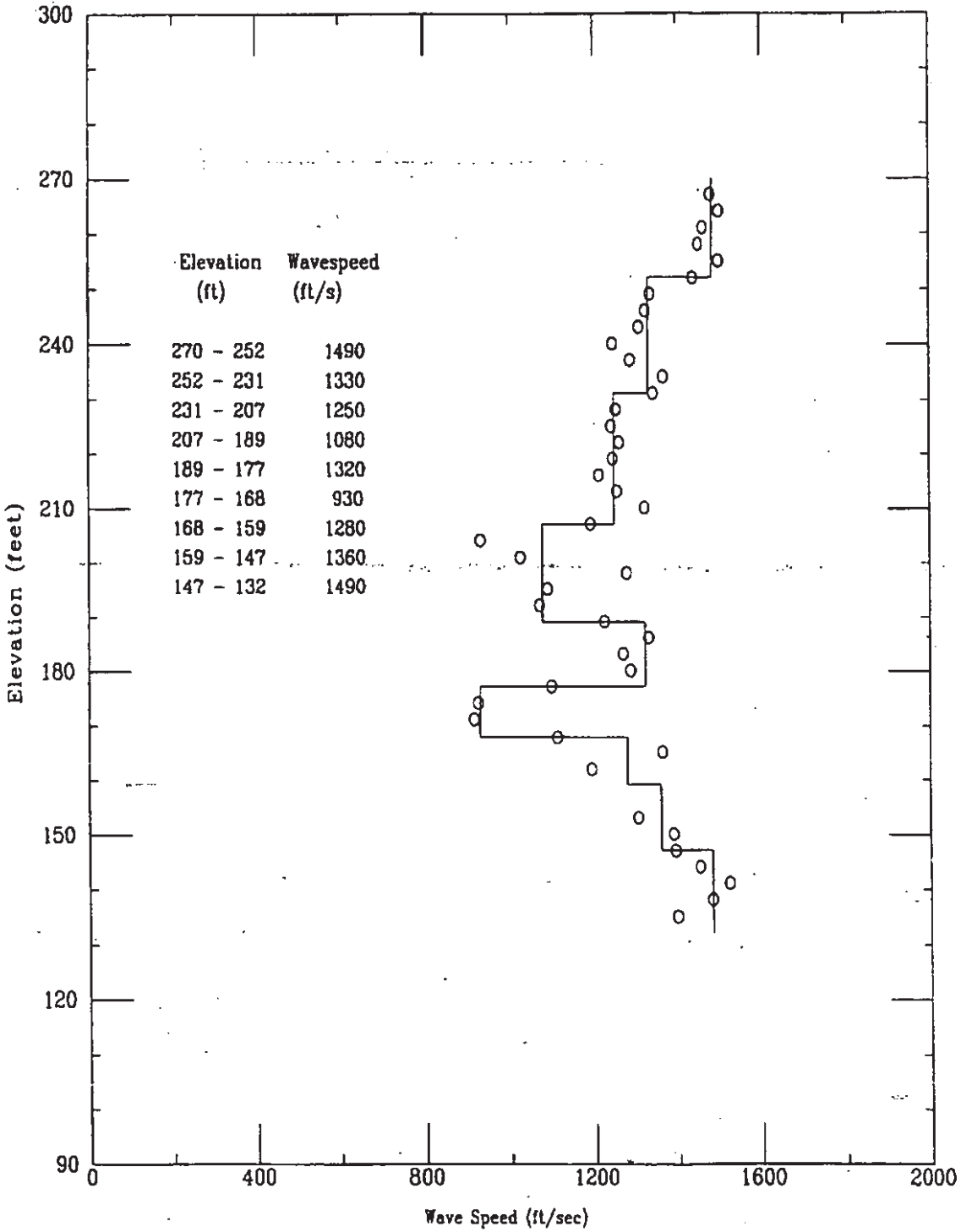
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APPLIED RESEARCH ASSOCIATES, INC.

02/23/98

Shear Wave Speeds

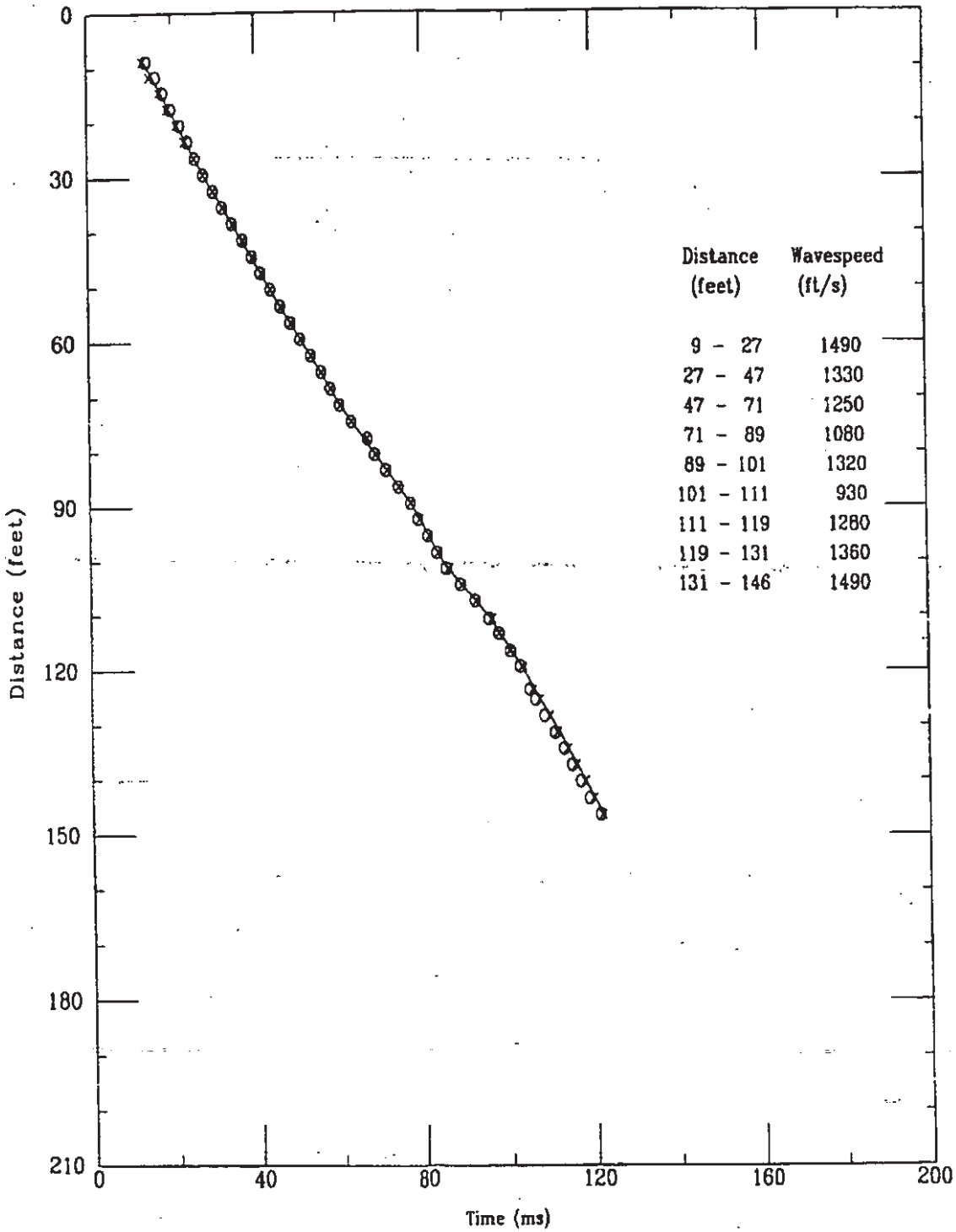




CPT-128

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

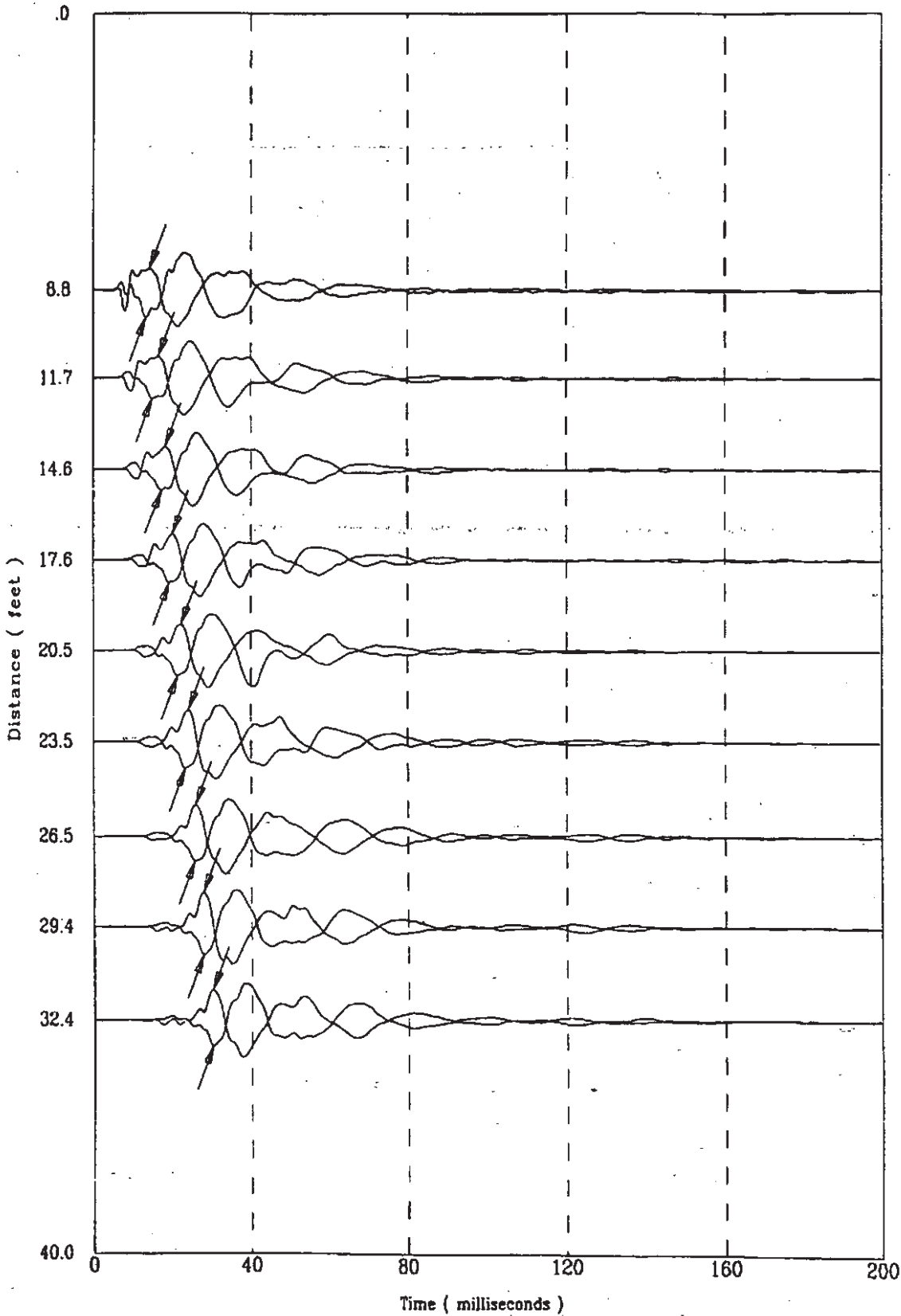
02/23/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-128

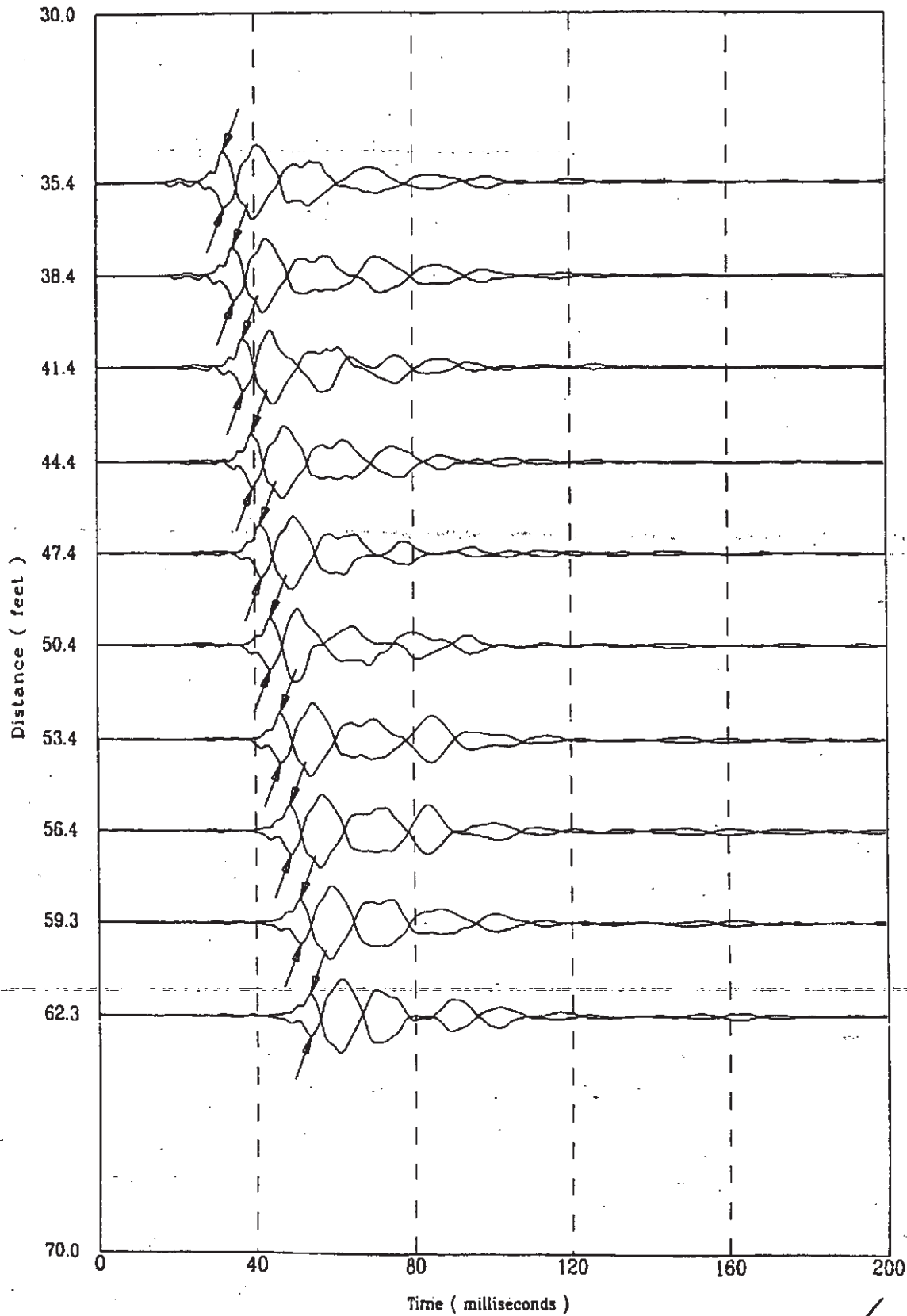
S Wave  
02/23/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-128

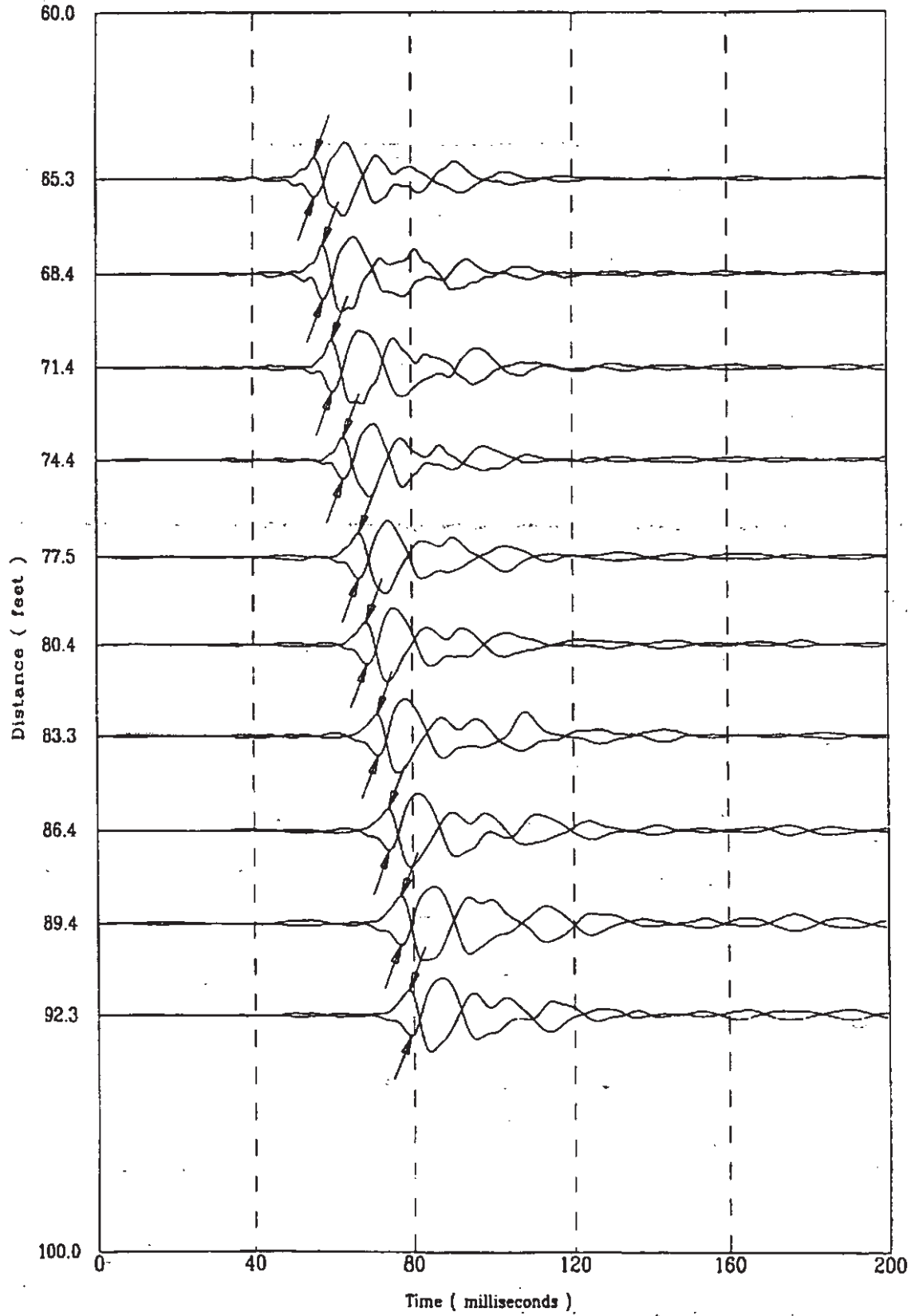
S Wave  
02/23/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-128

S Wave  
02/23/98



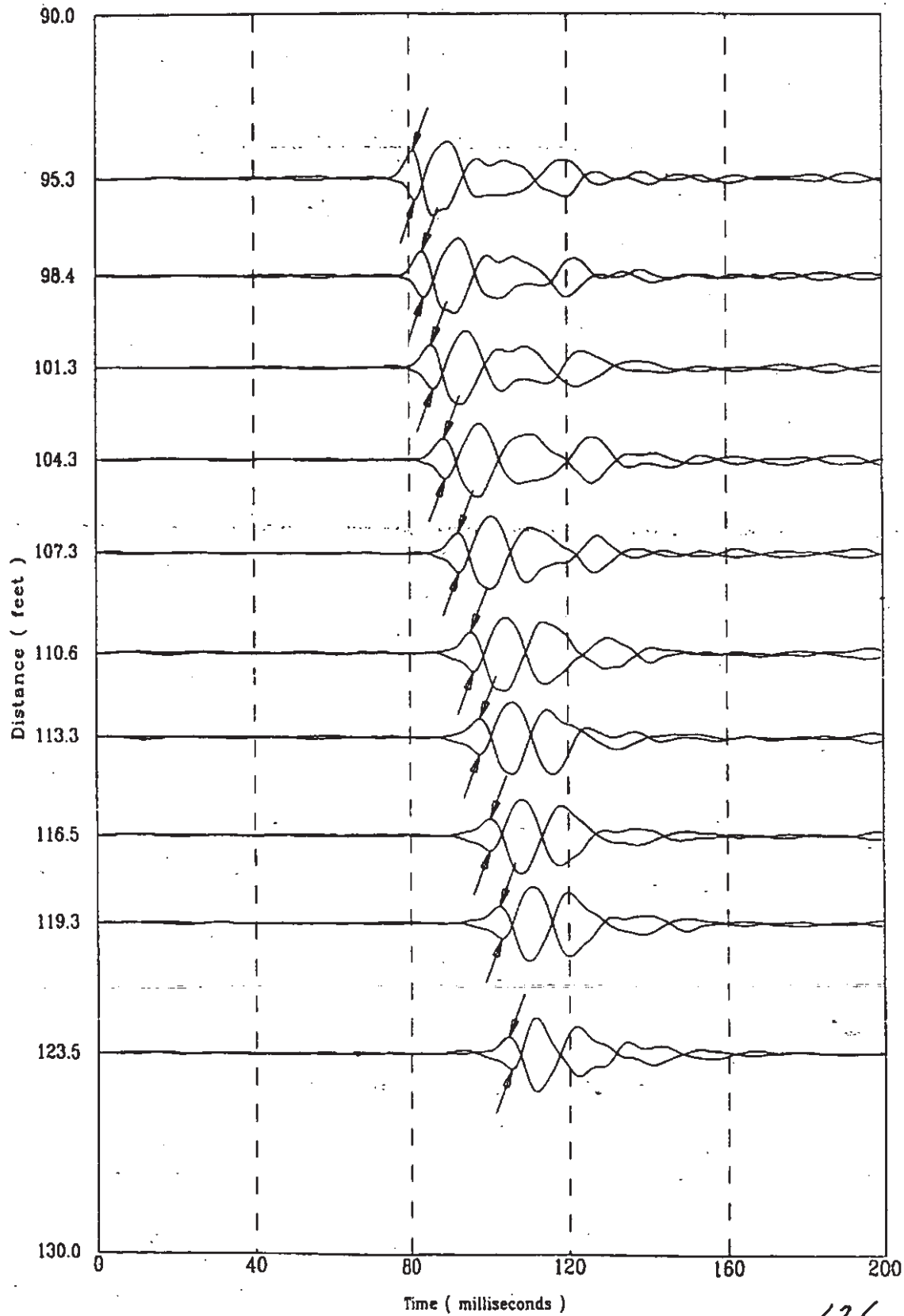
File 523F804S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-128

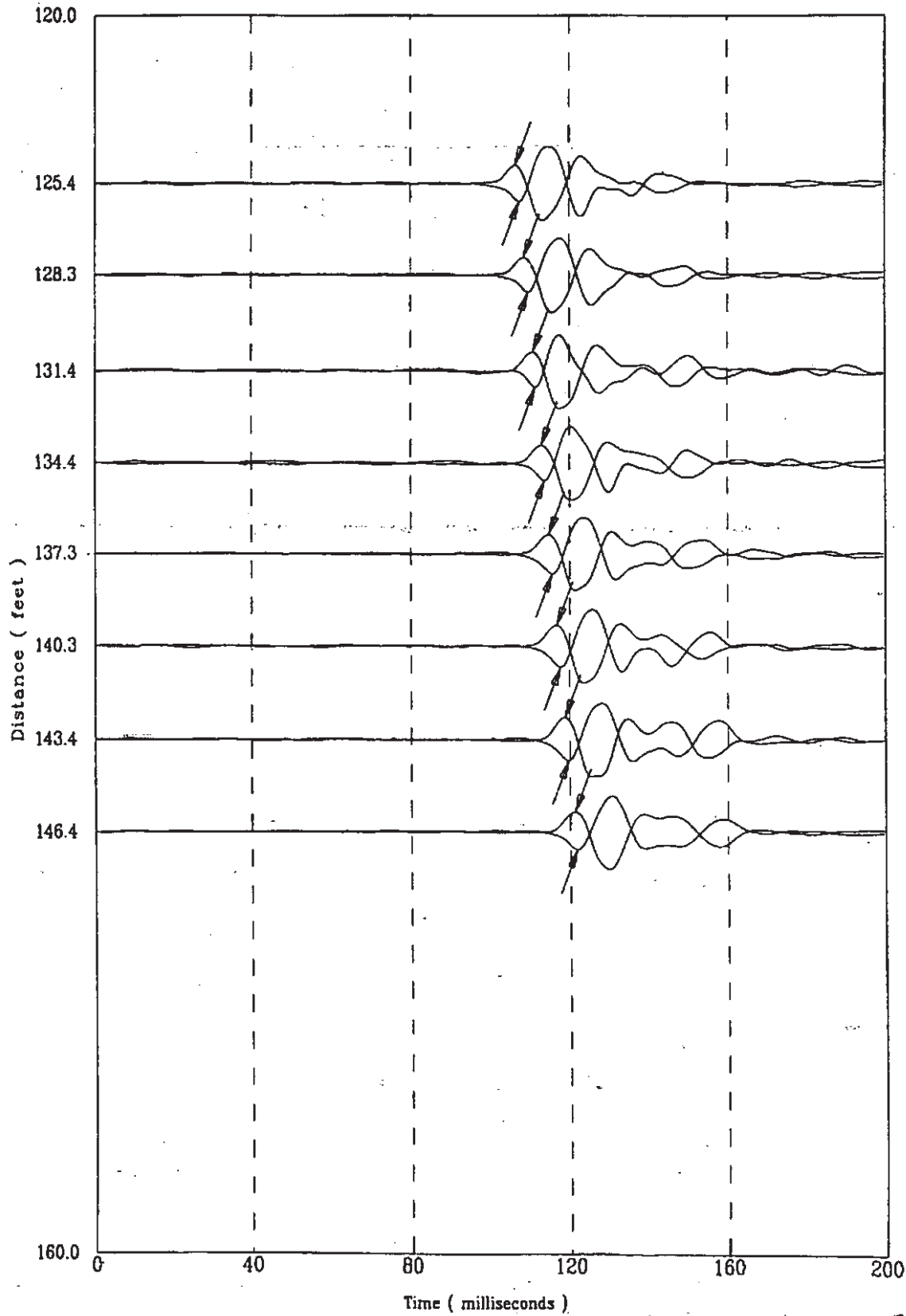
S Wave  
02/23/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-128

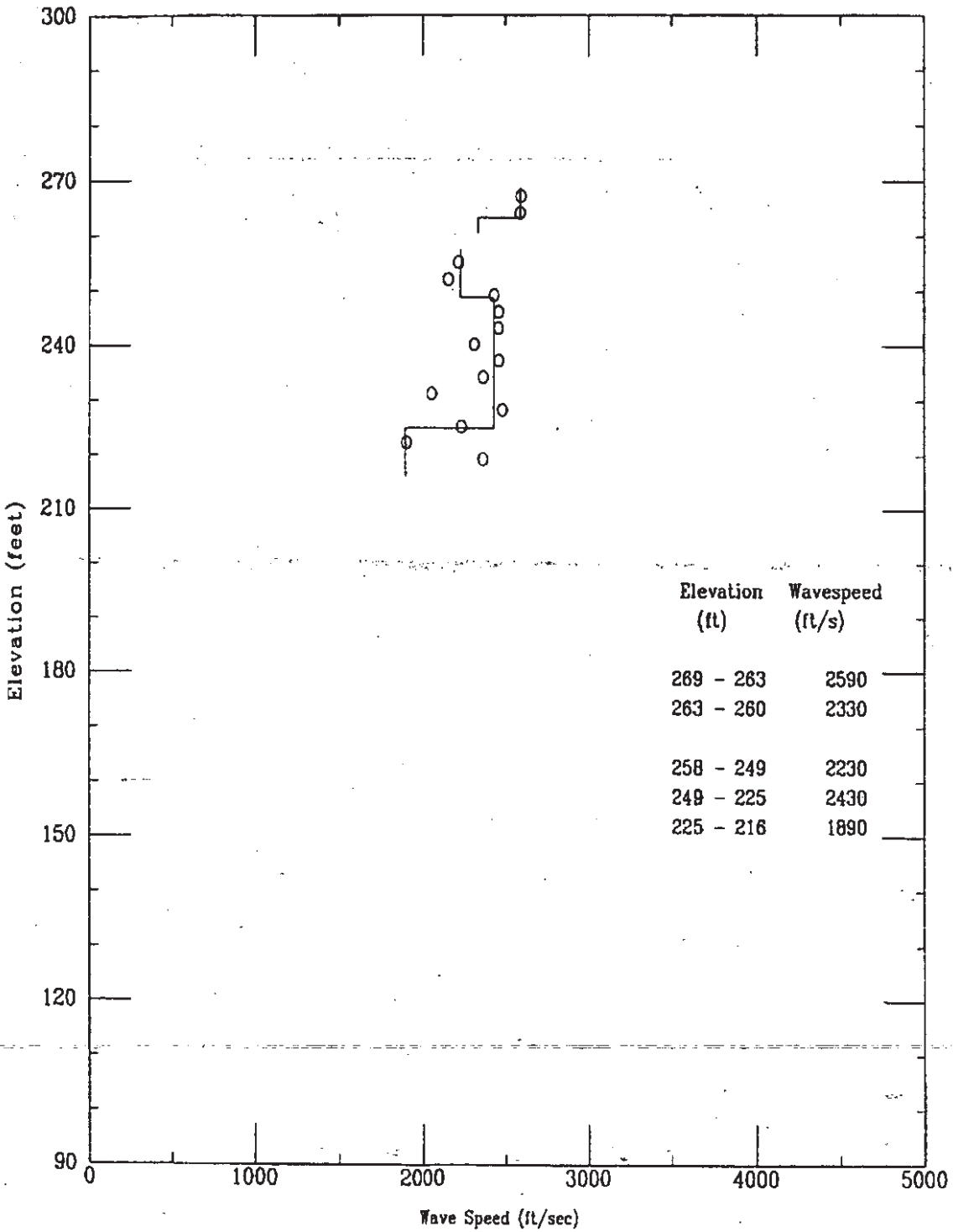
S Wave  
02/23/98



CPT-128

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

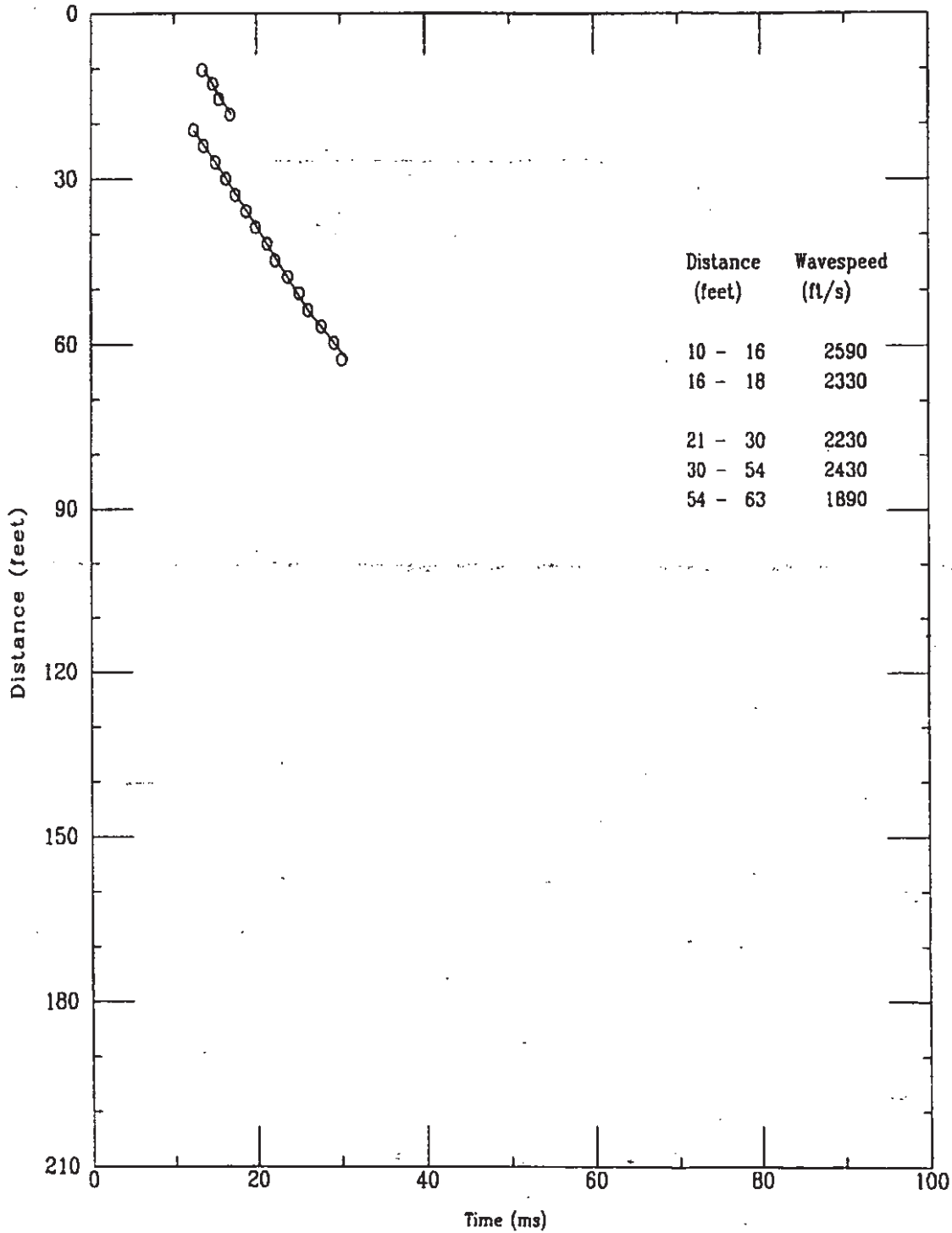
02/23/98



CPT-128

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/23/98

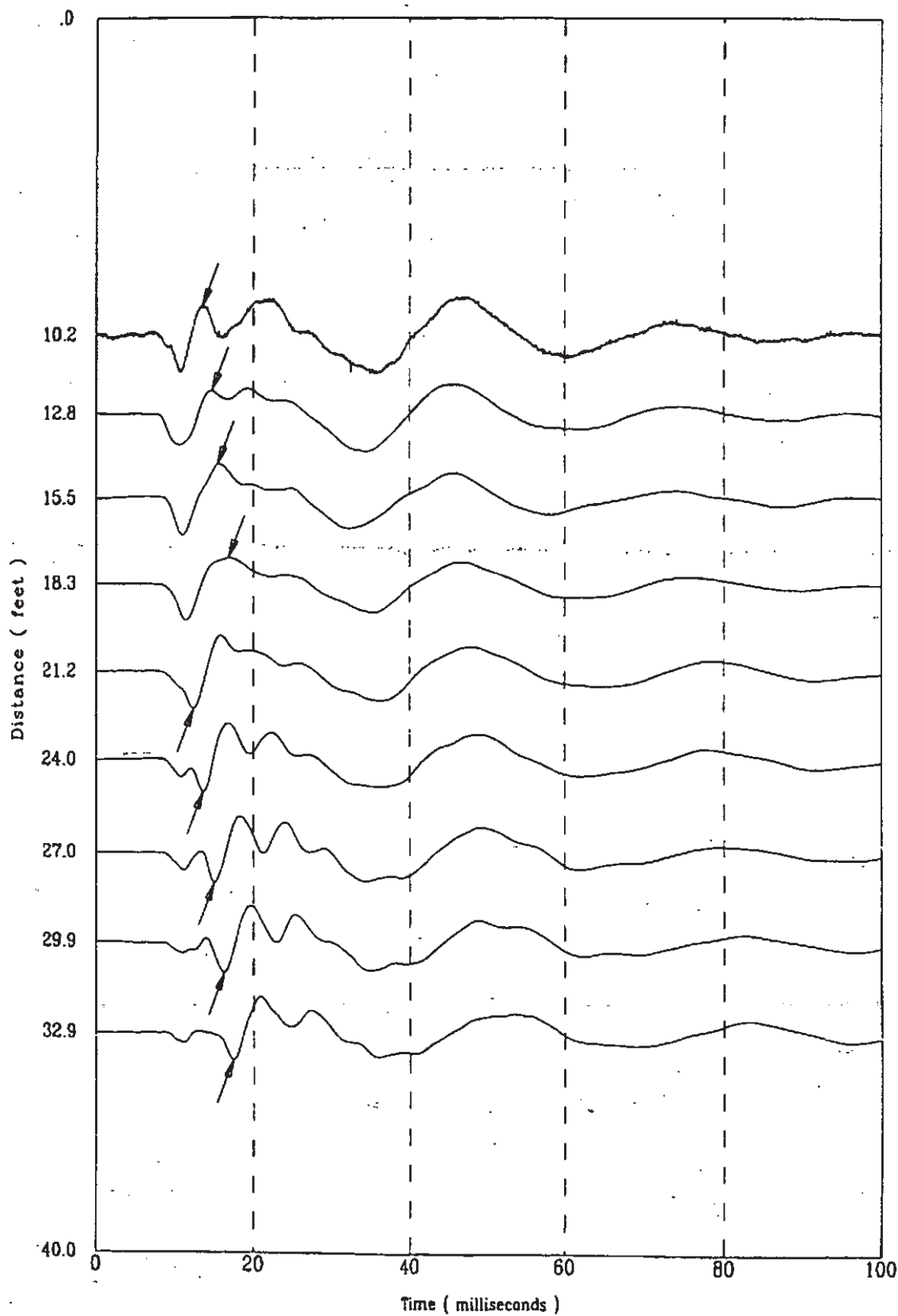




K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-128

P Wave  
02/23/98



File 5231804S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-128

P Wave  
02/23/98

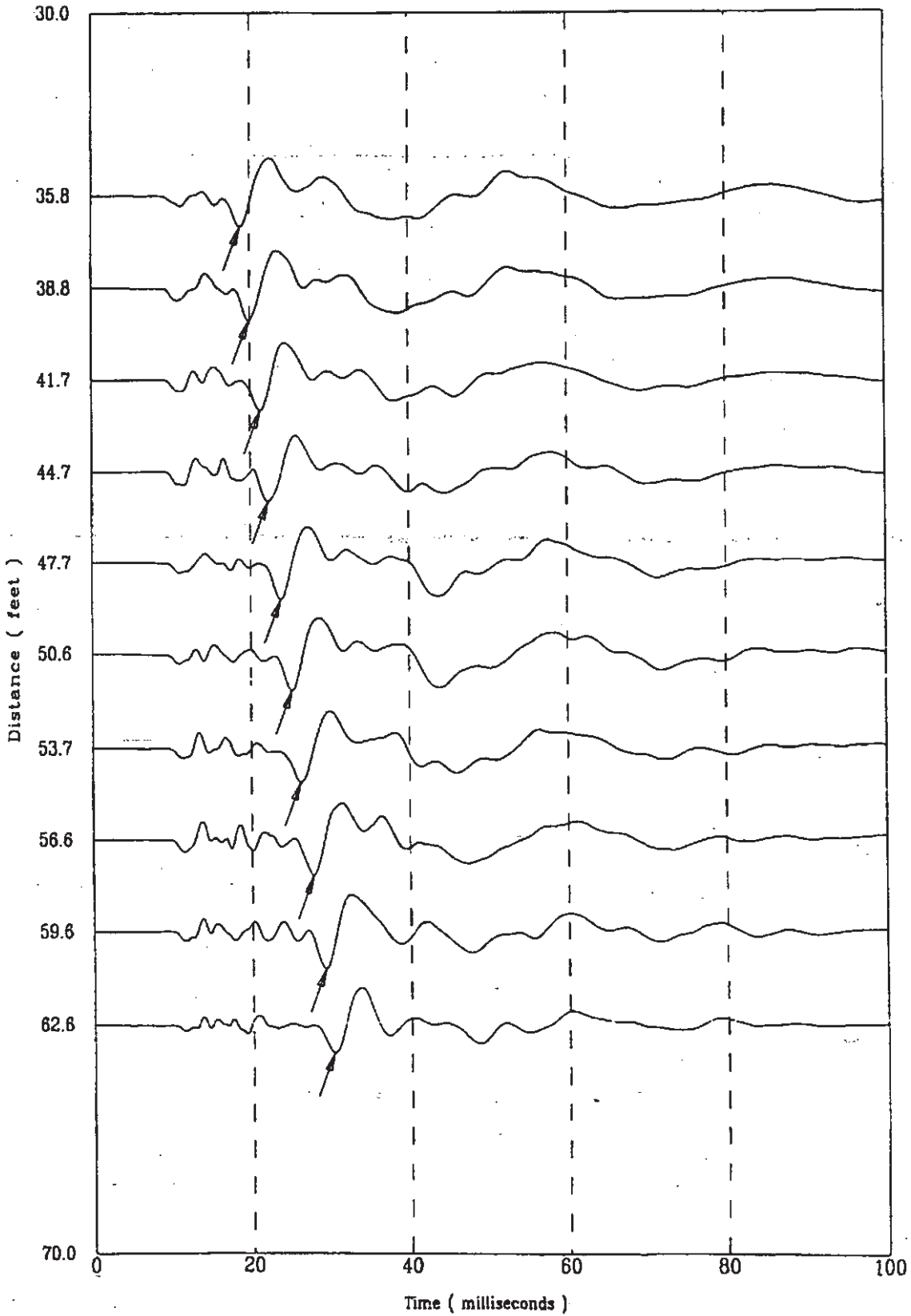


Fig 523f804S

CPT-129

APPLIED RESEARCH ASSOCIATES, INC.

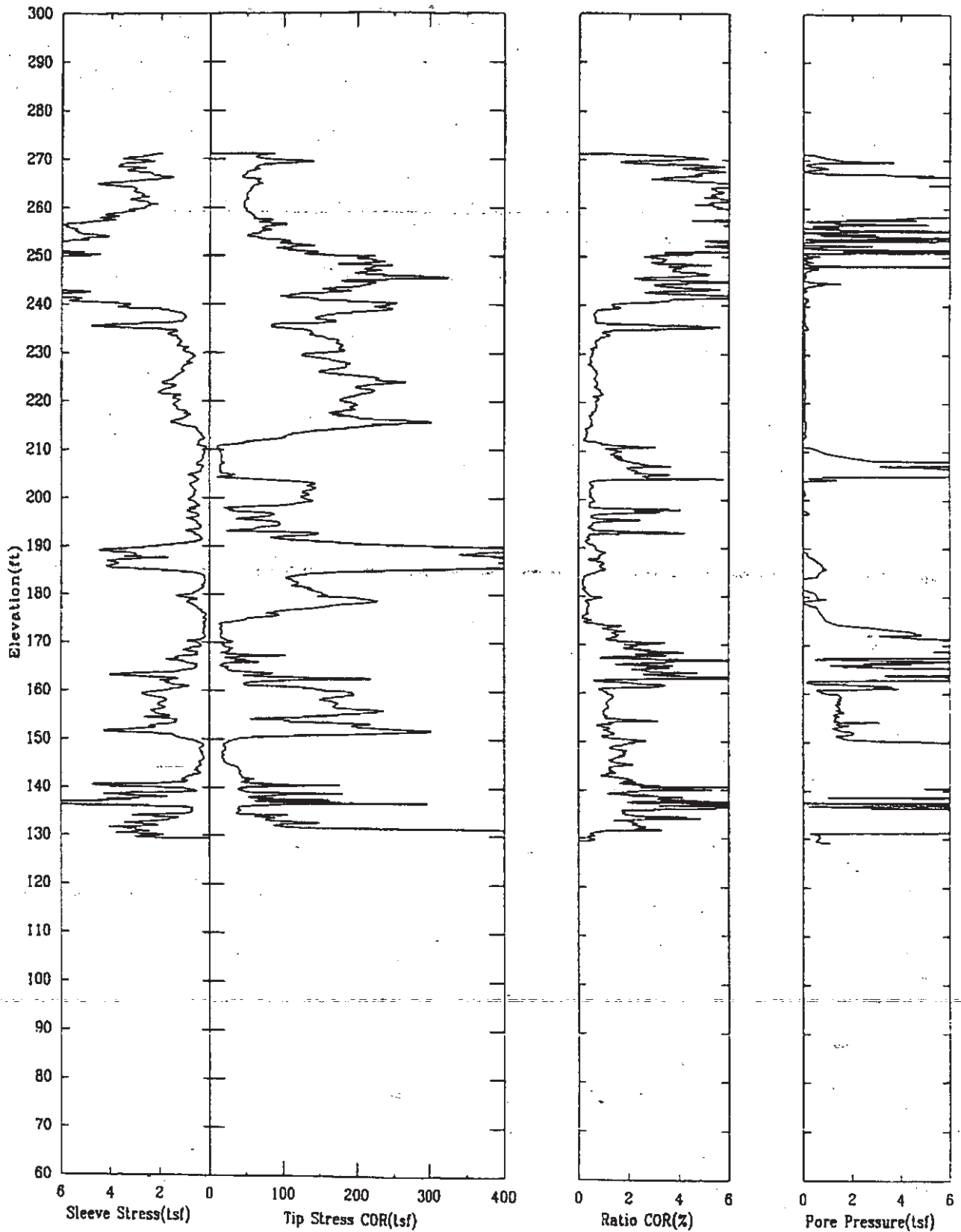
K-TRT-F-00001

02/23/98 / 0

North 79650.00

East 55261.00

Elevation 277.2



CPT-129

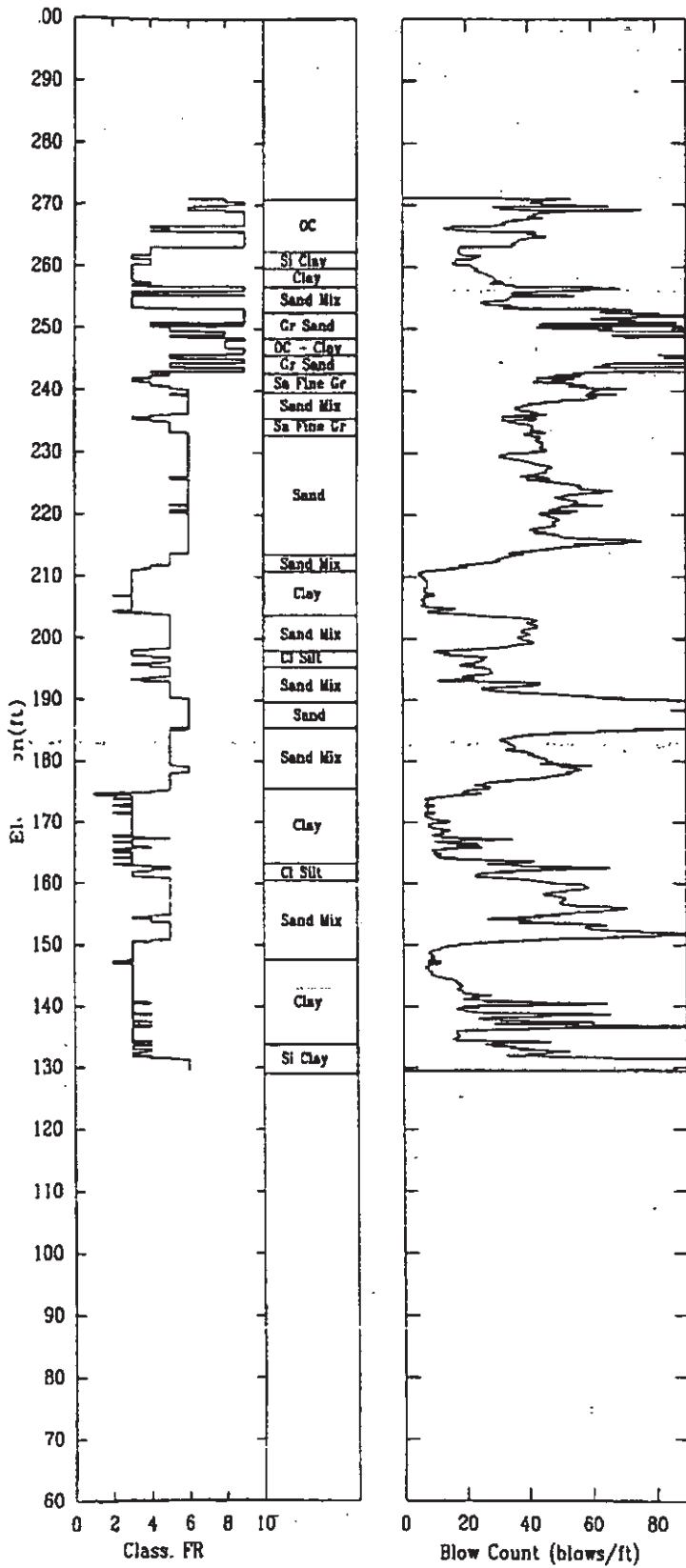
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
02/23/98/0

North 79650.00

East 55261.00

Elevation 277.2

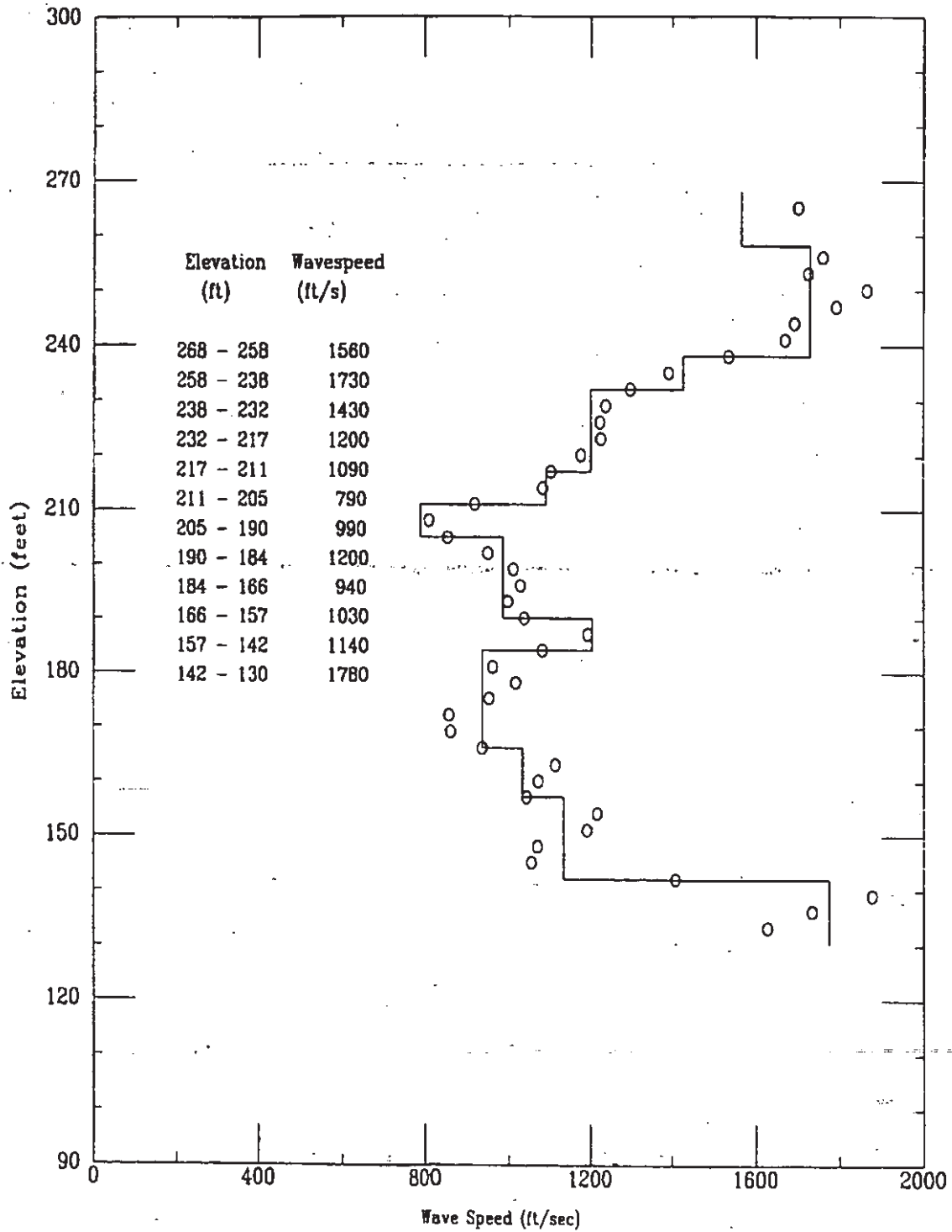


CPT-129

APPLIED RESEARCH ASSOCIATES, INC.

02/23/98

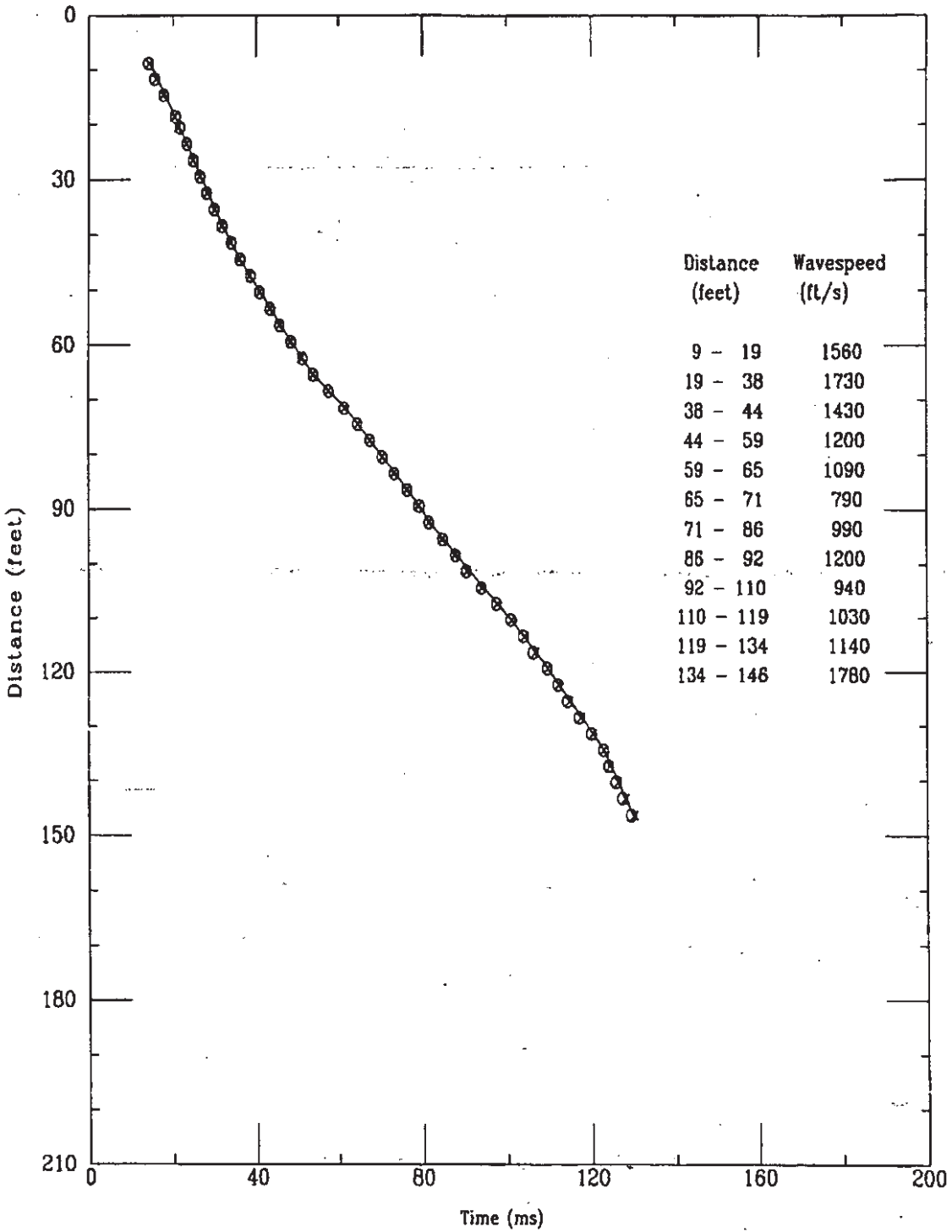
Shear Wave Speeds



CPT-129

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

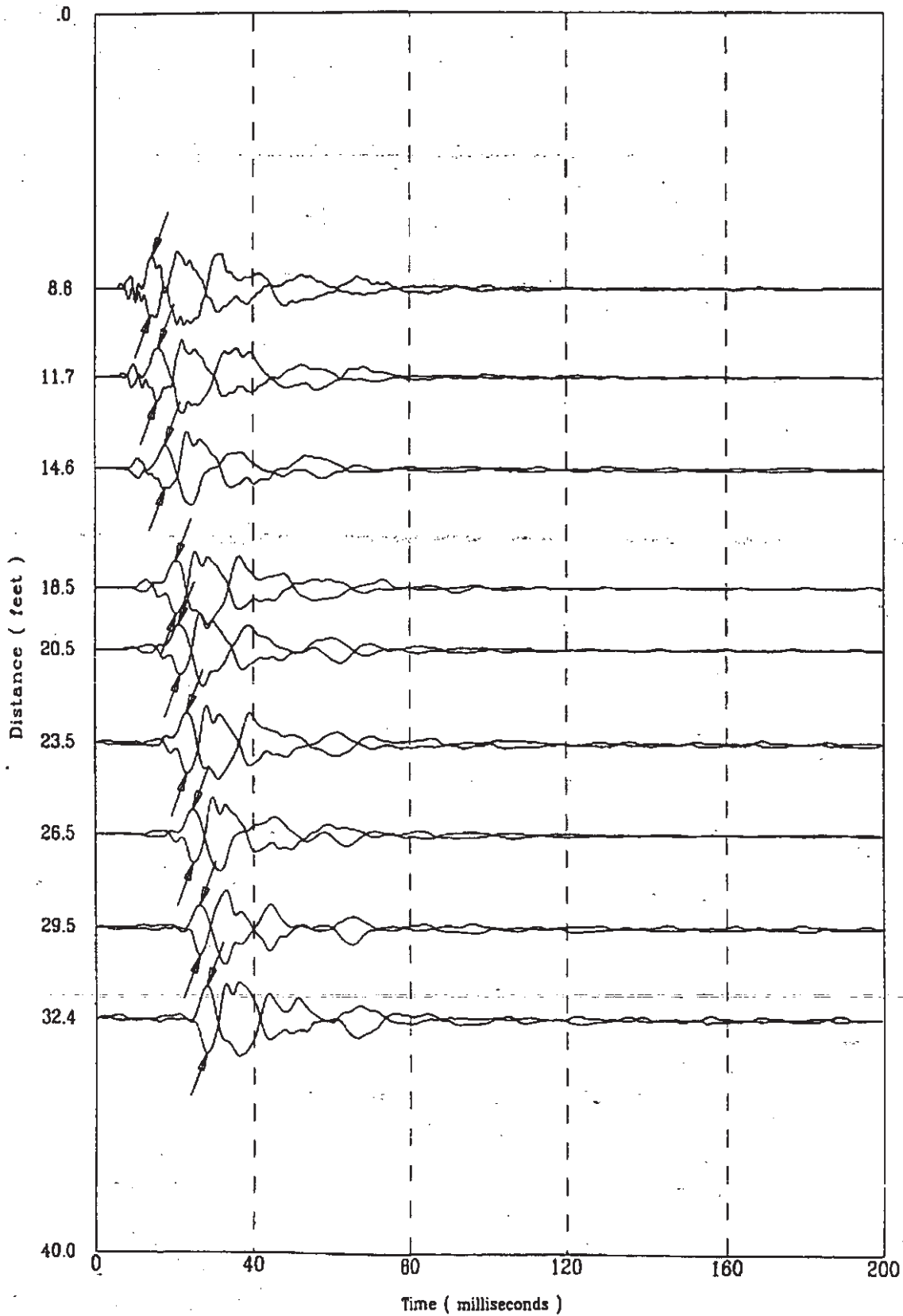
02/23/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-129

S Wave  
02/23/98



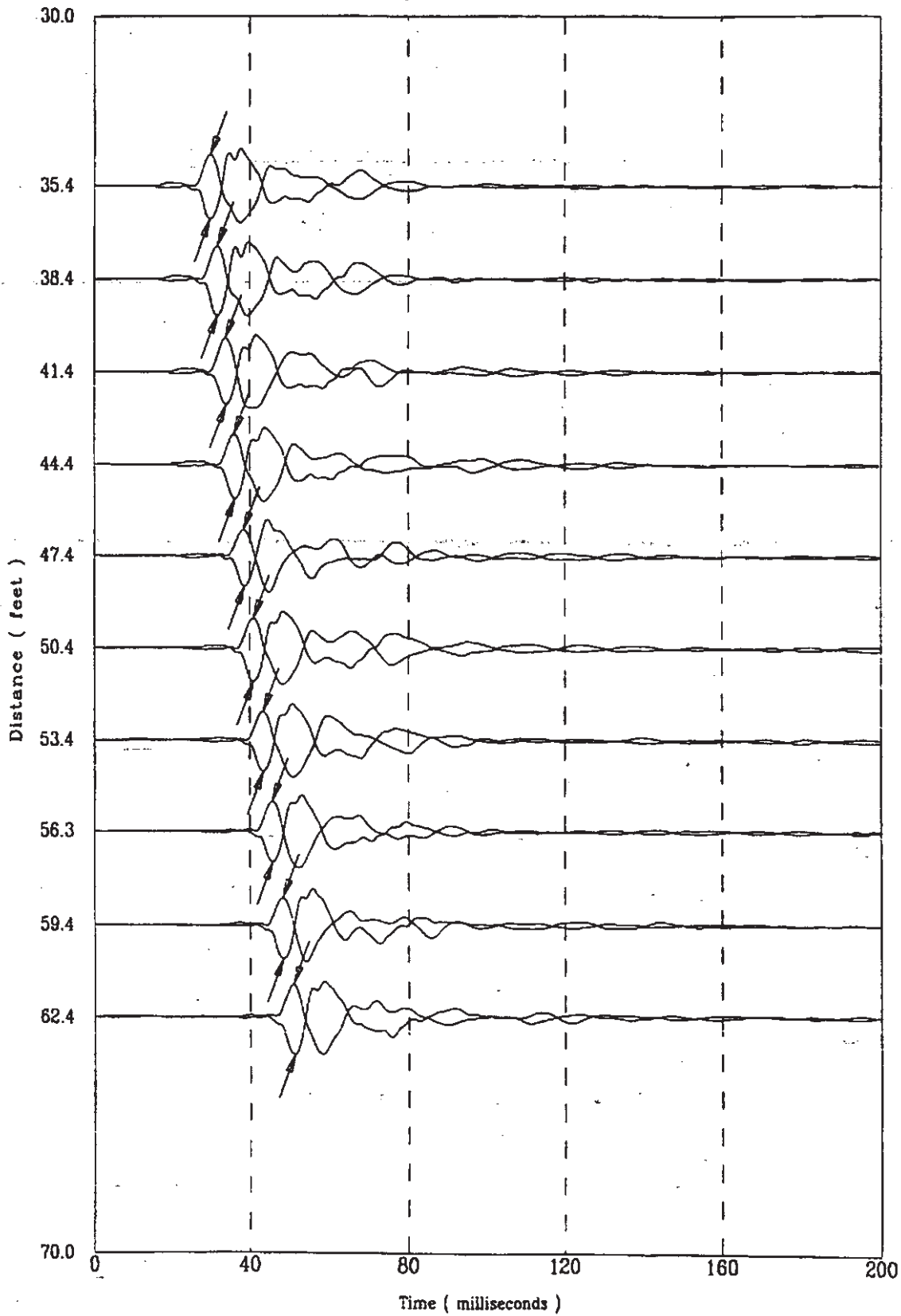
File 523F801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-129

S Wave  
02/23/98



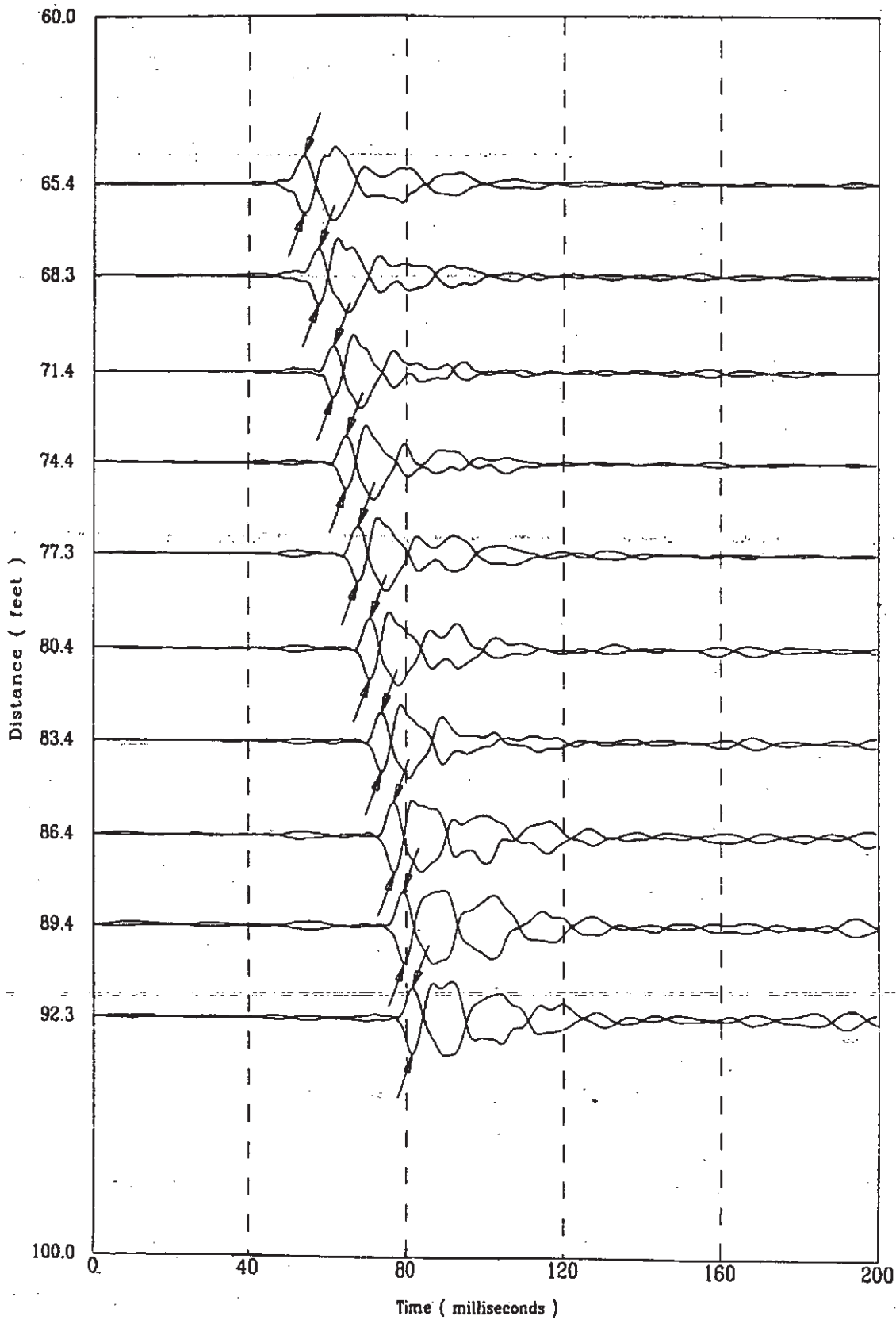
Form 523F801S



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-129

S Wave  
02/23/98



File 523F801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-129

S Wave  
02/23/98

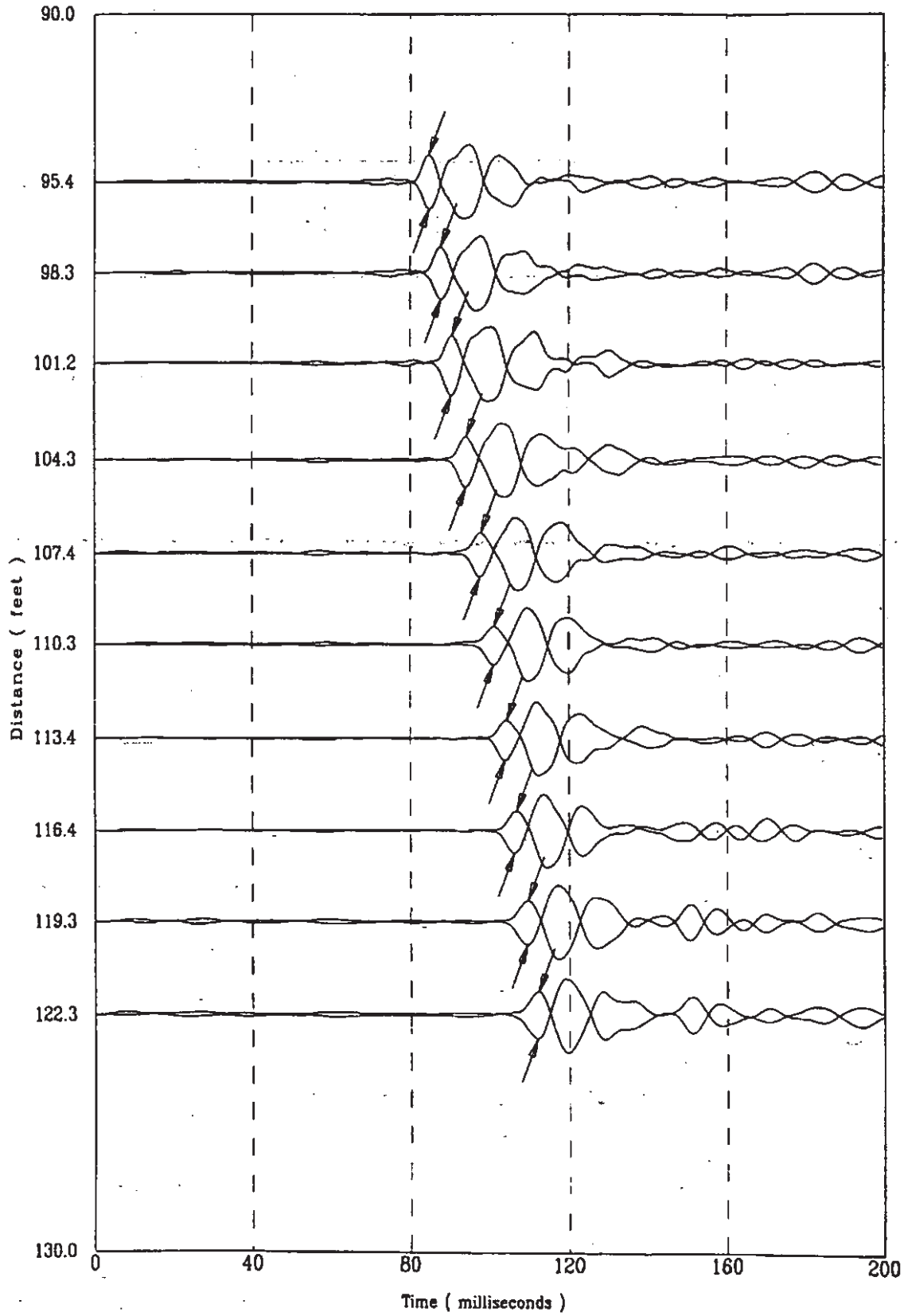
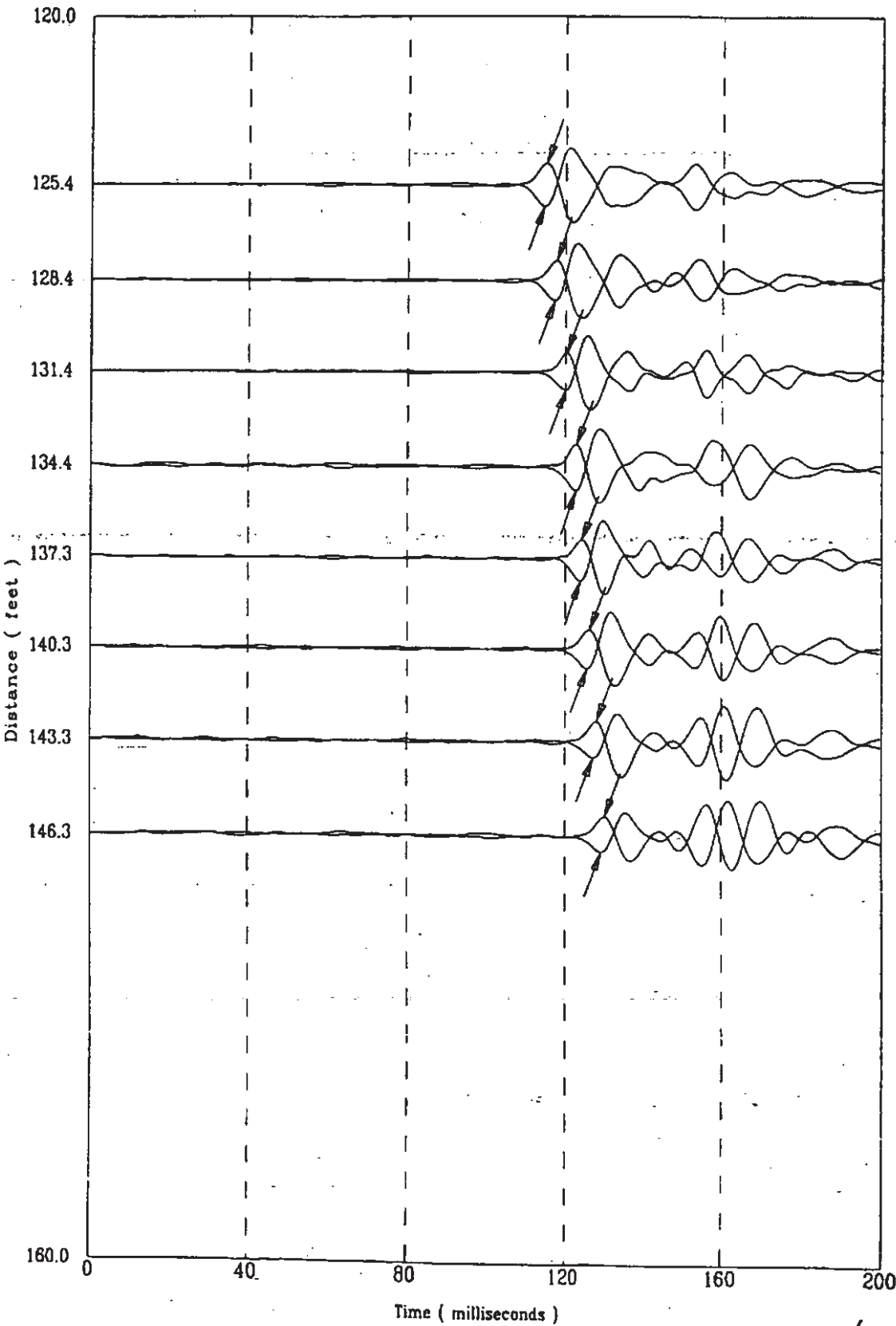


FIG. 5237801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-129

S Wave  
02/23/98



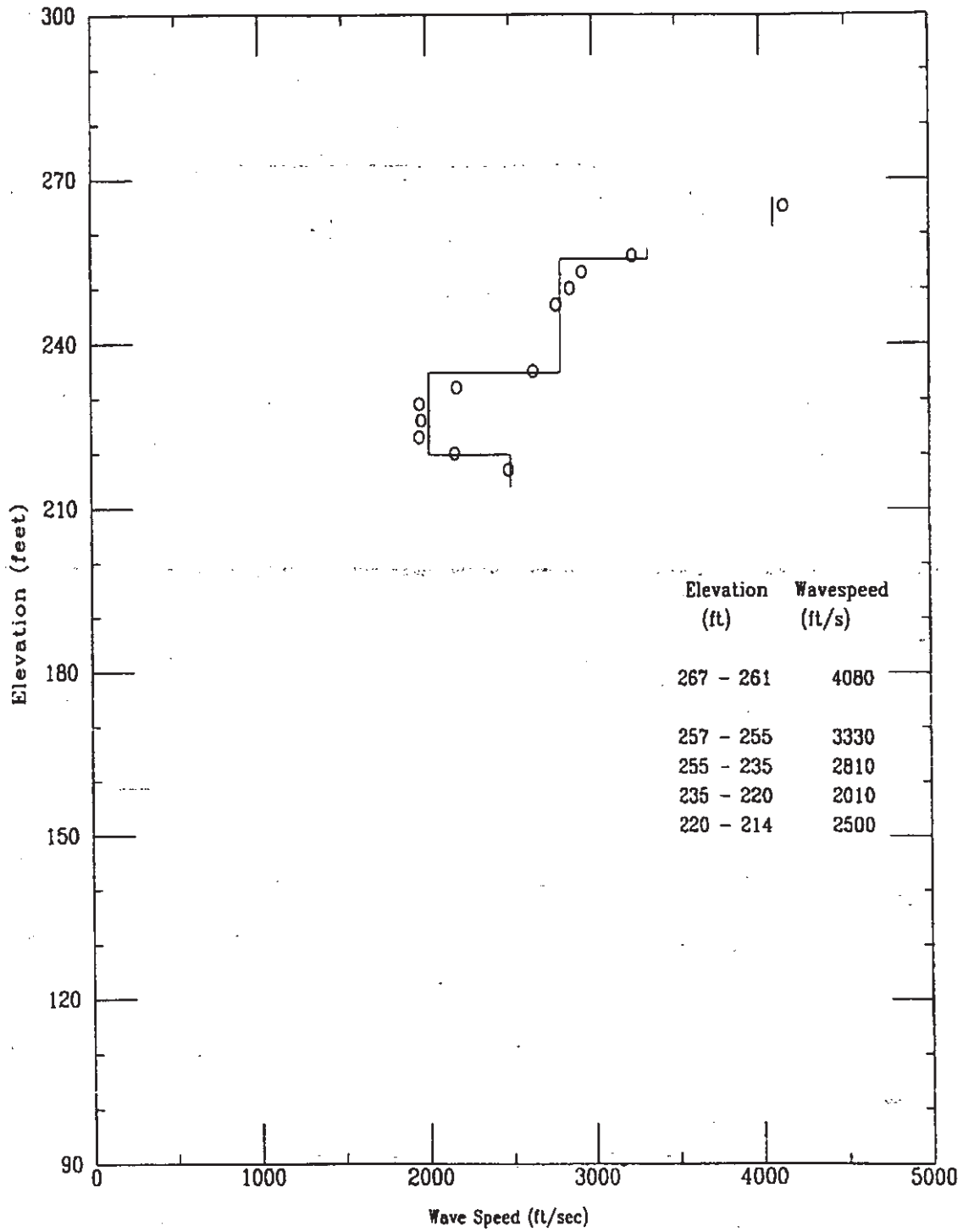
140 of 522

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APPLIED RESEARCH ASSOCIATES, INC.

02/23/98

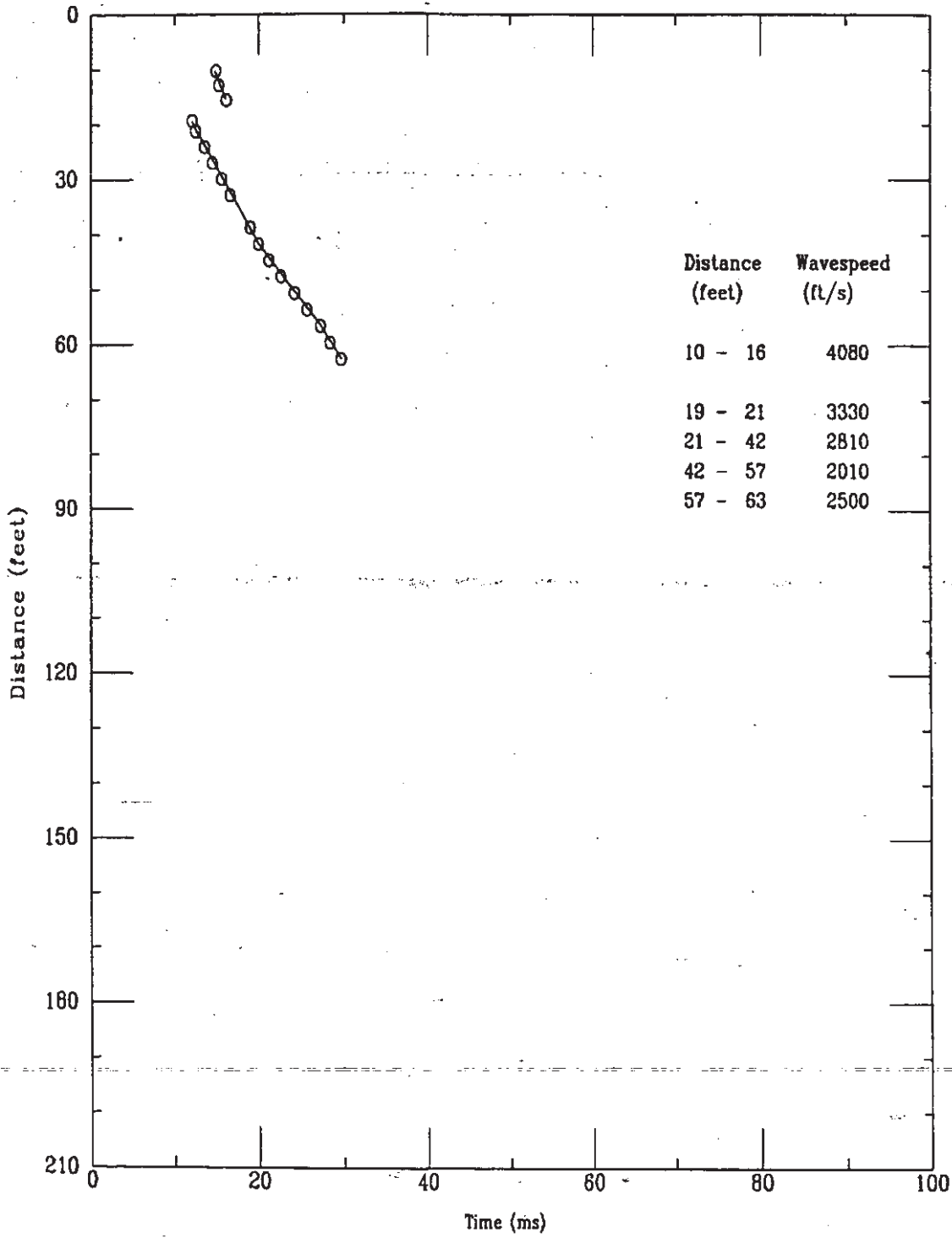
Compression Wave Speeds



CPT-129

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

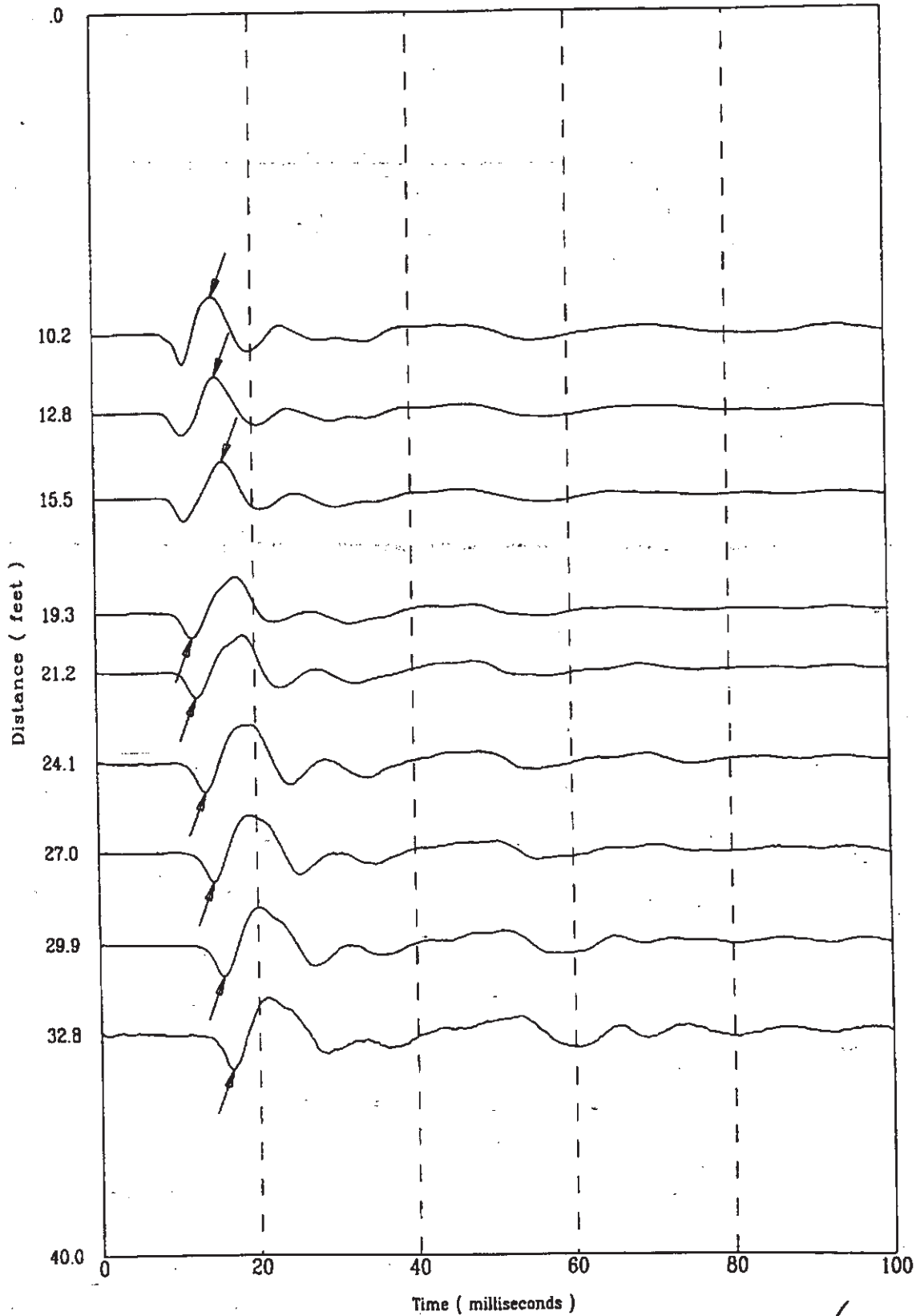
02/23/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-129

P Wave  
02/23/98



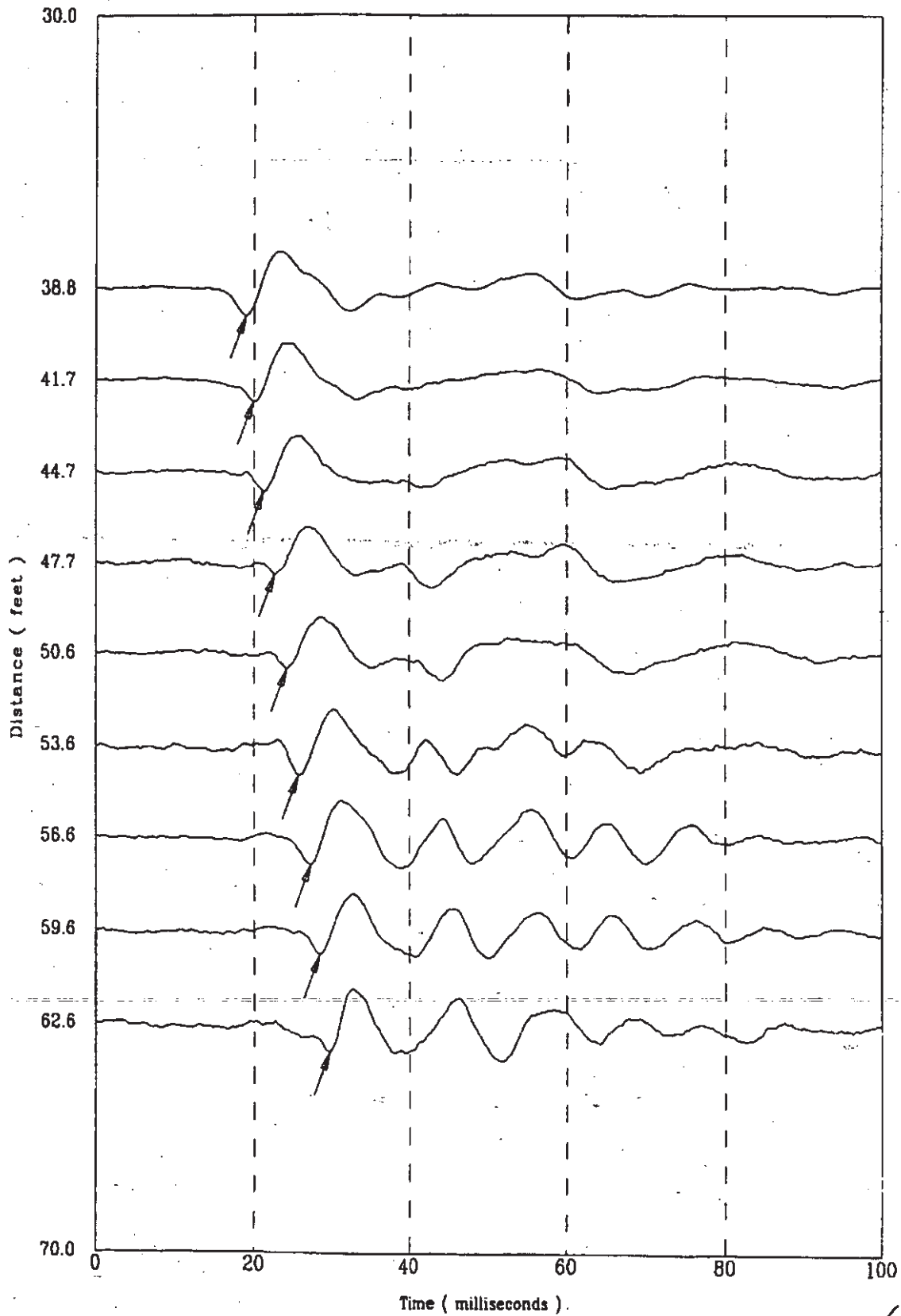
5237601S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-129

P Wave  
02/23/98



File 523F801S

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CPT-143

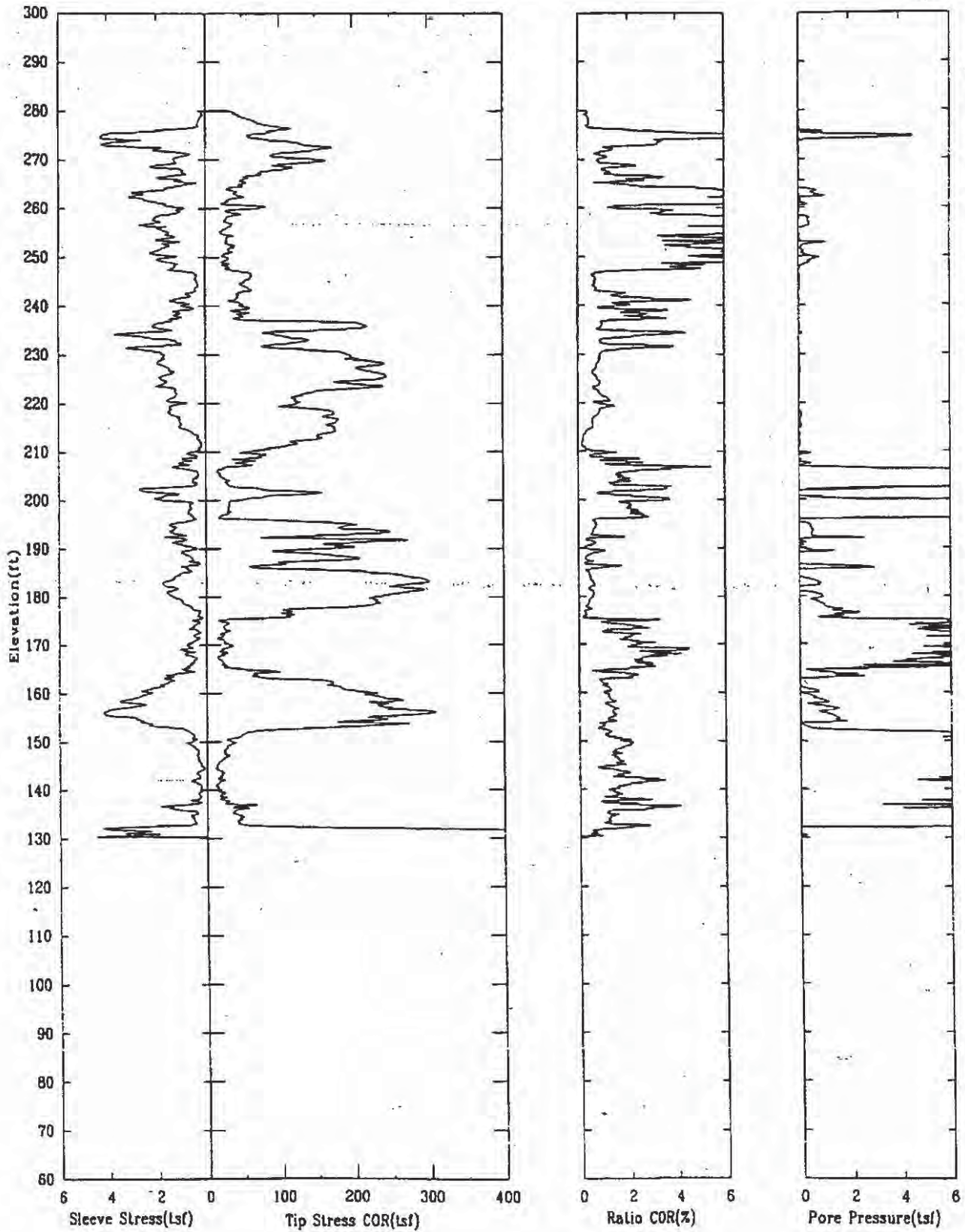
APPLIED RESEARCH ASSOCIATES, INC.

North 79442.5

East 55195

Elevation 286.1

K-TRT-F-0000/  
02/25/98 / 0





CPT-143

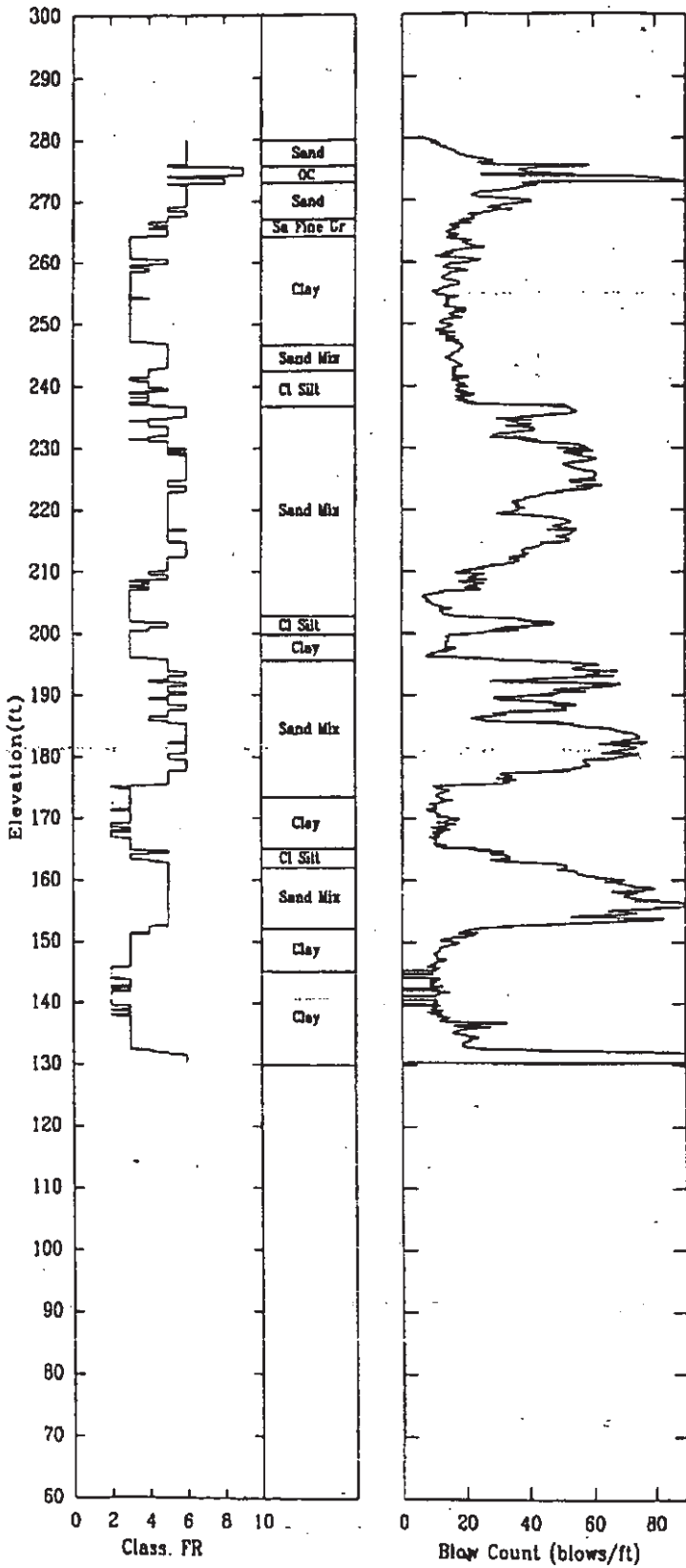
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
02/25/98 R/O

North 79442.5

East 55195

Elevation 286.1



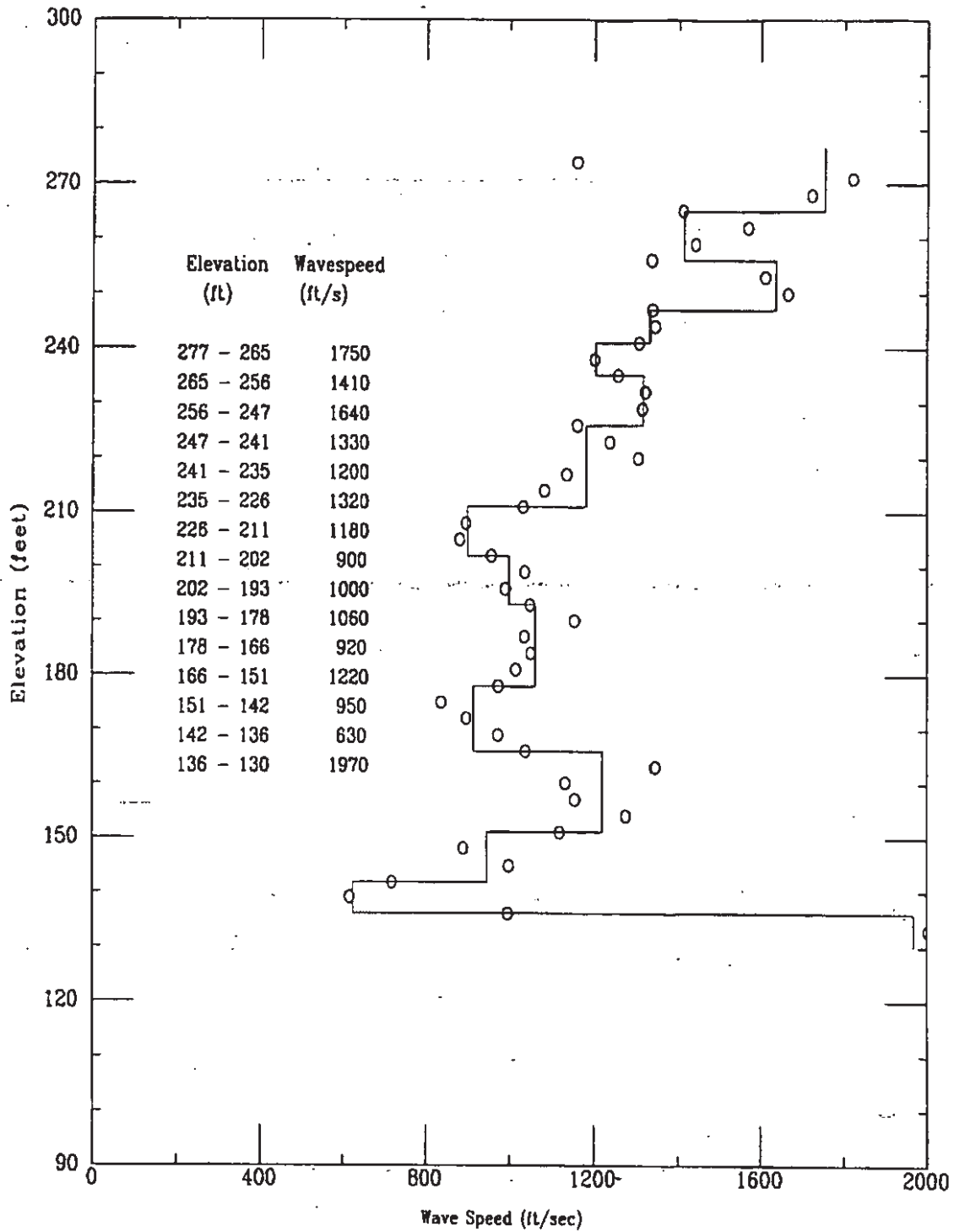
146 of 522

CPT-143

APPLIED RESEARCH ASSOCIATES, INC.

02/25/98

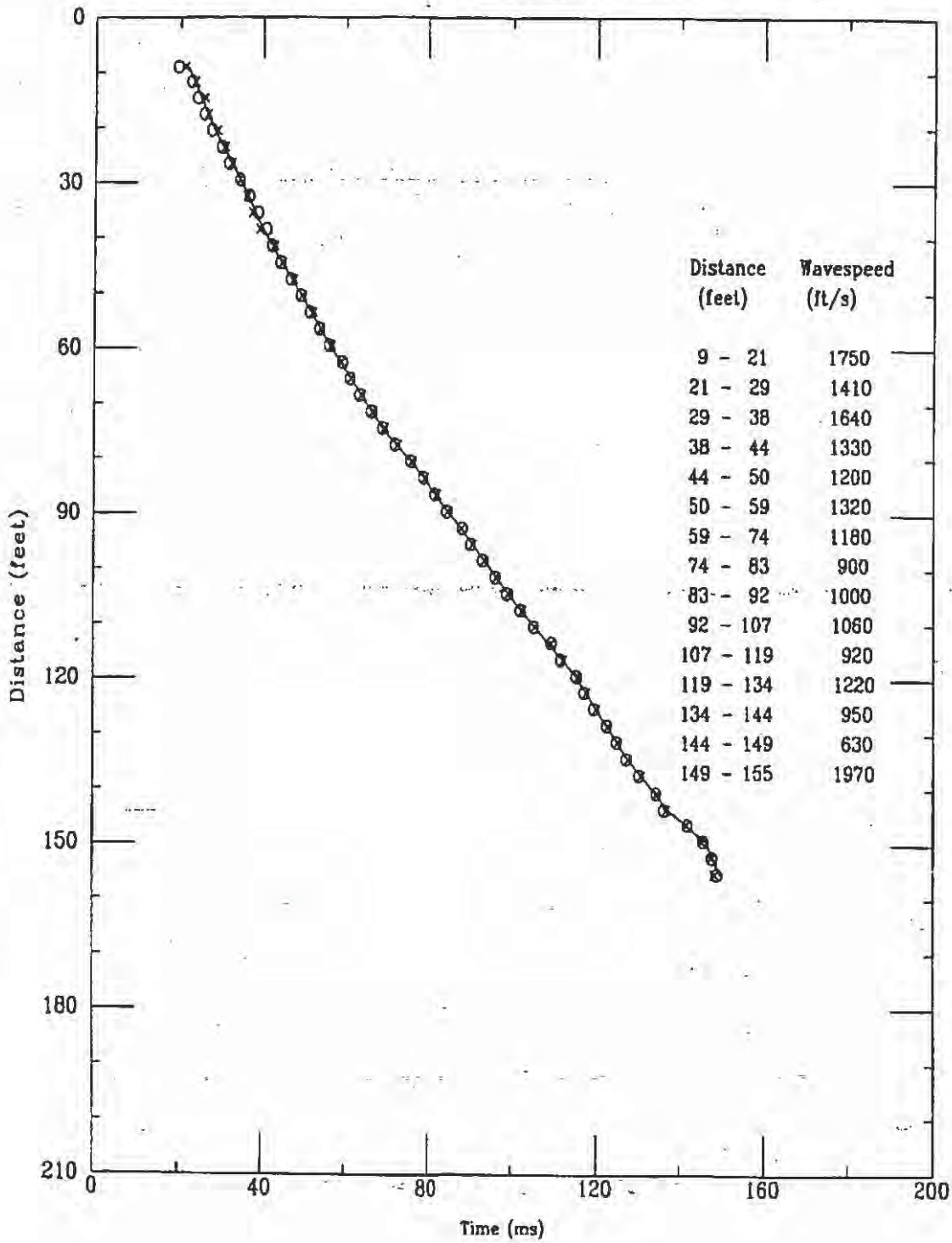
Shear Wave Speeds



CPT-143

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

02/25/98

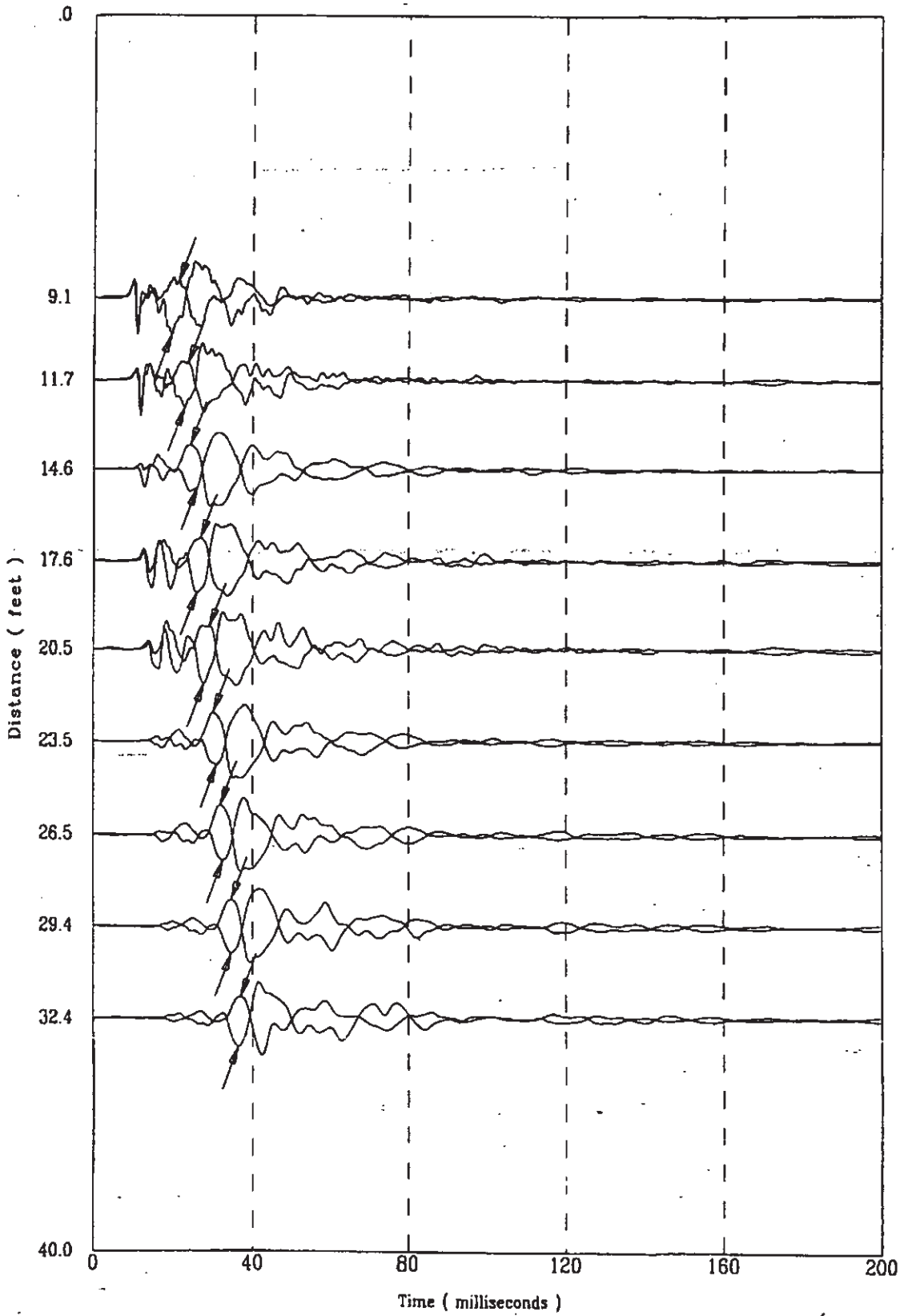


File 52518045

K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-143

S Wave  
02/25/98

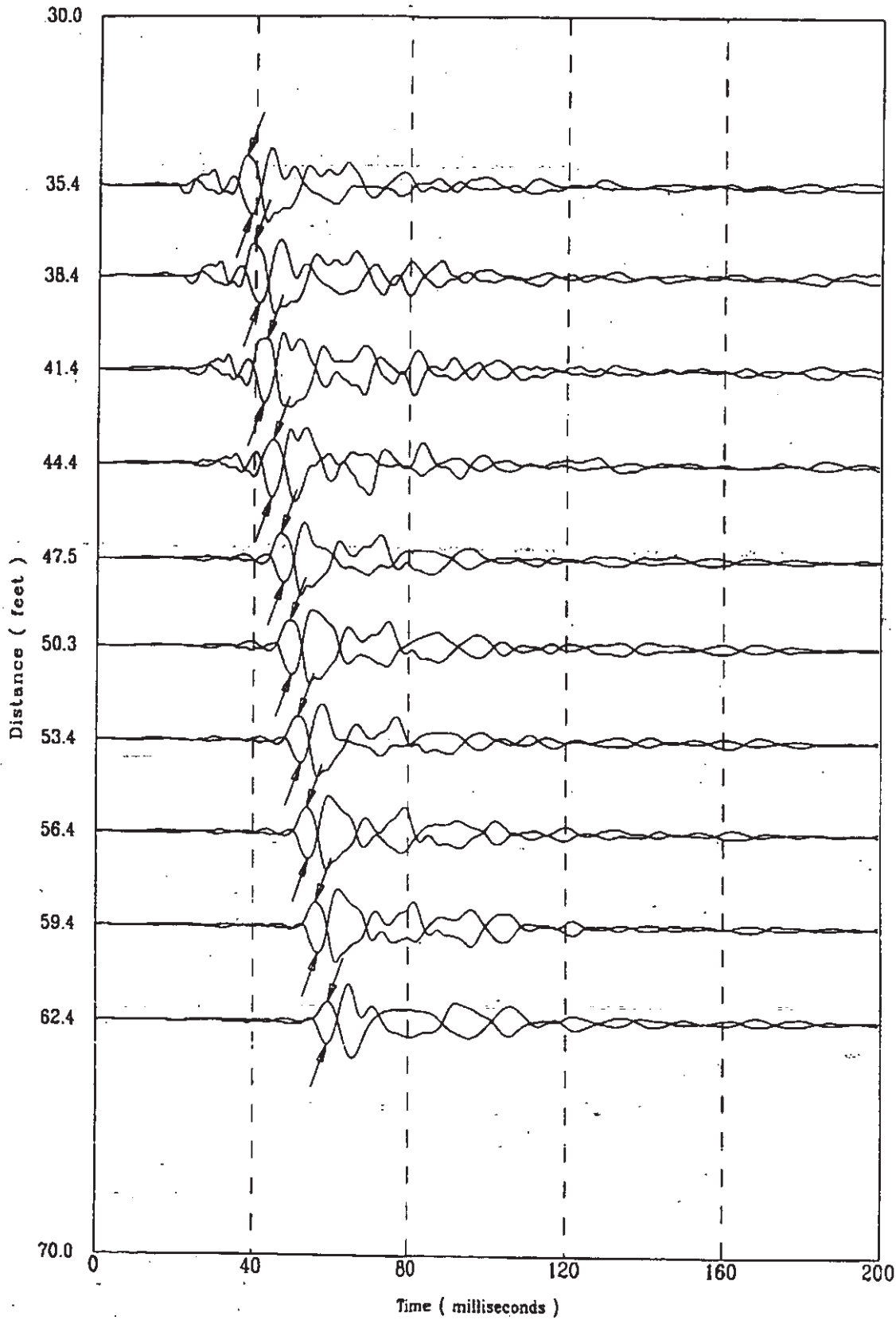


149 A 522

K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-143

S Wave  
02/25/98

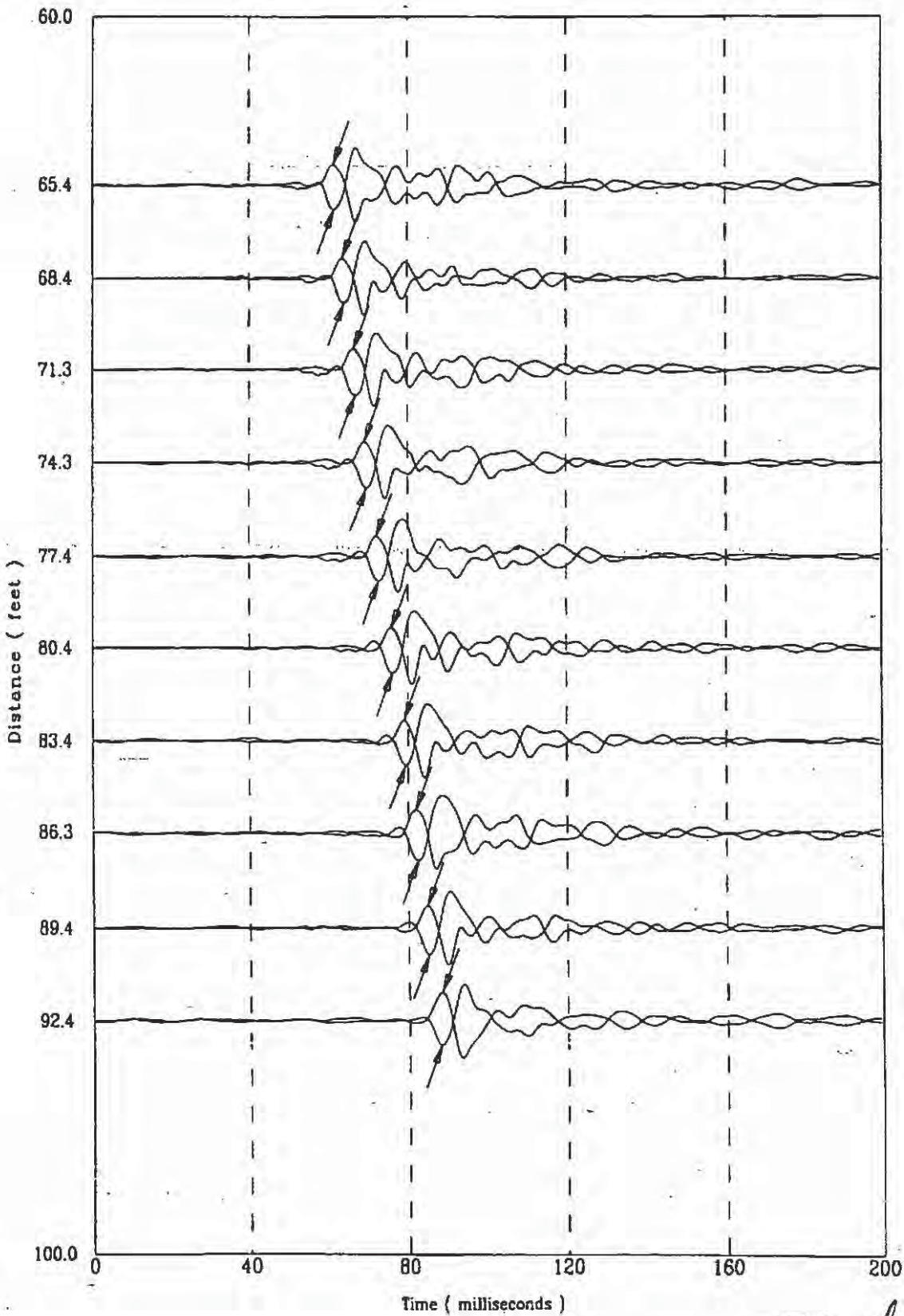


File 52518043

K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-143

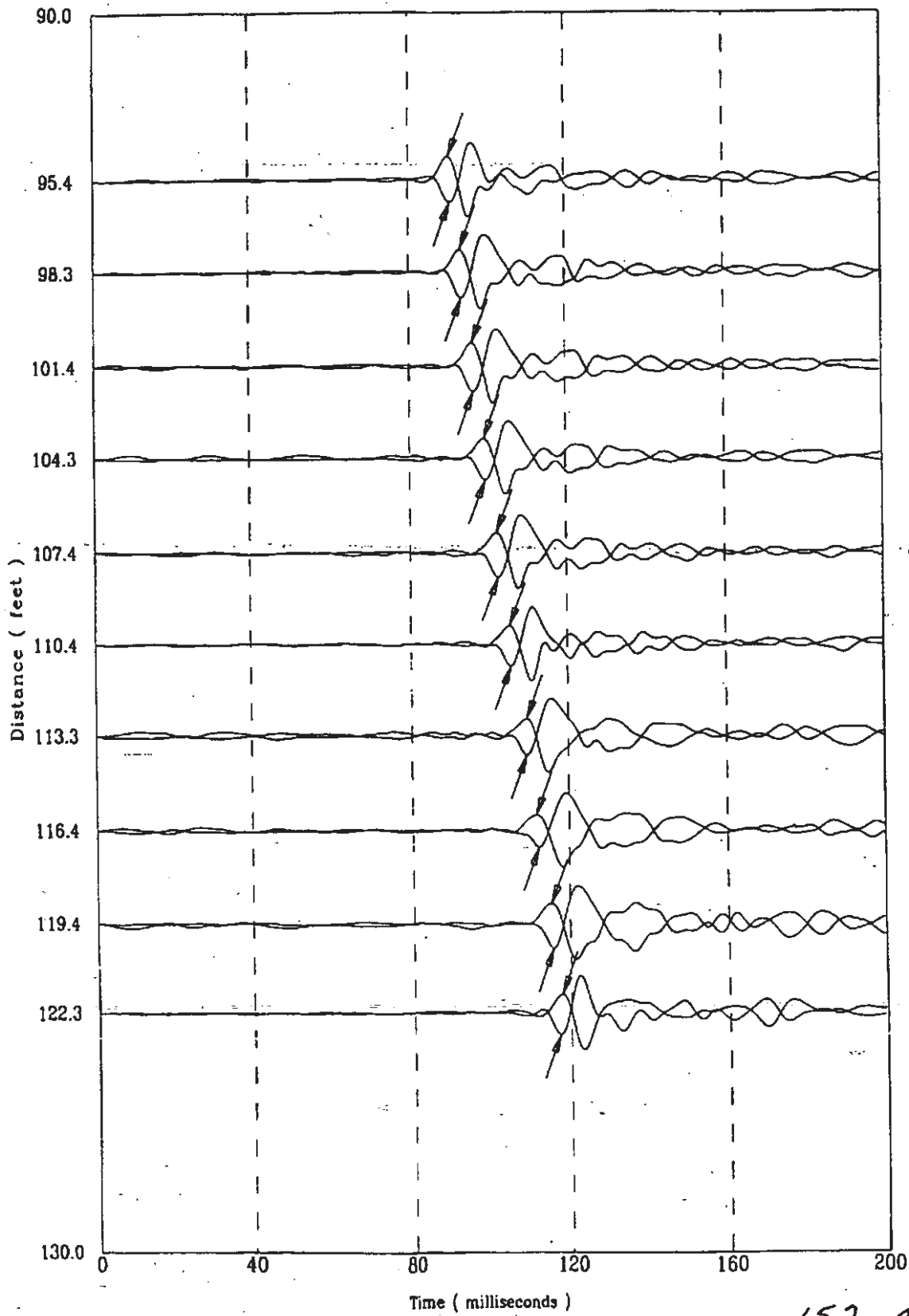
S Wave  
02/25/98



K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-143

S Wave  
02/25/98

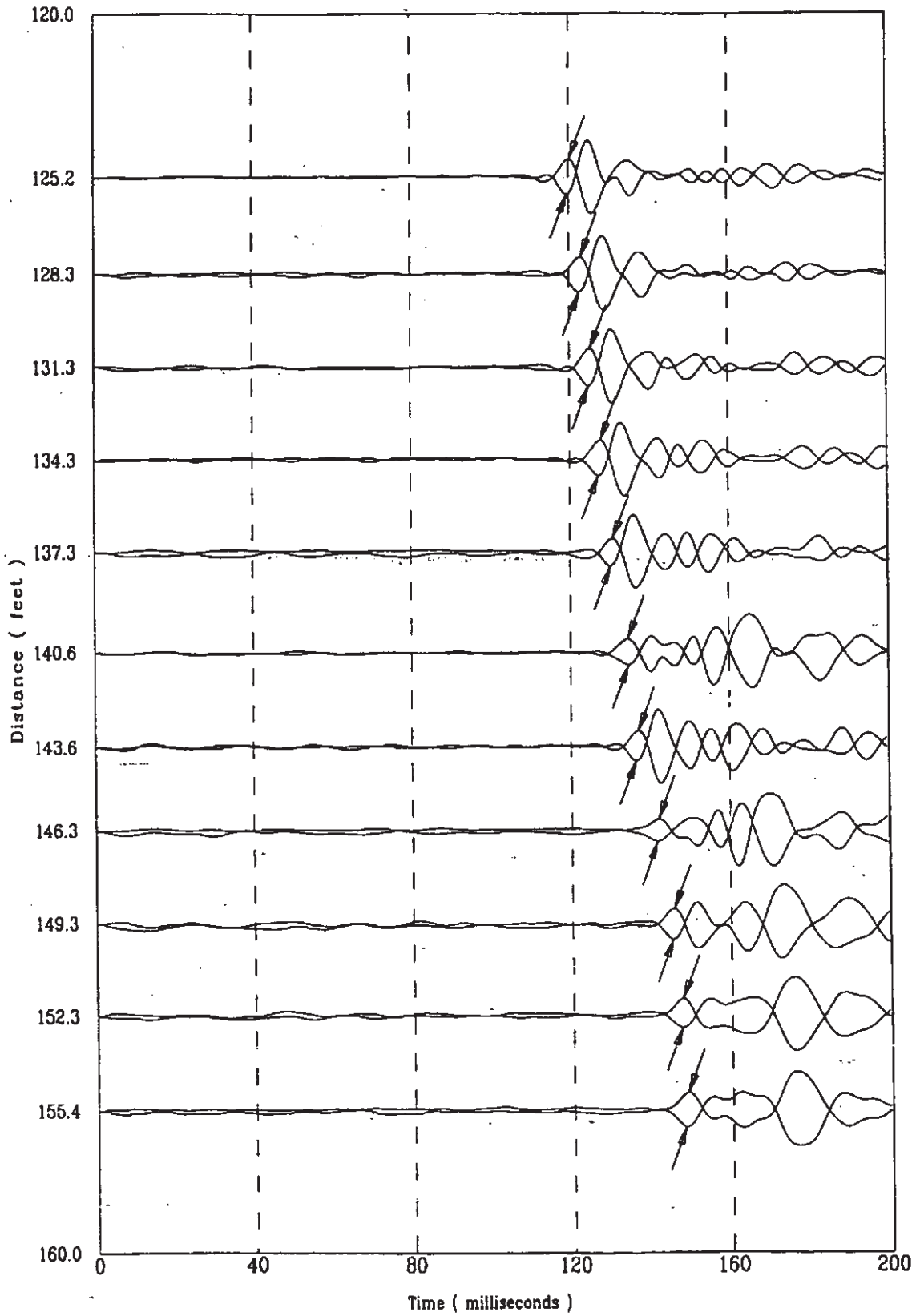




K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-143

S Wave  
02/25/98



52518045

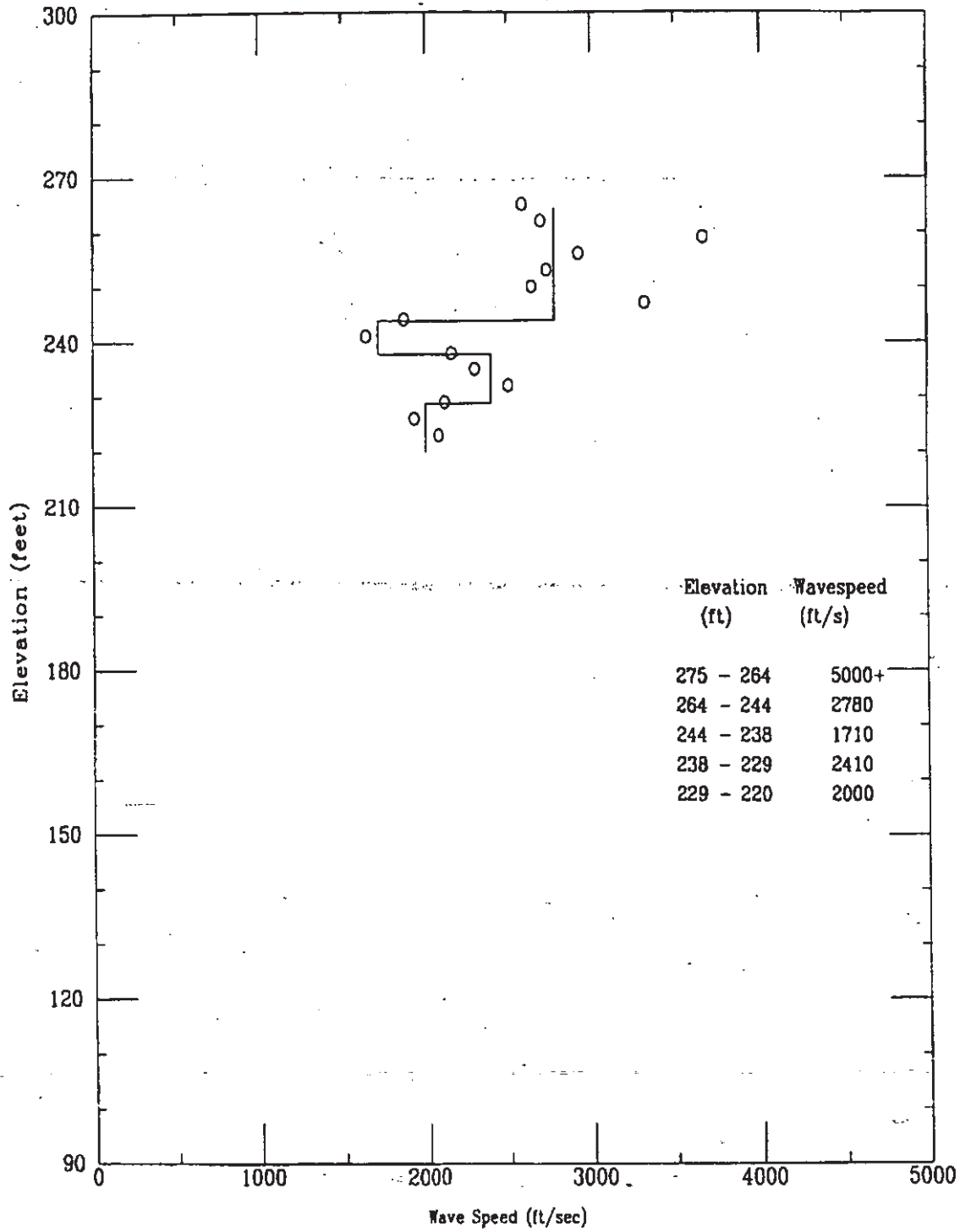


CPT-143

APPLIED RESEARCH ASSOCIATES, INC.

02/25/98

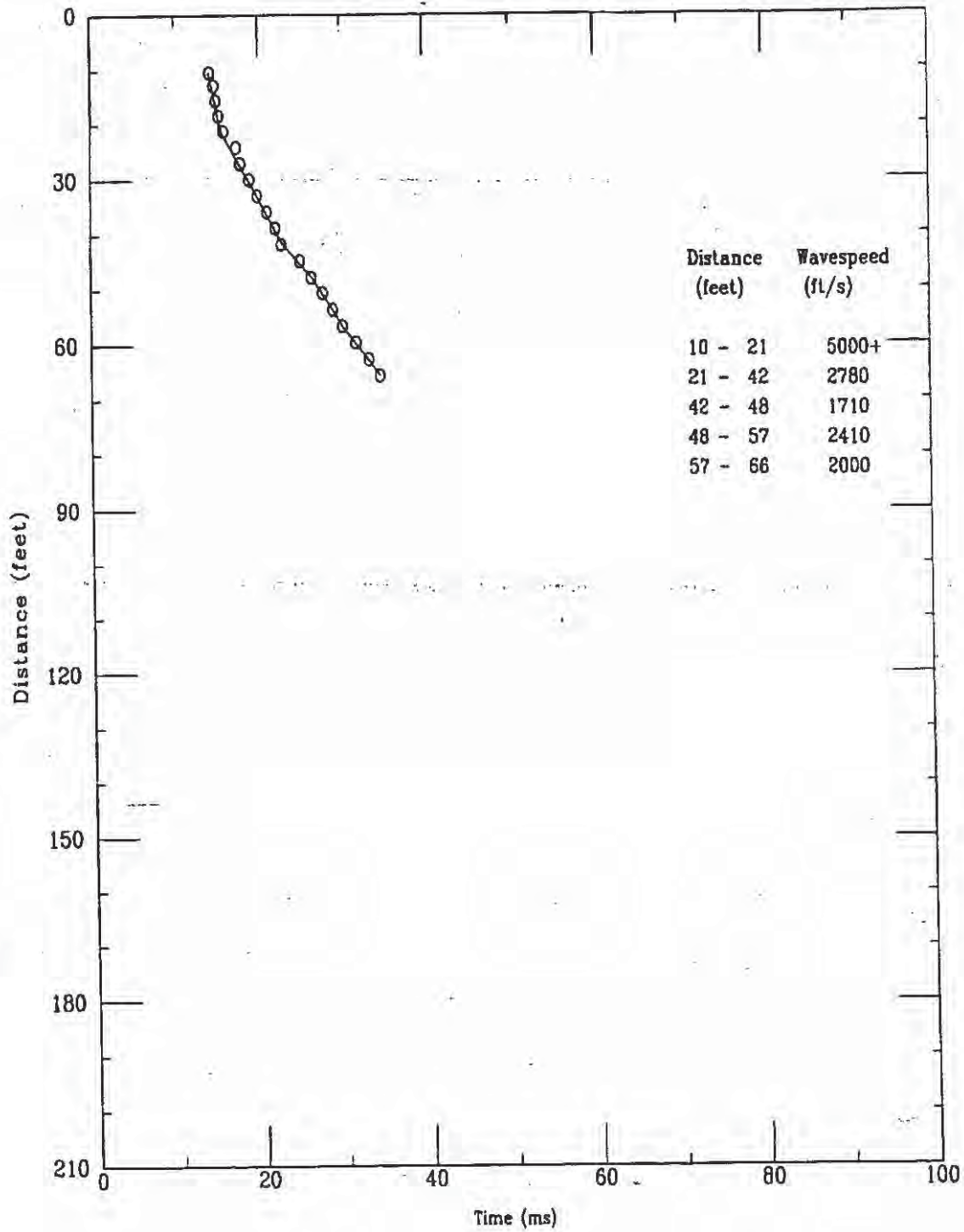
Compression Wave Speeds



CPT-143

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

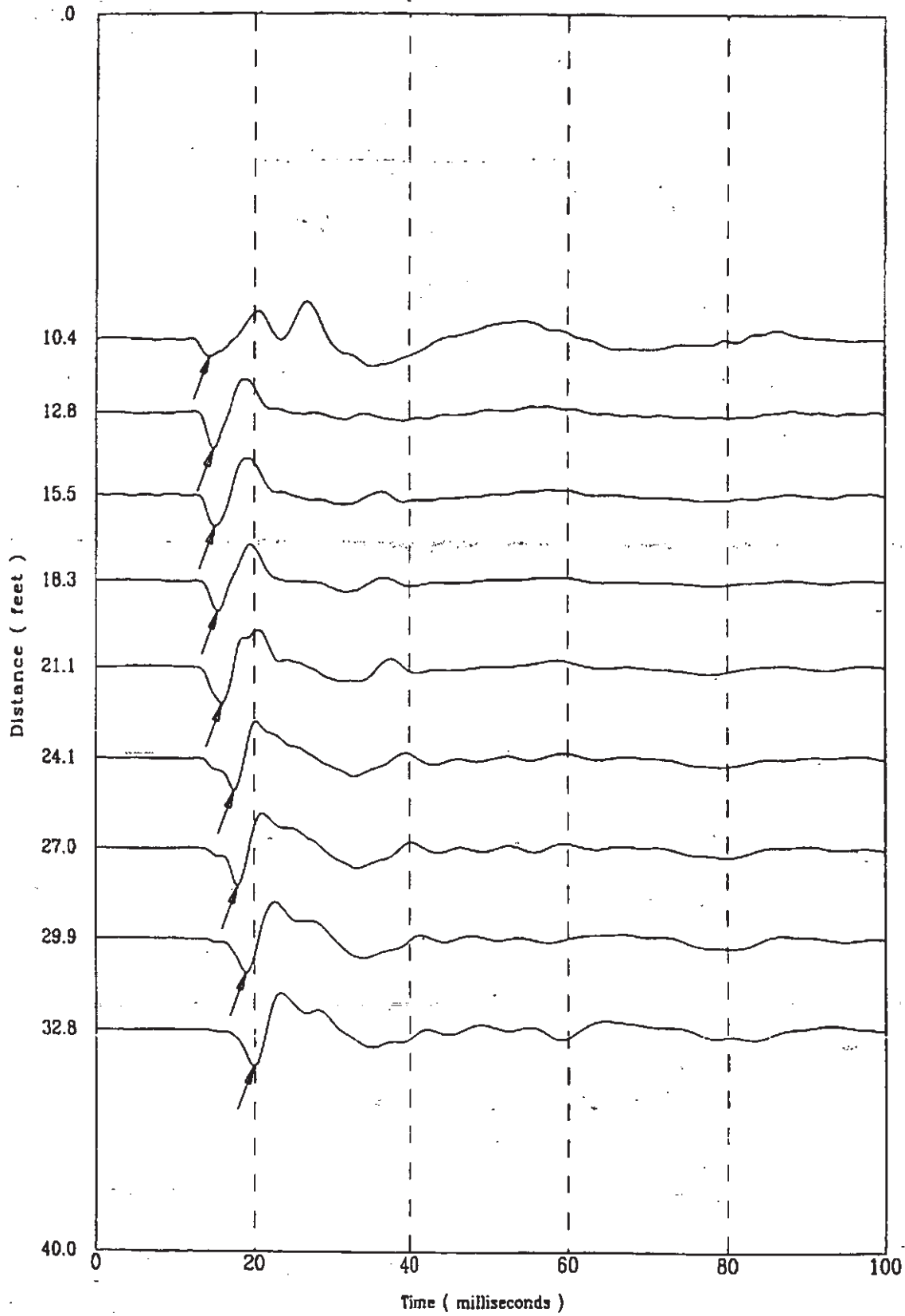
02/25/98



K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-143

P Wave  
02/25/98



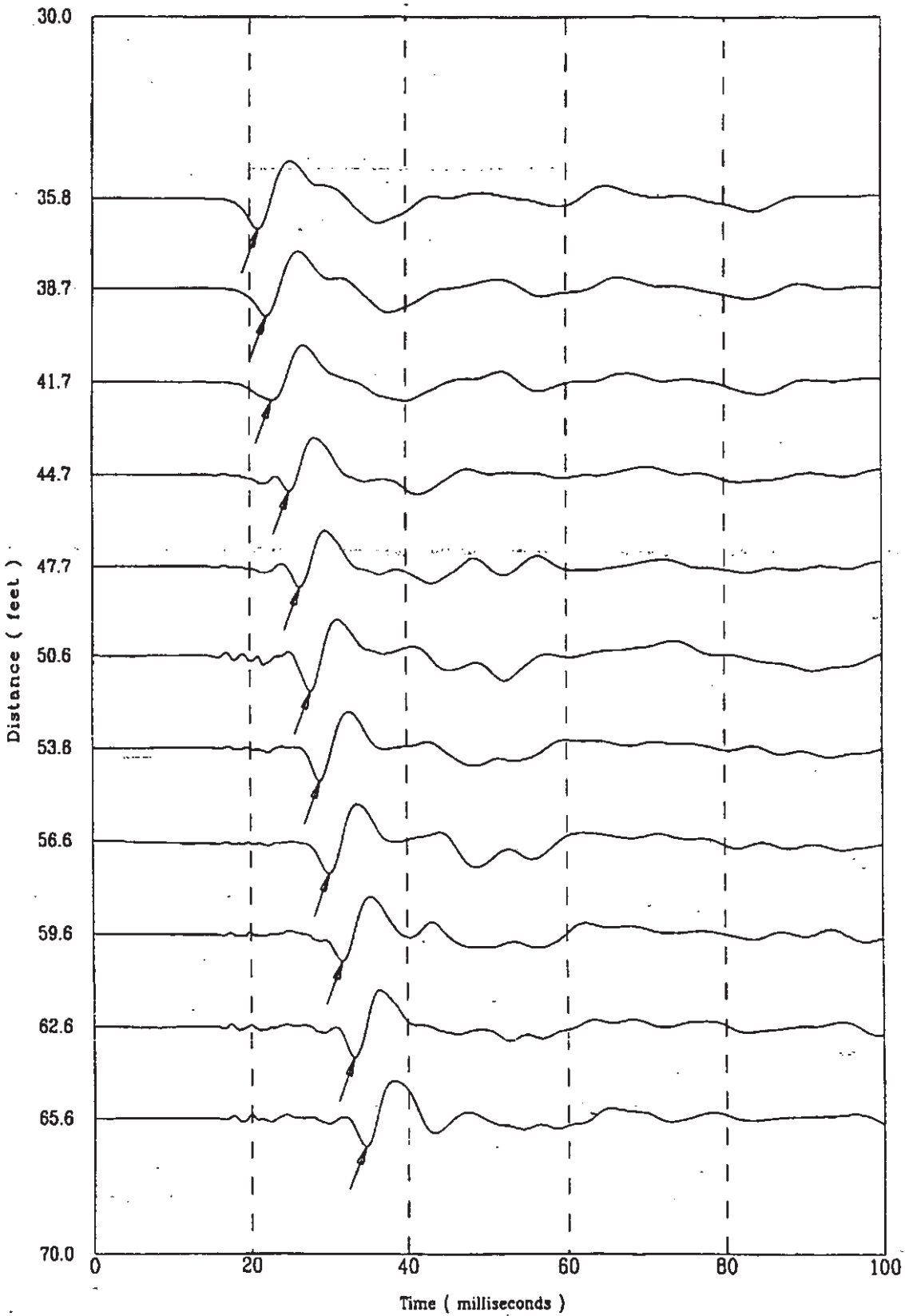
File 5251804S

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K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-143

P Wave  
02/25/98



251804S

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CPT-147

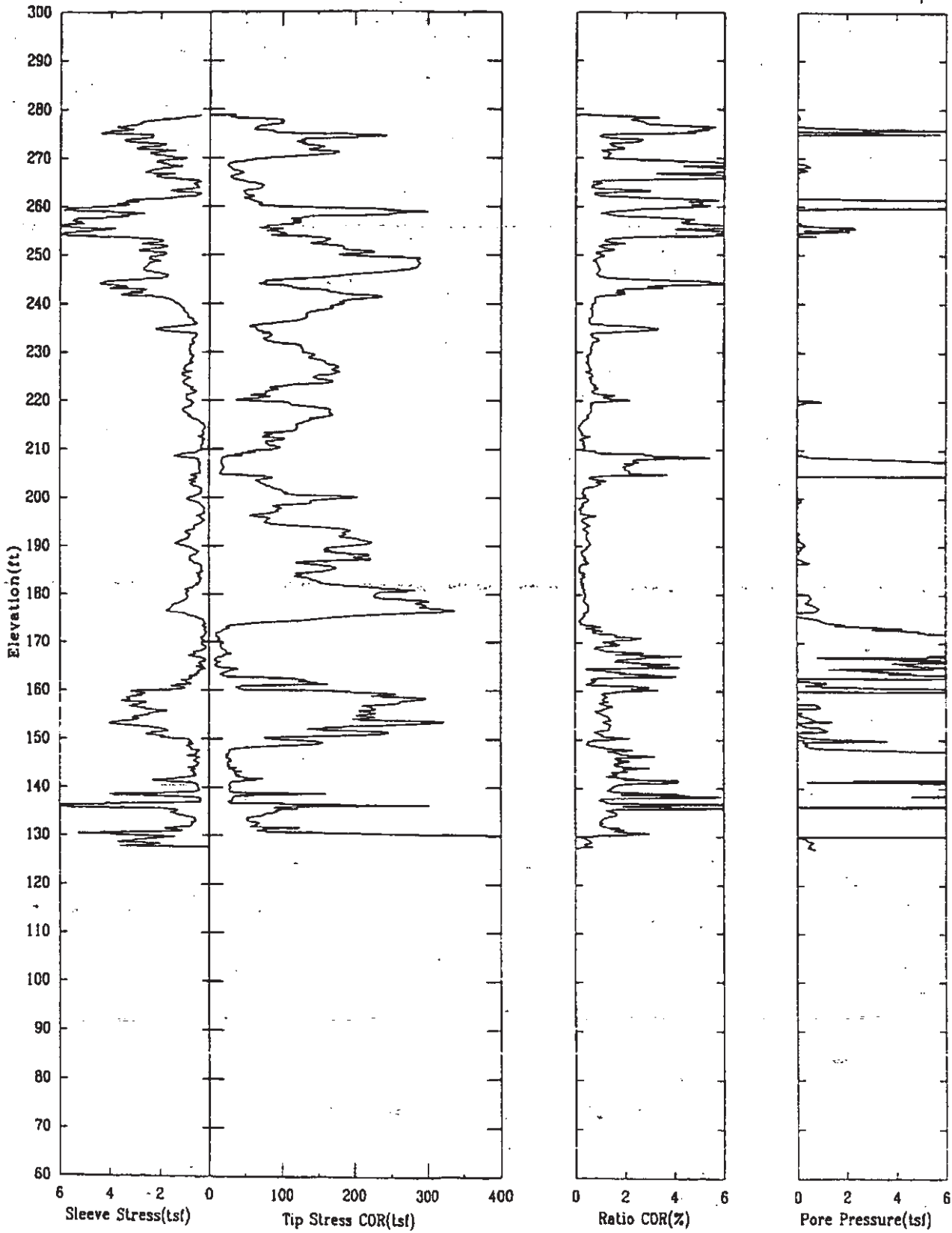
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
02/24/98 / 0

North 79372

East 55261

Elevation 284.8



CPT-147

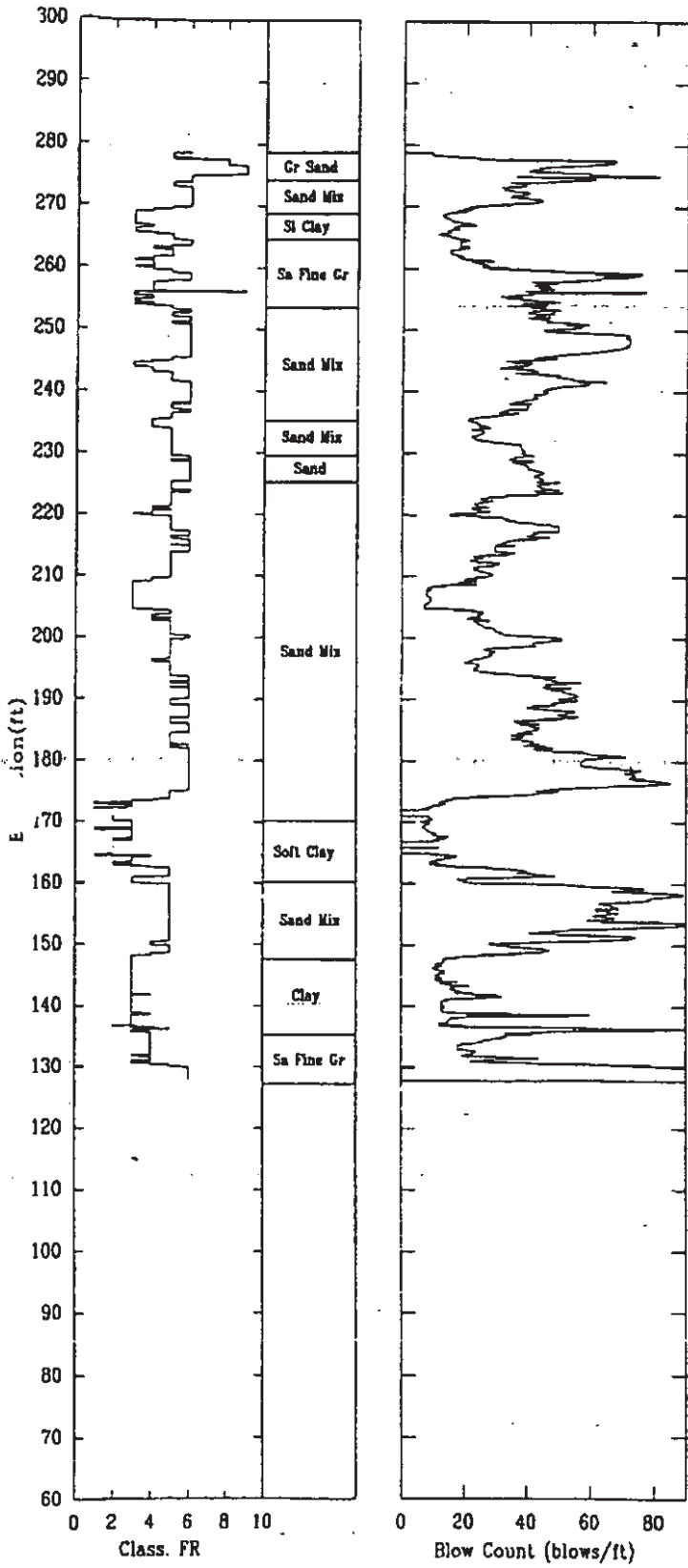
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
02/24/98  
R/O

North 79372

East 55261

Elevation 284.8

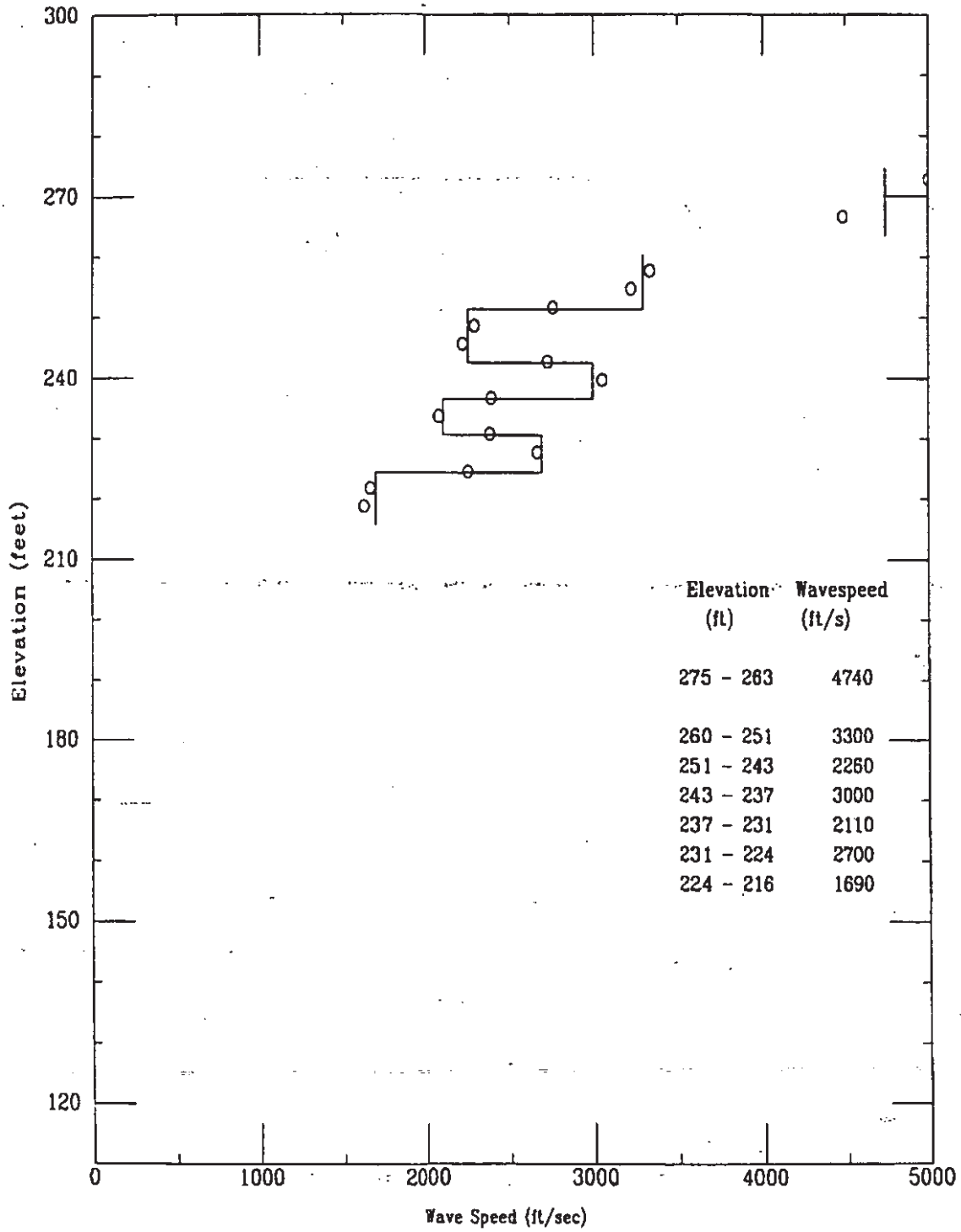


CPT-147

APPLIED RESEARCH ASSOCIATES, INC.

02/24/98

Compression Wave Speeds

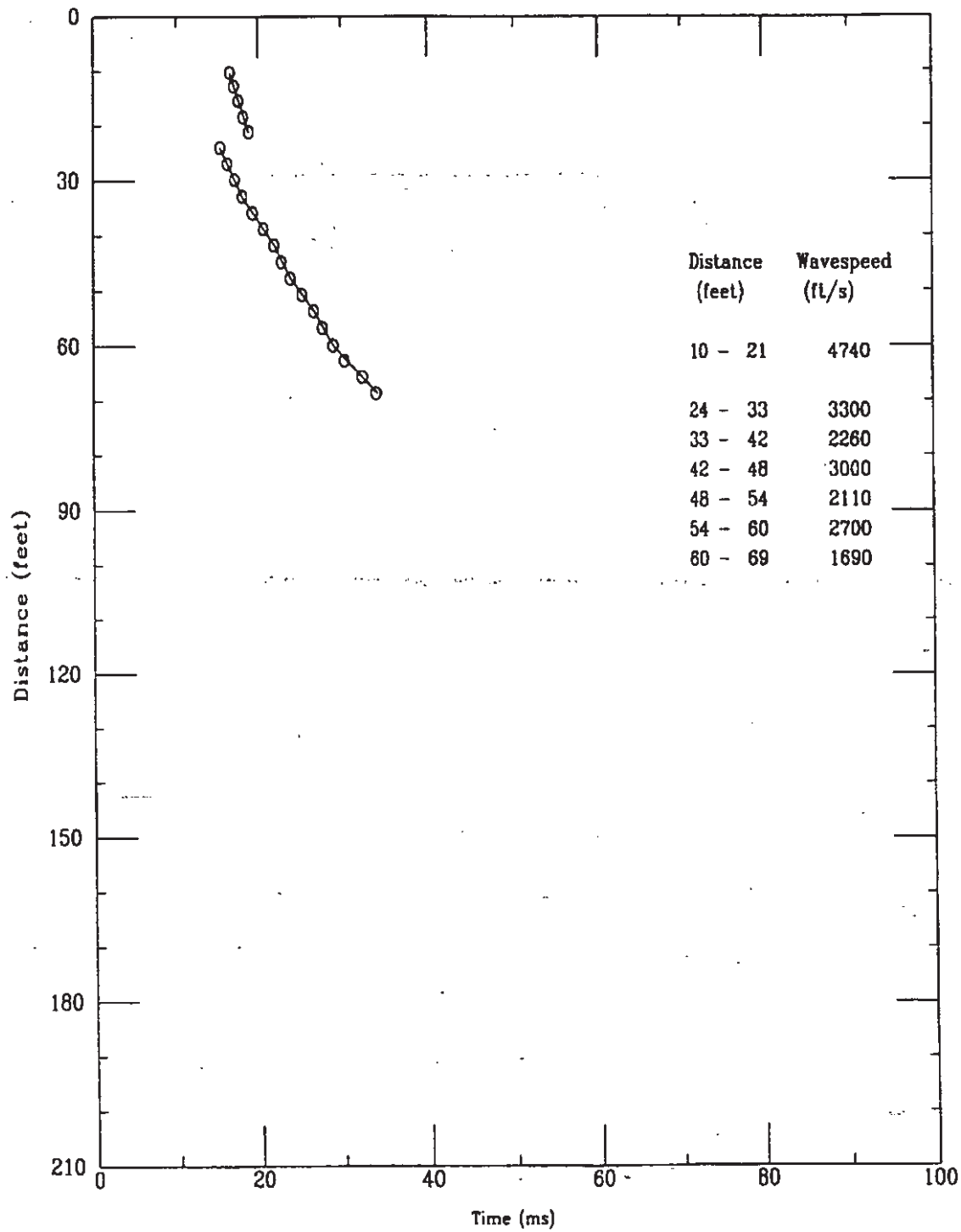


File 4247801S

CPT-147

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/24/98

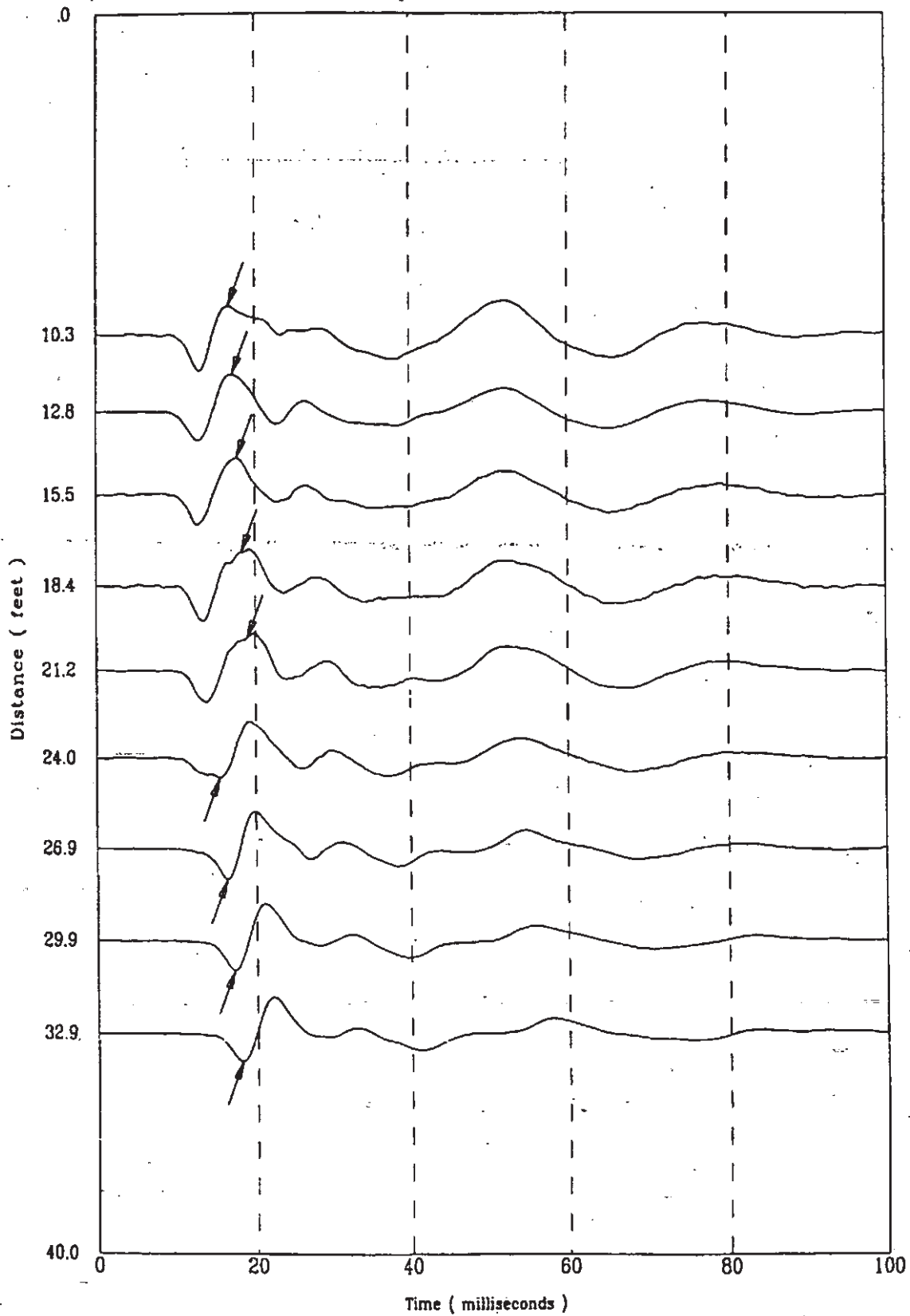




K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-147

P Wave  
02/24/98



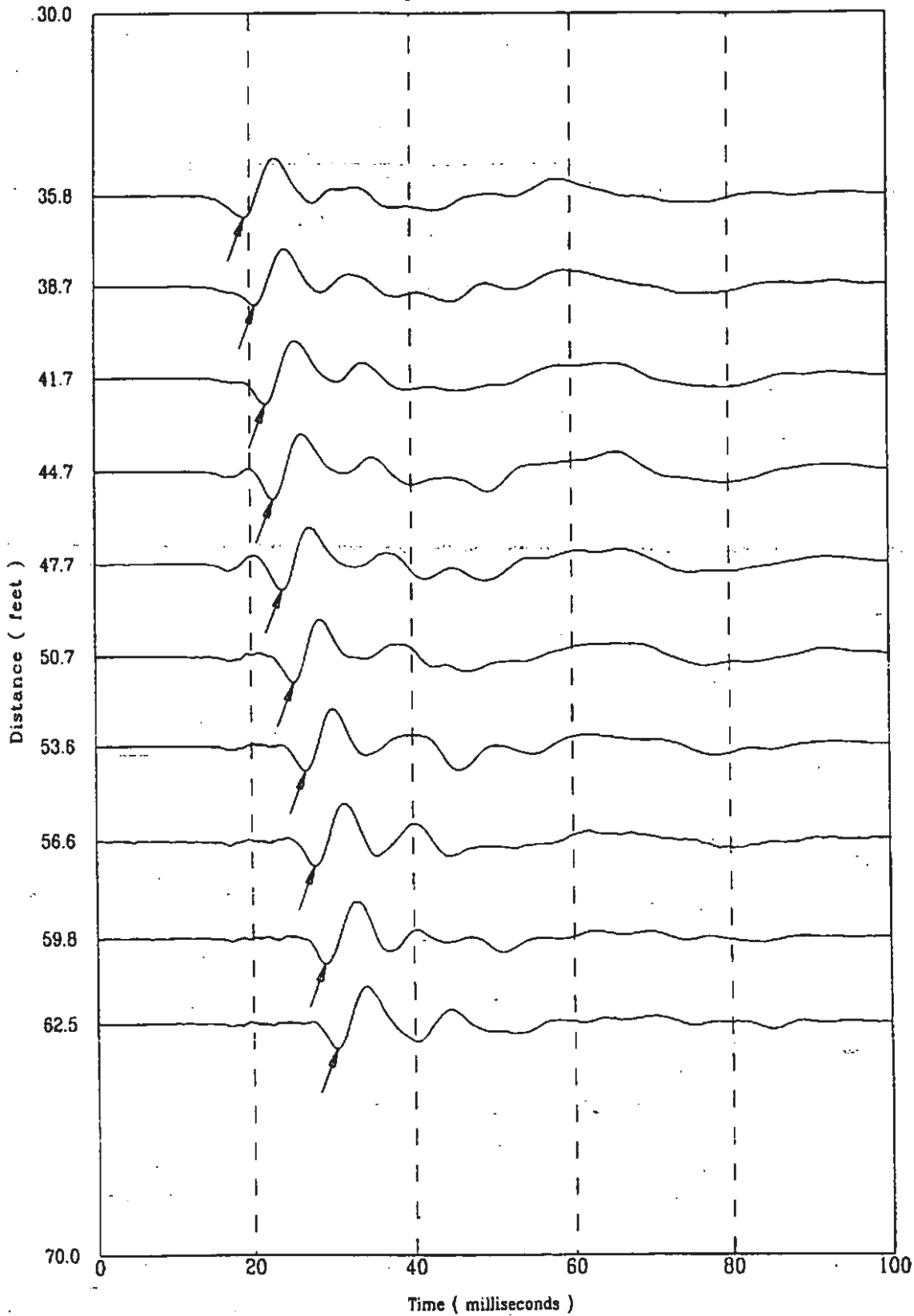
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-147

P Wave  
02/24/98

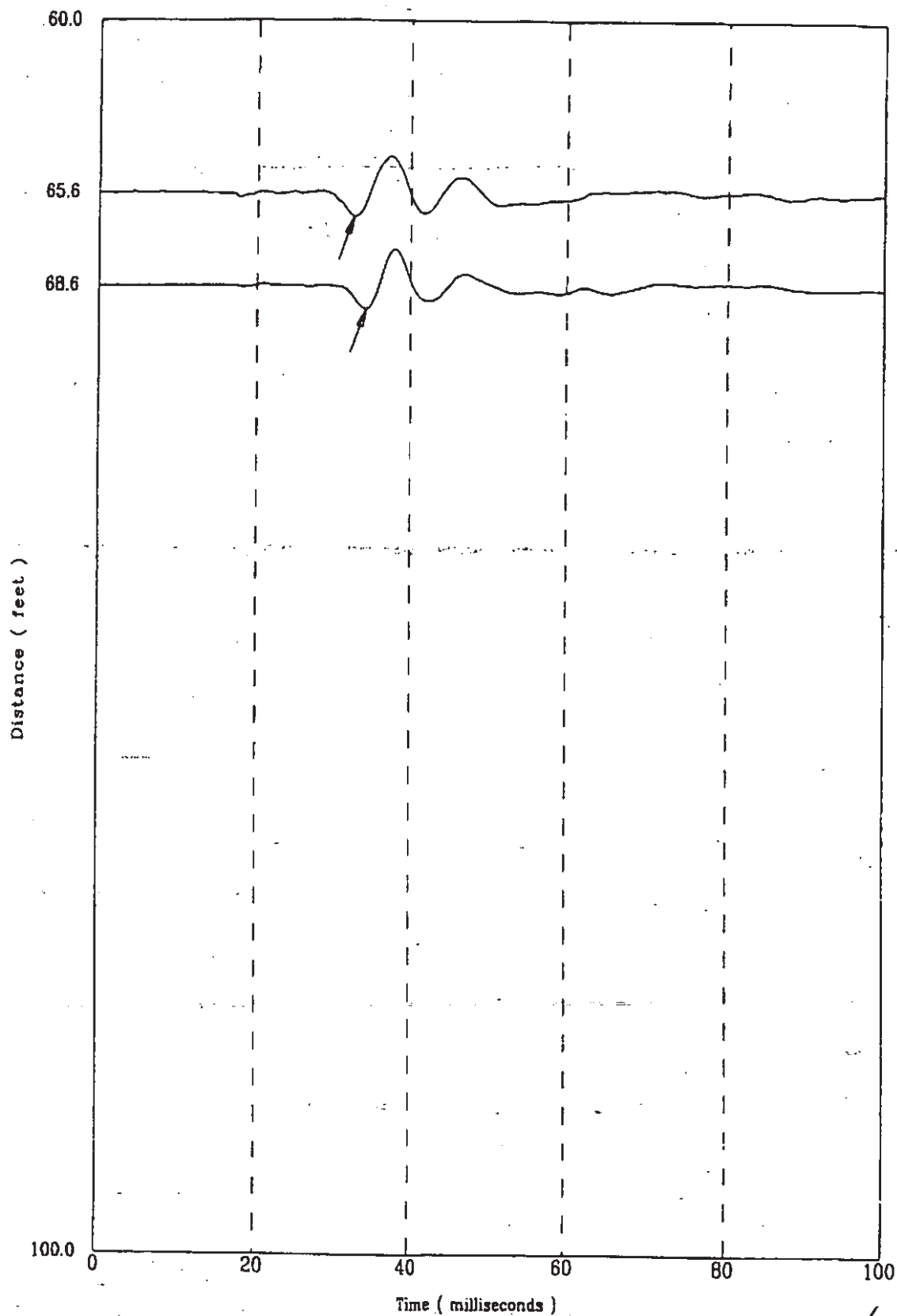


4248015

K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-147

P Wave  
02/24/98



File 4241801S

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CPT-148

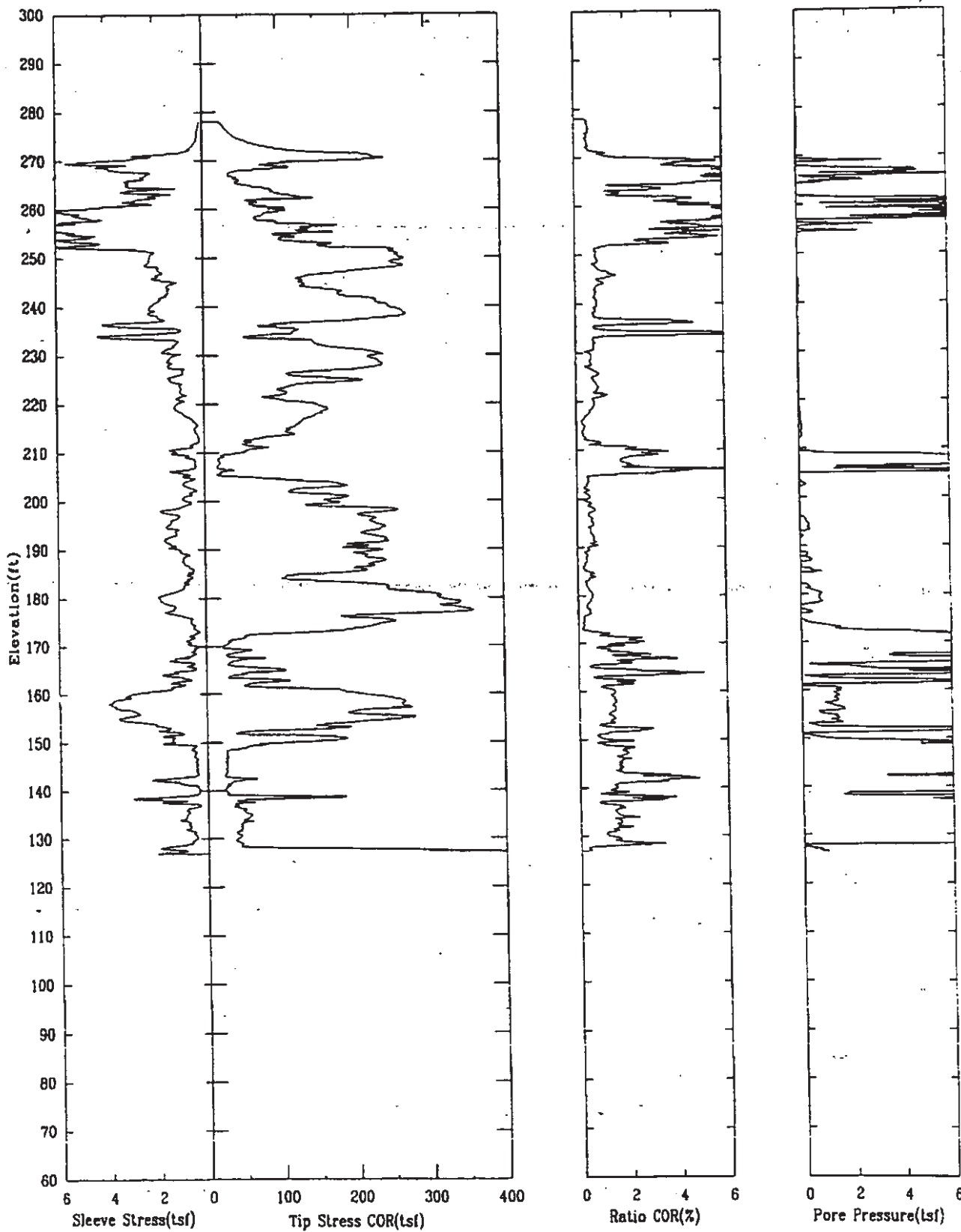
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K-TRT-F-00001  
02/27/98 R/O

North 79372.07

East 55385.00

Elevation 284.1



CPT-148

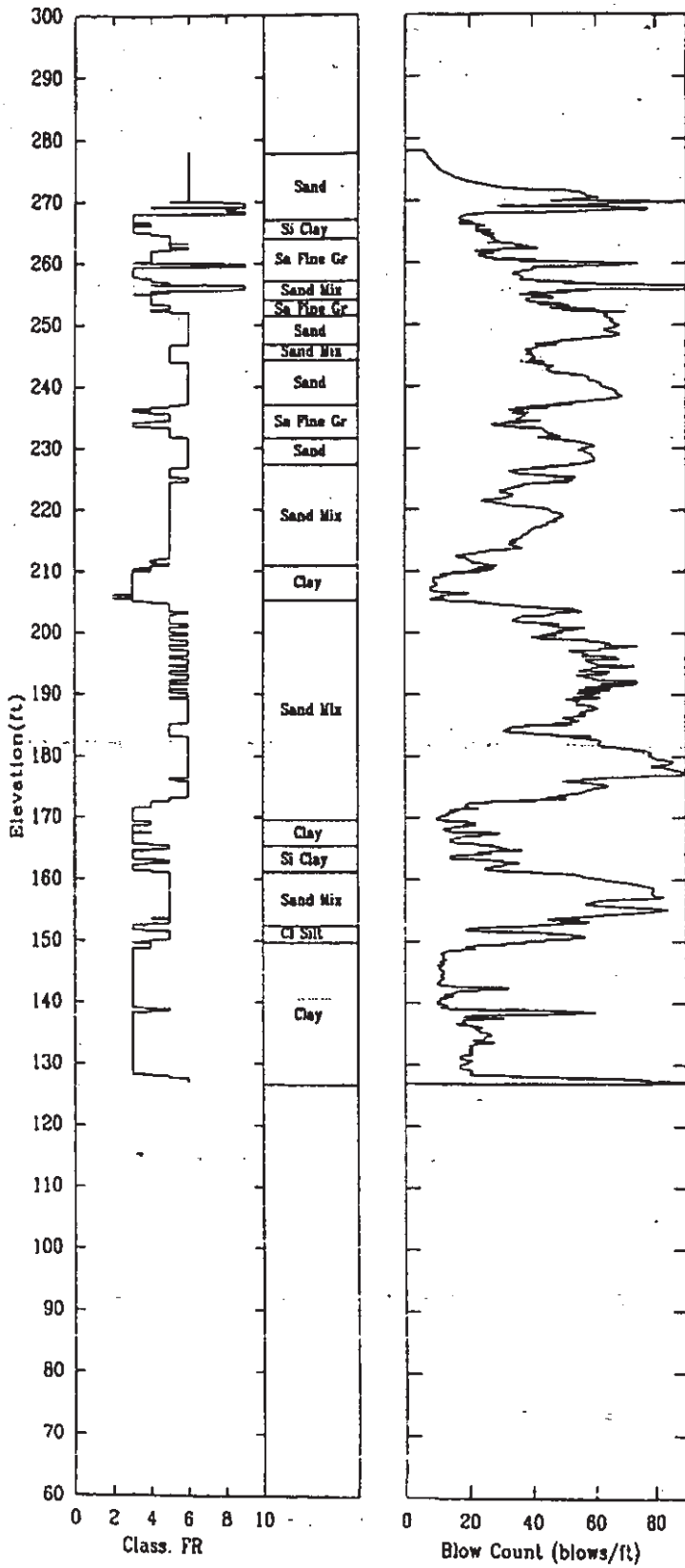
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K-TRT-F-00001  
02/27/98 R/O

North 79372.07

East 55385.00

Elevation 284.1

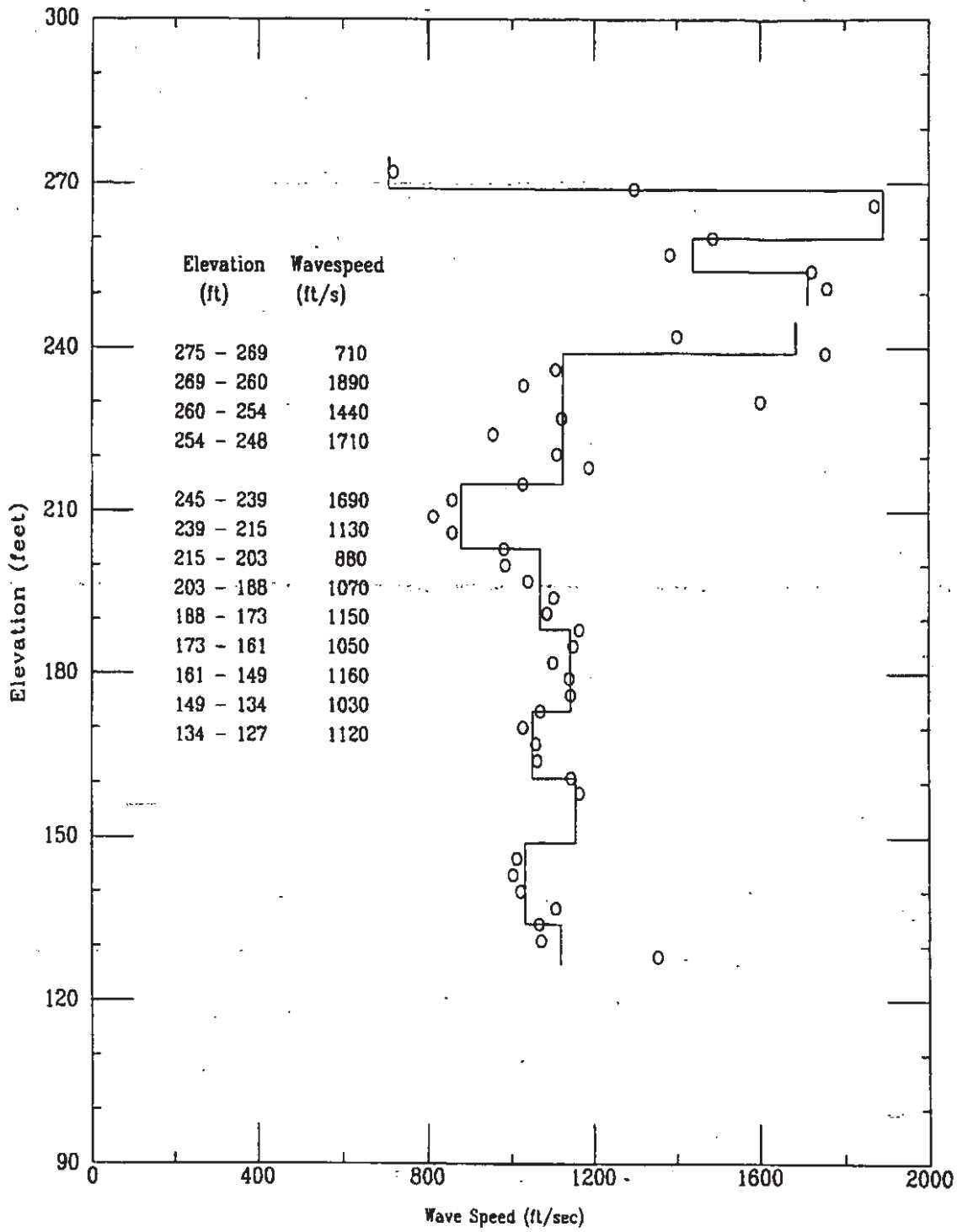


CPT-148

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02/27/98

Shear Wave Speeds



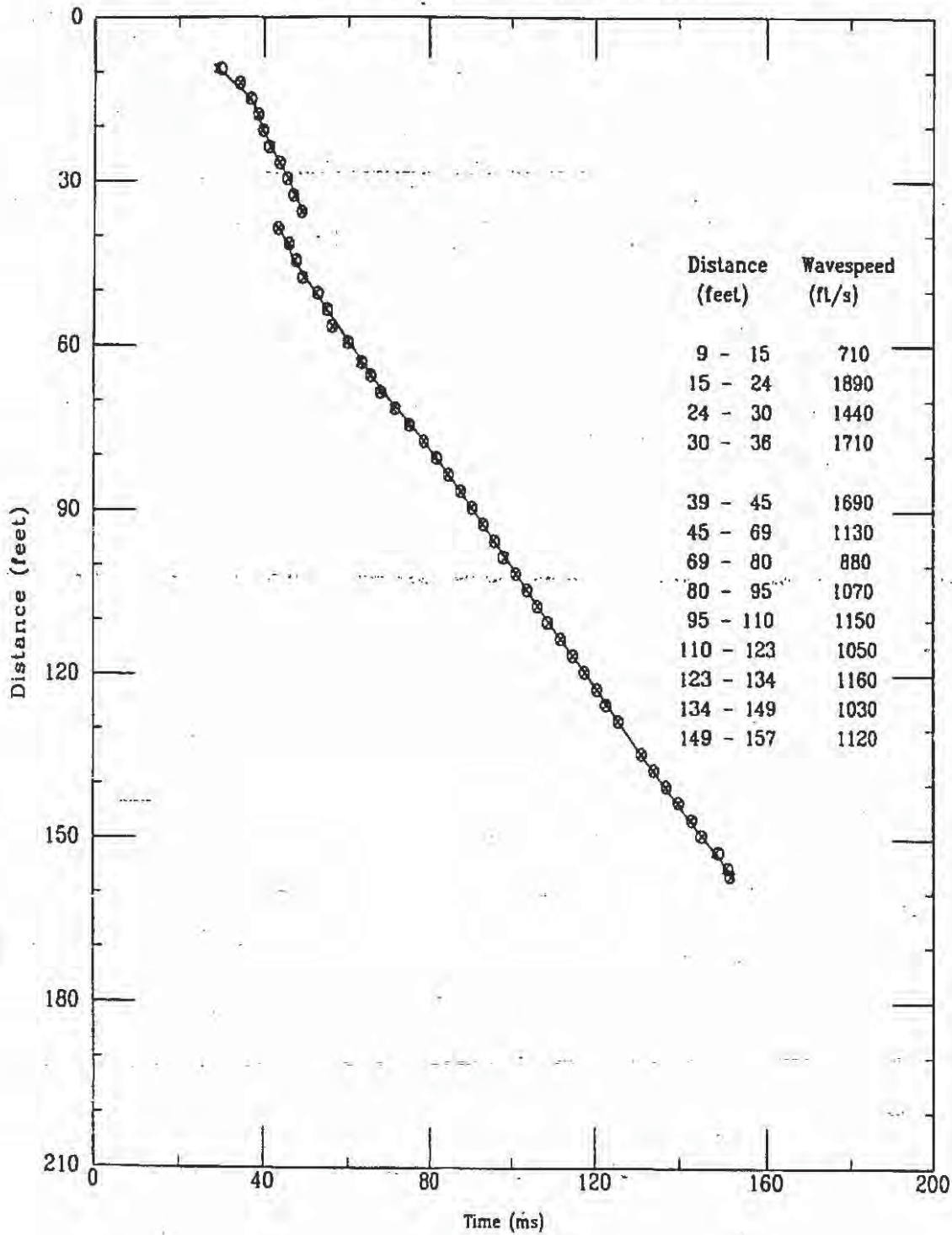
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CPT-148

APPLIED RESEARCH ASSOCIATES, INC.

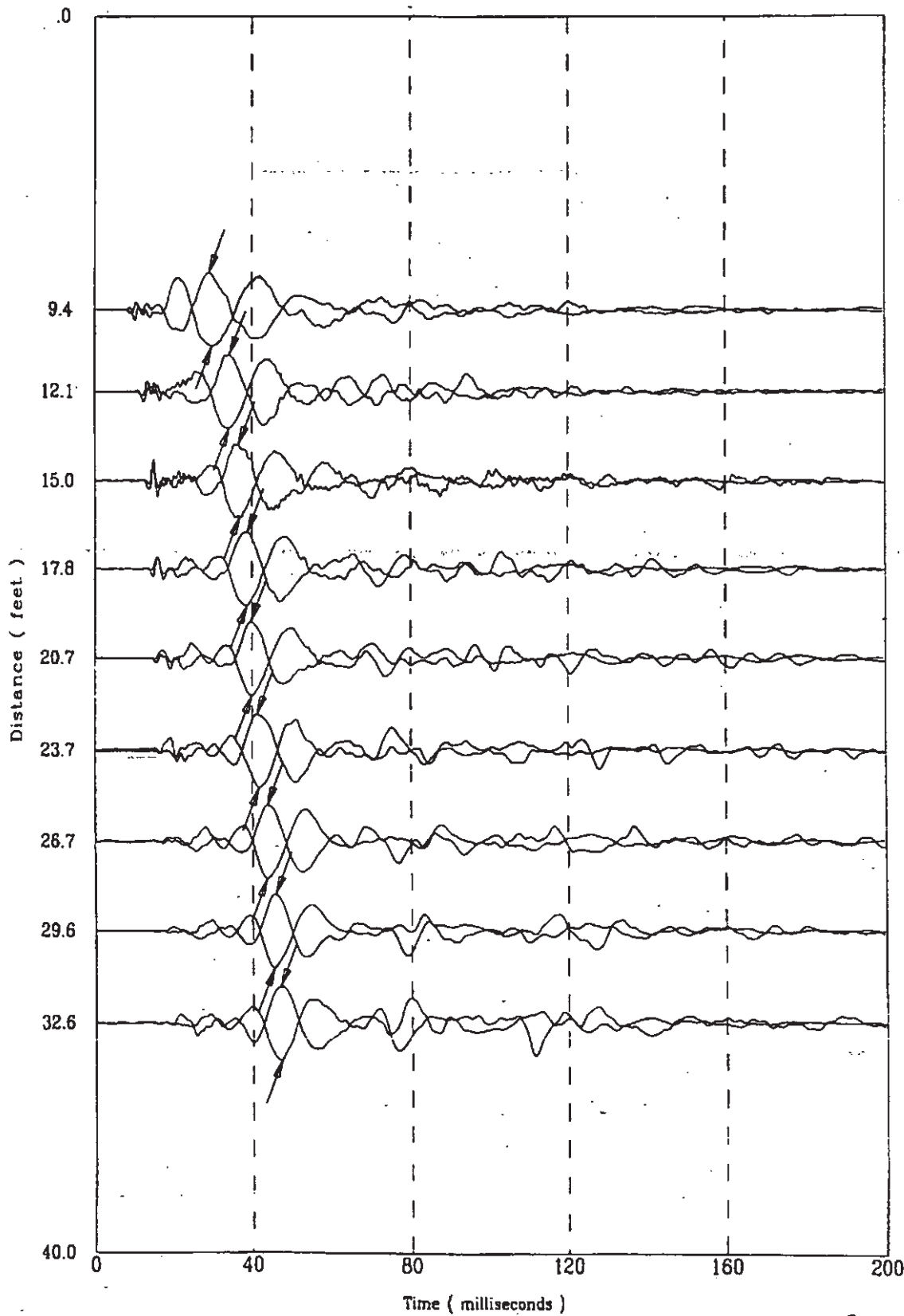
02/27/98

Shear Wave Time of Peak



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CPT-148

S Wave  
02/27/98



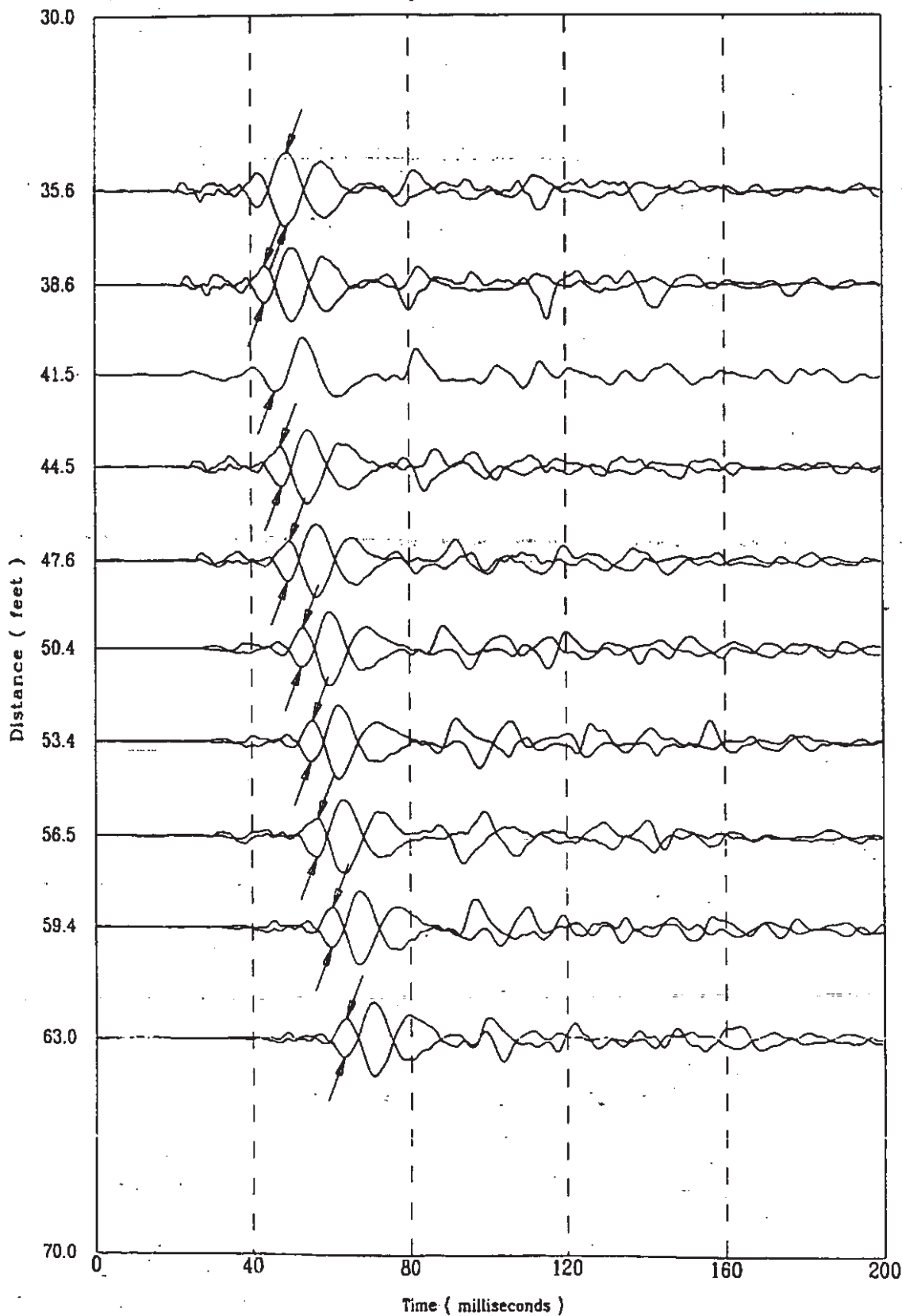
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-148

S Wave  
02/27/98



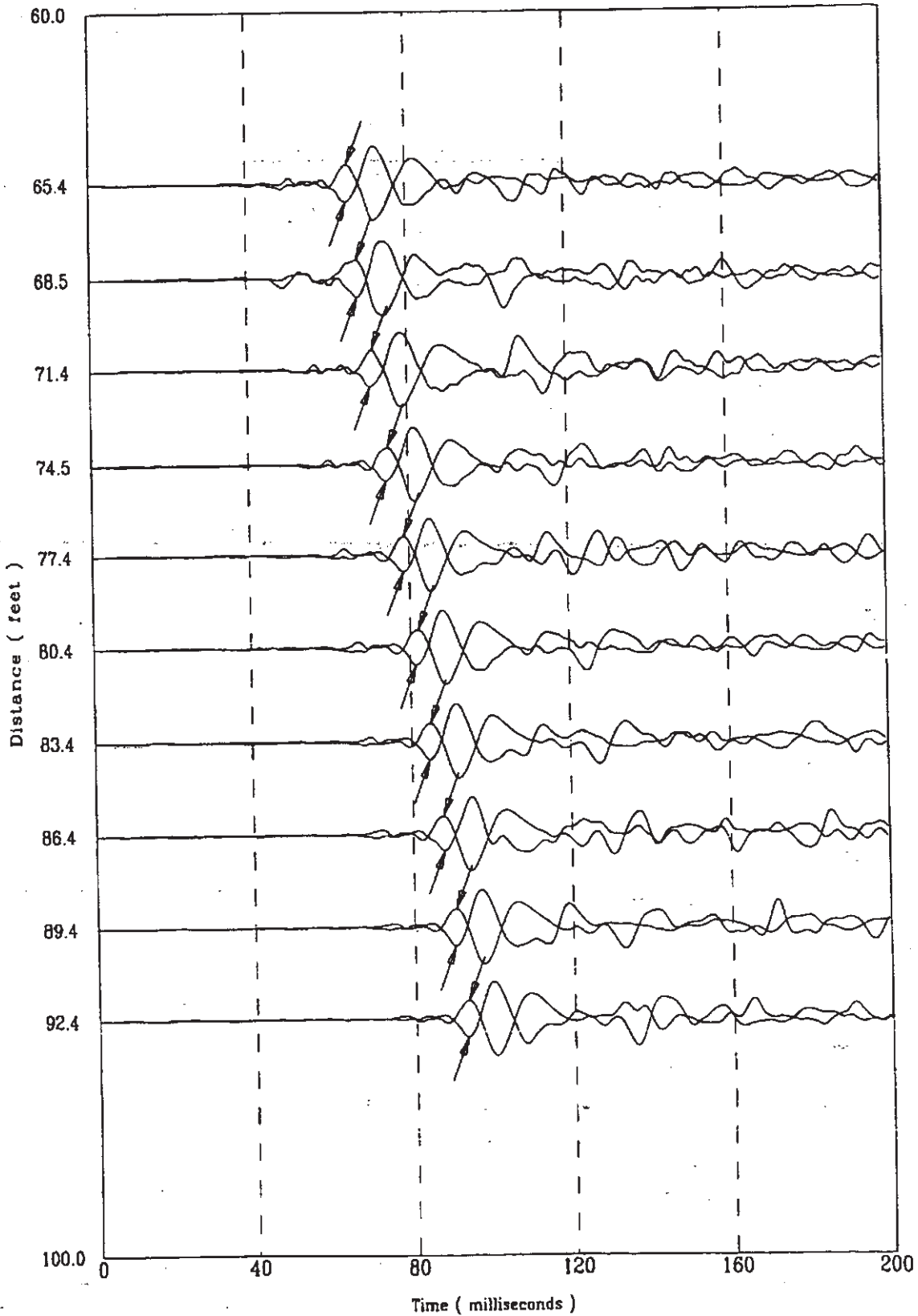
File 4271801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-148

S Wave  
02/27/98



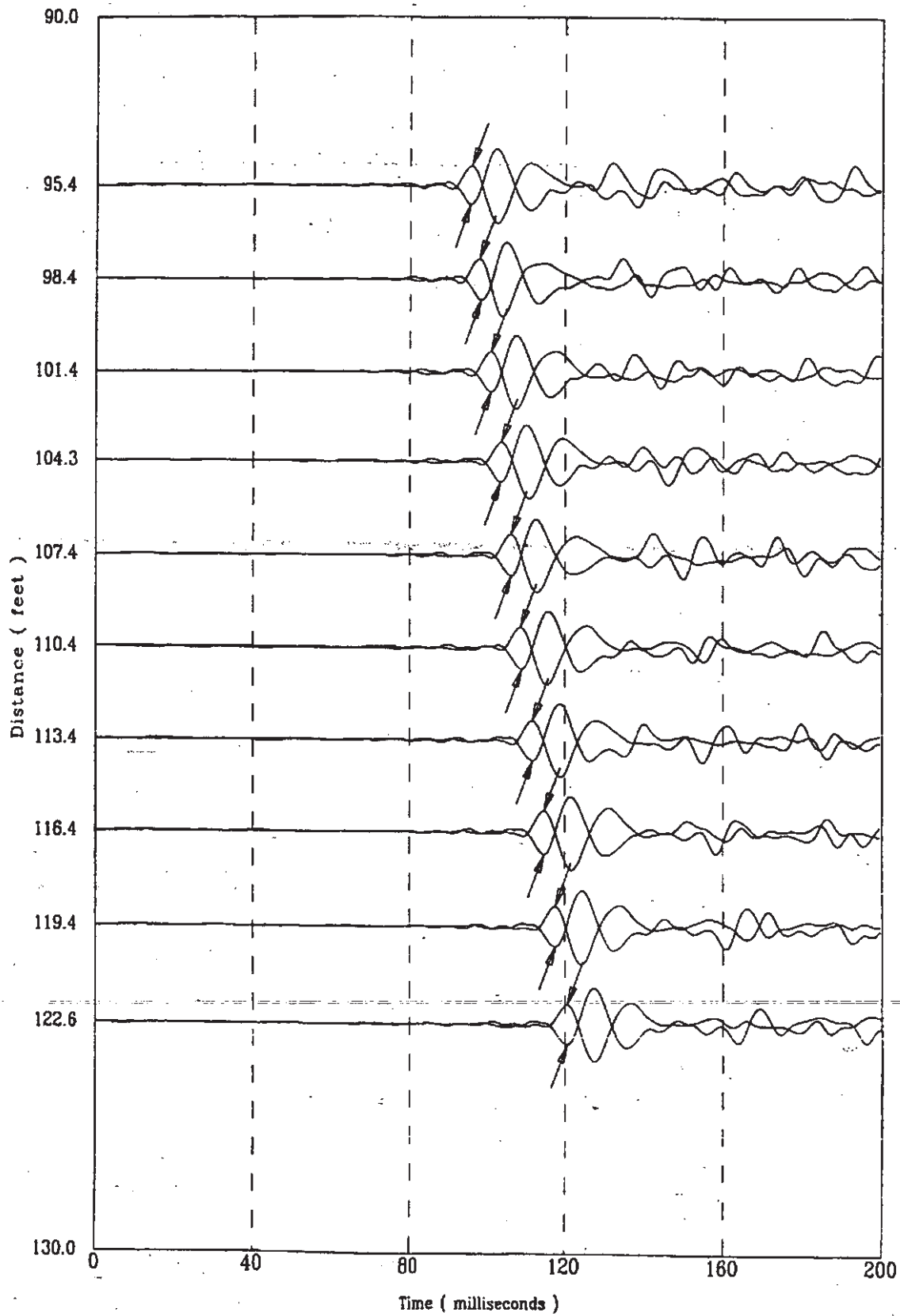
file 4271801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-148

S Wave  
02/27/98

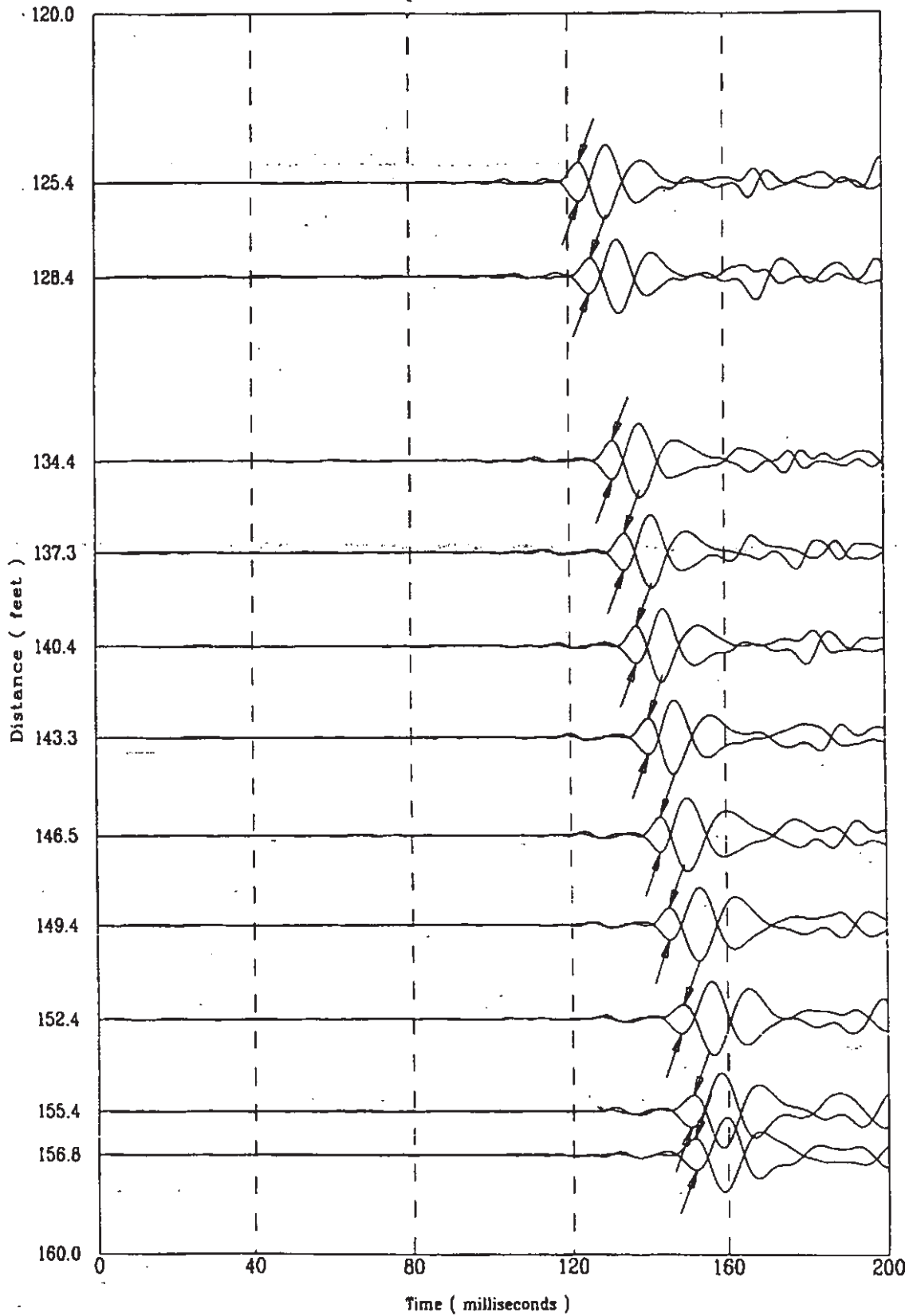


File 4271B01S

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Applied Research Associates, Inc.  
CPT-148

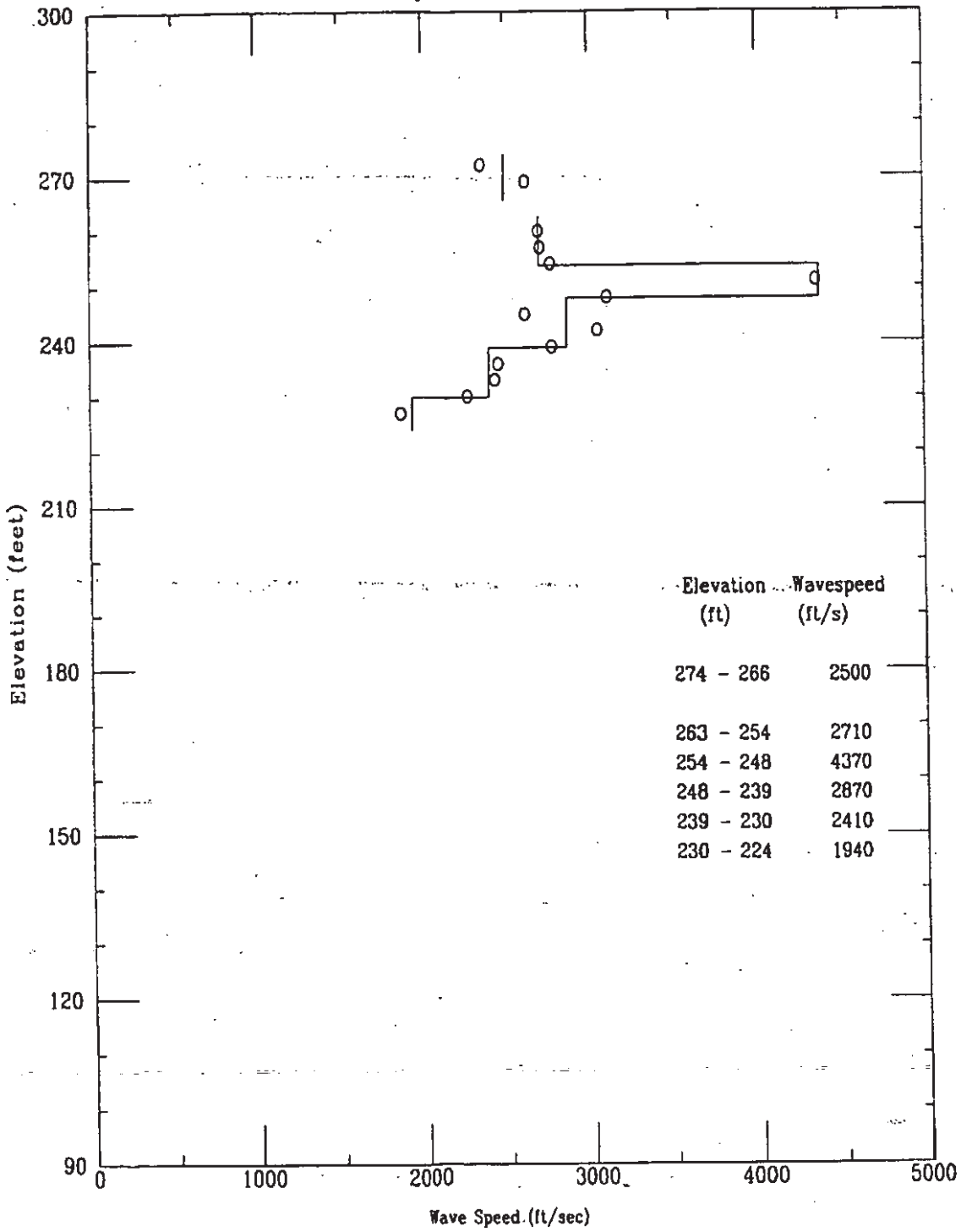
S Wave  
02/27/98



CPT-148

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

02/27/98

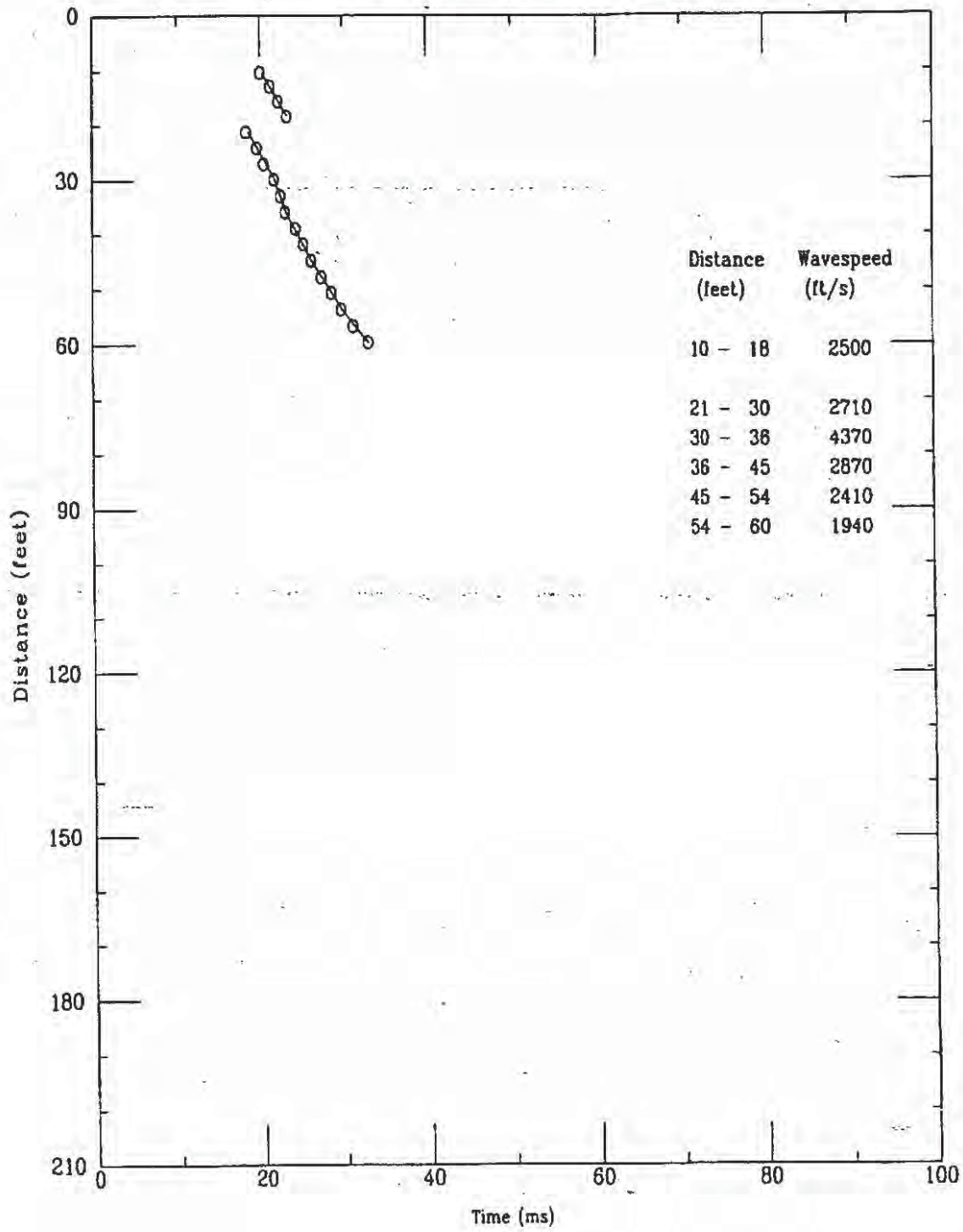


File 4277801S

CPT-148

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/27/98

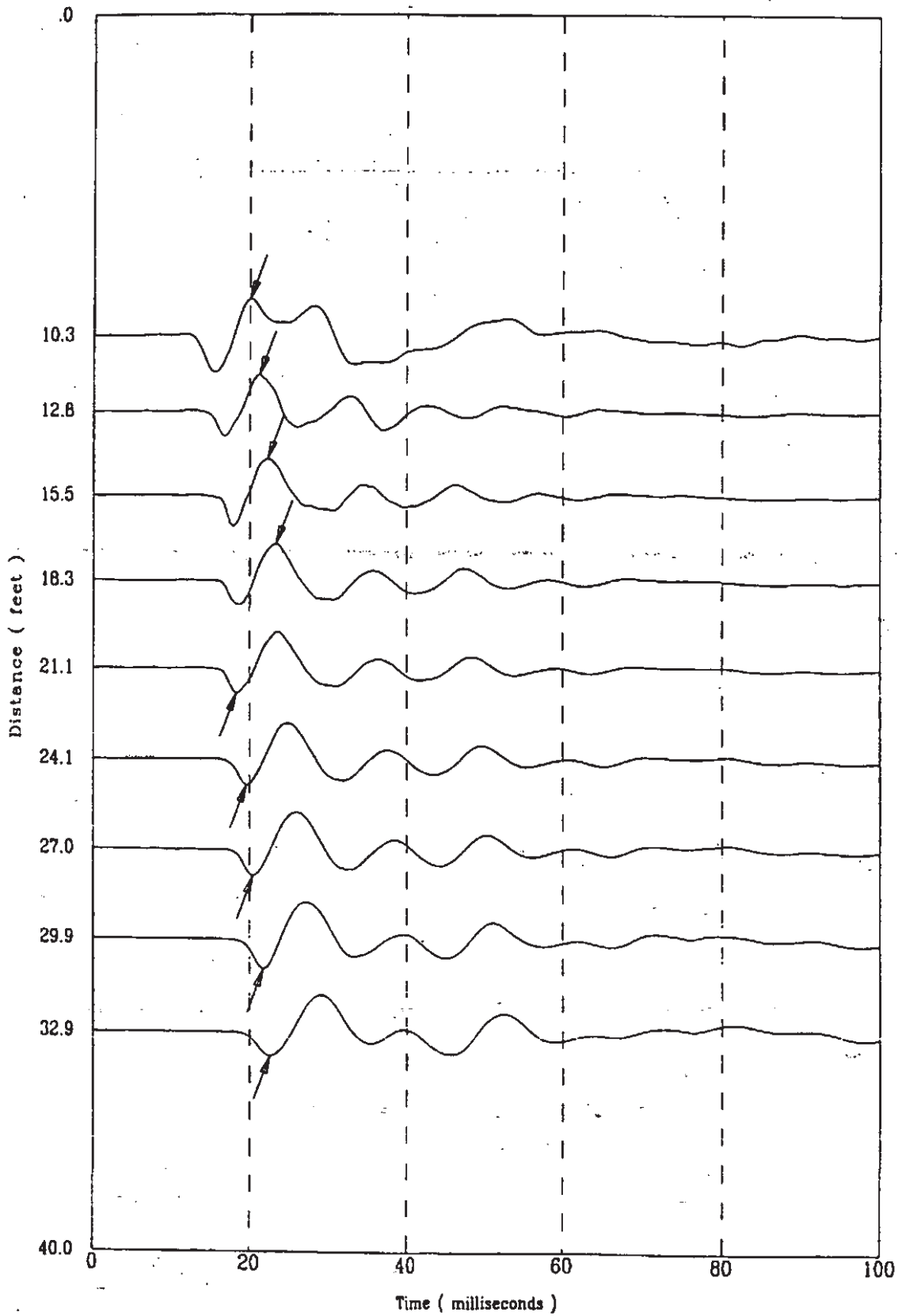


File 427801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-148

P Wave  
02/27/98



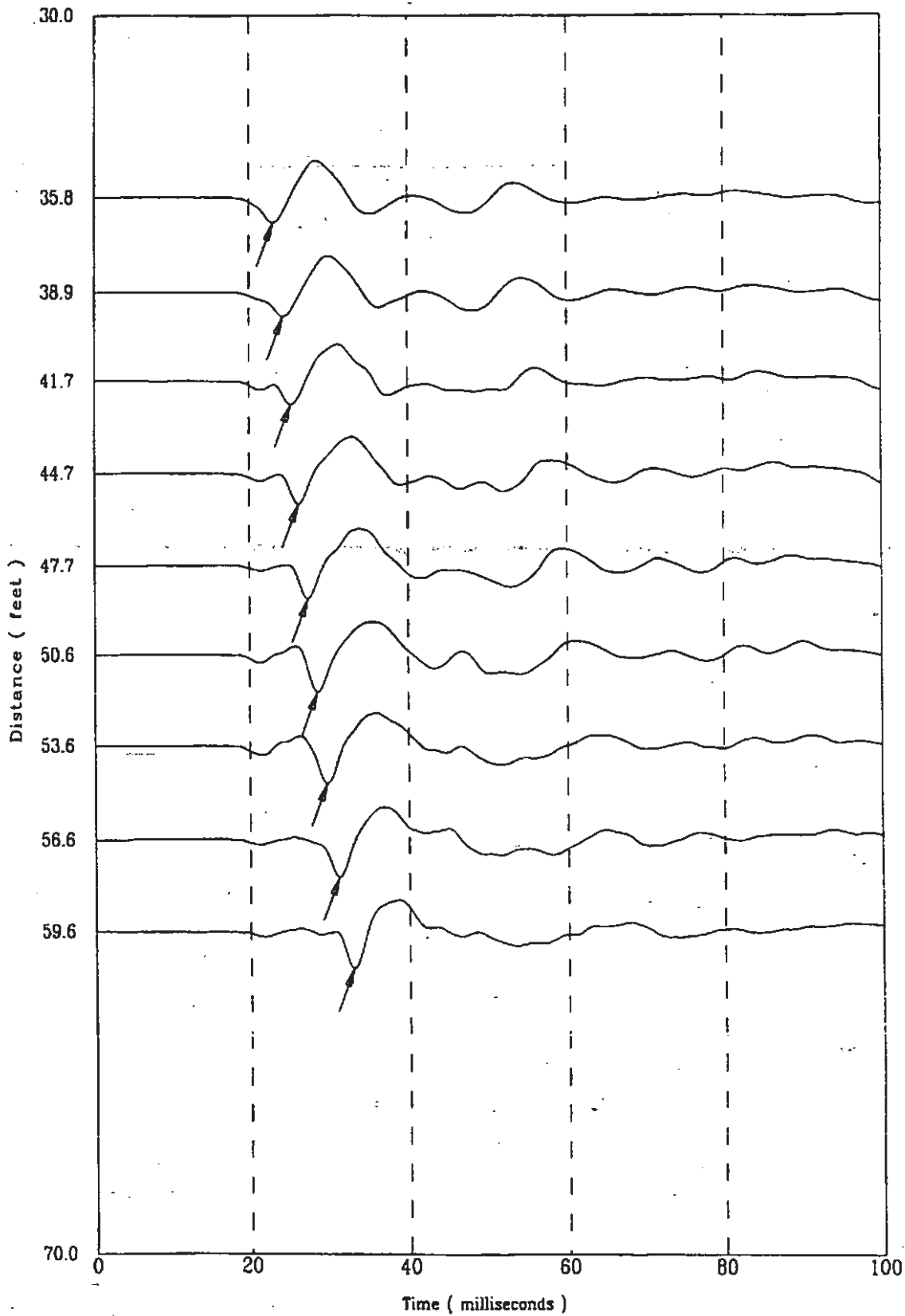
File 4271801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-148

P Wave  
02/27/98



4271801S



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APPLIED RESEARCH ASSOCIATES, INC.

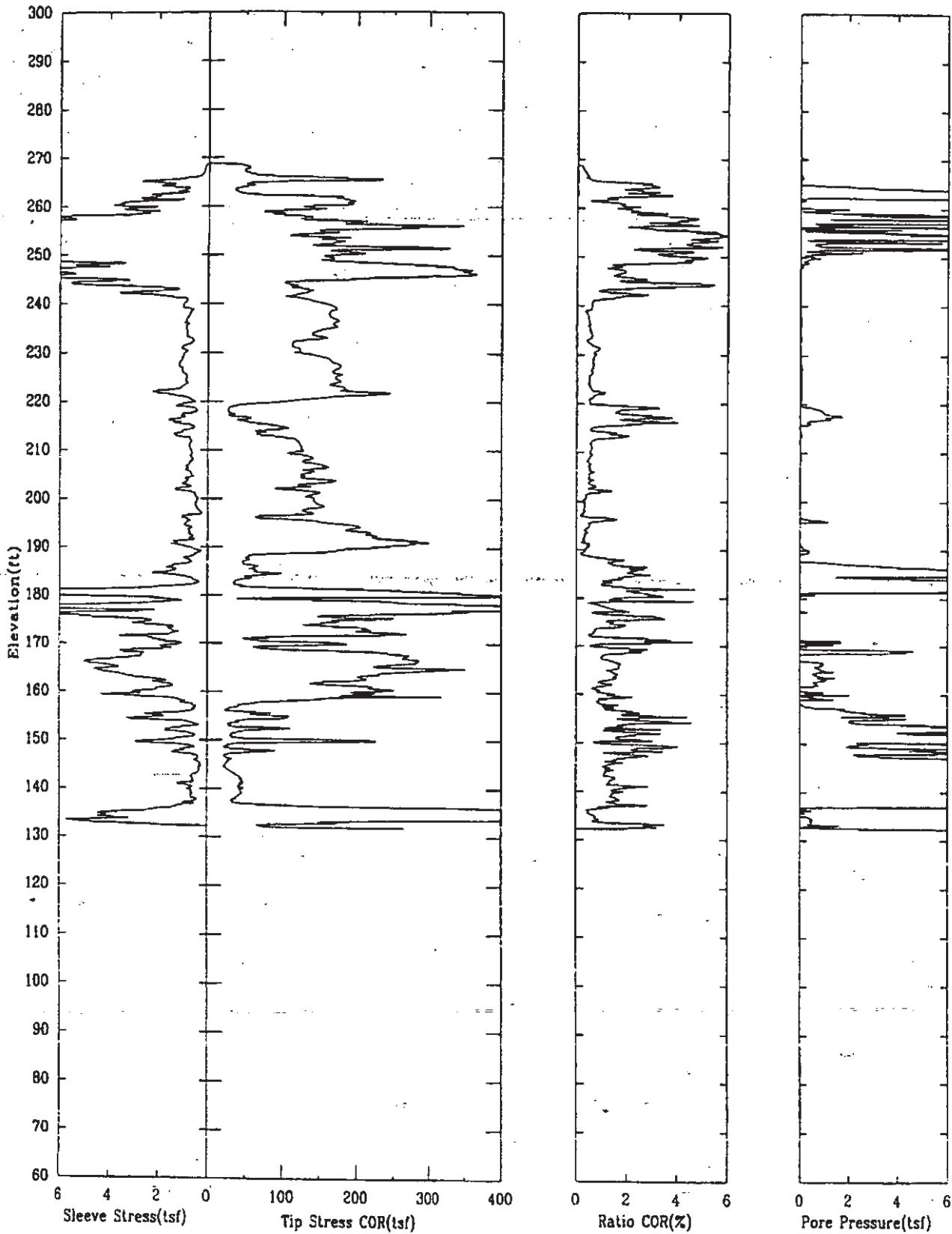
K-TRT-F-00001

03/04/98<sup>R</sup>/0

North 79372.04

East 55517.96

Elevation 274.8



CPT-149

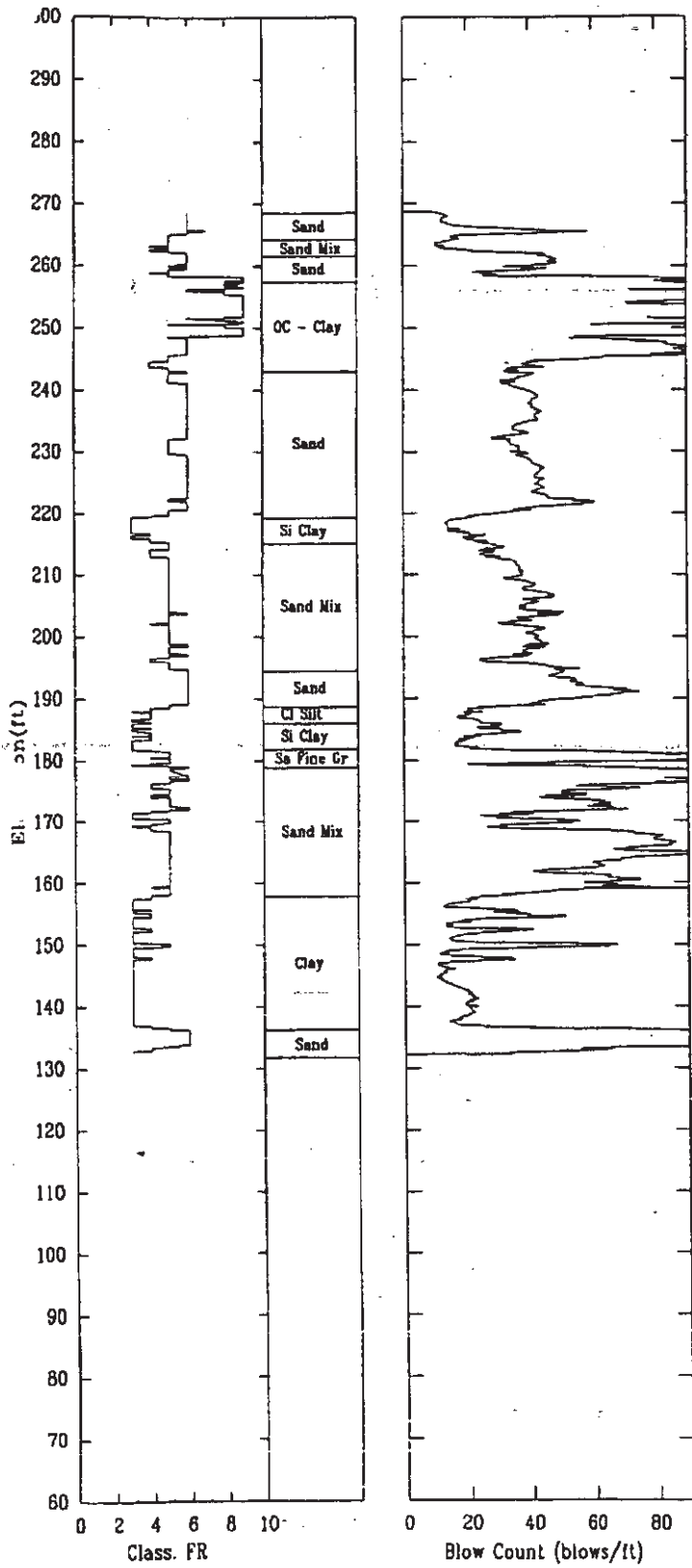
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/04/98/0

North 79372.04

East 55517.96

Elevation 274.8

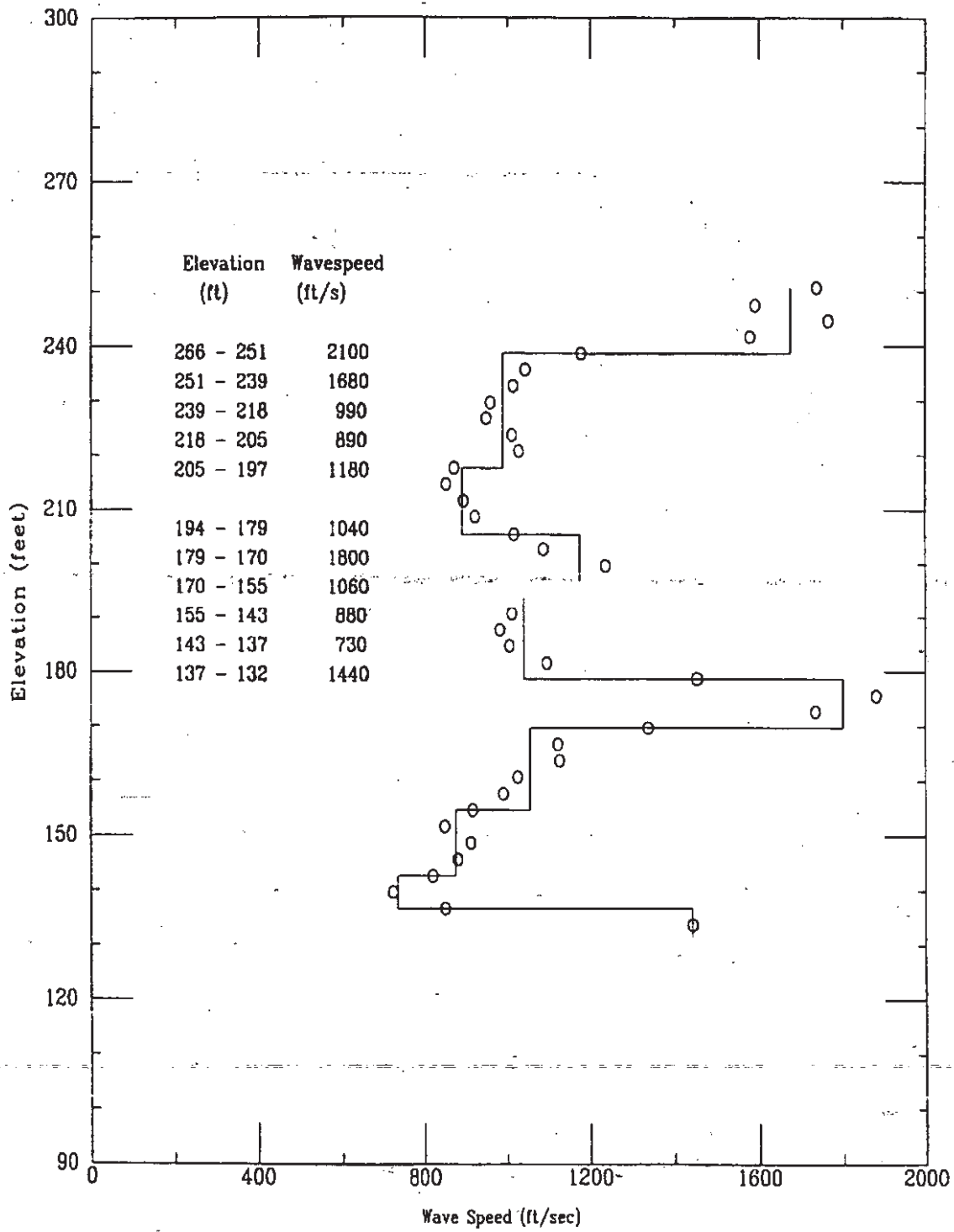


CPT-149

APPLIED RESEARCH ASSOCIATES, INC.

03/04/98

Shear Wave Speeds

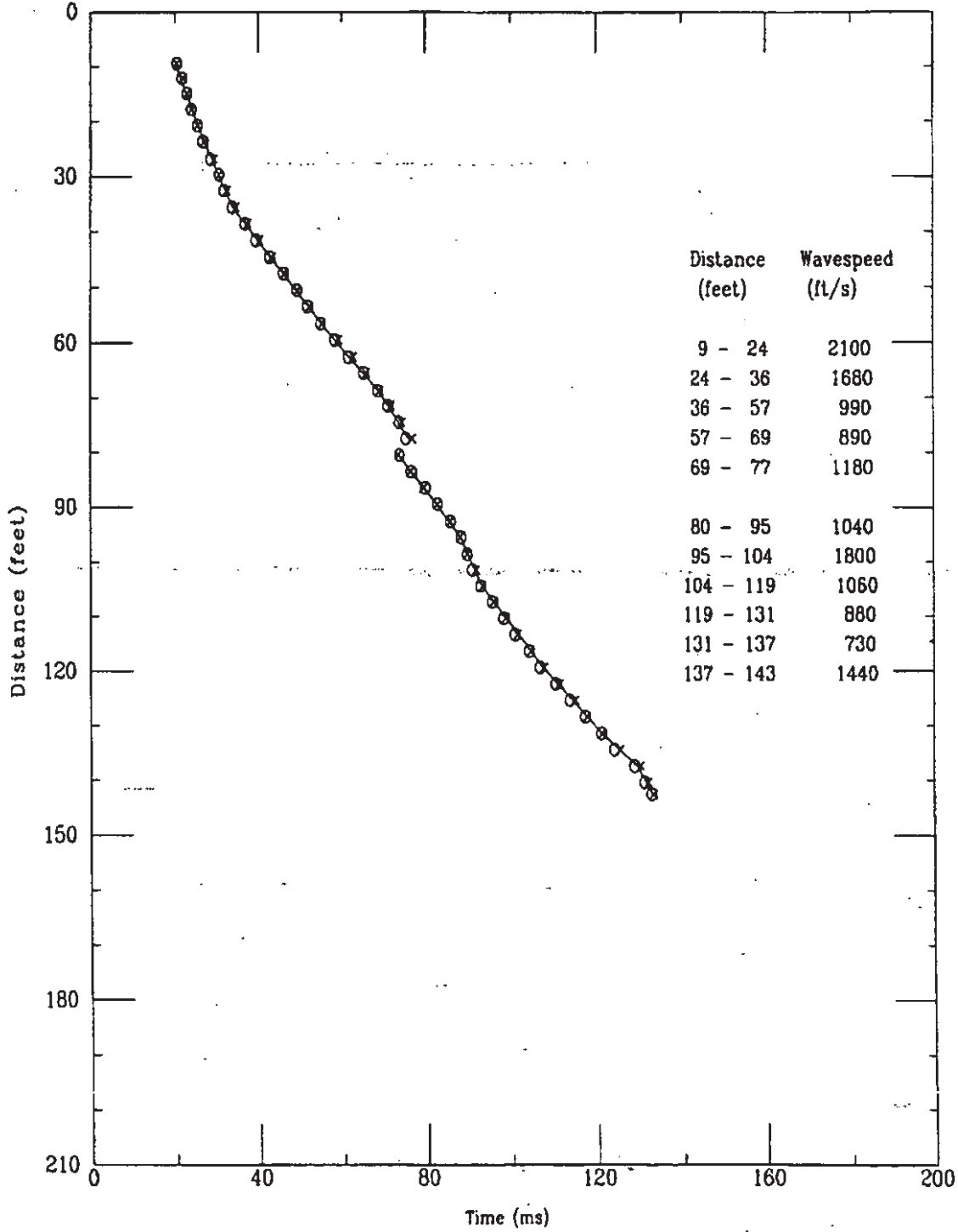


CPT-149

APPLIED-RESEARCH ASSOCIATES, INC.

03/04/98

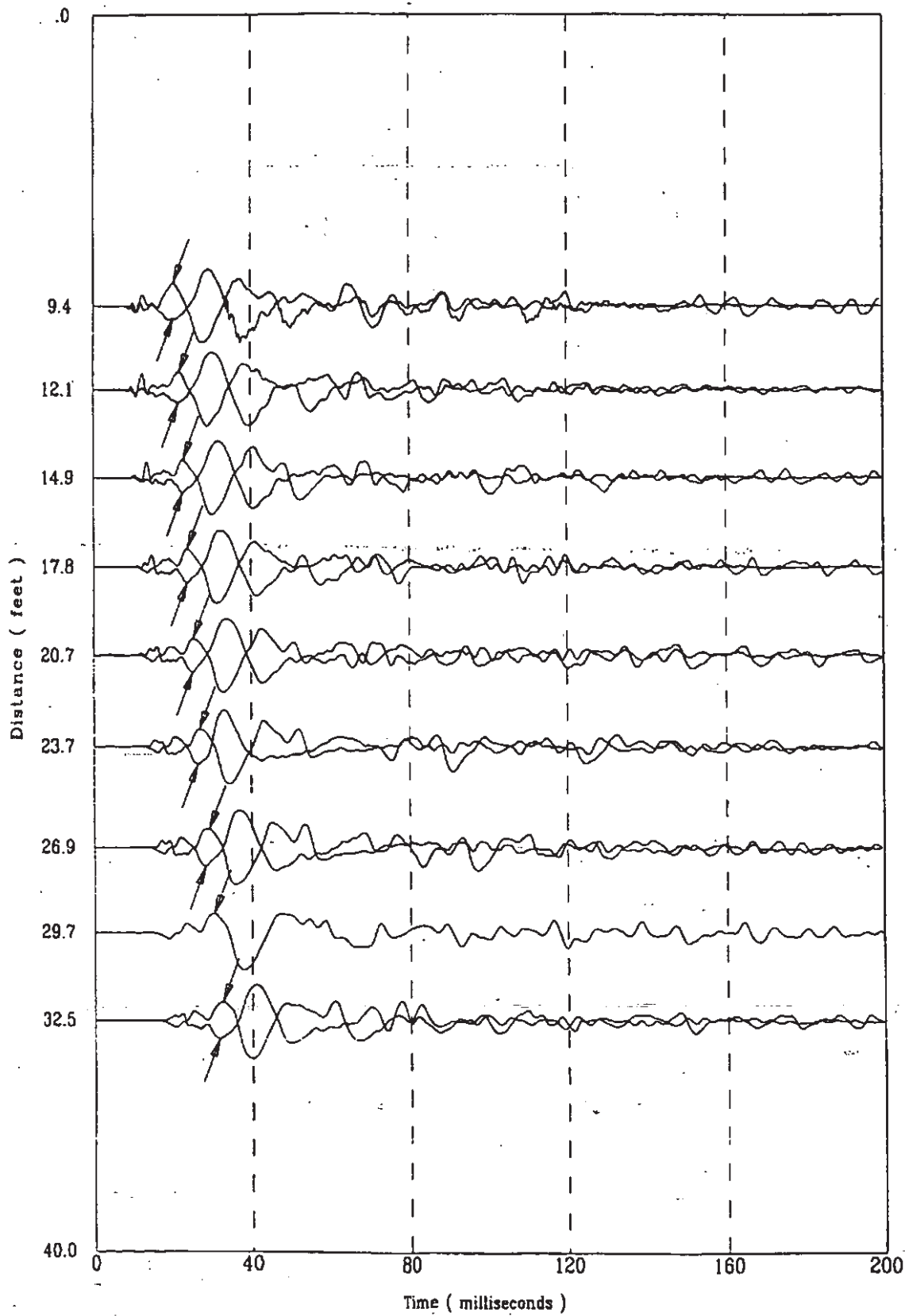
Shear Wave Time of Peak



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-149

S Wave  
03/04/98



File 404m804S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-149

S Wave  
03/04/98

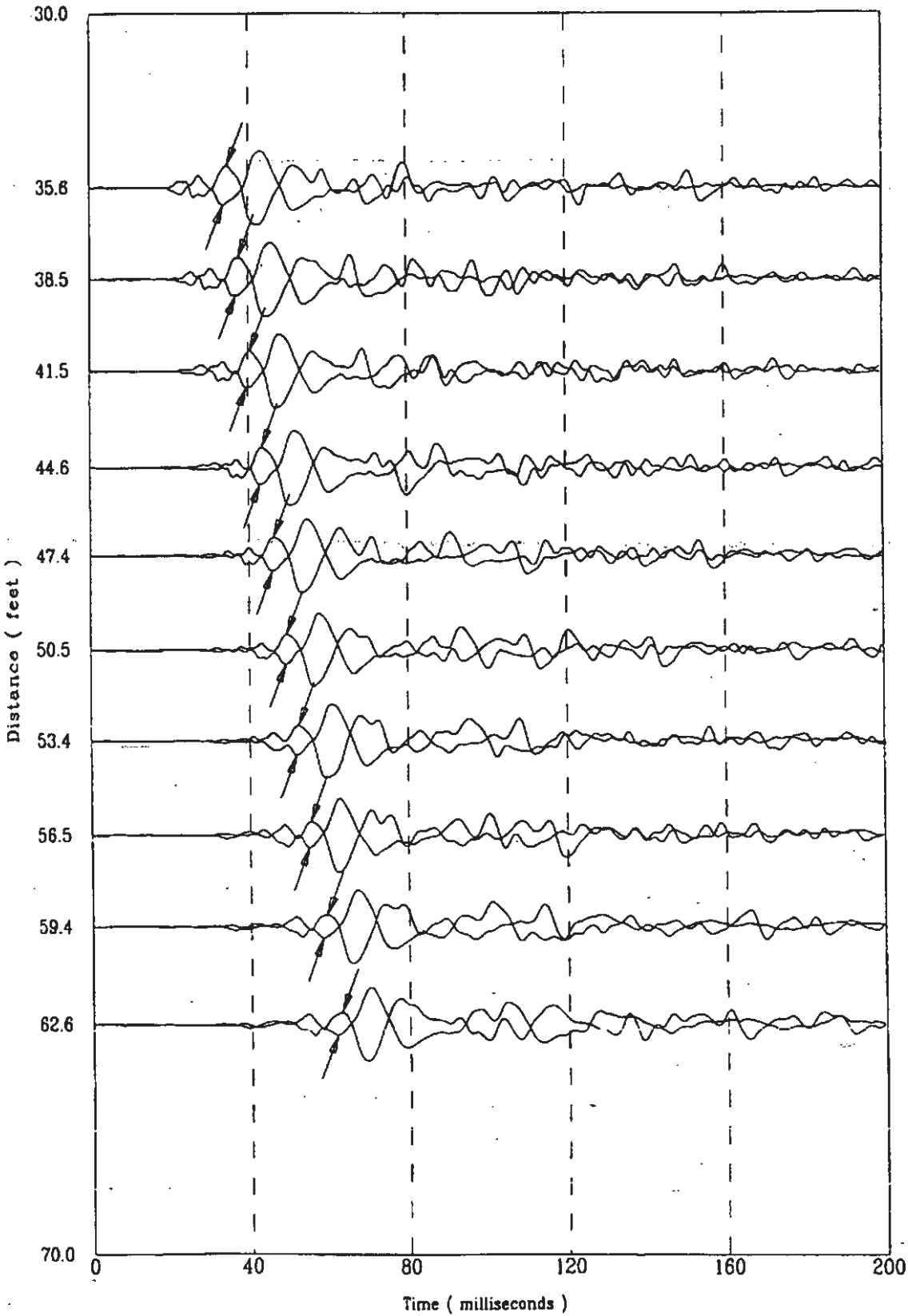
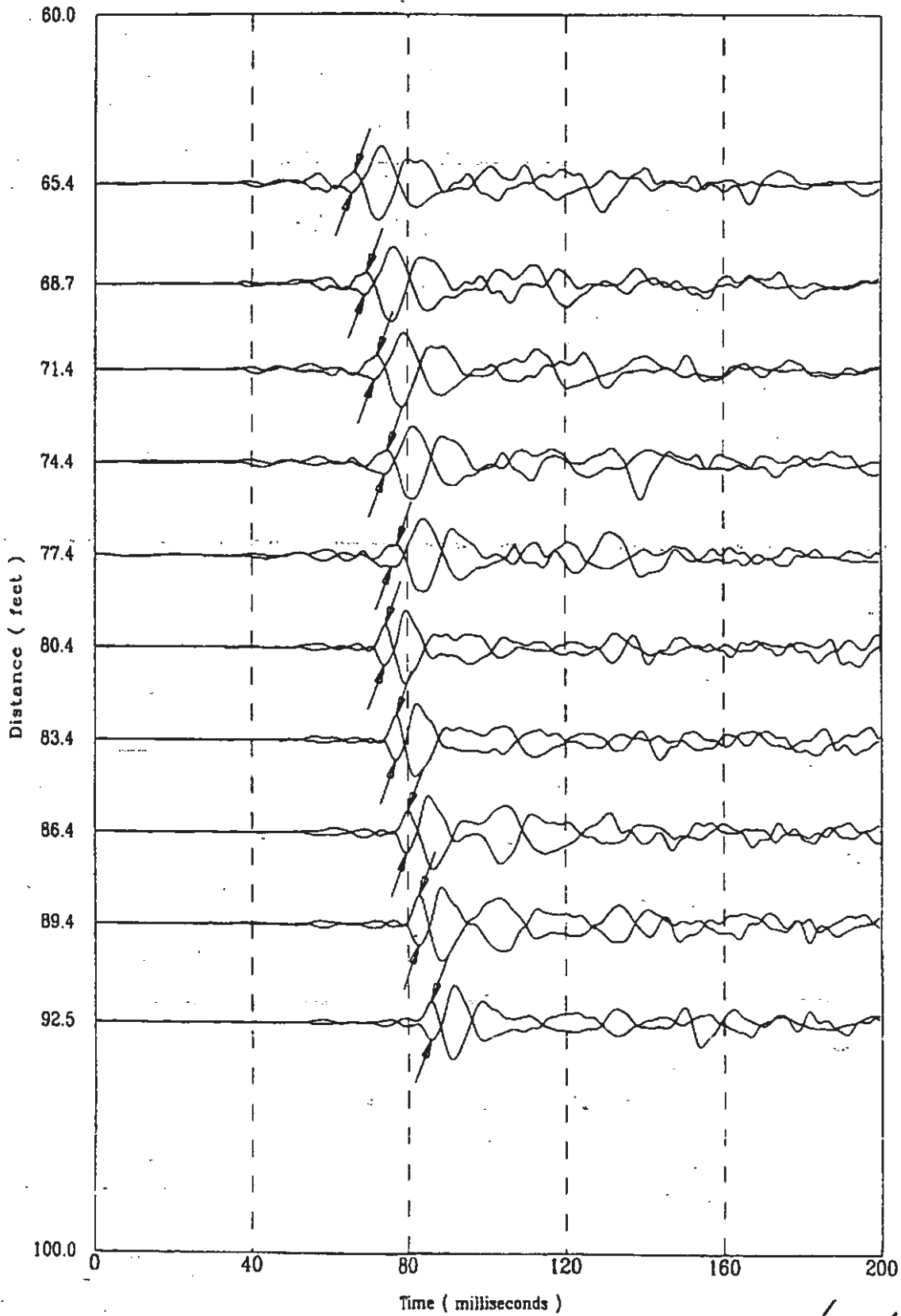


FIG 404m804S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-149

S Wave  
03/04/98

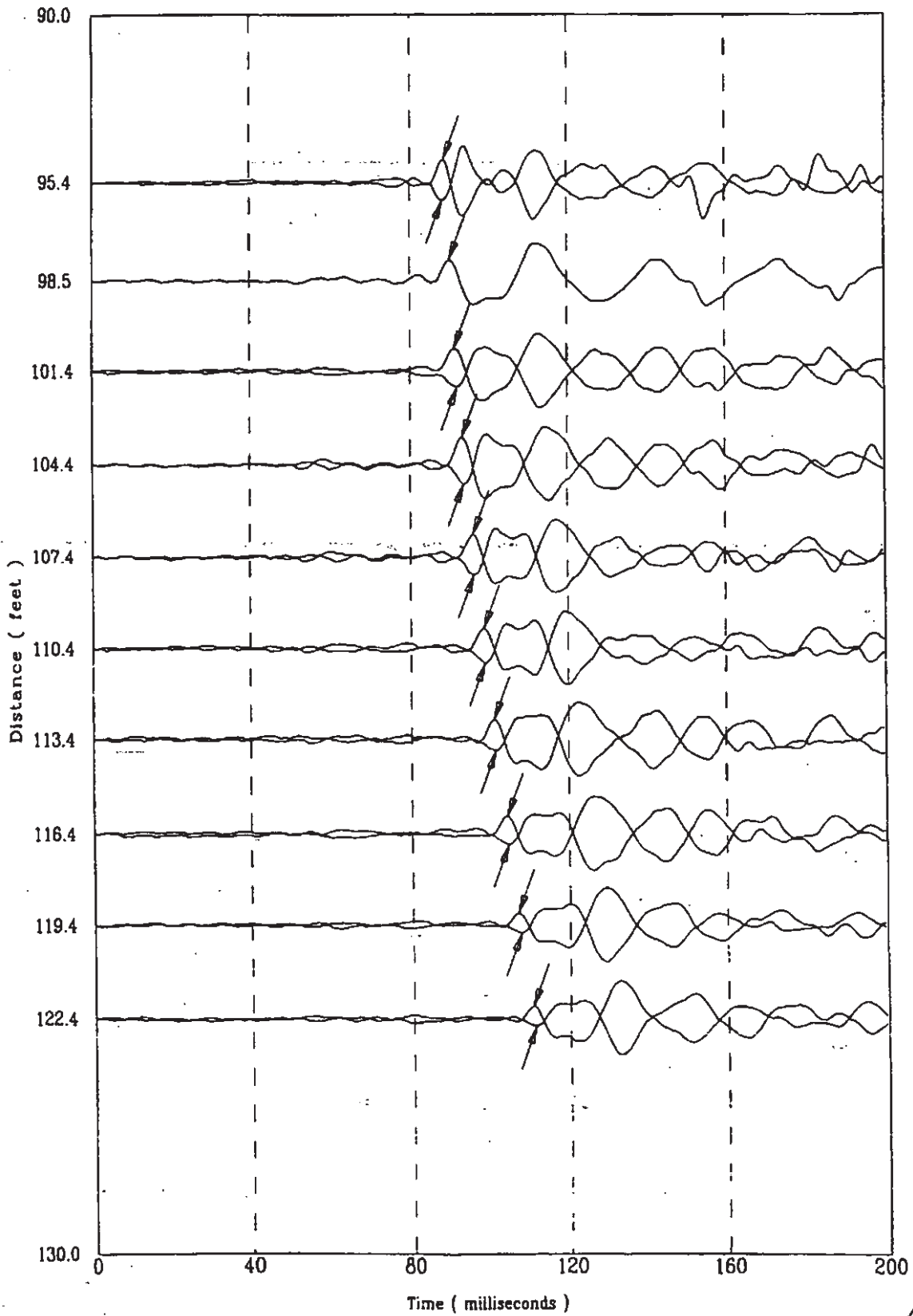


File 404m804S

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Applied Research Associates, Inc.  
CPT-149

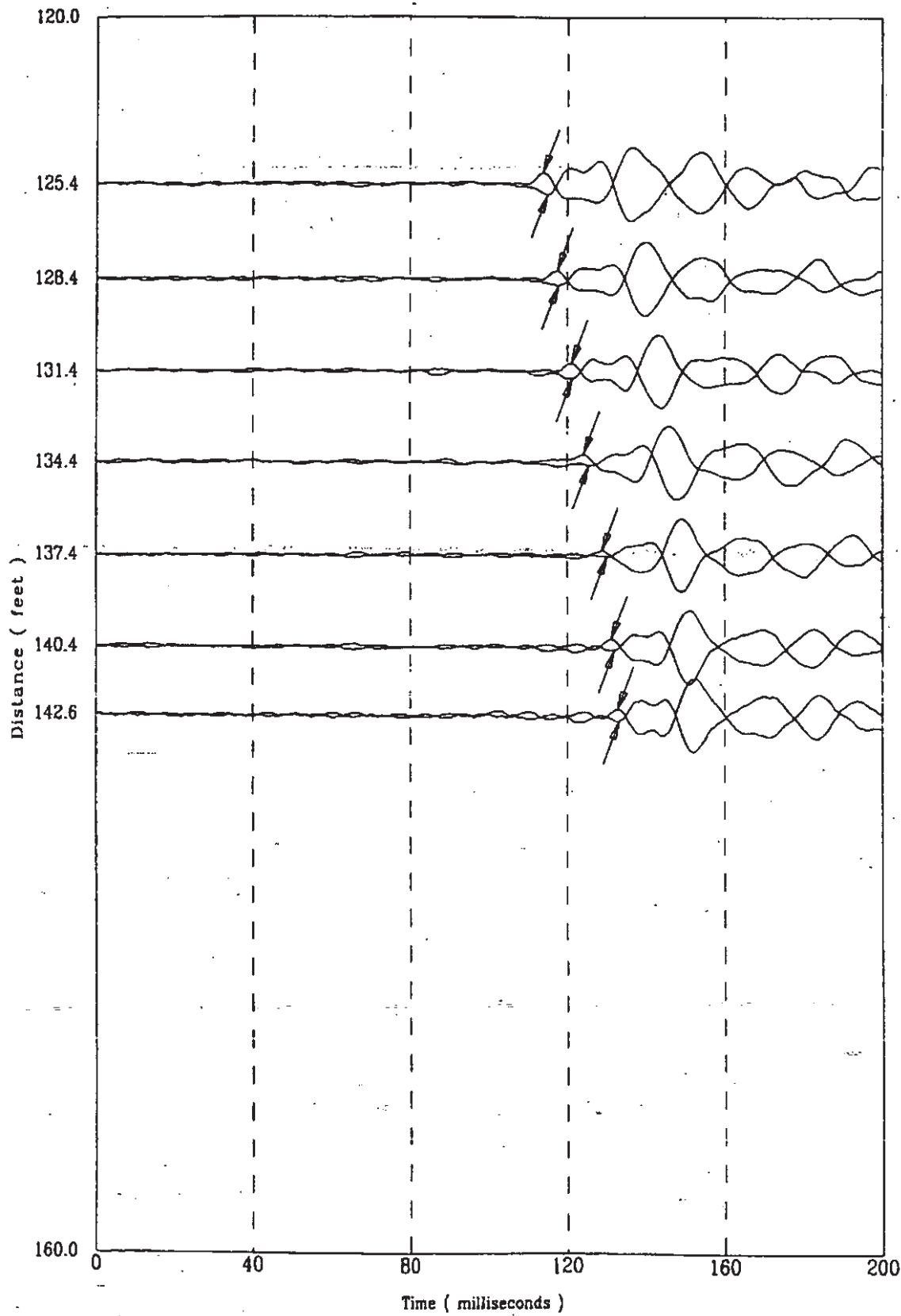
S Wave  
03/05/98





Applied Research Associates, Inc.  
CPT-149

S Wave  
03/05/98

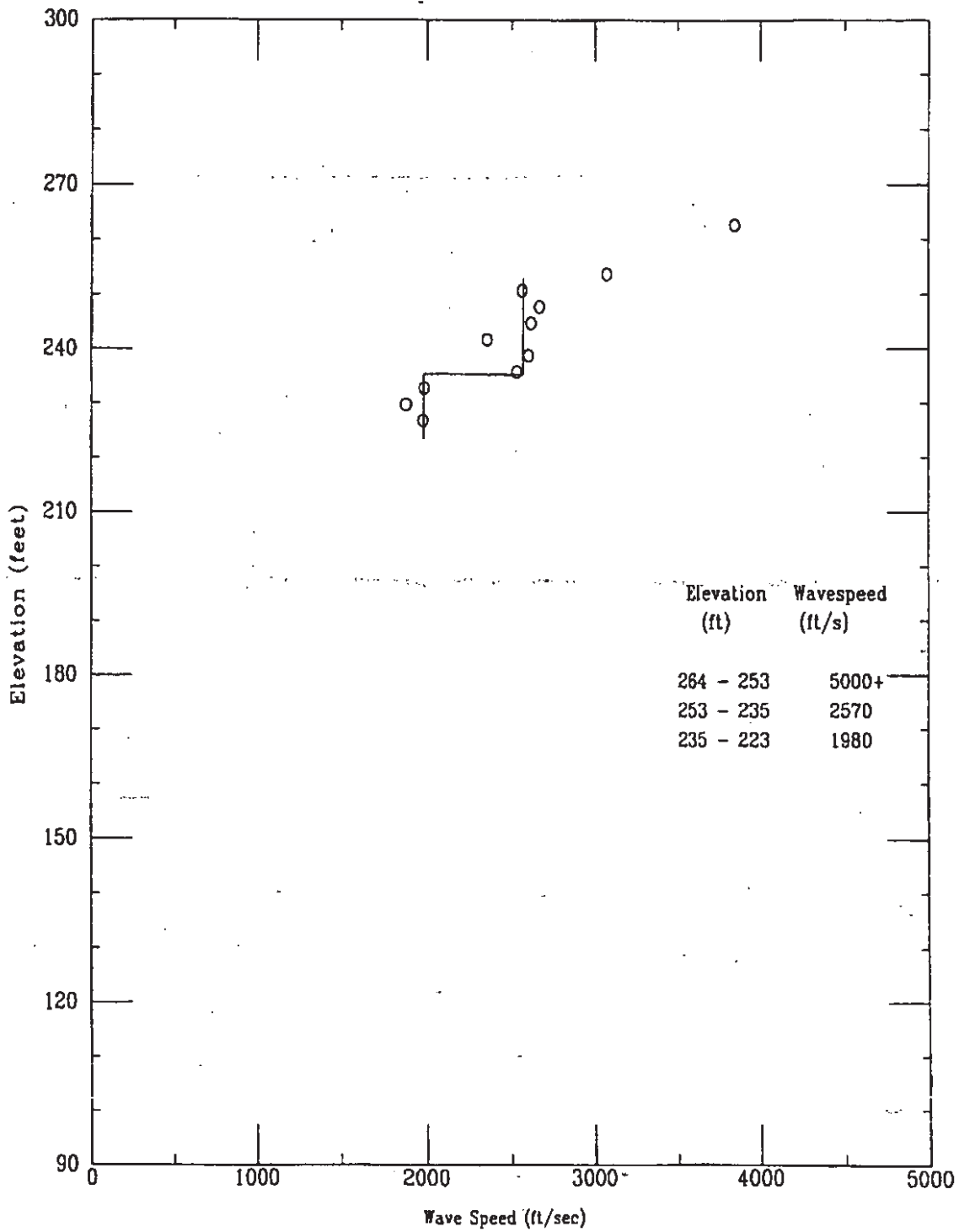


CPT-149

APPLIED RESEARCH ASSOCIATES, INC.

03/30/98

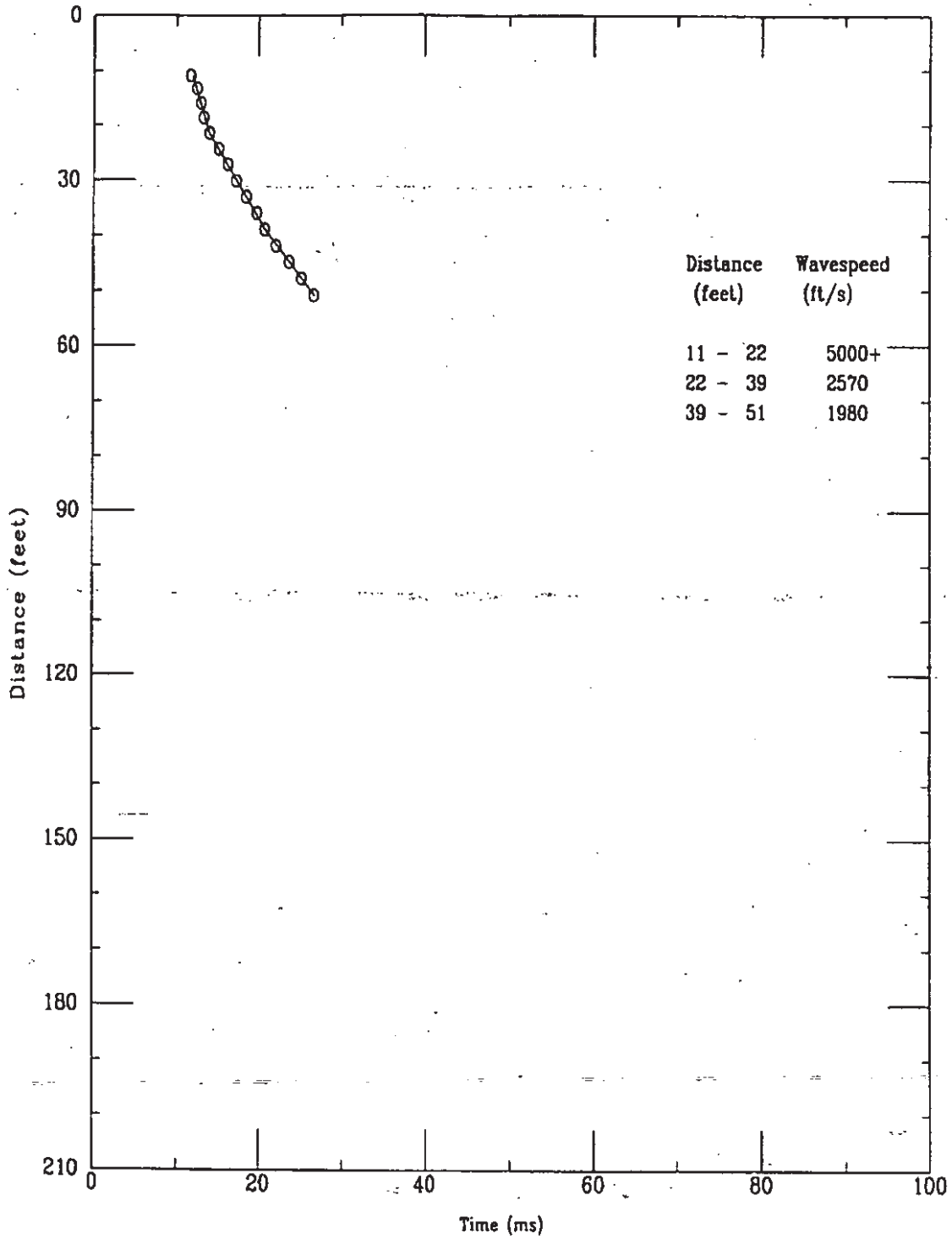
Compression Wave Speeds



CPT-149

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/30/98

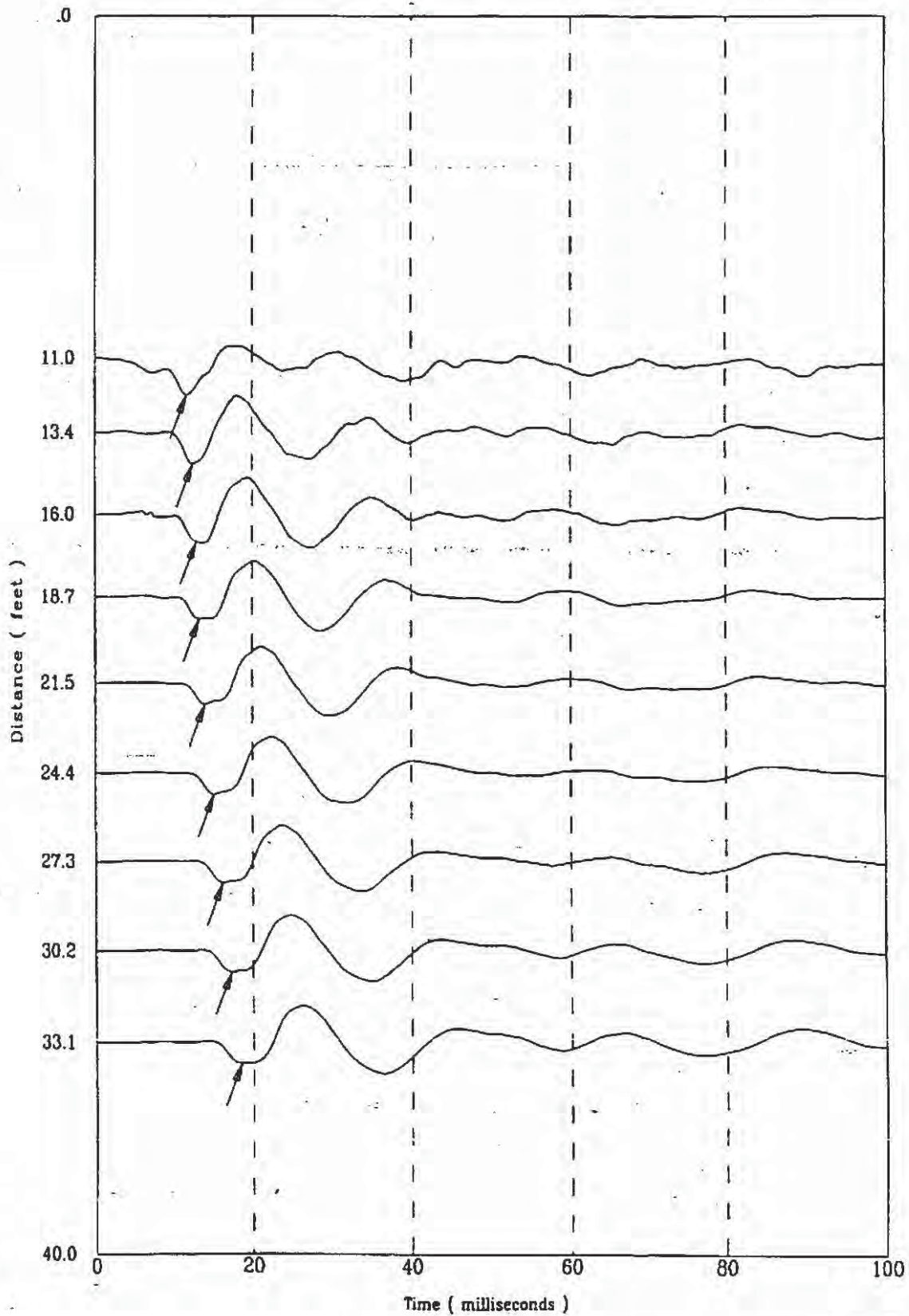


File 330m802S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-149

P Wave  
03/30/98



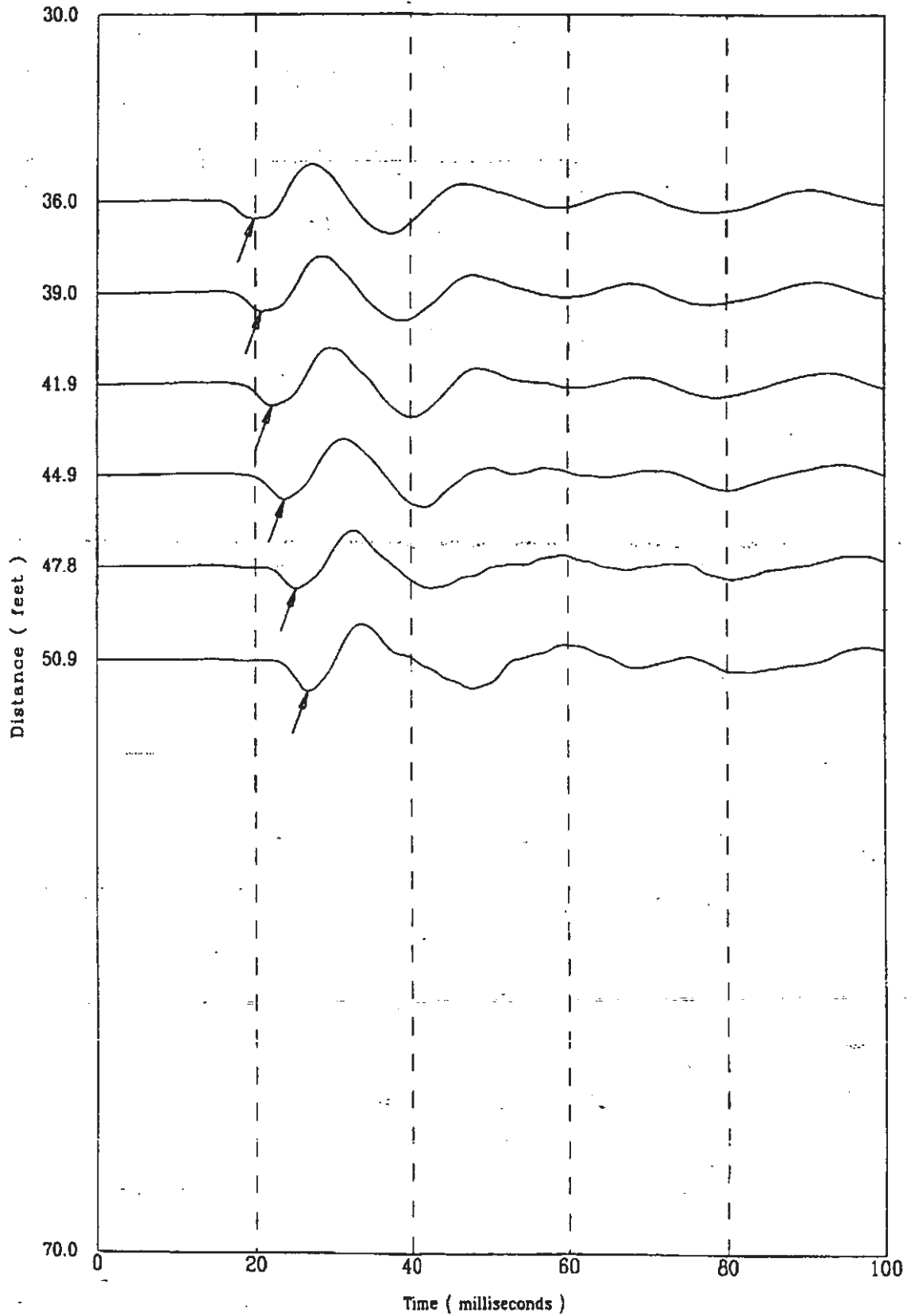
10m802S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-149

P Wave  
03/30/98



File 330m802S

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CPT-151

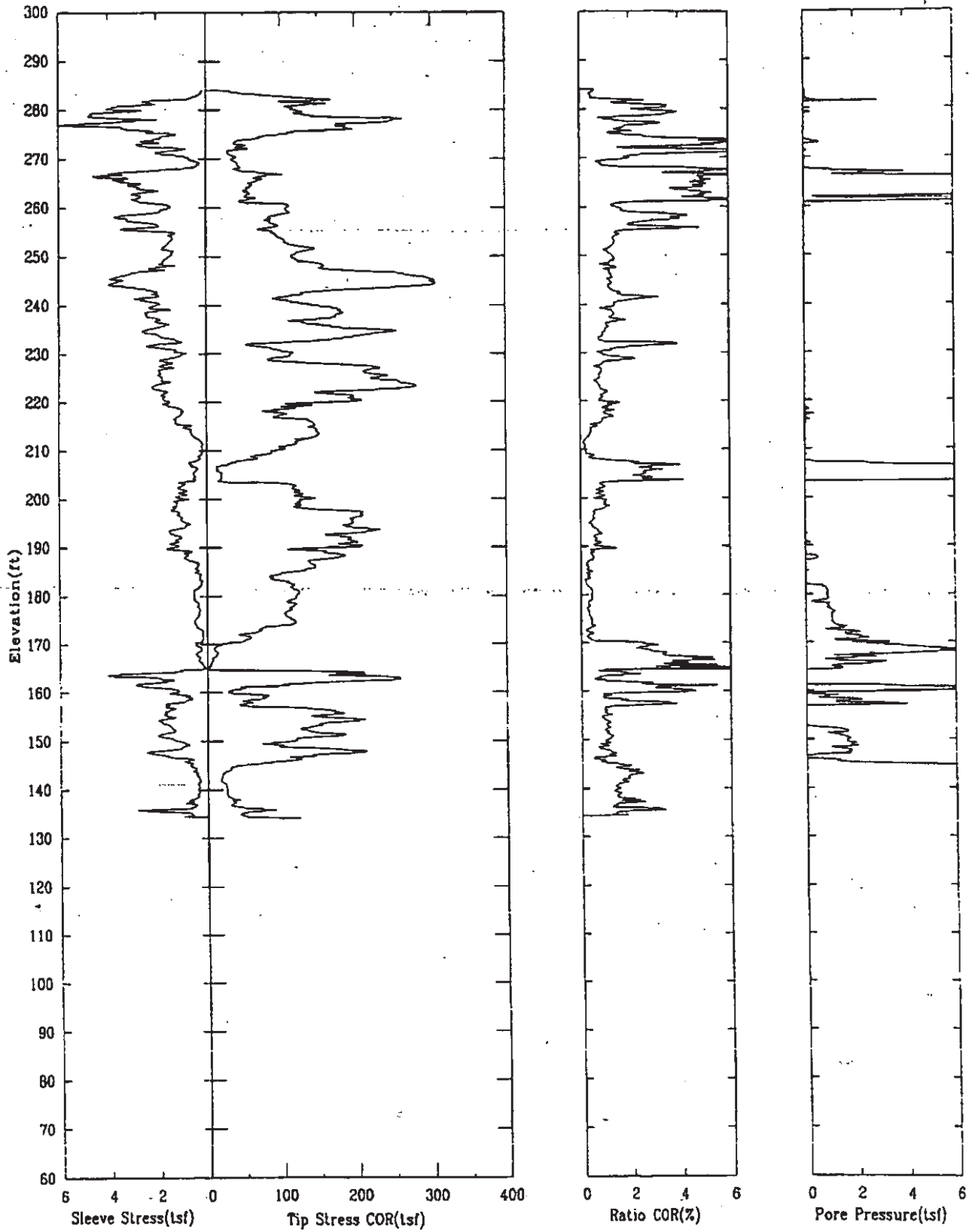
APPLIED RESEARCH ASSOCIATES, INC.

K<sub>2</sub> TRT-F-00001  
02/24/98 / 0

North 79305

East 55195

Elevation 290.1



CPT-151

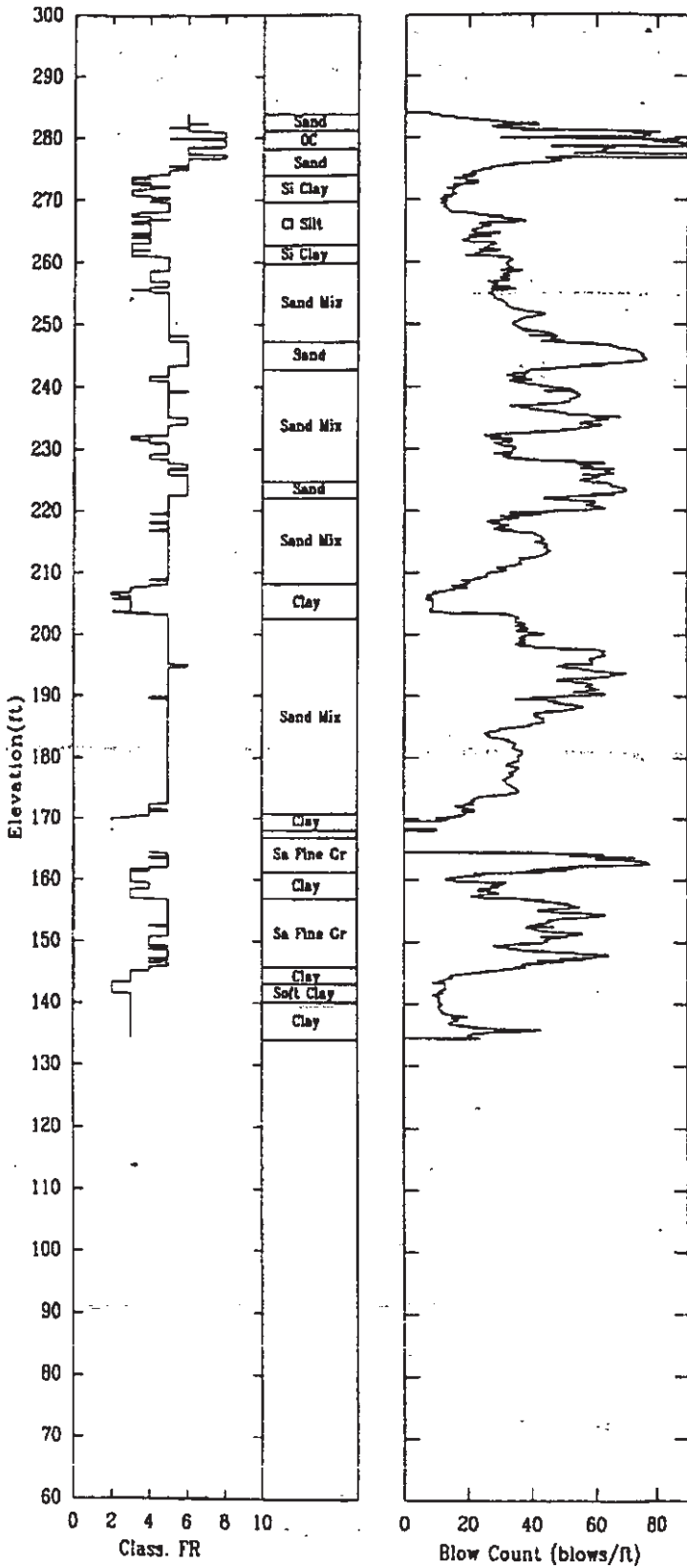
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
02/24/98 R/O

North 79305

East 55195

Elevation 290.1

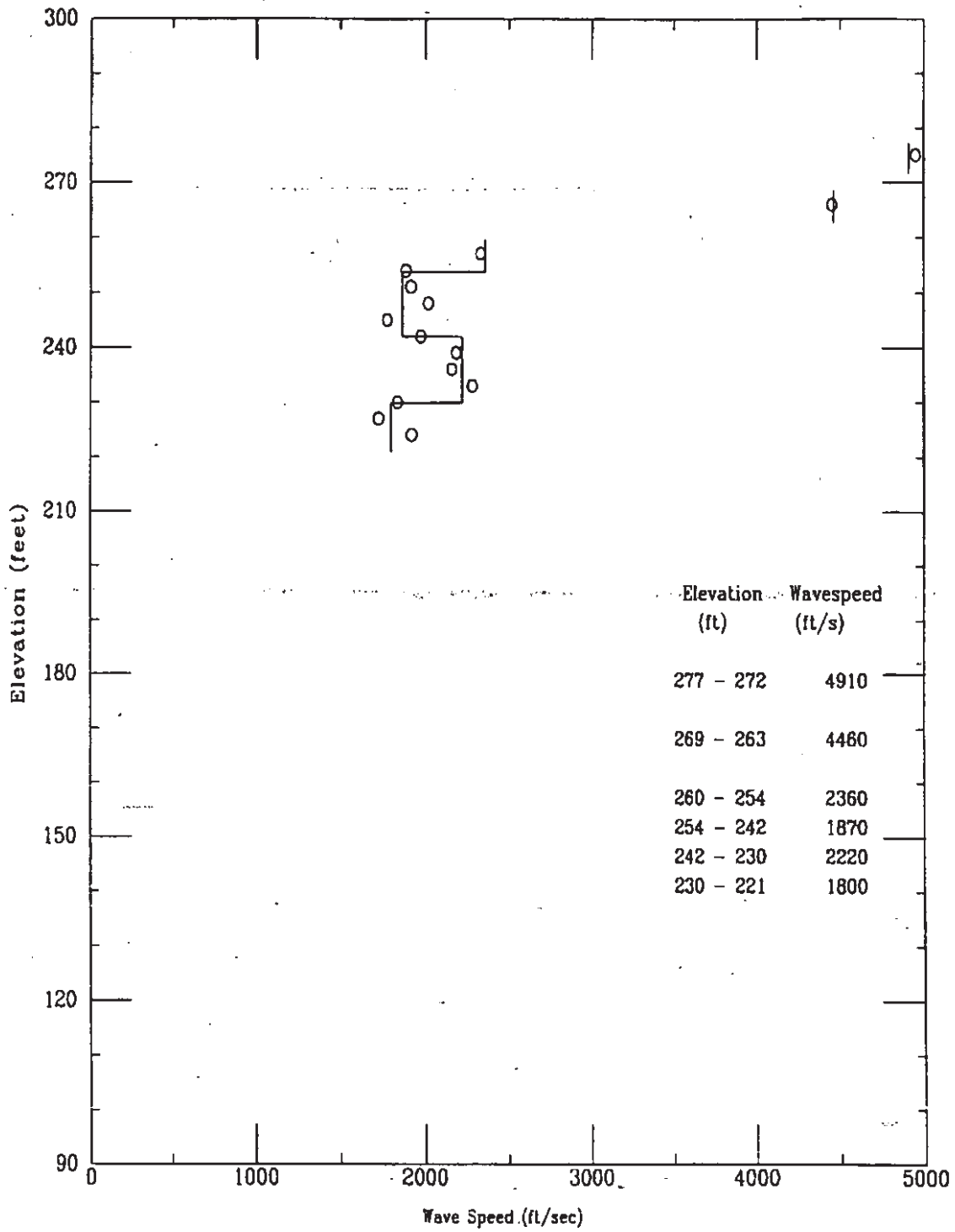


CPT-151

APPLIED RESEARCH ASSOCIATES, INC.

02/24/98

Compression Wave Speeds

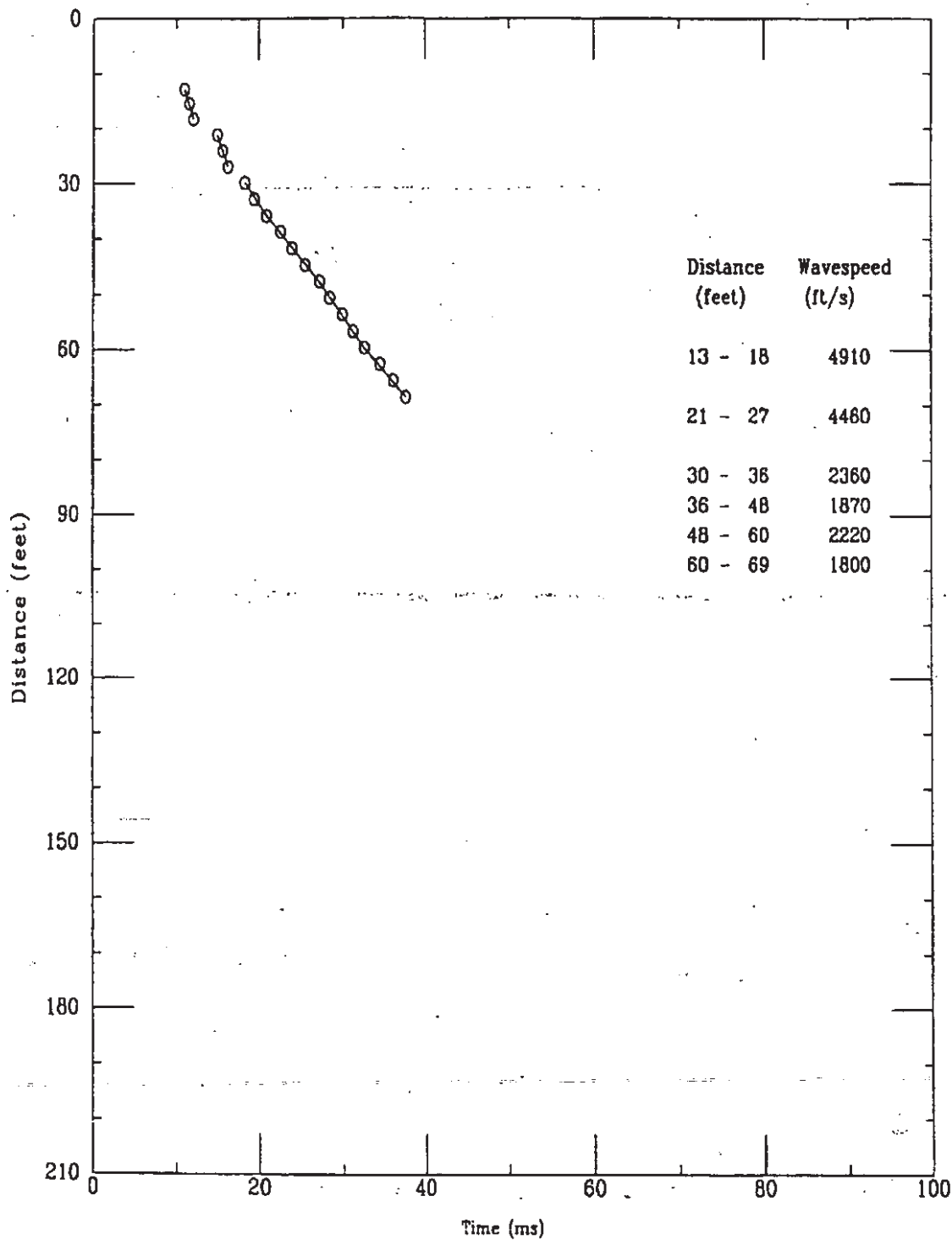




CPT-151

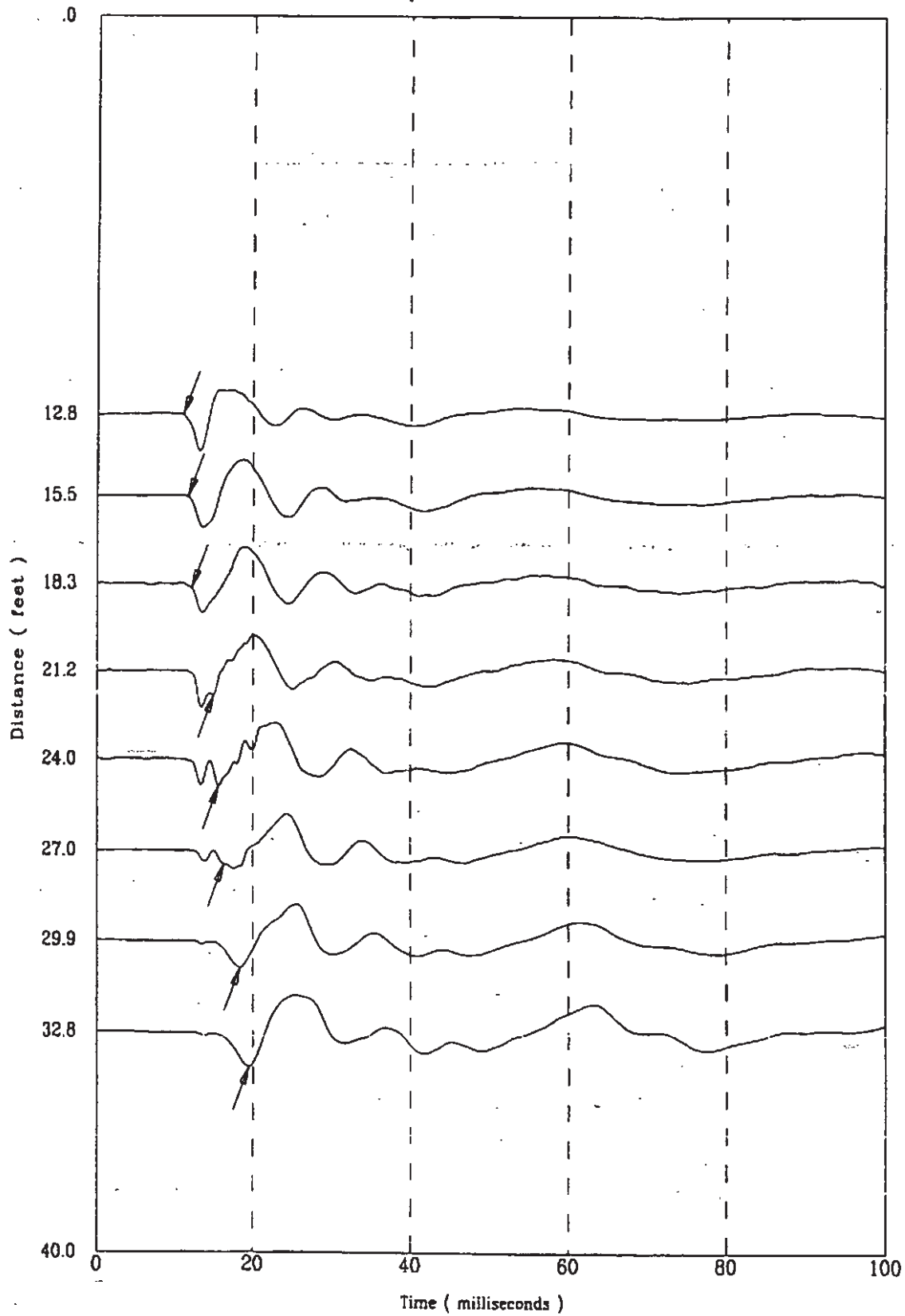
APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/24/98



Applied Research Associates  
CPT-151

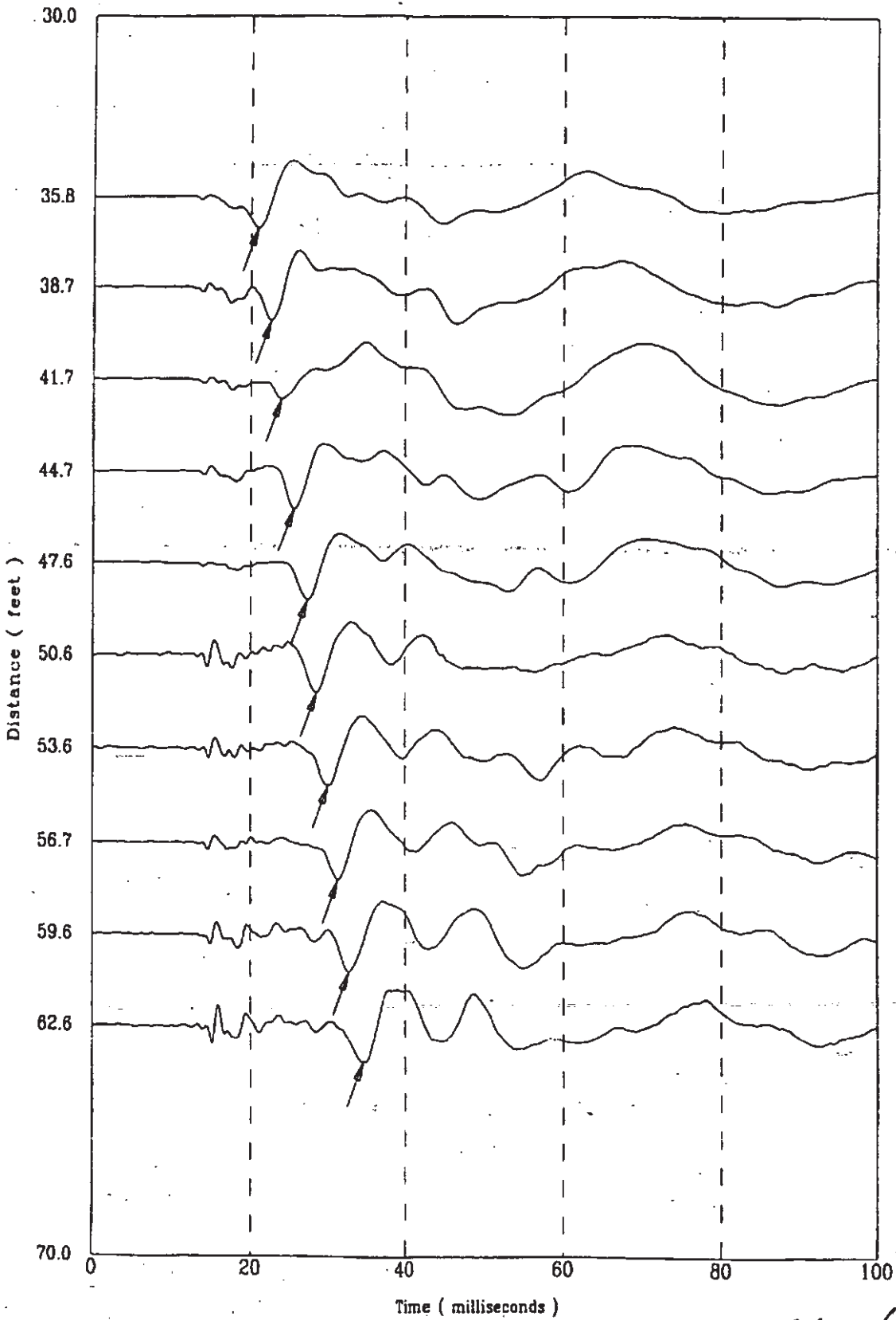
P Wave  
02/24/98



K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-151

P Wave  
02/24/98



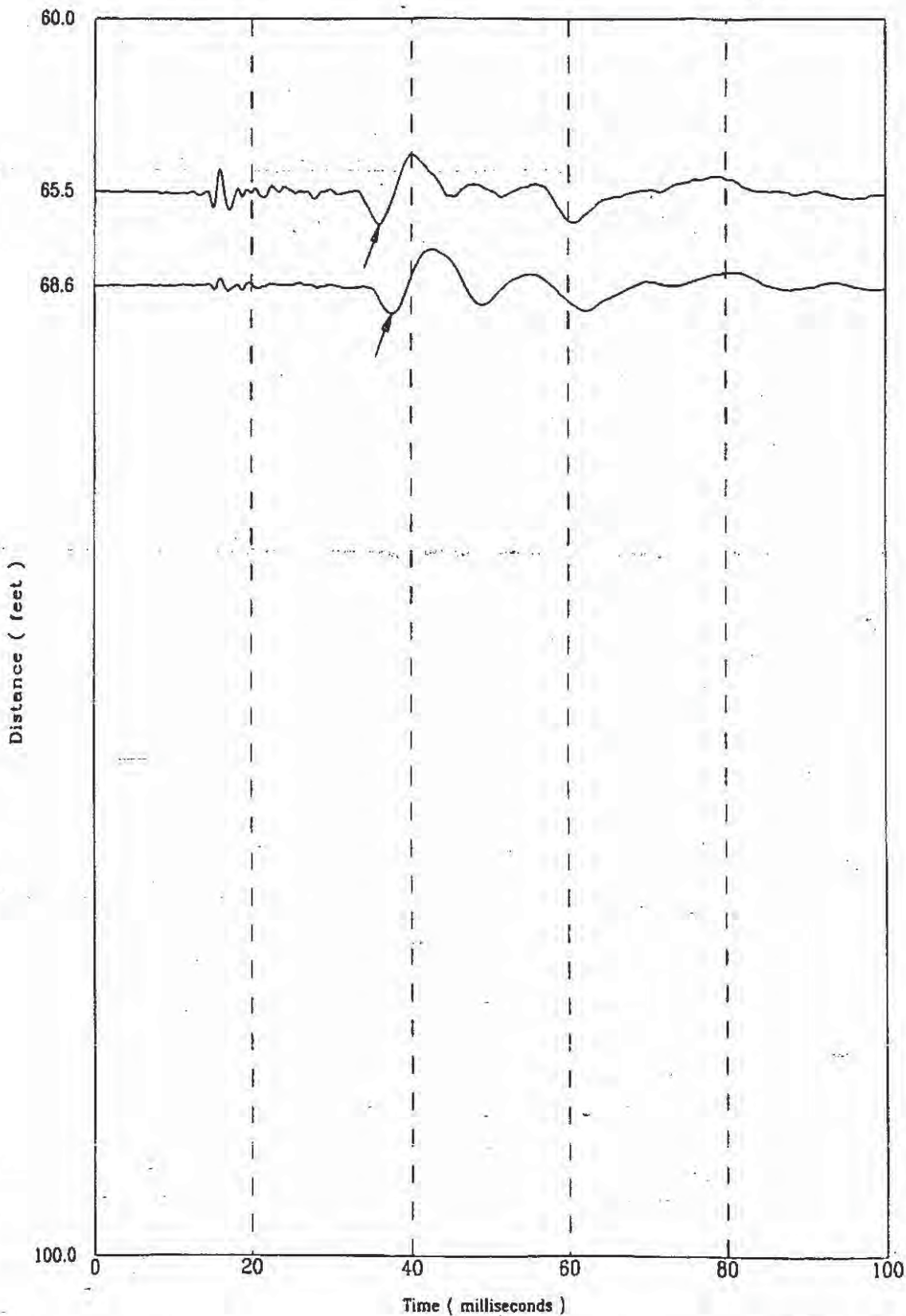
File 4241B04S

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R/O

Applied Research Associates  
CPT-151

P Wave  
02/24/98



4241804S

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CPT-155

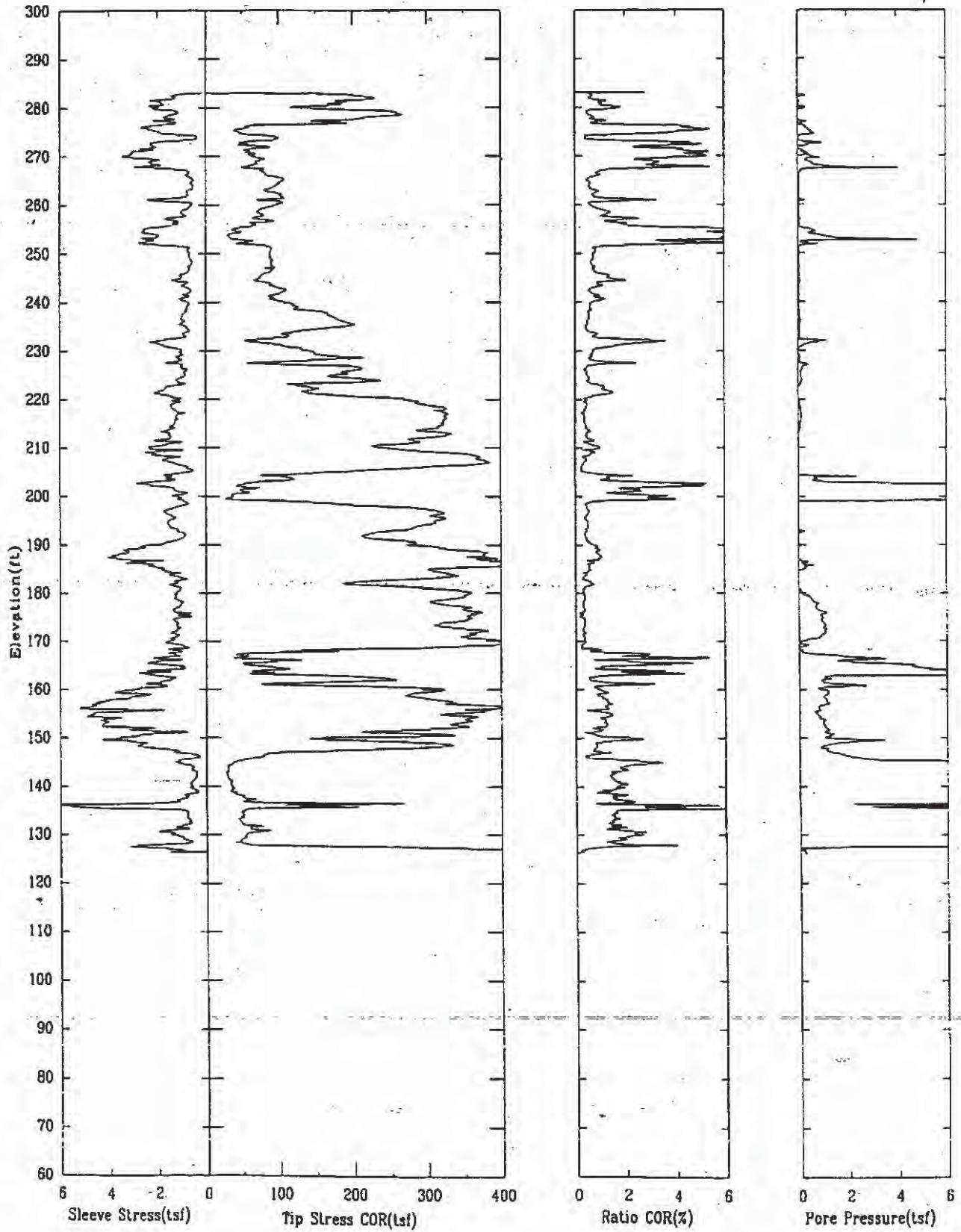
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
02/18/98 R/O

North 79245.0

East 55261.0

Elevation 289.1



CPT-155

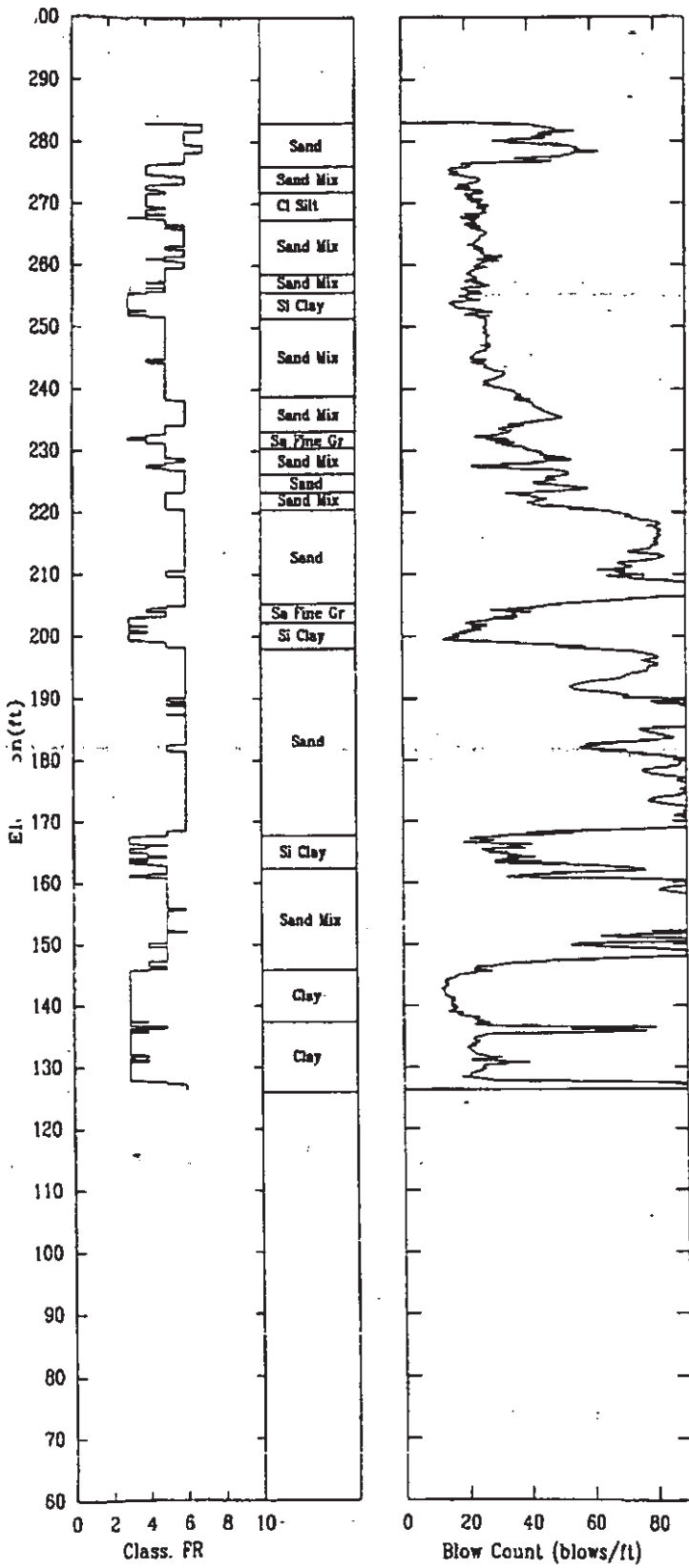
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K02/18/98 R/0 F-00001

North 79245.0

East 55261.0

Elevation 289.1

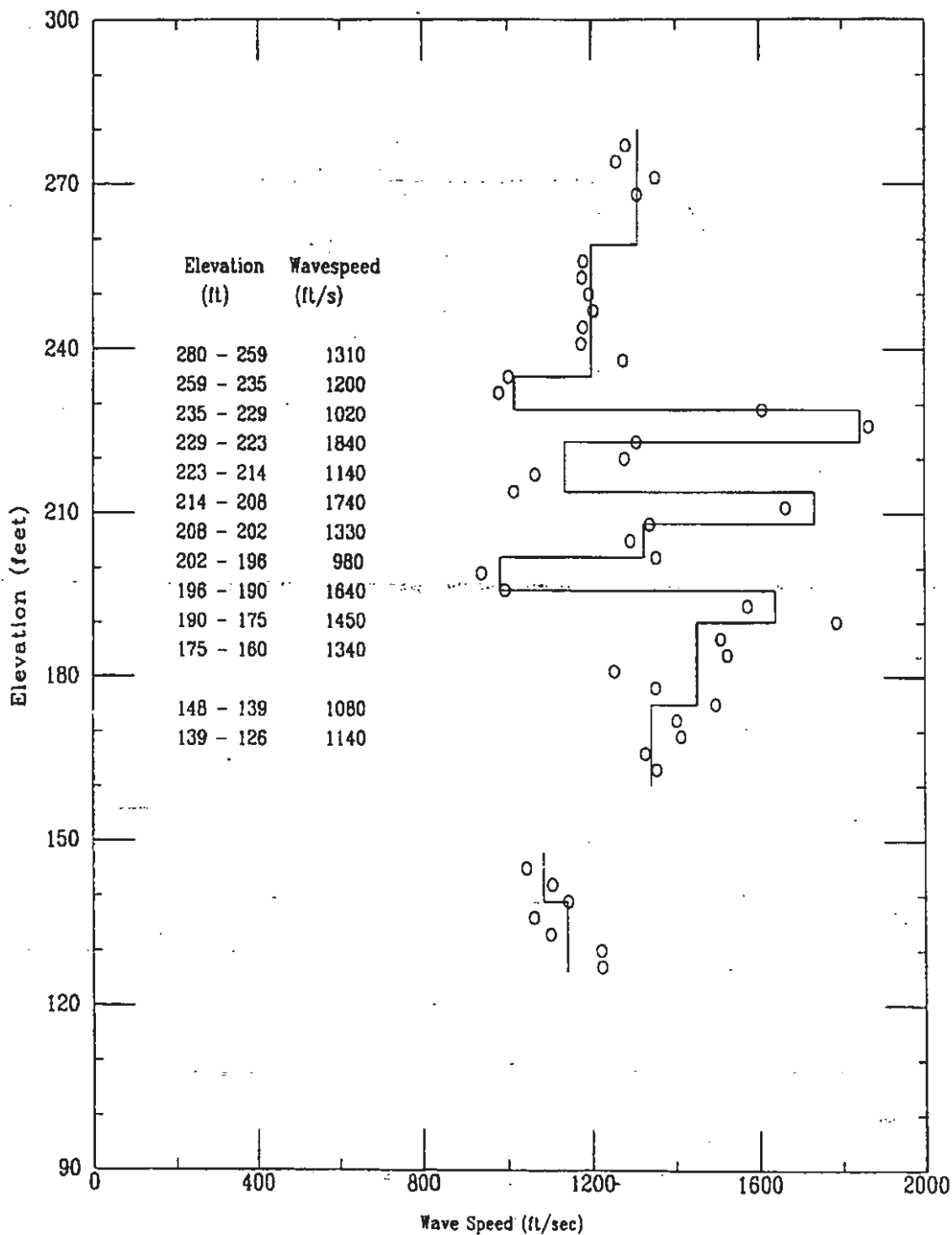


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APPLIED RESEARCH ASSOCIATES, INC.

02/18/98

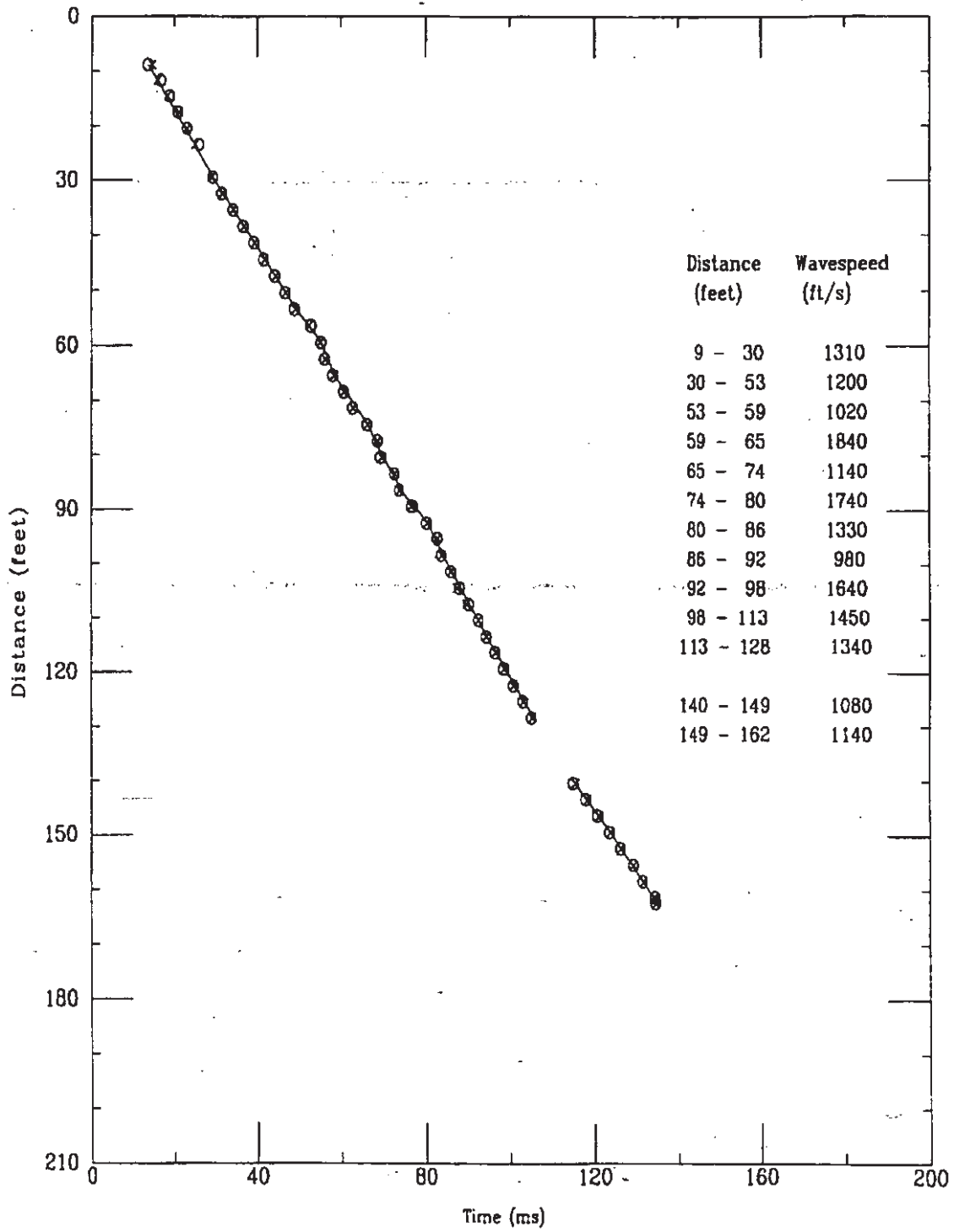
Shear Wave Speeds



CPT-155

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

02/18/98

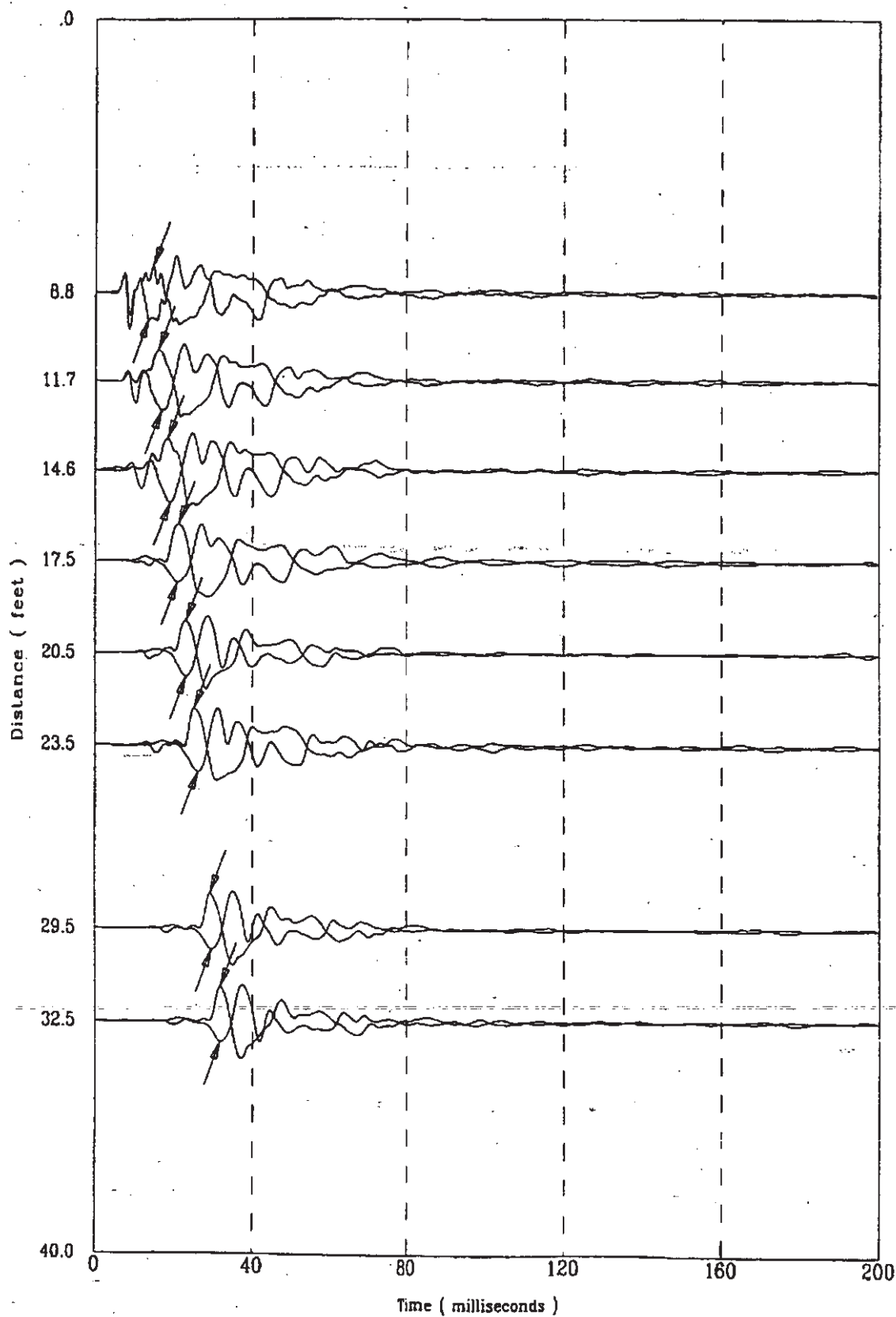




K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-155

S Wave  
02/18/98



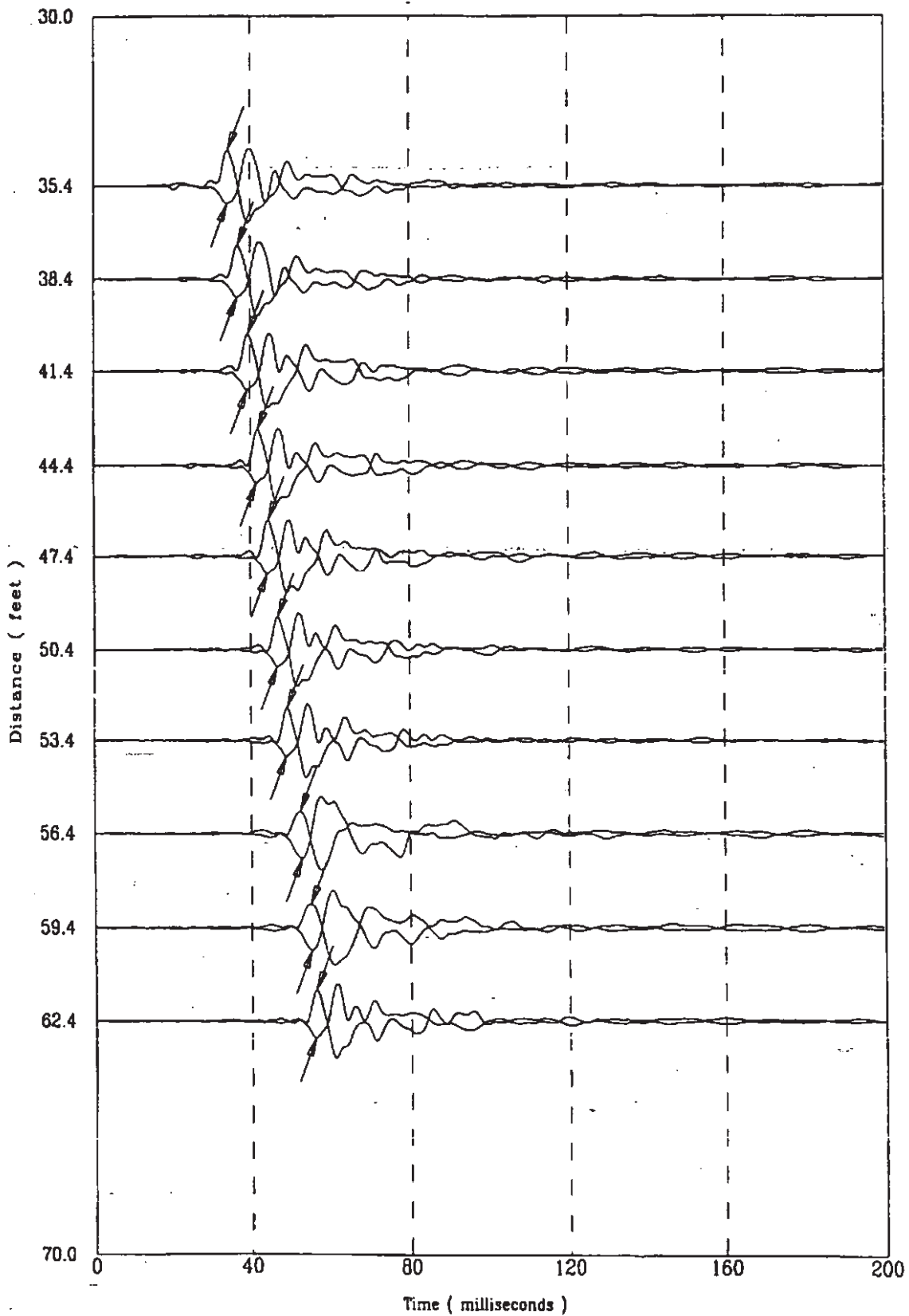
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-155

S Wave  
02/18/98



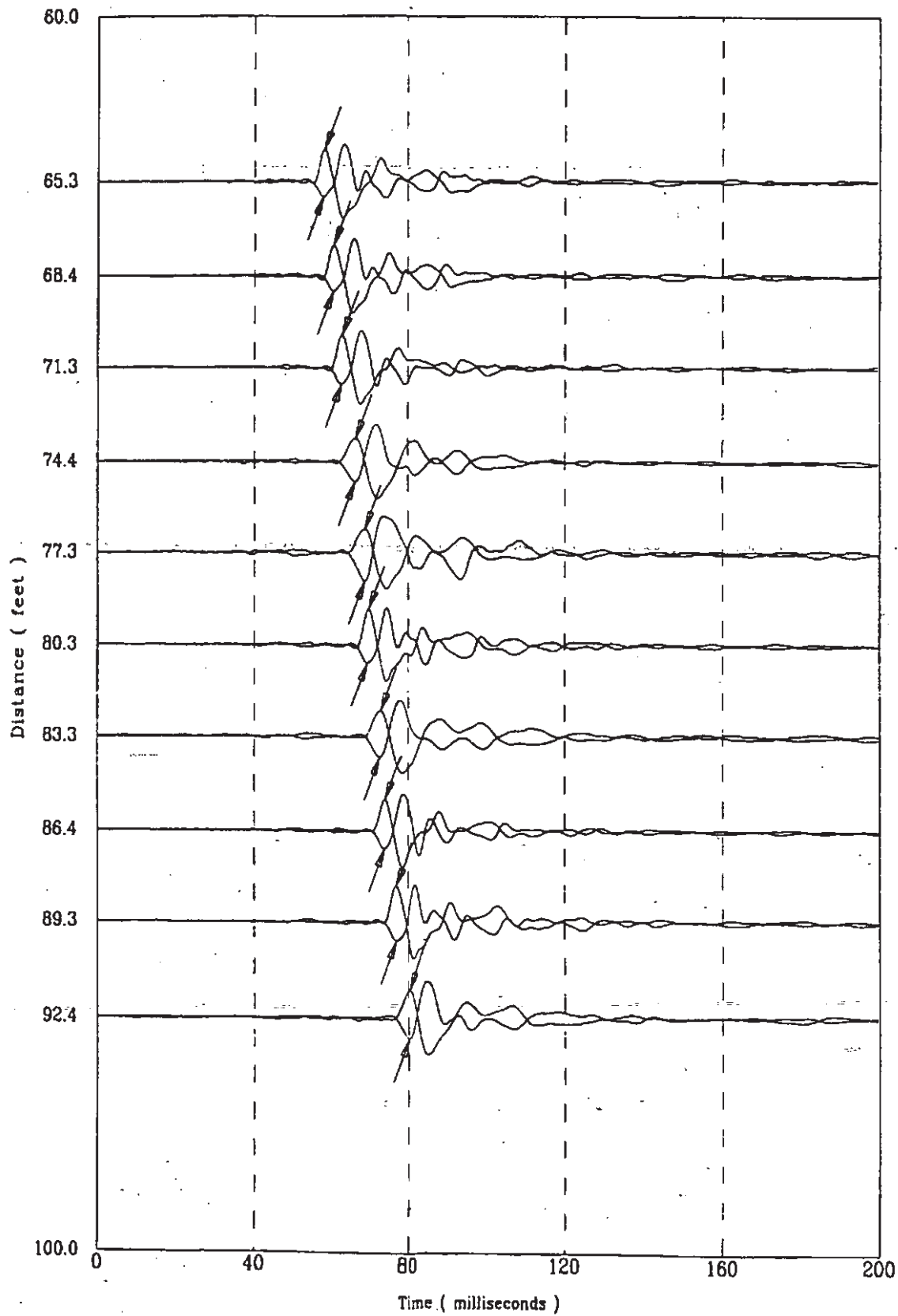
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R/O

Applied Research Associates, Inc.  
CPT-155

S Wave  
02/18/98



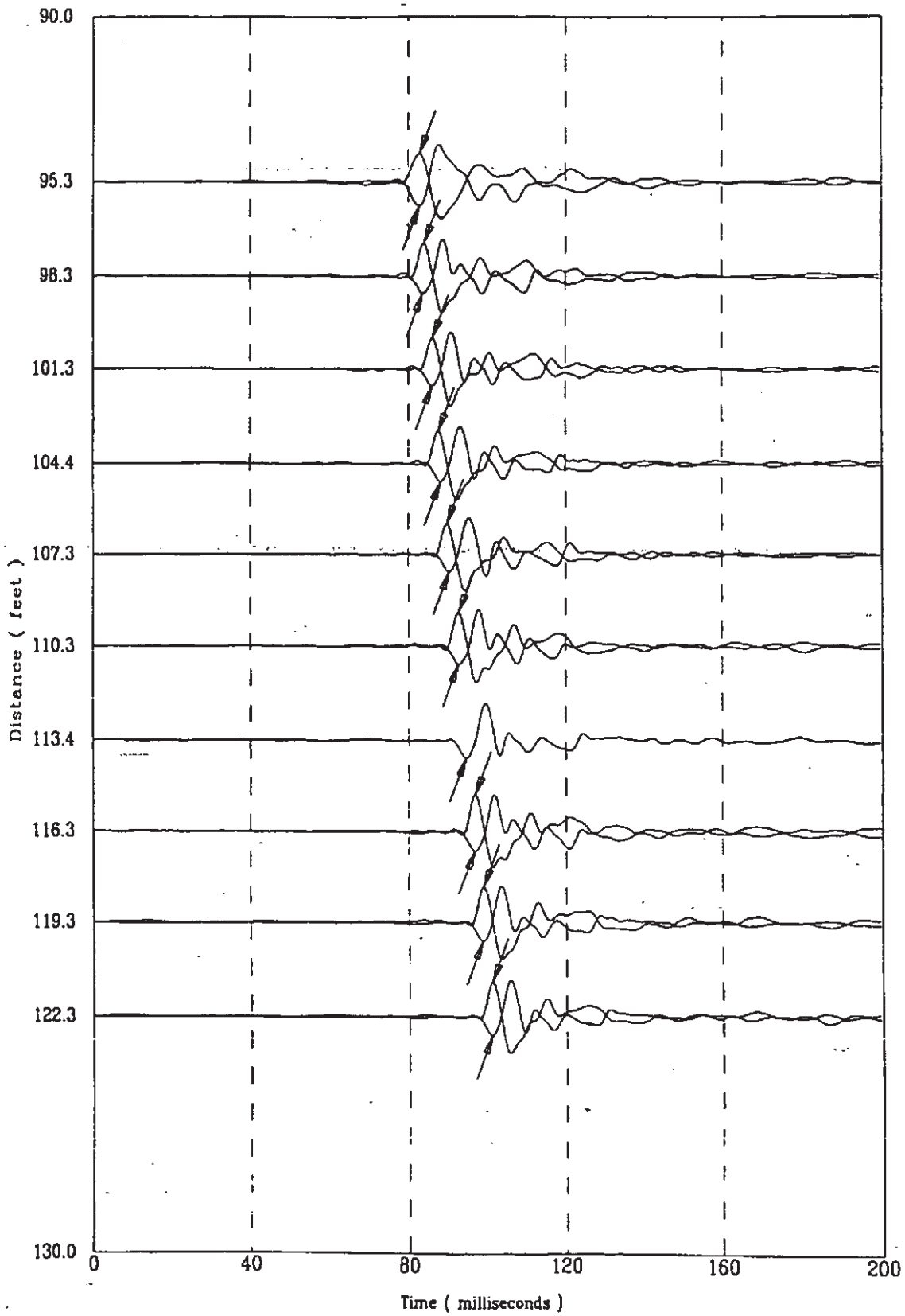
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-155

S Wave  
02/18/98



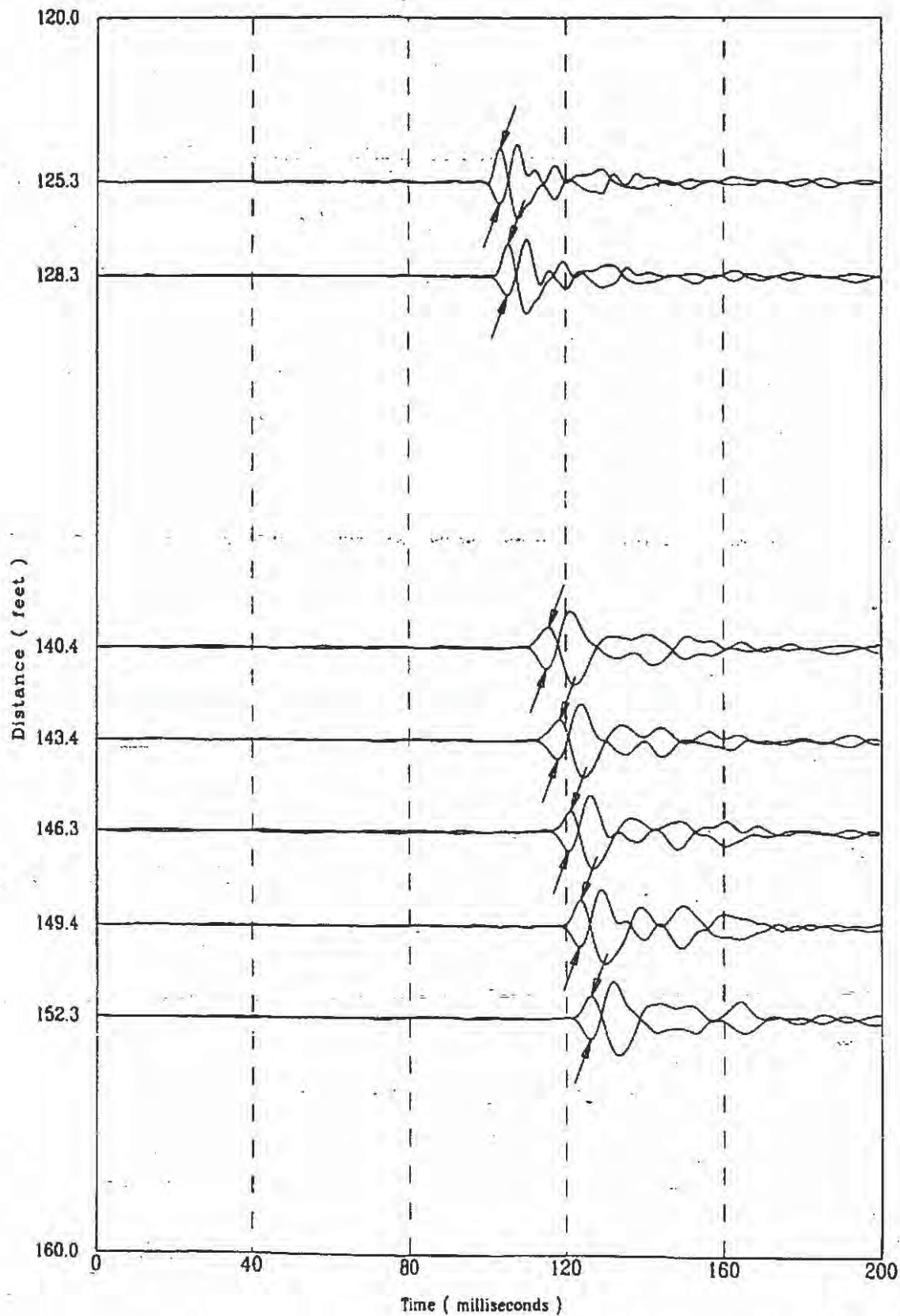
519/801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-155

S Wave  
02/18/98

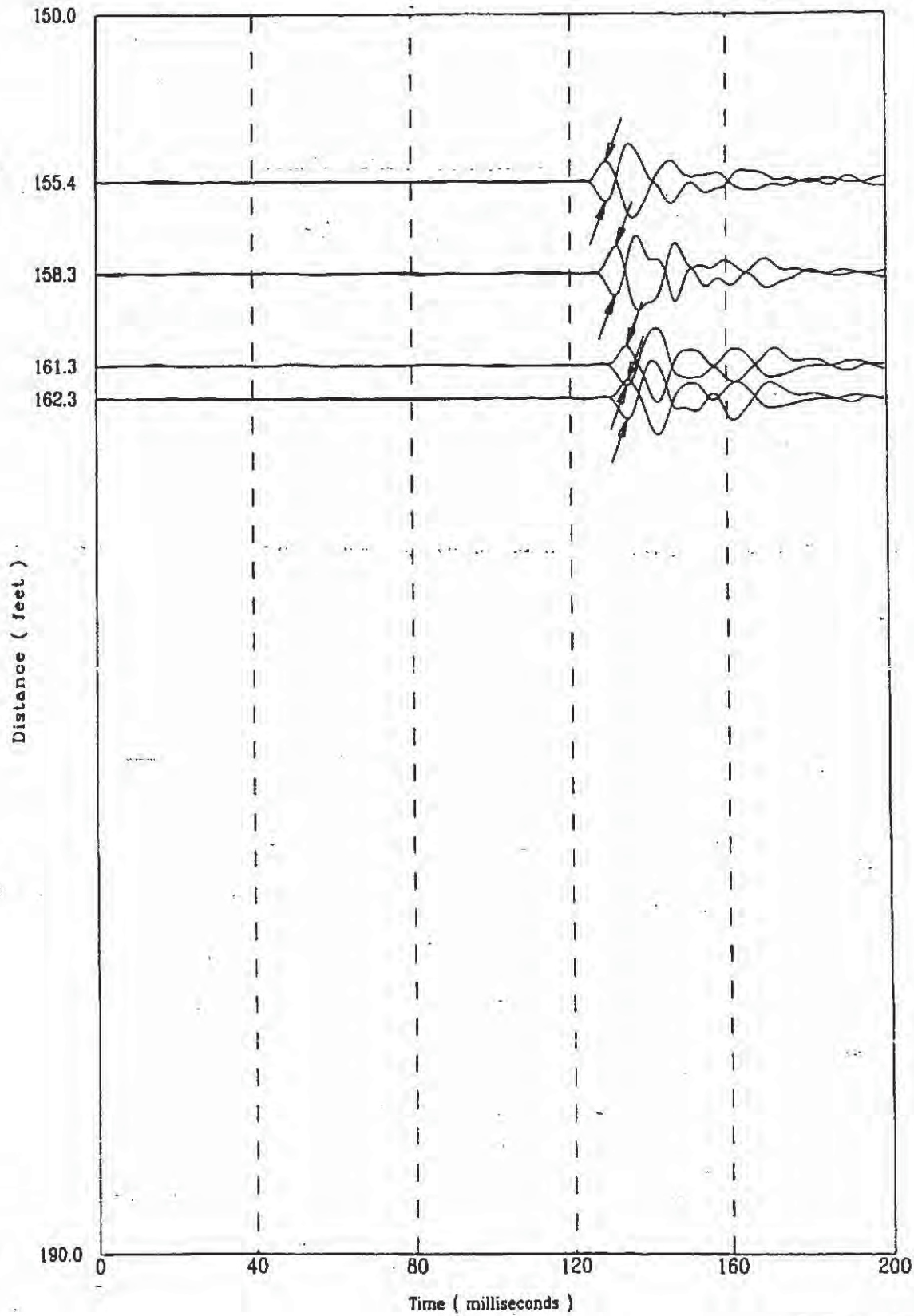


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R/O

Applied Research Associates, Inc.  
CPT-155

S Wave  
02/18/98

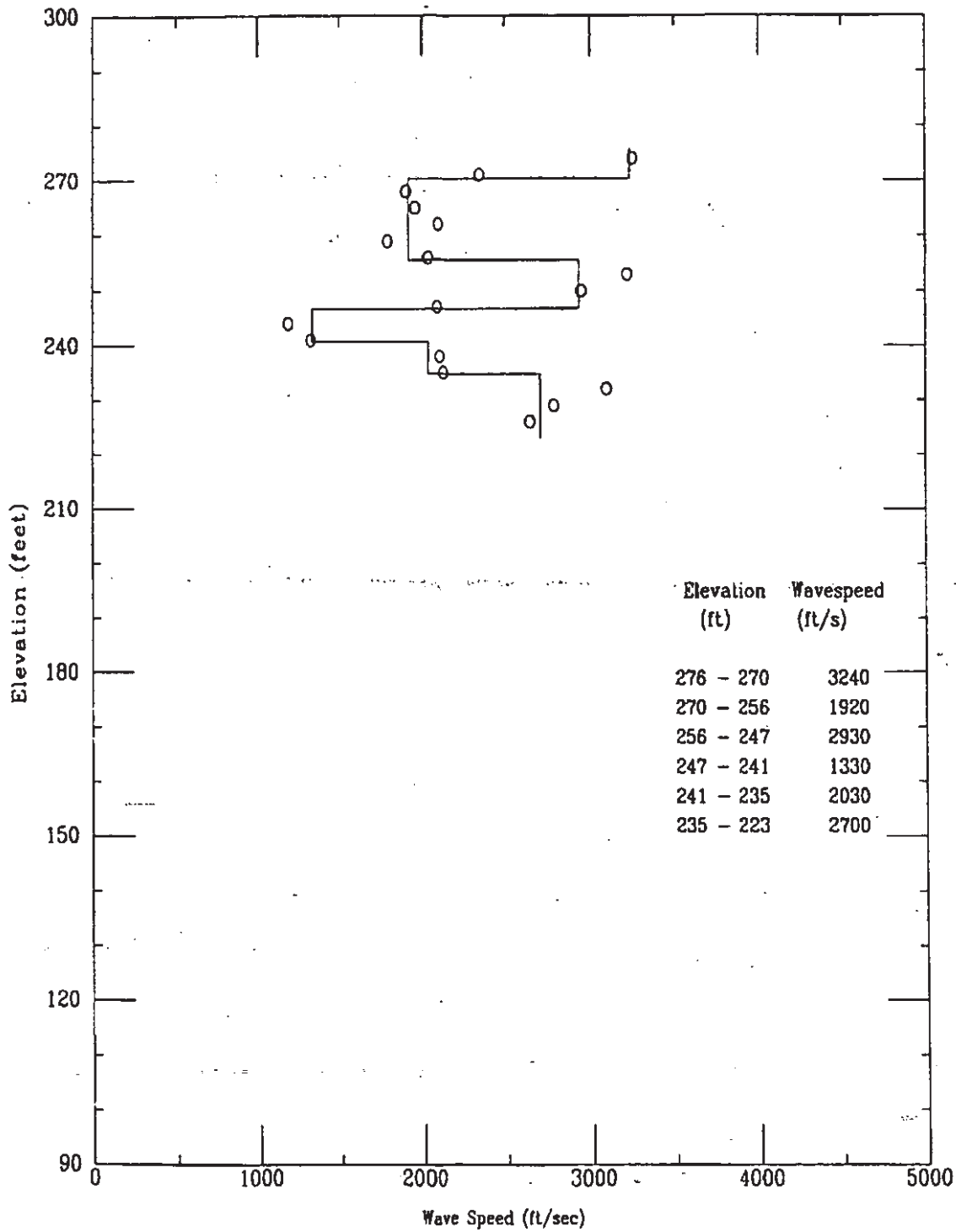


1878015

CPT-155

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

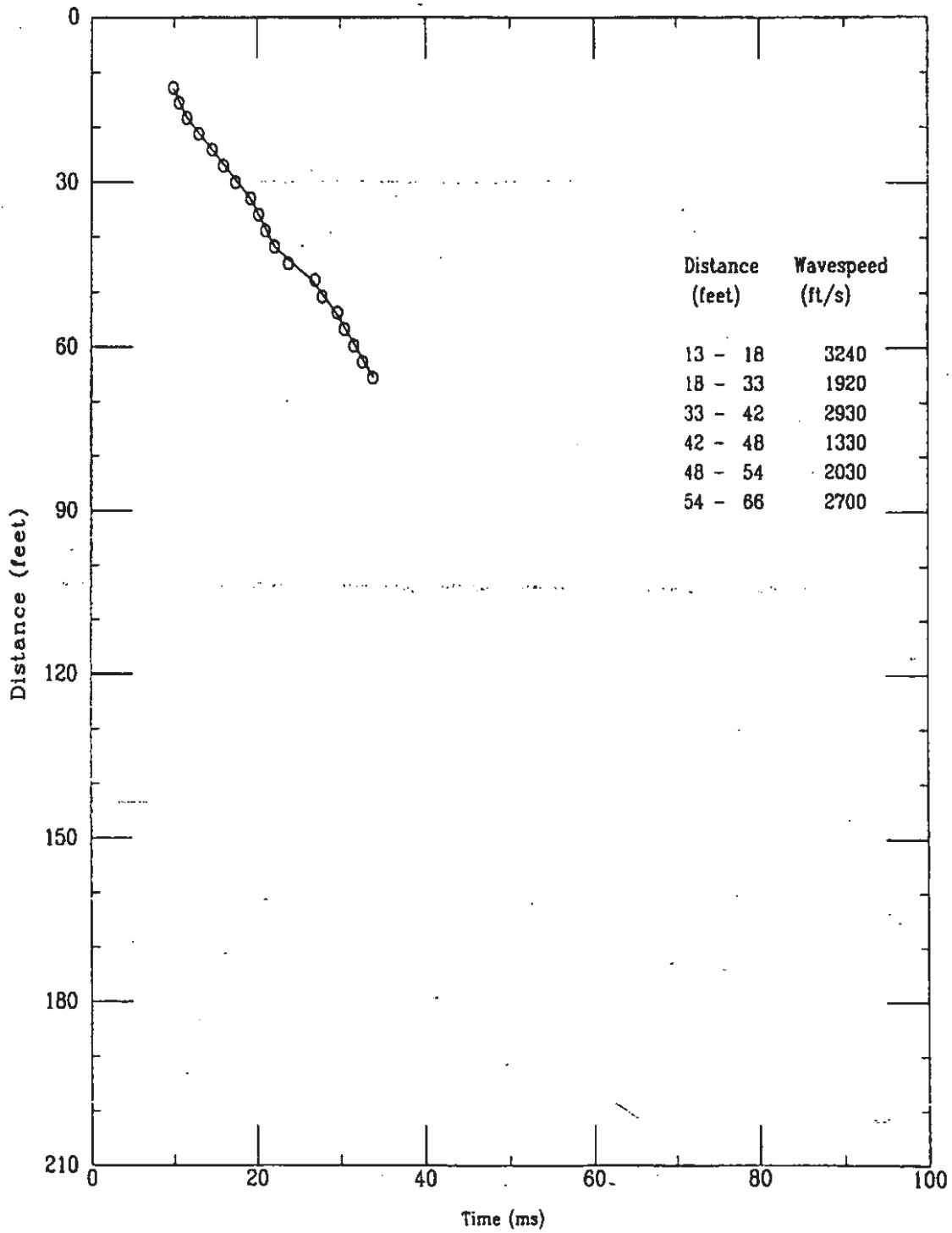
02/18/98



CPT-155

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

02/18/98



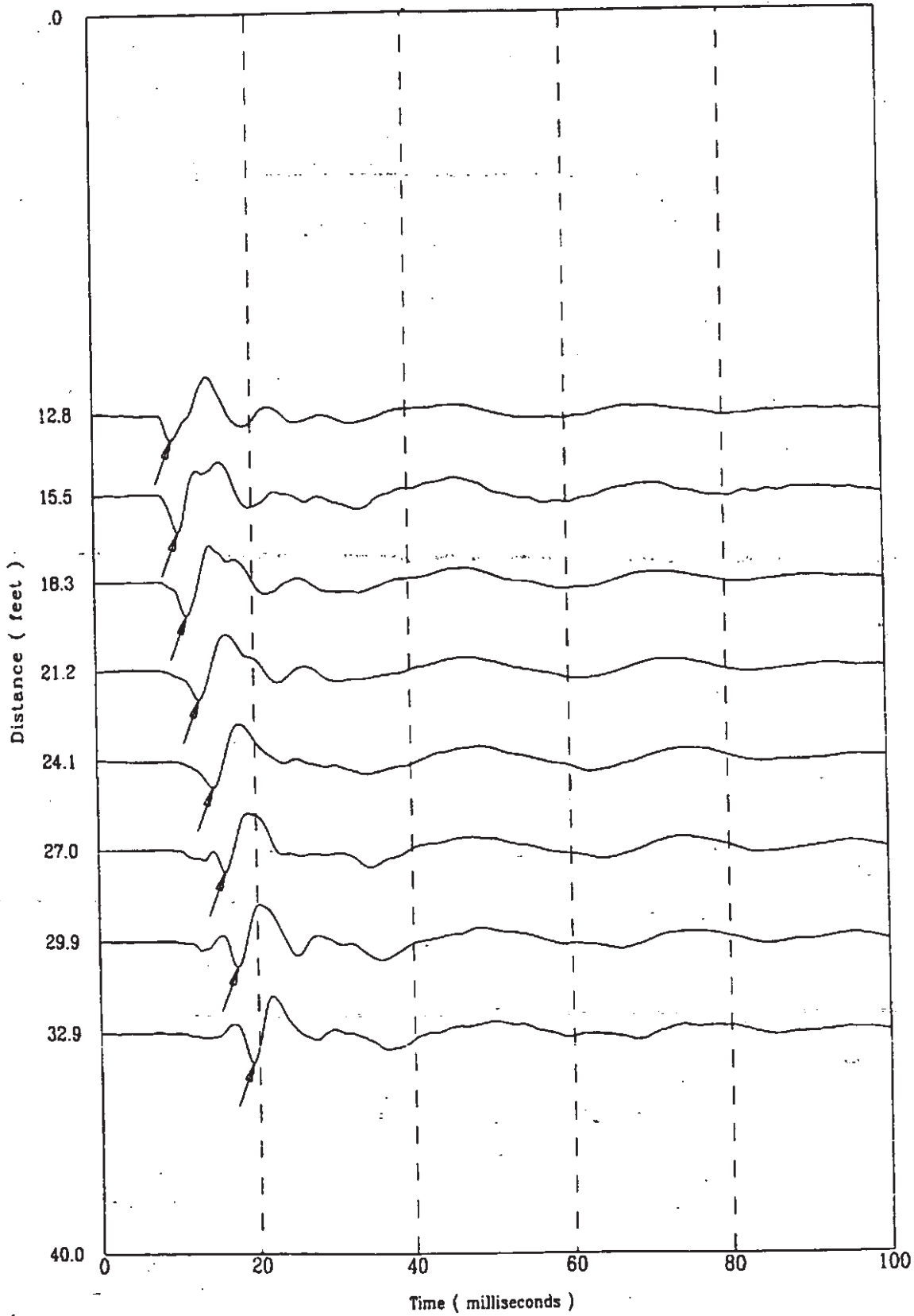
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-155

P Wave  
02/18/98



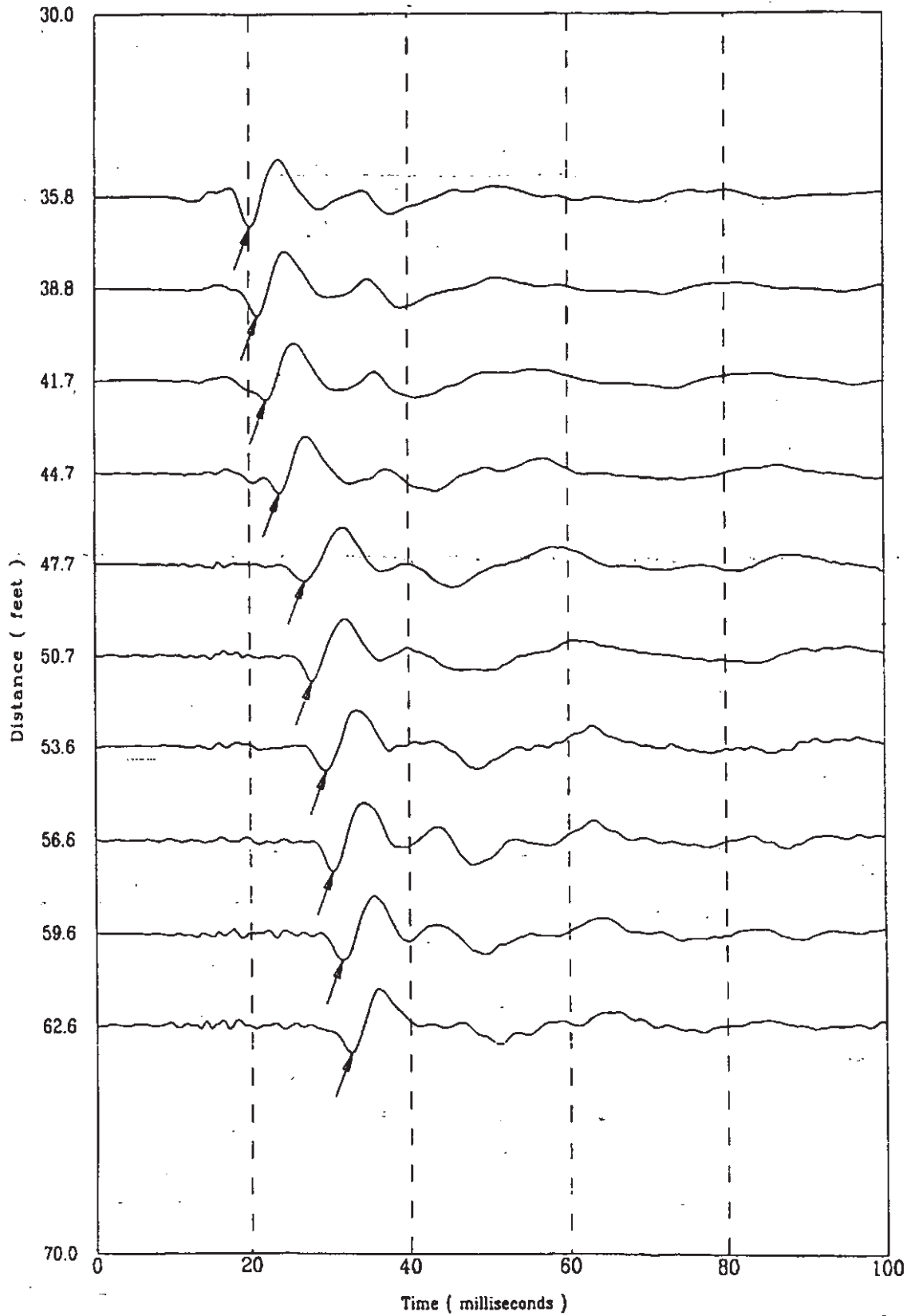
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R/O

Applied Research Associates, Inc.  
CPT-155

P Wave  
02/18/98



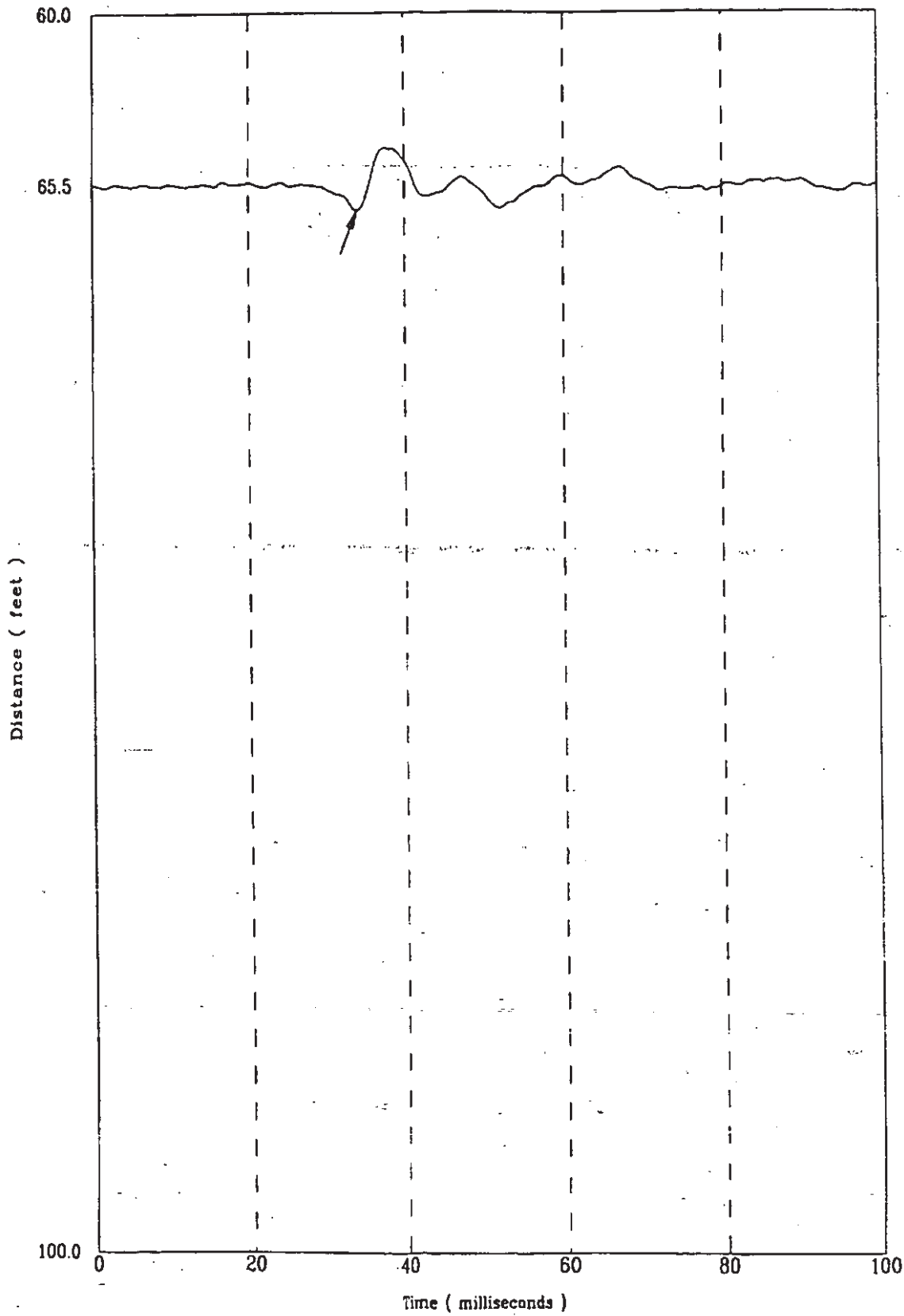
318013

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Applied Research Associates, Inc.  
CPT-155

P Wave  
02/18/98



File 5187801S

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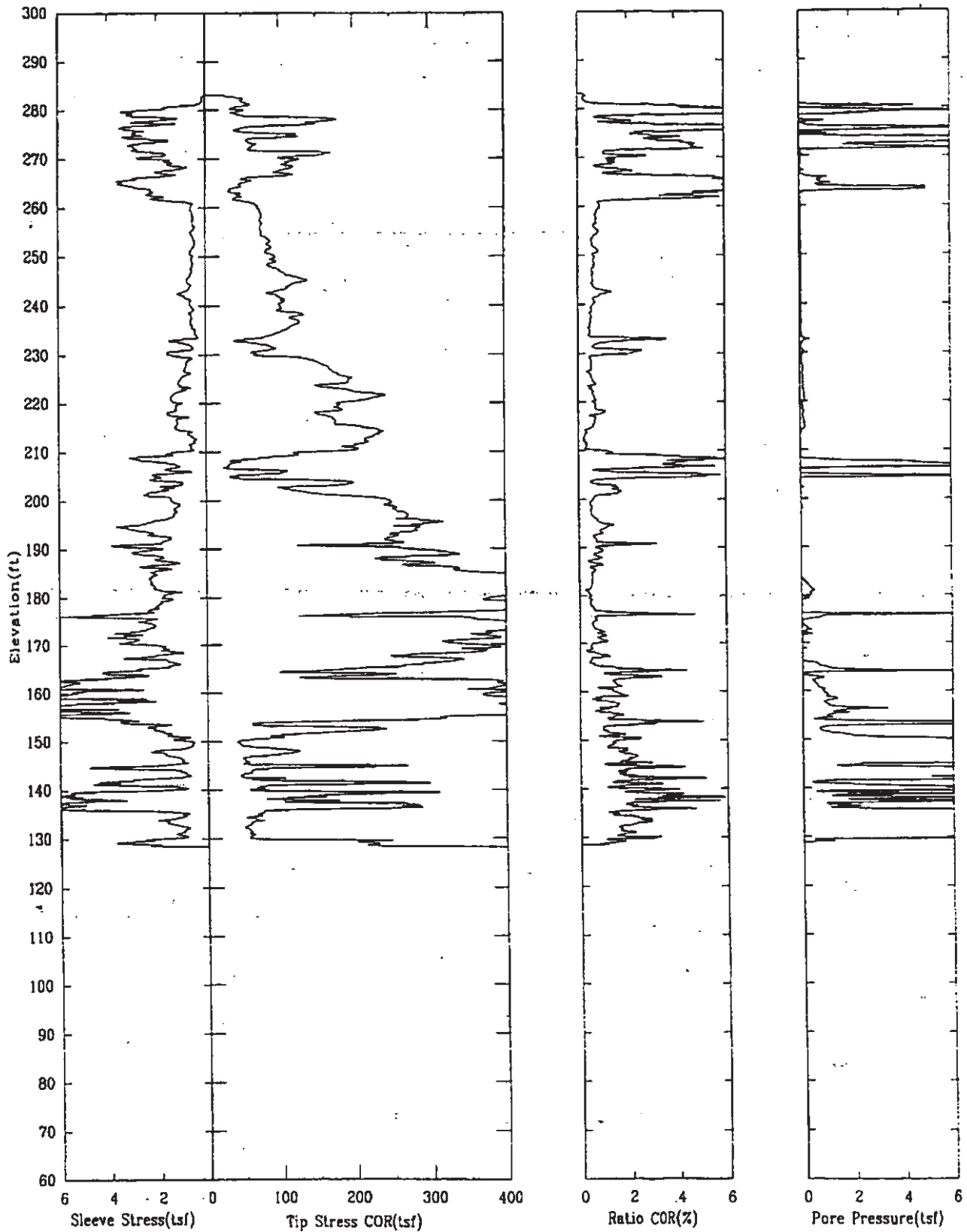
APPLIED RESEARCH ASSOCIATES, INC.

K02/18/98 F-00001  
R/0

North 79244.97

East 55384.98

Elevation 289.2



CPT-156

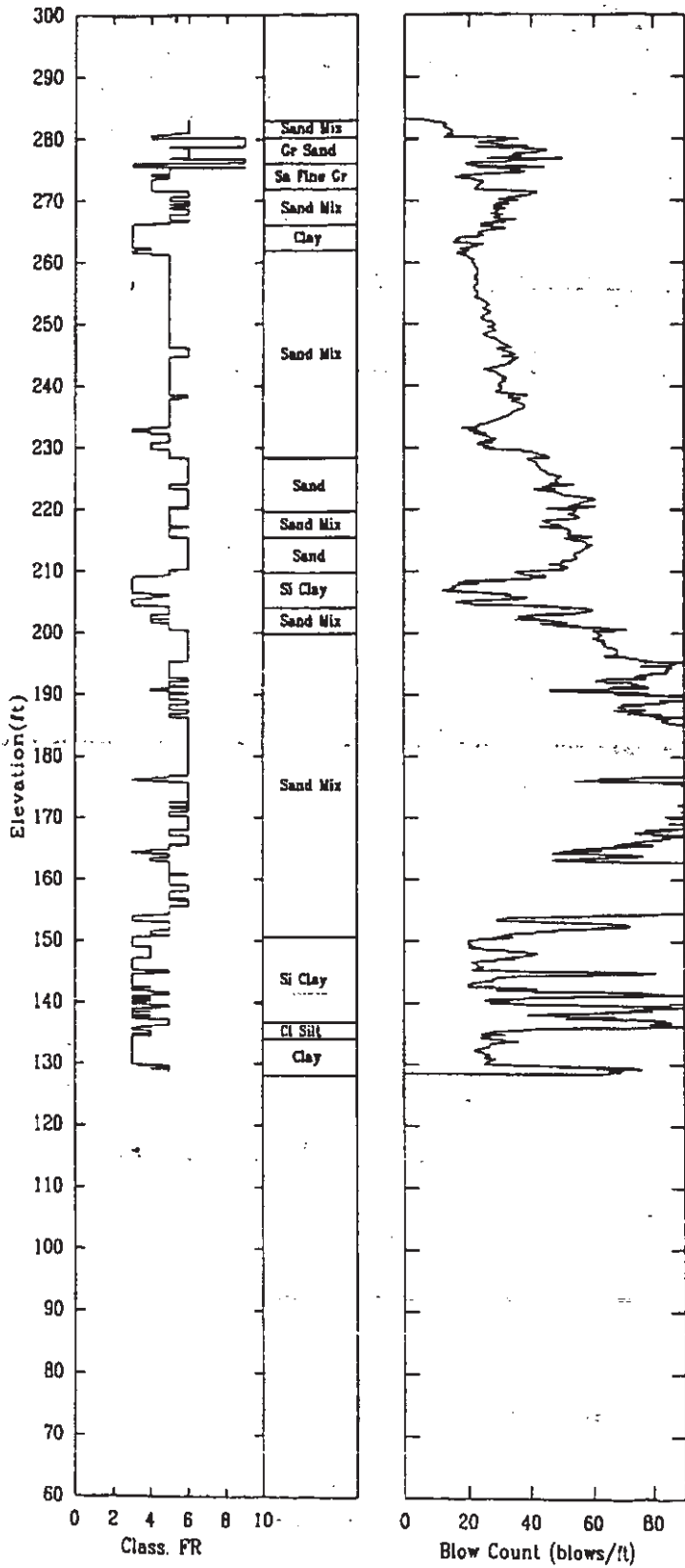
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North 79244.97

East 55384.98

Elevation 289.2

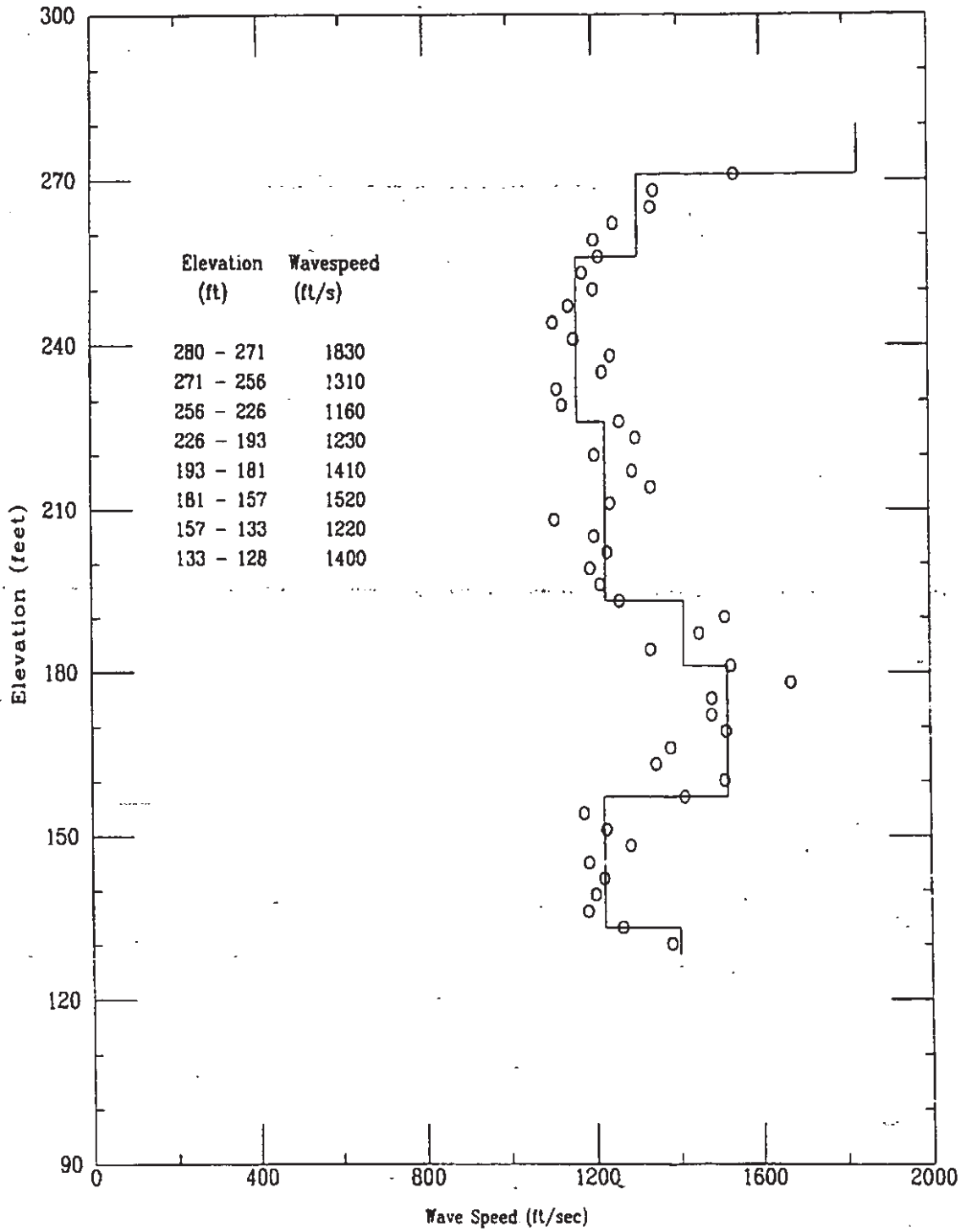


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APPLIED RESEARCH ASSOCIATES, INC.

02/18/98

Shear Wave Speeds

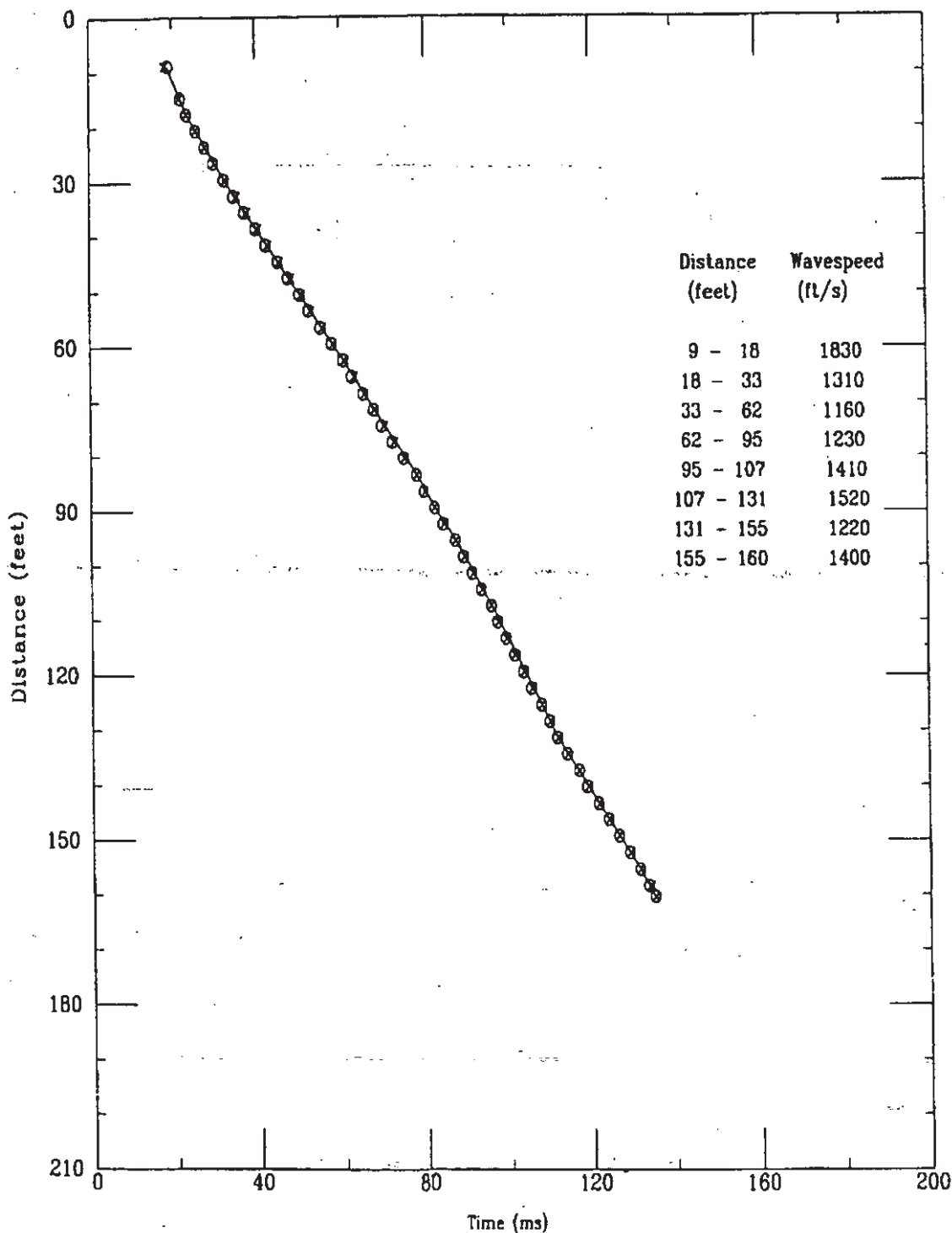


File 51876045

CPT-156

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

02/18/98

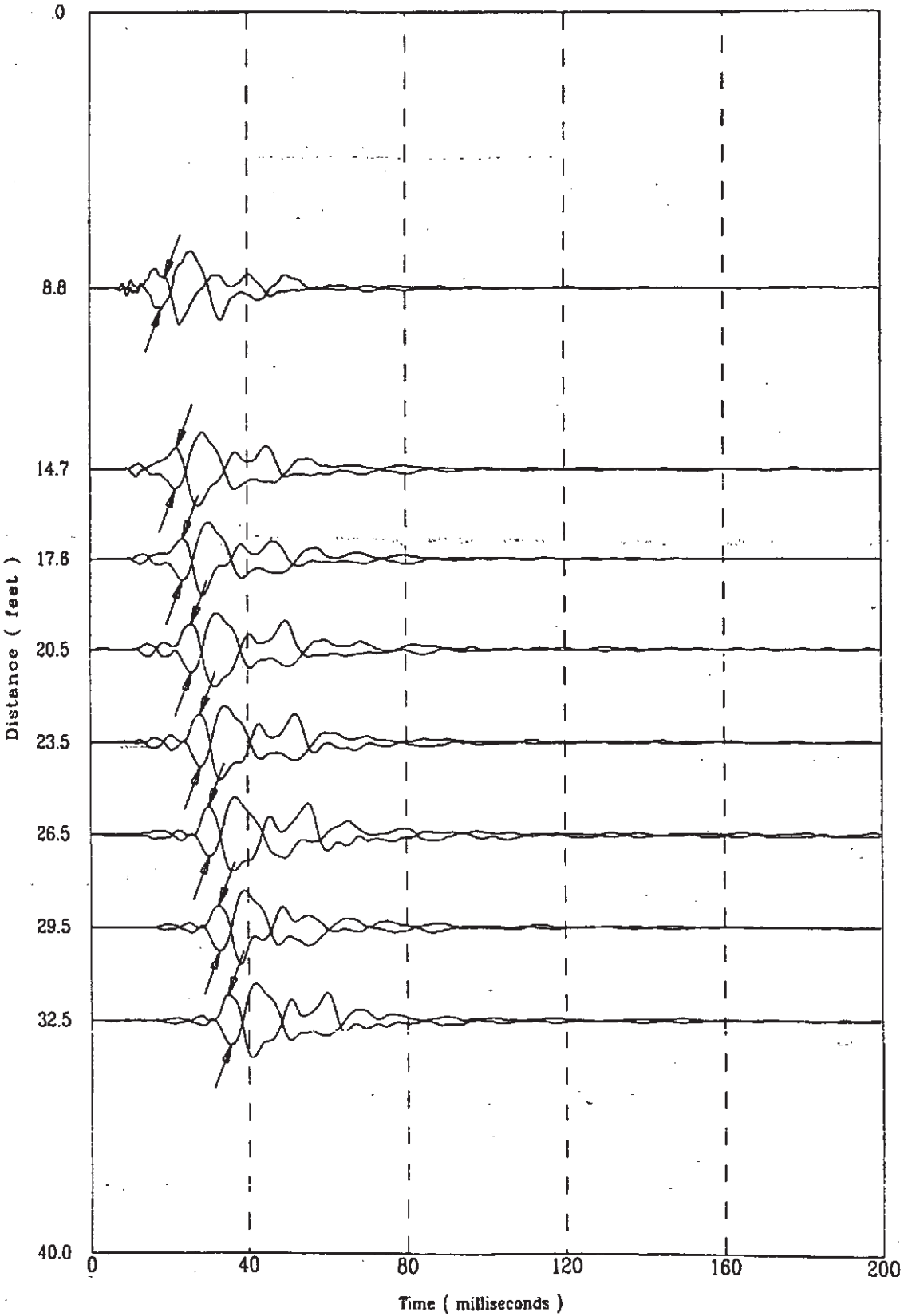


File 519/804S

K-TRT-F-00001  
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Applied Research Associates, Inc.  
CPT-156

S Wave  
02/18/98



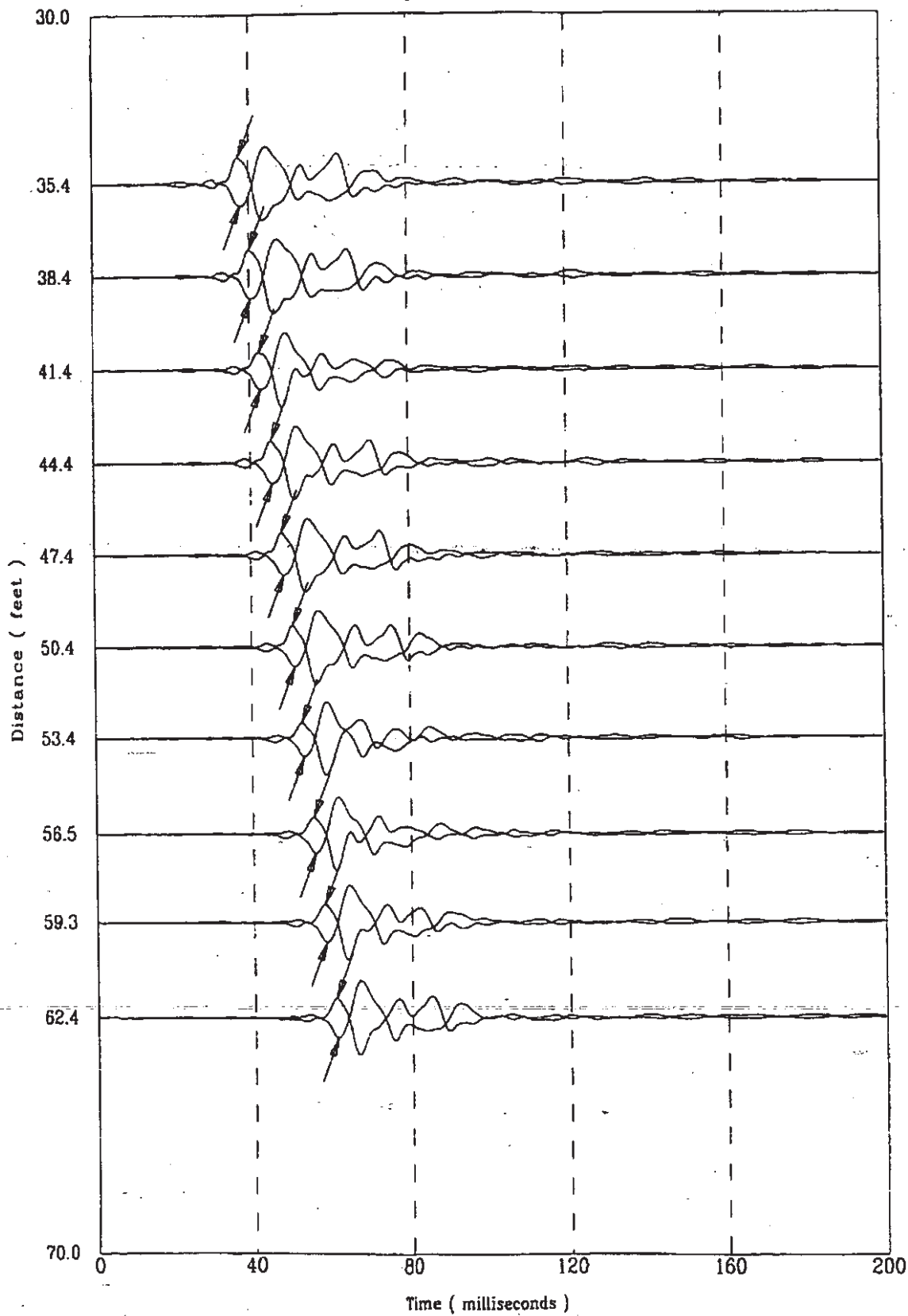
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Applied Research Associates, Inc.  
CPT-156

S Wave  
02/18/98

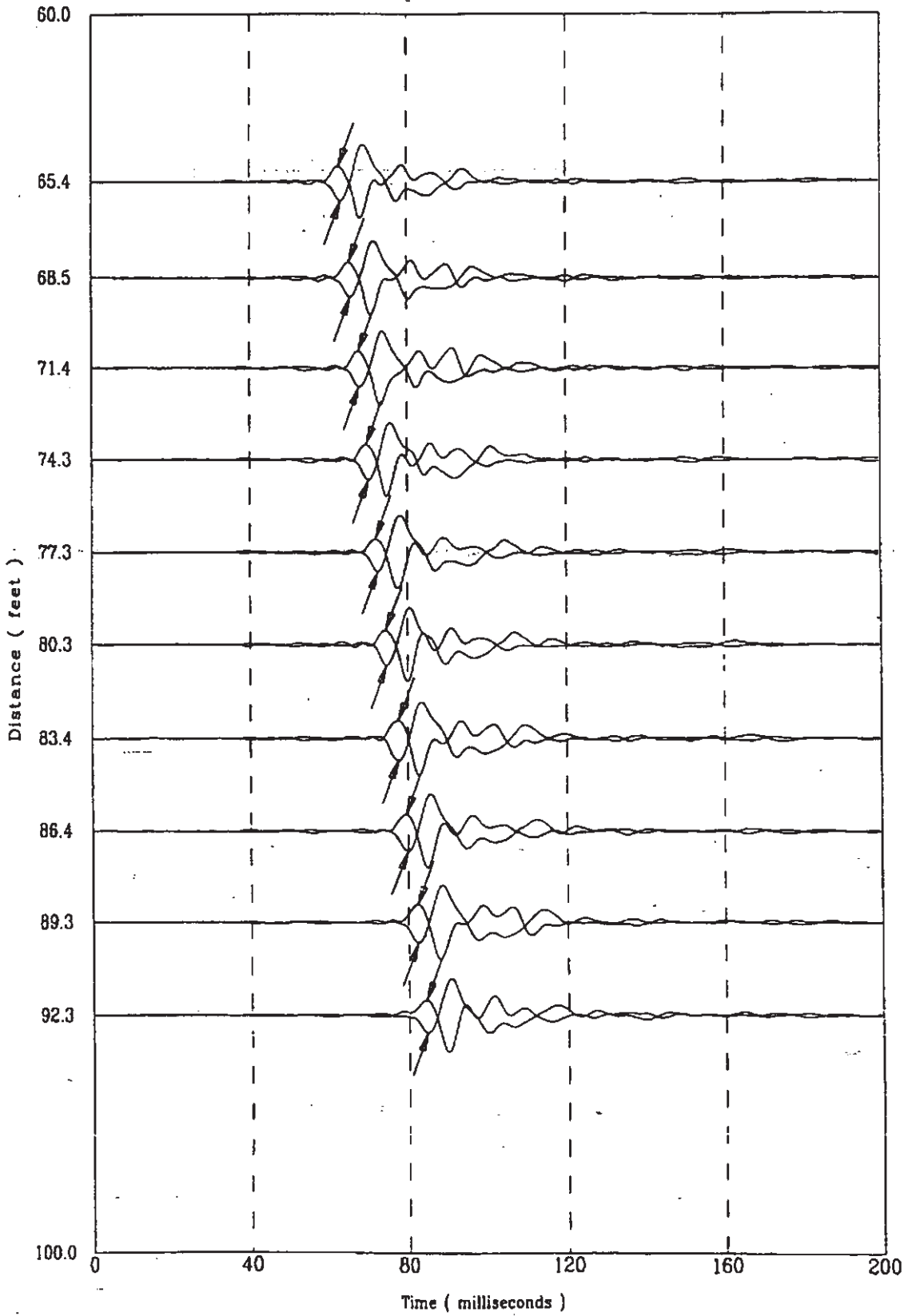


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R/O

Applied Research Associates, Inc.  
CPT-156

S Wave  
02/18/98



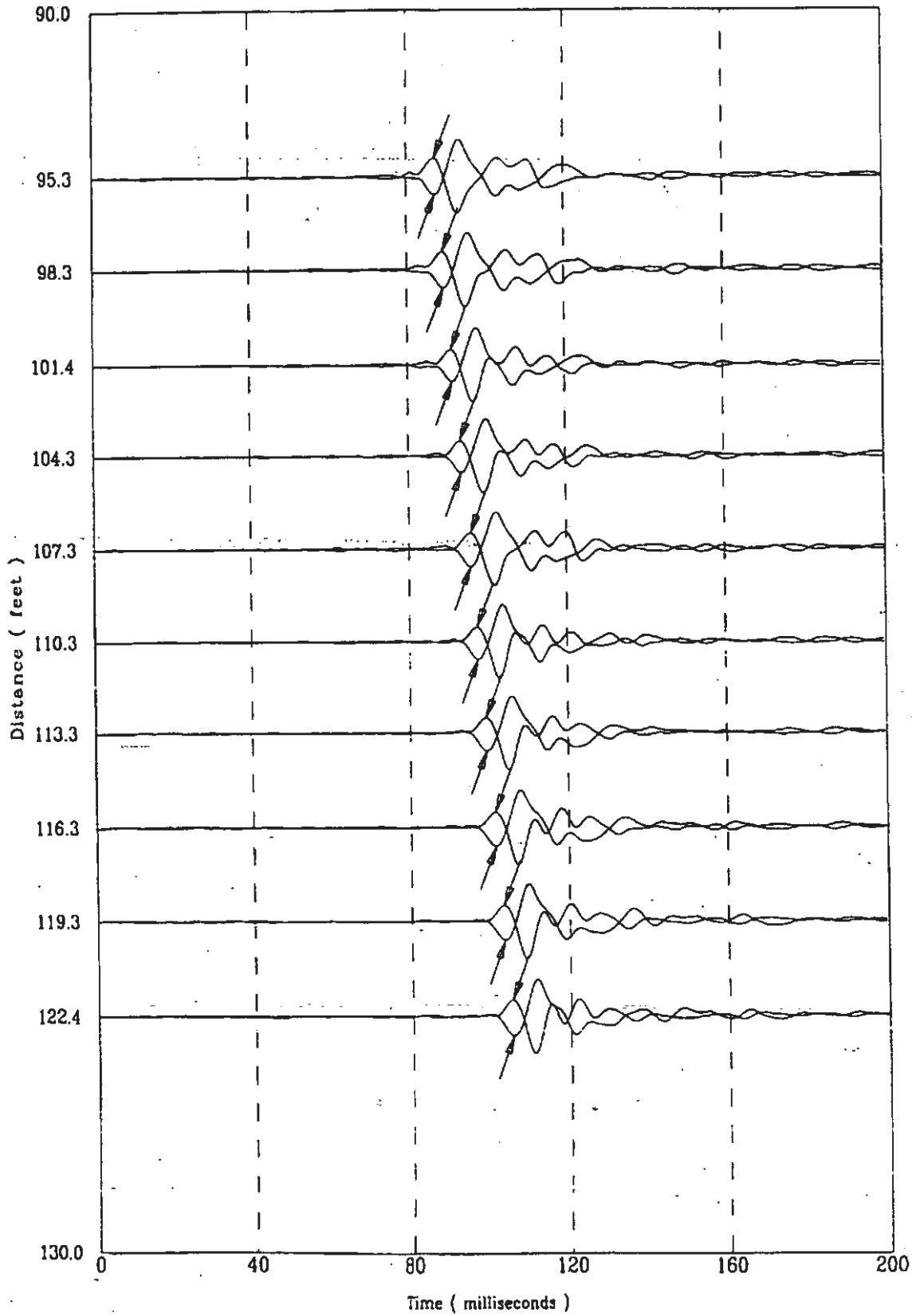
181804S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-156

S Wave  
02/18/98



File 51878045

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R/O

Applied Research Associates, Inc.  
CPT-156

S Wave  
02/18/98

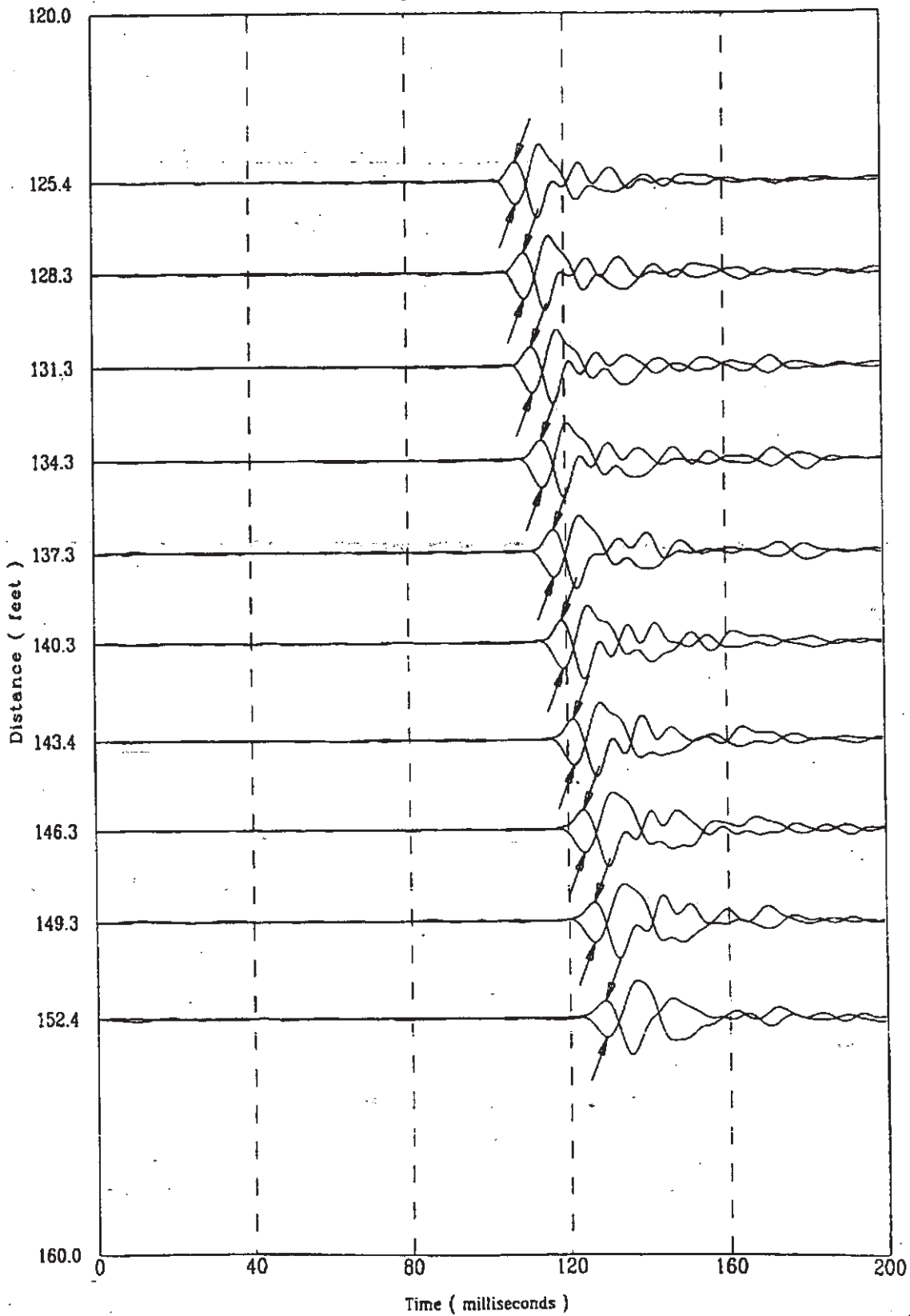


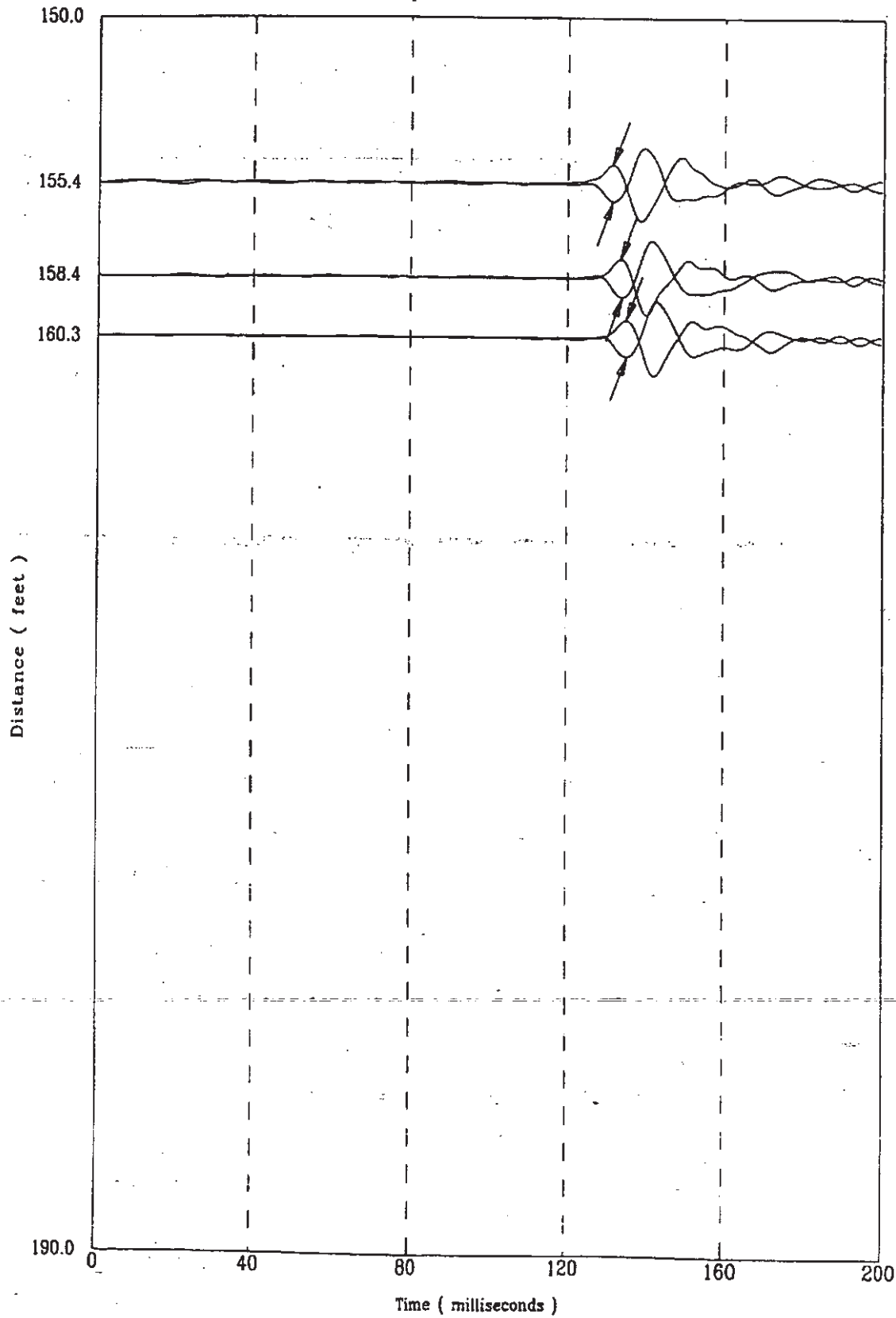
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-156

S Wave  
02/18/98



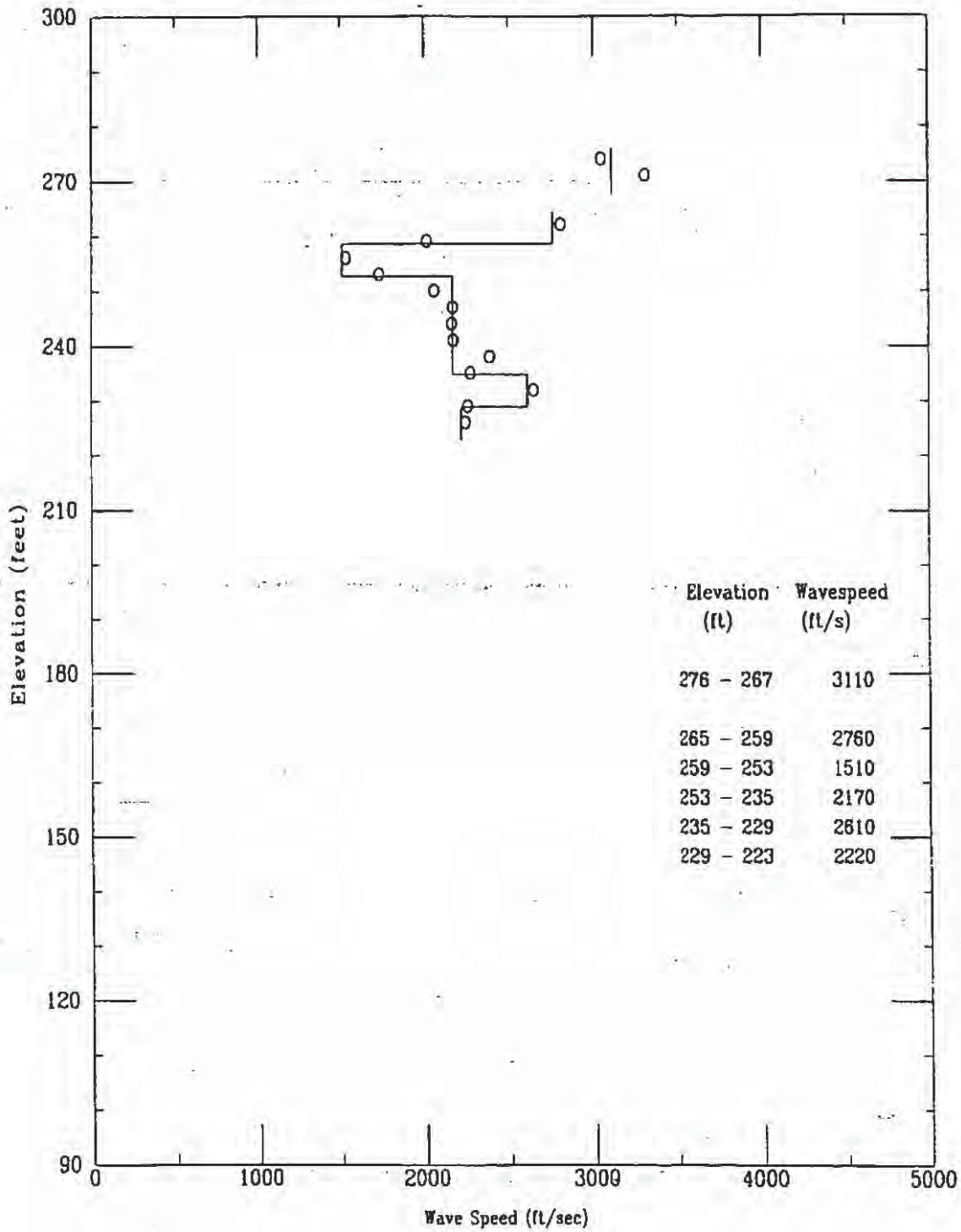
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CPT-156

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

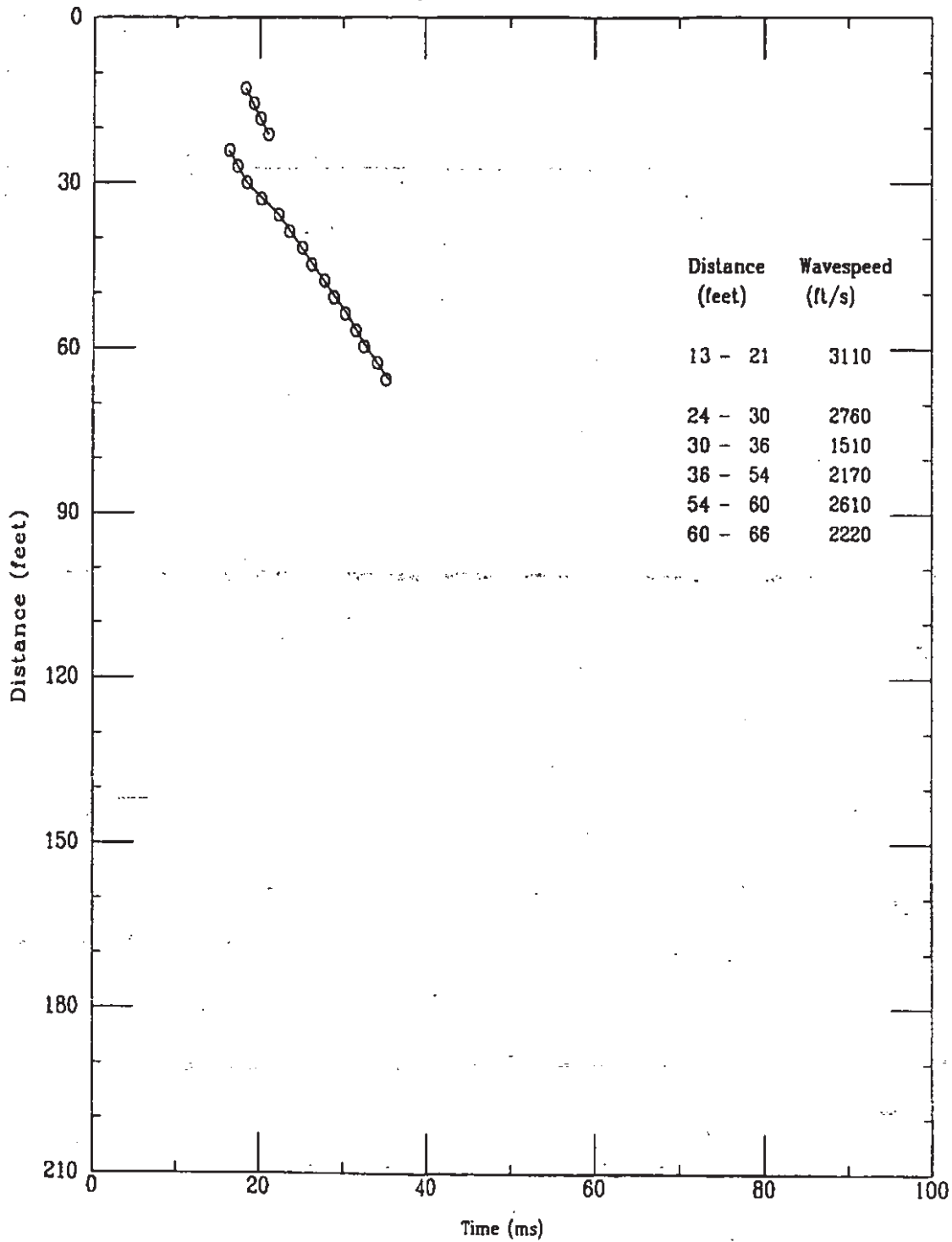
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CPT-156

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

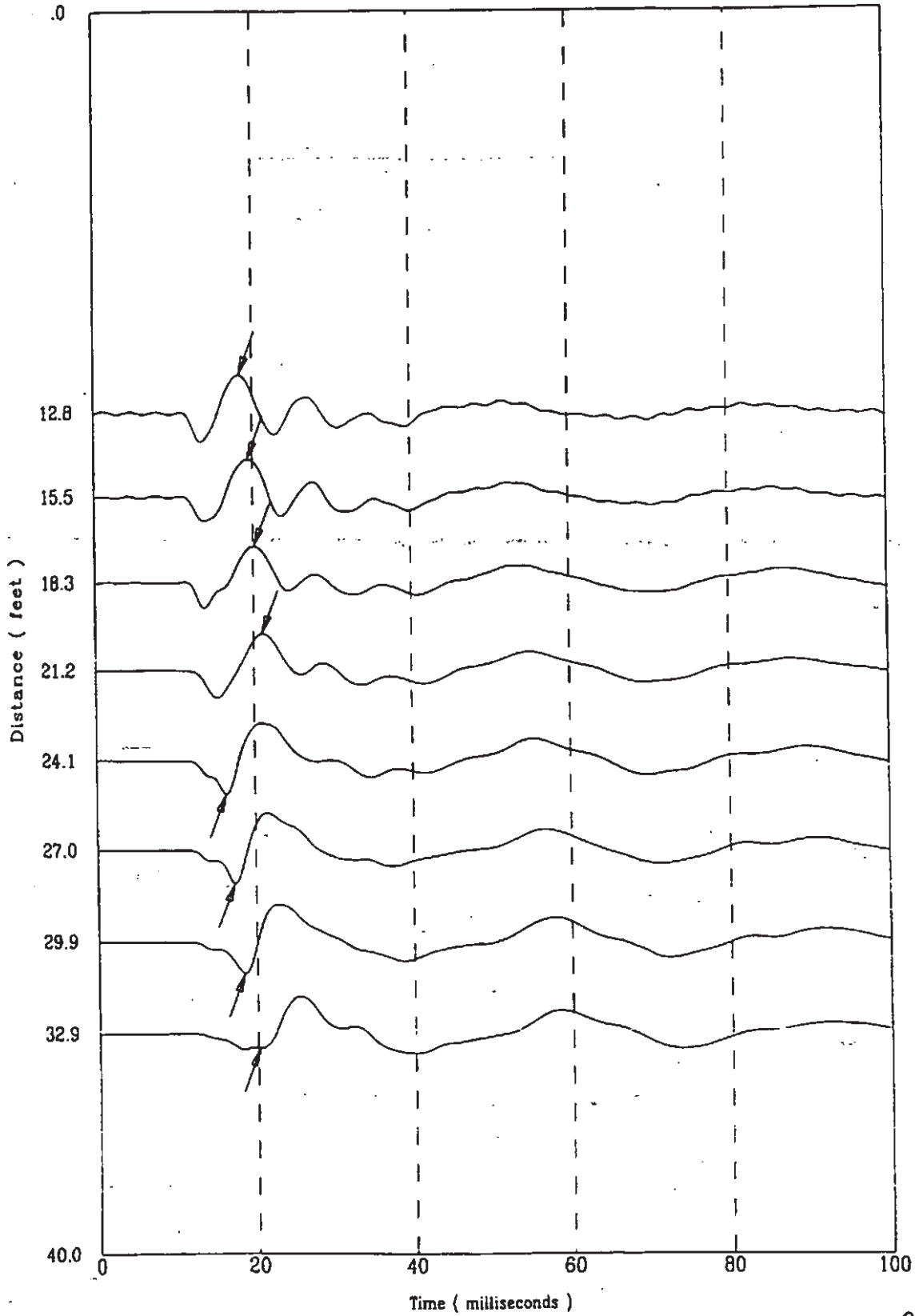
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R/O

Applied Research Associates, Inc.  
CPT-156

P Wave  
02/18/98



file 51878043

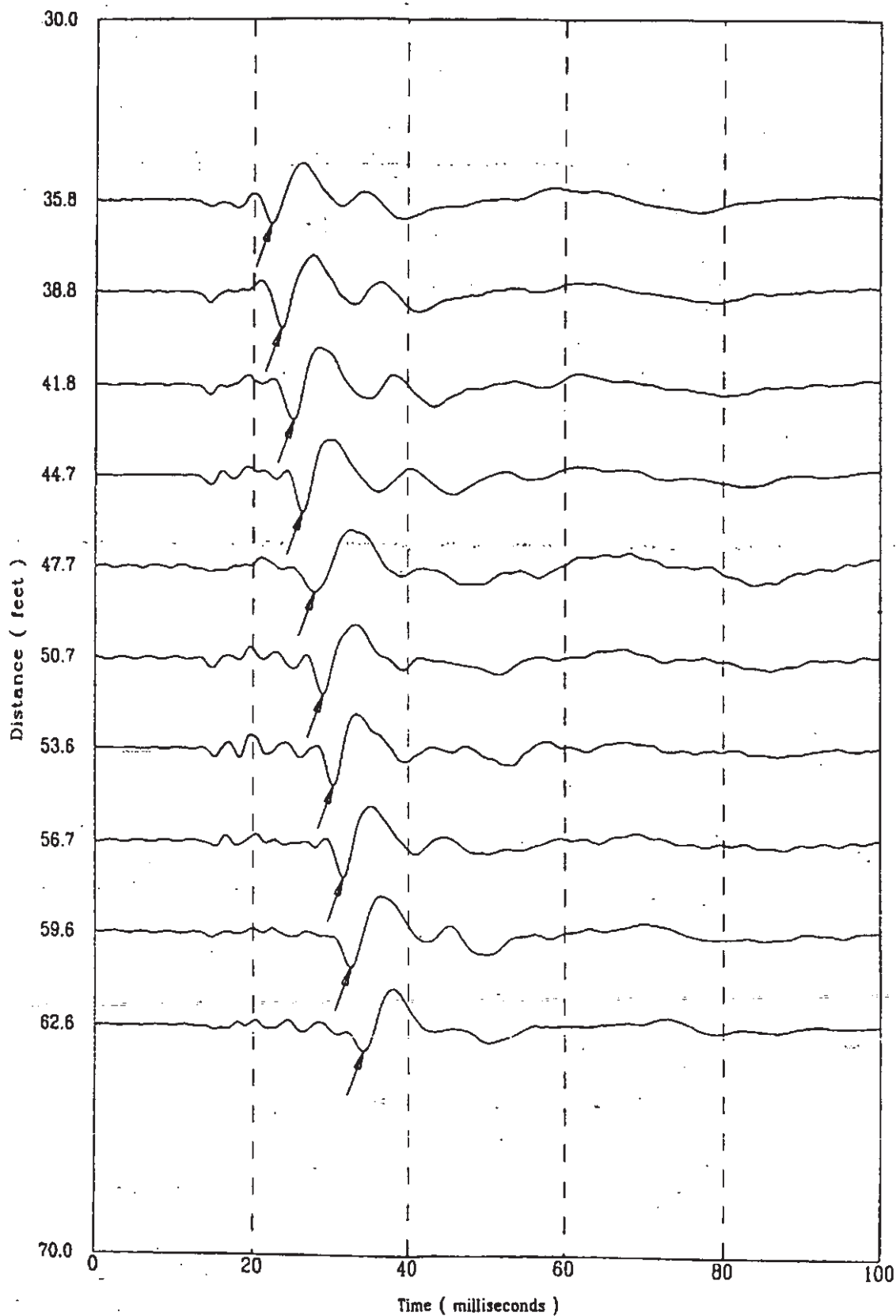
225 of 522



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Applied Research Associates, Inc.  
CPT-156

P Wave  
02/18/98



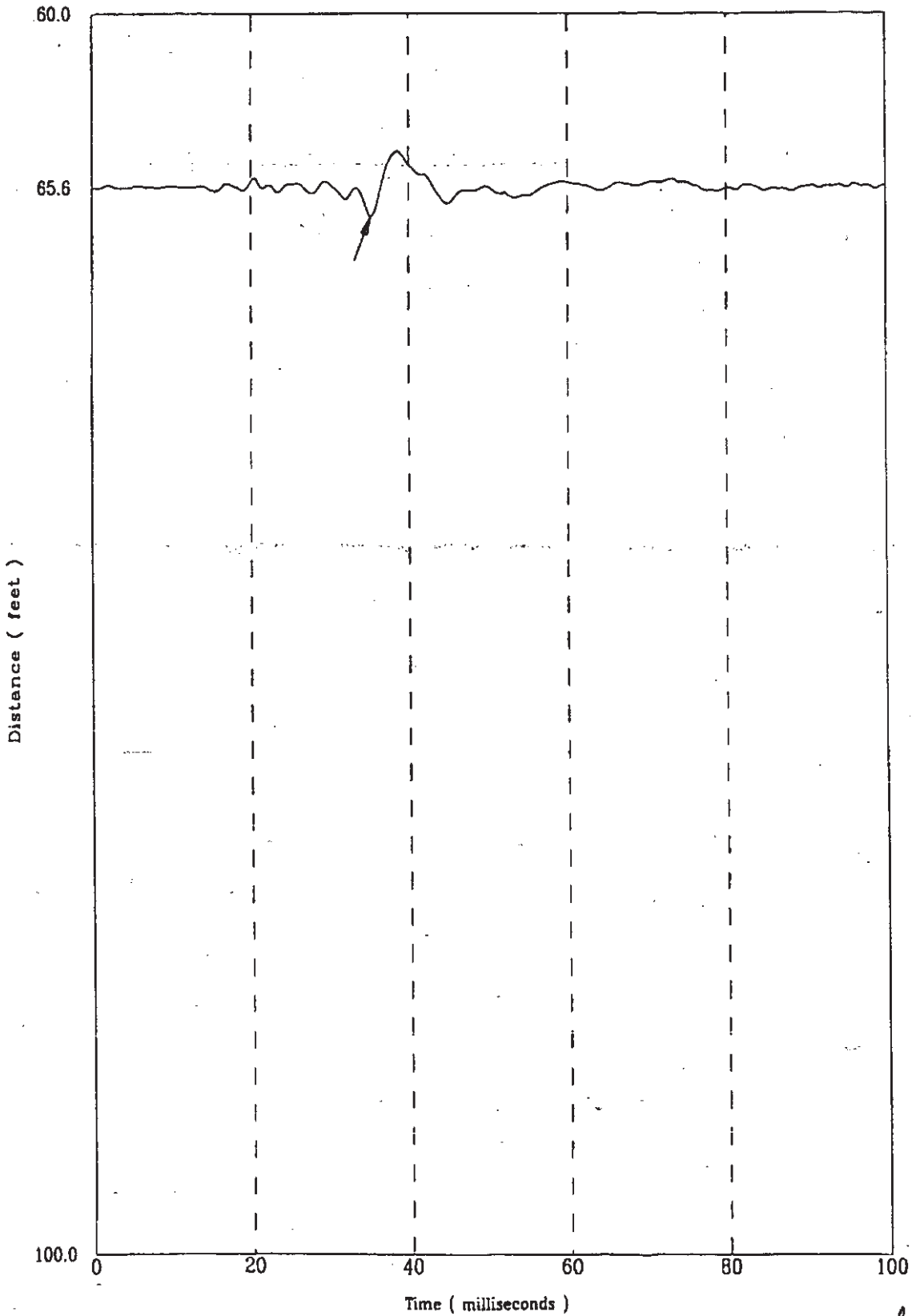
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K-TRT-F-00001  
R/O

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CPT-156

P Wave  
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APPLIED RESEARCH ASSOCIATES, INC.

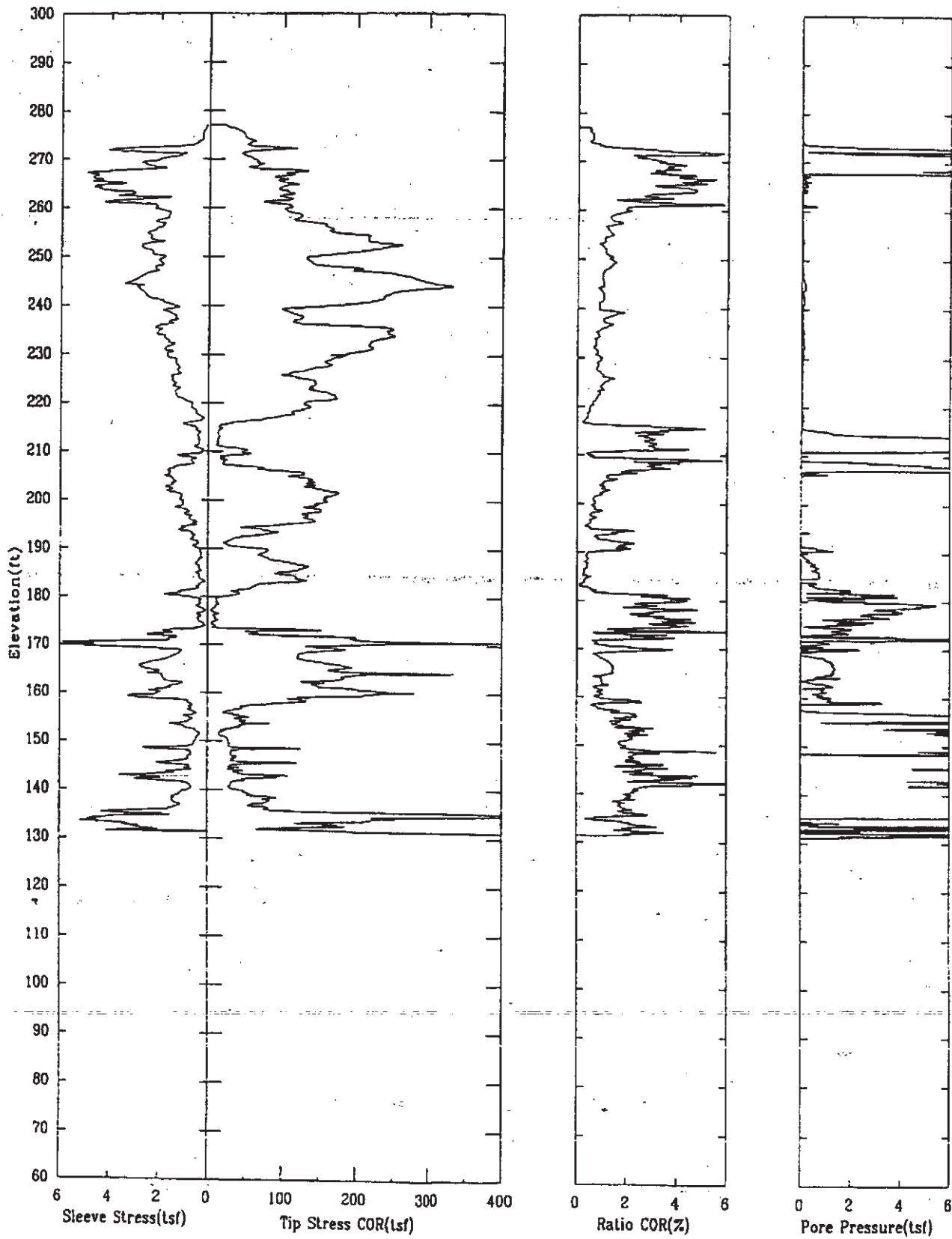
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03/05/98 / 0

North 79244.98

East 55517.98

Elevation 283.1



CPT-157

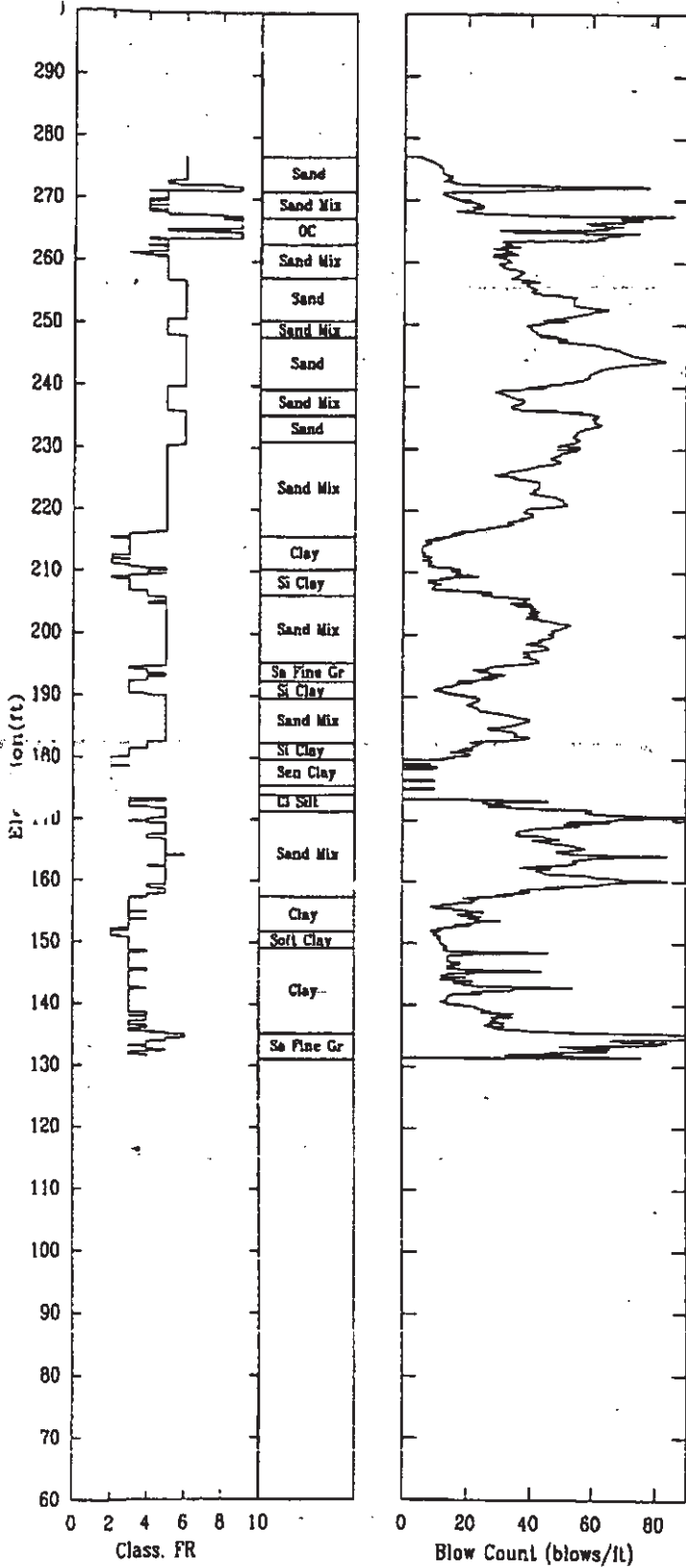
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K-TRT-F-00001  
03/05/98 / o

North 79244.98

East 55517.98

Elevation 283.1

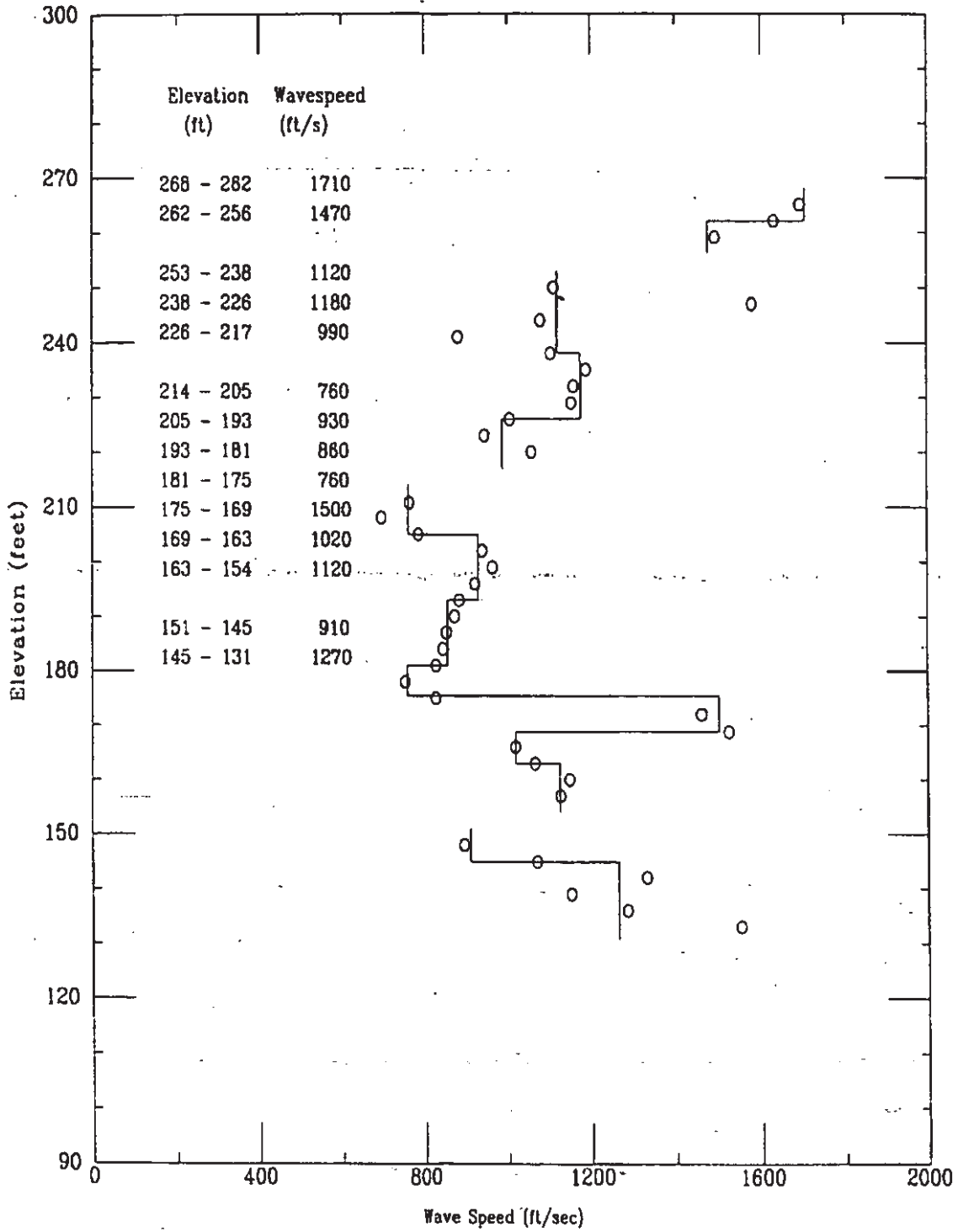


CPT-157

APPLIED RESEARCH ASSOCIATES, INC.

03/05/98

Shear Wave Speeds

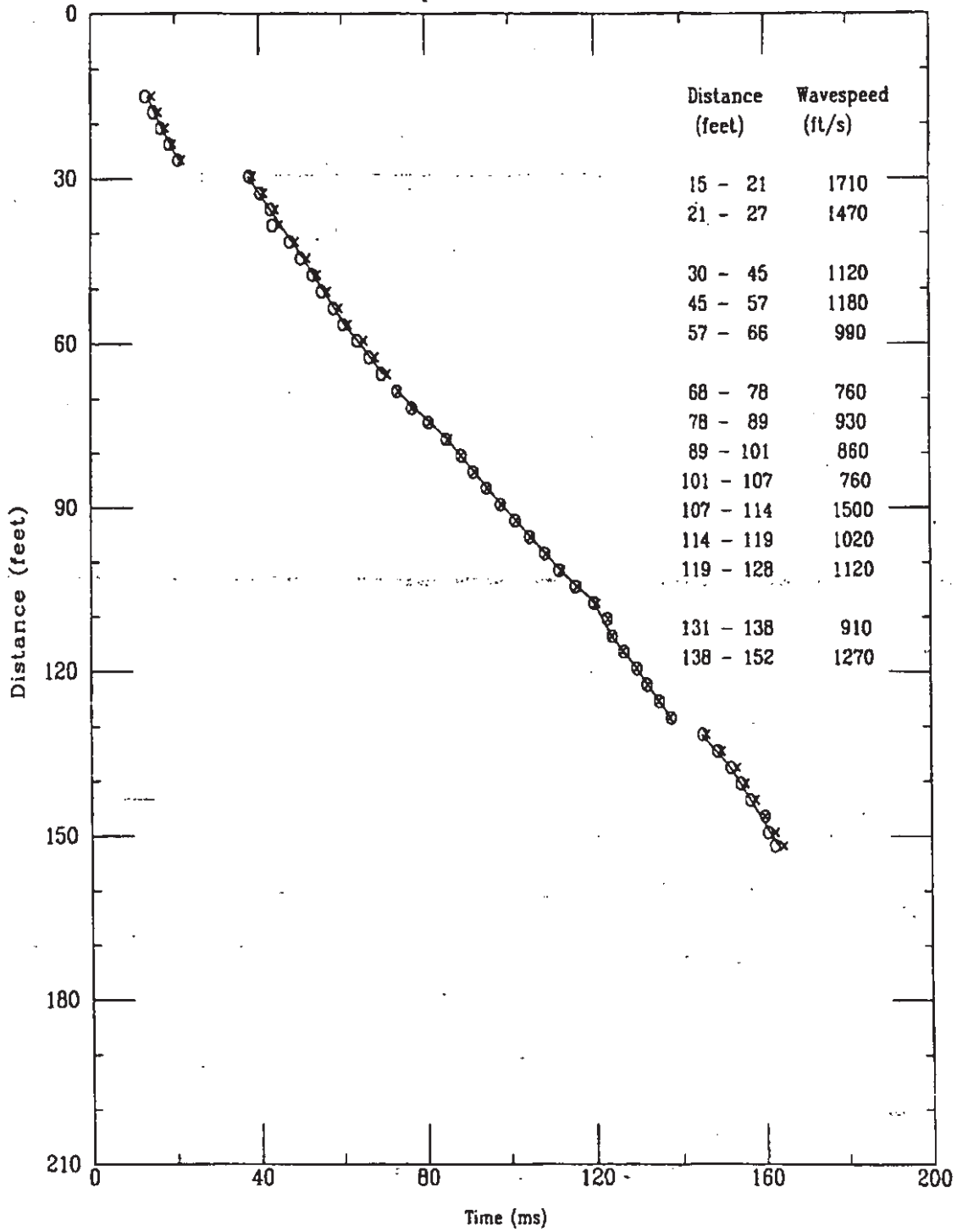


CPT-157

APPLIED RESEARCH ASSOCIATES, INC.

03/05/98

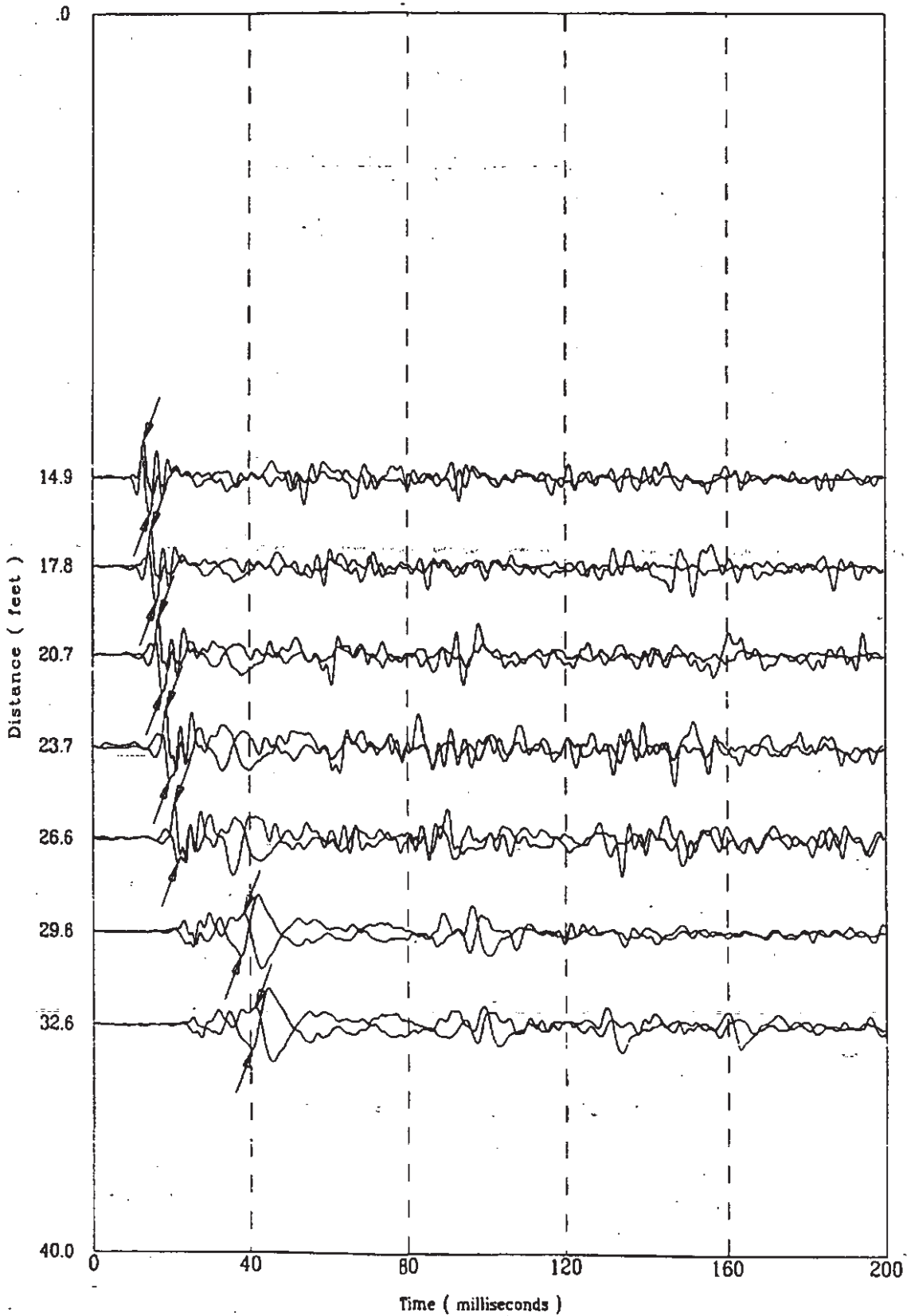
Shear Wave Time of Peak



File 405m804S

Applied Research Associates, Inc.  
CPT-157

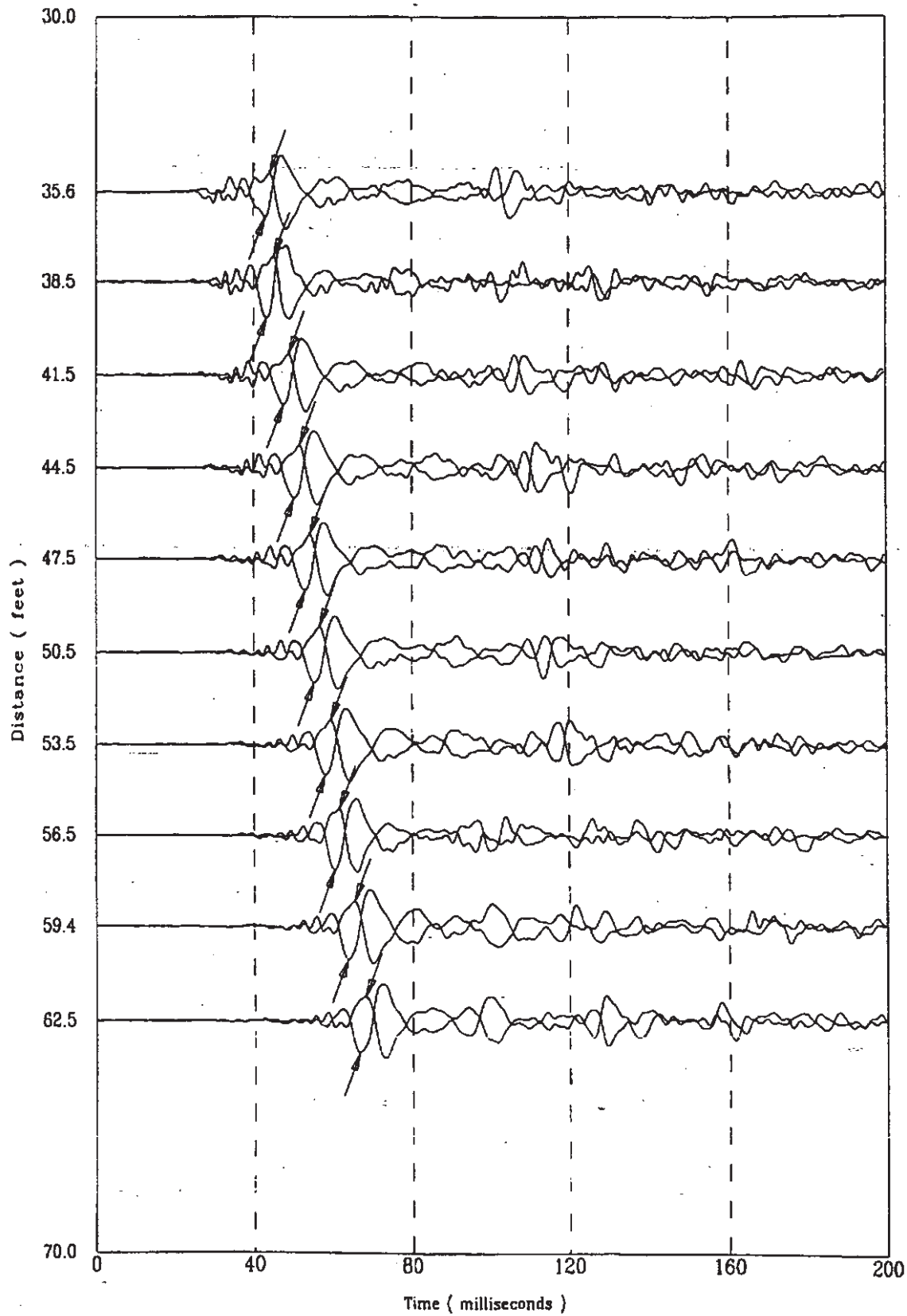
S Wave  
03/05/98



K-TRT-F-0000/  
R/0

Applied Research Associates, Inc.  
CPT-157

S Wave  
03/05/98

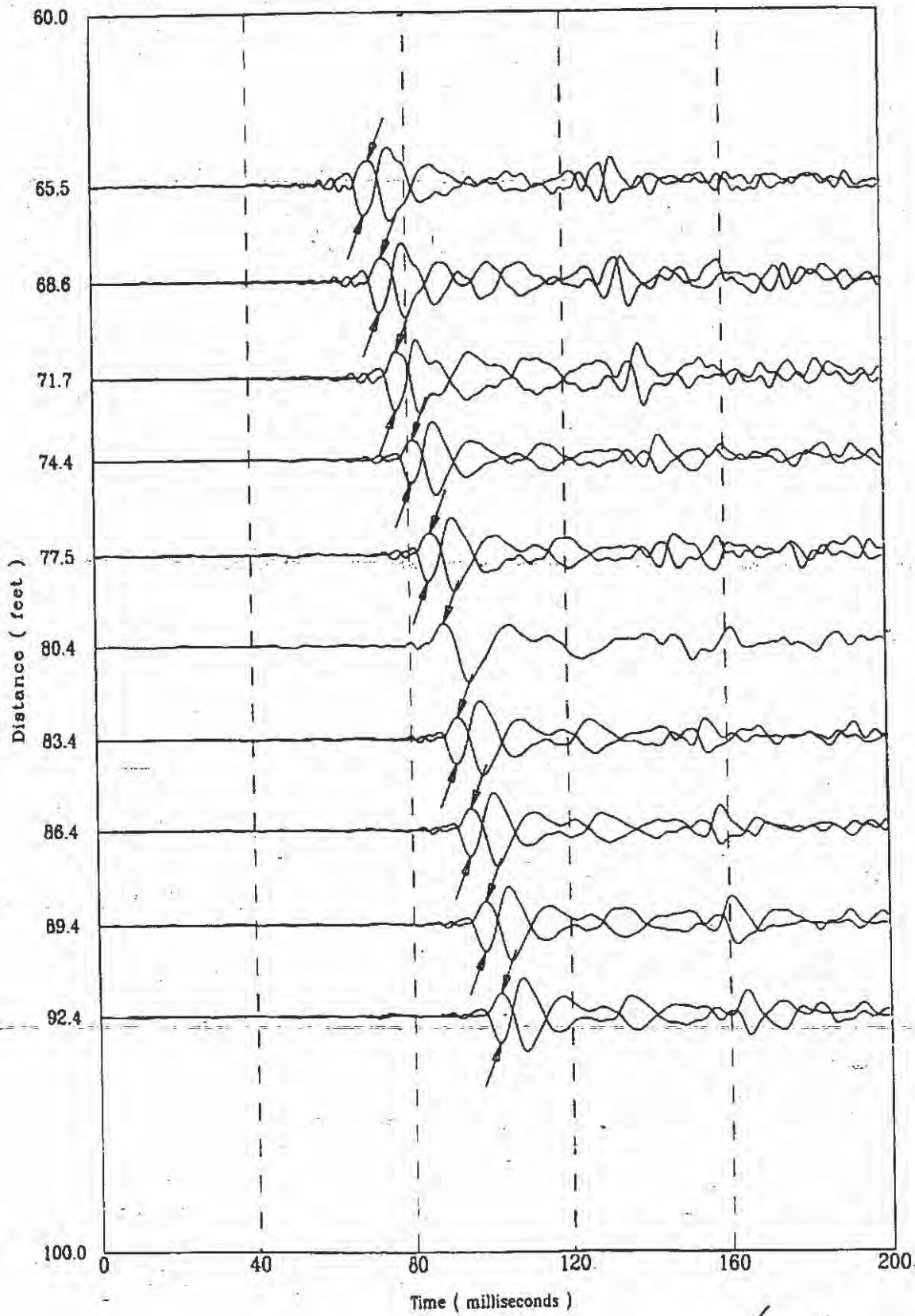




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R/O

Applied Research Associates, Inc.  
CPT-157

S Wave  
03/05/98

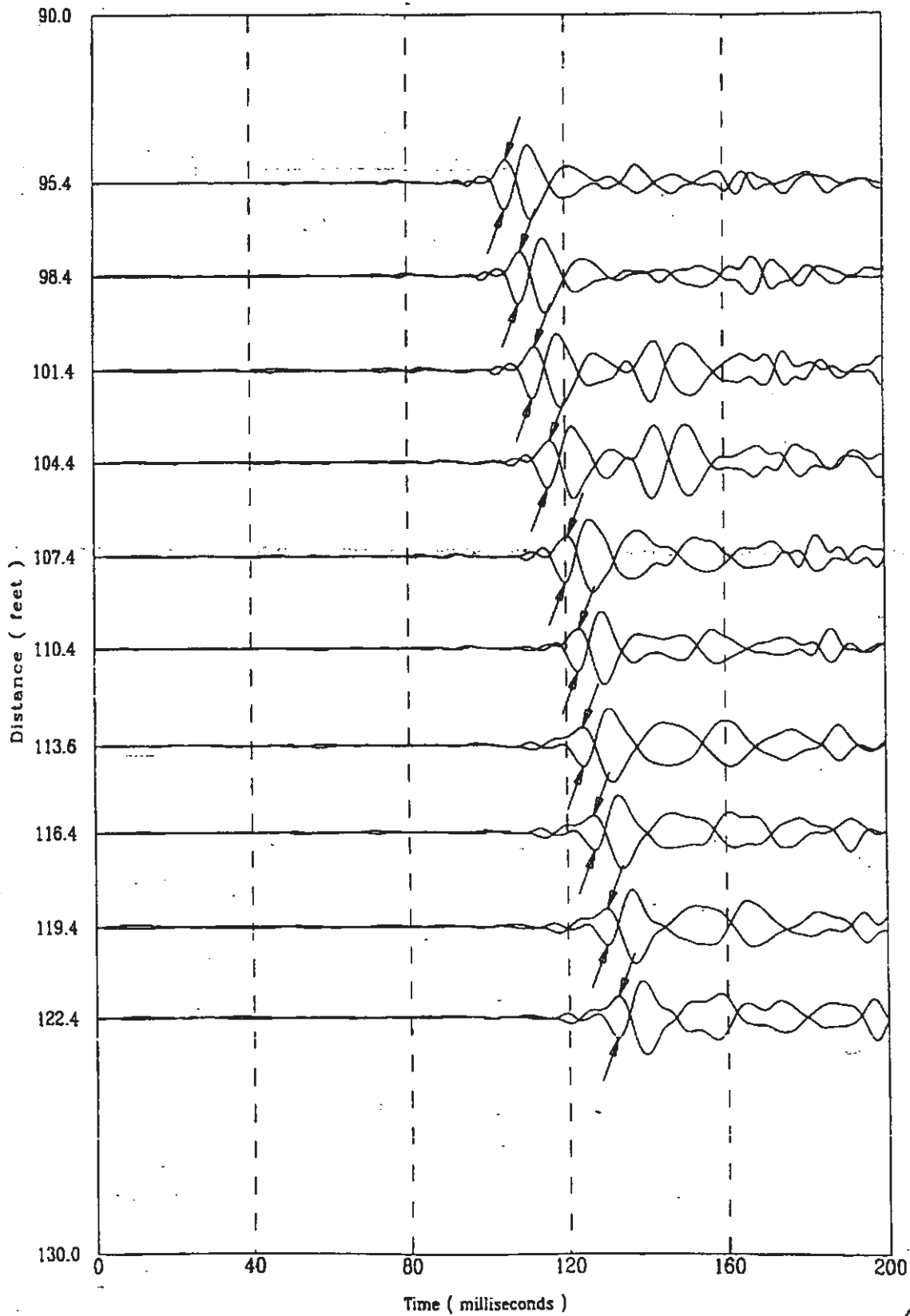


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R/O

Applied Research Associates, Inc.  
CPT-157

S Wave  
03/05/98

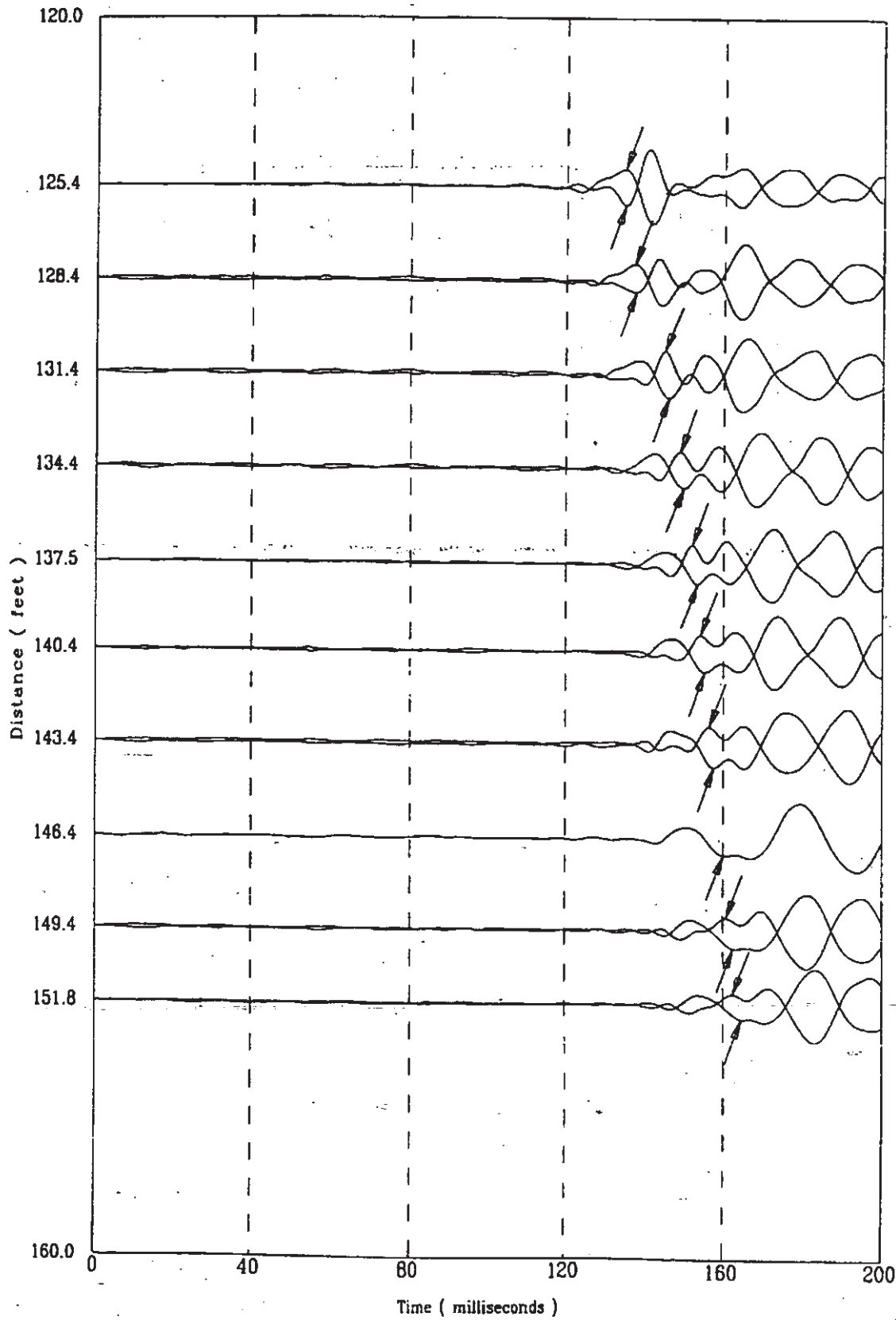


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R/0

Applied Research Associates, Inc.  
CPT-157

S Wave  
03/05/98



File 405m804S

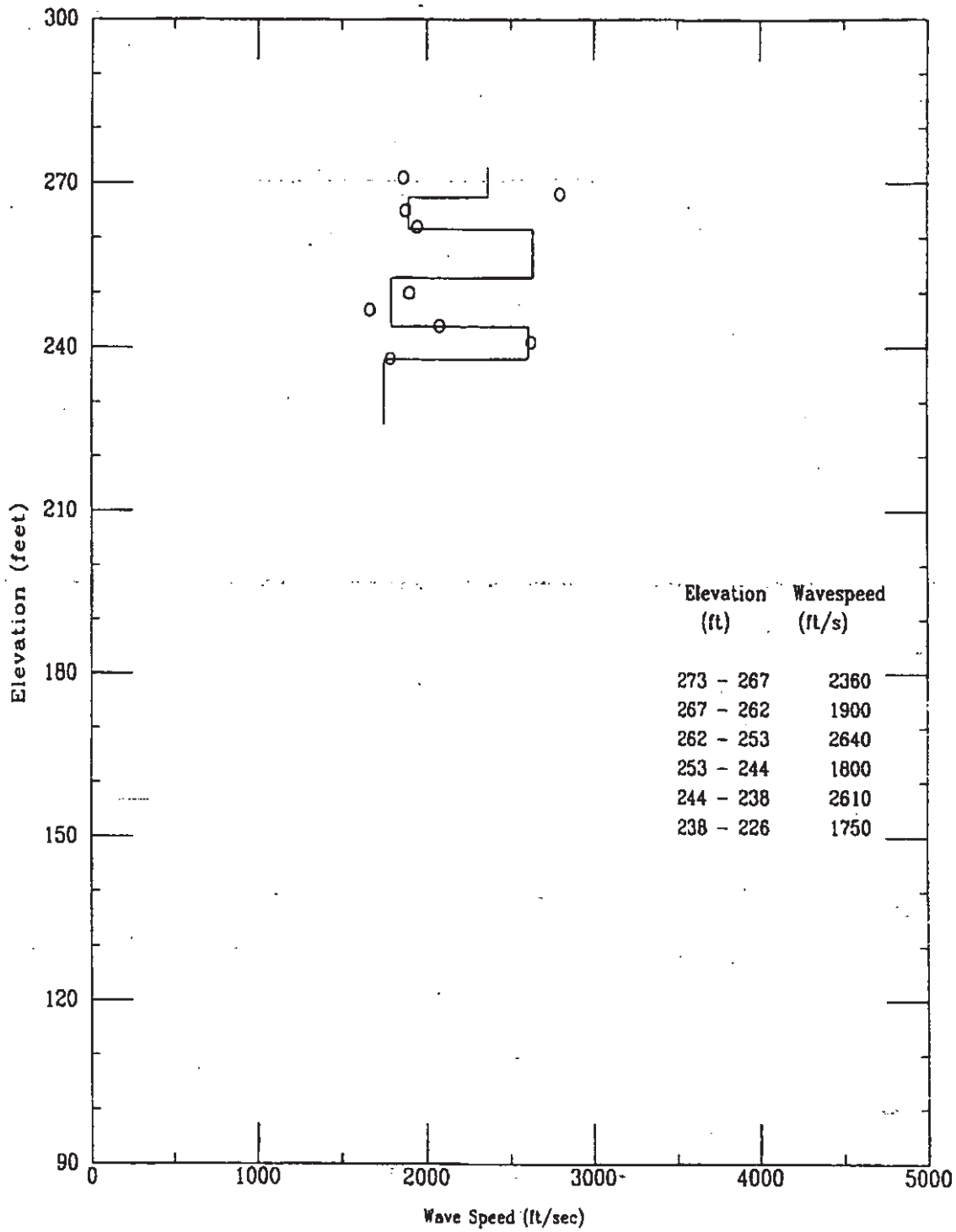
236 of 522

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APPLIED RESEARCH ASSOCIATES, INC.

03/05/98

Compression Wave Speeds

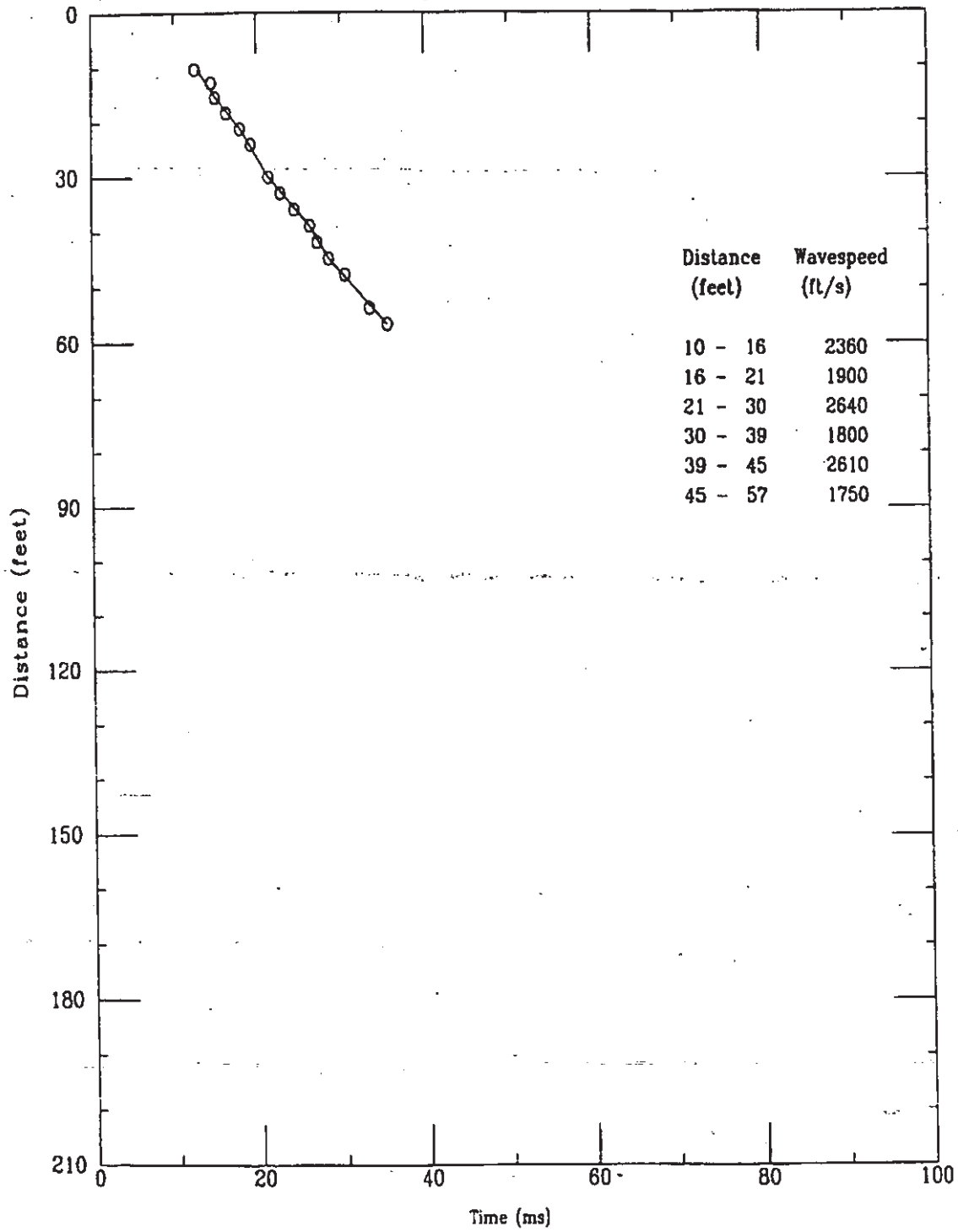


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CPT-157

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Compression Wave Time of Peak

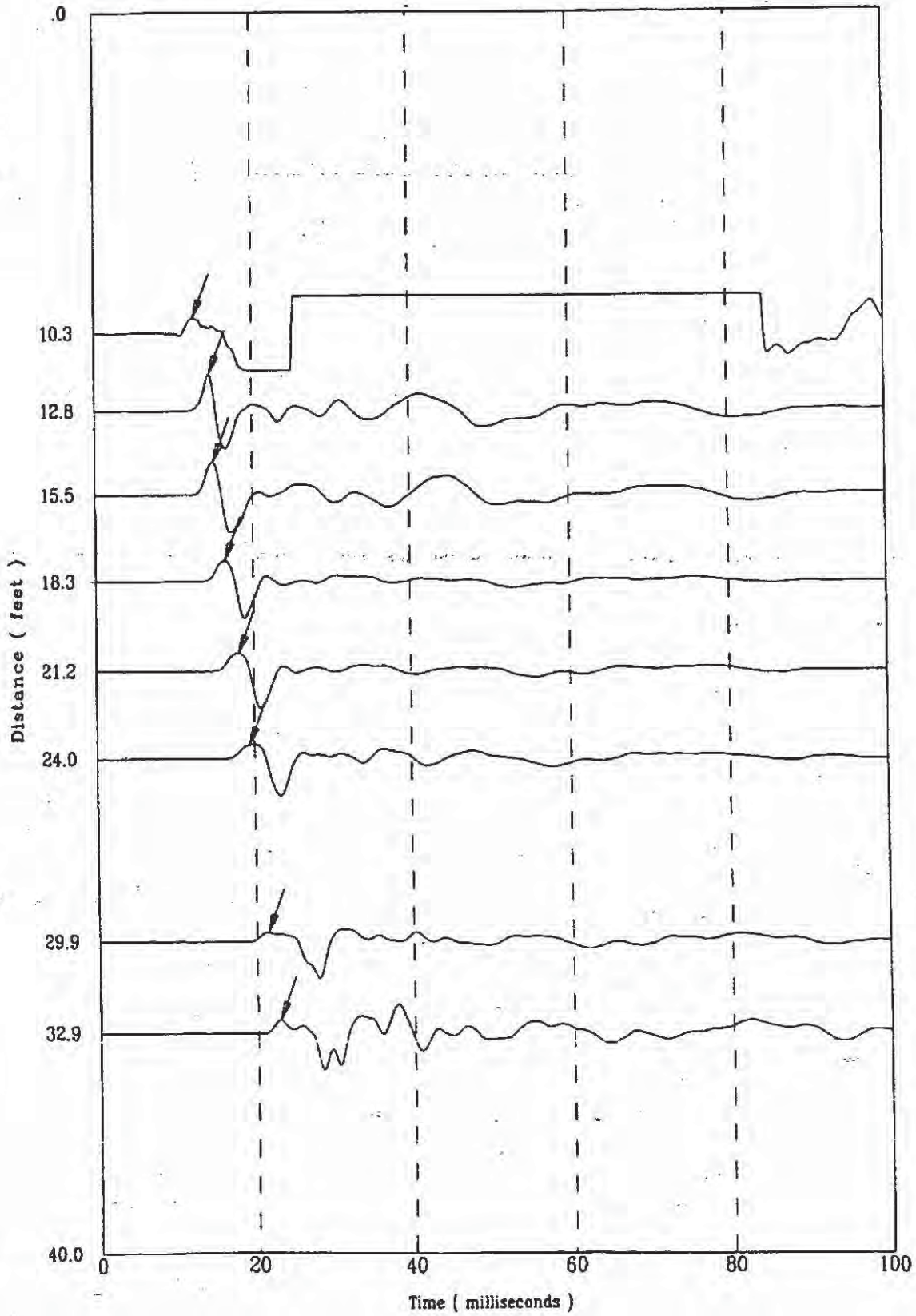
03/05/98



K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-157

P Wave  
03/05/98

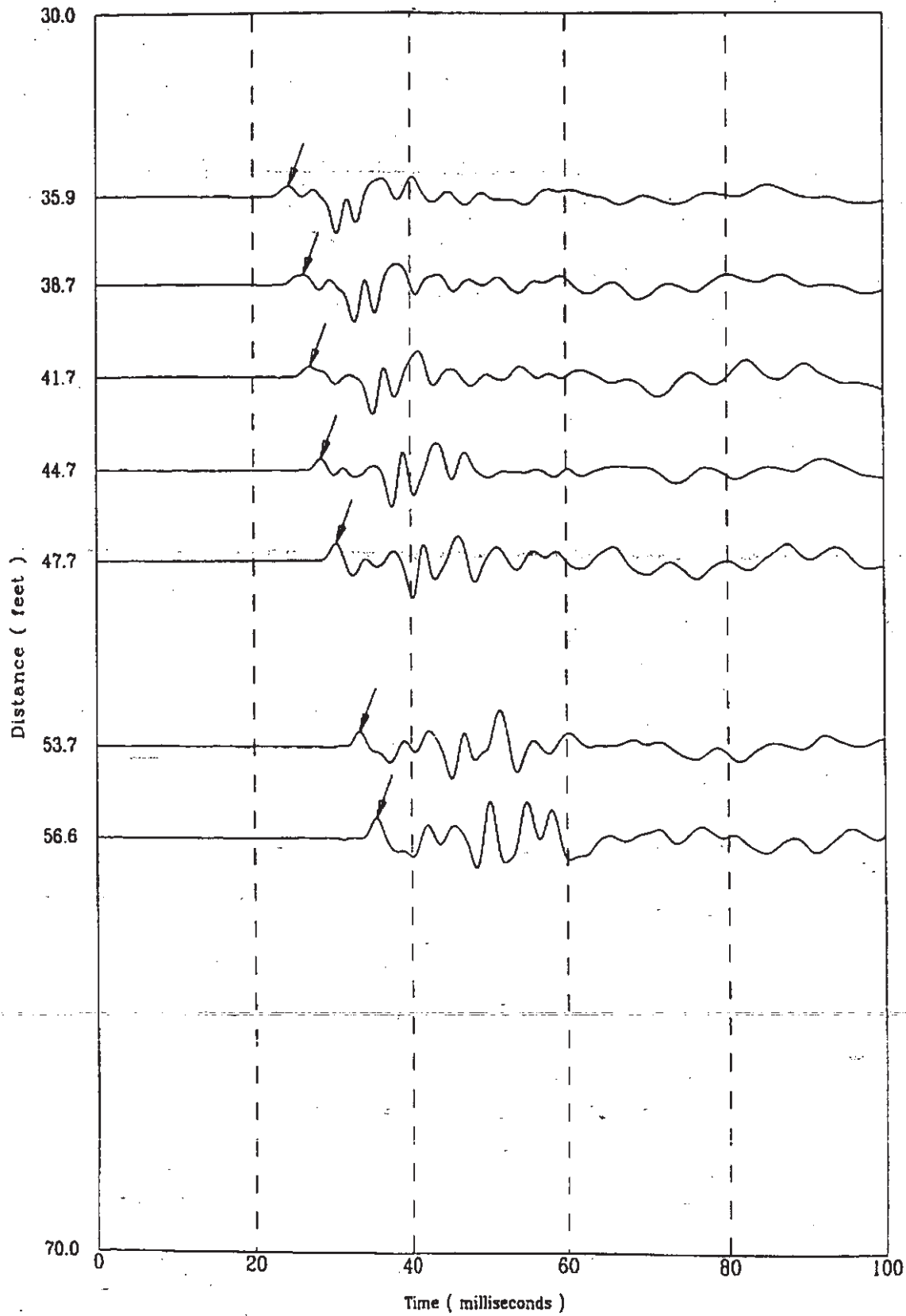


405M804S

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R/O

Applied Research Associates, Inc.  
CPT-157

P Wave  
03/05/98



File 405M804S

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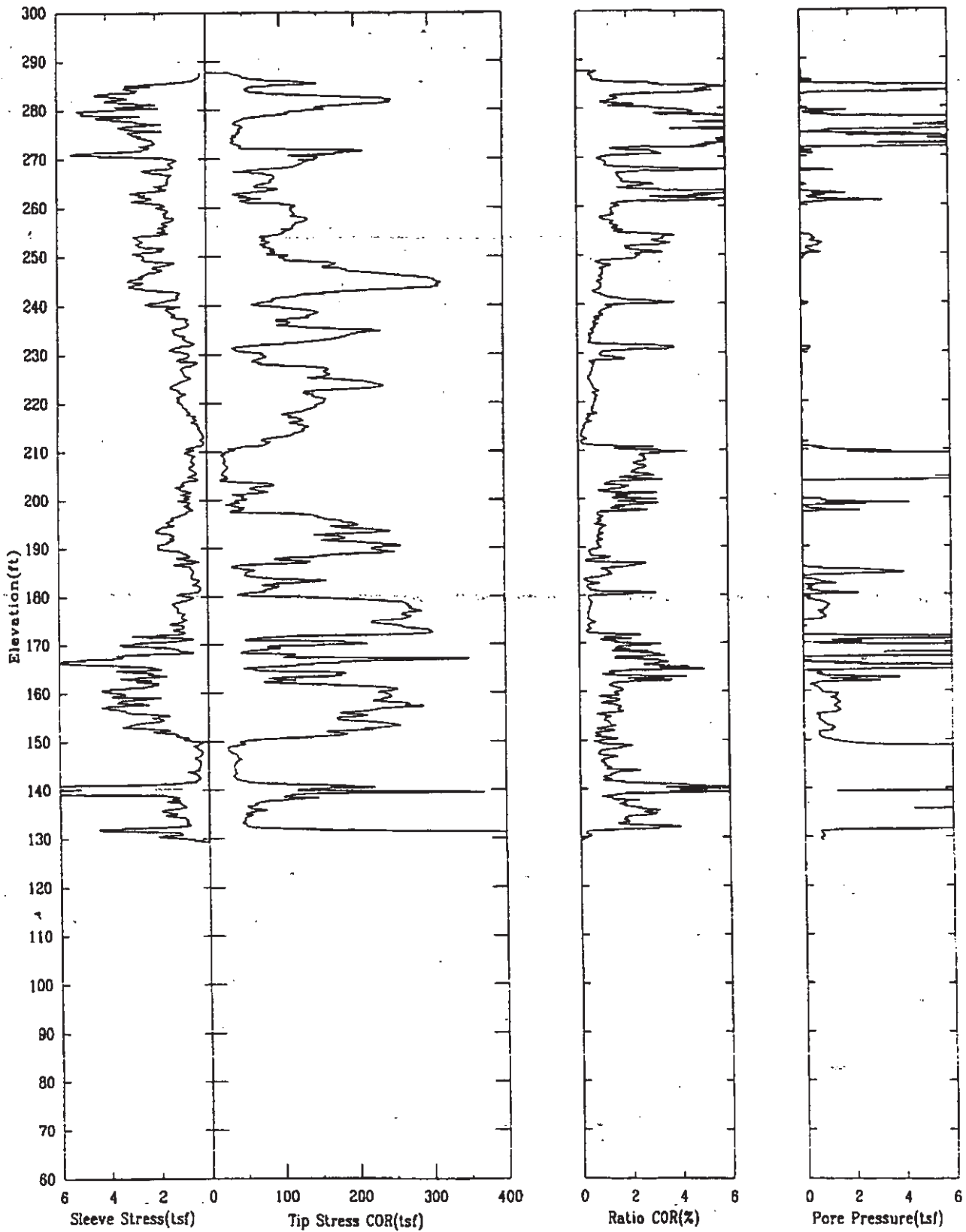
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K02TRT F-00001  
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North 79171.1

East 55195.0

Elevation 293.7





CPT-159

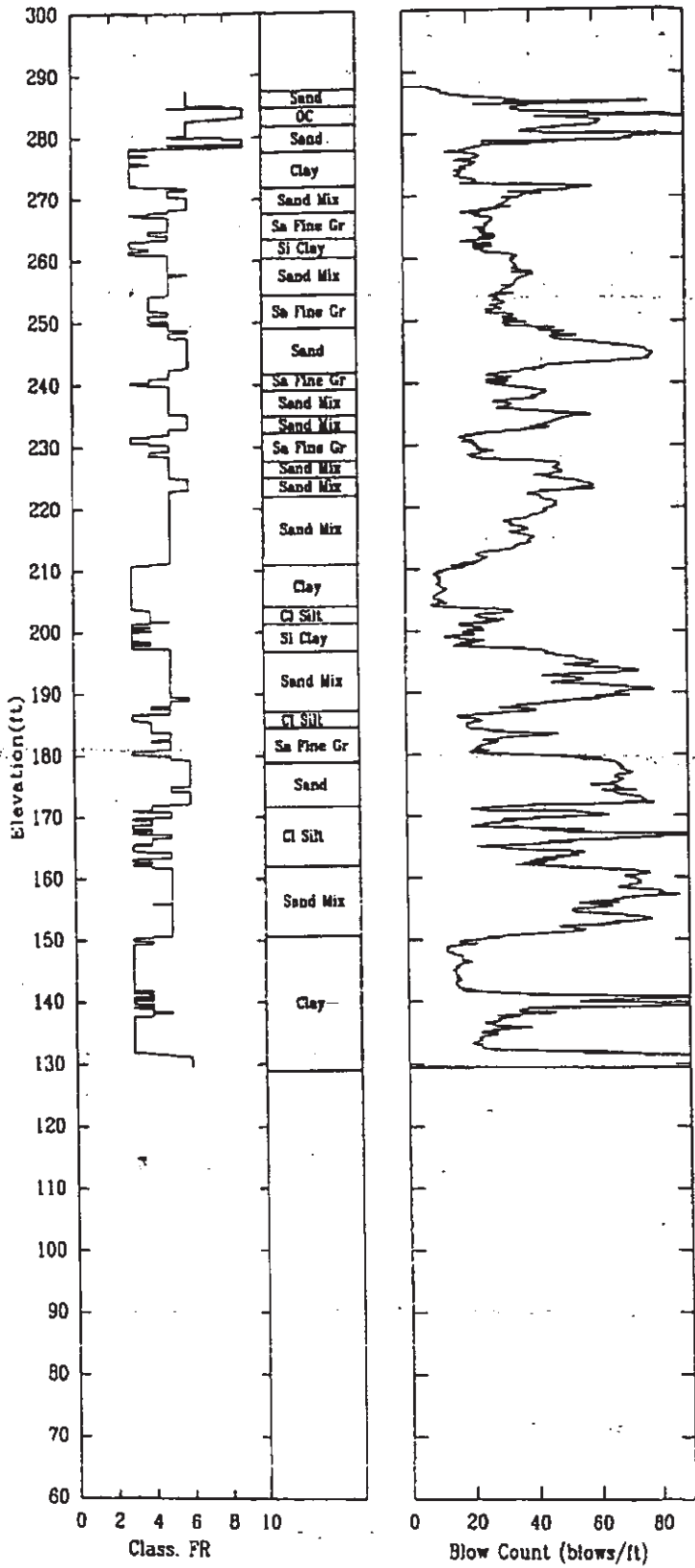
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08/17/88 T-F-00001  
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North 79171.1

East 55195.0

Elevation 293.7

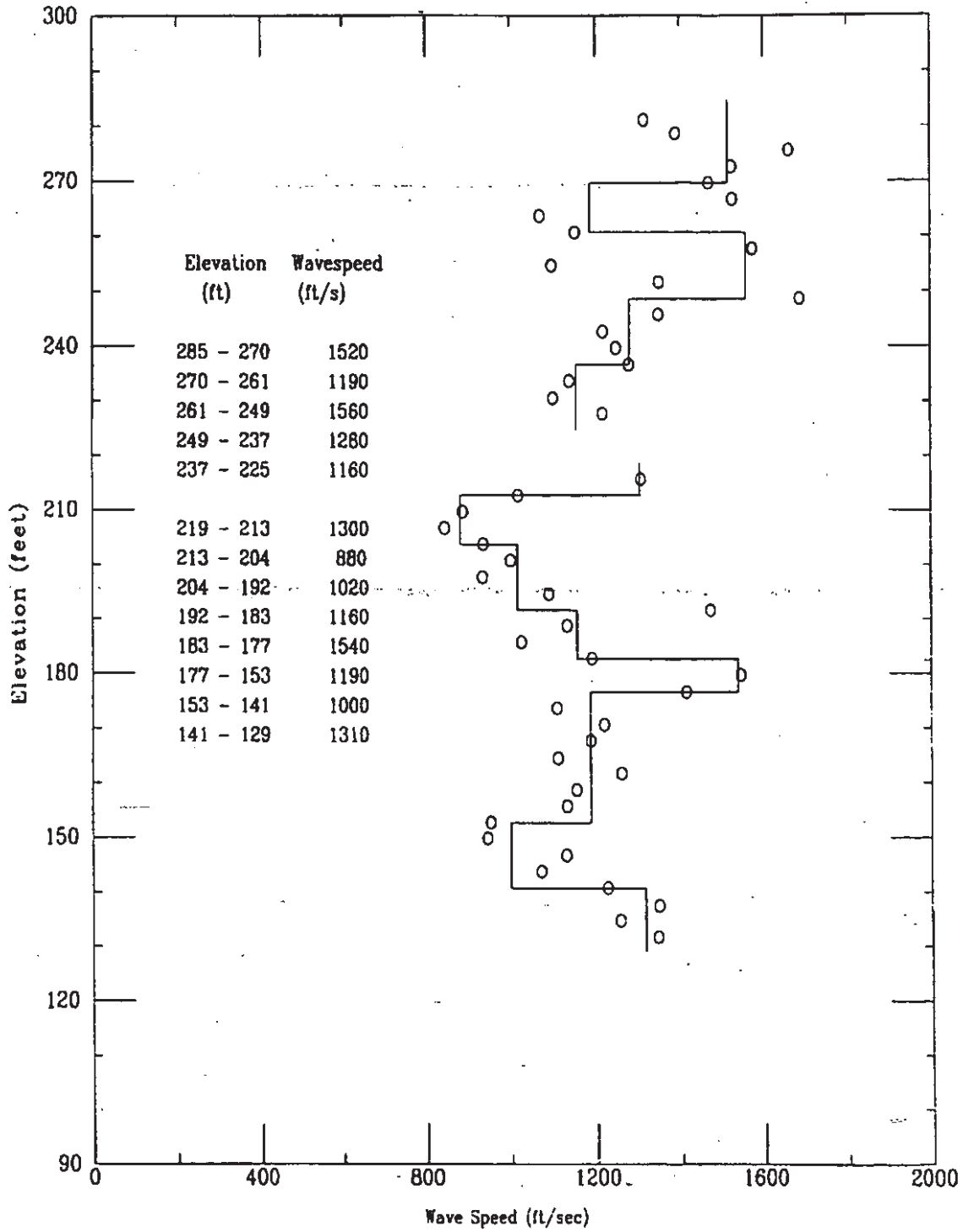


CPT-159

APPLIED RESEARCH ASSOCIATES, INC.

02/17/98

Shear Wave Speeds

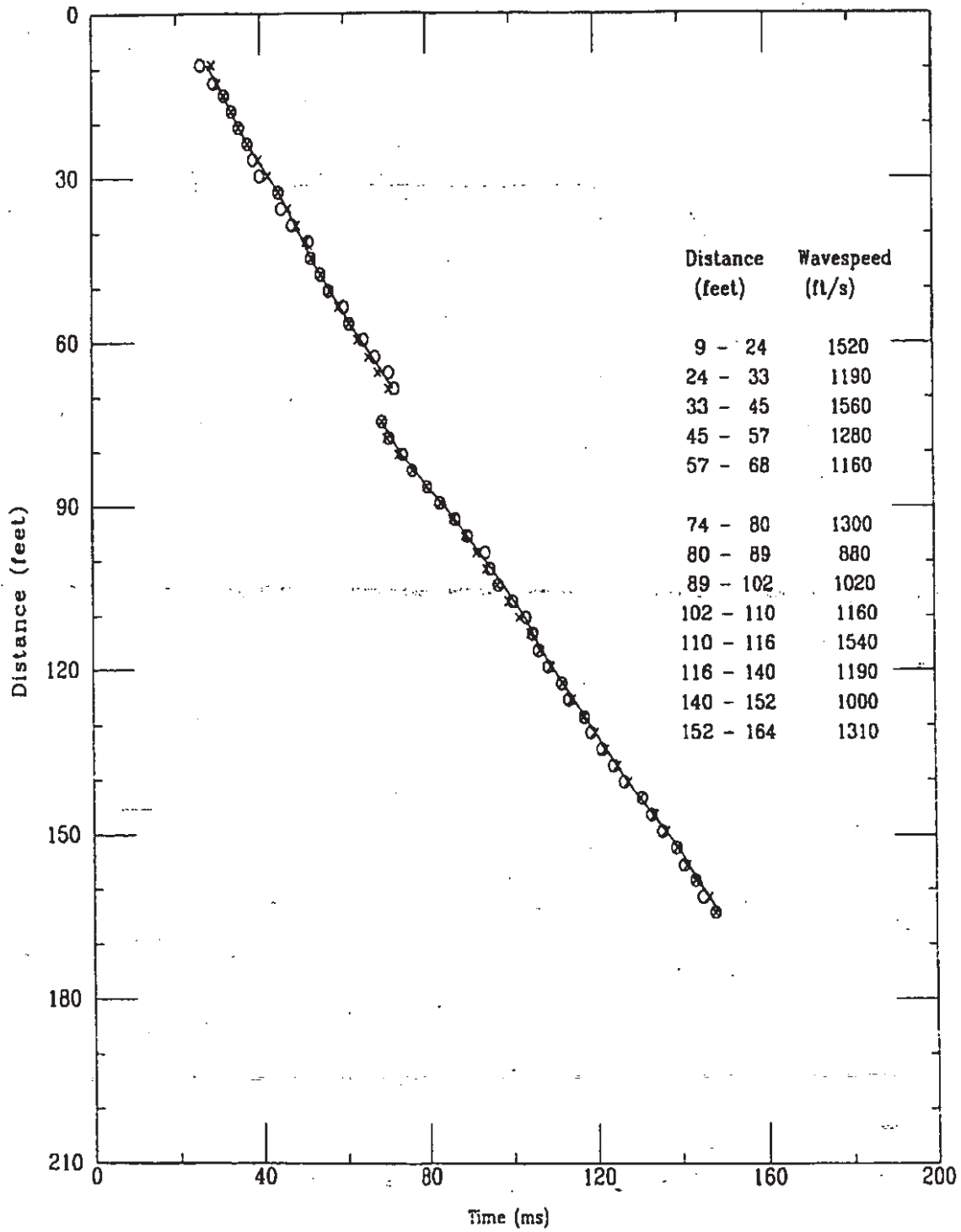


File 417/8015

CPT-159

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

02/17/98

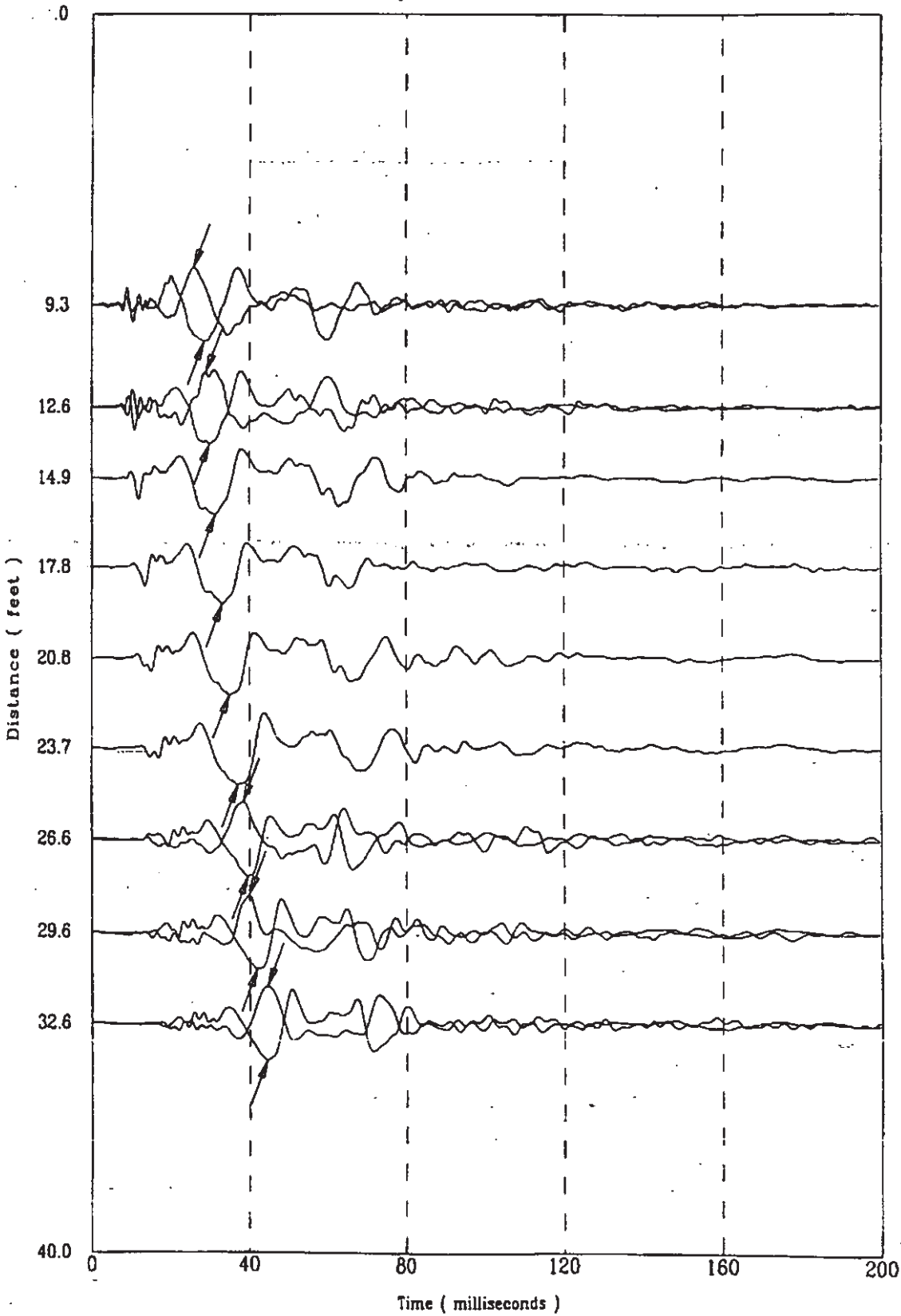


File 417801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-159

S Wave  
02/17/98



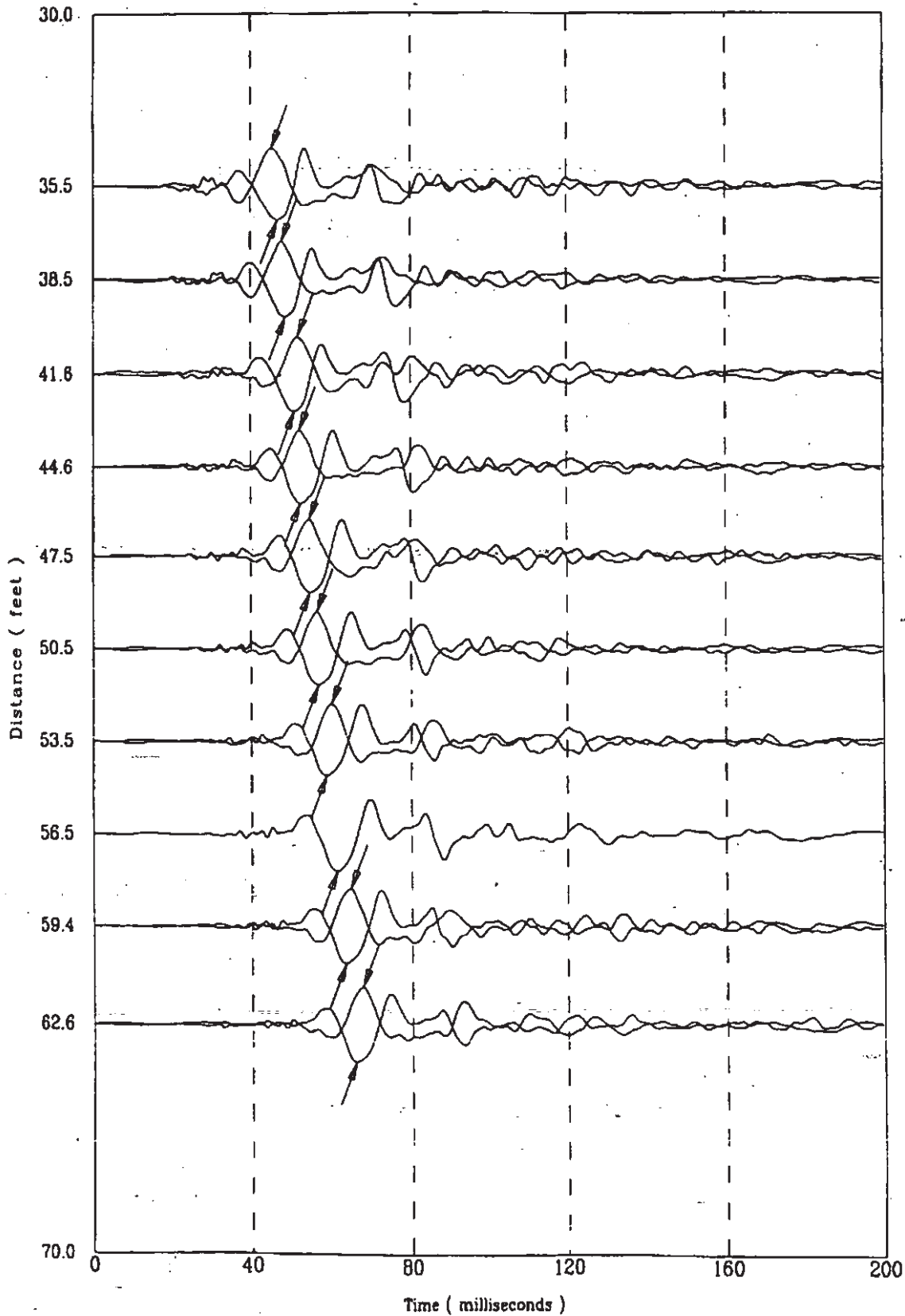
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-159

S Wave  
02/17/98



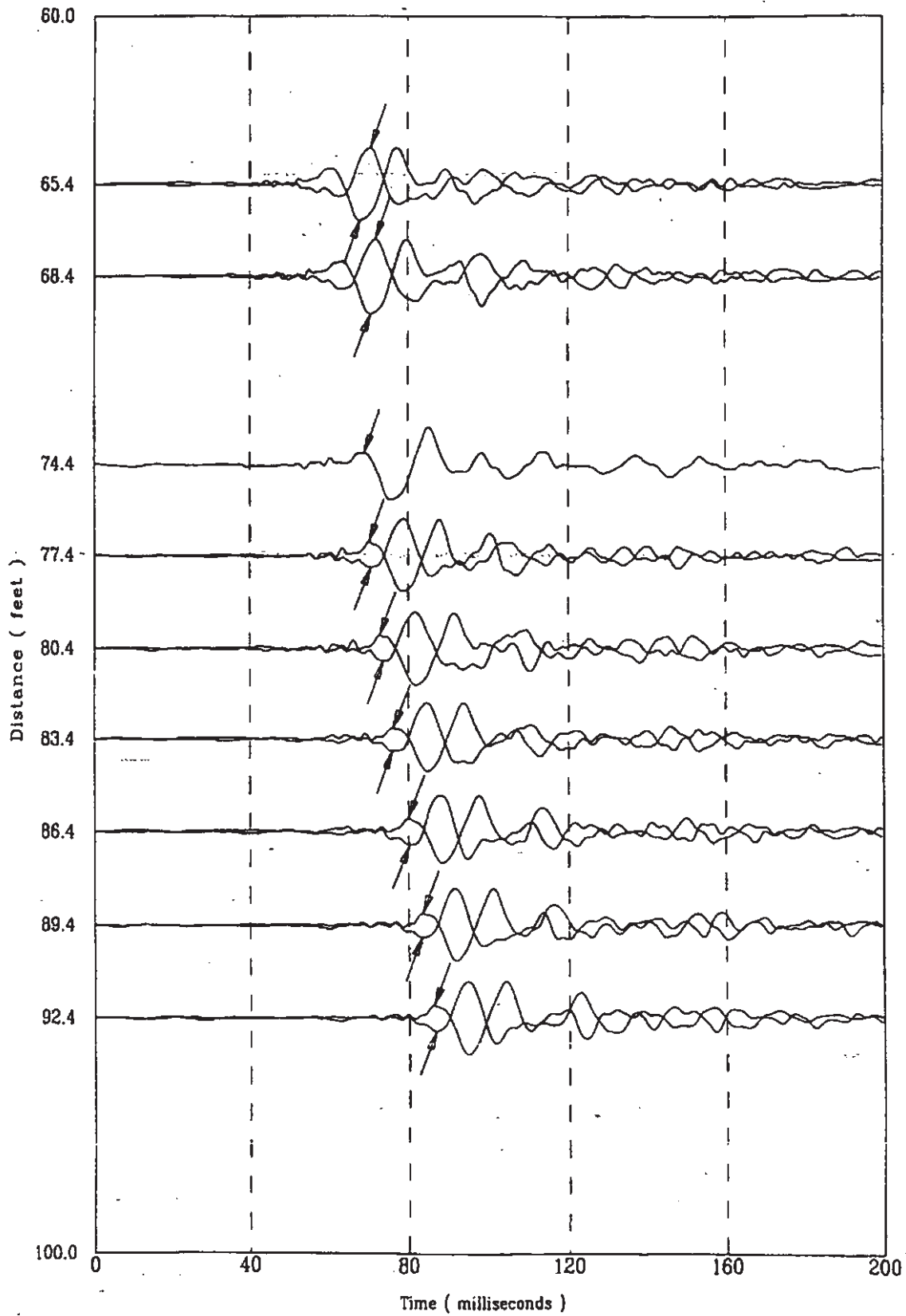
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-159

S Wave  
02/17/98



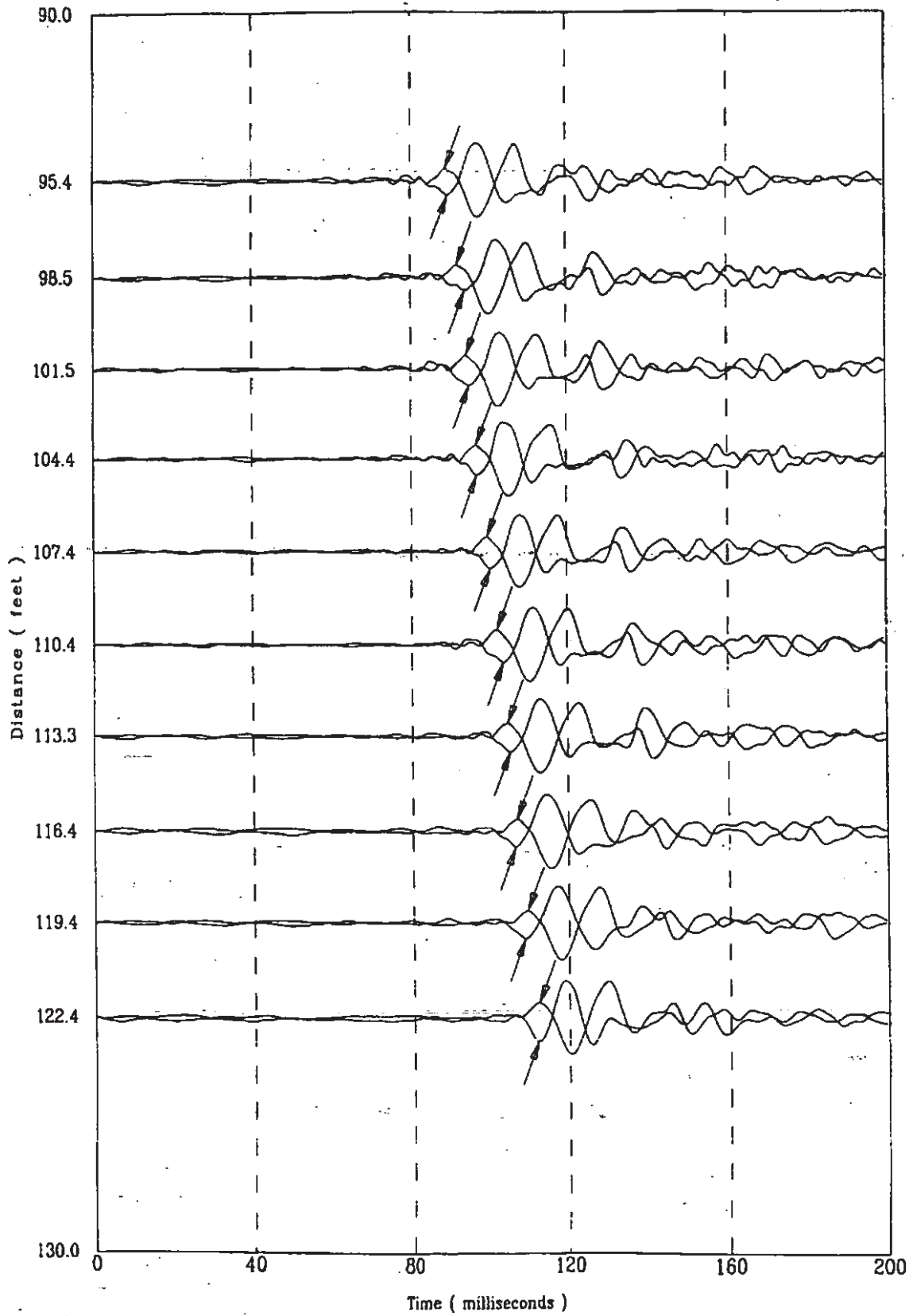
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R/O

Applied Research Associates, Inc.  
CPT-159

S Wave  
02/17/98



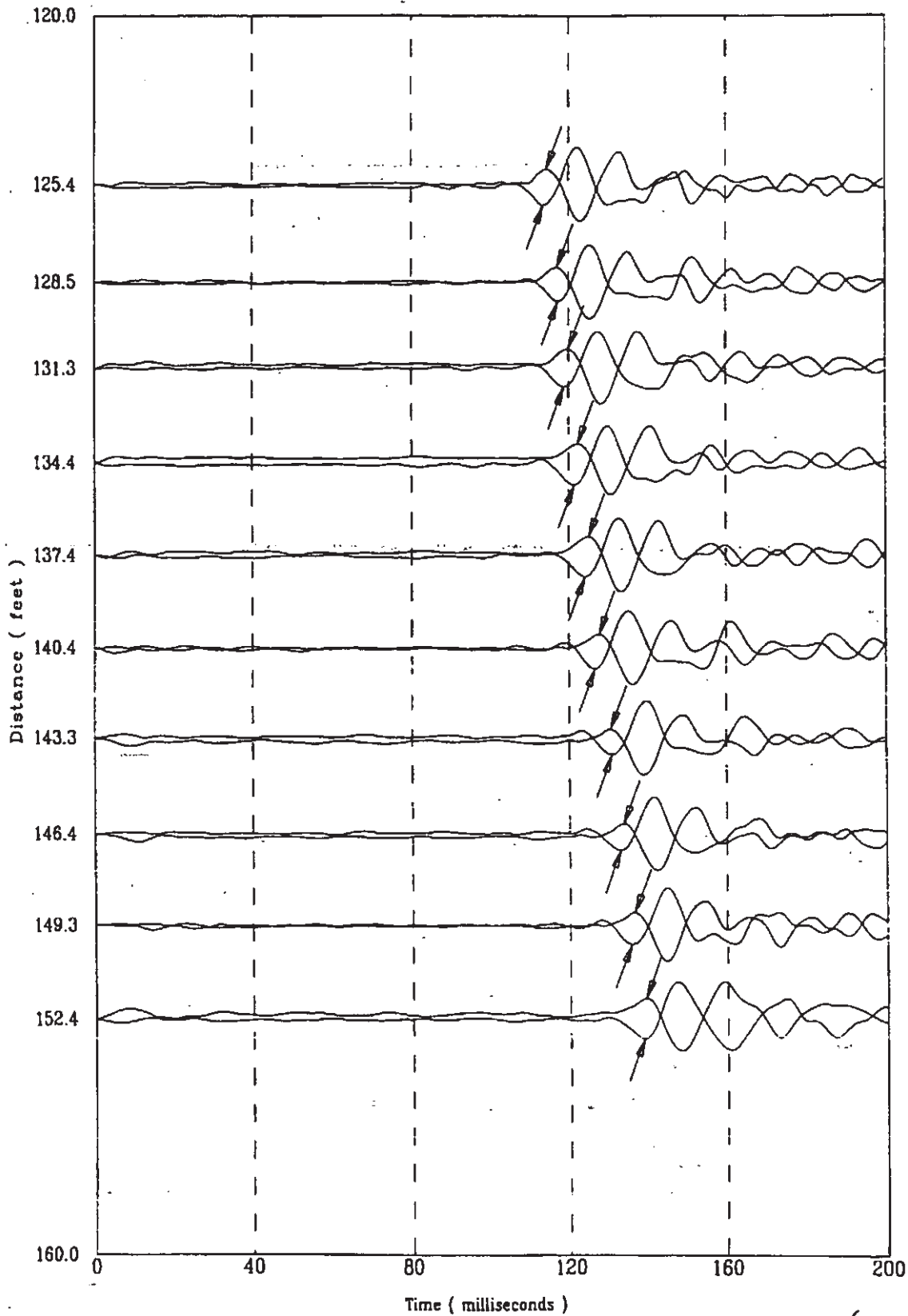
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248 of 522

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-159

S Wave  
02/17/98



171801S

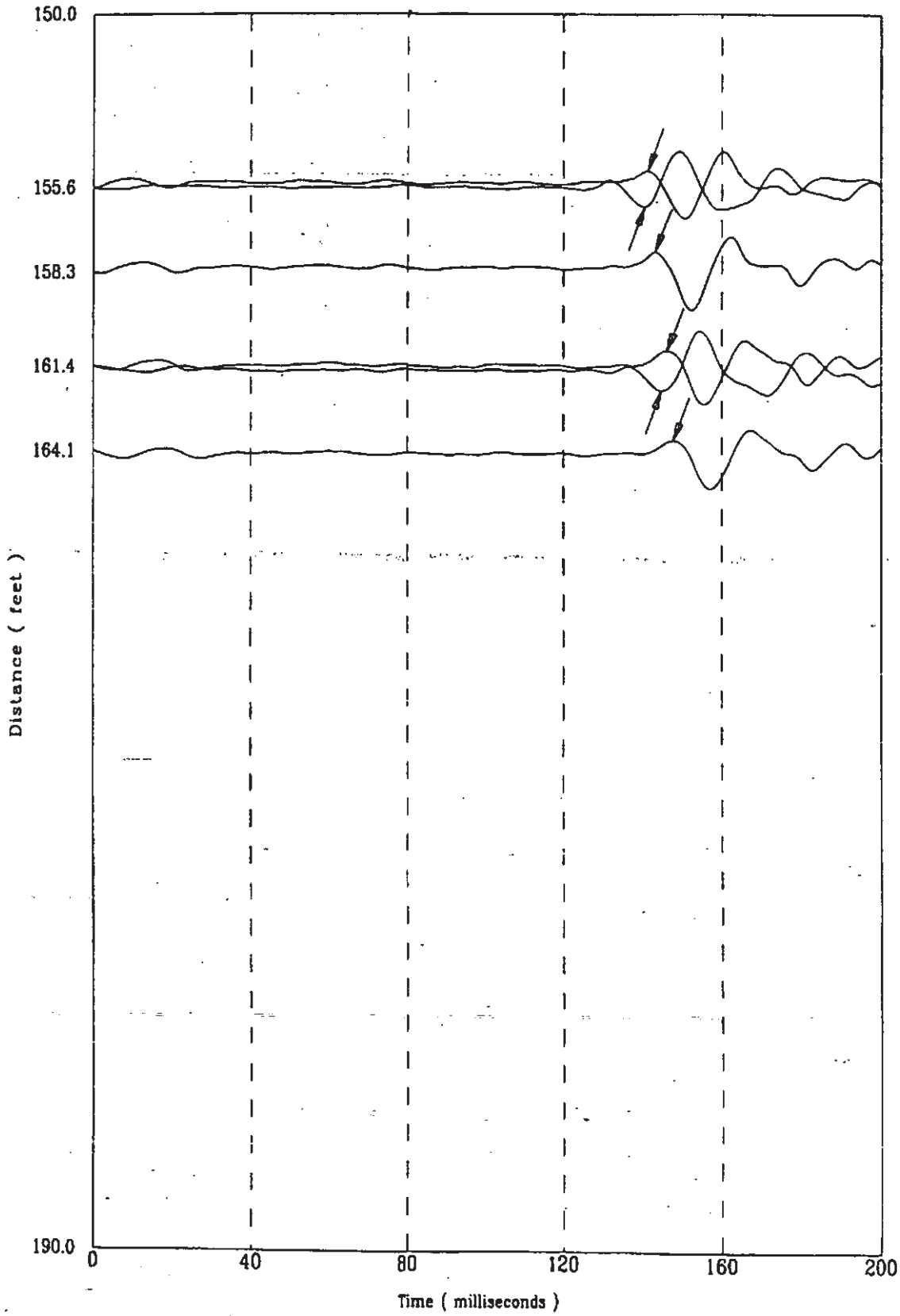
249 of 522



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-159

S Wave  
02/17/98



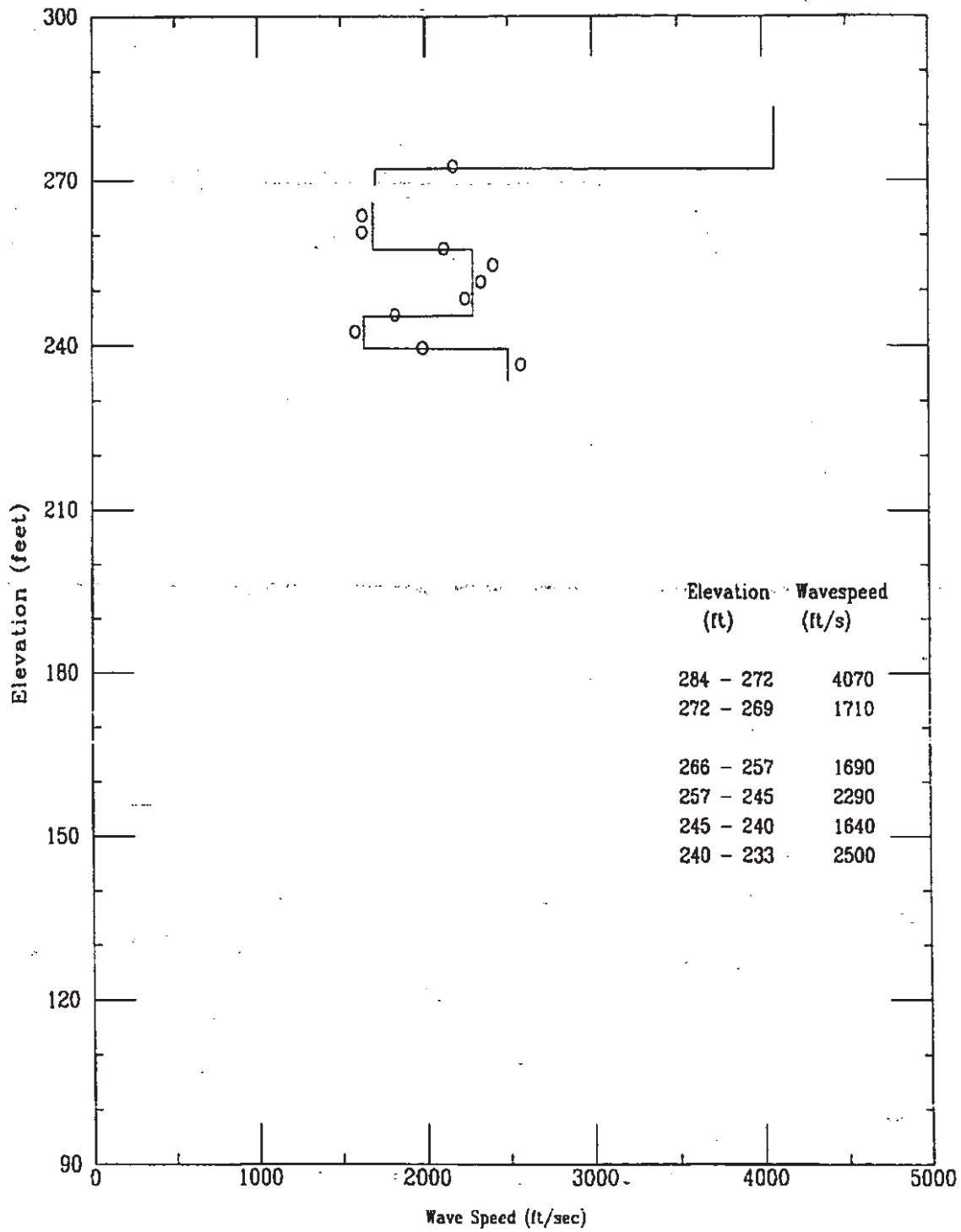
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CPT-159

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

02/17/98

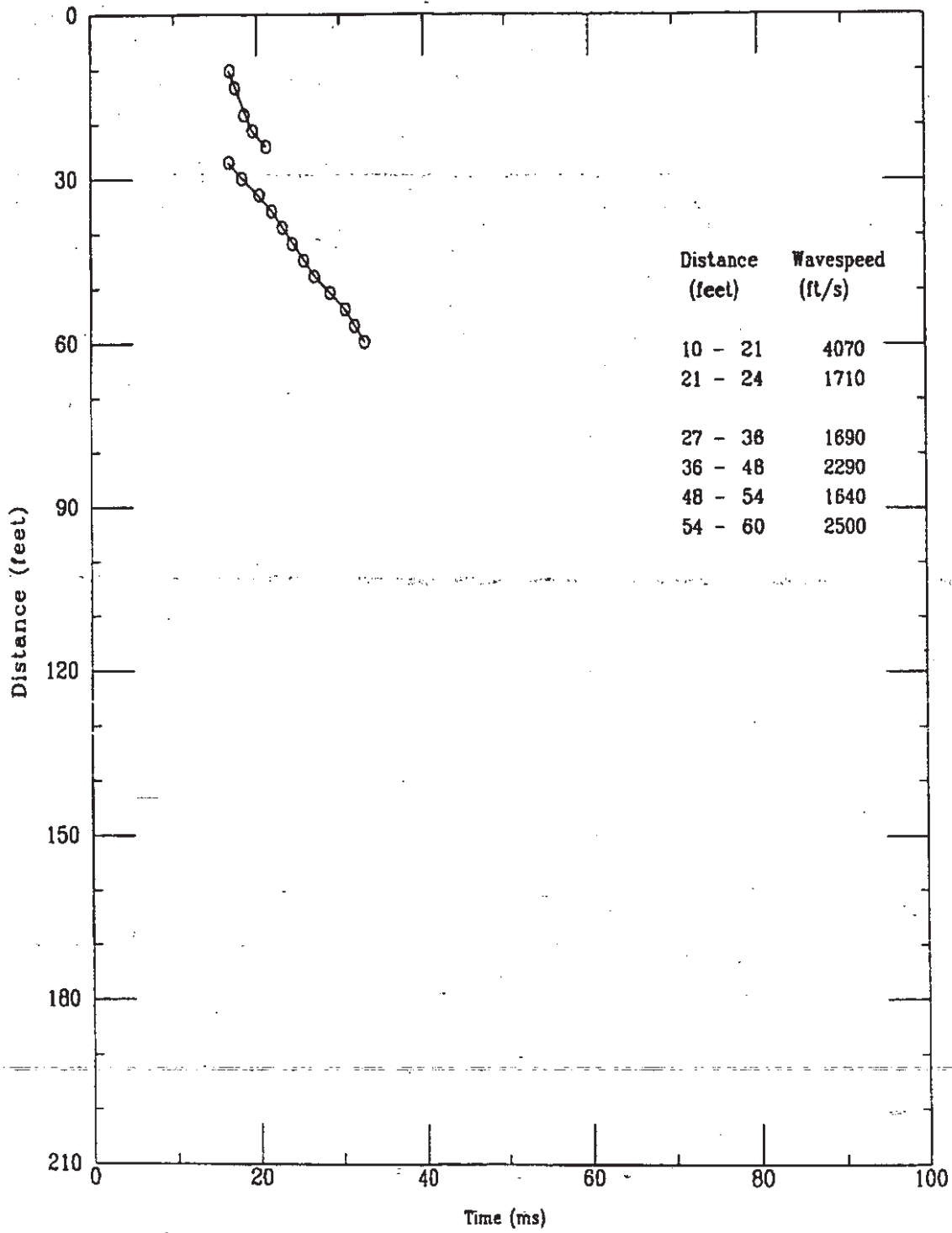


File 4177801S

CPT-159

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

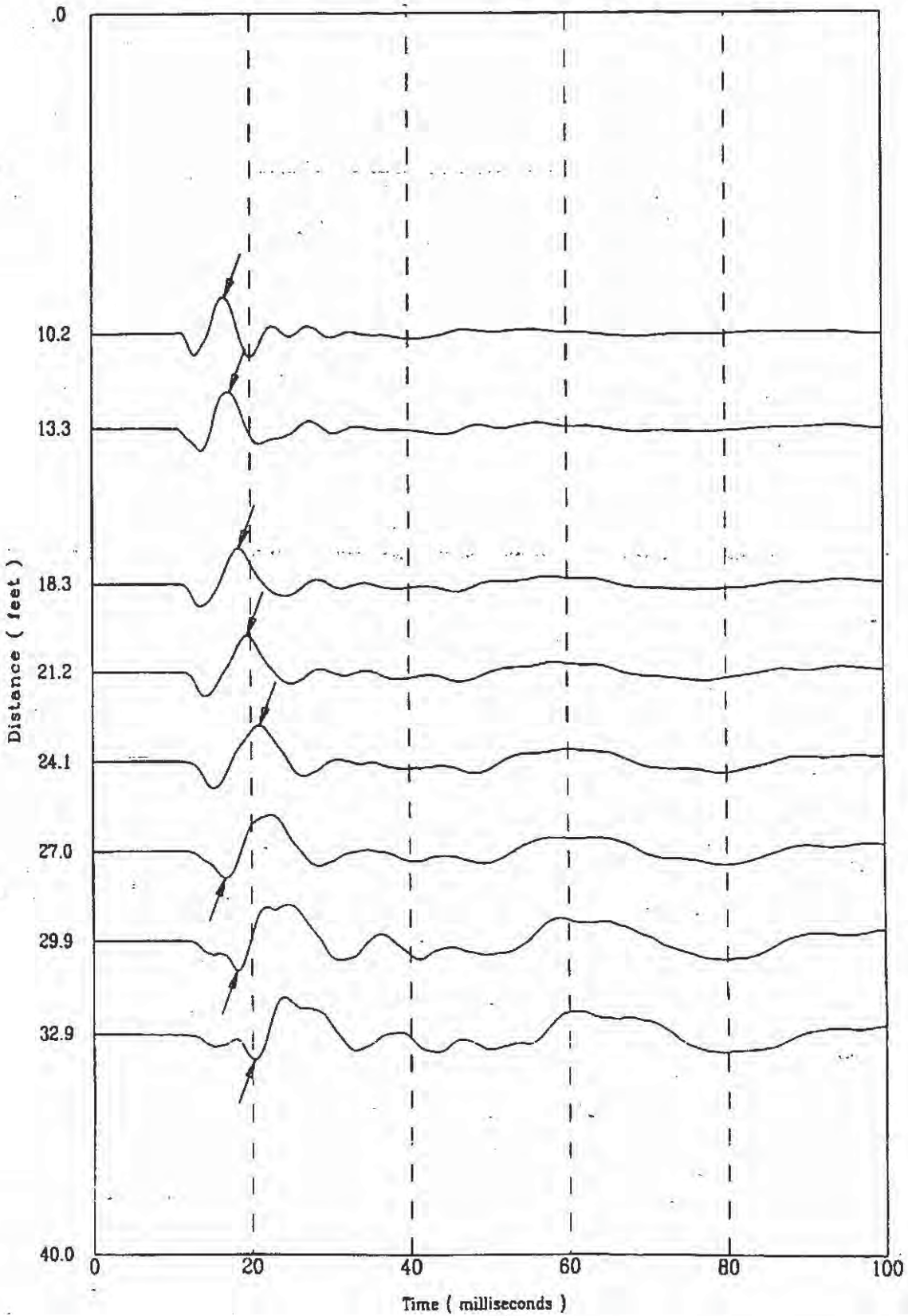
02/17/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-159

P Wave  
02/17/98



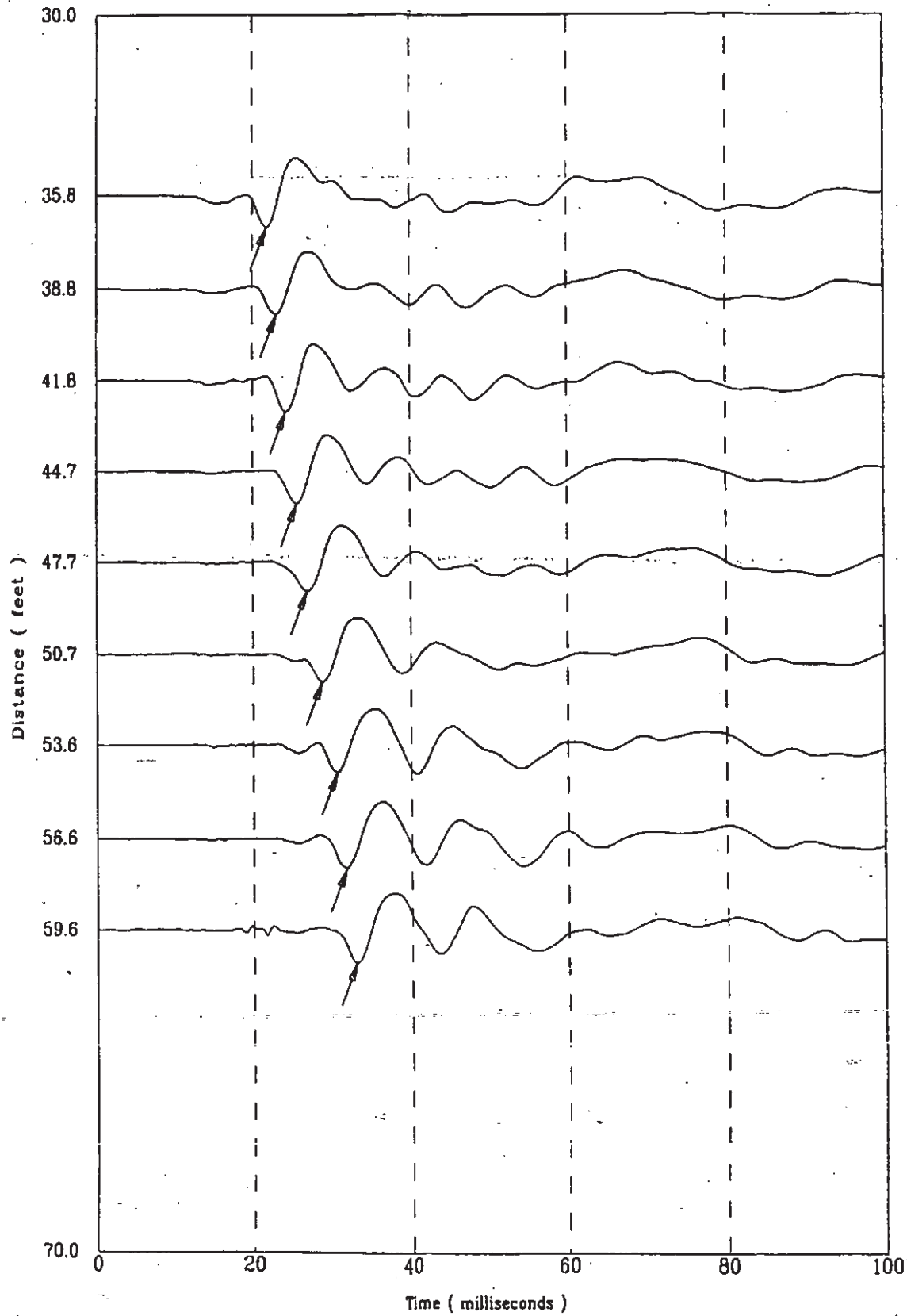
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R/O

Applied Research Associates, Inc.  
CPT-159

P Wave  
02/17/98



File 417801S

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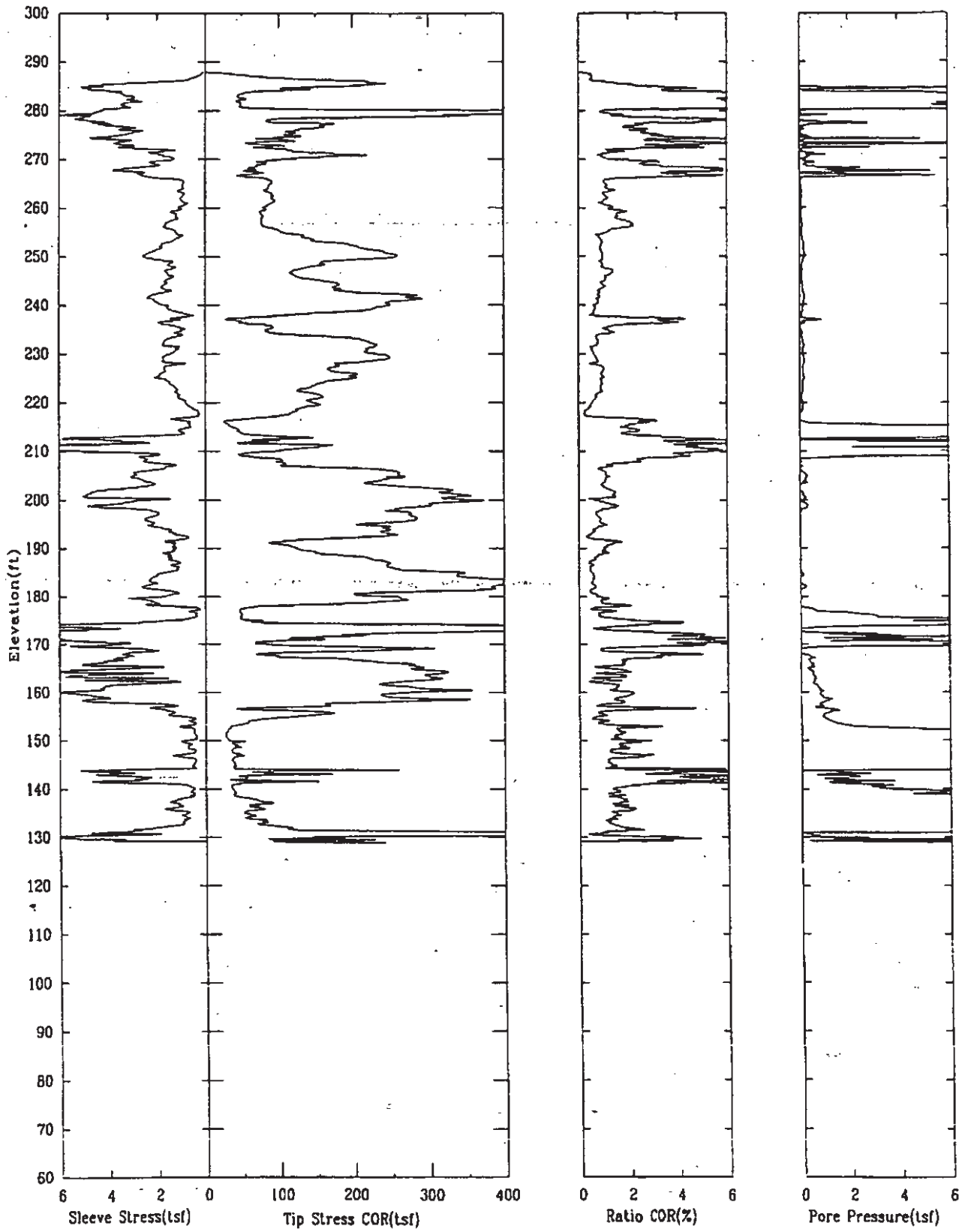
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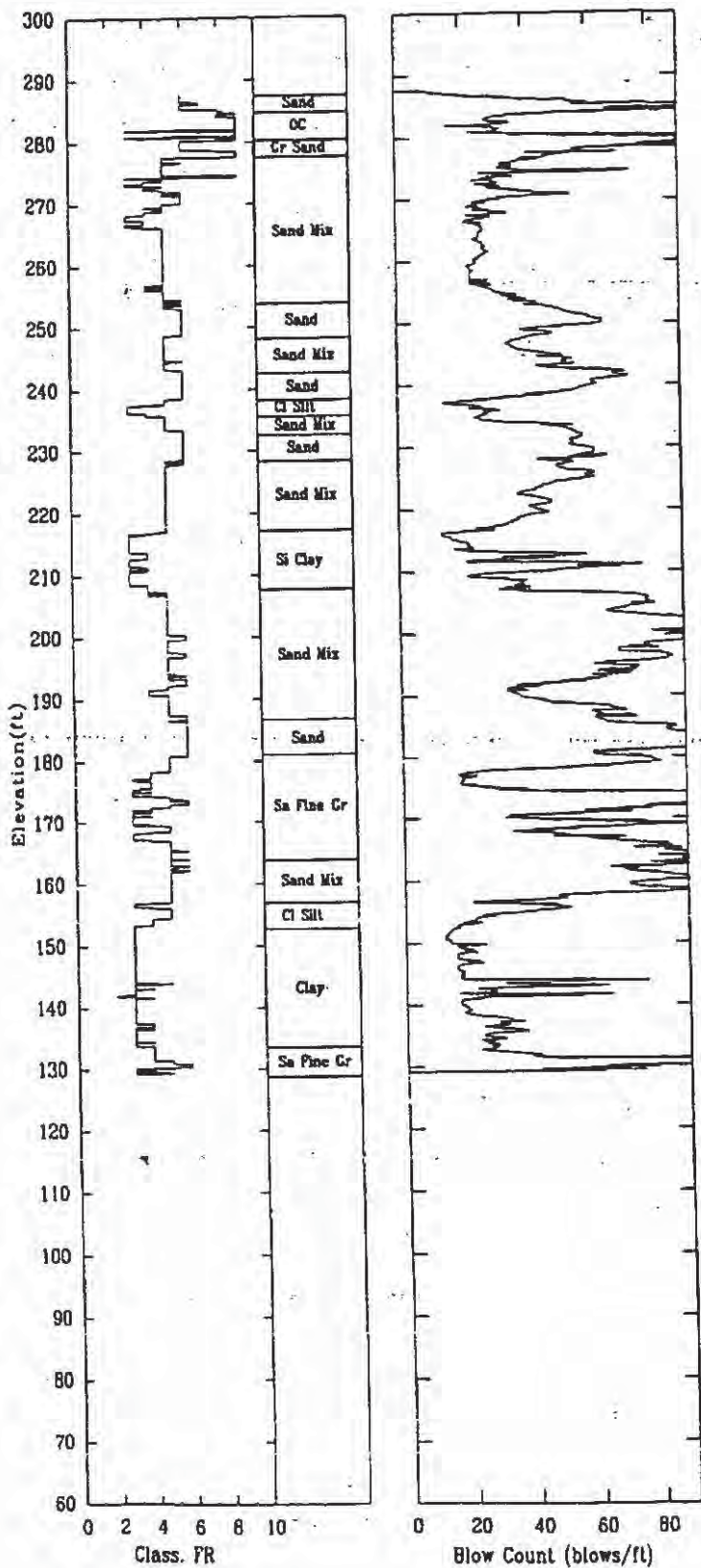
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North 79095.1

East 55261

Elevation 293.9



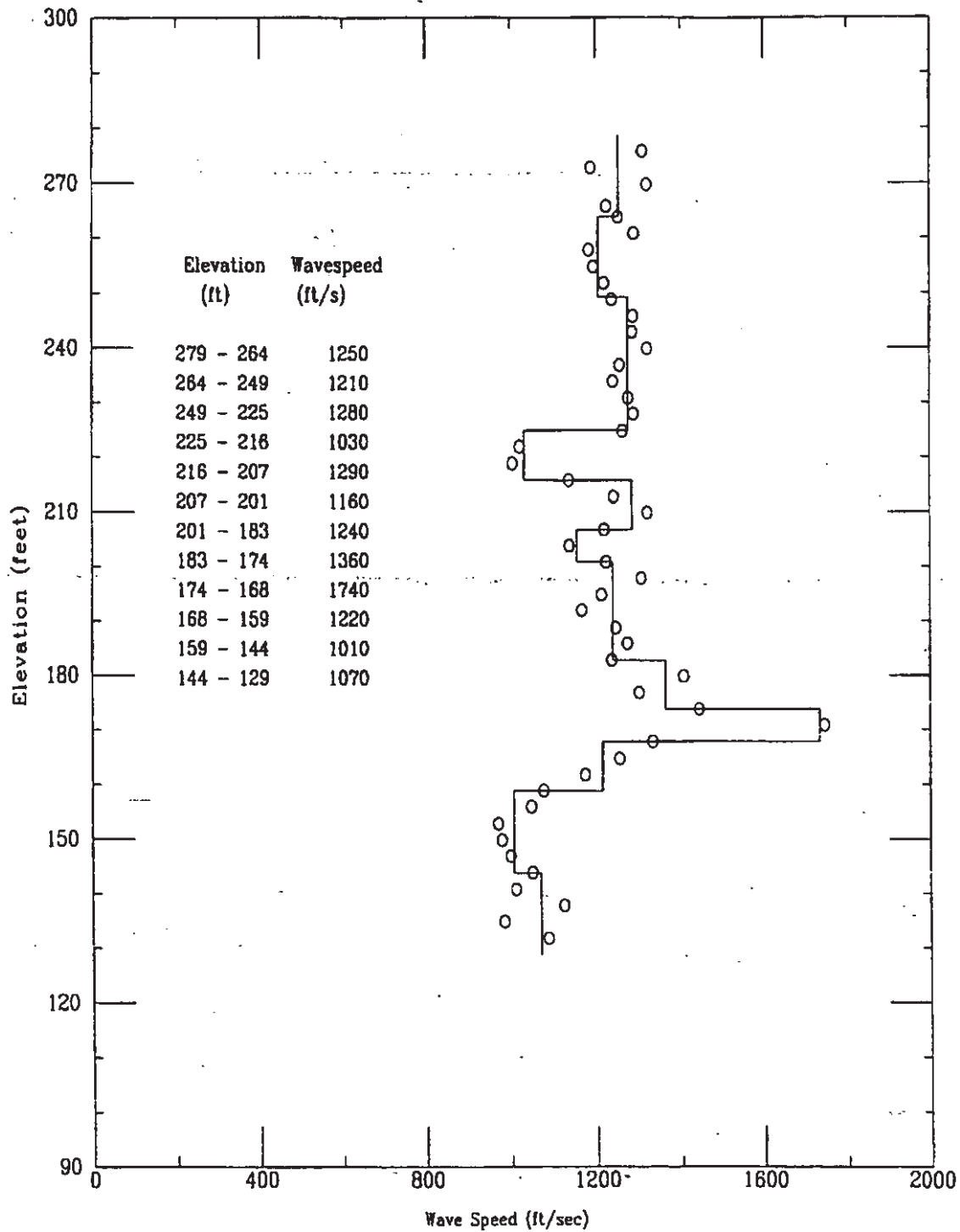


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Shear Wave Speeds





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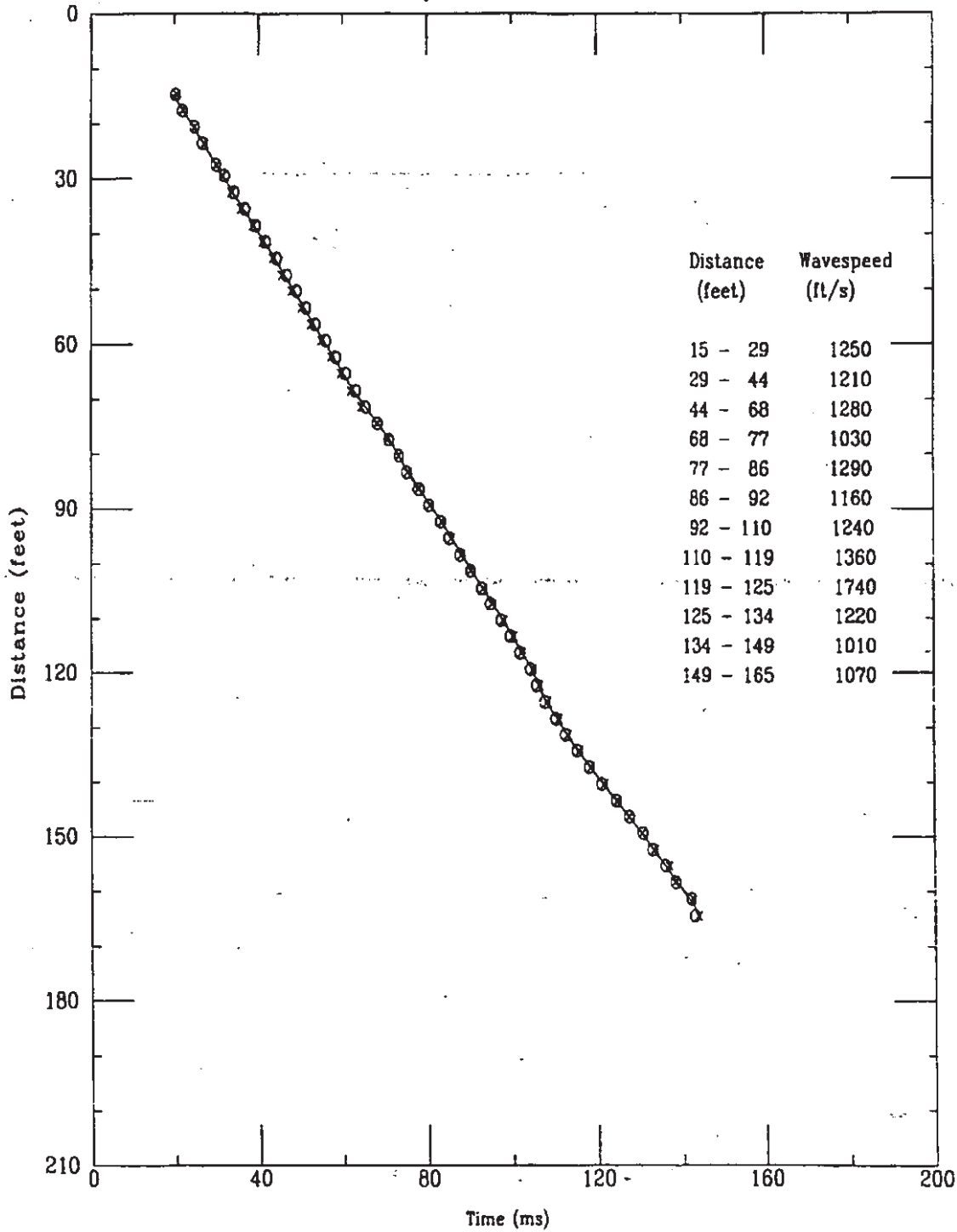
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APPLIED RESEARCH ASSOCIATES, INC.

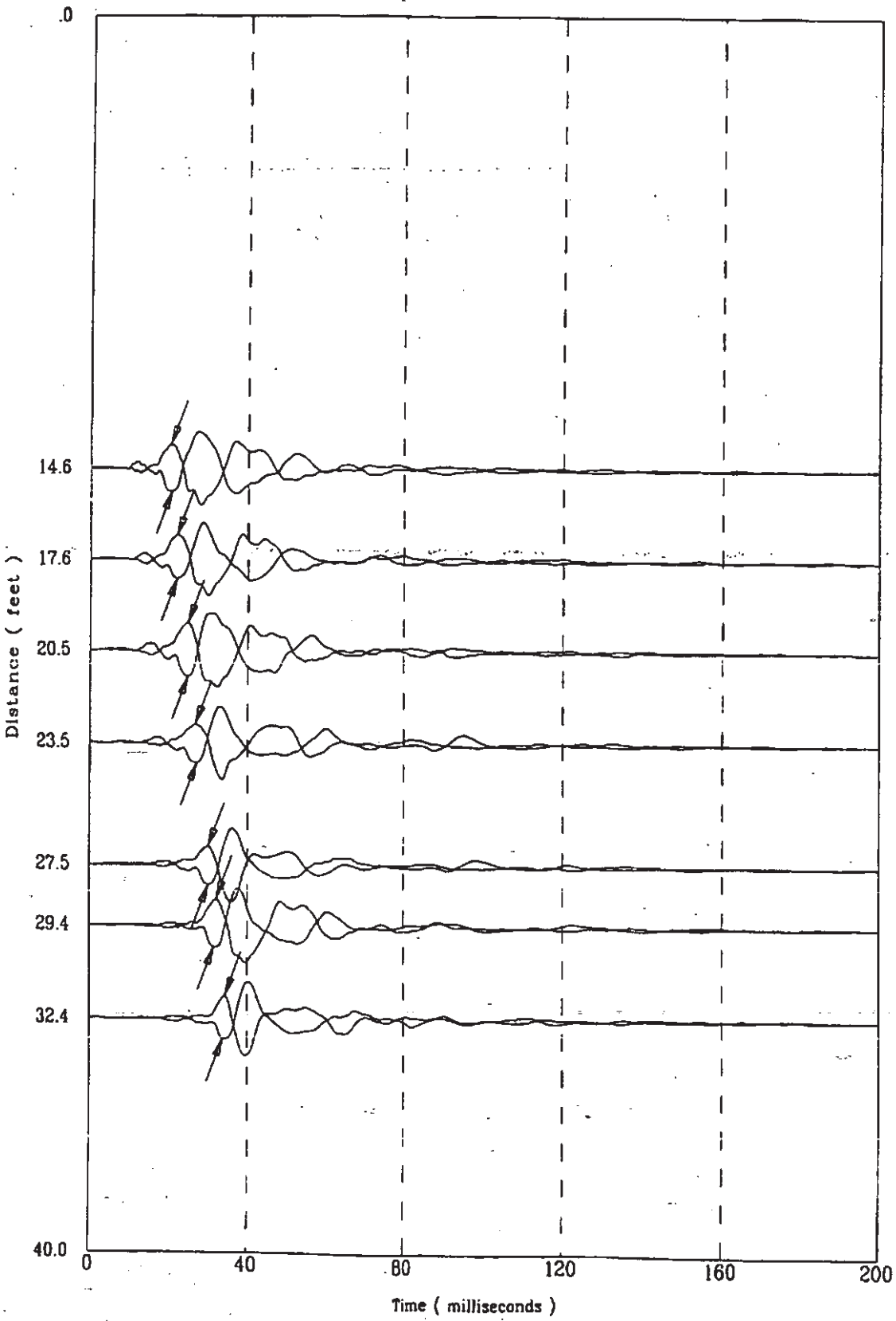
02/25/98

Shear Wave Time of Peak



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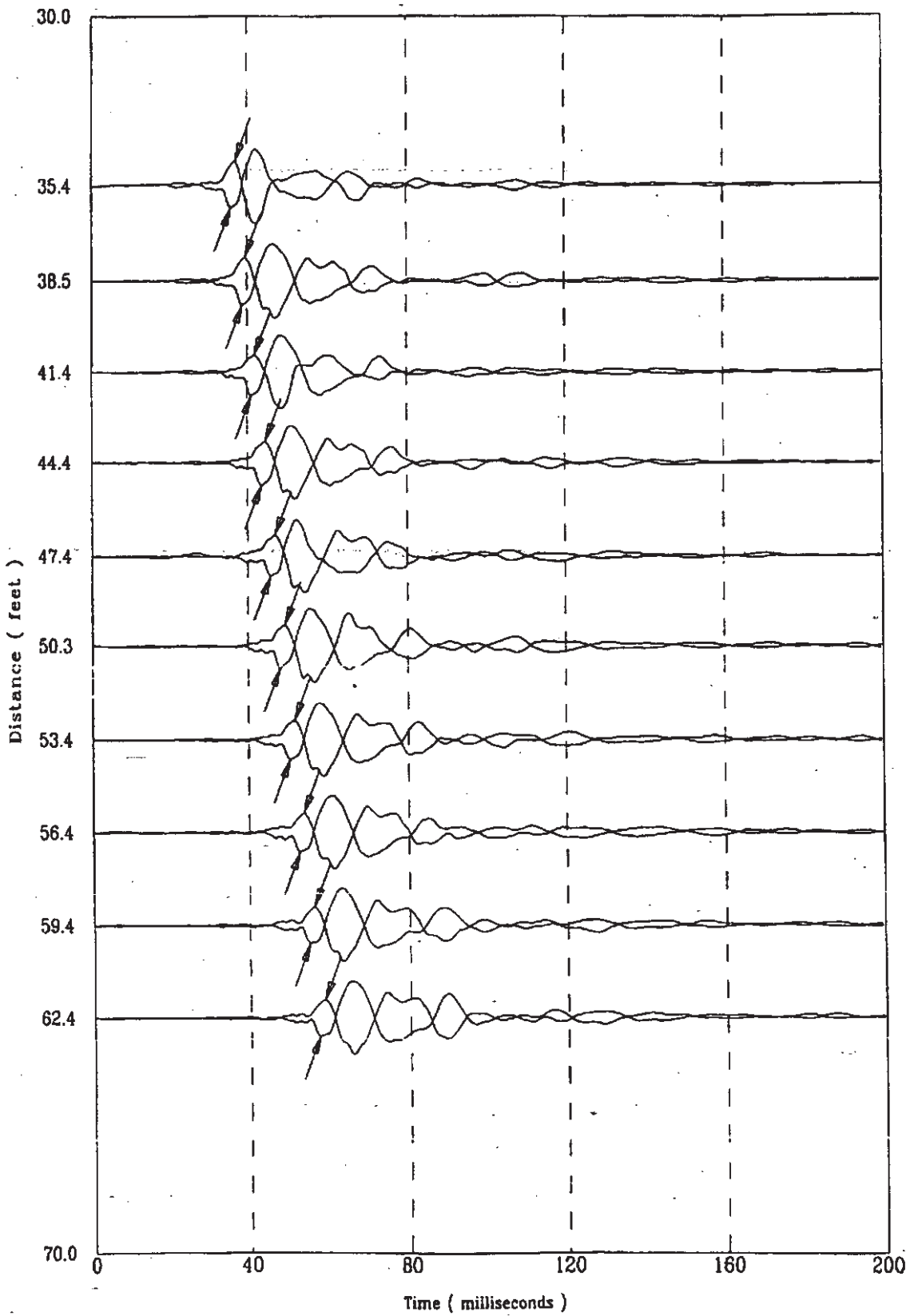
S Wave  
02/25/98



K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-163

S Wave  
02/25/98



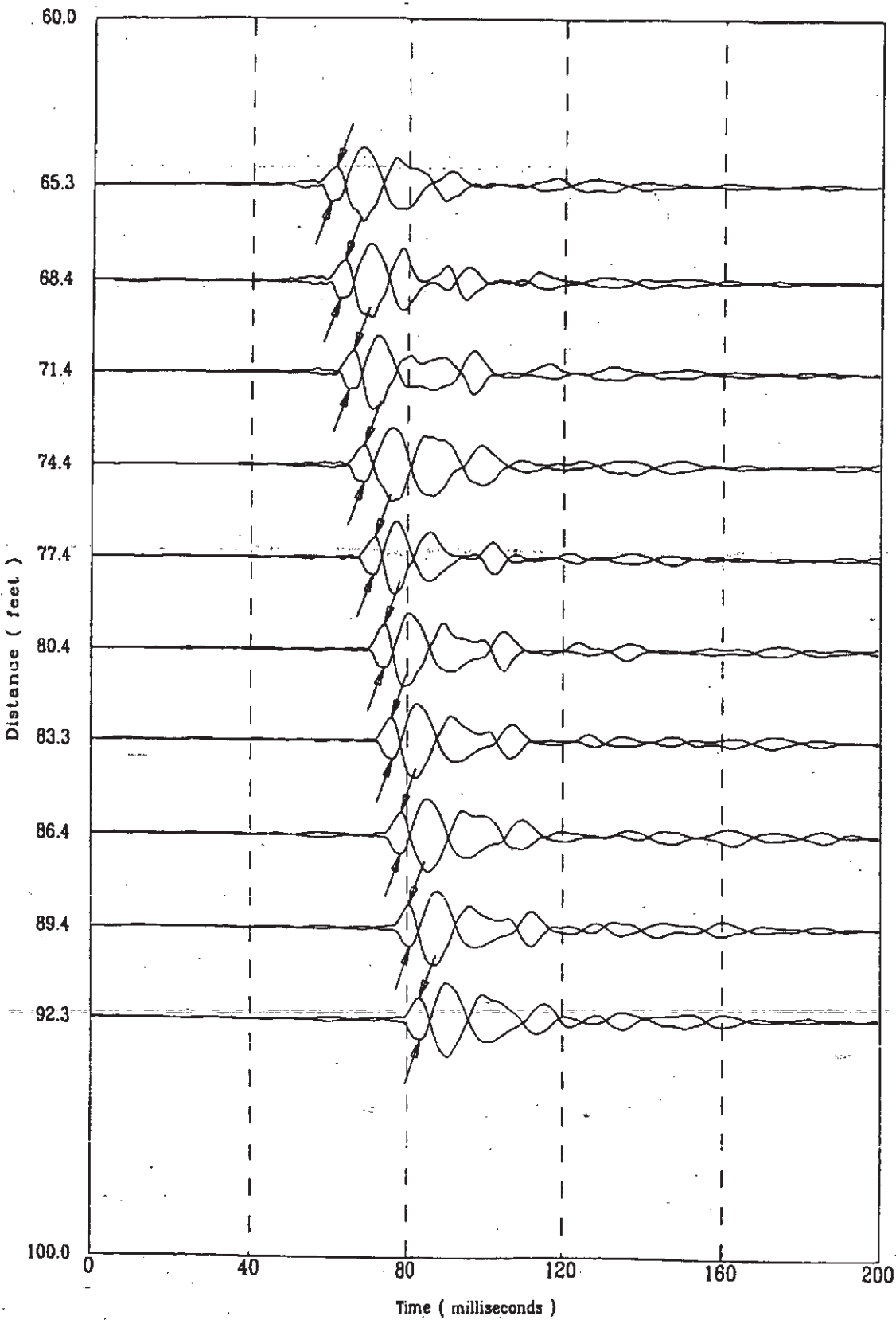
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Applied Research Associates  
CPT-163

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02/25/98



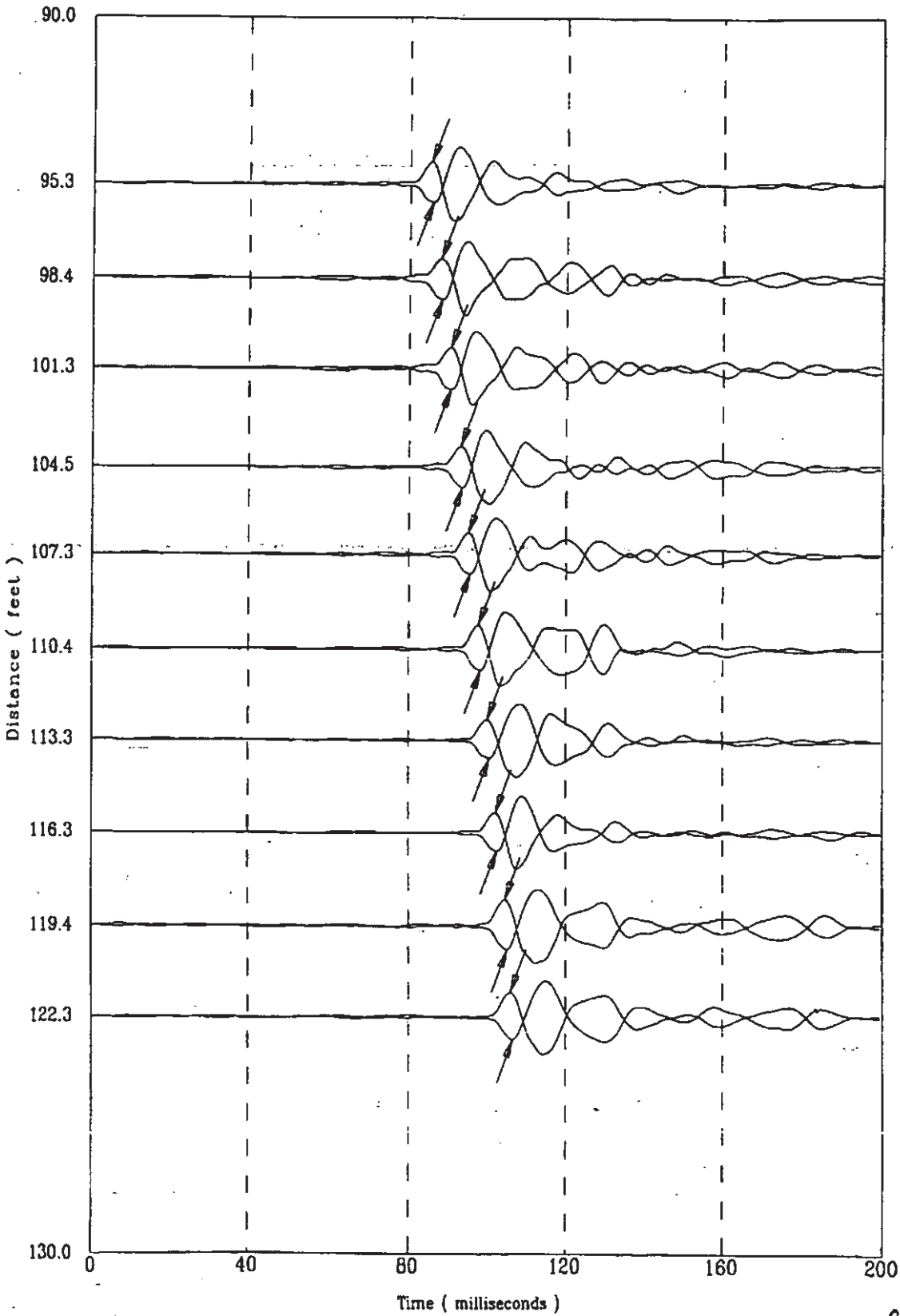
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Applied Research Associates  
CPT-163

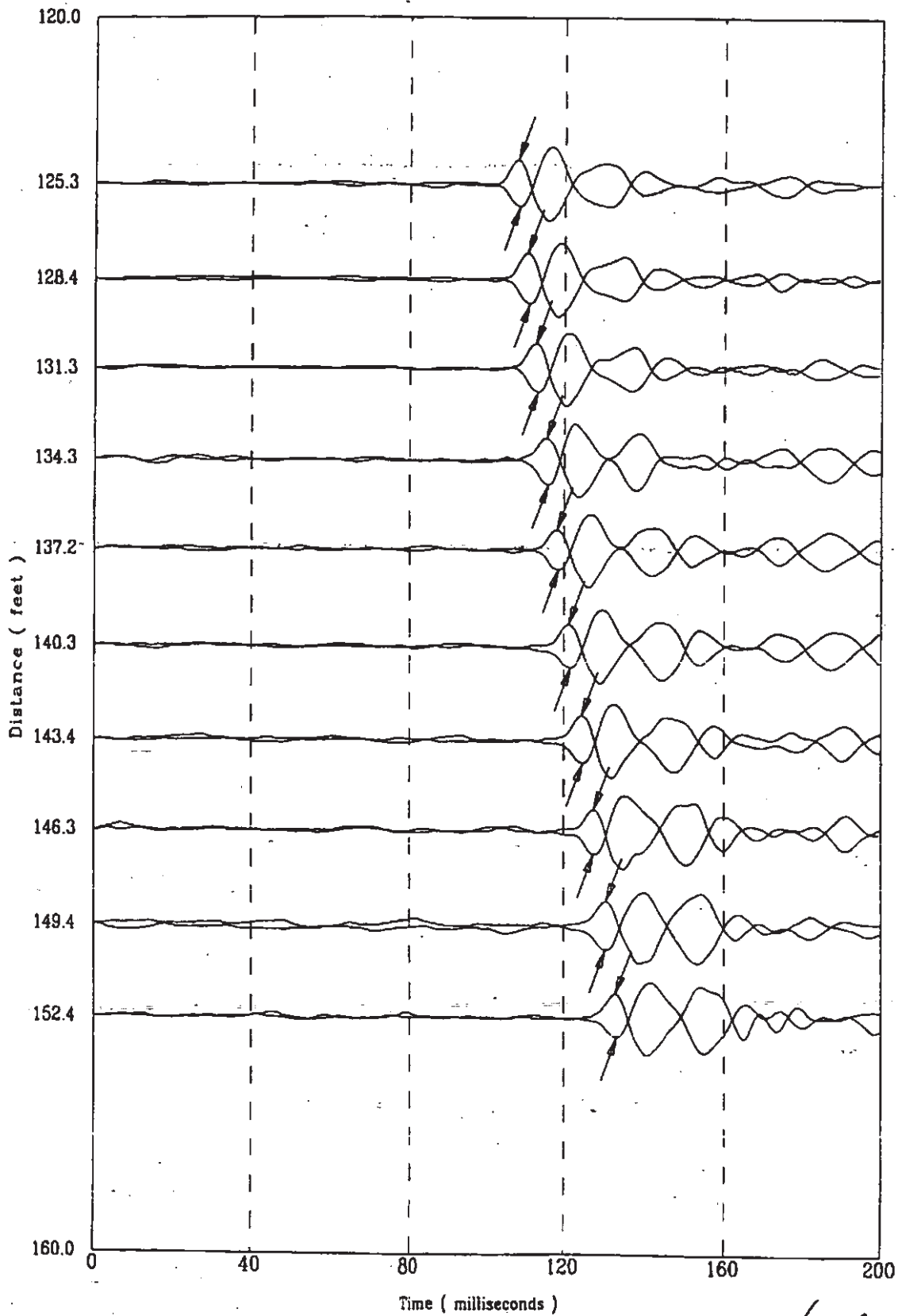
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02/25/98



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CPT-163

S Wave  
02/25/98



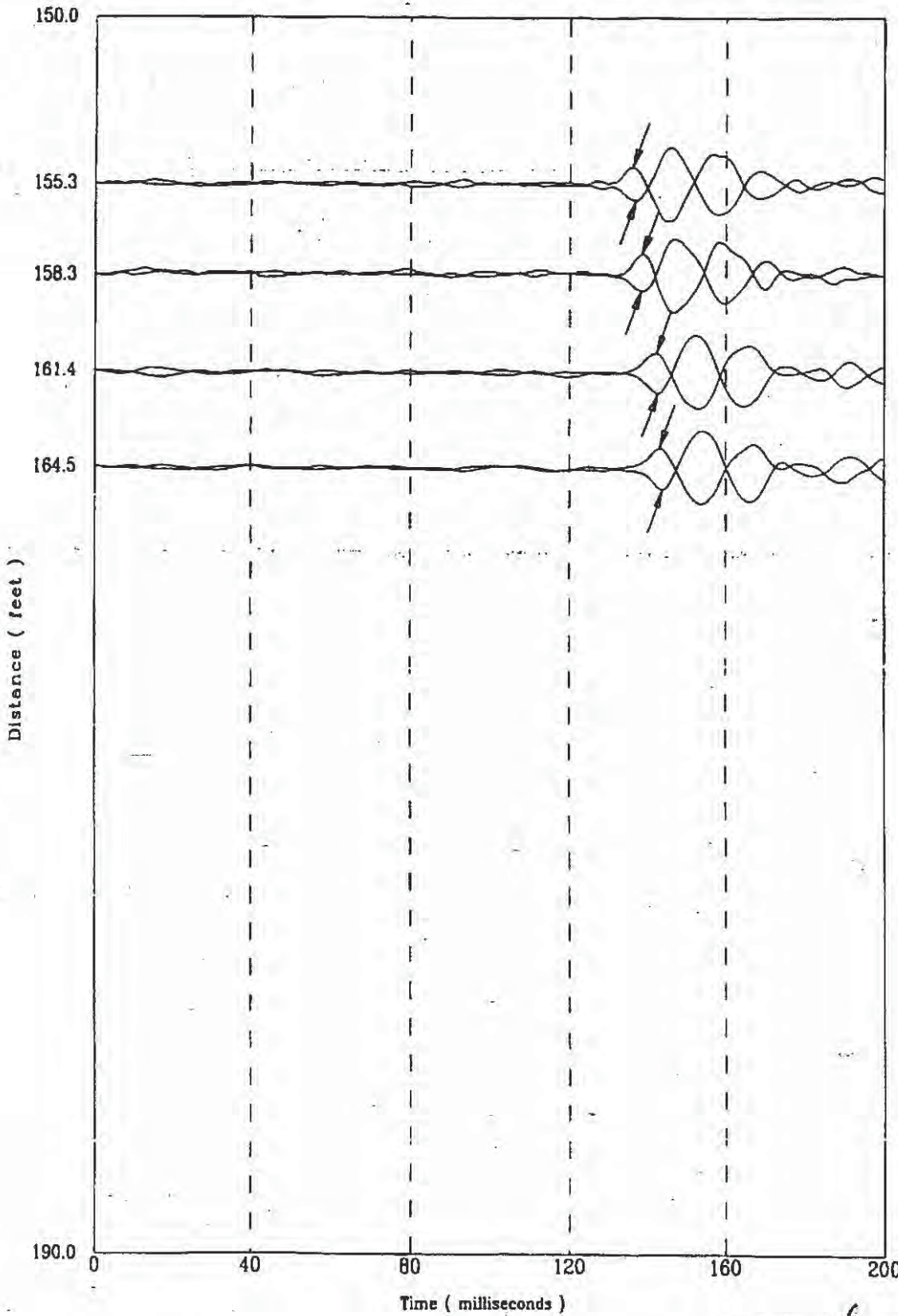
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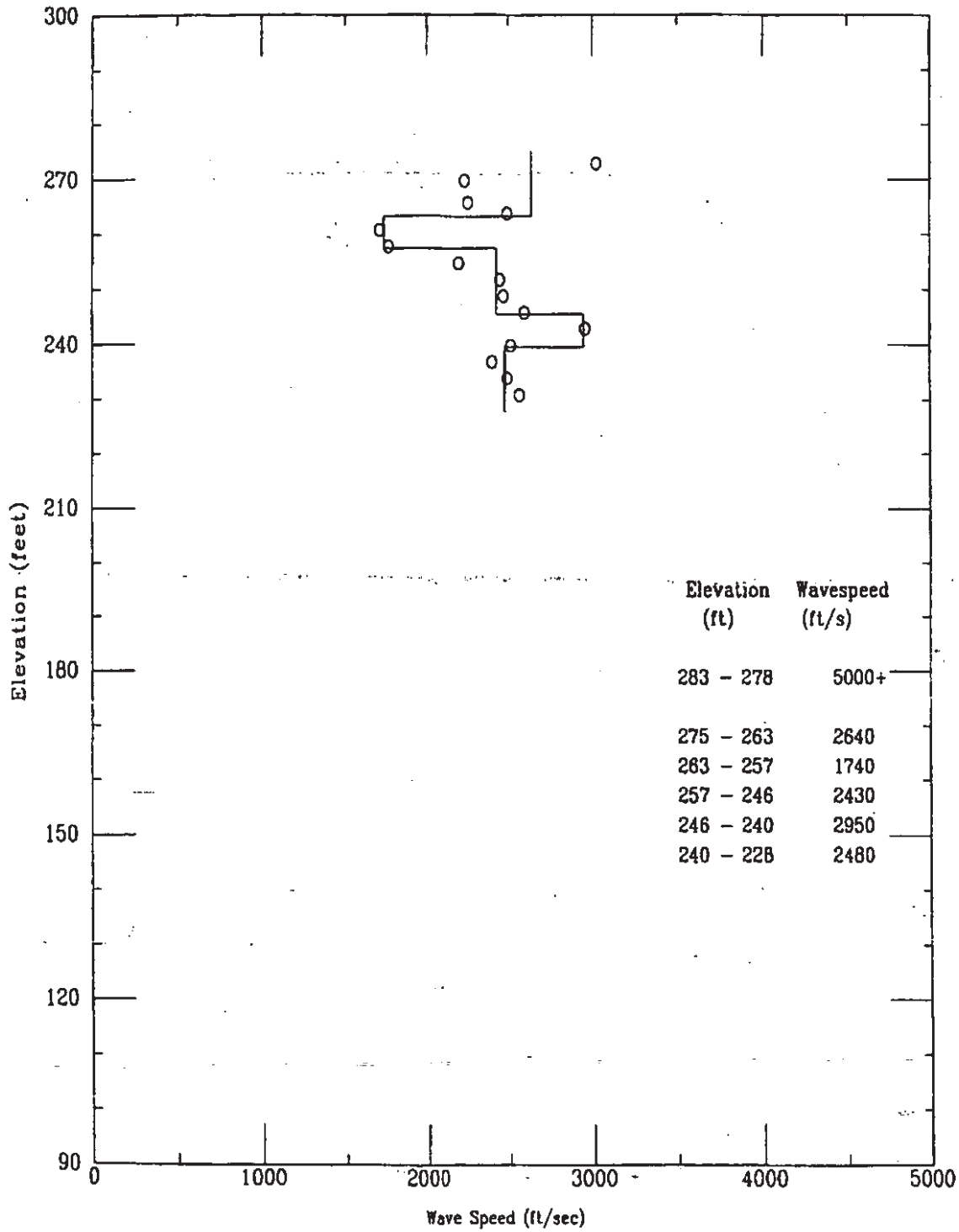


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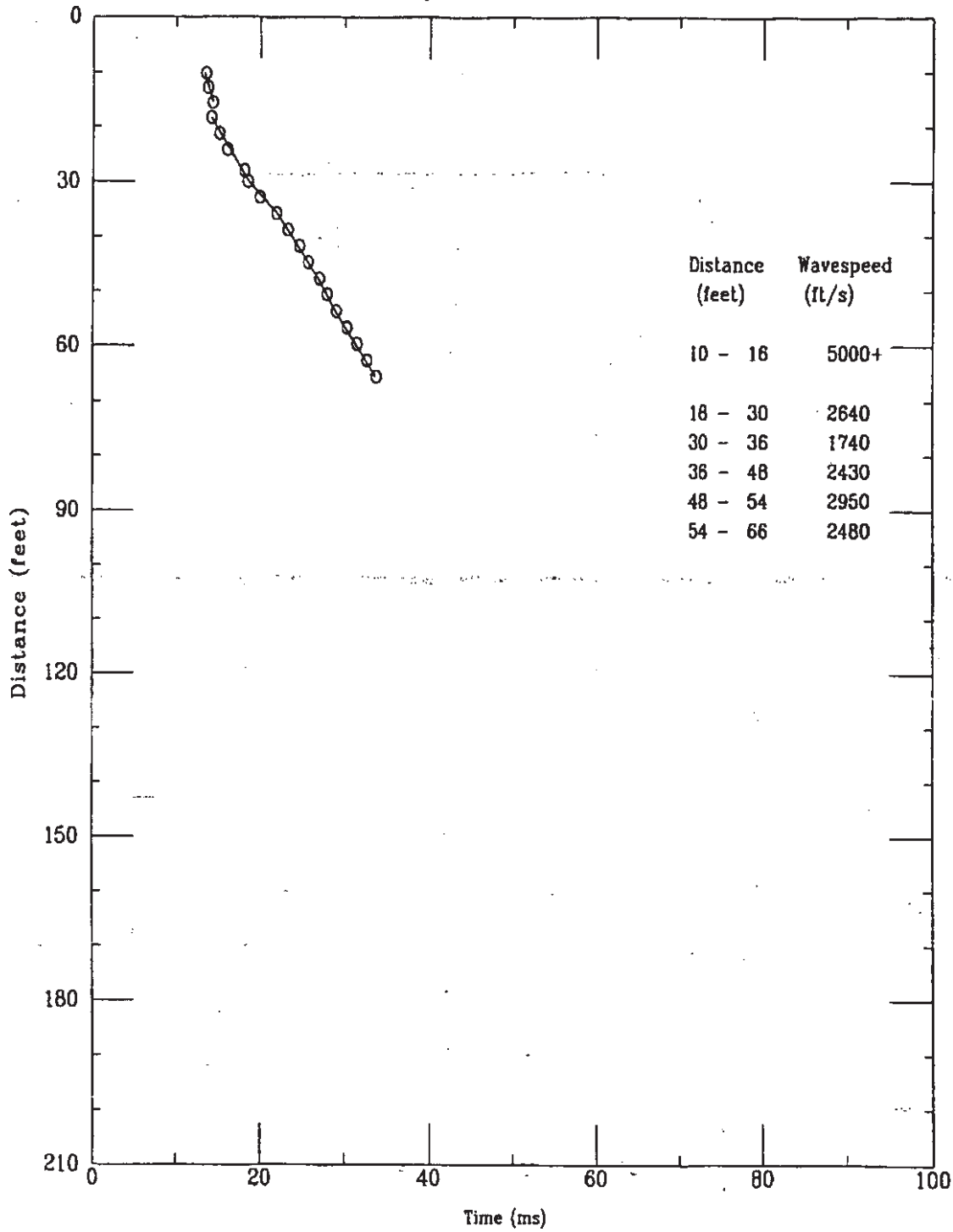
Compression Wave Speeds



CPT-163

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

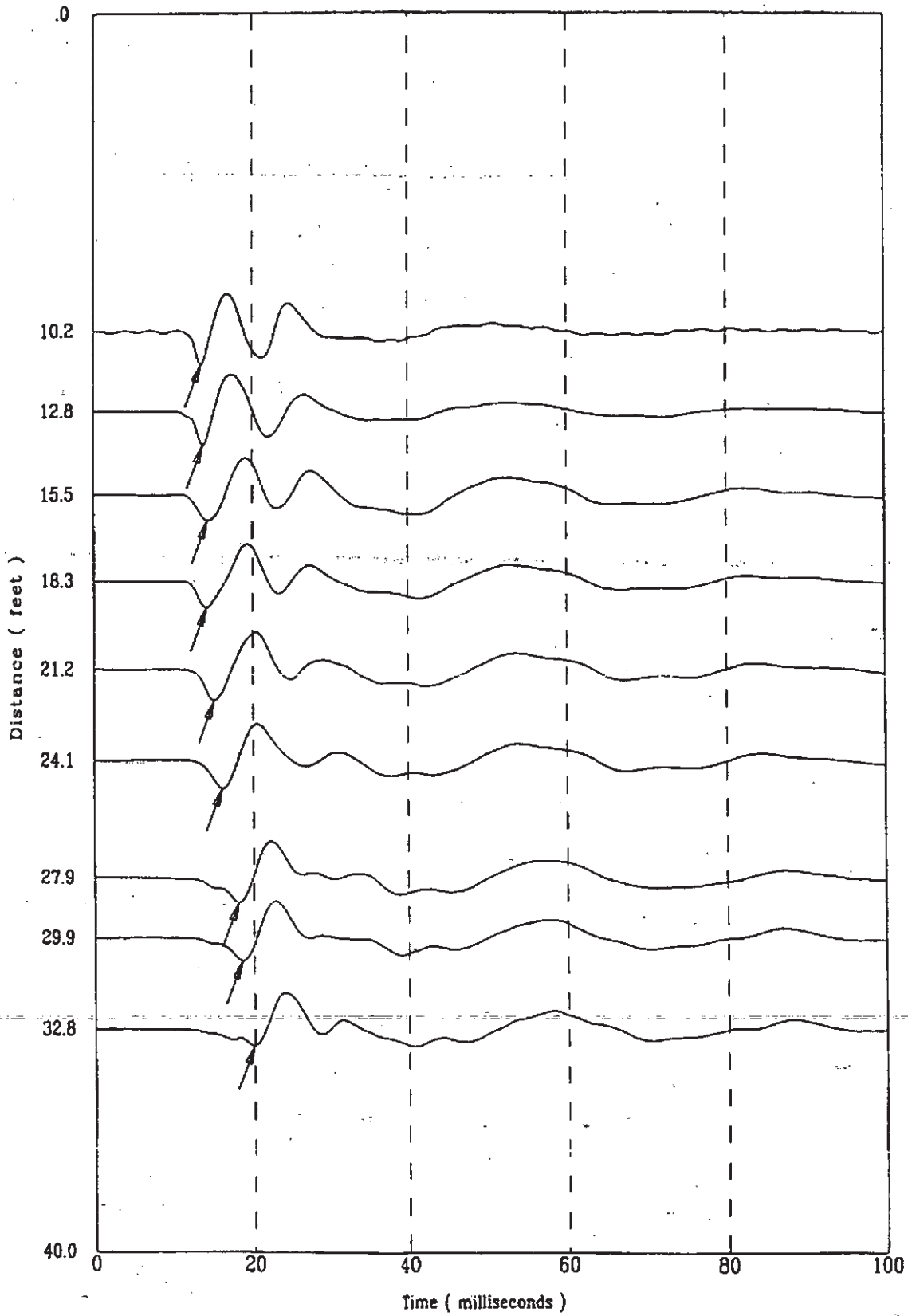
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P Wave  
02/25/98



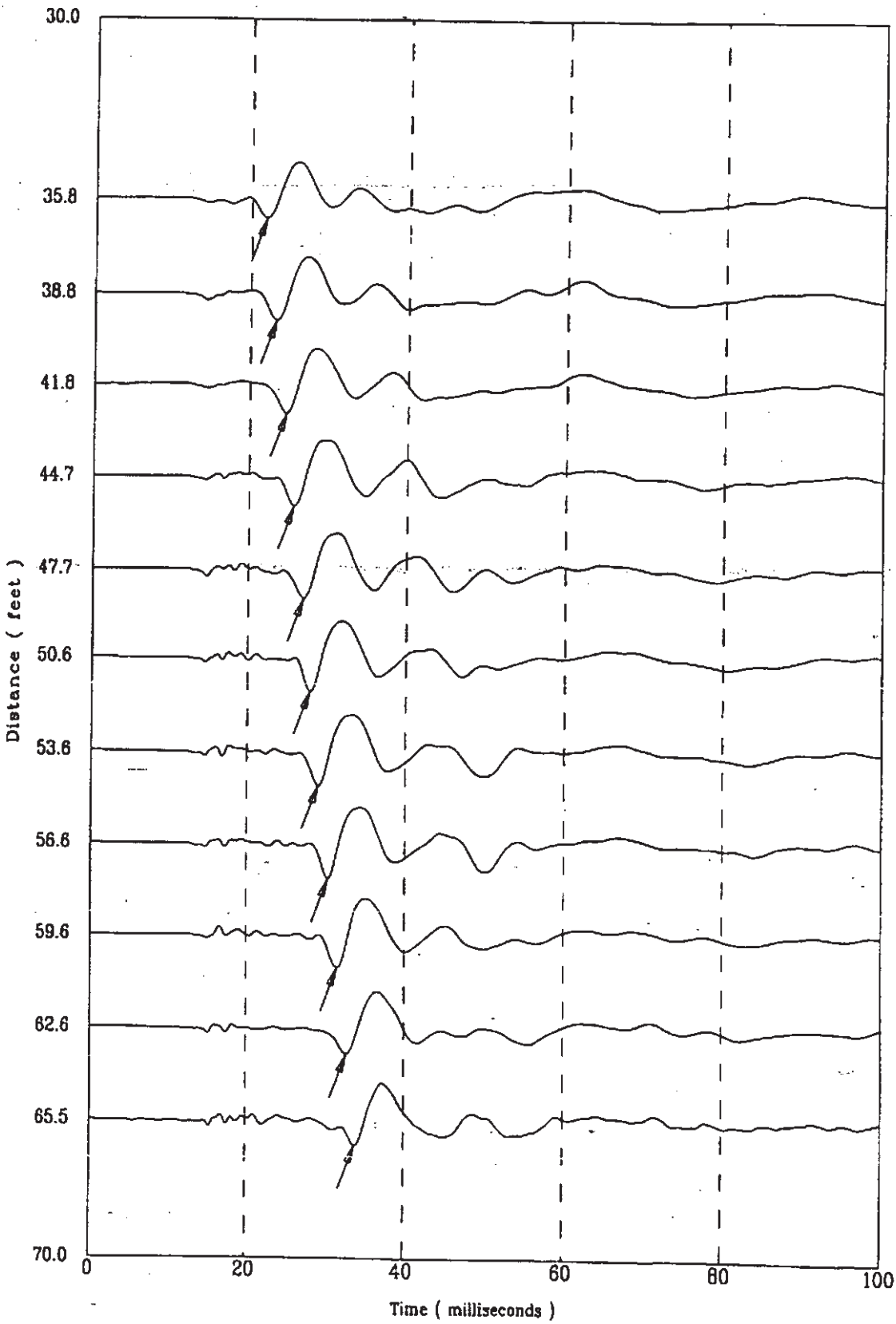
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P Wave  
02/25/98



57801S

CPT-167

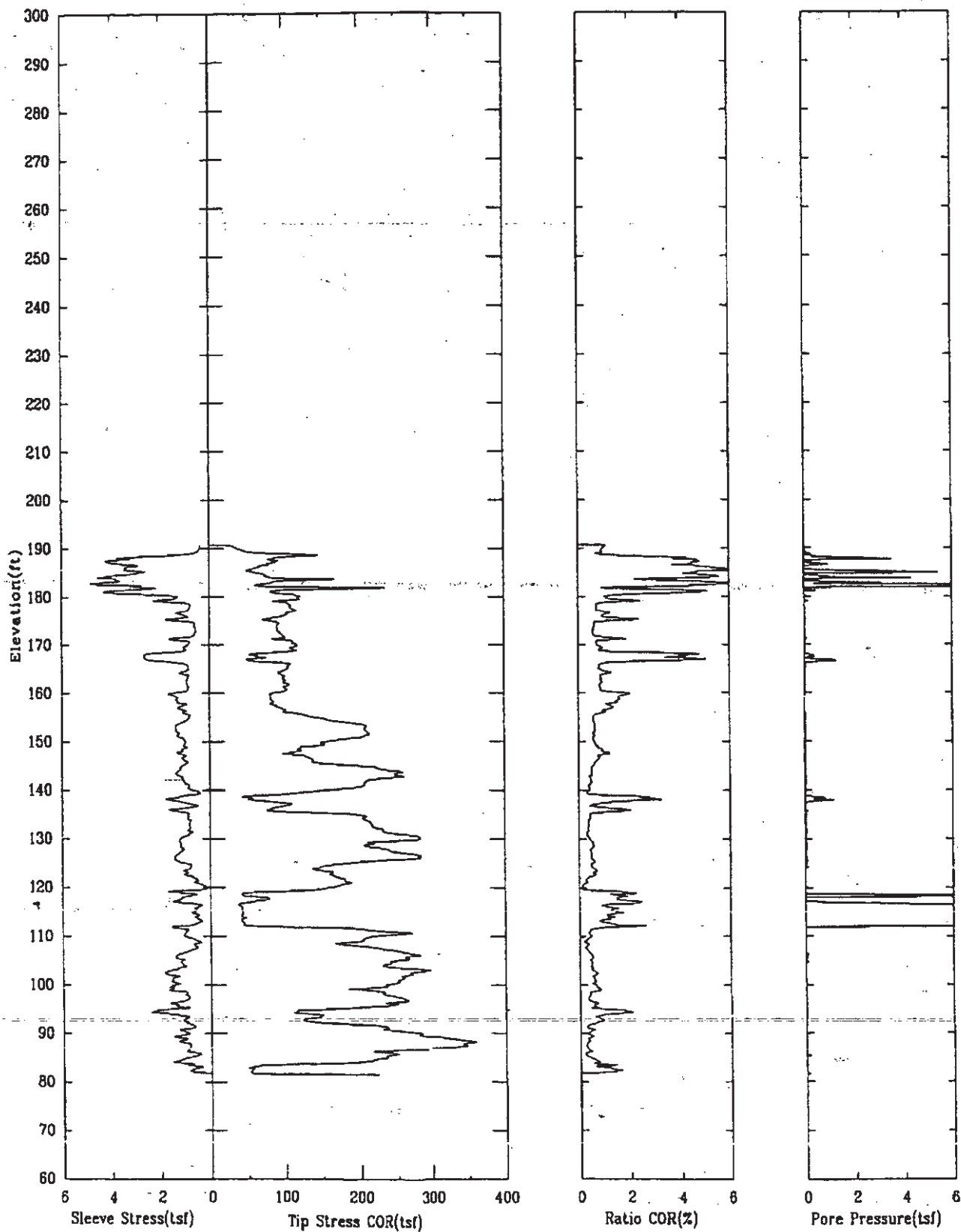
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03/11/92 / 0

North 79029.91

East 55330.05

Elevation 196.7



CPT-167

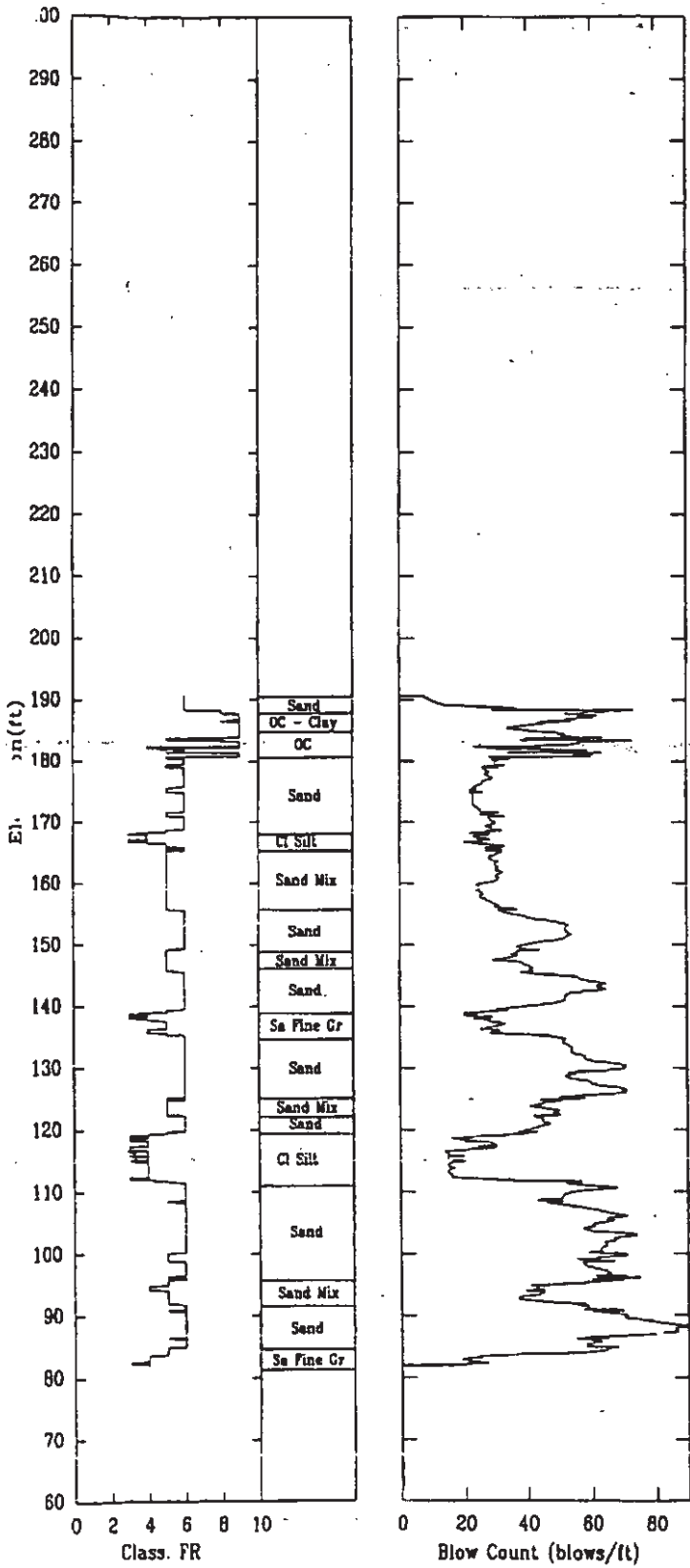
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03/11/98 / 0

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East 55330.05

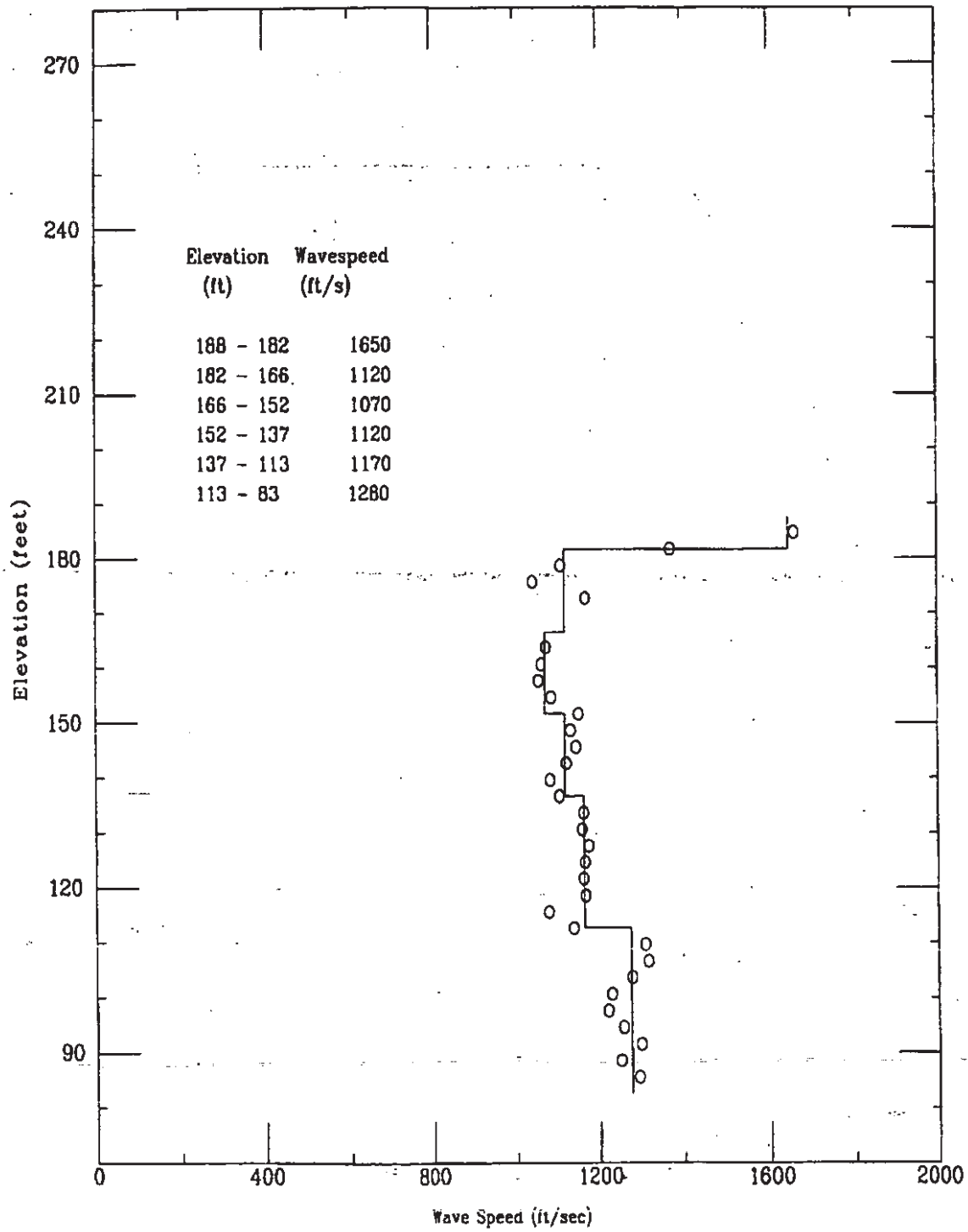
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CPT-167

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Speeds

03/11/98

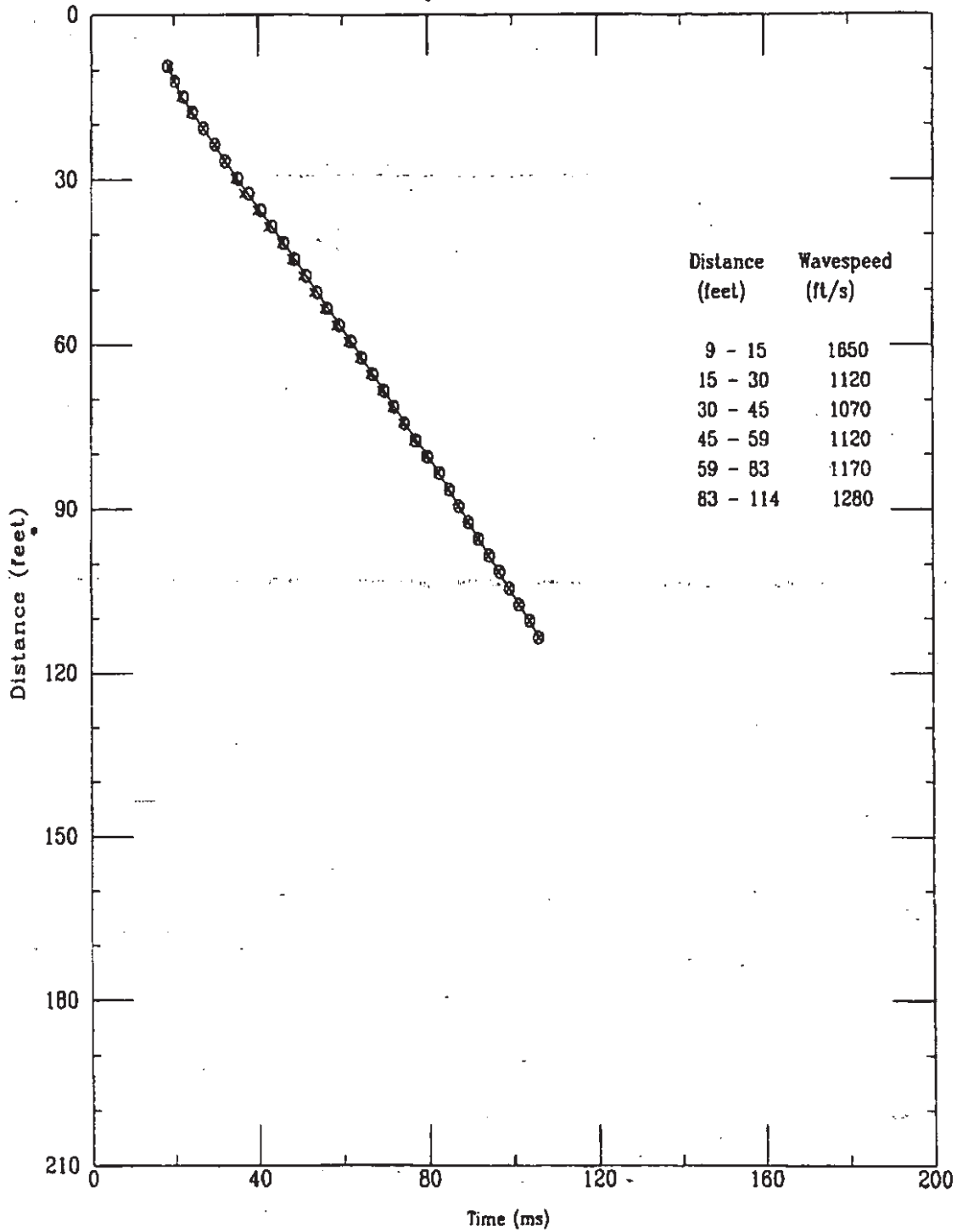


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APPLIED RESEARCH ASSOCIATES, INC.

03/11/98

Shear Wave Time of Peak

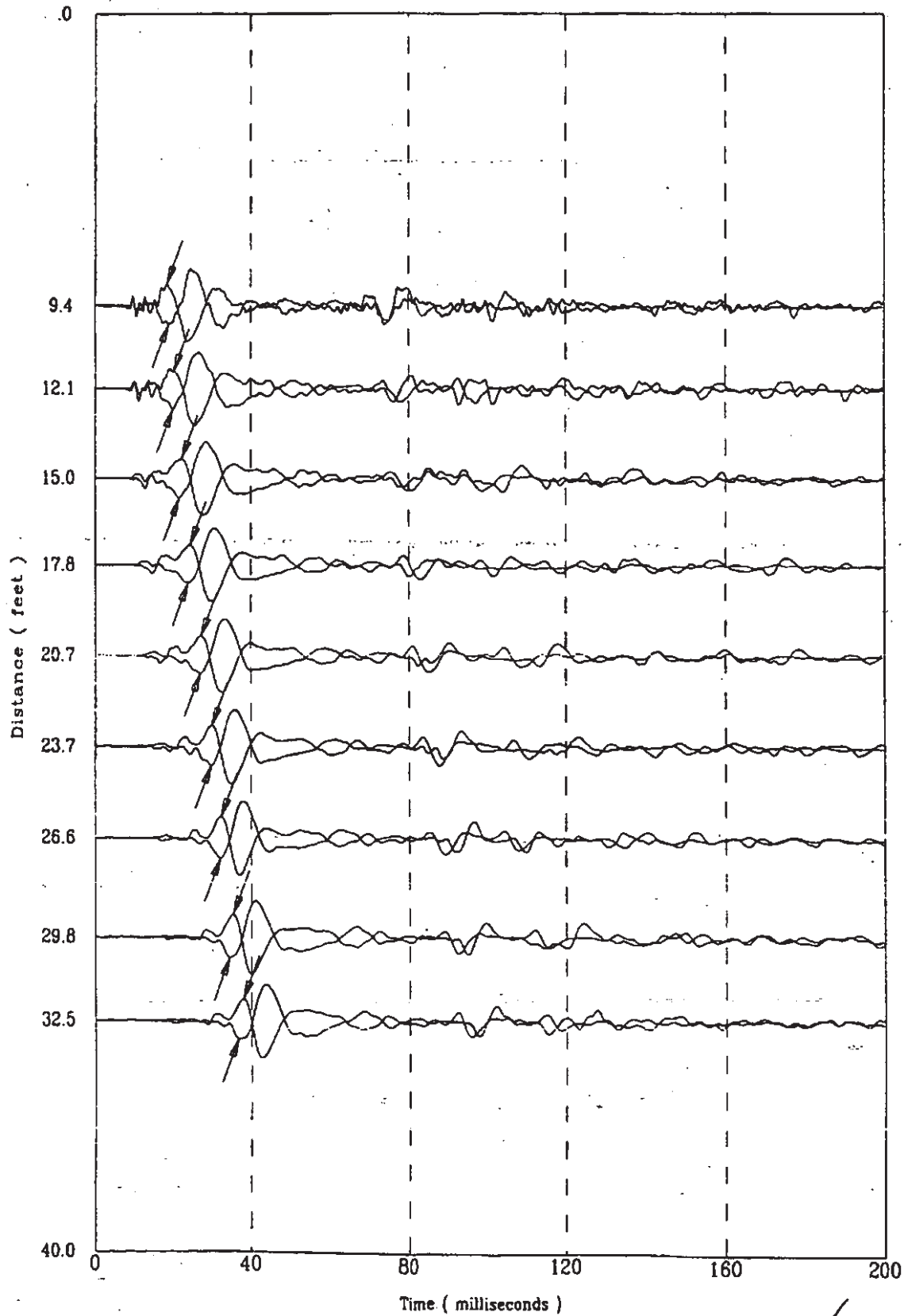


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CPT-167

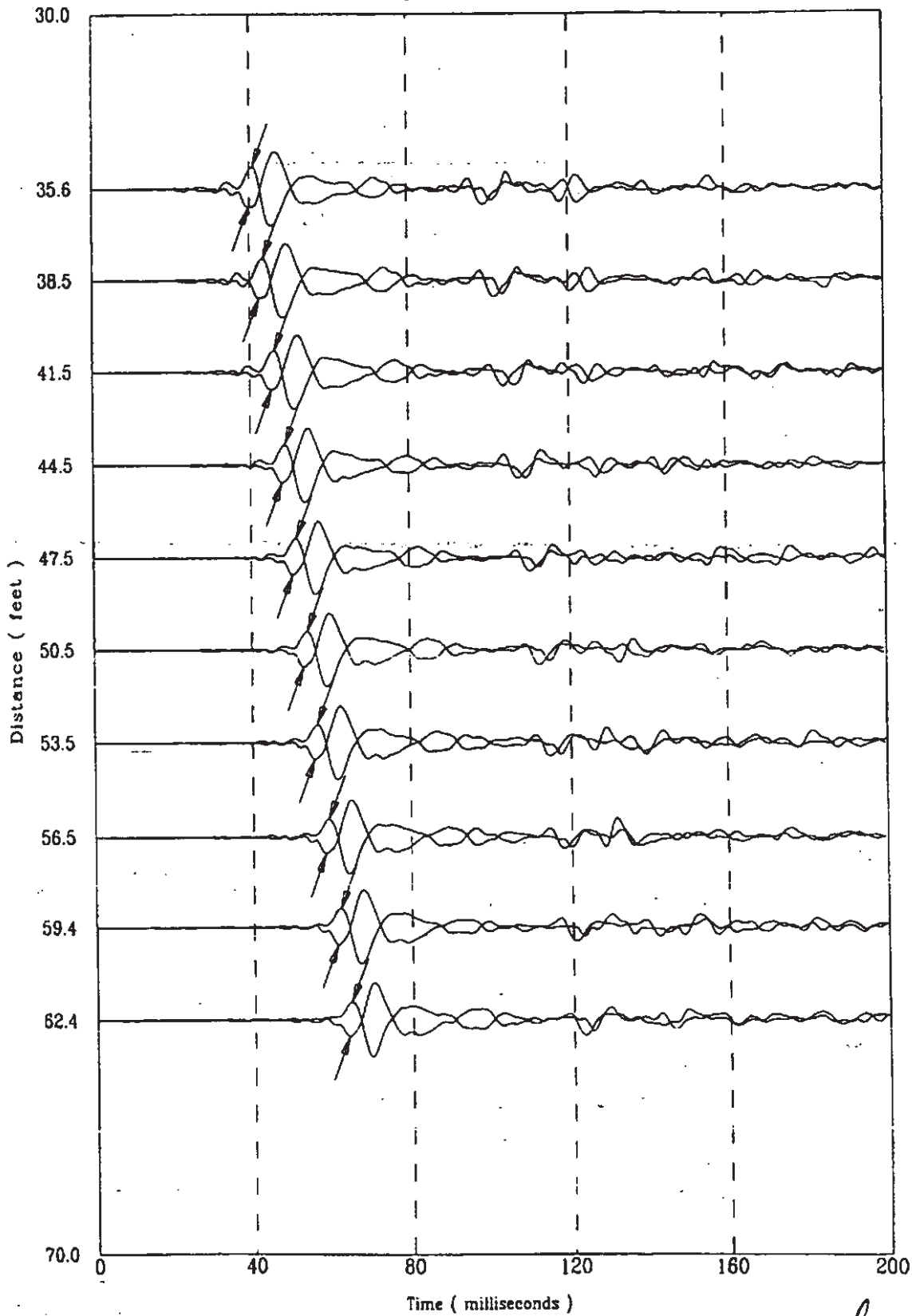
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03/11/98



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Applied Research Associates, Inc.  
CPT-167

S Wave  
03/11/98



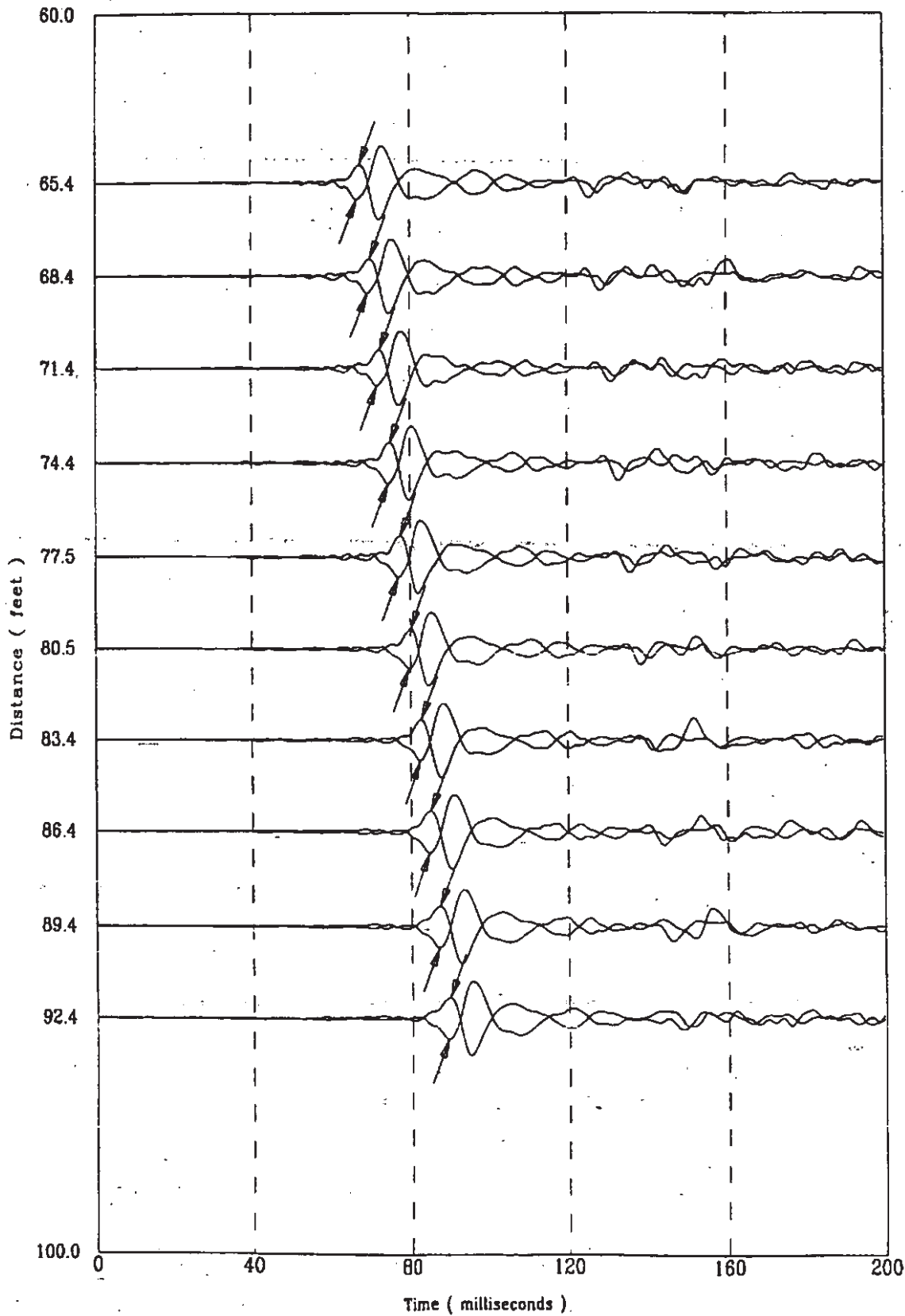
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R/O

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03/11/98



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Applied Research Associates, Inc.  
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S Wave  
03/11/98

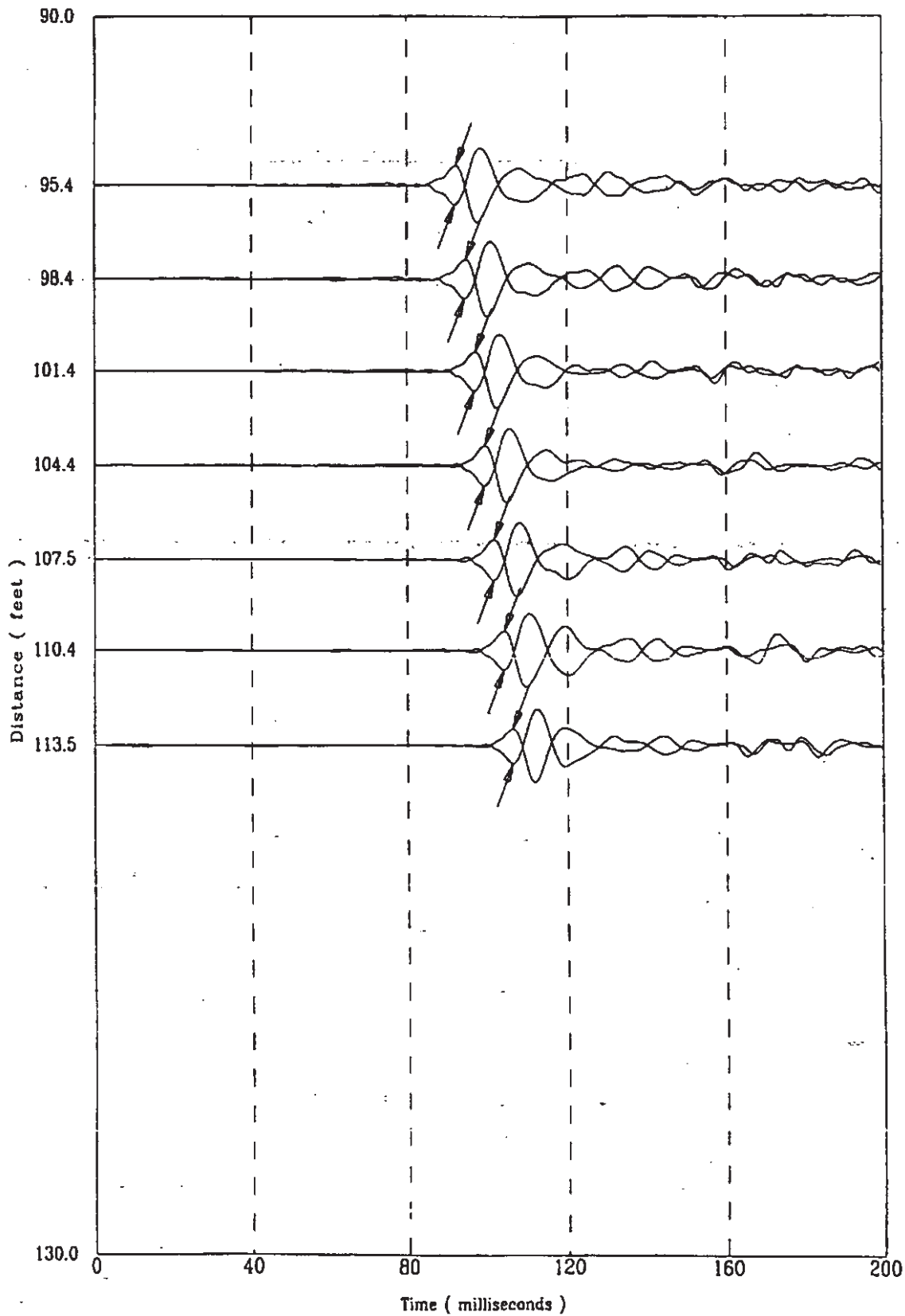


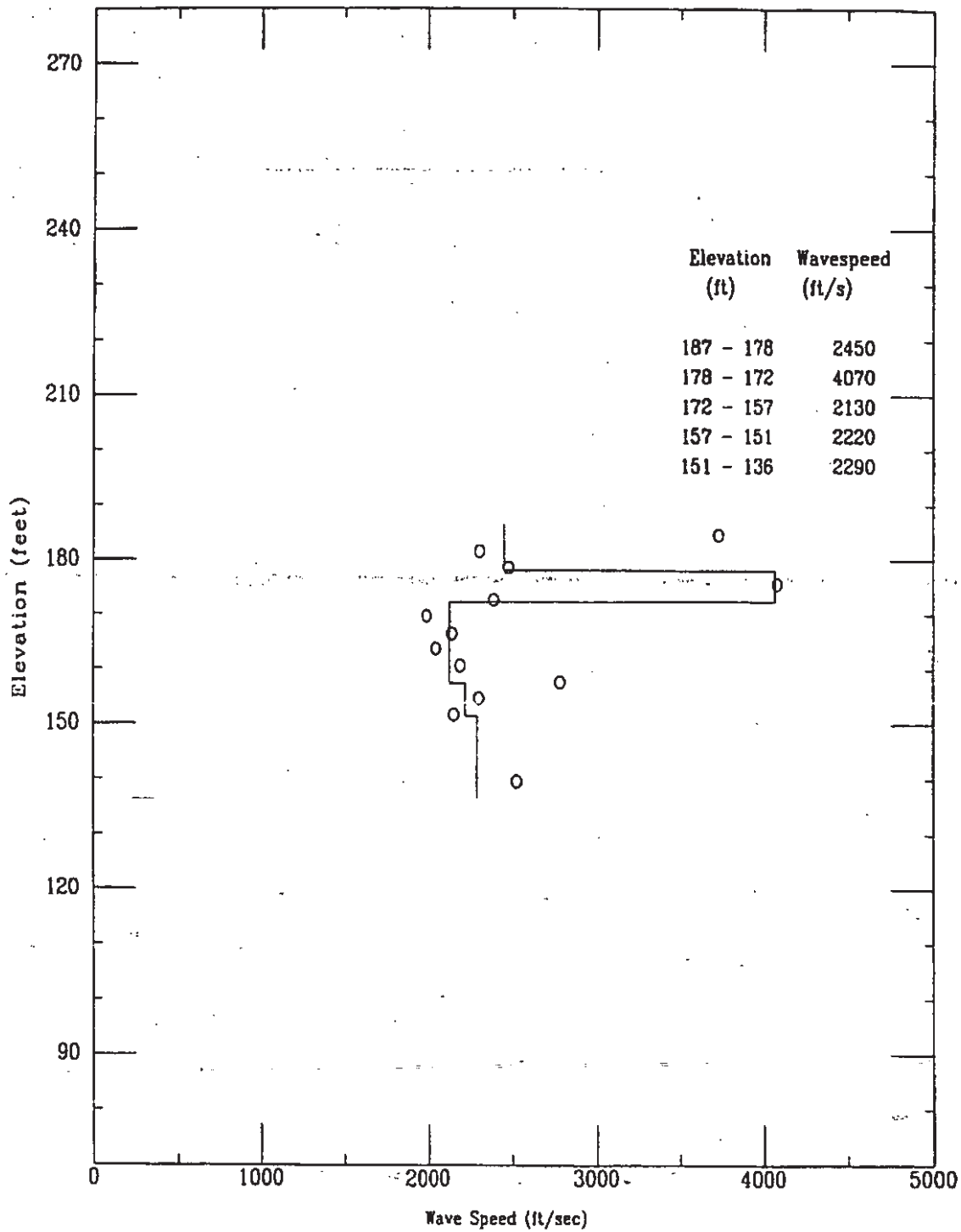
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APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

03/11/98

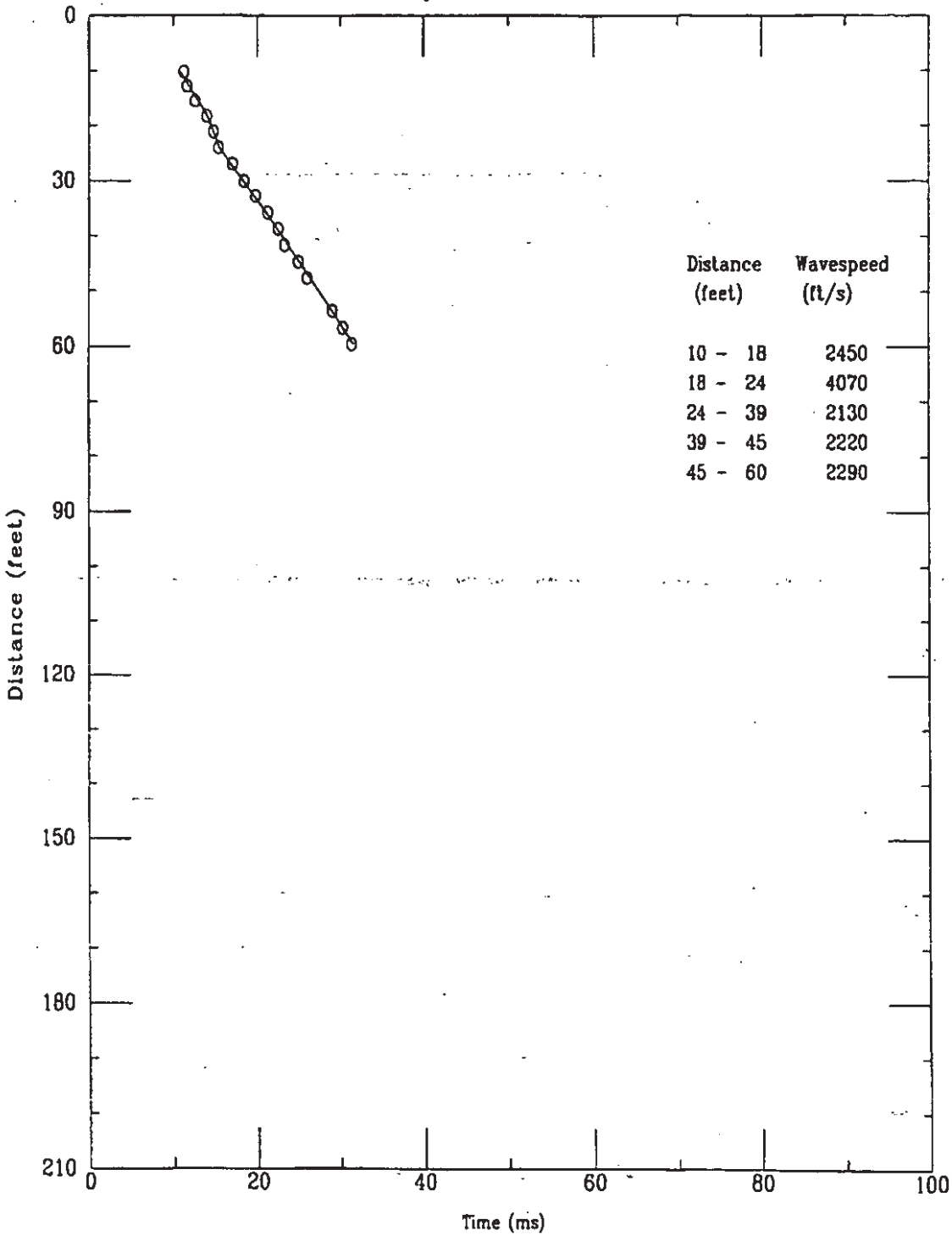


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Compression Wave Time of Peak

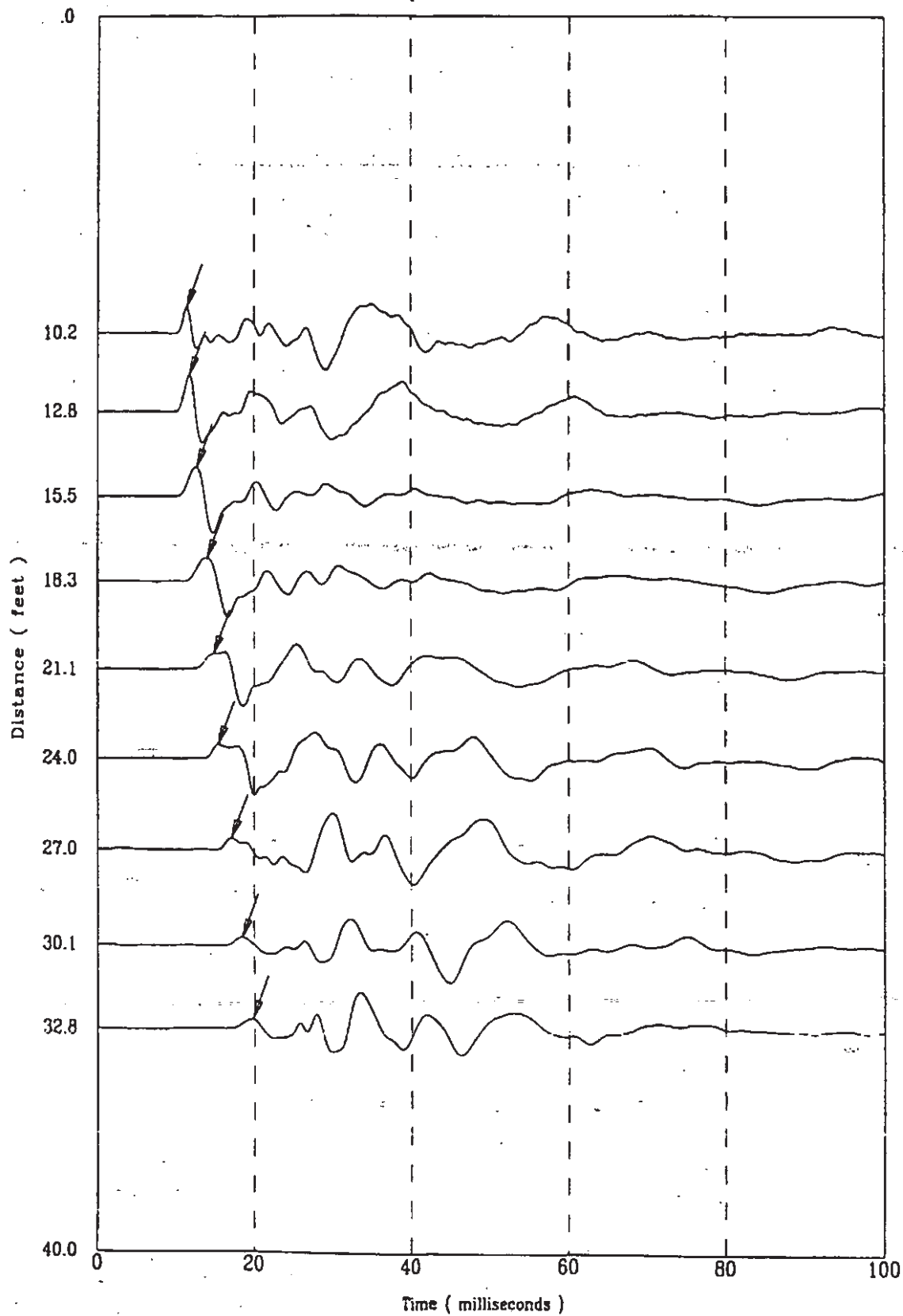
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K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-167

P Wave  
03/11/98



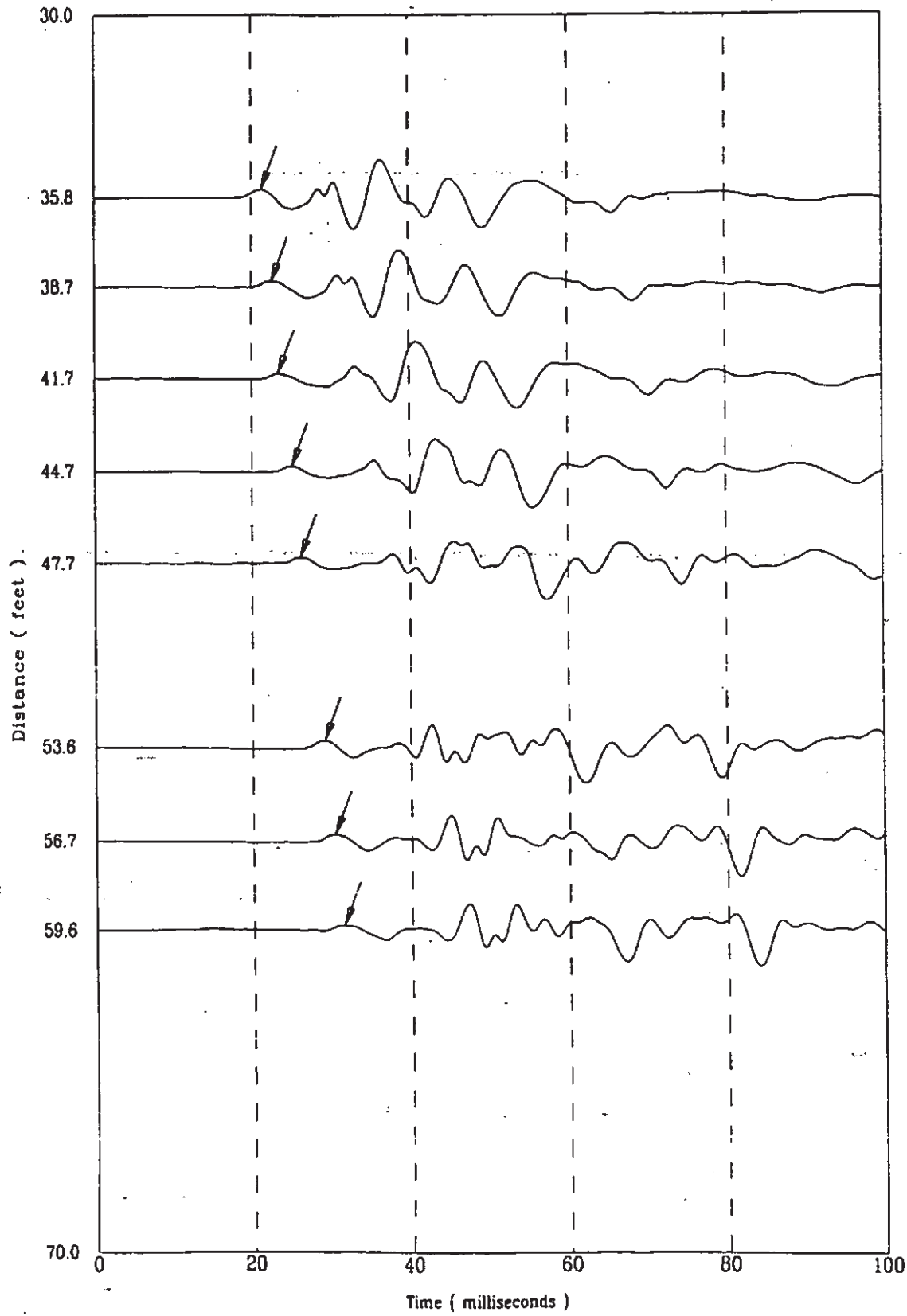
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R/O

Applied Research Associates, Inc.  
CPT-167

P Wave  
03/11/98





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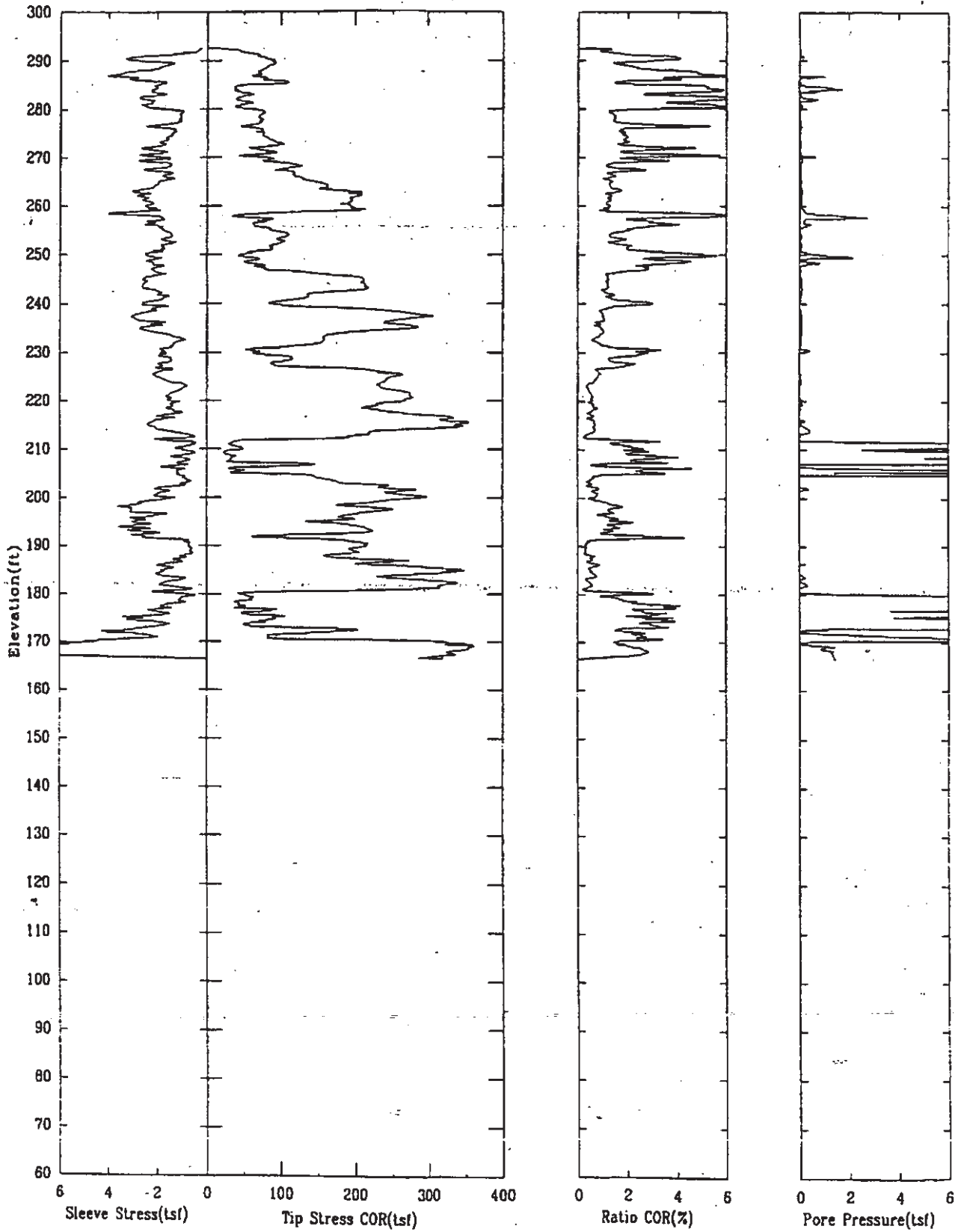
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North 78900

East 55385

Elevation 298.5



CPT-171

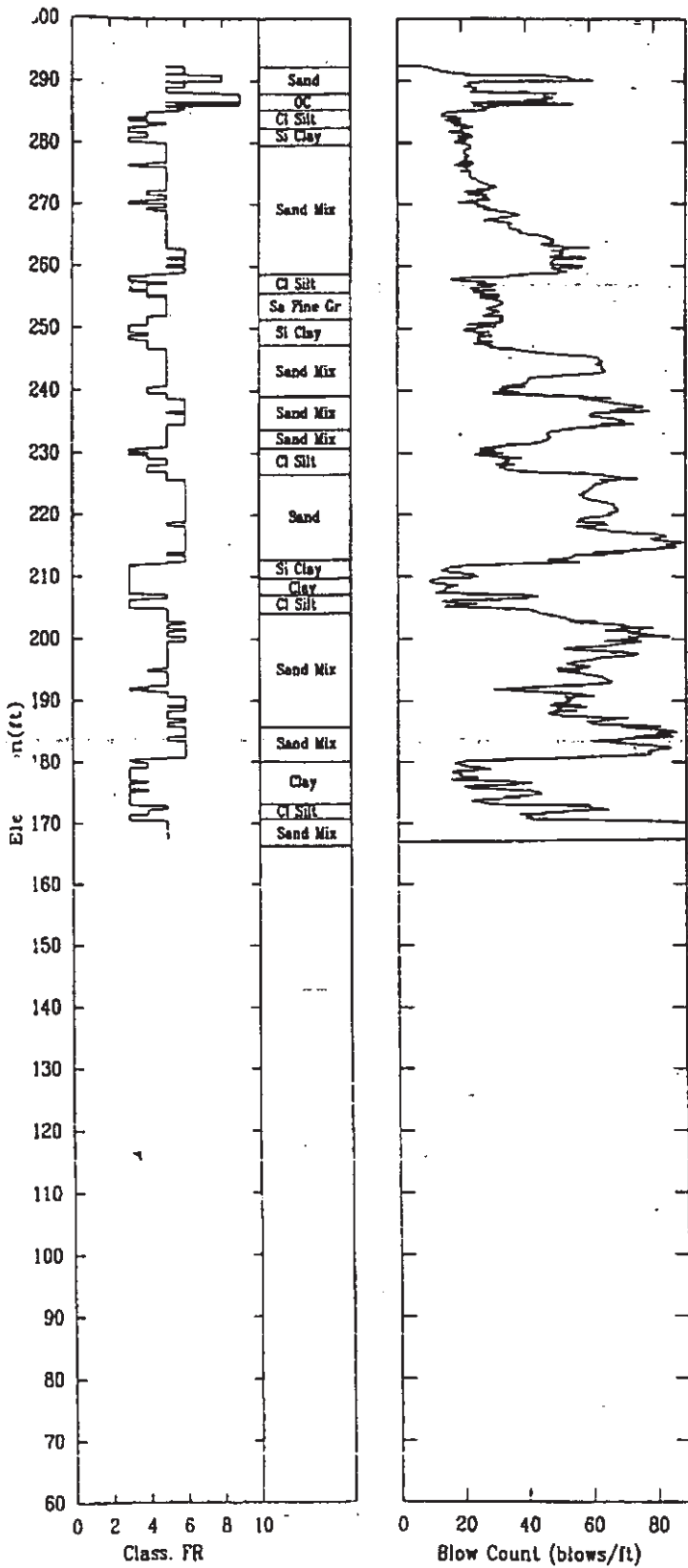
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North 78900

East 55385

Elevation 298.5

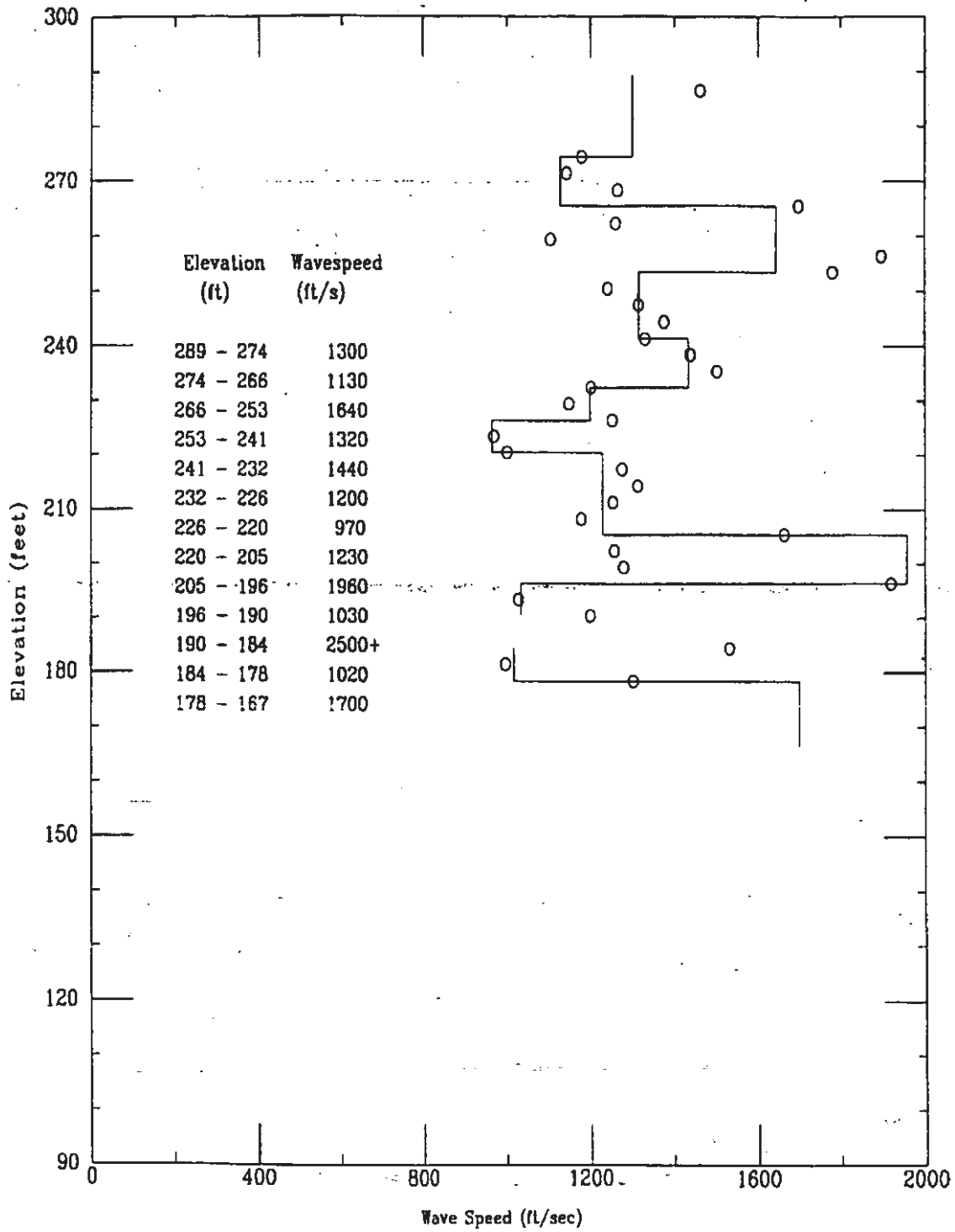


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03/19/98

Shear Wave Speeds

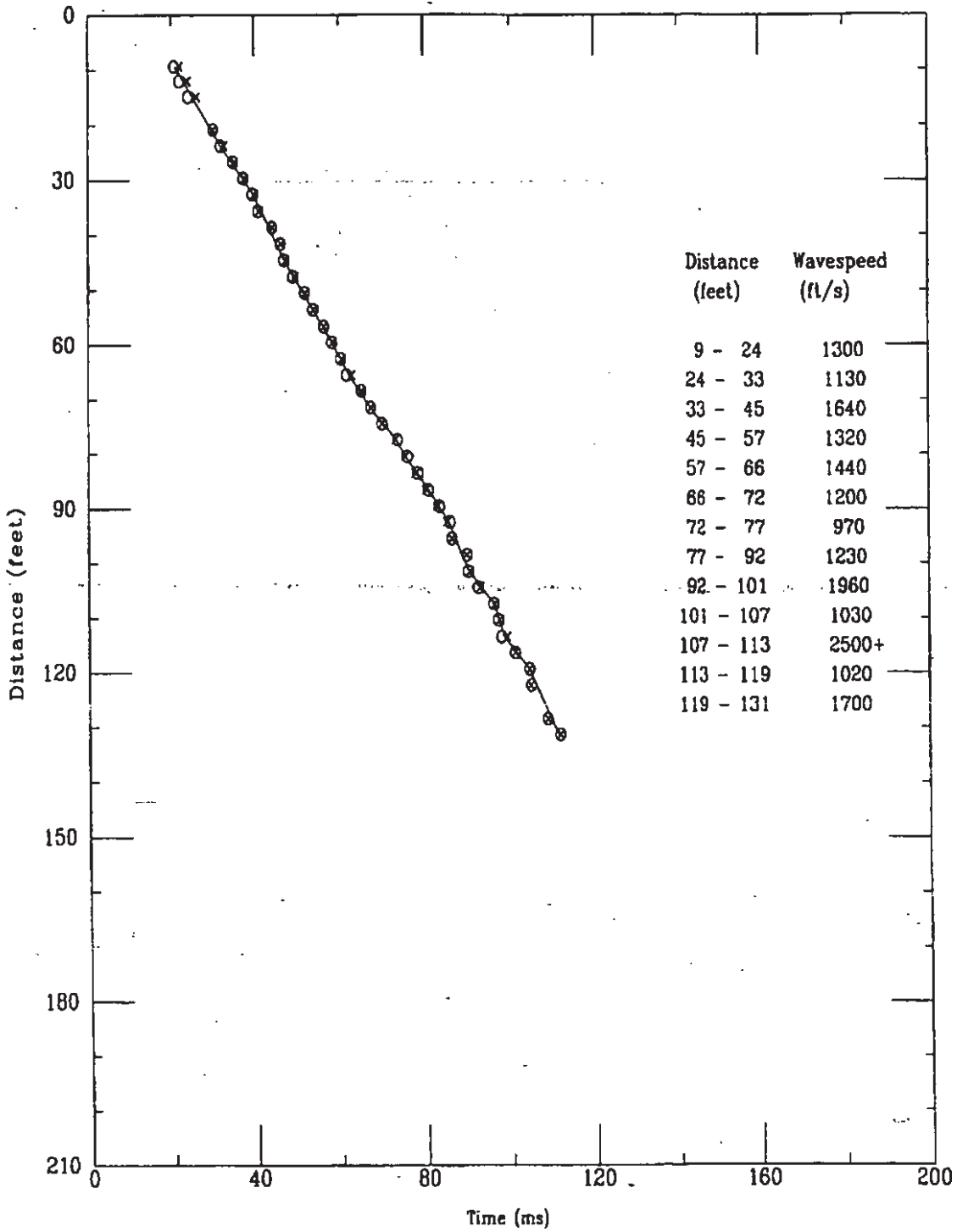


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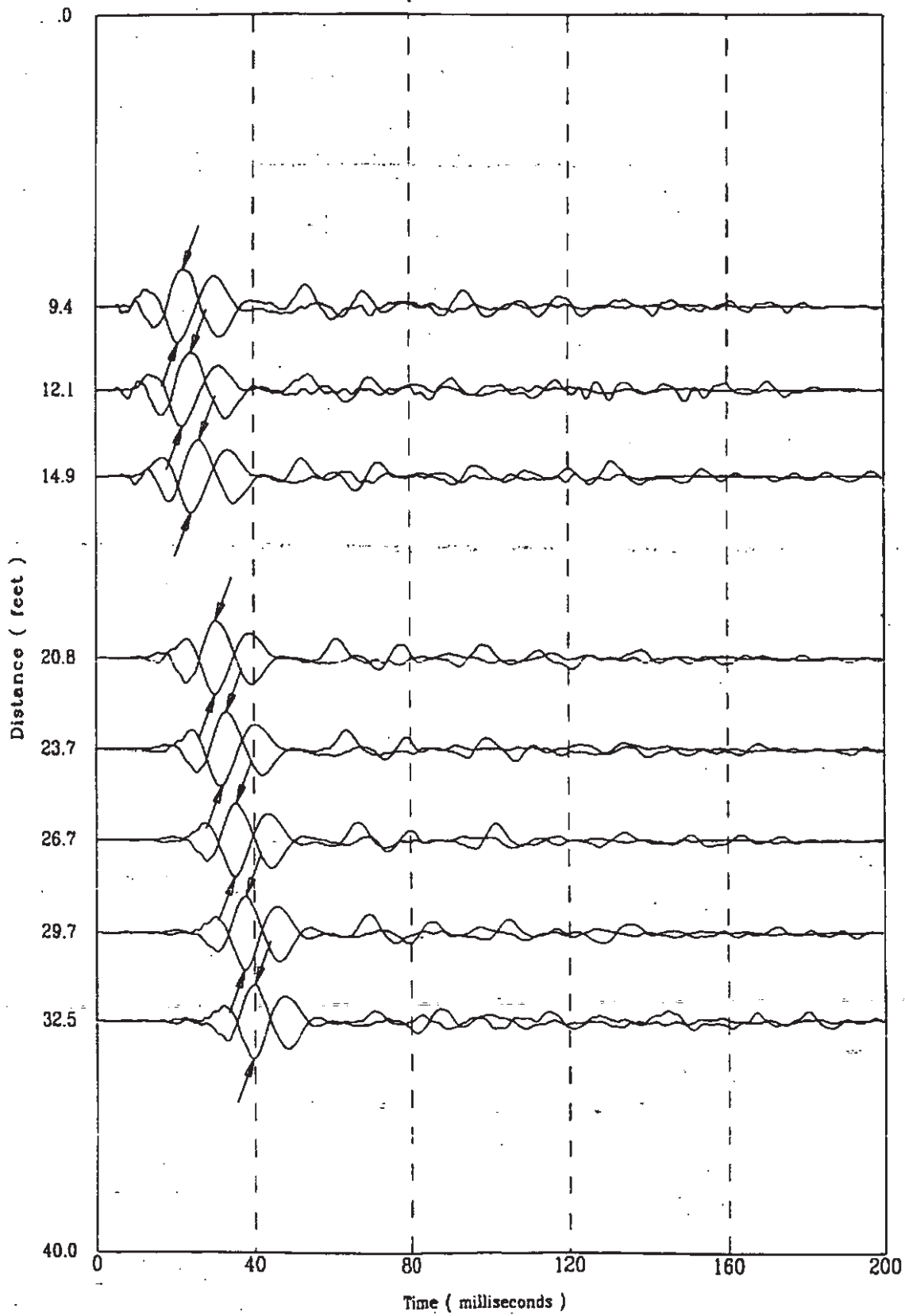
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Shear Wave Time of Peak



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CPT-171

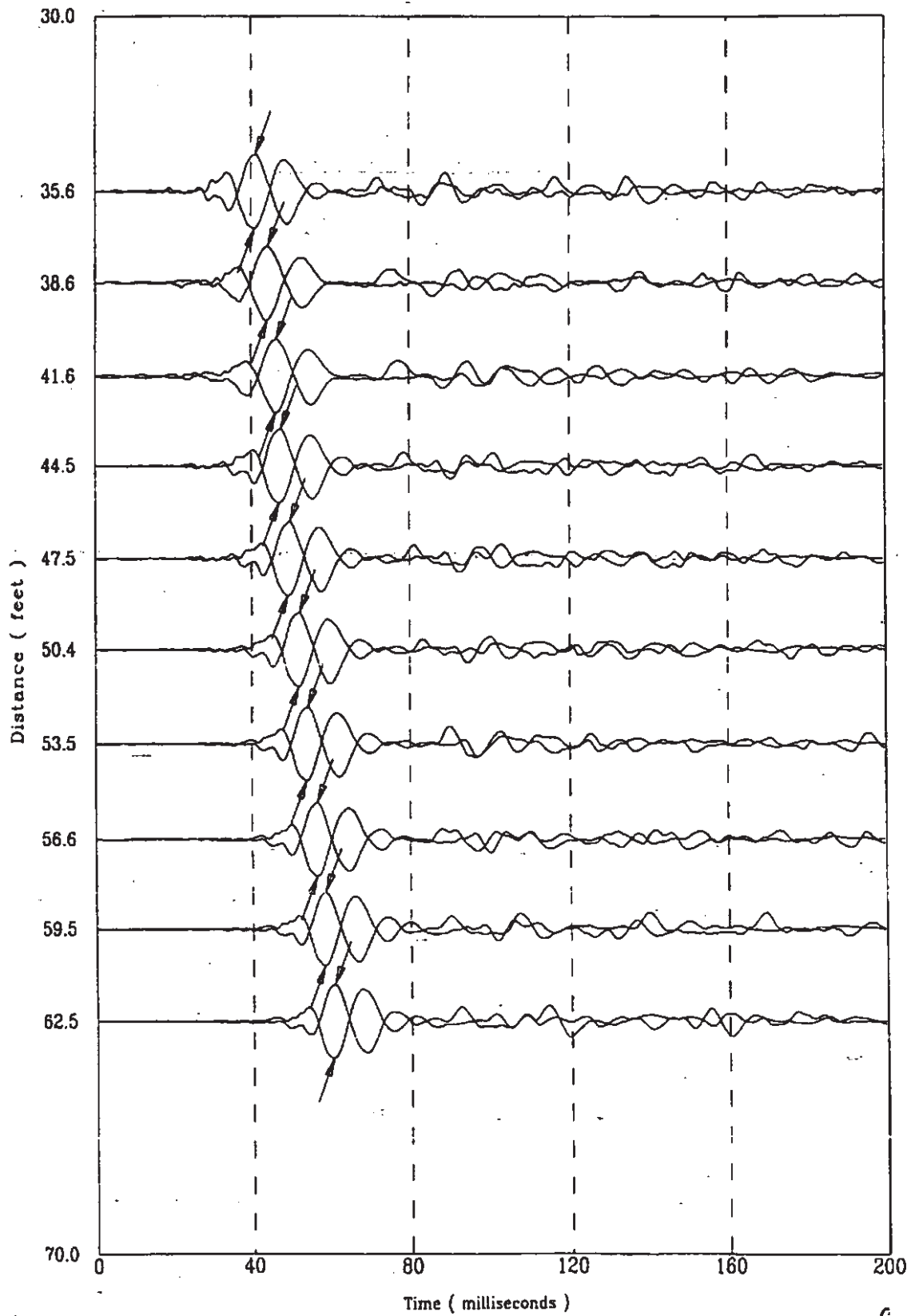
S Wave  
03/19/98



K-TRT-F-00001  
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S Wave  
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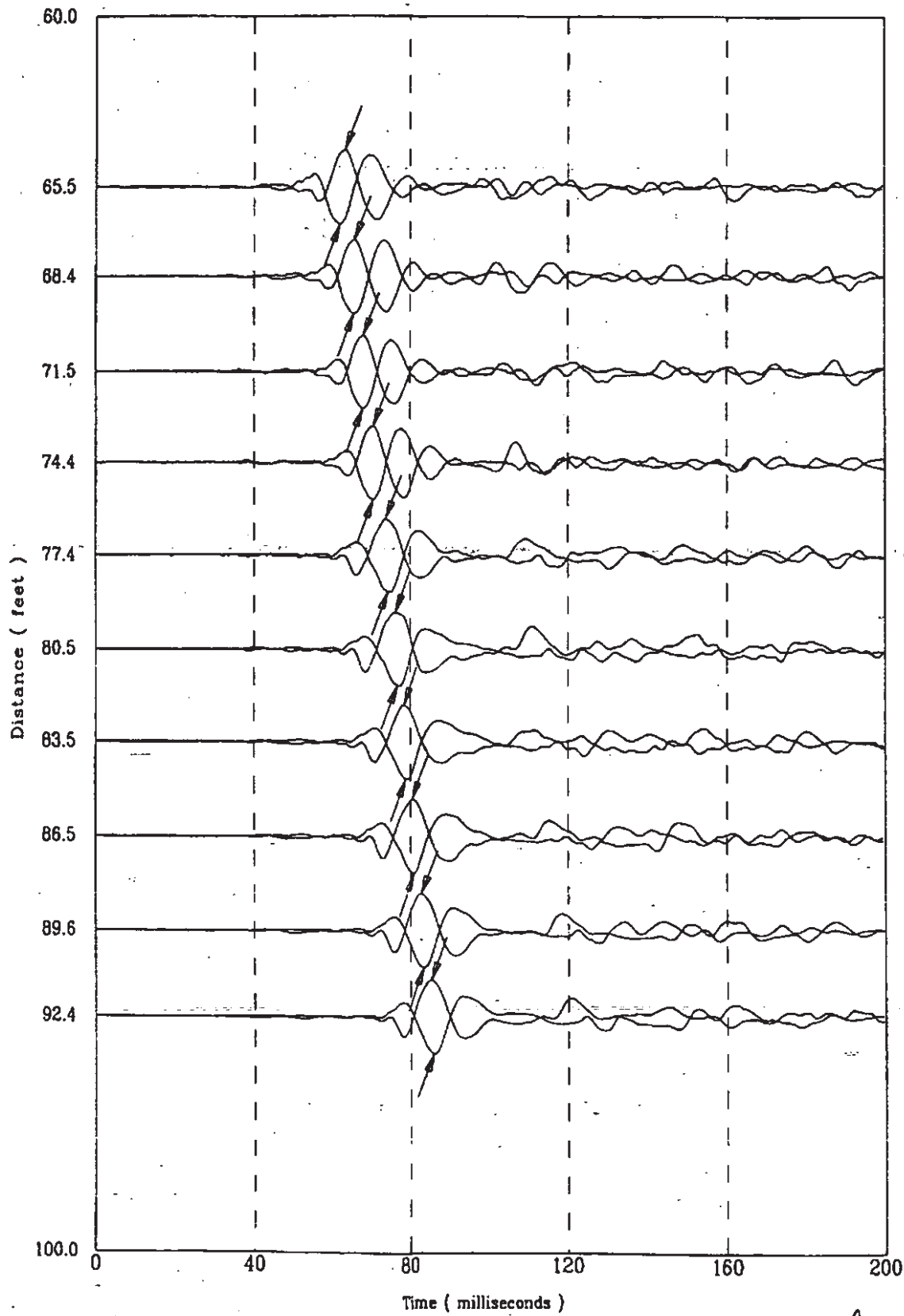
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Applied Research Associates  
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S Wave  
03/19/98



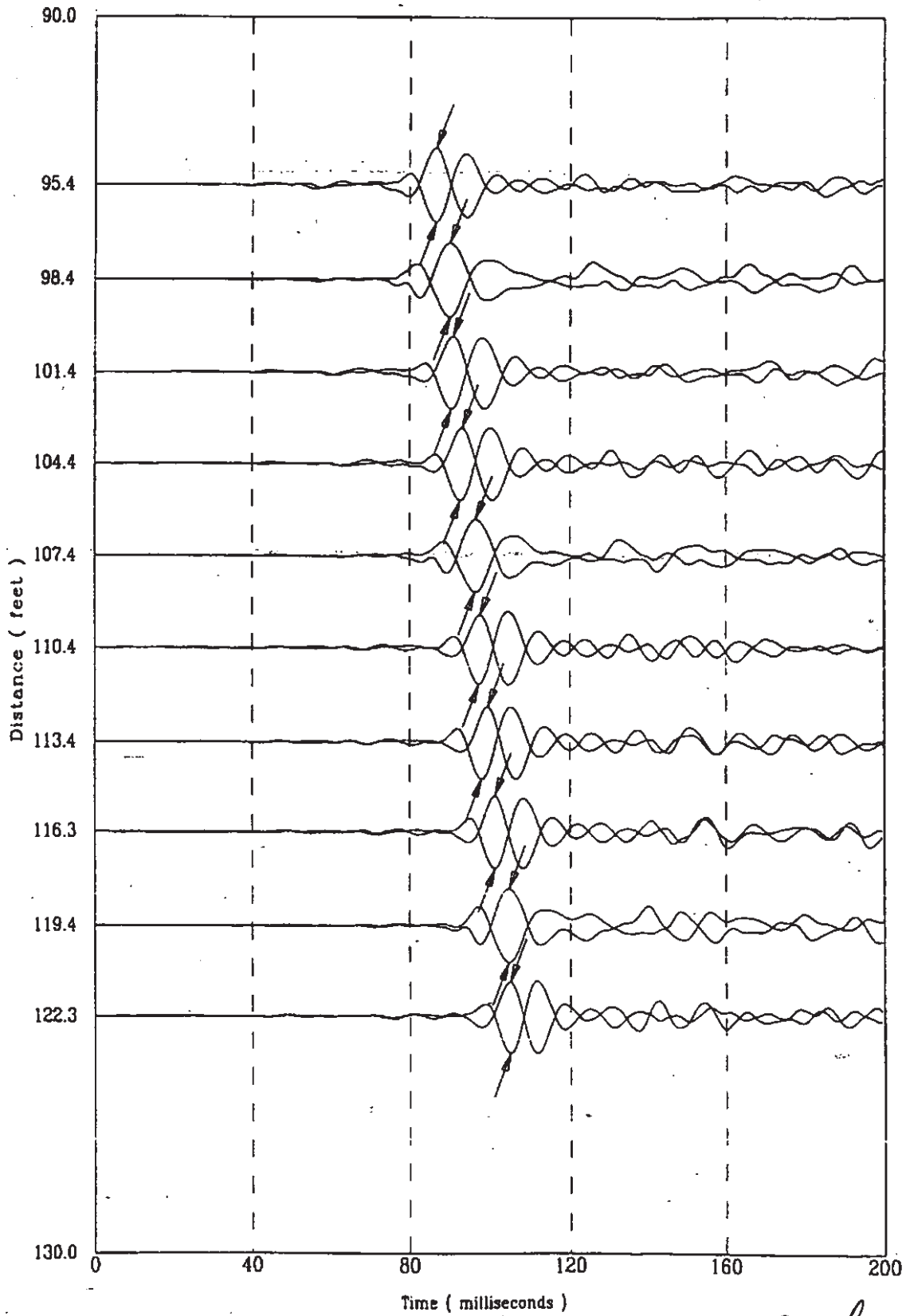
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R/O

Applied Research Associates  
CPT-171

S Wave  
03/19/98



119m8045

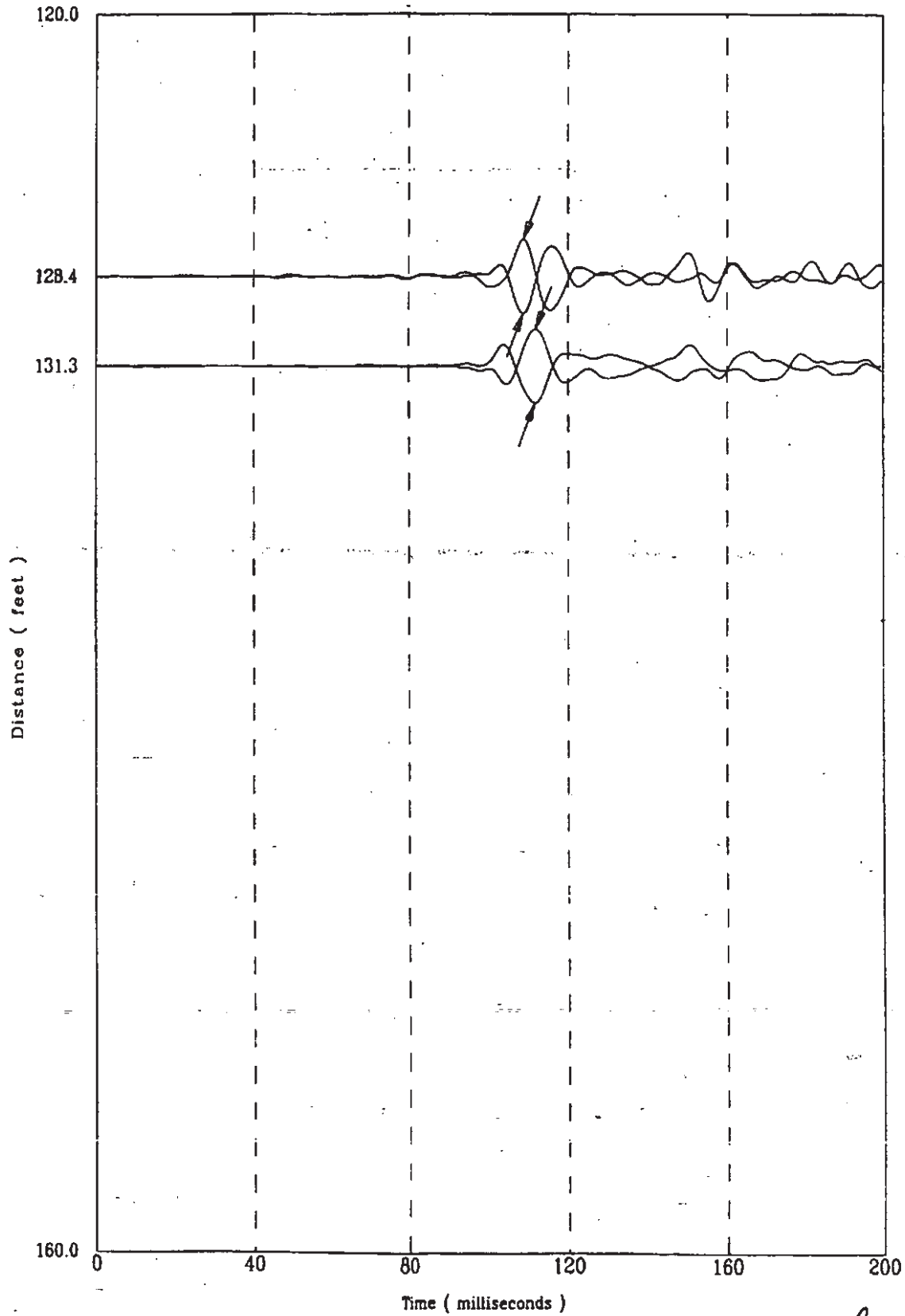
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R/O

Applied Research Associates  
CPT-171

S Wave  
03/19/98



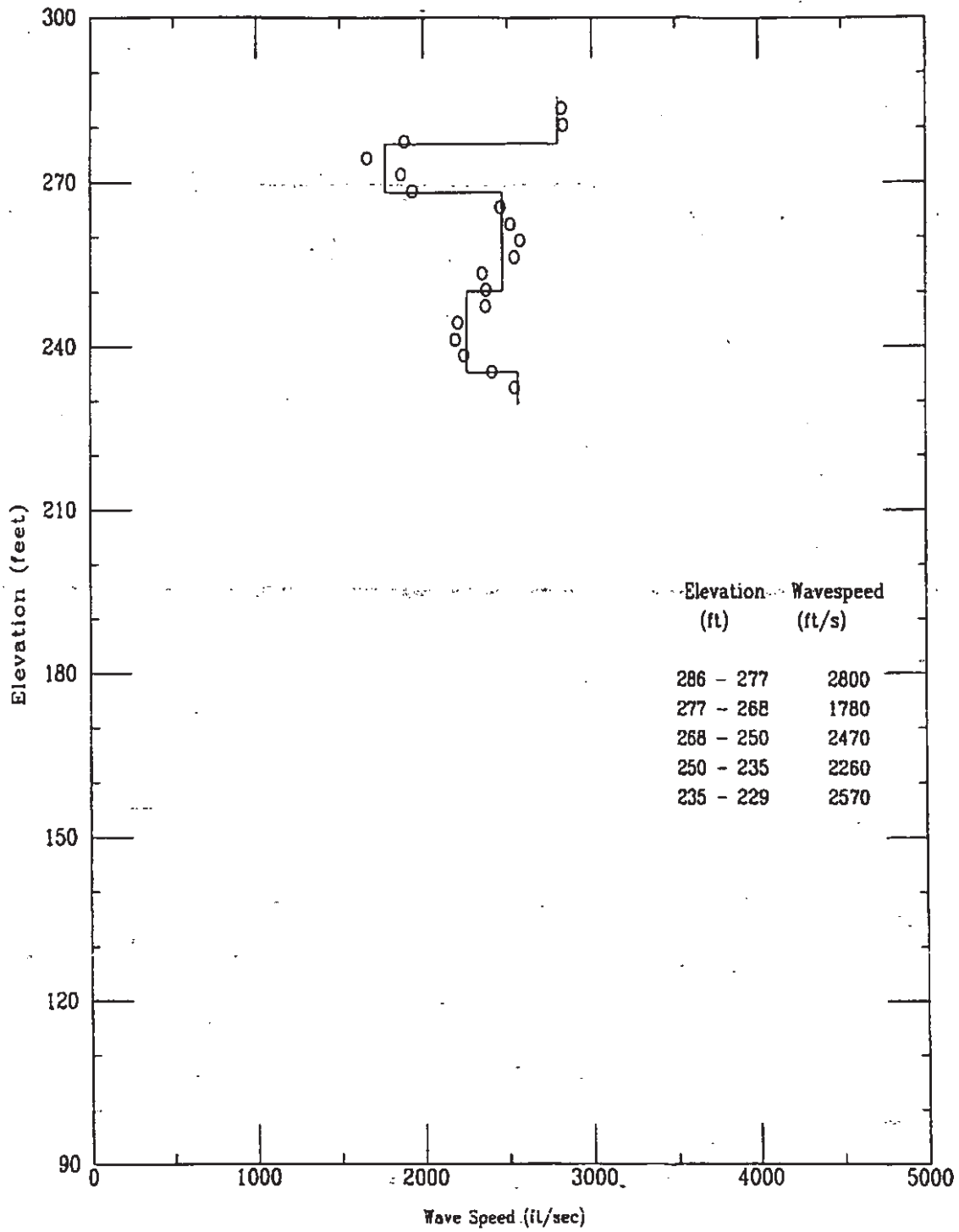
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Compression Wave Speeds

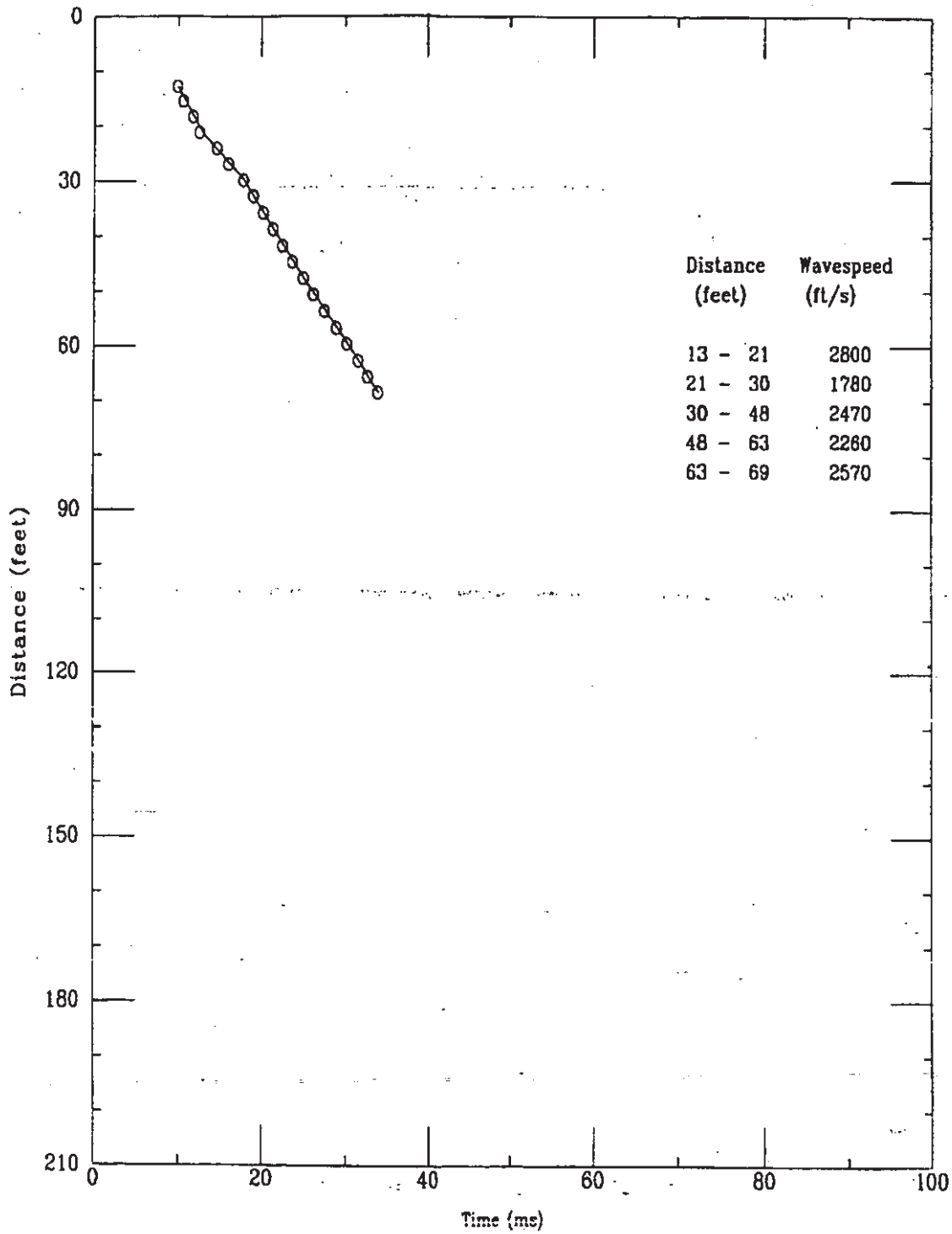
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Compression Wave Time of Peak

03/19/98

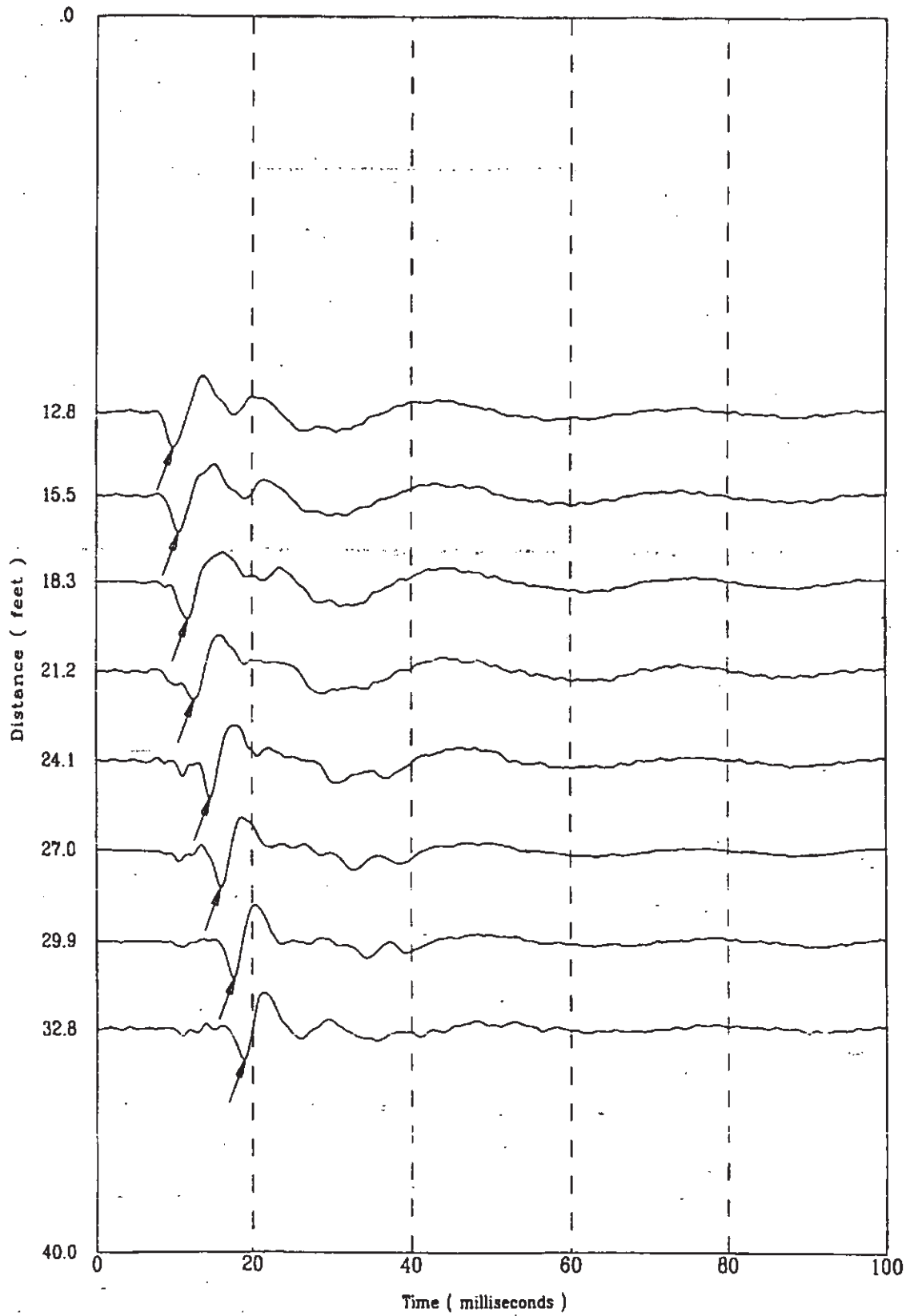


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R/O

Applied Research Associates, Inc.  
CPT-171

P Wave  
03/19/98



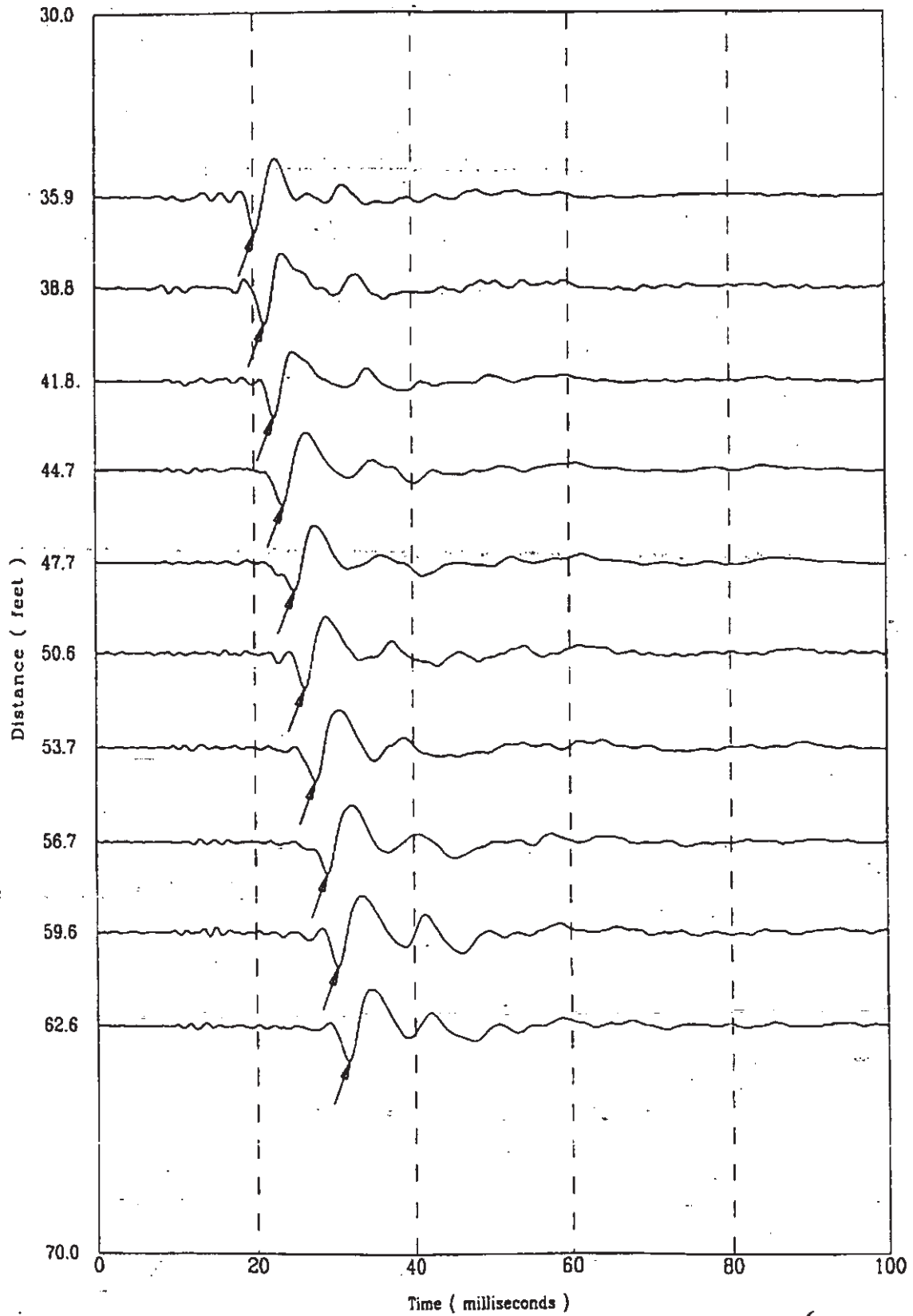
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R/O

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P Wave  
03/19/98



File 419m8045

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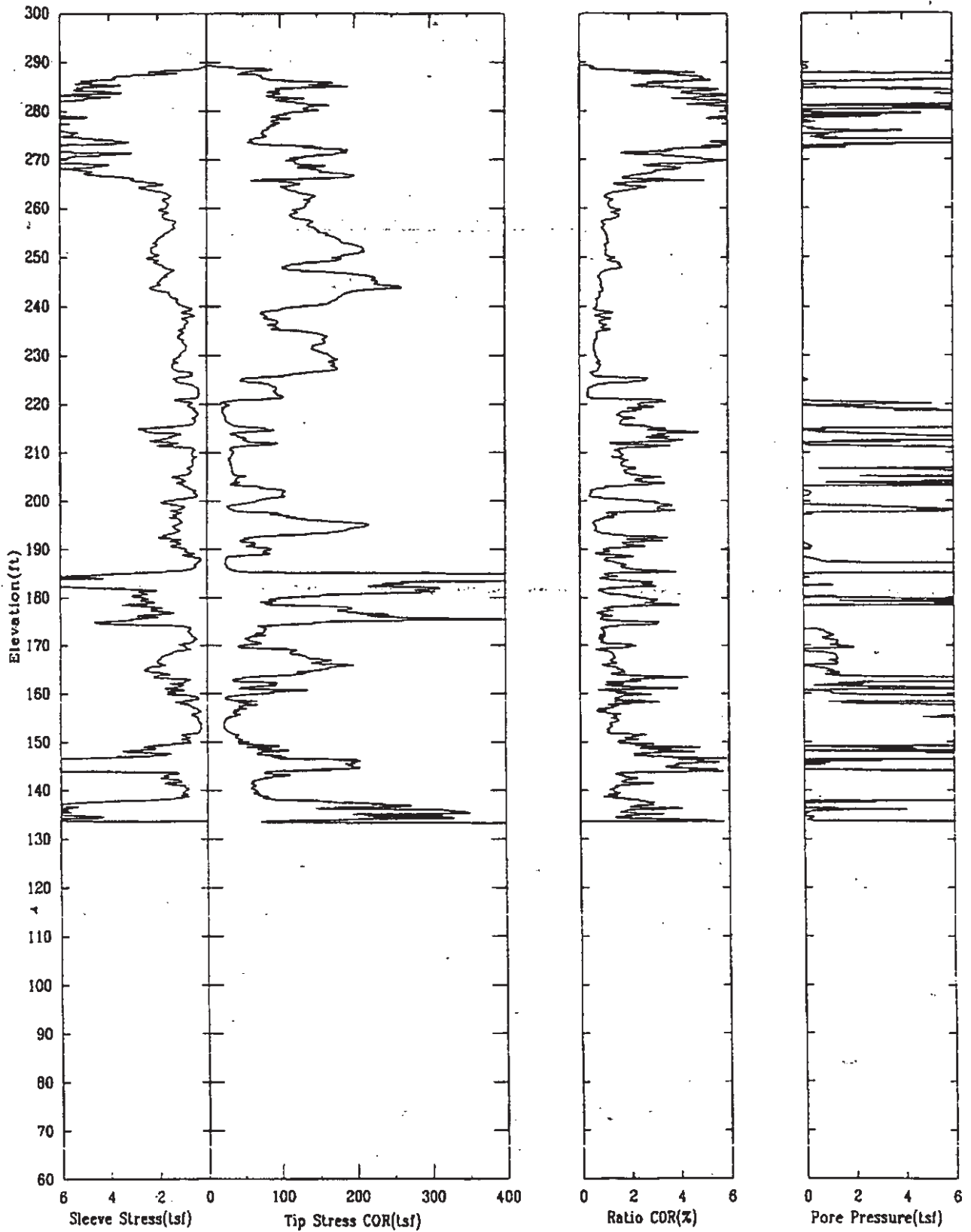
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03/25/98 R/O

North 78900

East 55518

Elevation 295.4



CPT-172

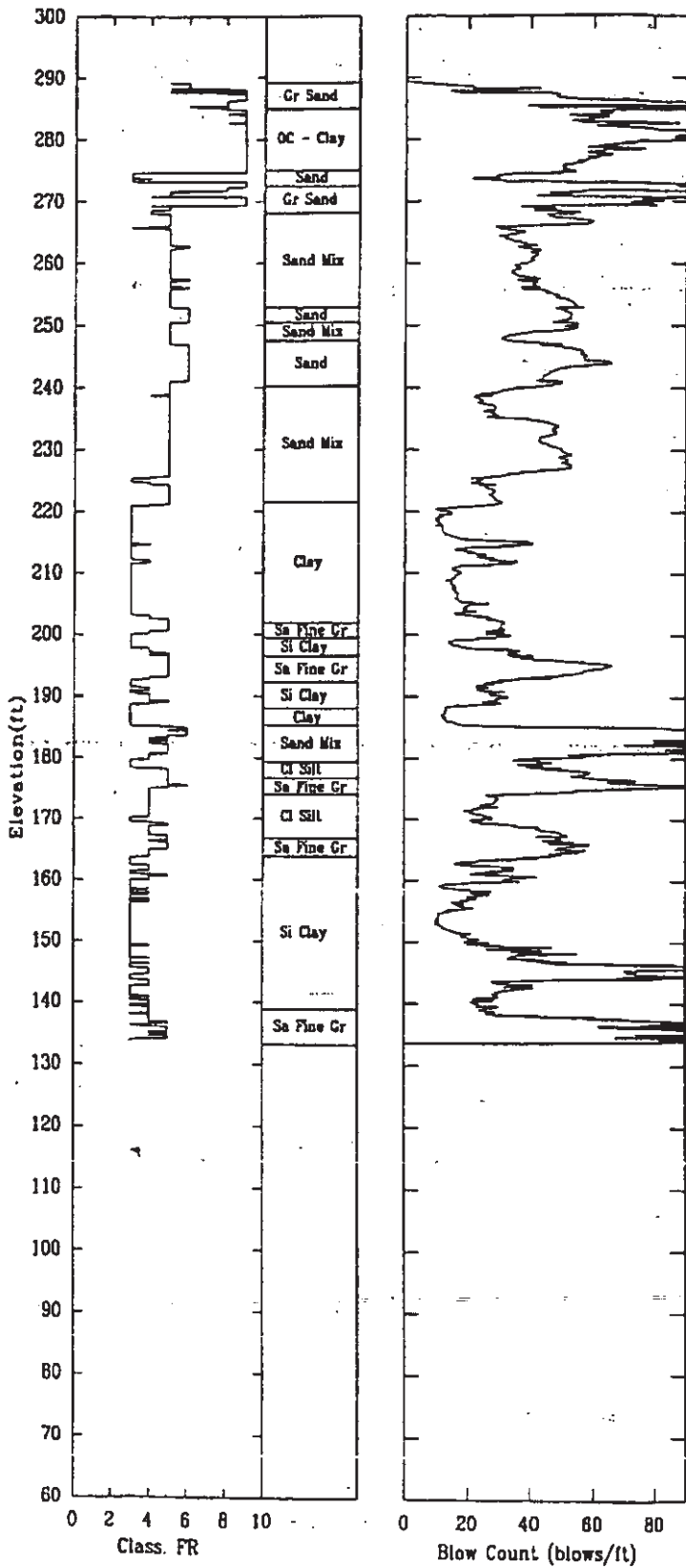
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North 78900

East 55518

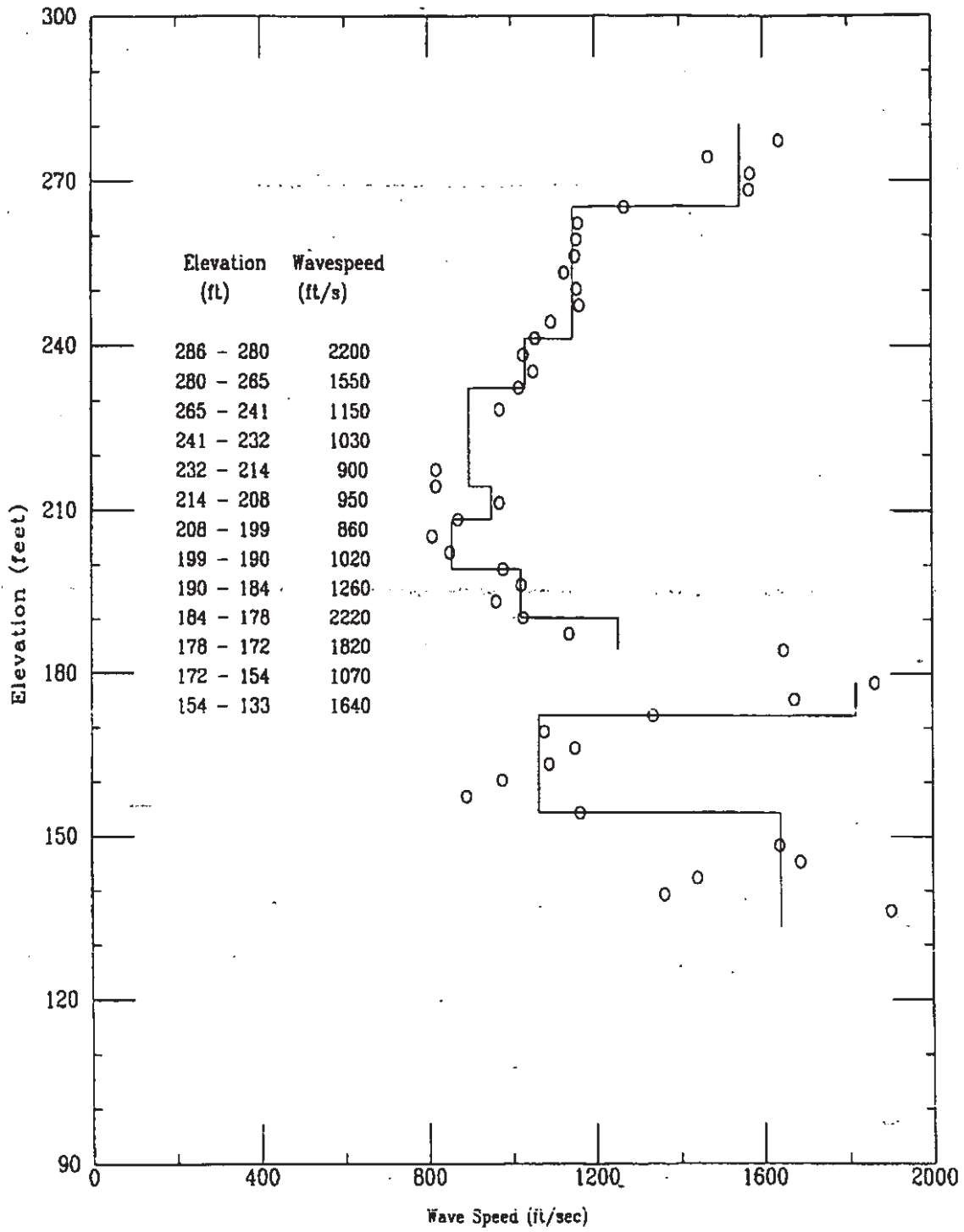
Elevation 295.4



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APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Speeds

03/25/98



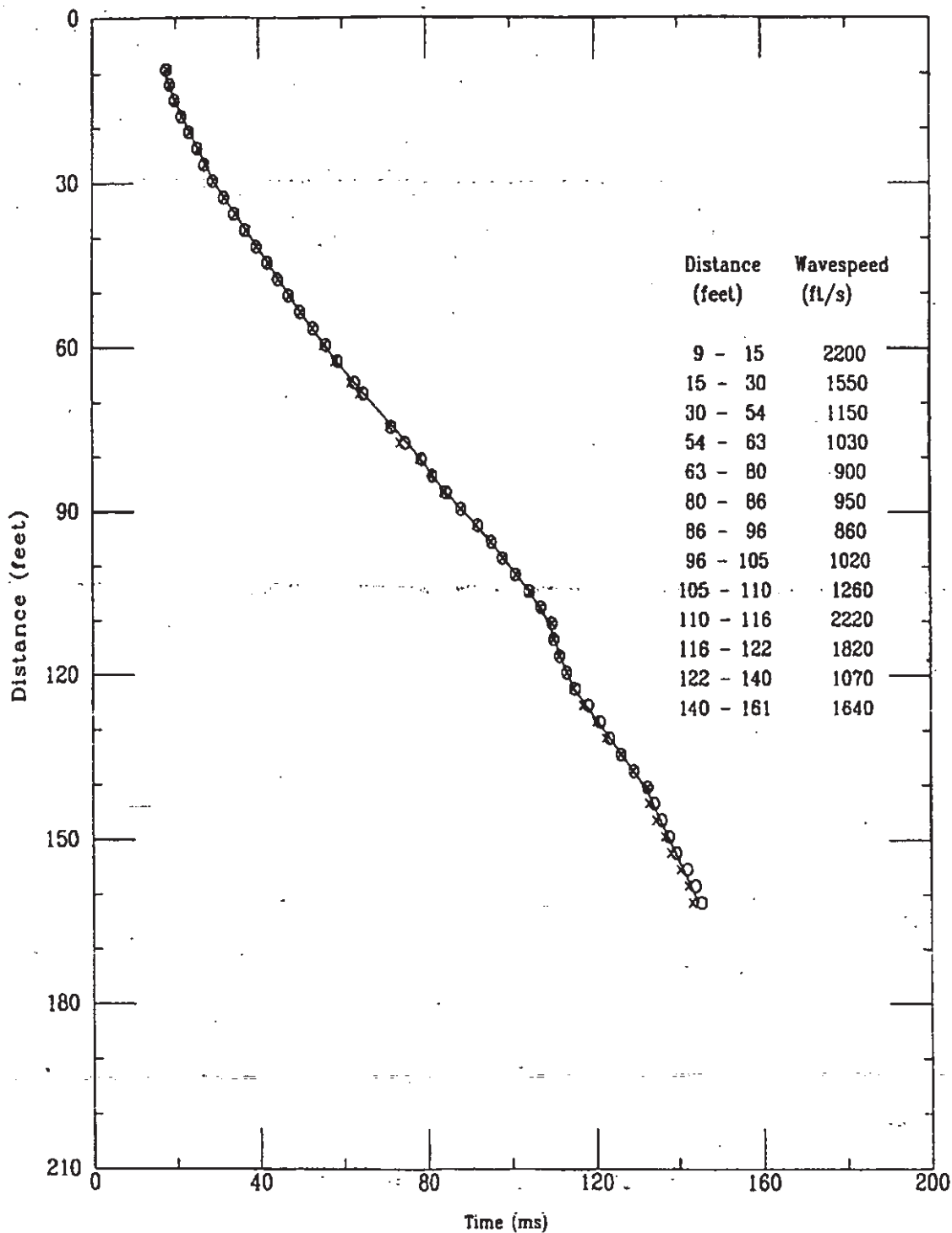


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APPLIED RESEARCH ASSOCIATES, INC.

03/25/98

Shear Wave Time of Peak

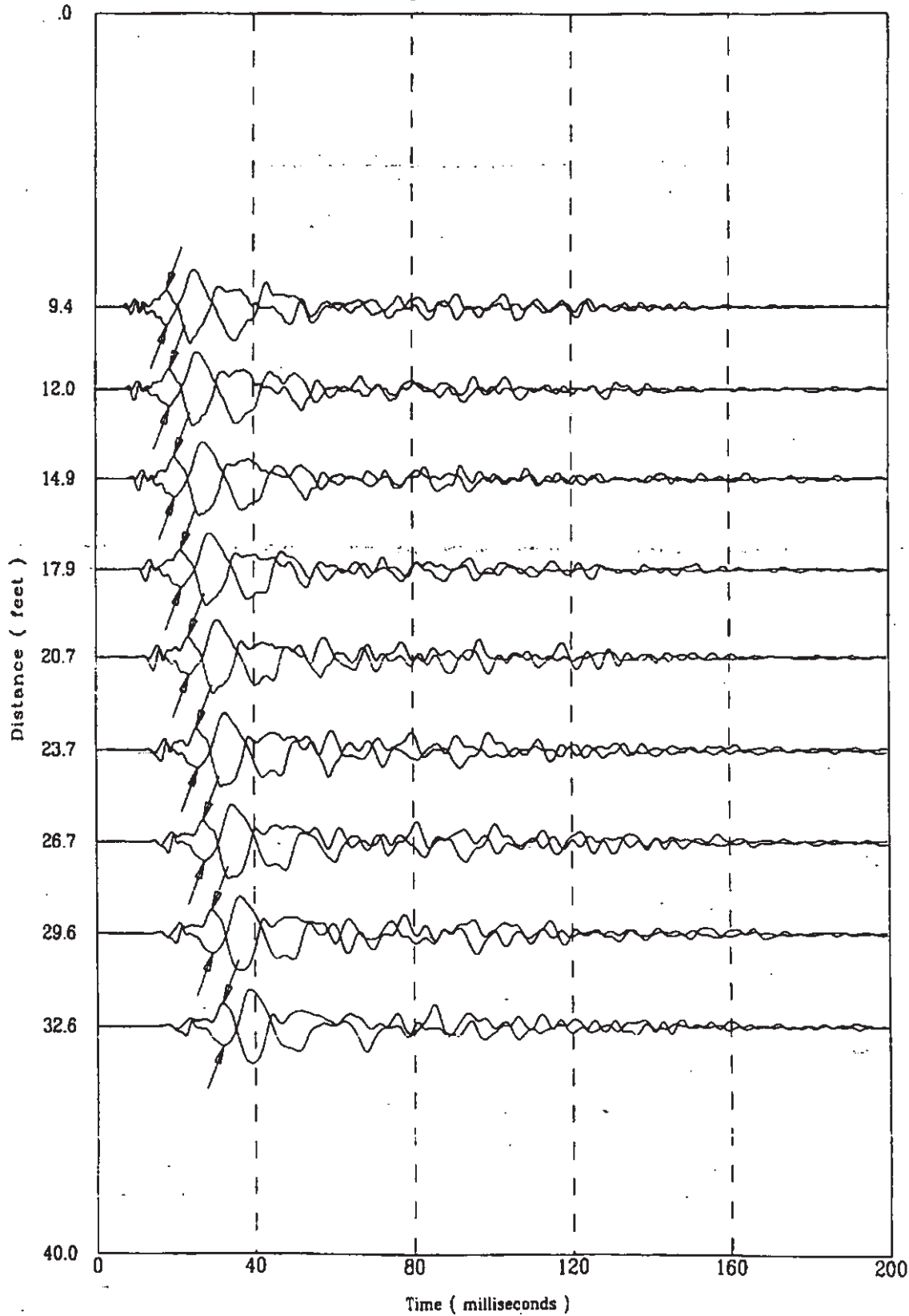


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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-172

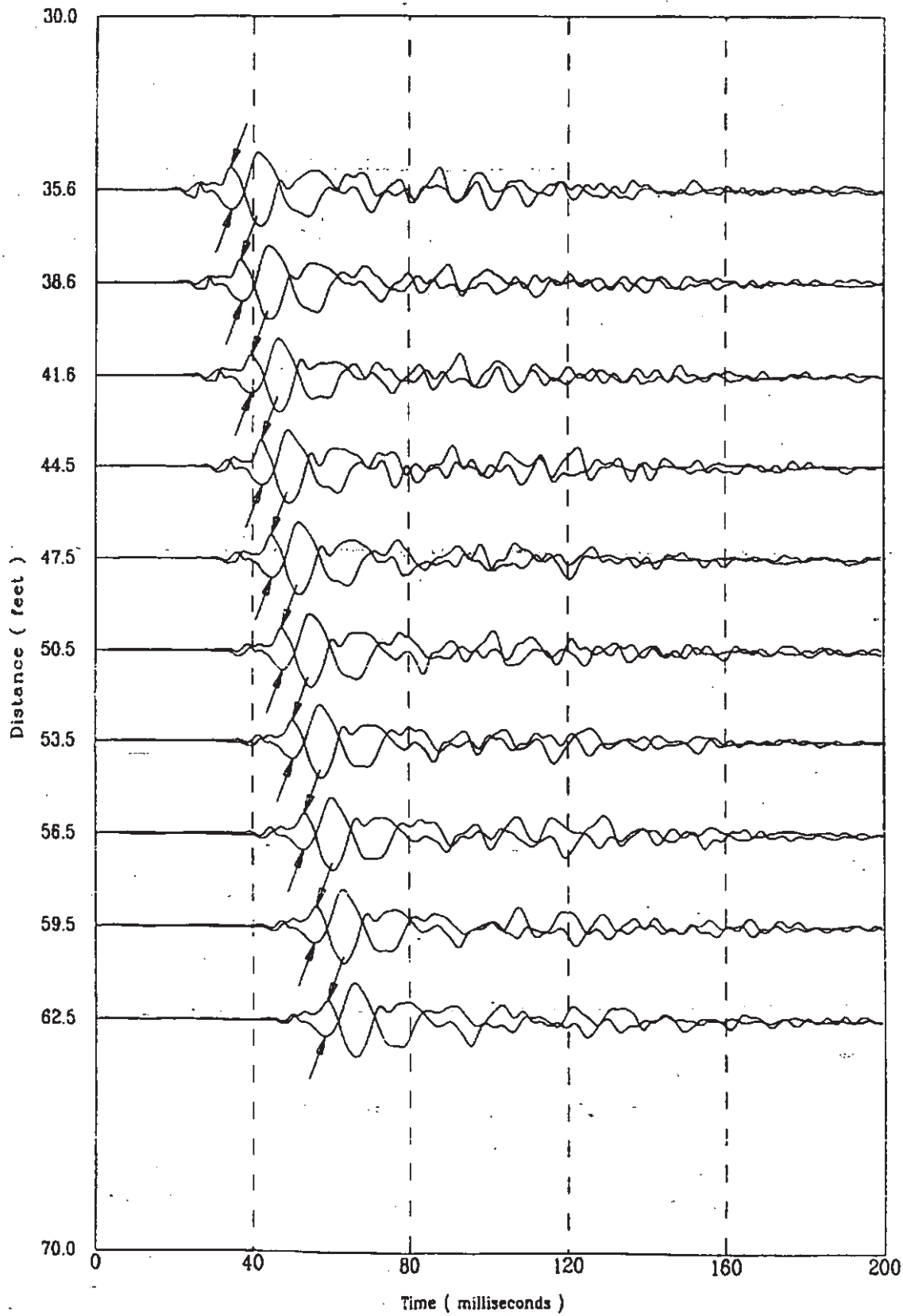
S Wave  
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Applied Research Associates, Inc.  
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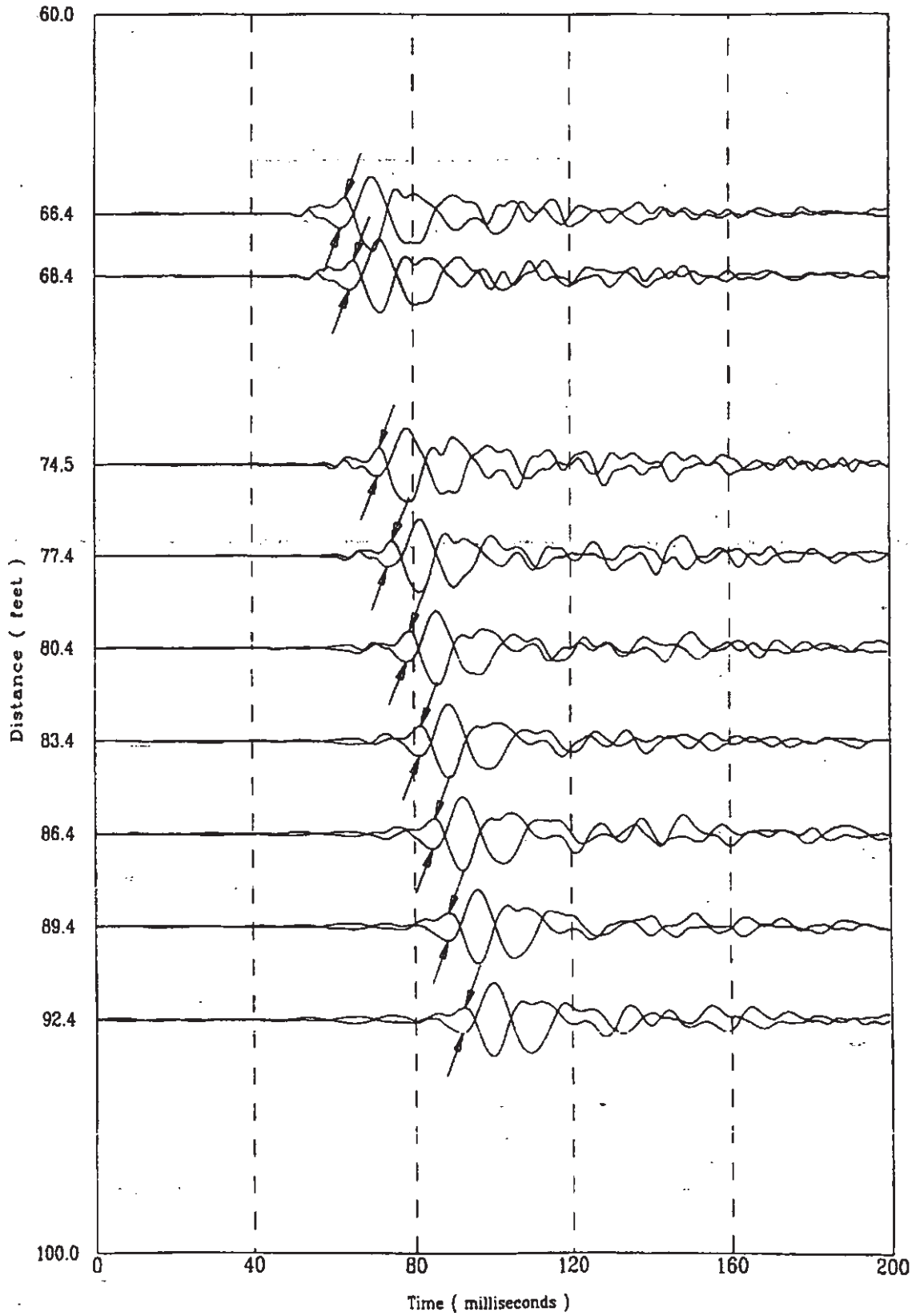
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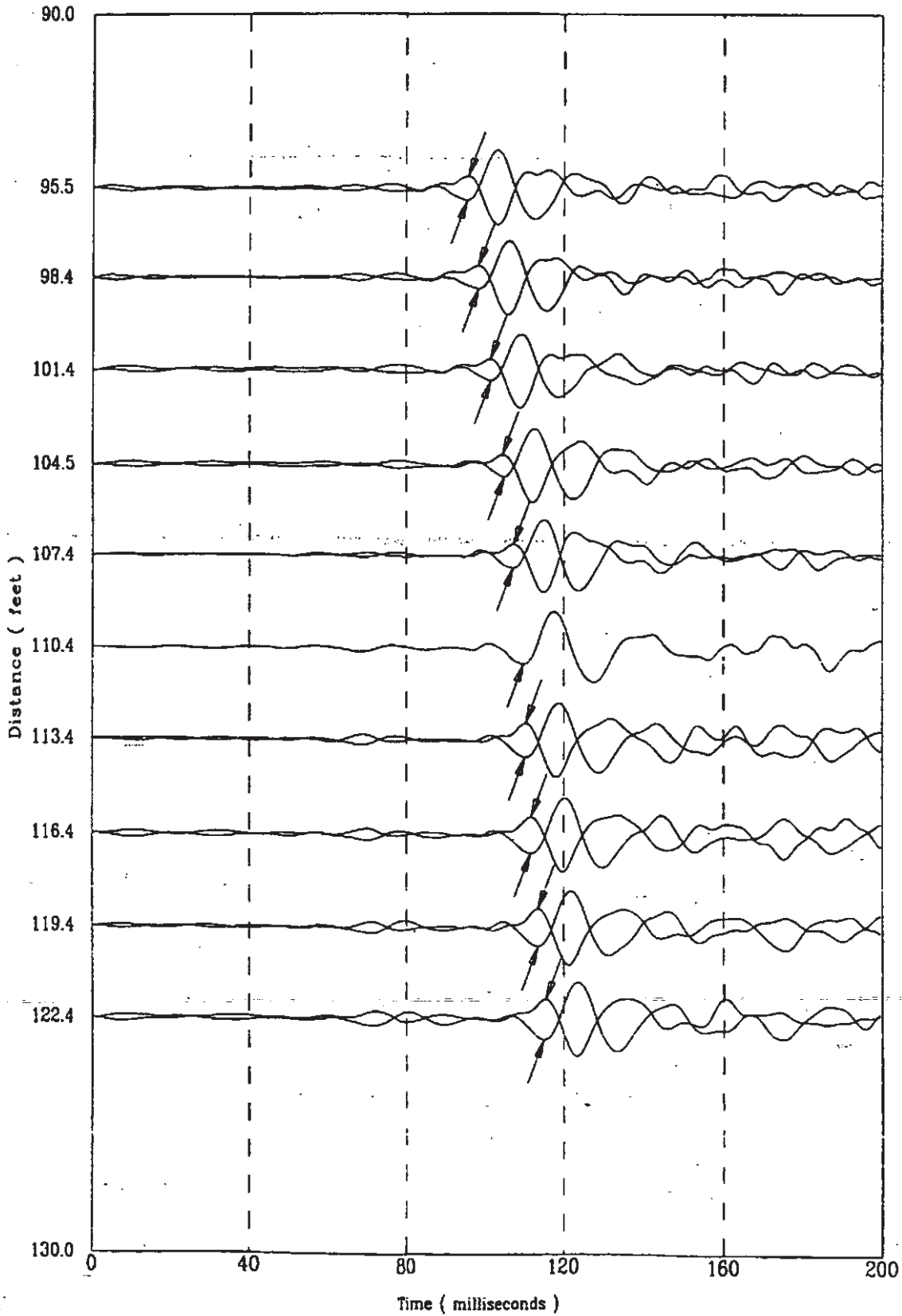


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Applied Research Associates, Inc.  
CPT-172

S Wave  
03/25/98



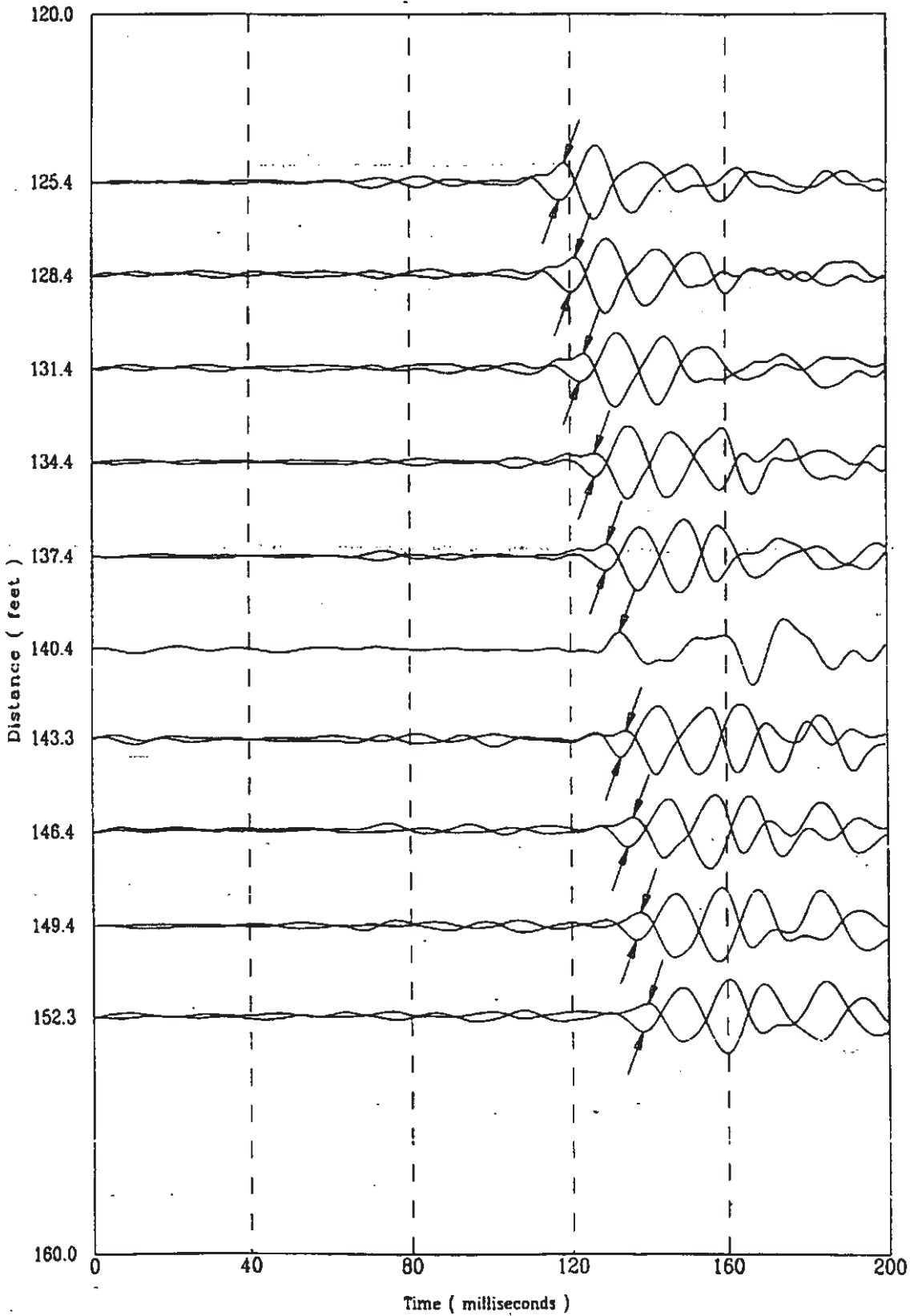
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Applied Research Associates, Inc.  
CPT-172

S Wave  
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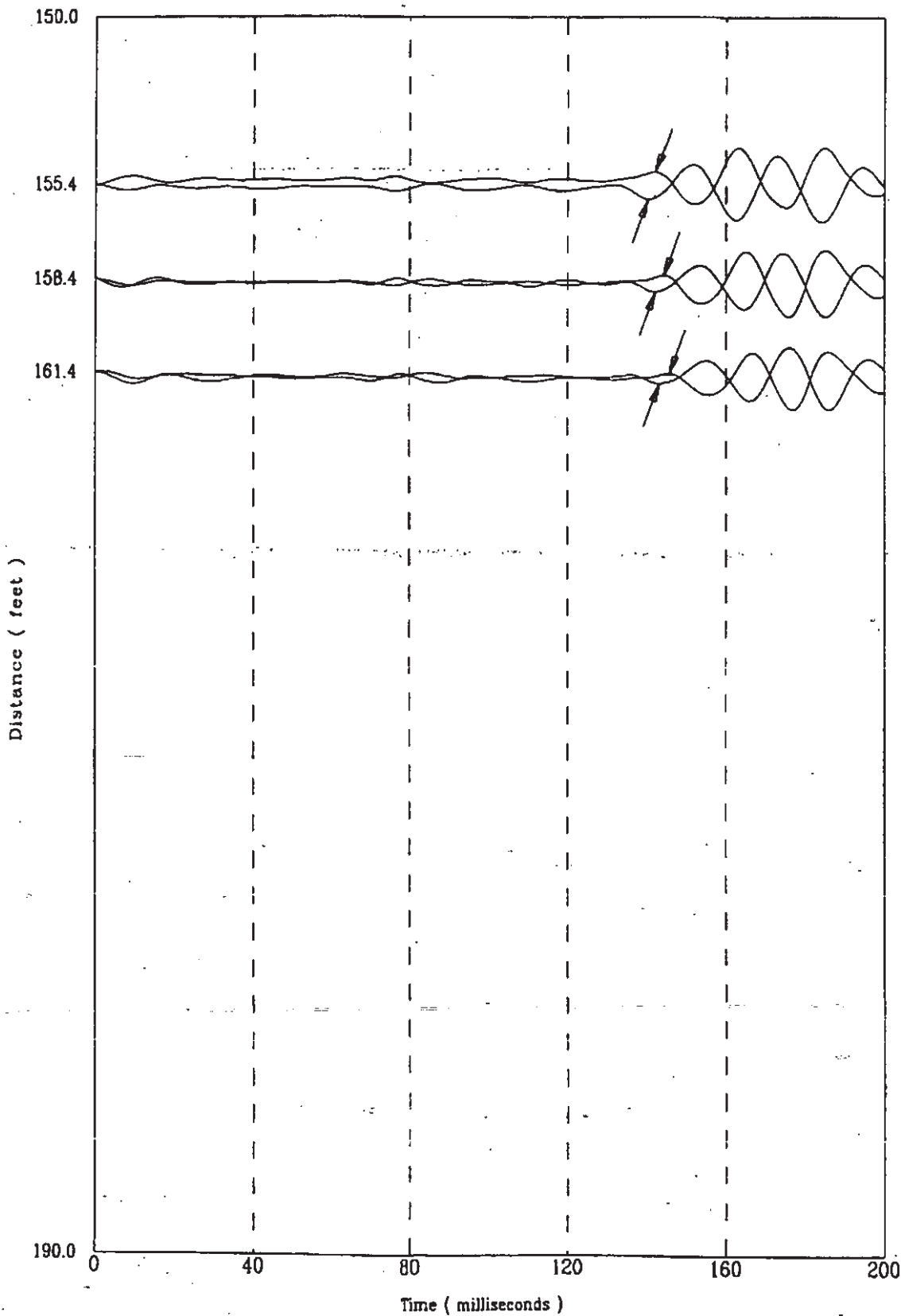


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Applied Research Associates, Inc.  
CPT-172

S Wave  
03/25/98



File 325m801S

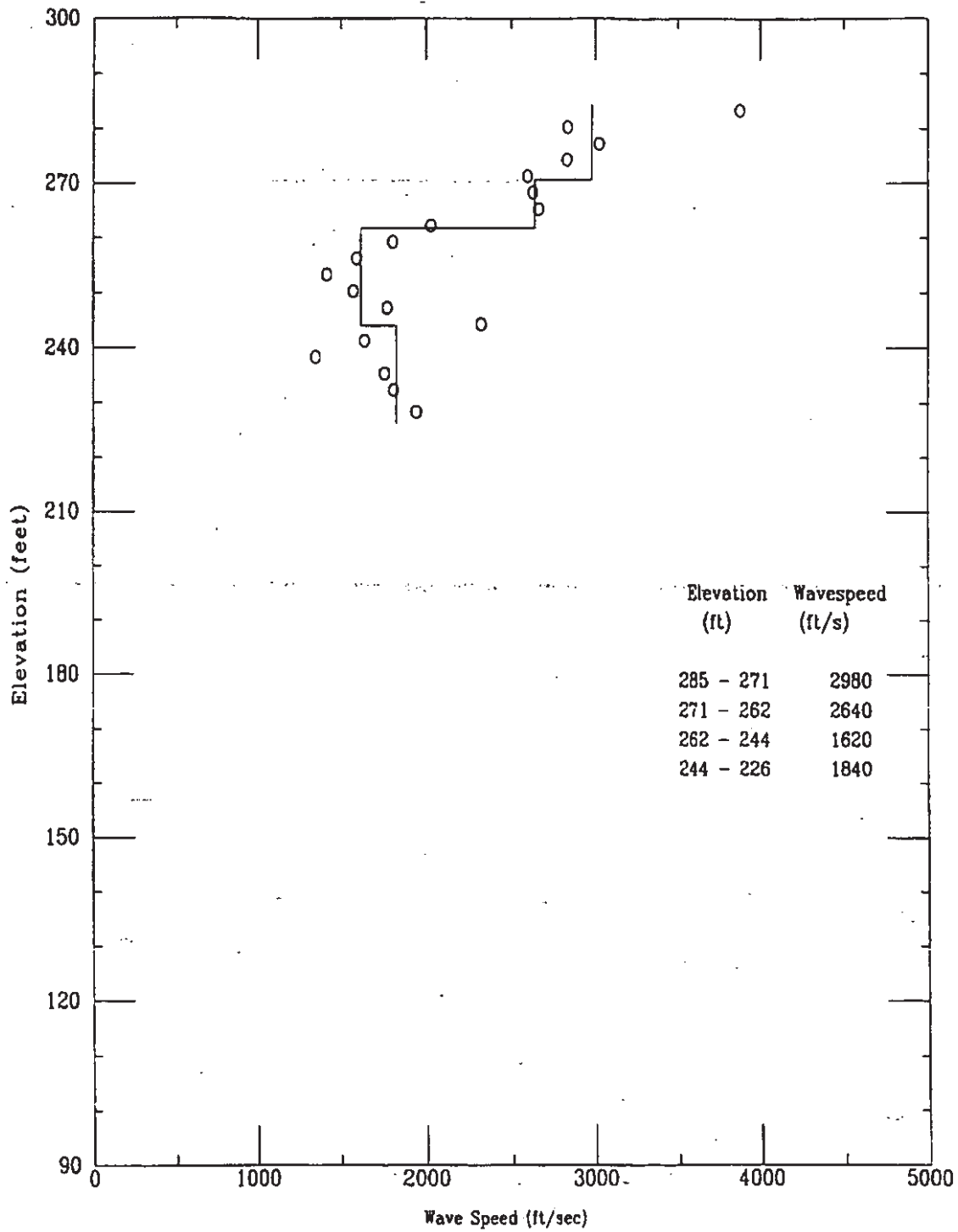
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APPLIED RESEARCH ASSOCIATES, INC.

03/25/98

Compression Wave Speeds

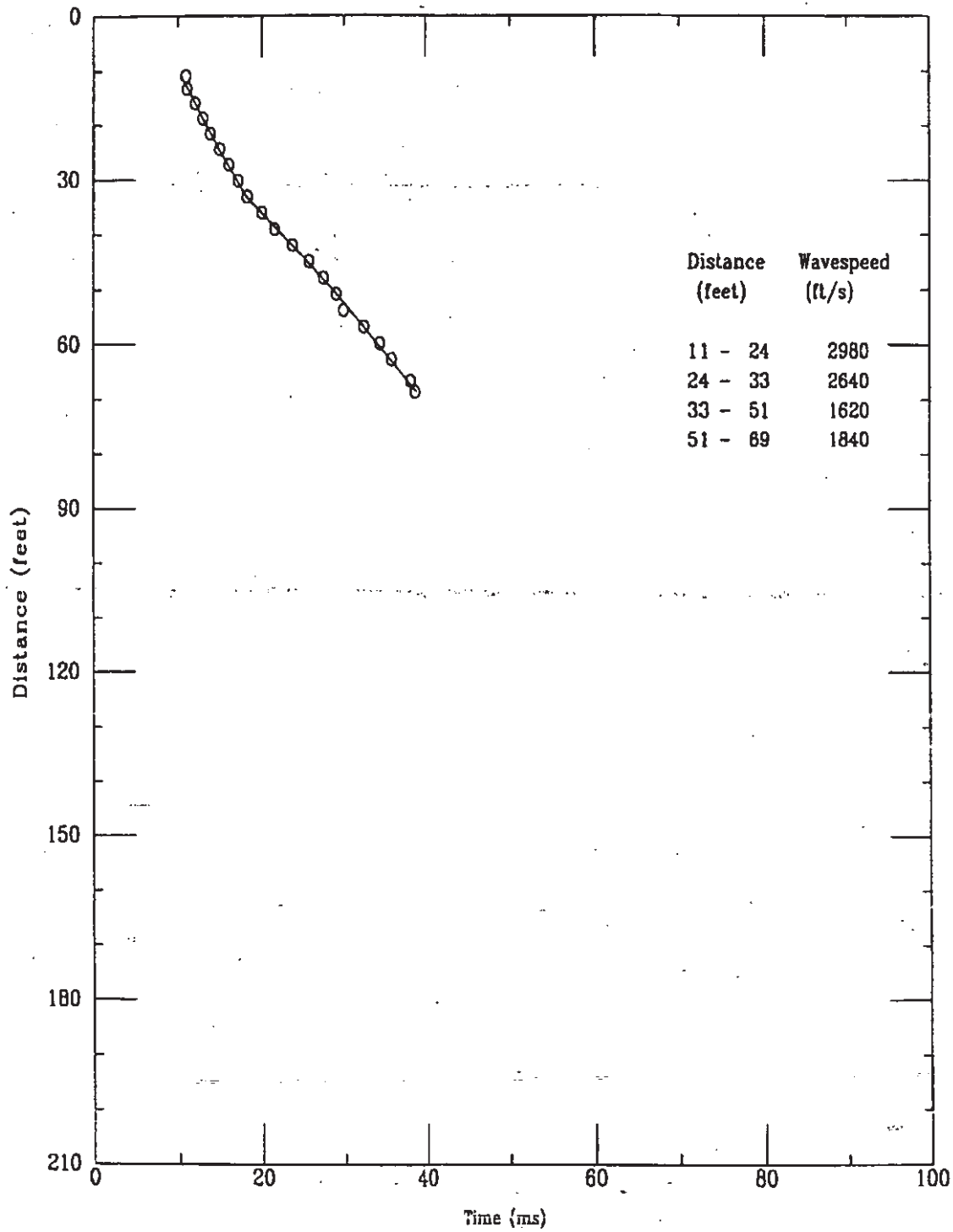




CPT-172

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/25/98



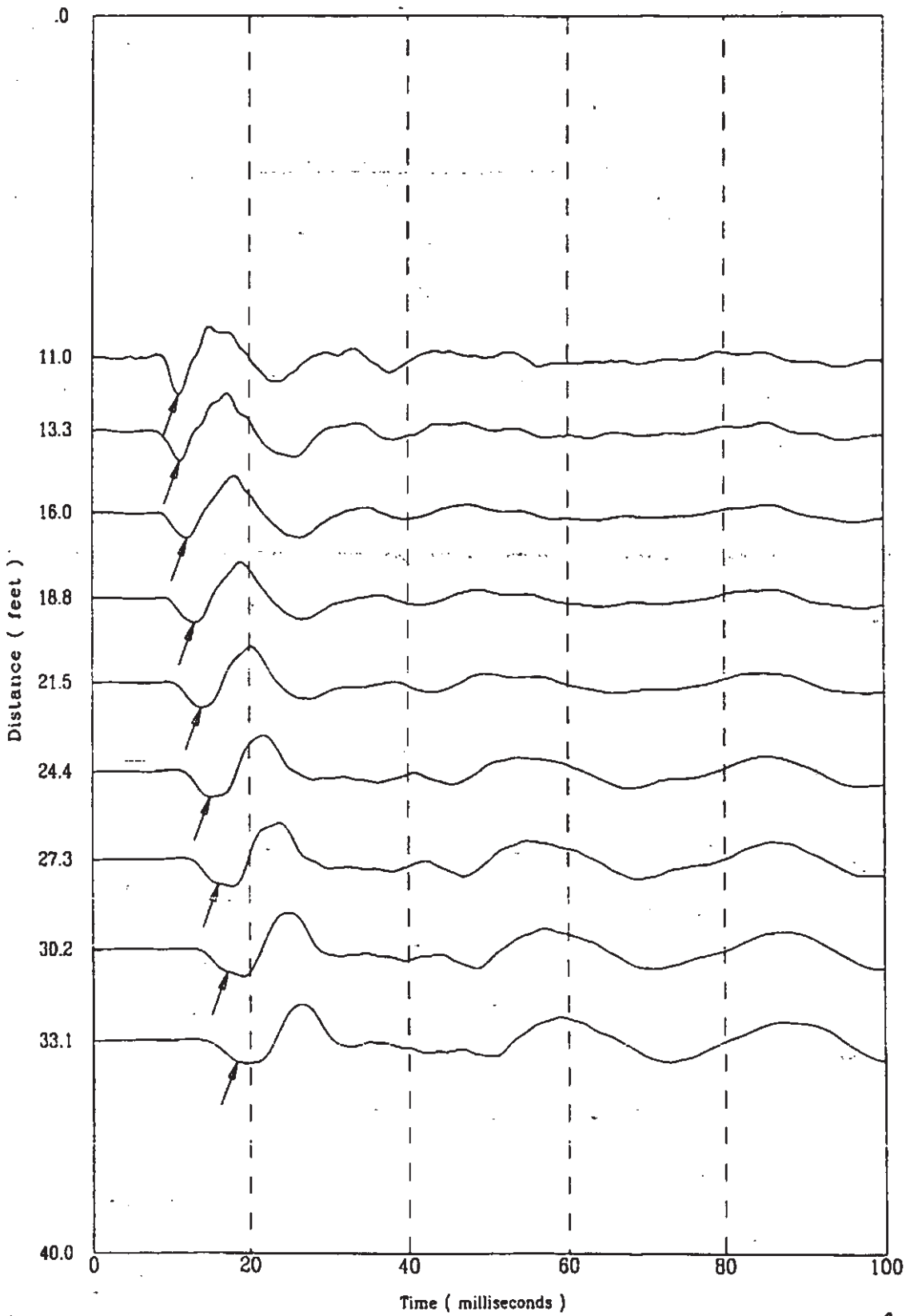
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-172

P Wave  
03/25/98

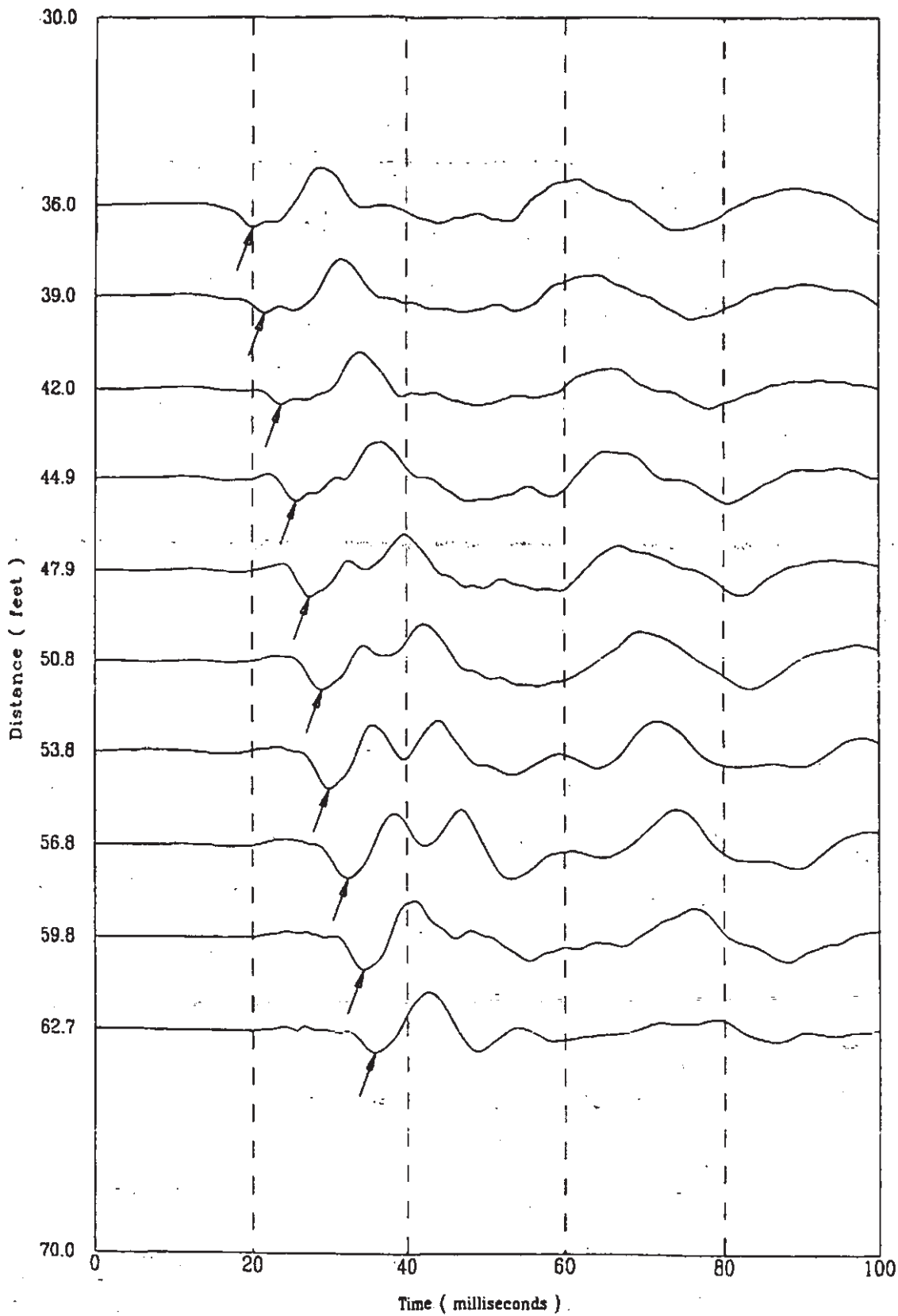


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Applied Research Associates, Inc.  
CPT-172

P Wave  
03/25/98



CPT-173

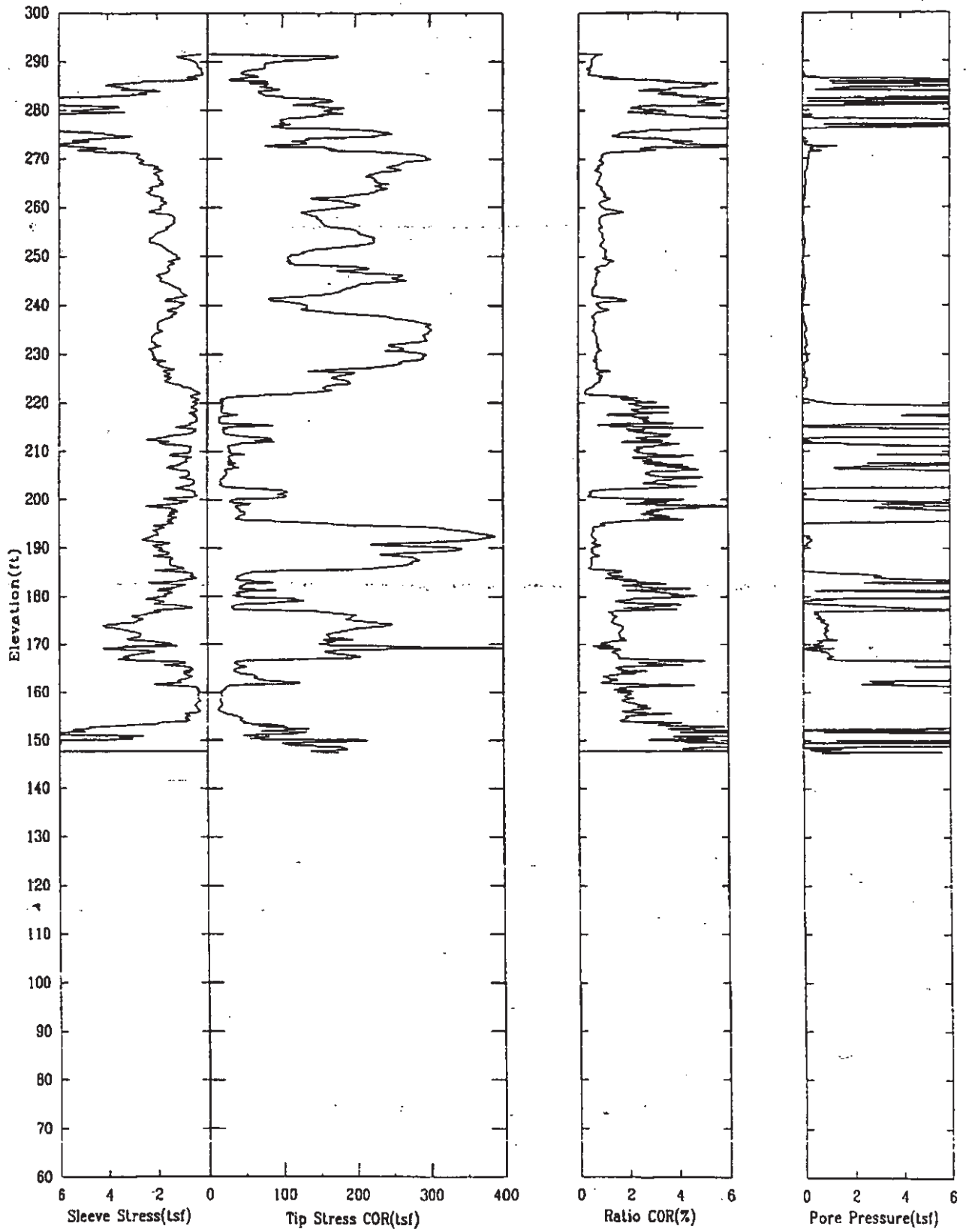
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K-TRT-F-00001  
03/27/98 / 0

North 78900

East 55650

Elevation 297.6



CPT-173

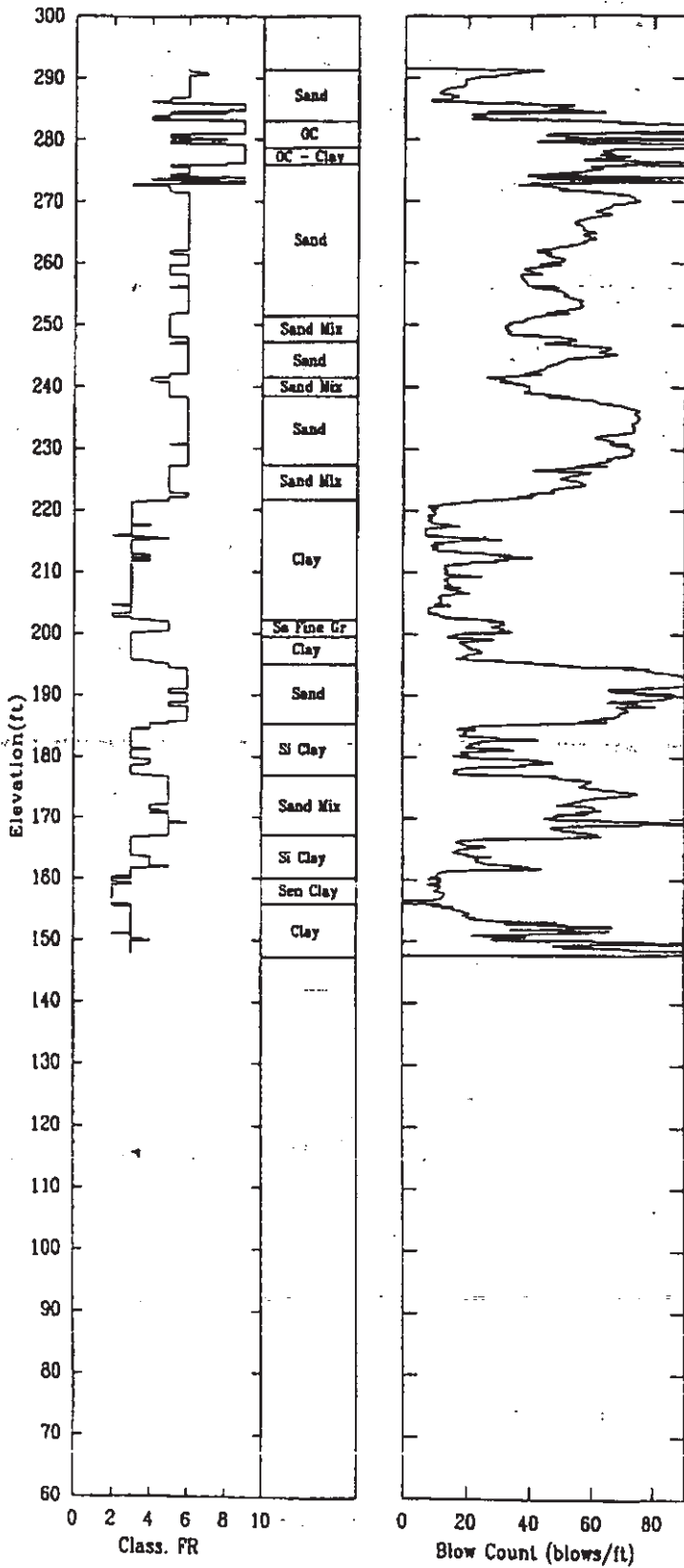
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North 78900

East 55650

Elevation 297.6



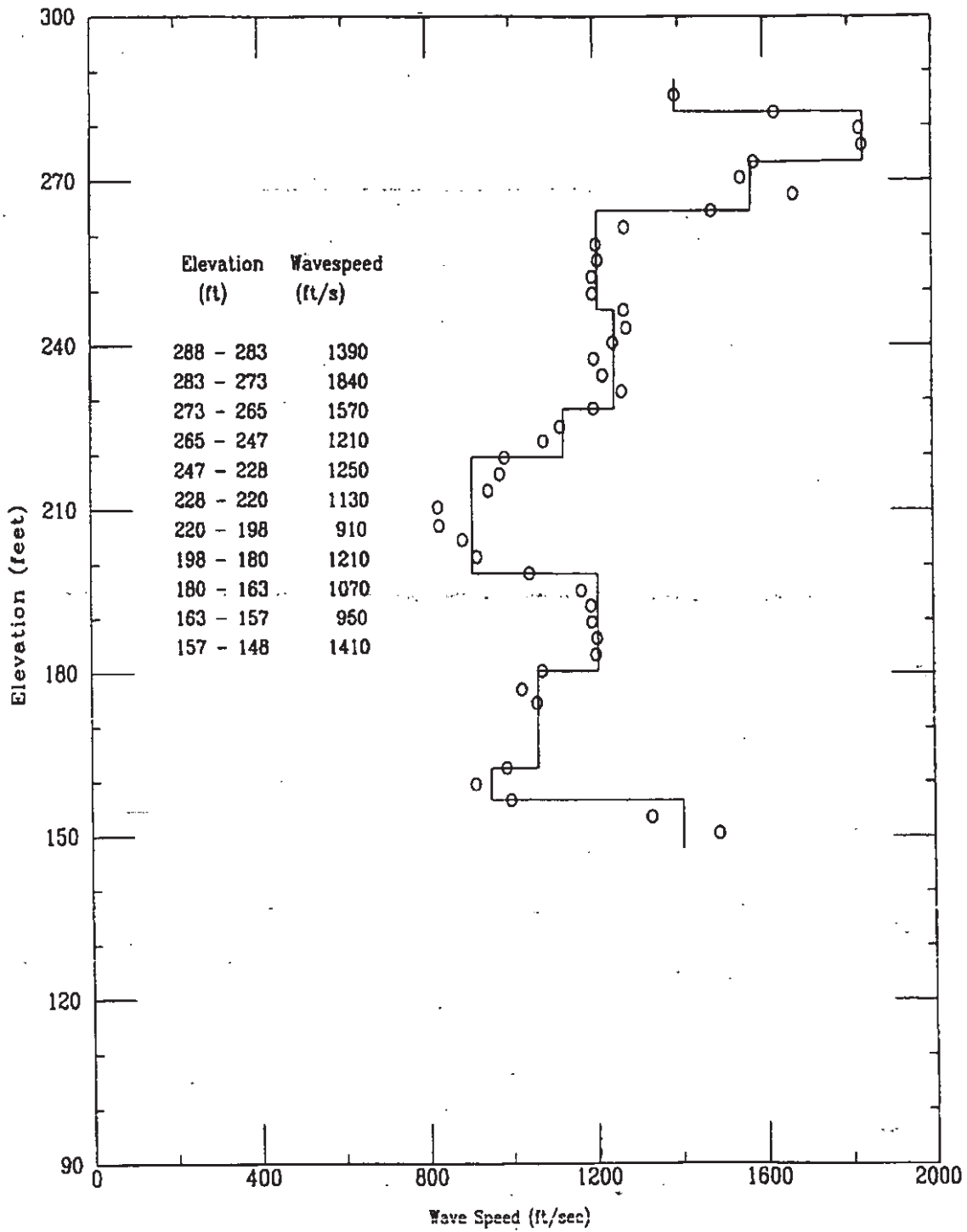
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APPLIED RESEARCH ASSOCIATES, INC.

03/27/98

Shear Wave Speeds

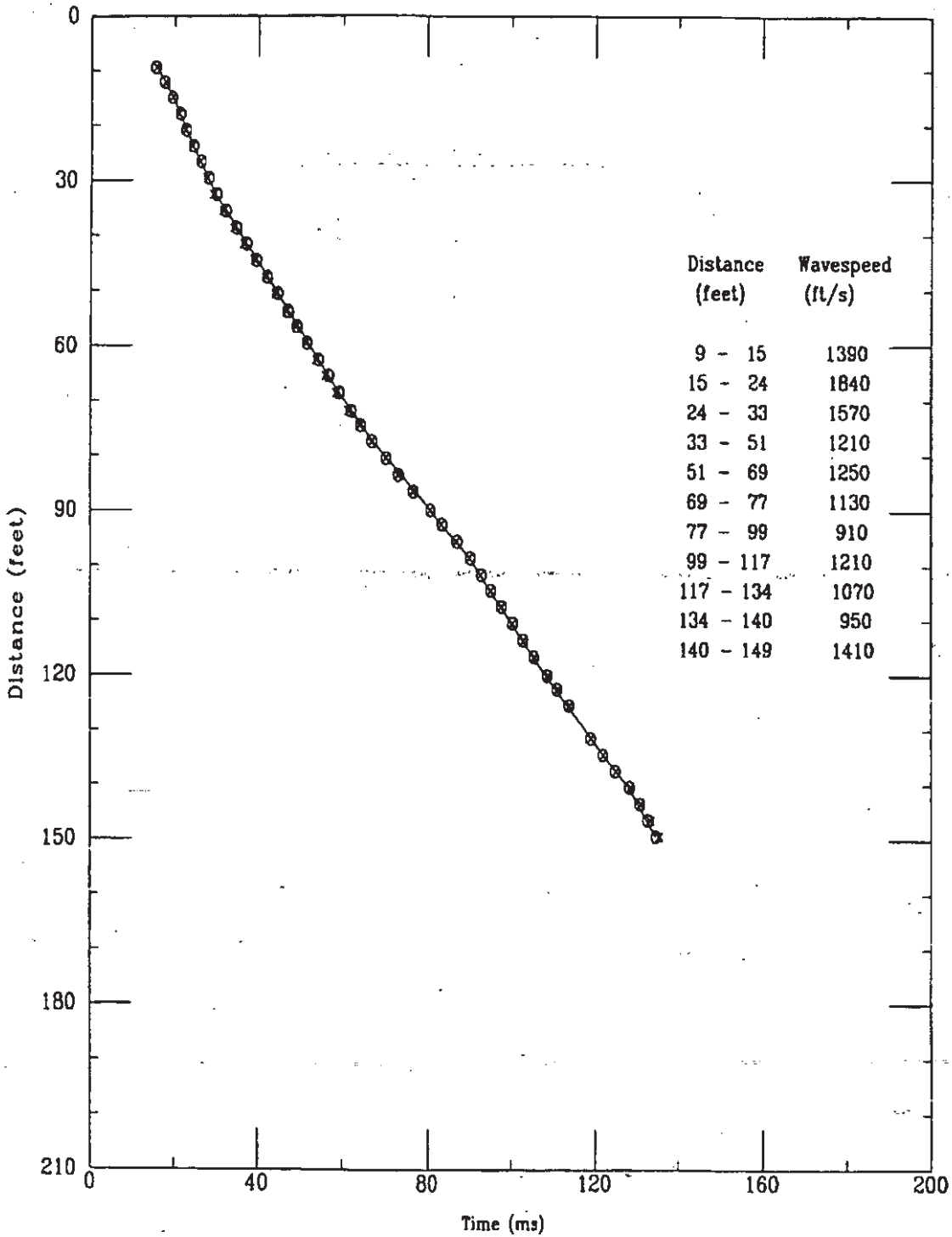


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CPT-173

APPLIED-RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

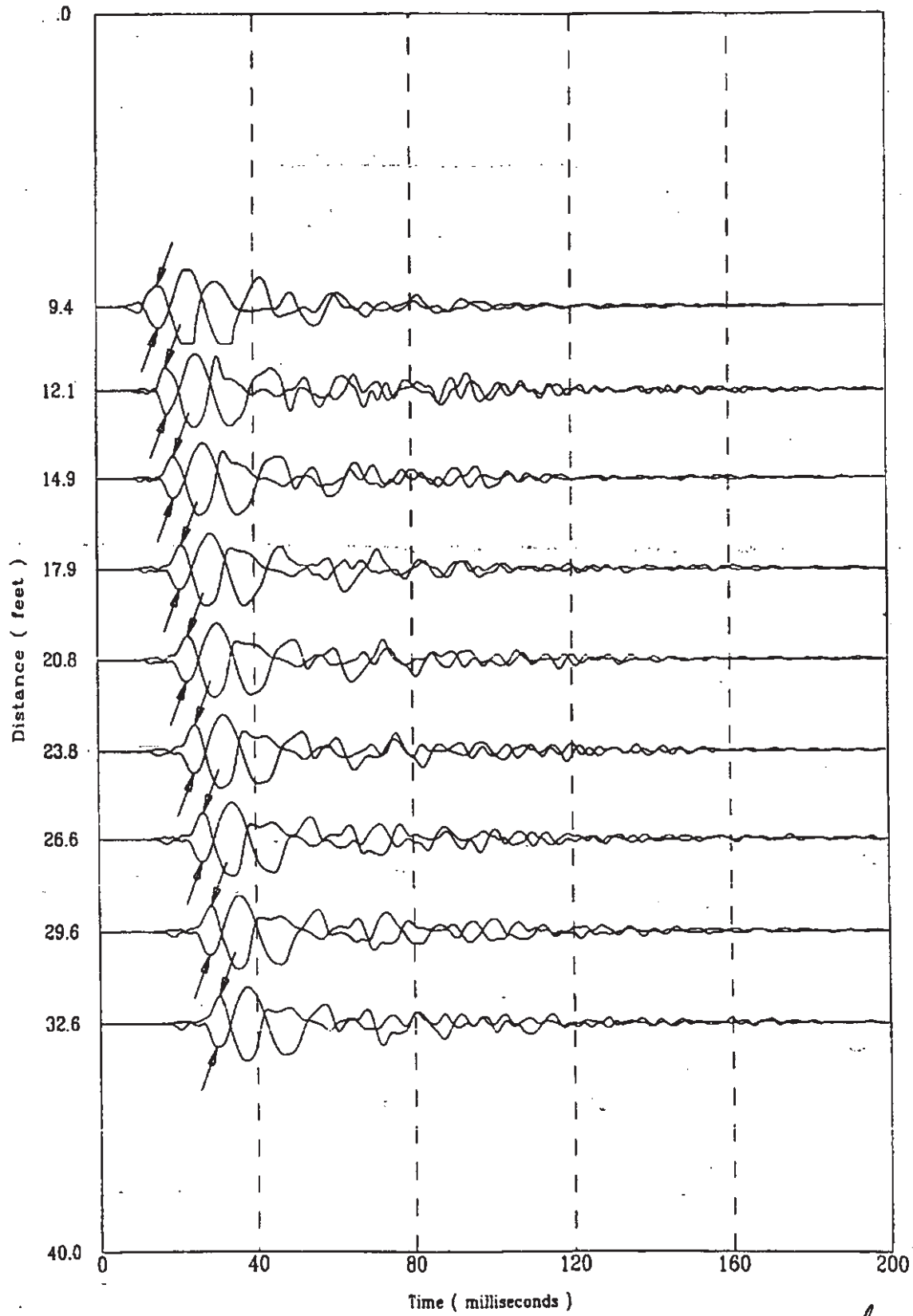
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K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-173

S Wave  
03/27/98



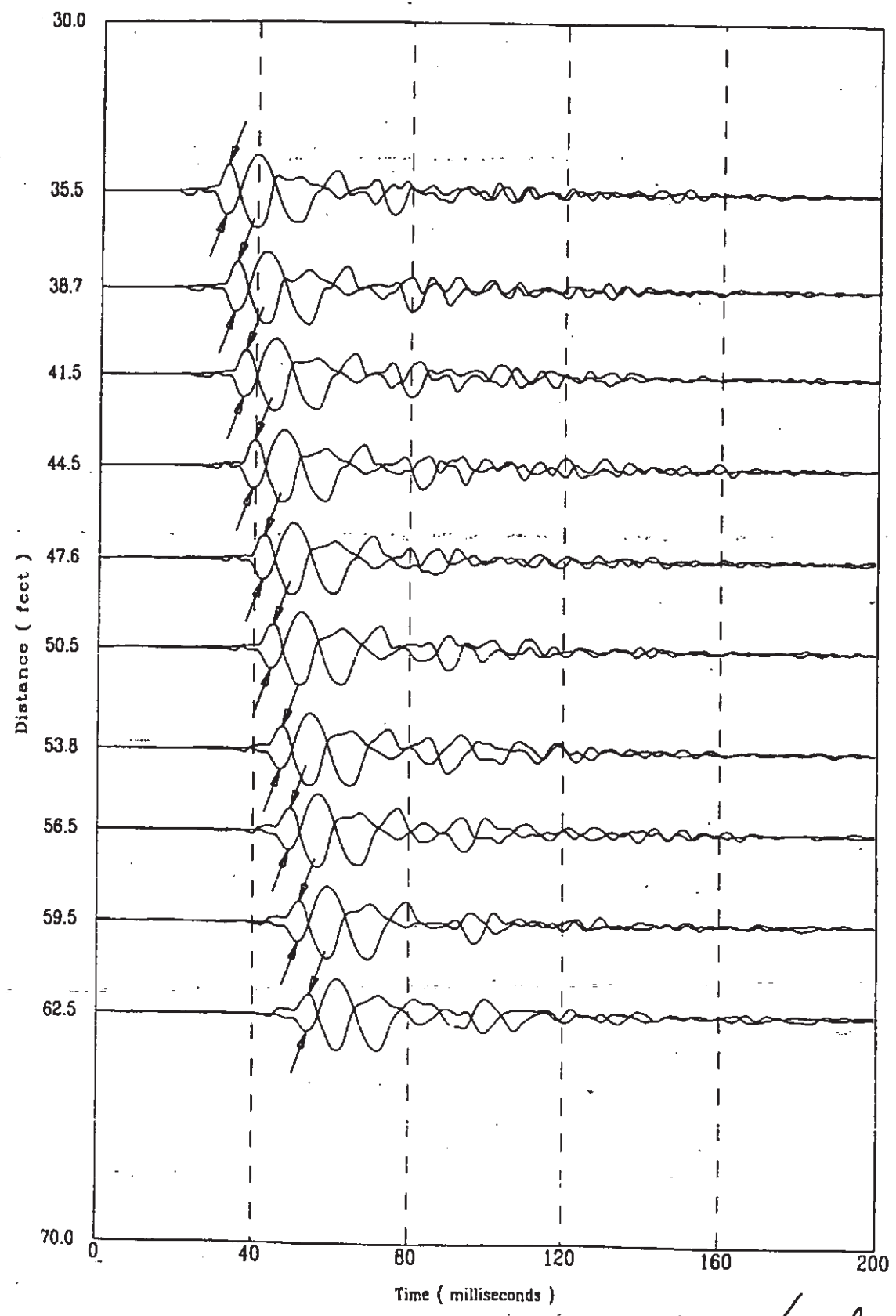
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K-TRT-F-00001  
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Applied Research Associates, Inc.  
CPT-173

S Wave  
03/27/98



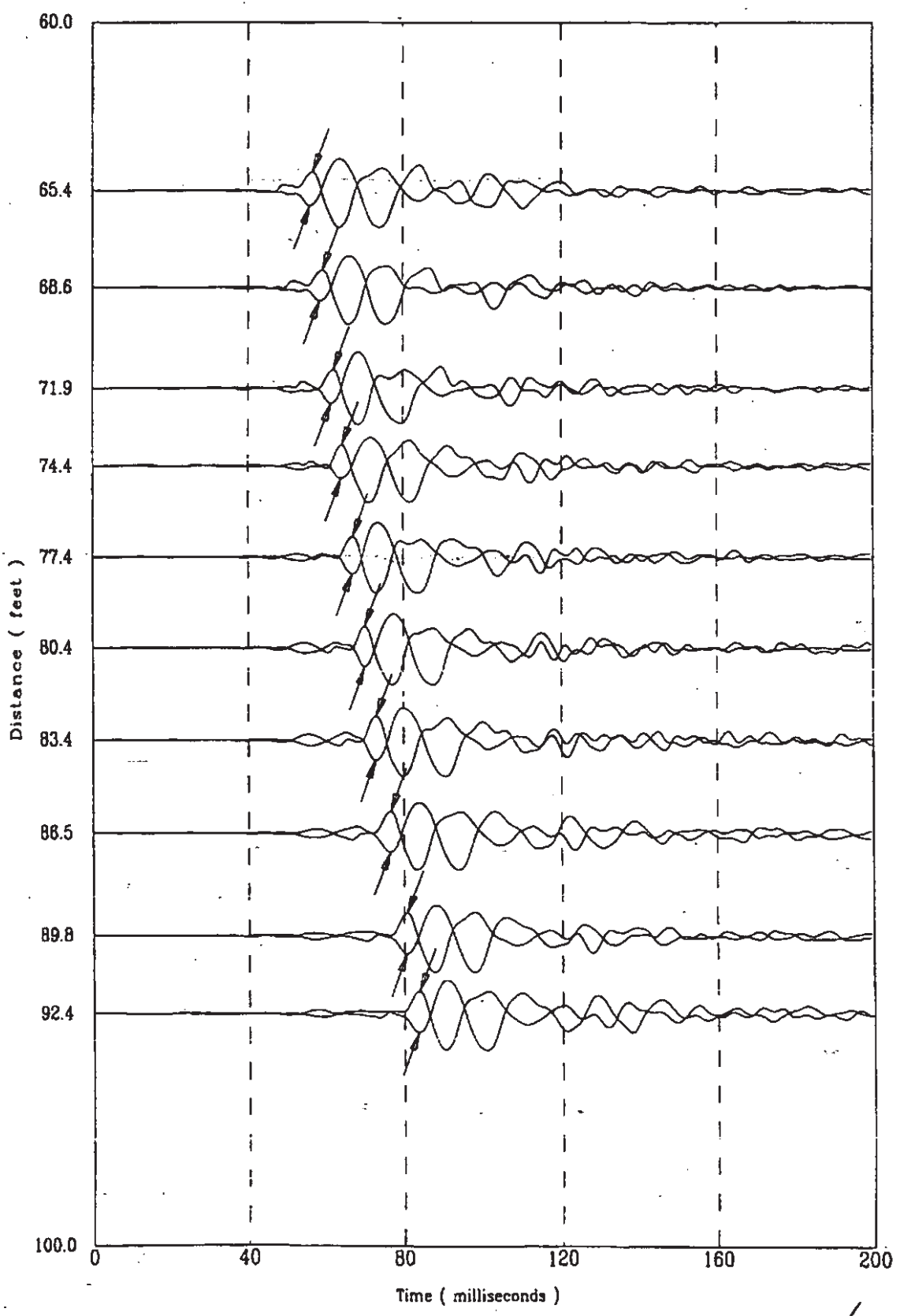
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Applied Research Associates, Inc.  
CPT-173

S Wave  
03/27/98

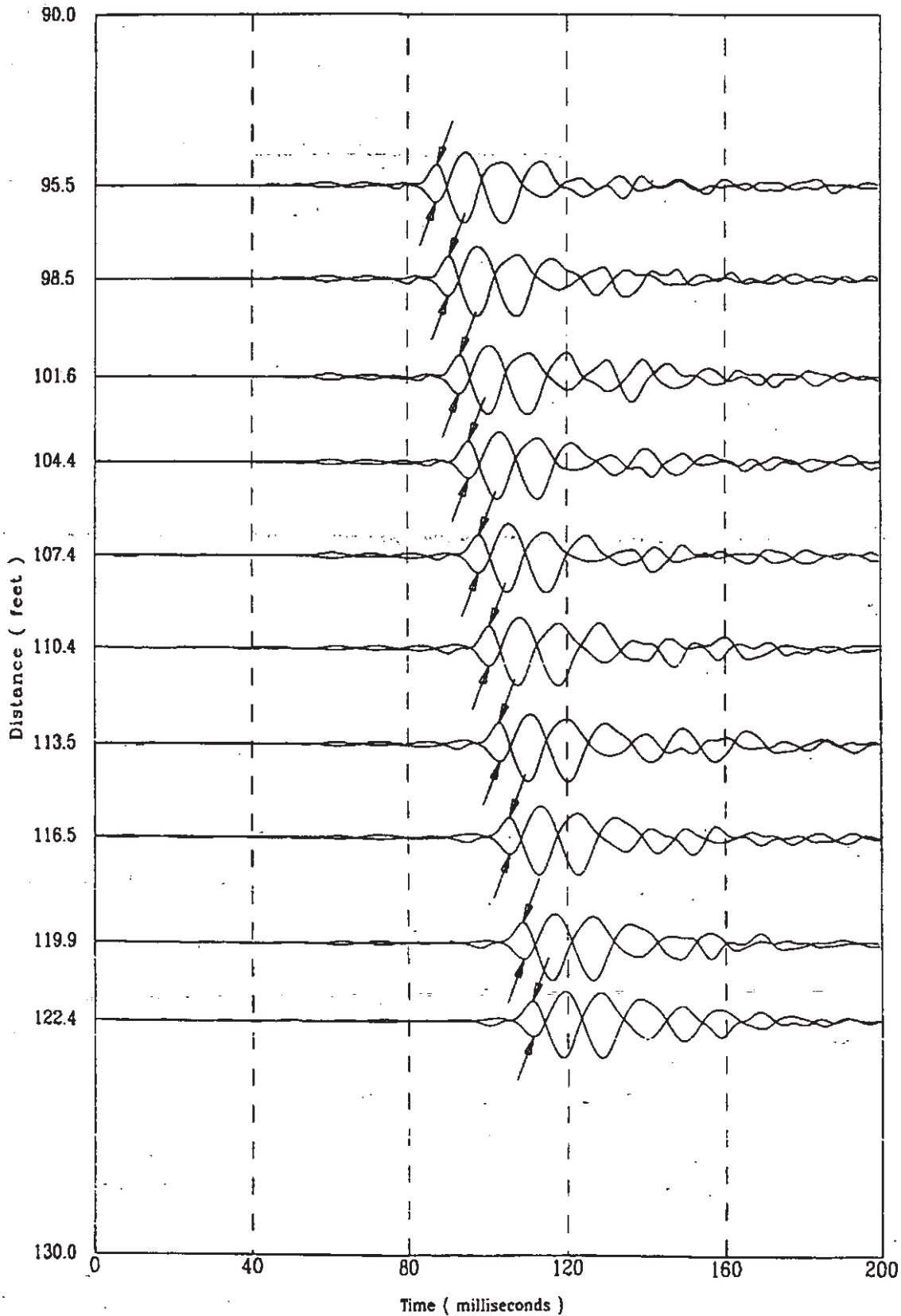


J27m804S

K-TRT-F-00001  
R/0

Applied Research Associates, Inc.  
CPT-173

S Wave  
03/27/98



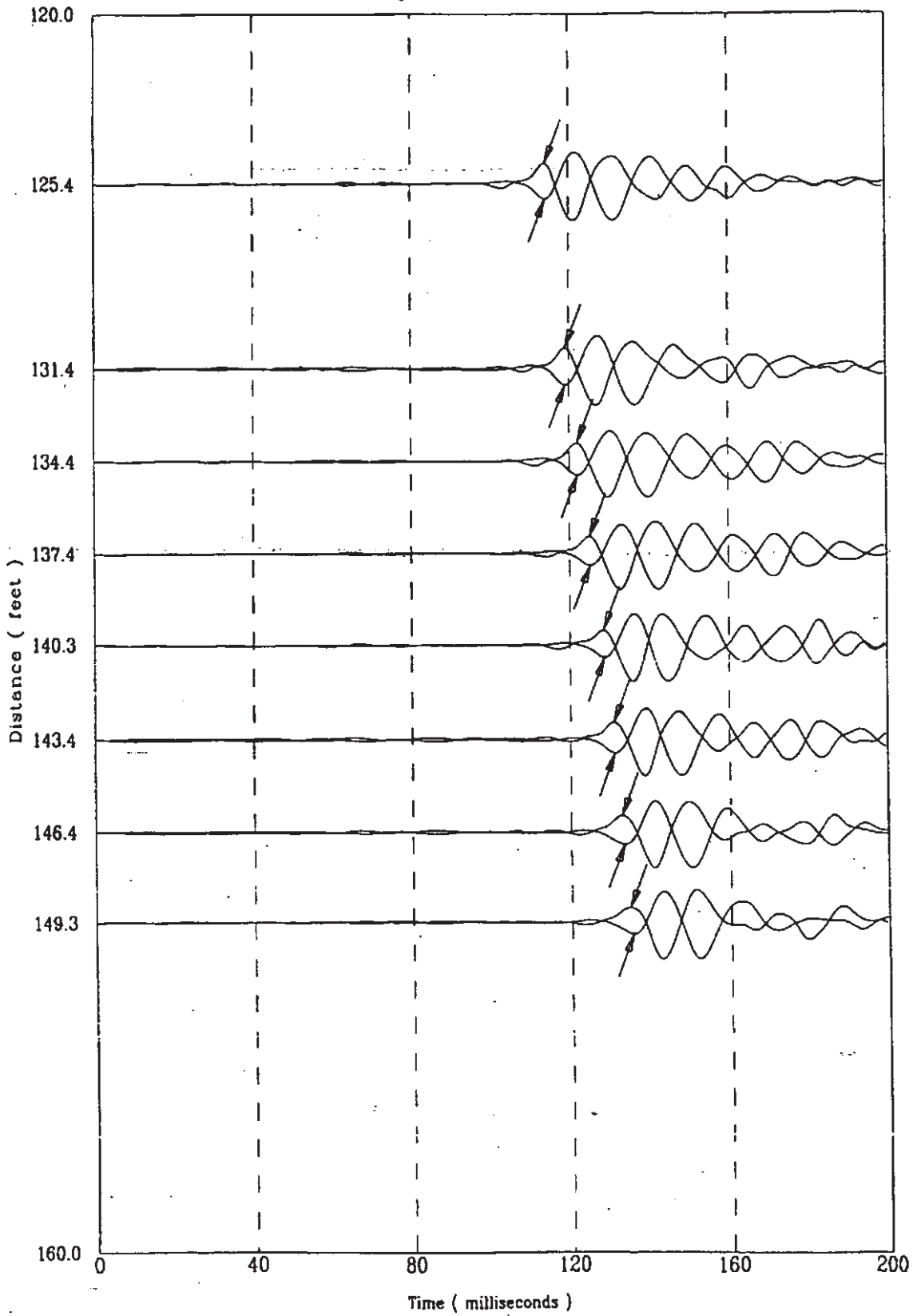
File 327m8043

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-173

S Wave  
03/27/98

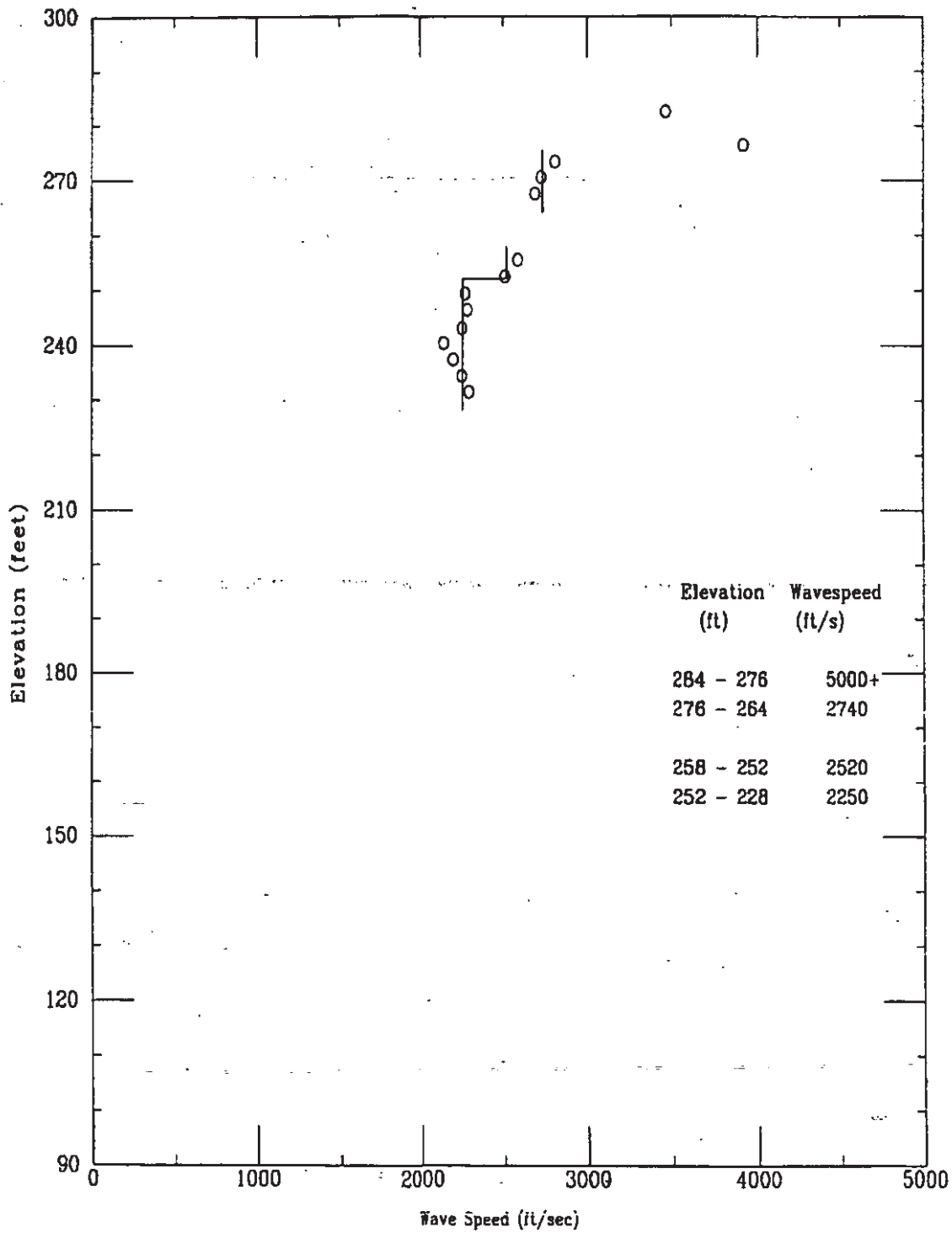


J27m804S

CPT-173

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

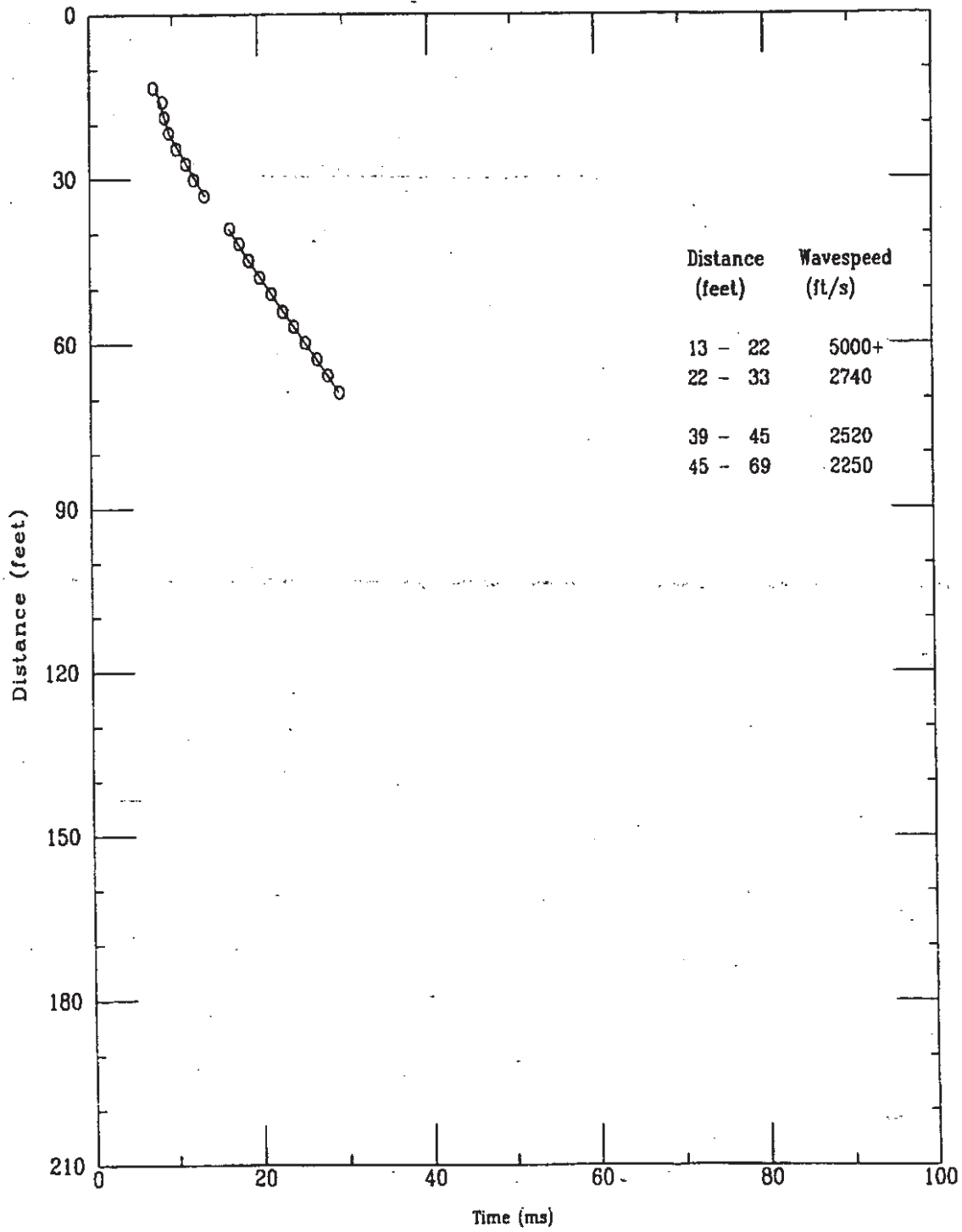
03/27/98



CPT-173

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/27/98

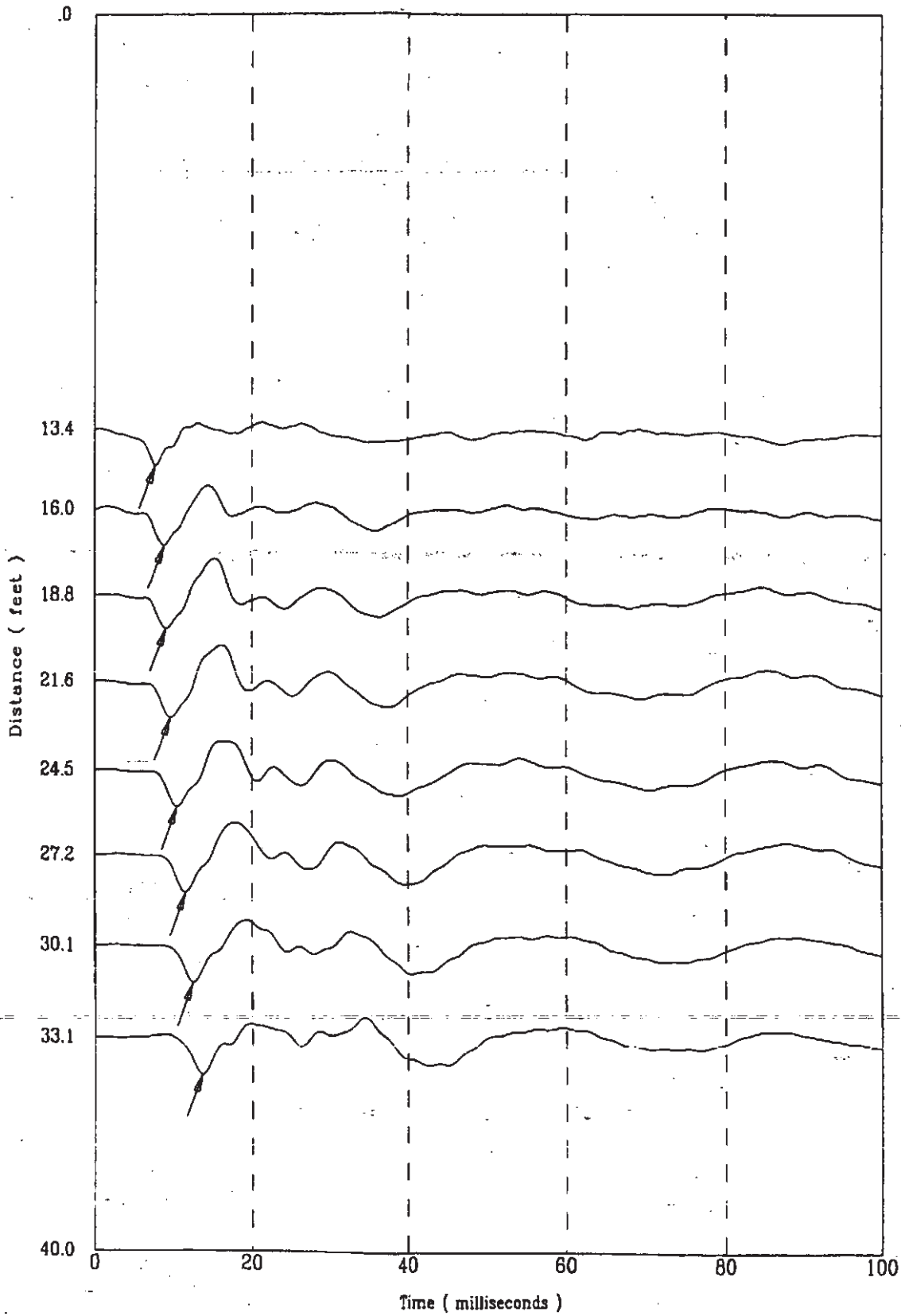


File 327m804S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-173

P Wave  
03/27/98



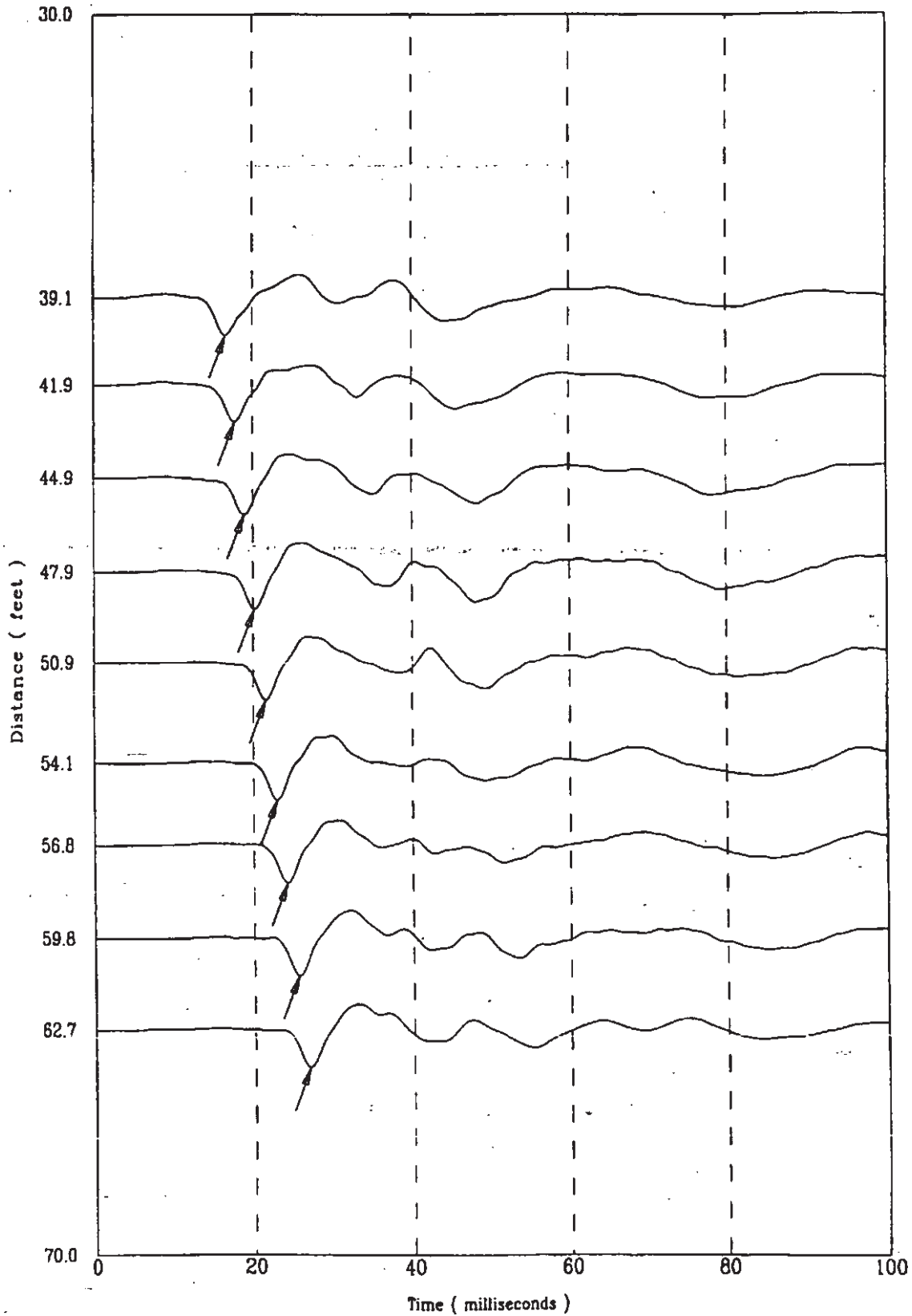
File 327m804S

320 of 522

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-173

P Wave  
03/27/98



J27m804S

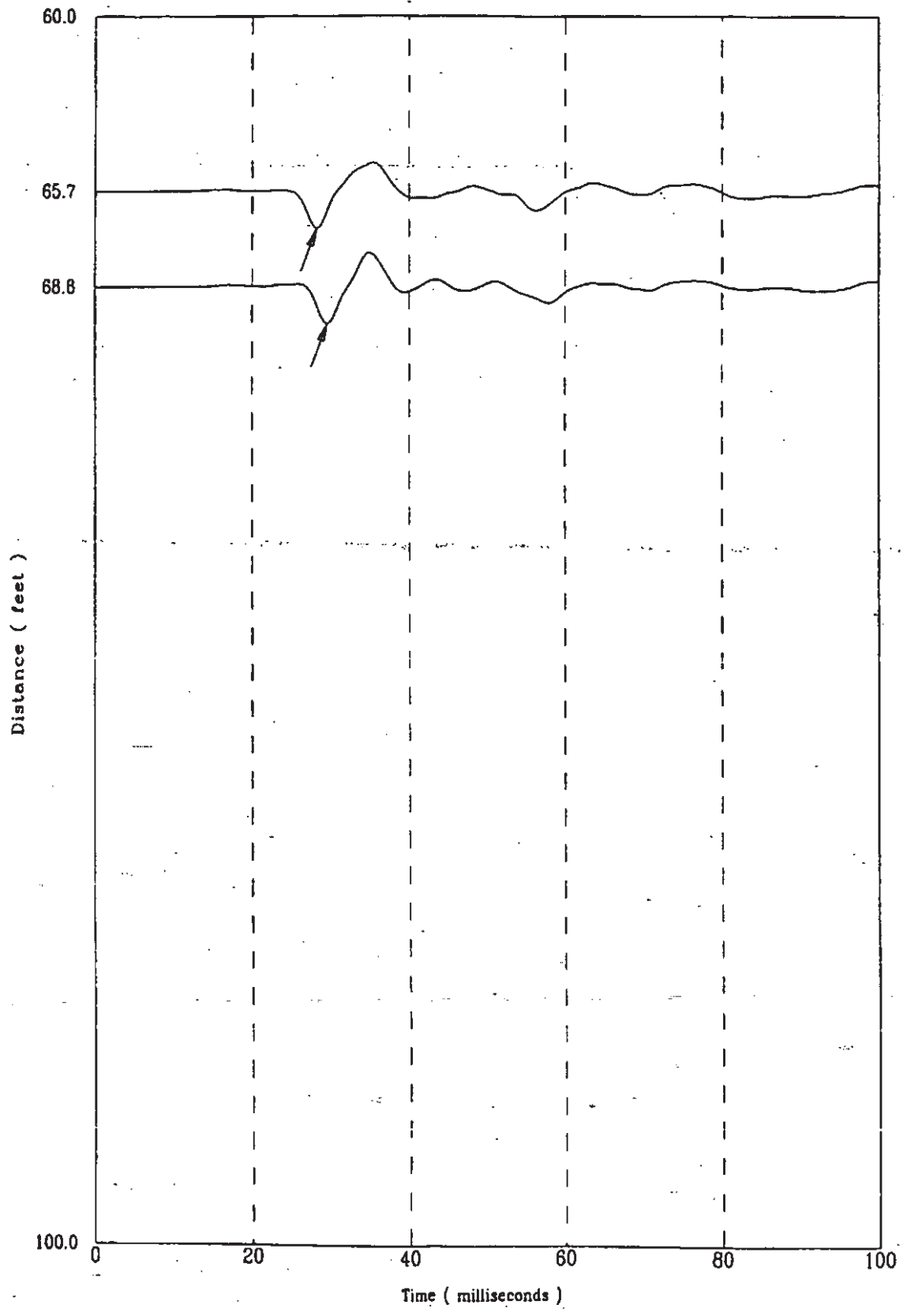
321 of 522



K-TRT-F-00001  
R/O

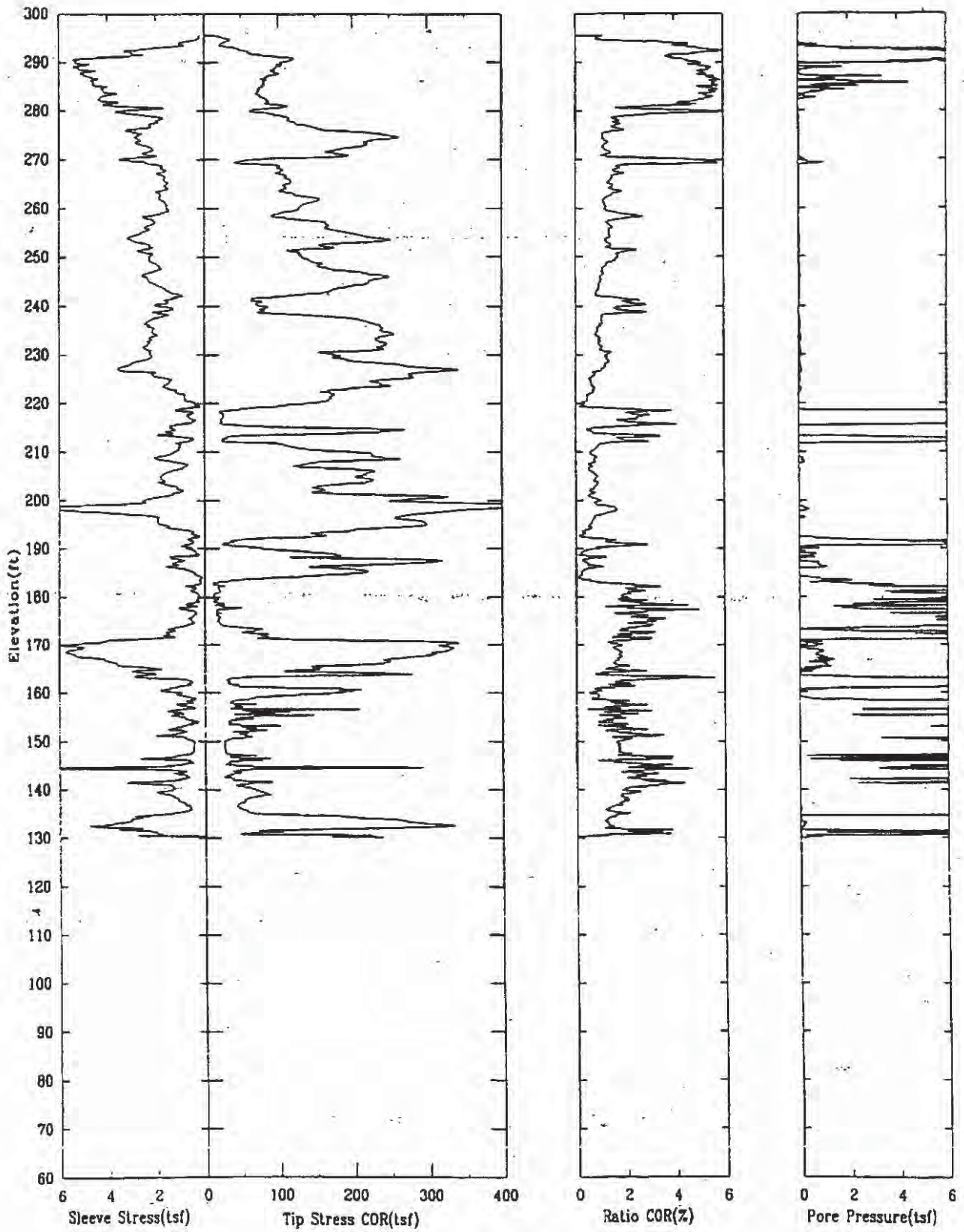
Applied Research Associates, Inc.  
CPT-173

P Wave  
03/27/98



File 327m8043

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CPT-174

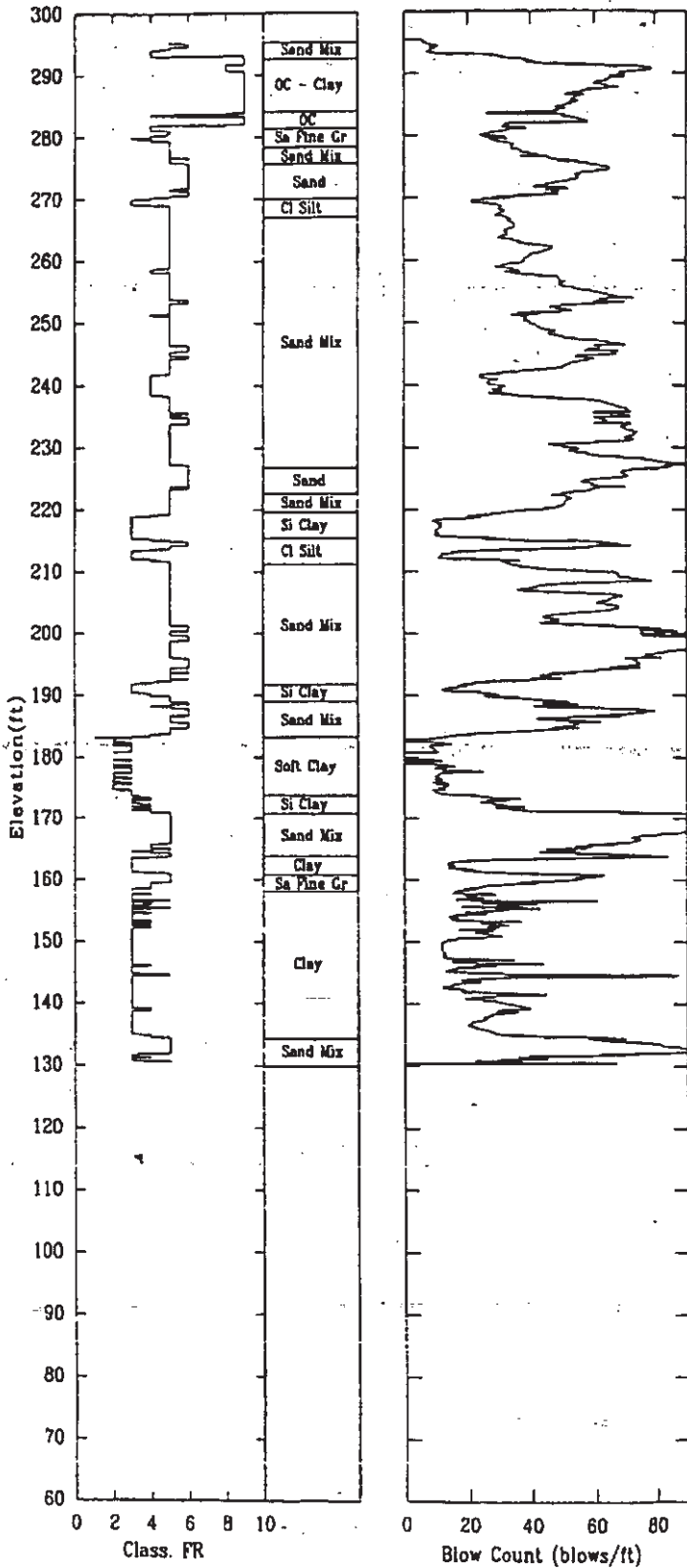
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/10/98 R/O

North 78770

East 55330

Elevation 301.5

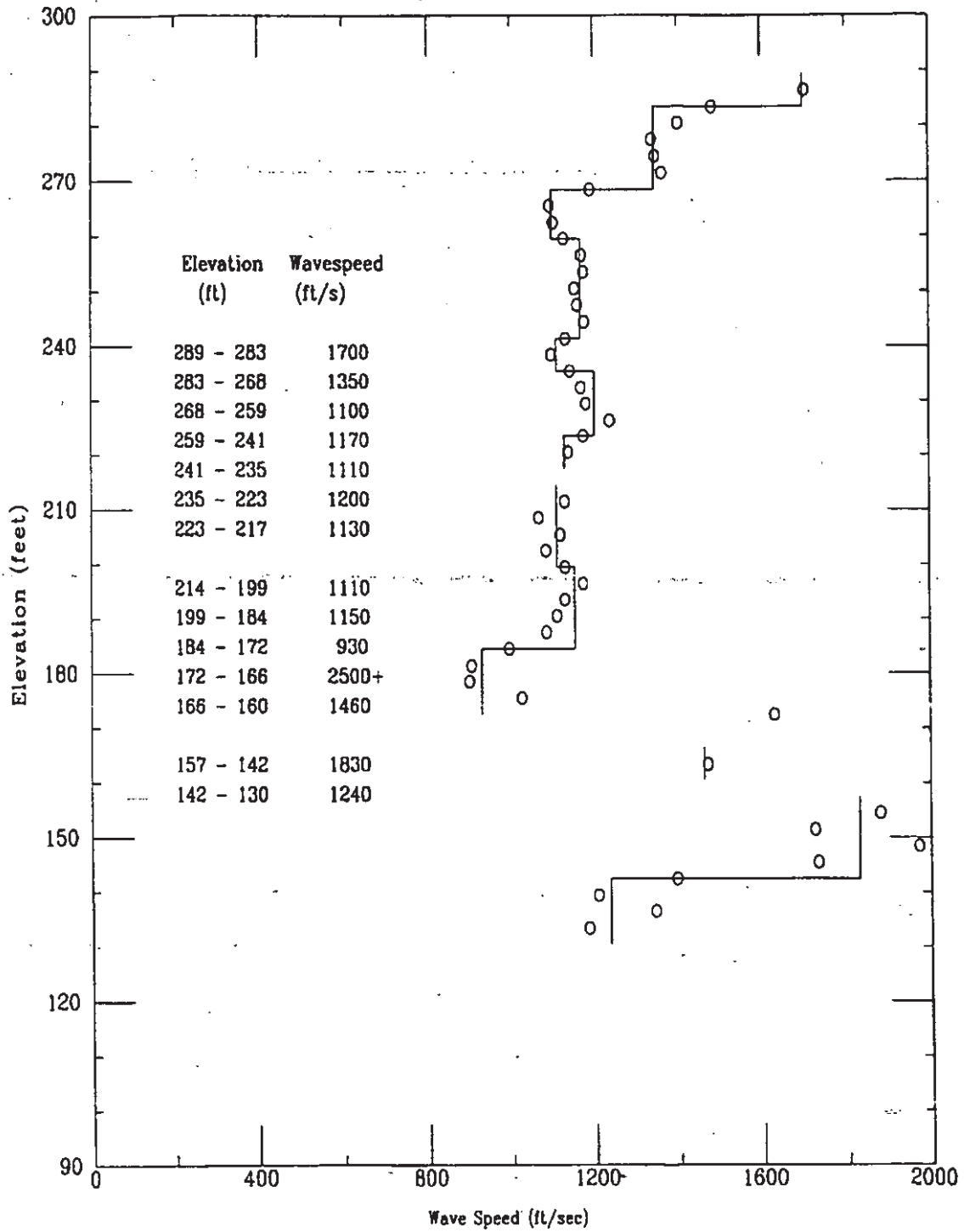


CPT-174

APPLIED RESEARCH ASSOCIATES, INC.

03/10/98

Shear Wave Speeds

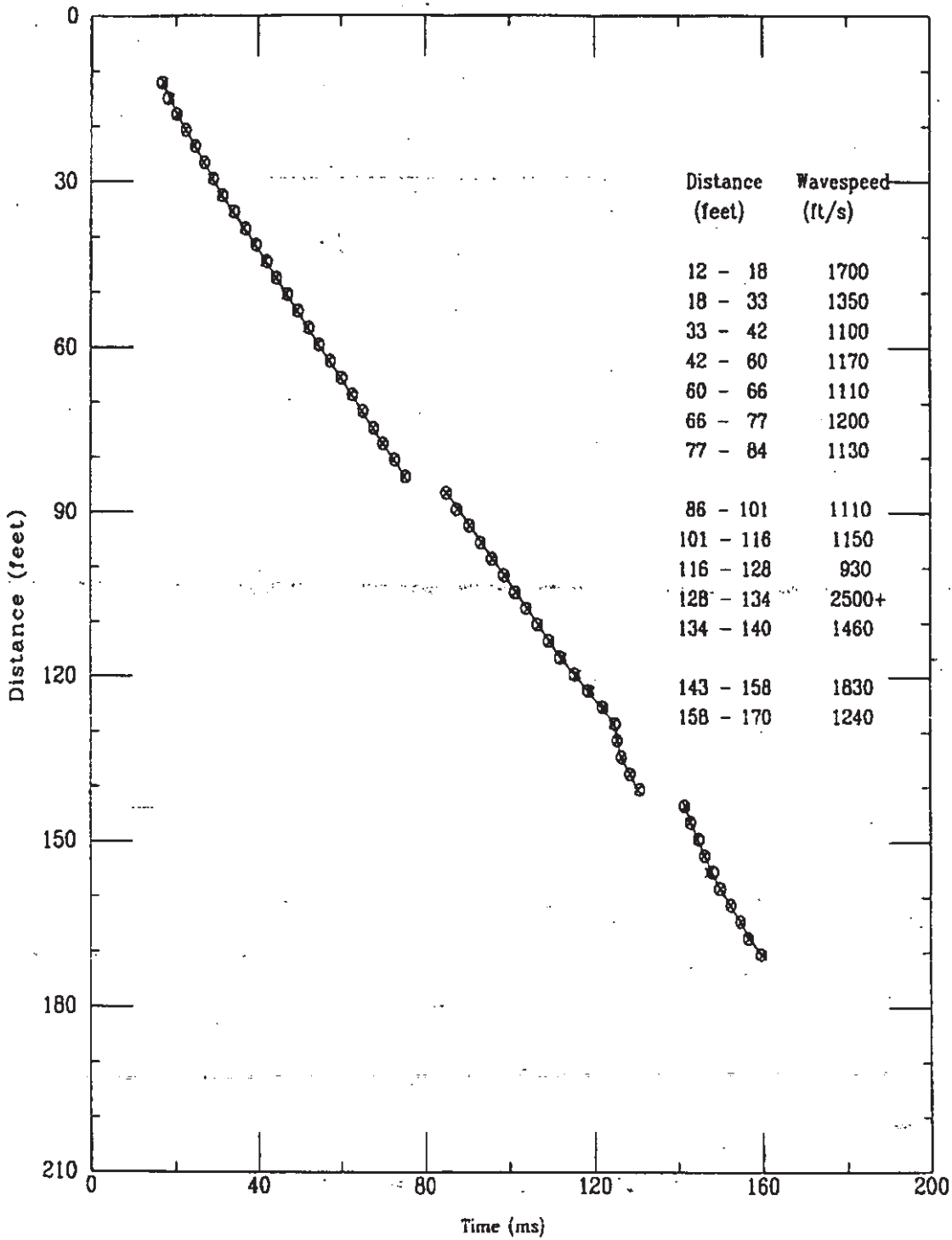


File 410m804S

CPT-174

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

03/10/98

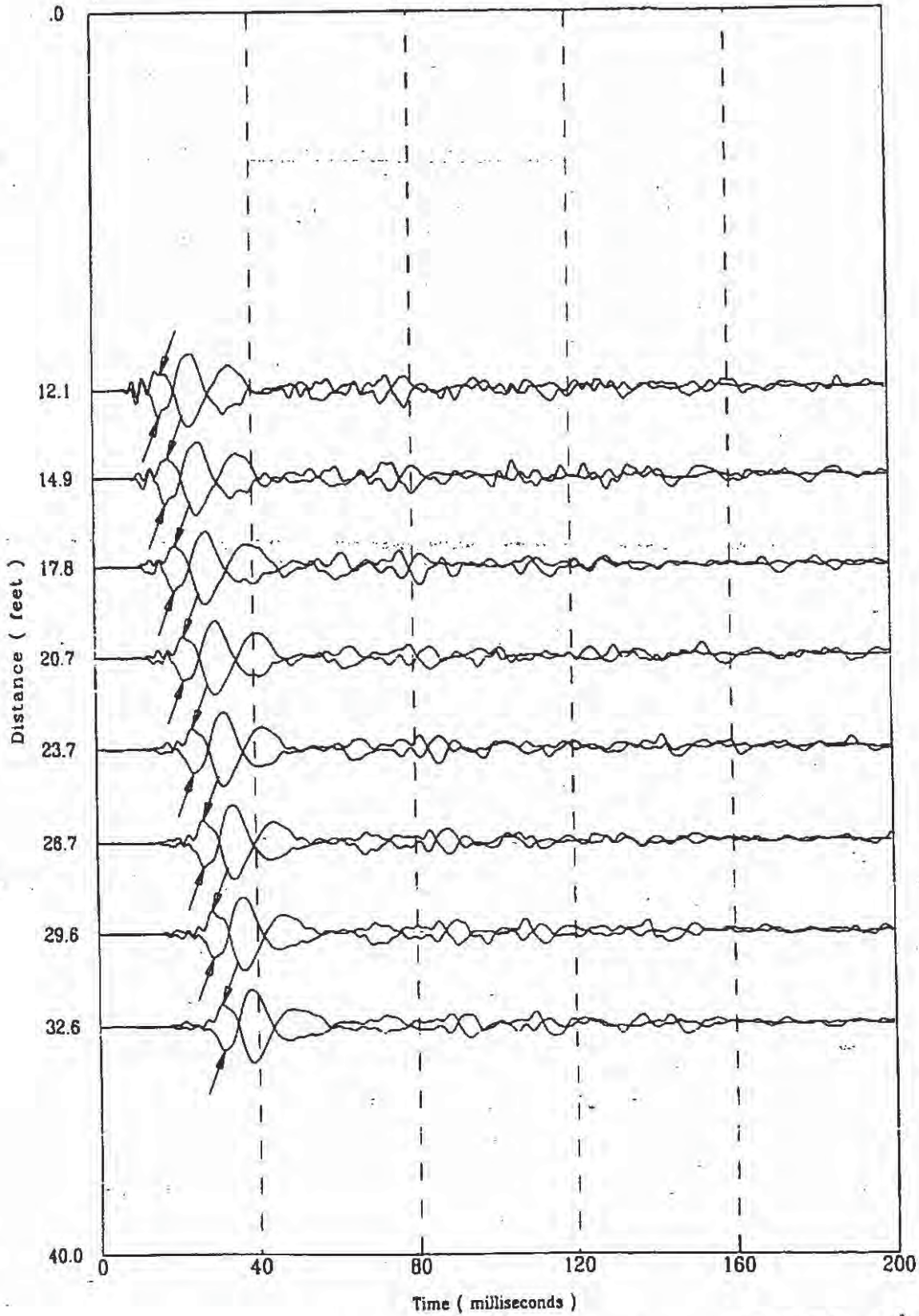


File 410m804S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-174

S Wave  
03/10/98



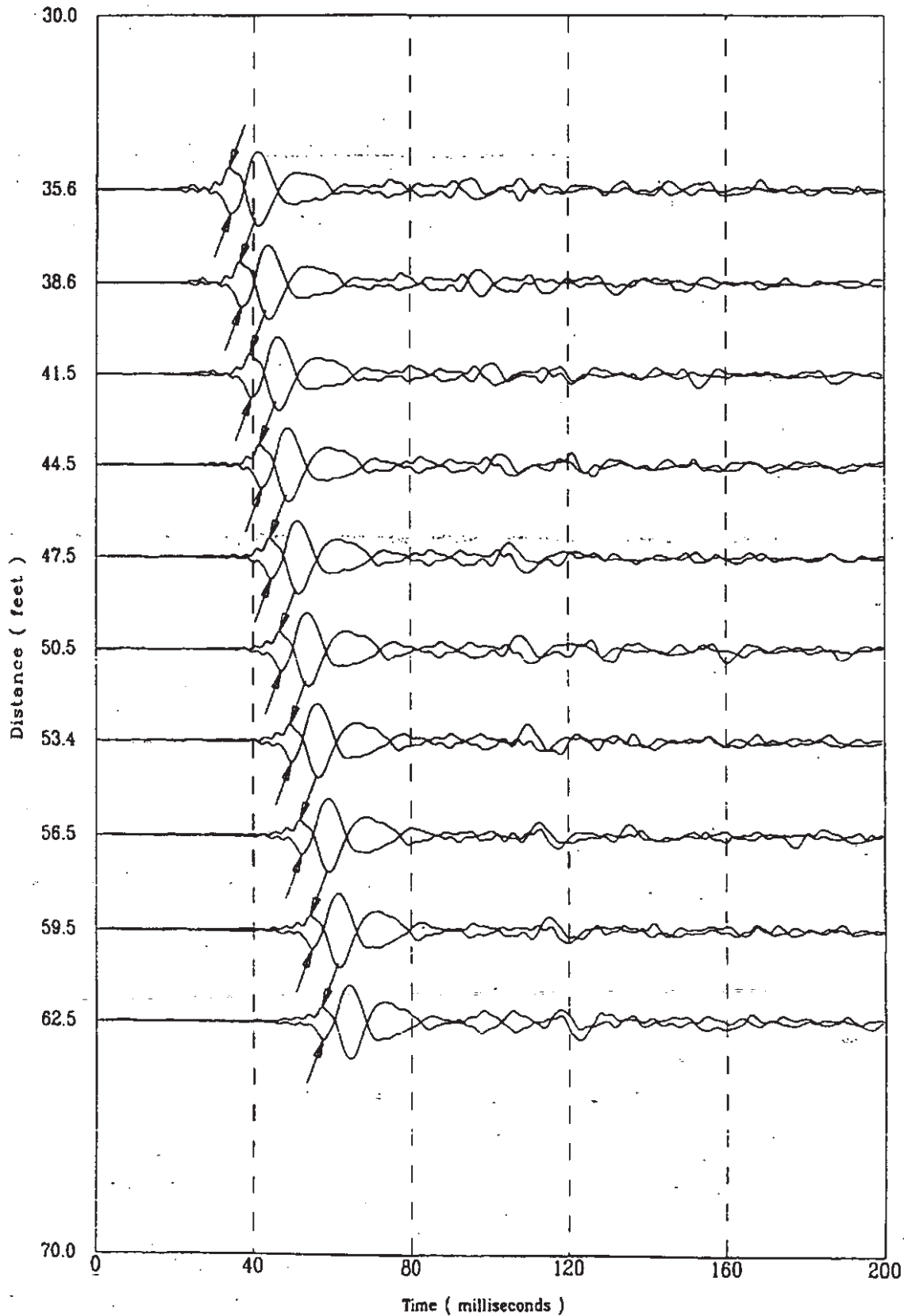
FILE 410m604S

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Applied Research Associates, Inc.  
CPT-174

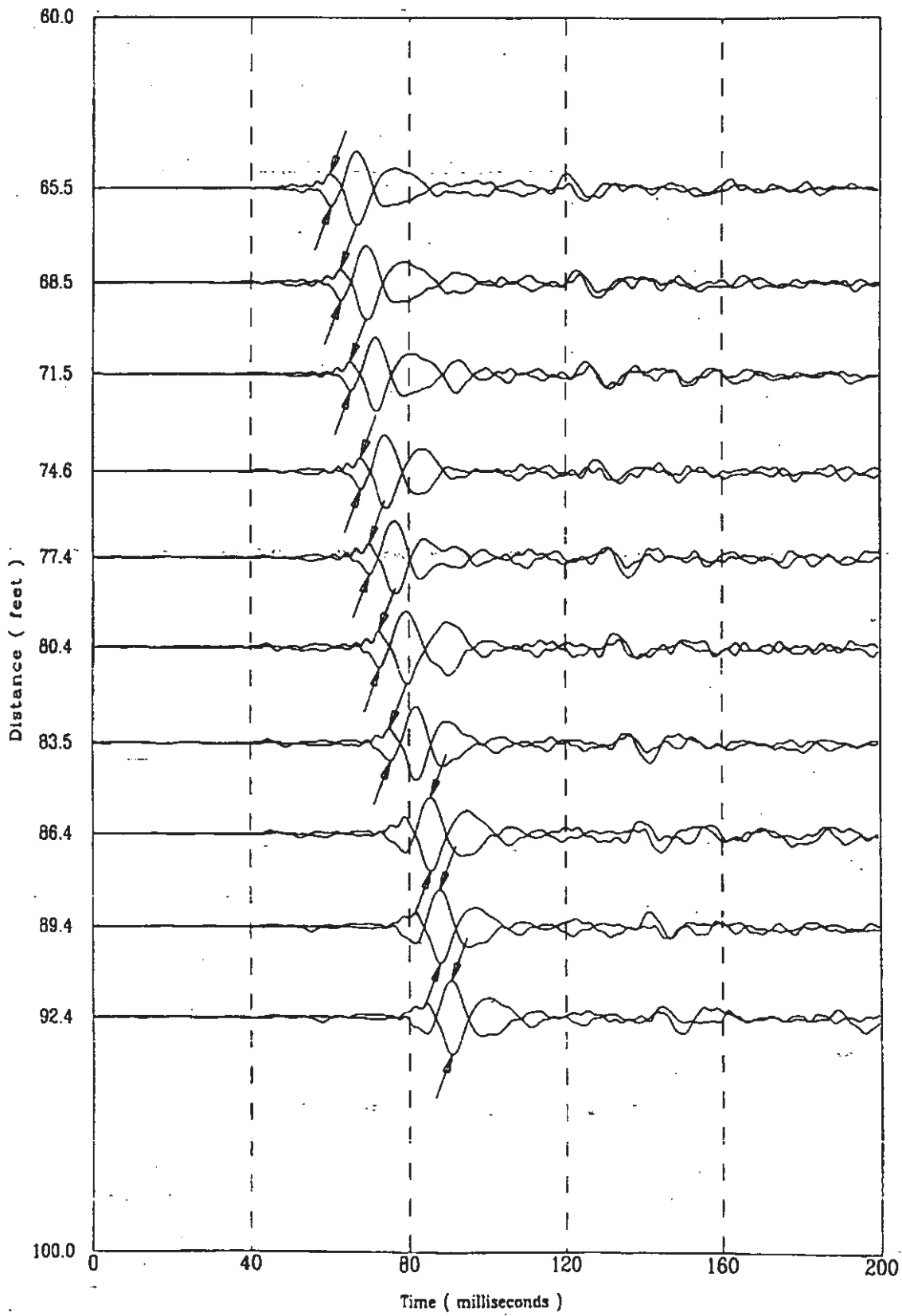
S Wave  
03/10/98



K-TRT-F-00001  
R/0

Applied Research Associates, Inc.  
CPT-174

S Wave  
03/10/98

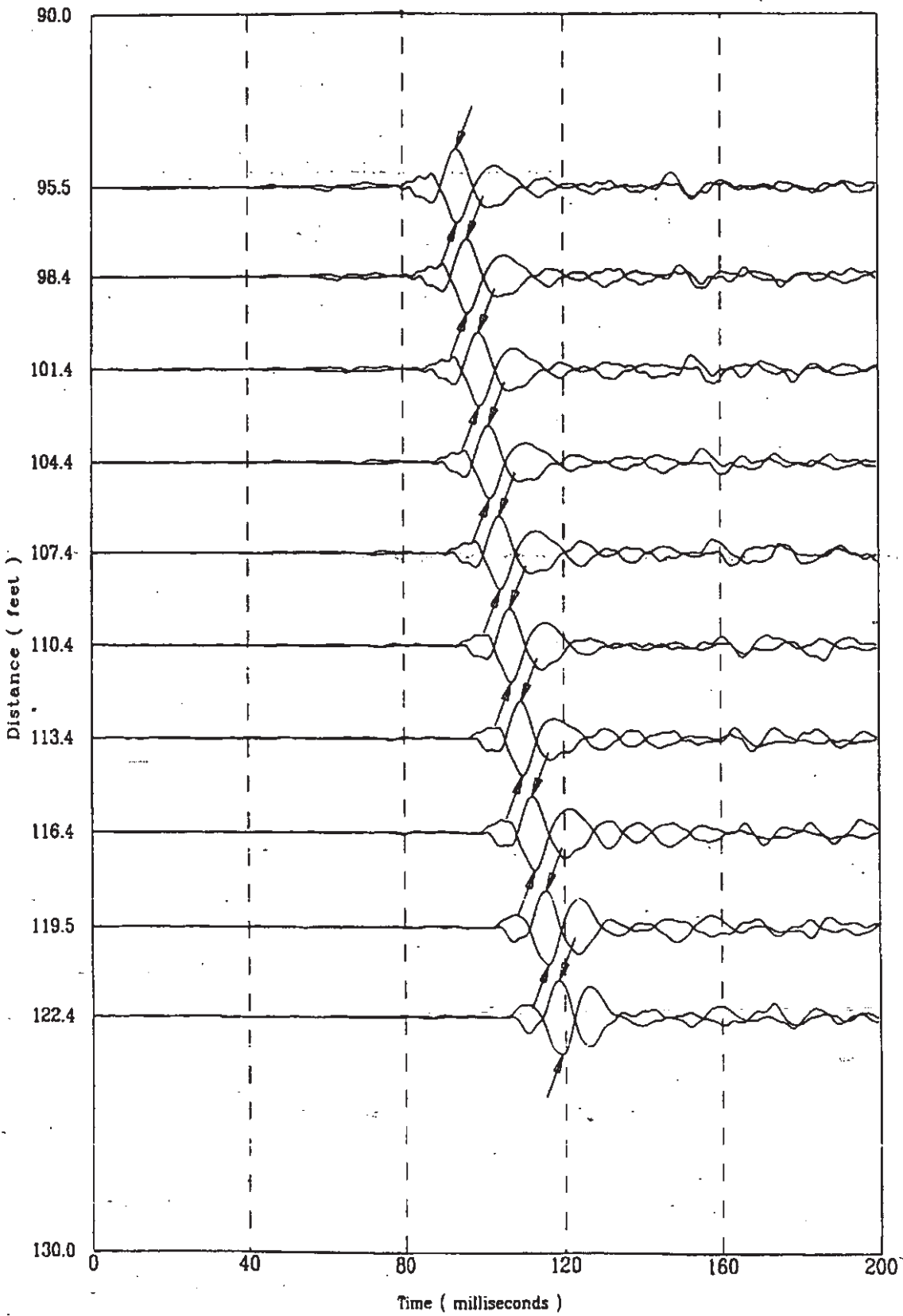




K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-174

S Wave  
03/10/98



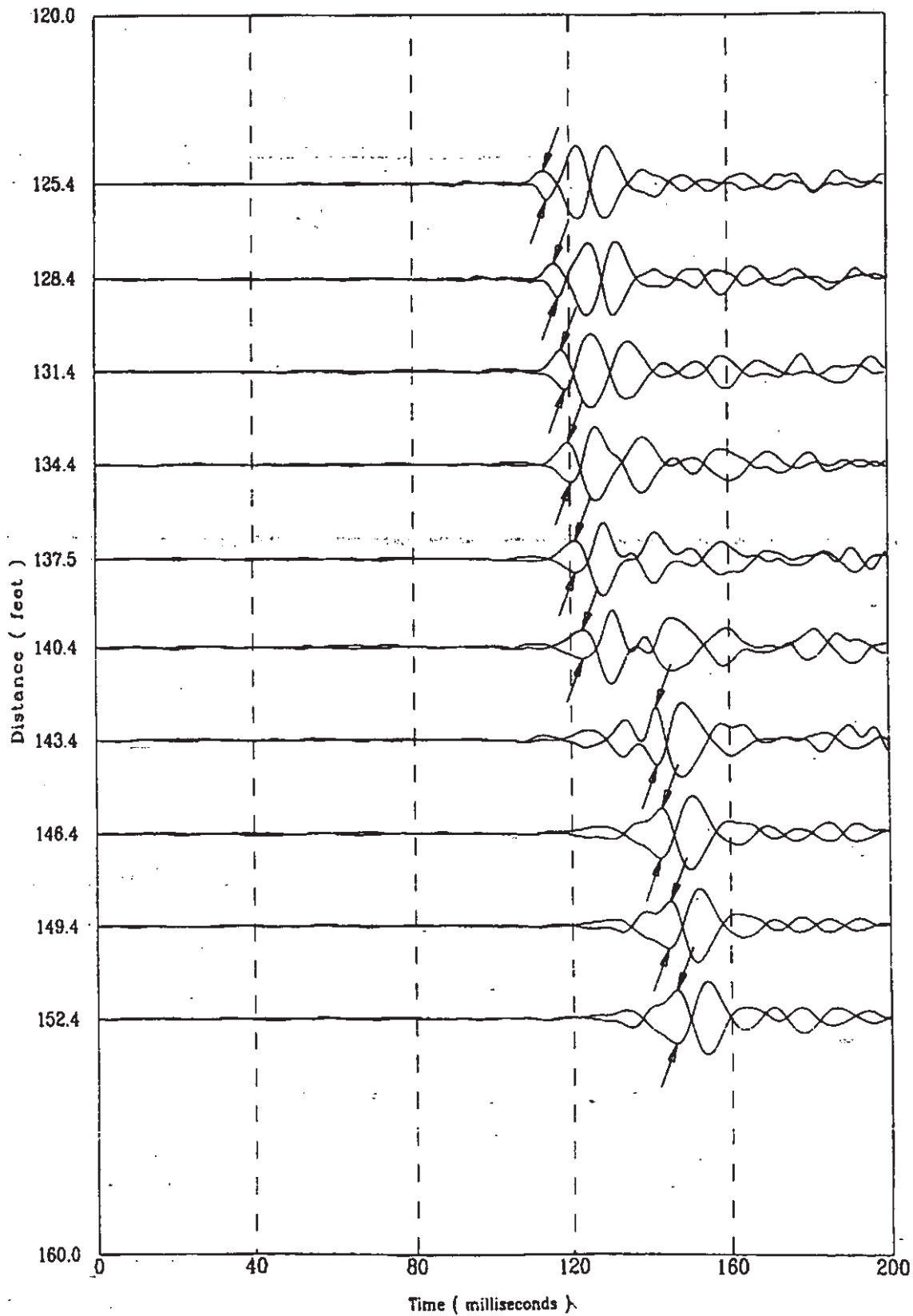
File 410m804S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-174

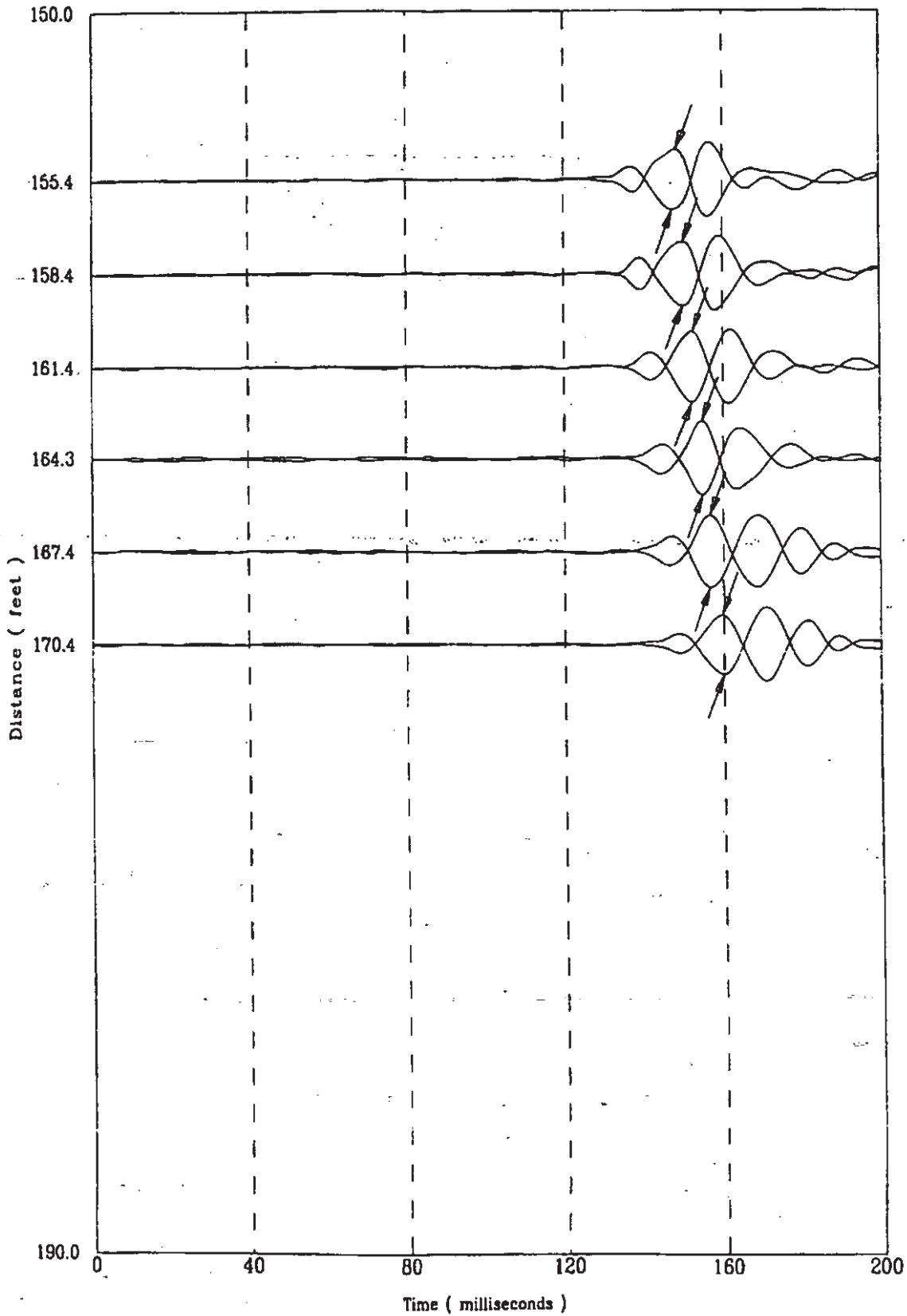
S Wave  
03/10/98



file 410m804S

Applied Research Associates, Inc.  
CPT-174

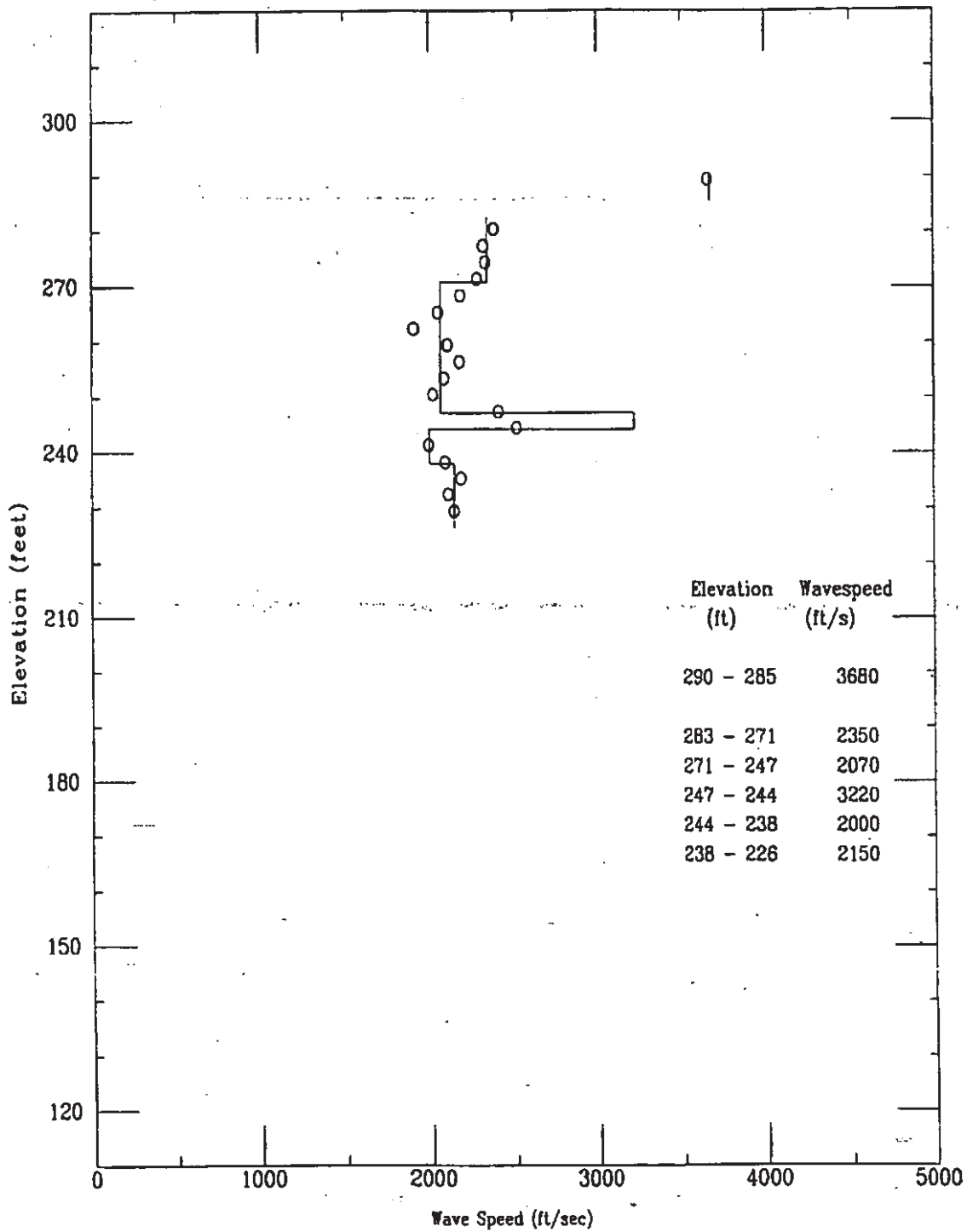
S Wave  
03/10/98



CPT-174

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

03/30/98



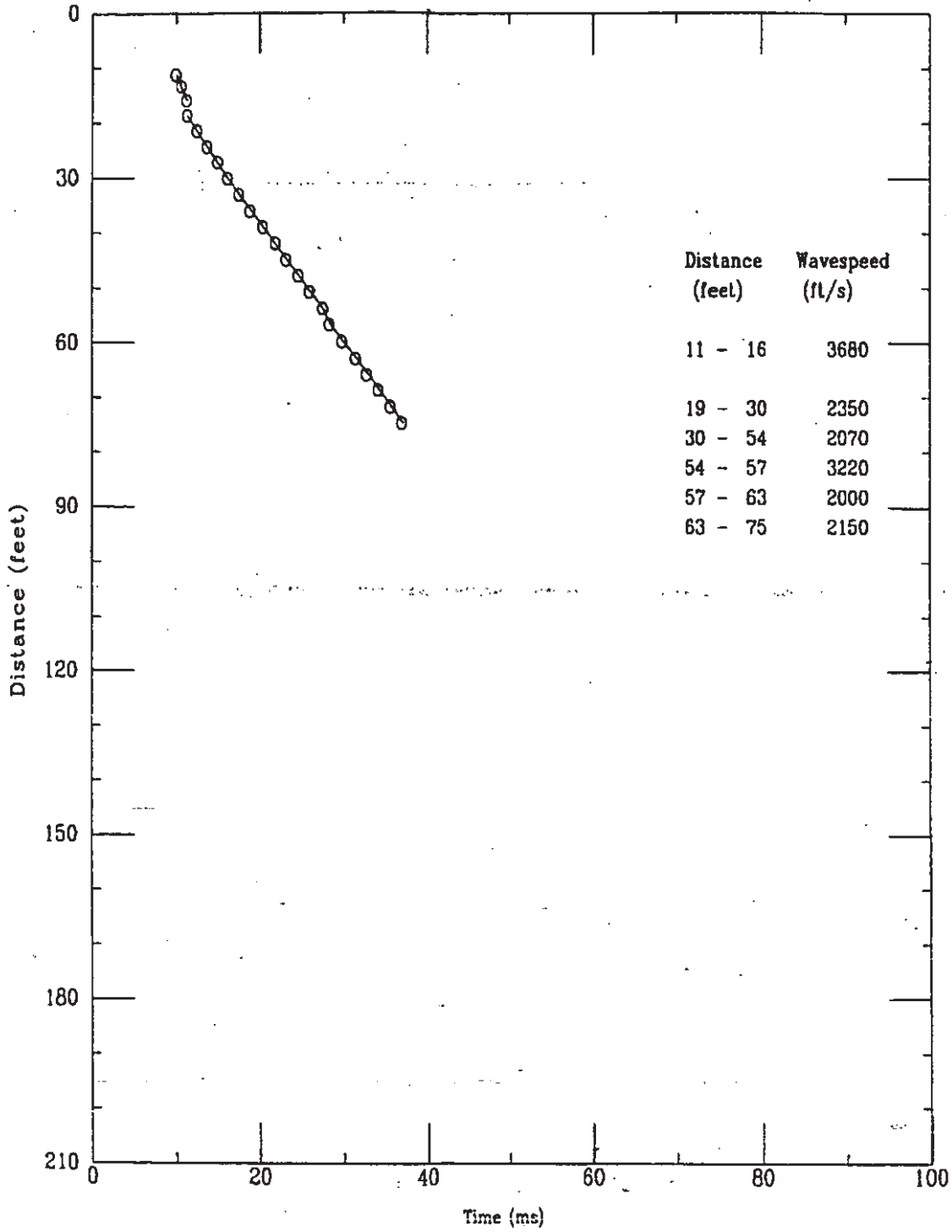
File 330m801S

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CPT-174

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/30/98

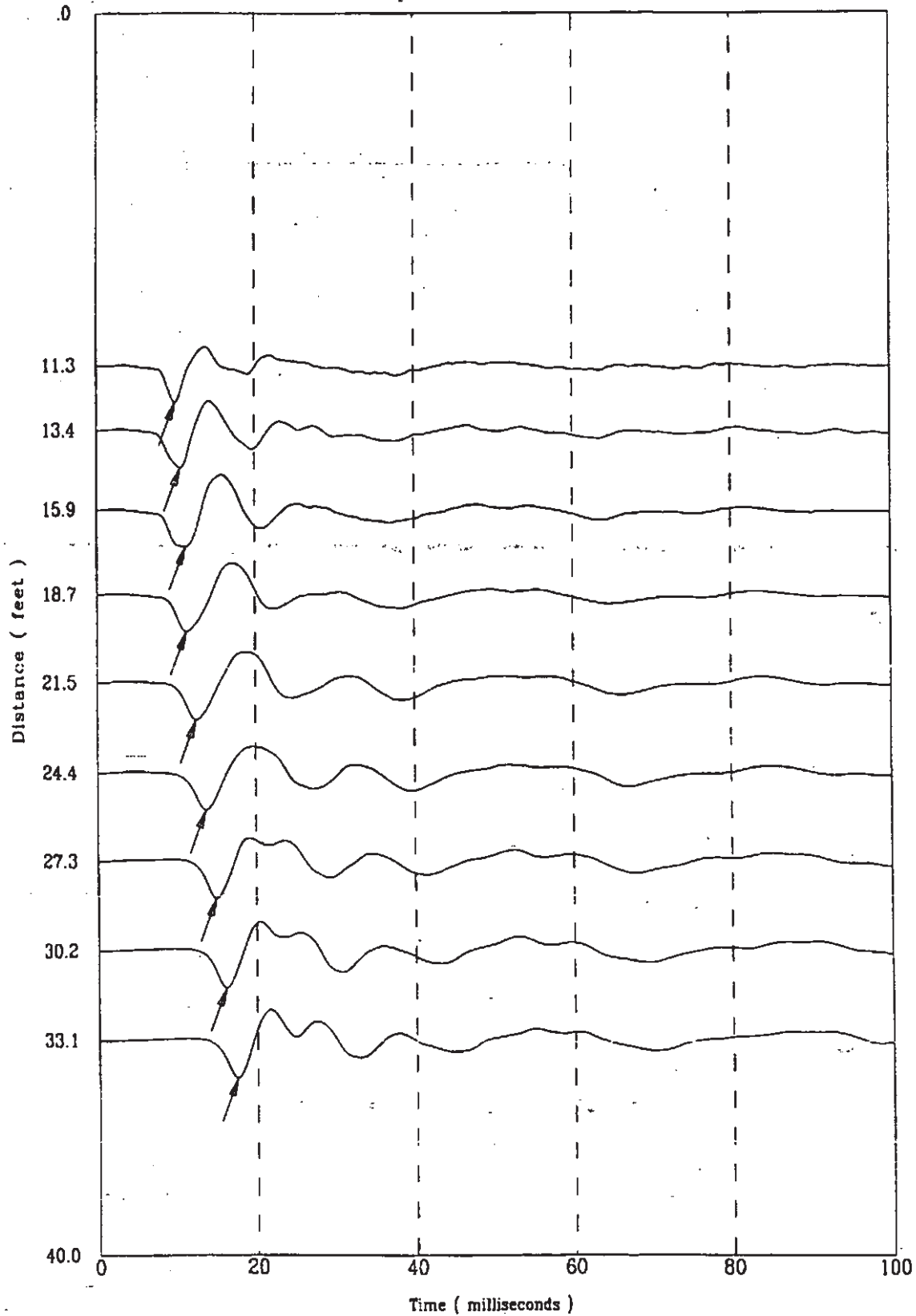


File 330mb015

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-174

P Wave  
03/30/98



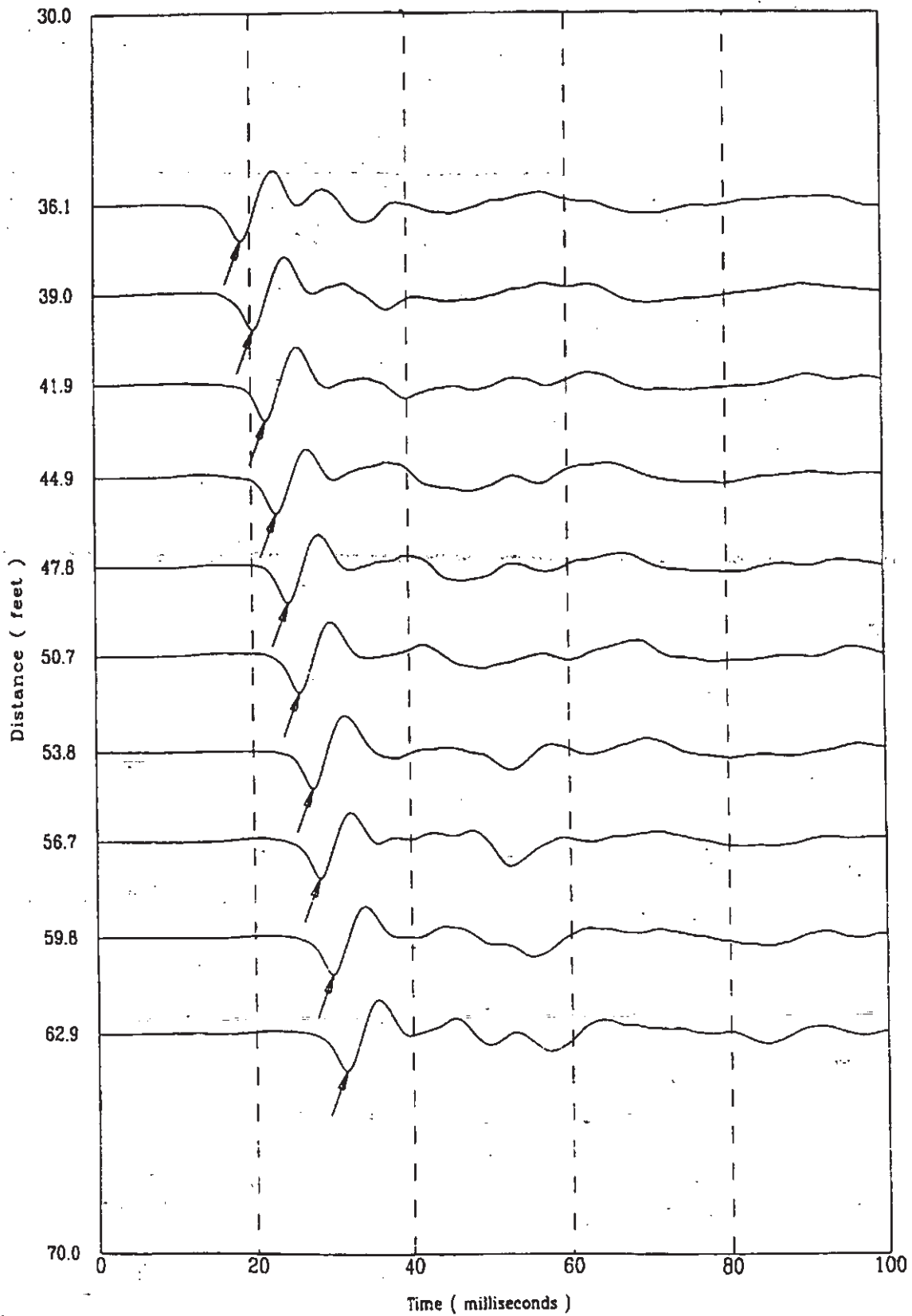
330m801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-174

P Wave  
03/30/98



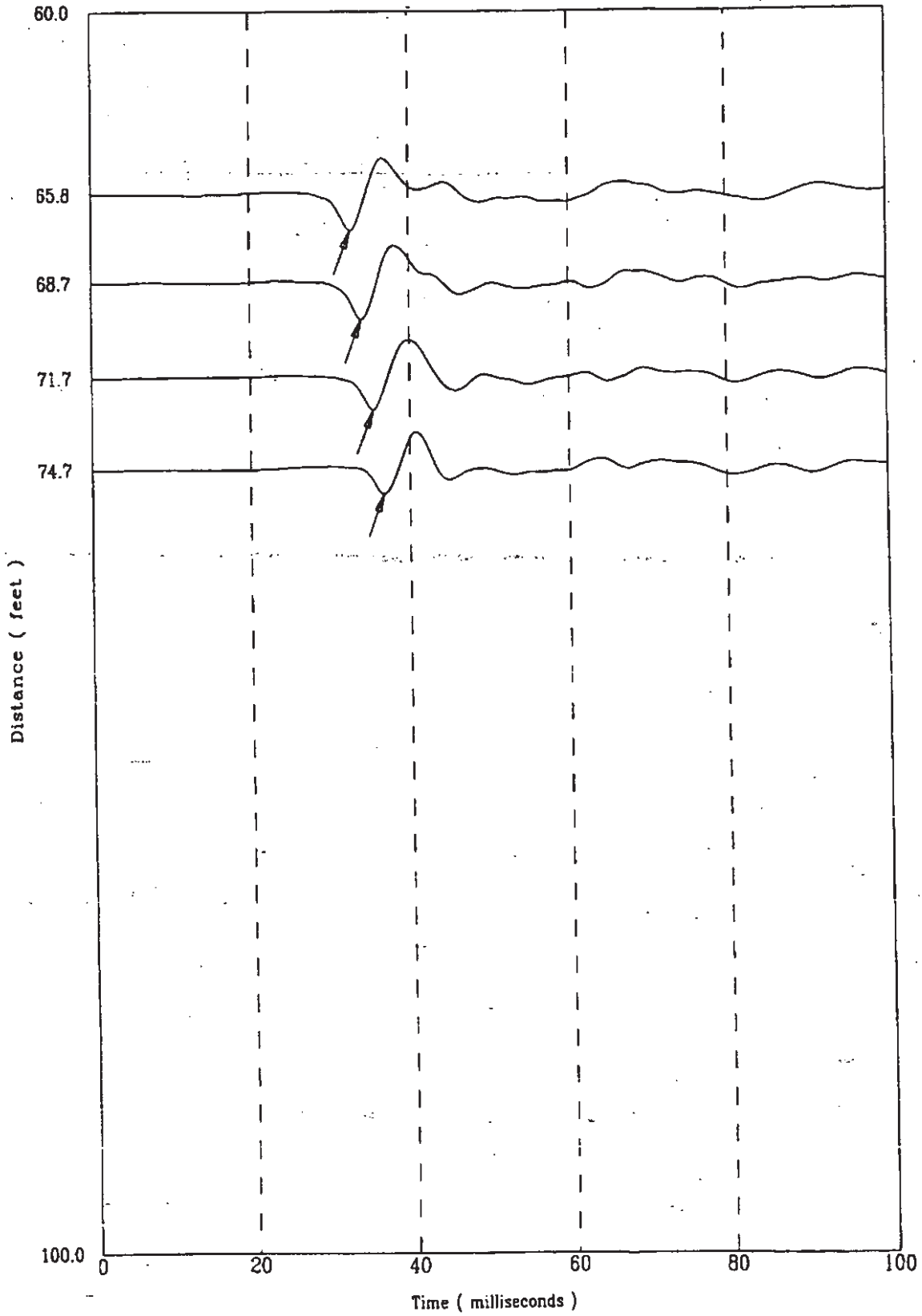
File 330m801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-174

P Wave  
03/30/98



330m801S



CPT-175

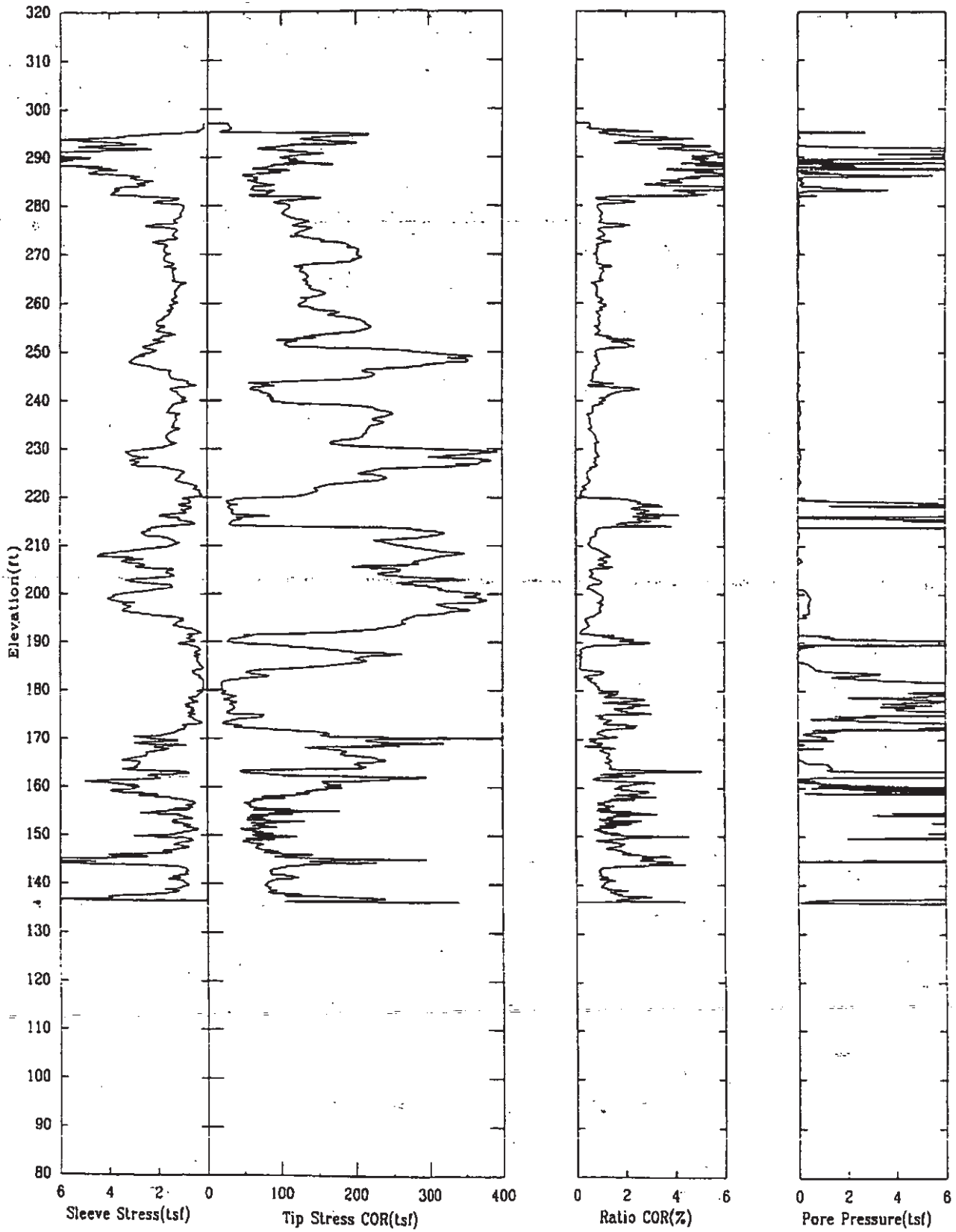
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/20/98 / o

North 78770

East 55451

Elevation 303.1



CPT-175

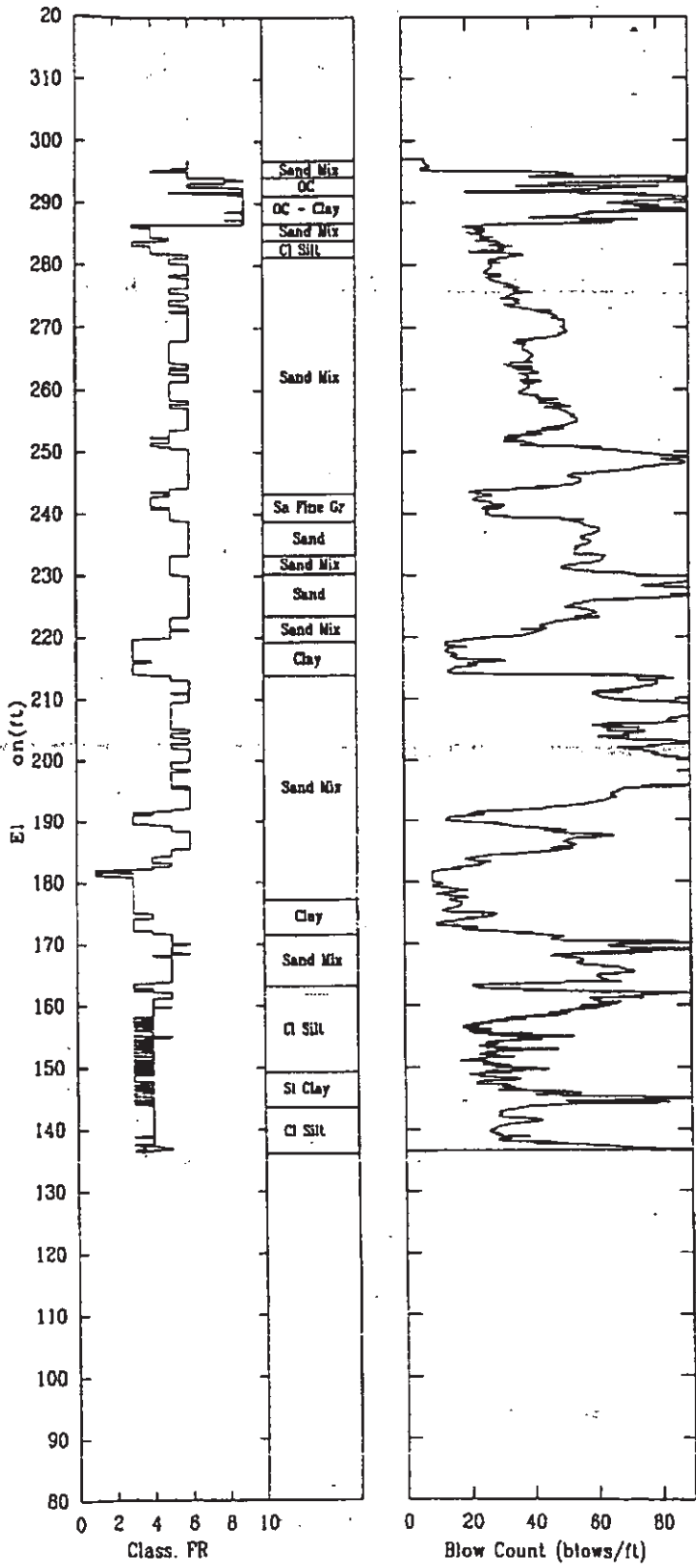
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/20/98/0

North 78770

East 55451

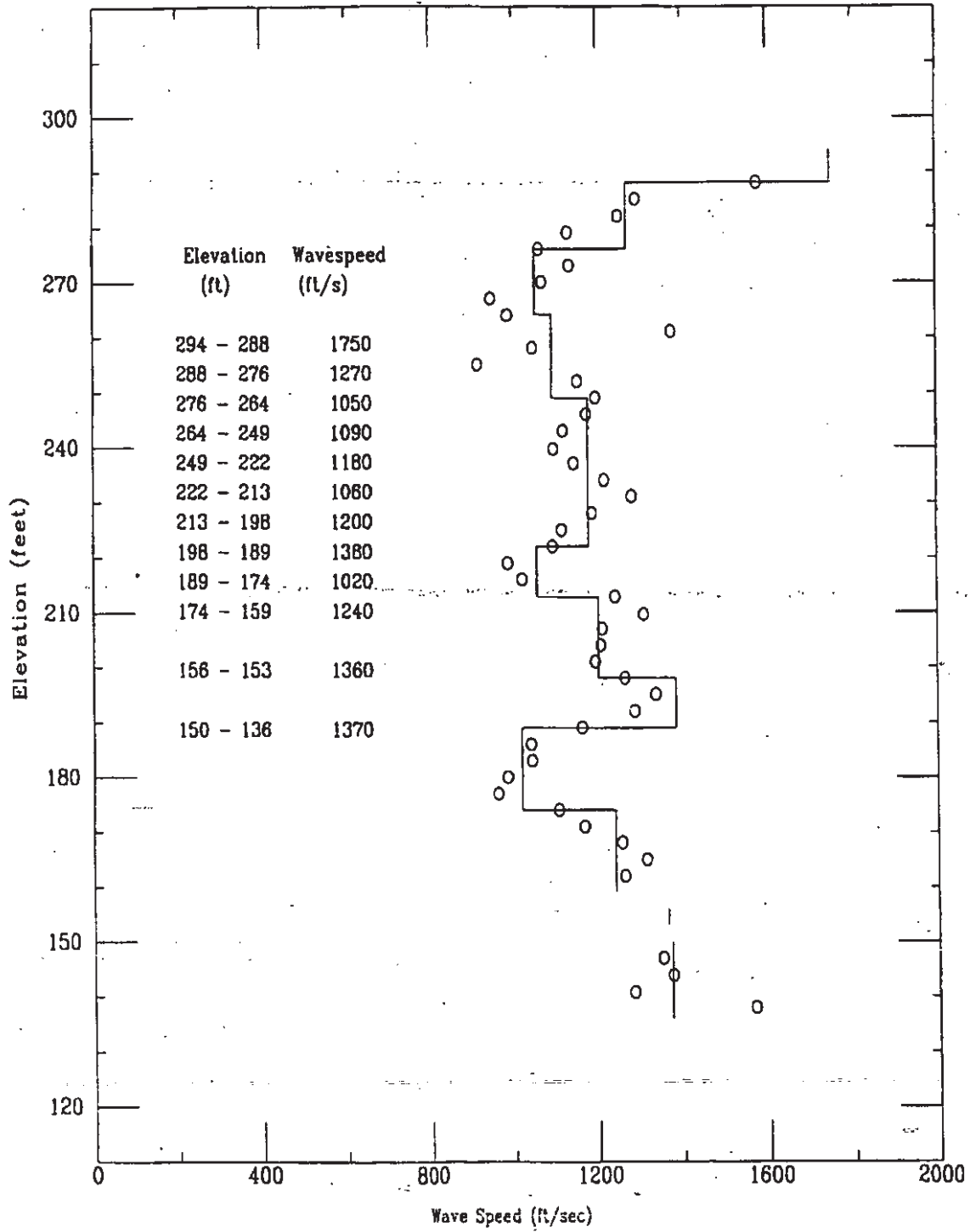
Elevation 303.1



CPT-175

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Speeds

03/20/98

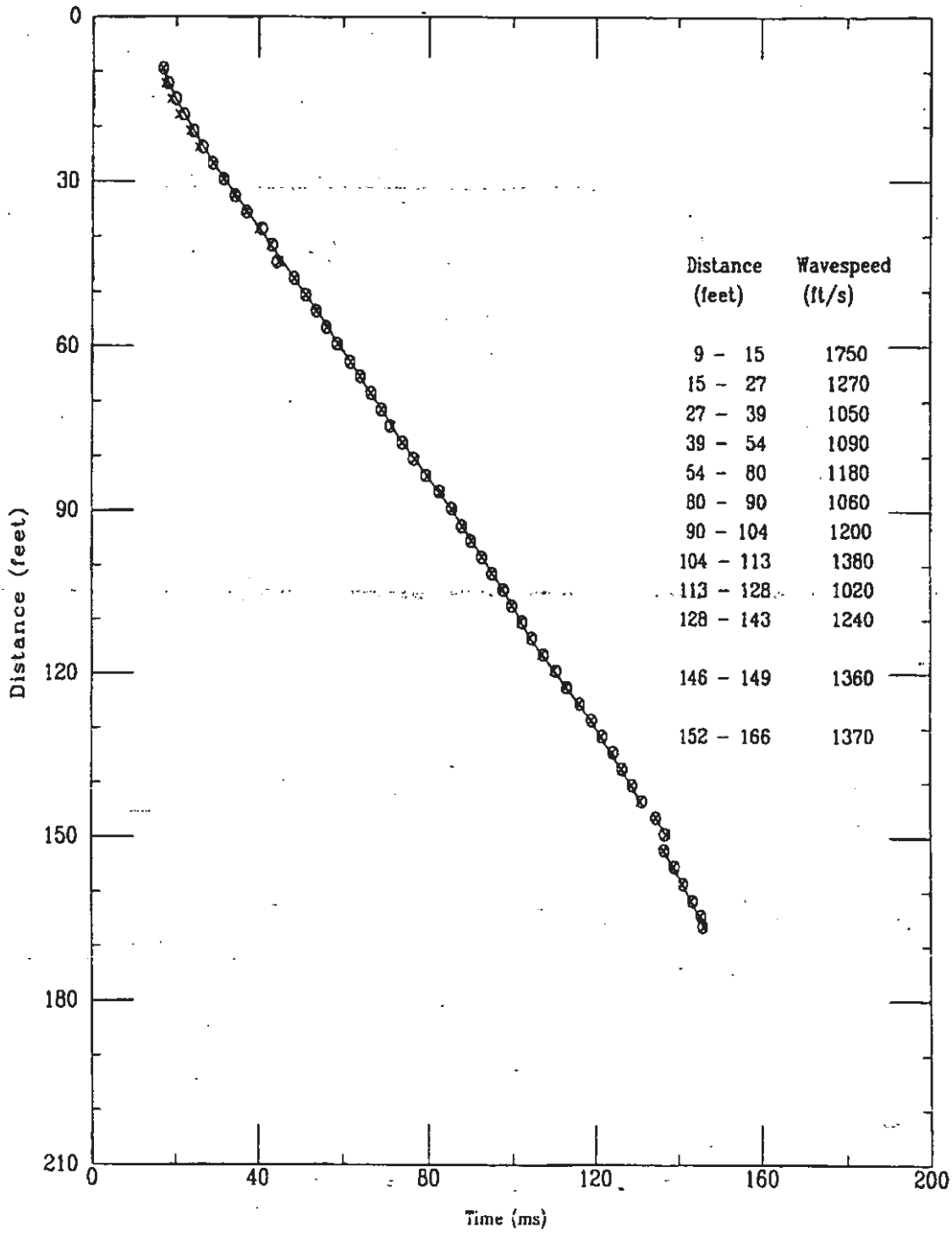


File 320m801S

CPT-175

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

03/20/98

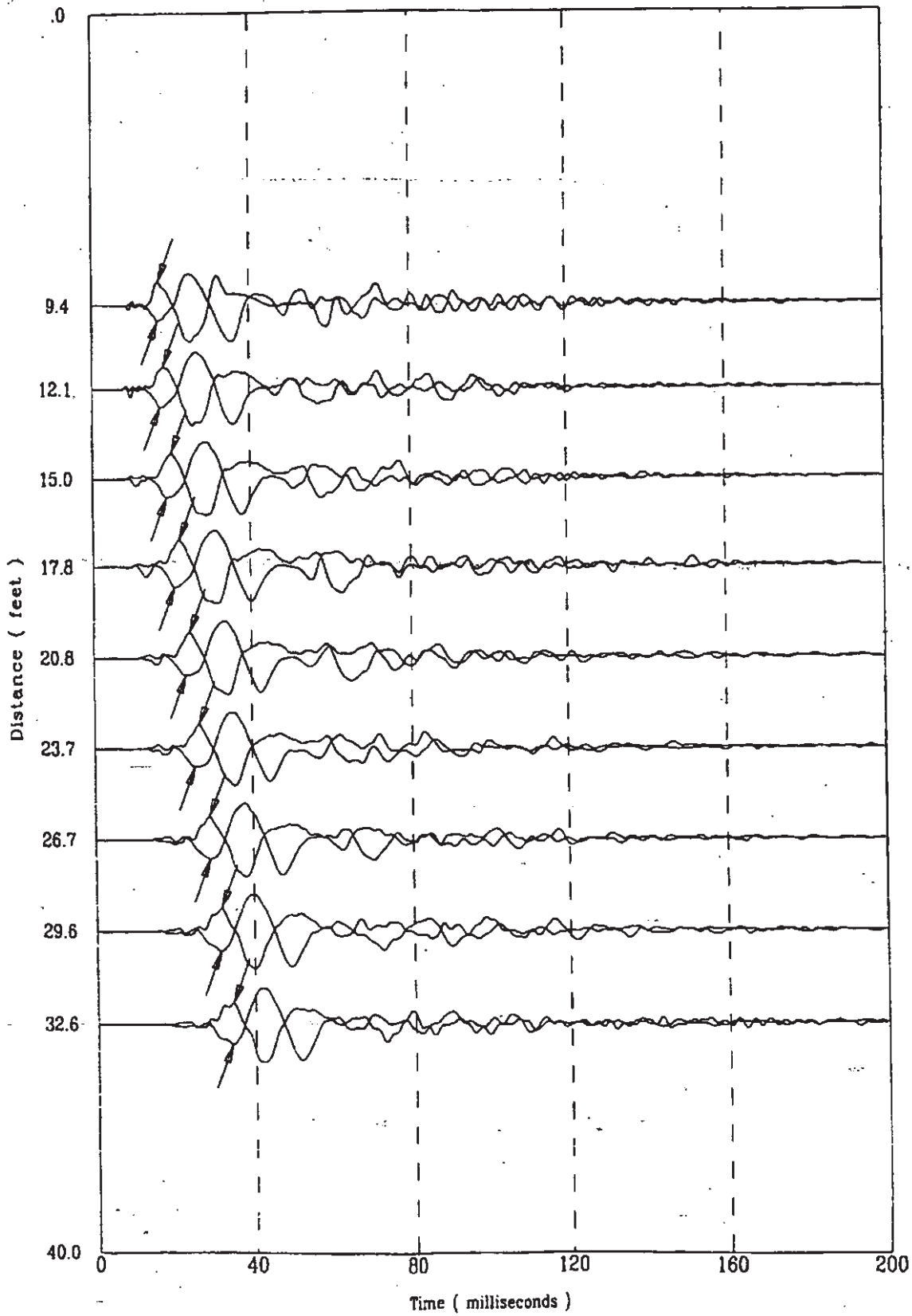


File 320m801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-175

S Wave  
03/20/98



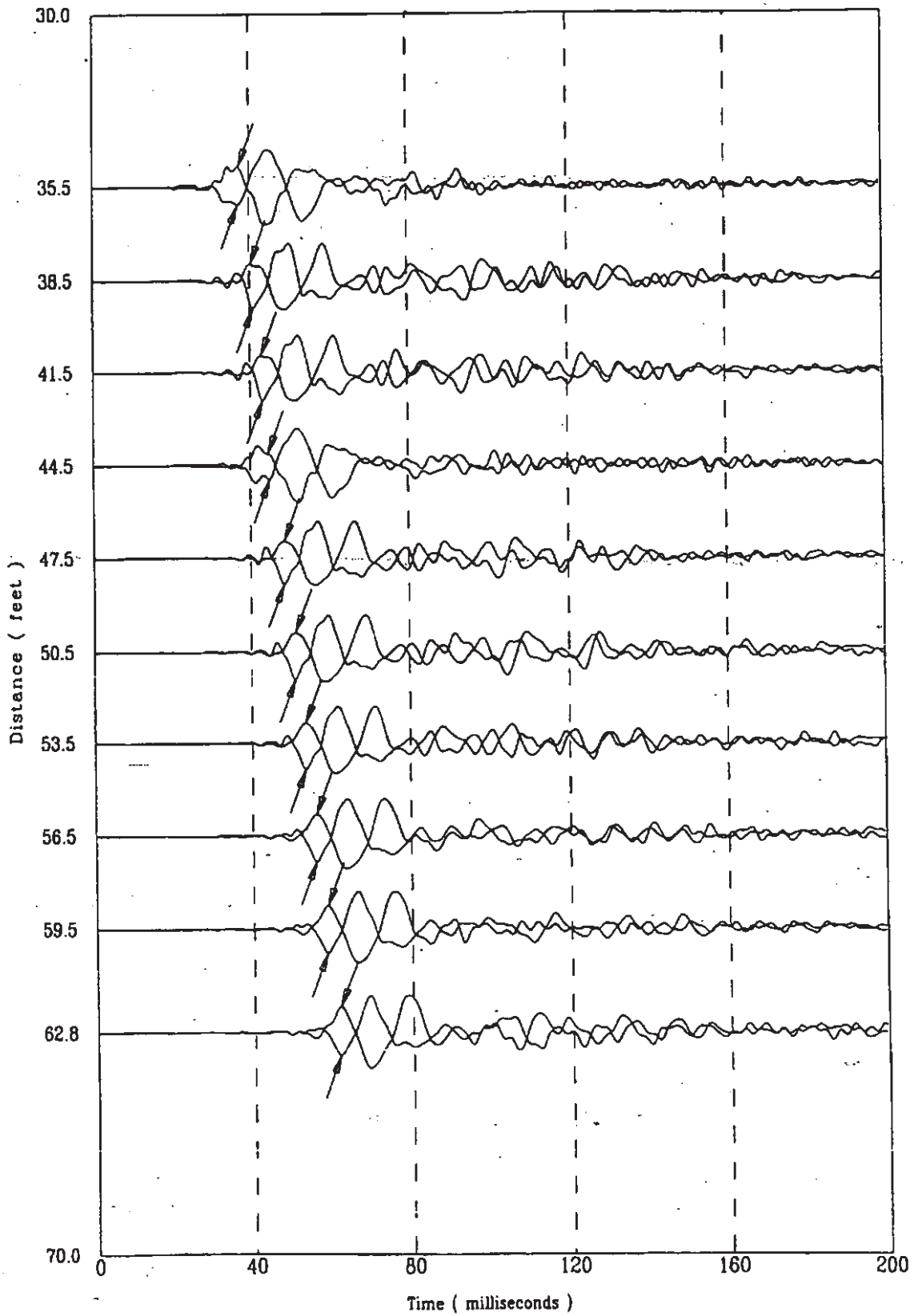
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-175

S Wave  
03/20/98



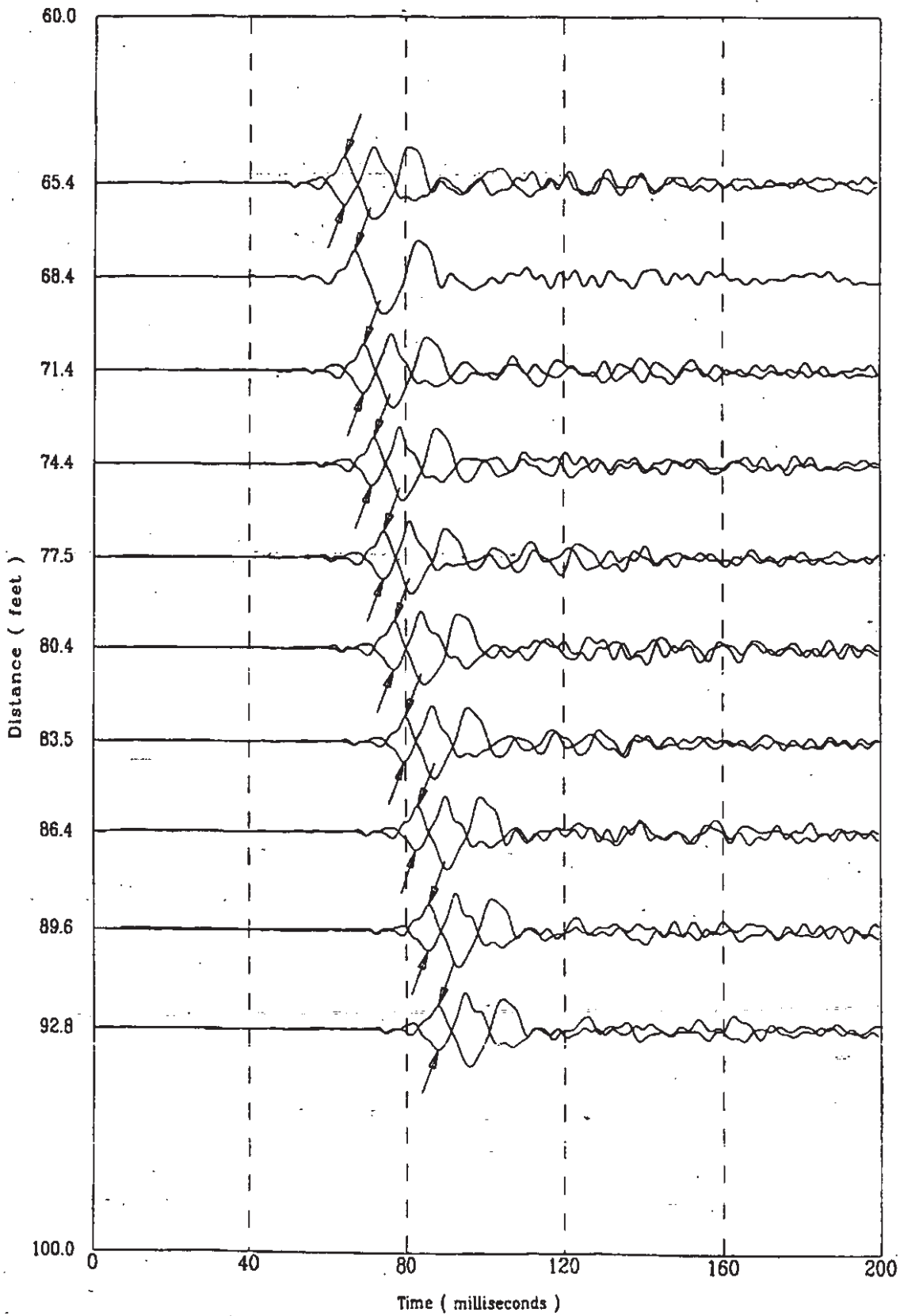
J20m8015

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-175

S Wave  
03/20/98



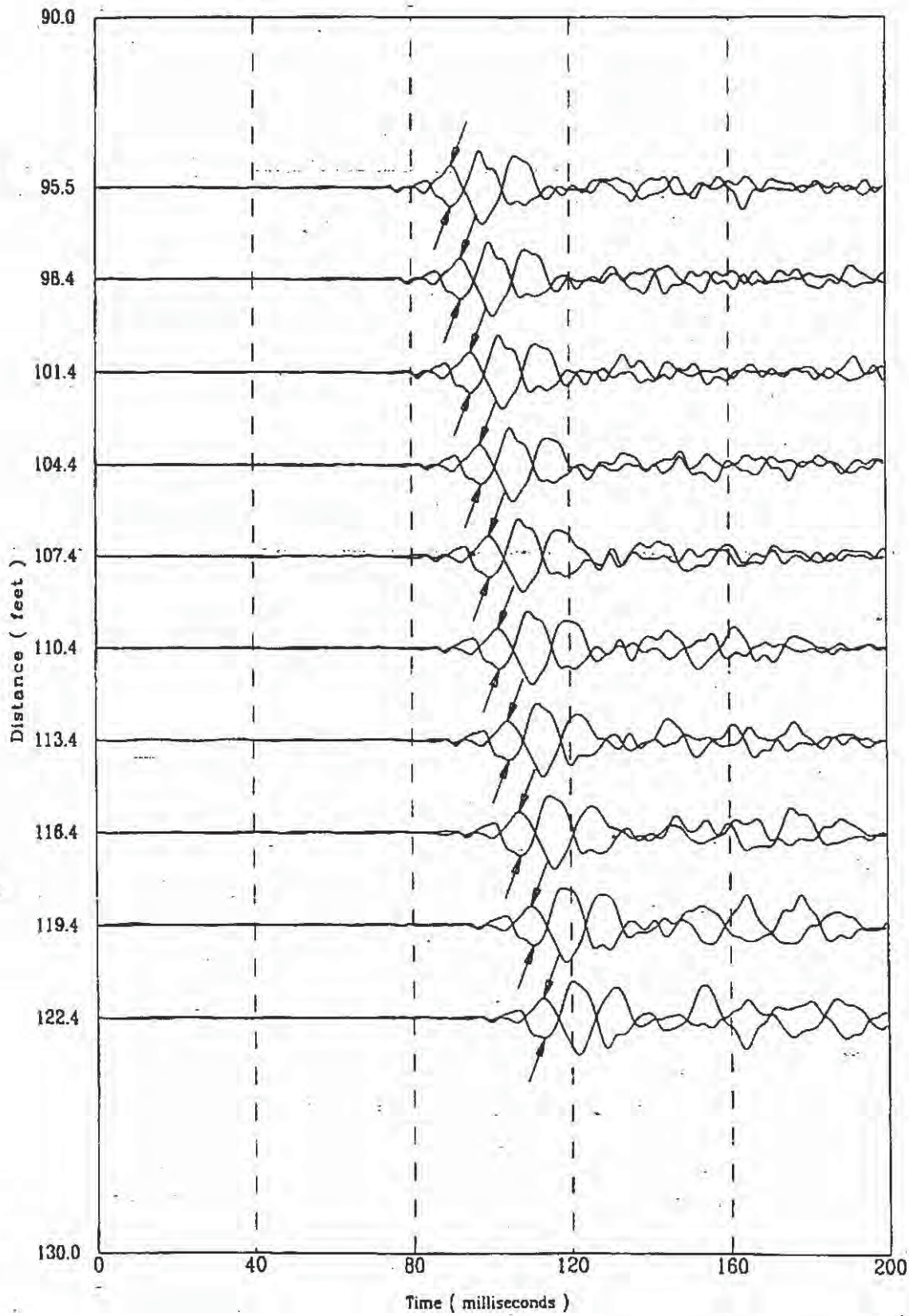
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-175

S Wave  
03/20/98

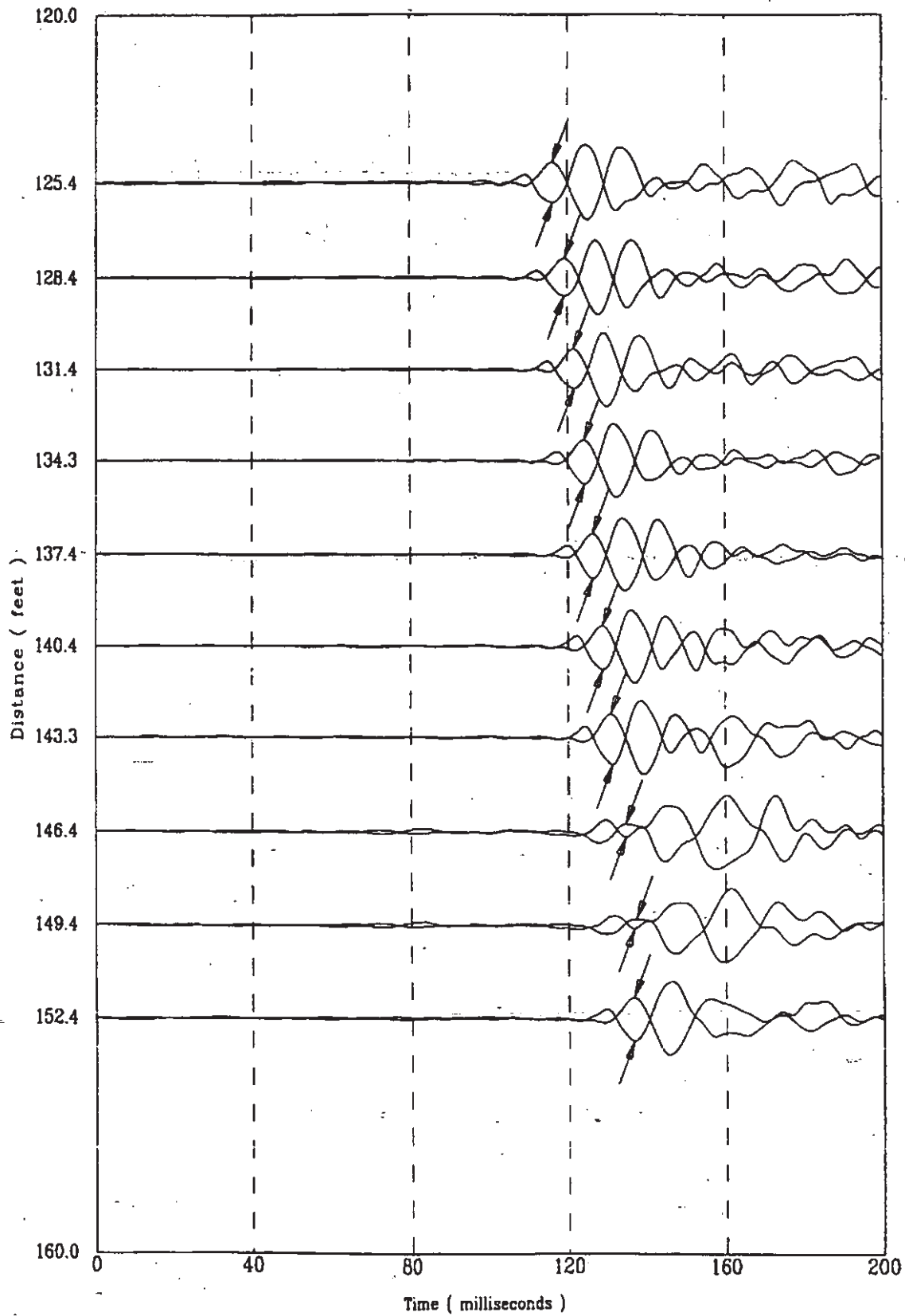


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Applied Research Associates, Inc.  
CPT-175

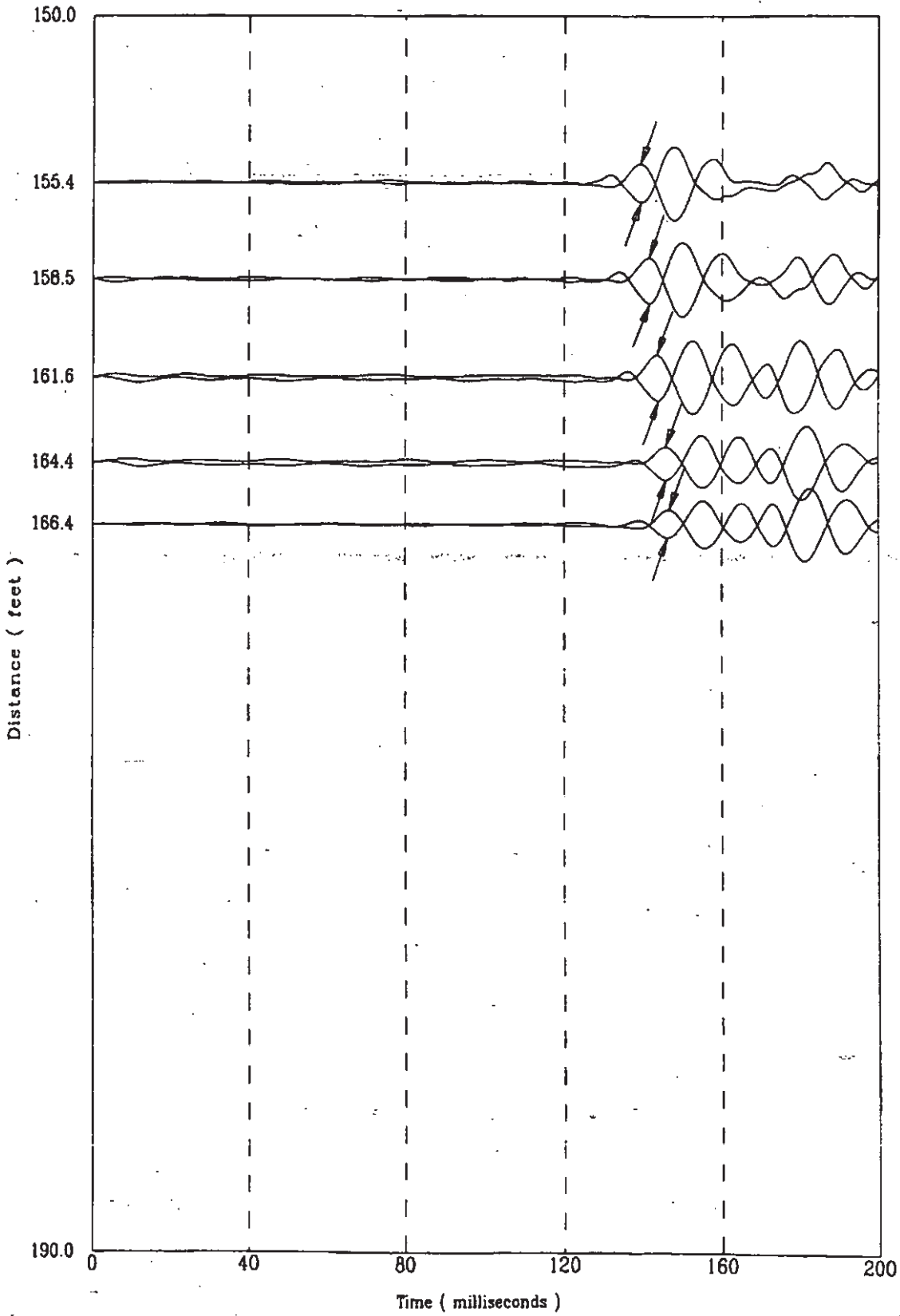
S Wave  
03/20/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-175

S Wave  
03/20/98

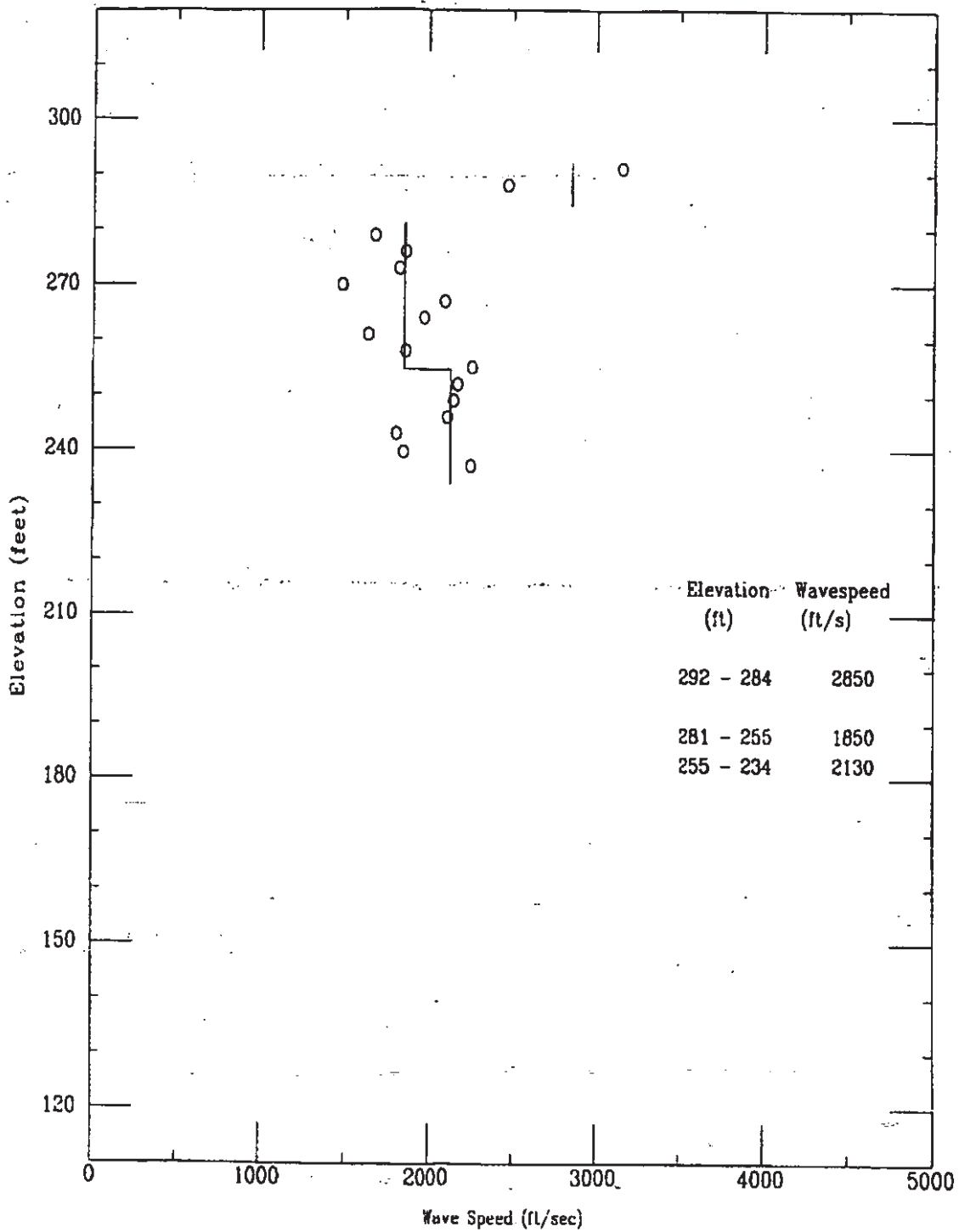


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APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

03/20/98



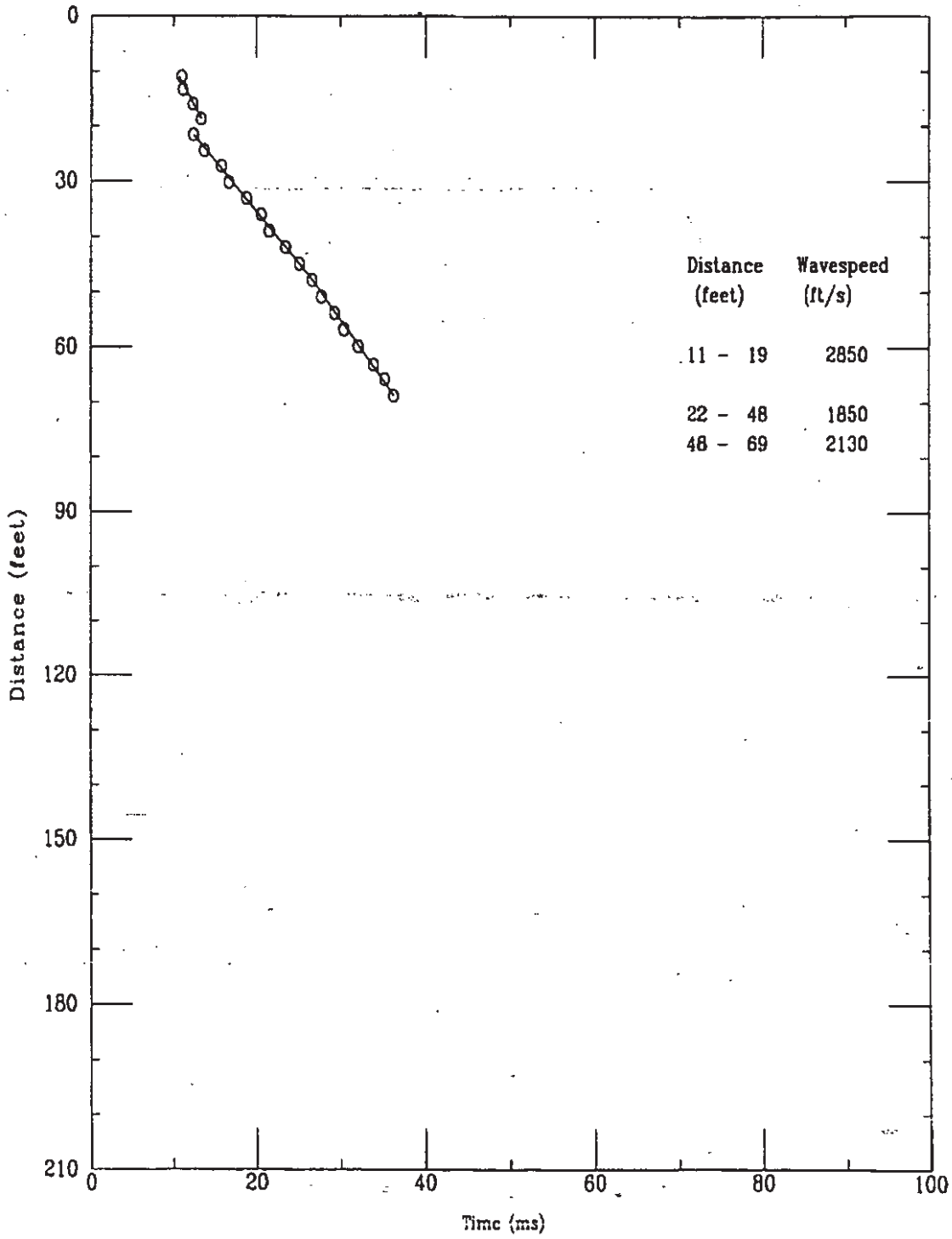
File 320m801S

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CPT-175

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/20/98

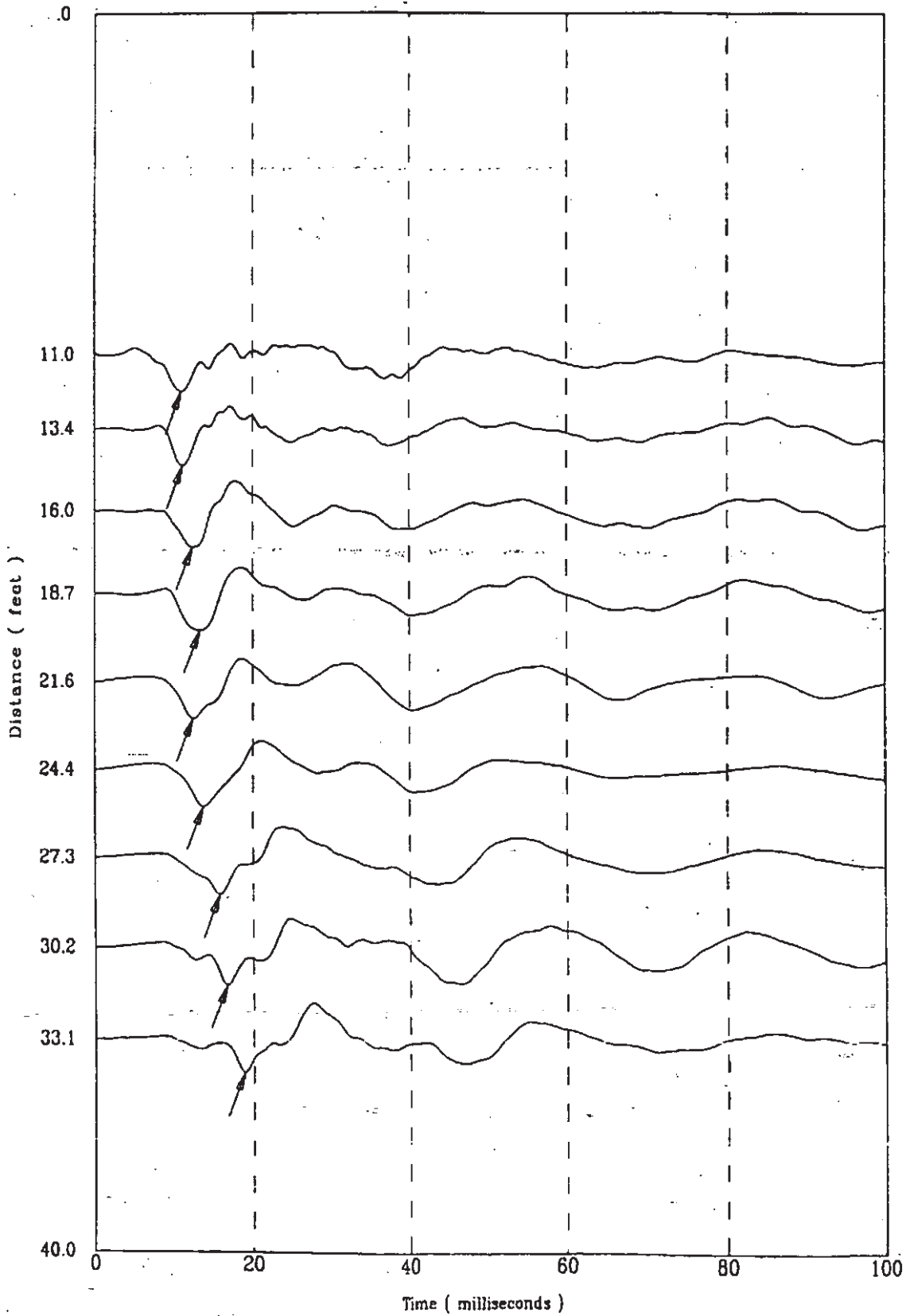


File 320m8015

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-175

P Wave  
03/20/98



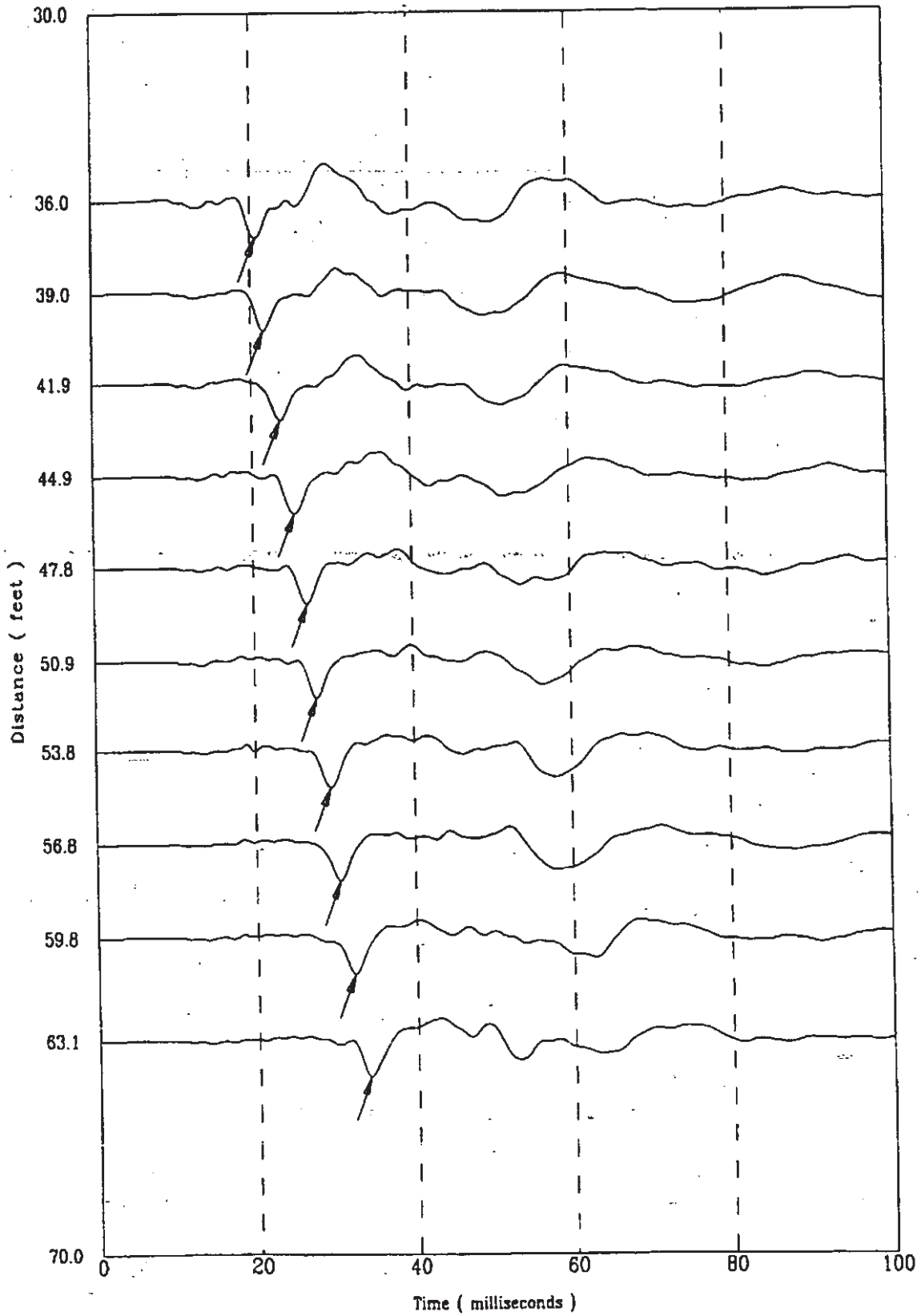
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-175

P Wave  
03/20/98

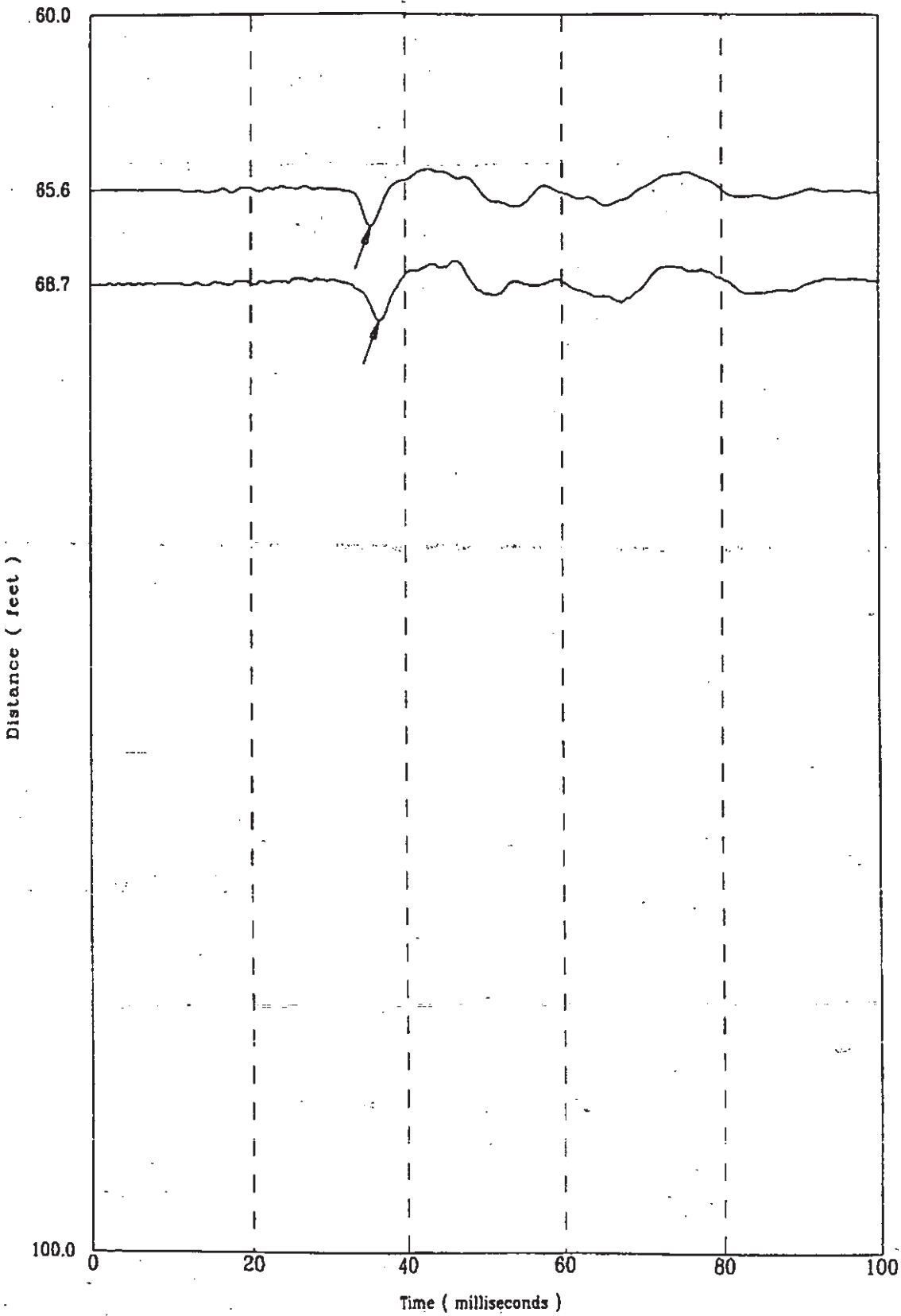


320m801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-175

P Wave  
03/20/98



File 320m801S

CPT-176

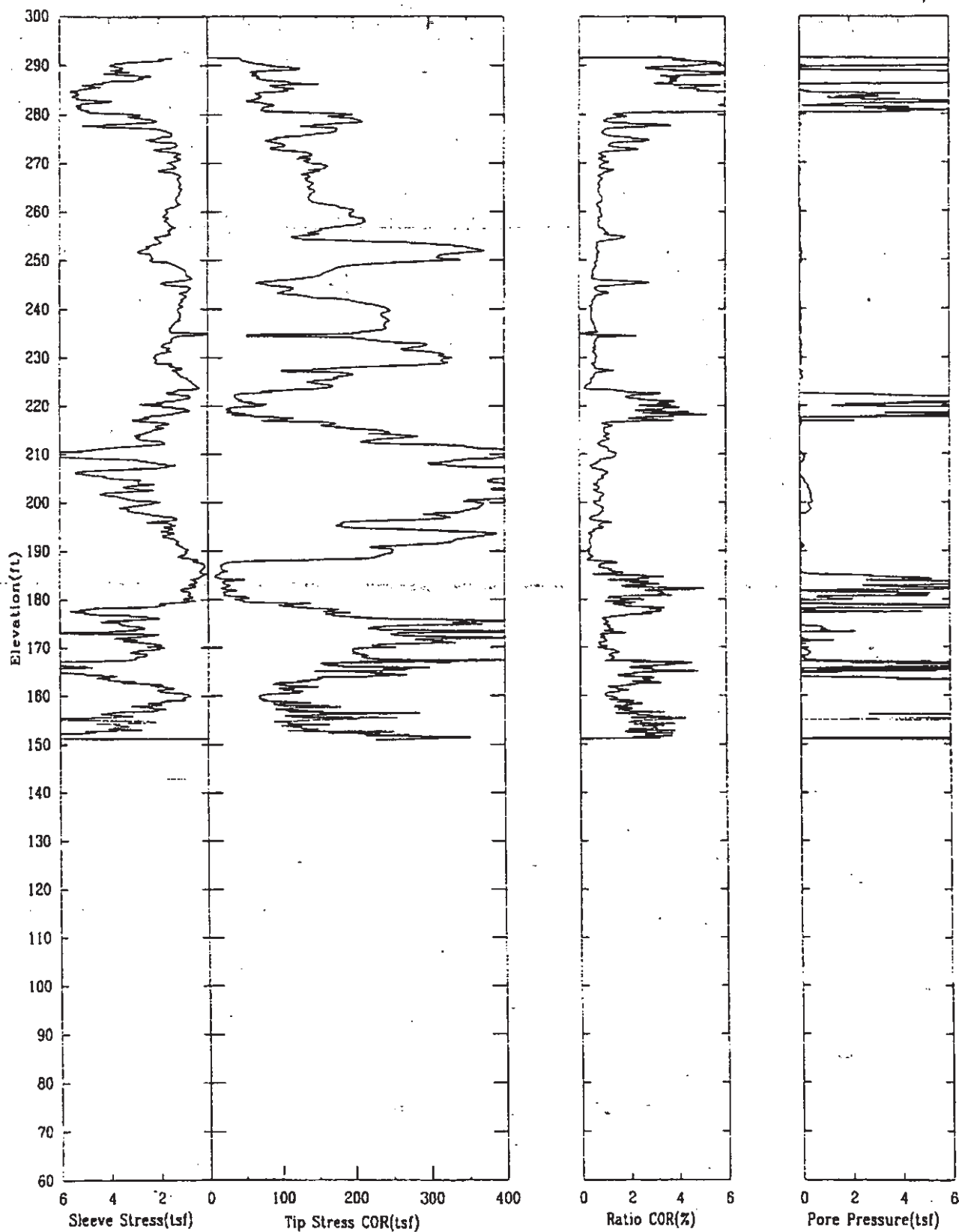
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/26/98 / 0

North 78770

East 55583

Elevation 297.6





CPT-176

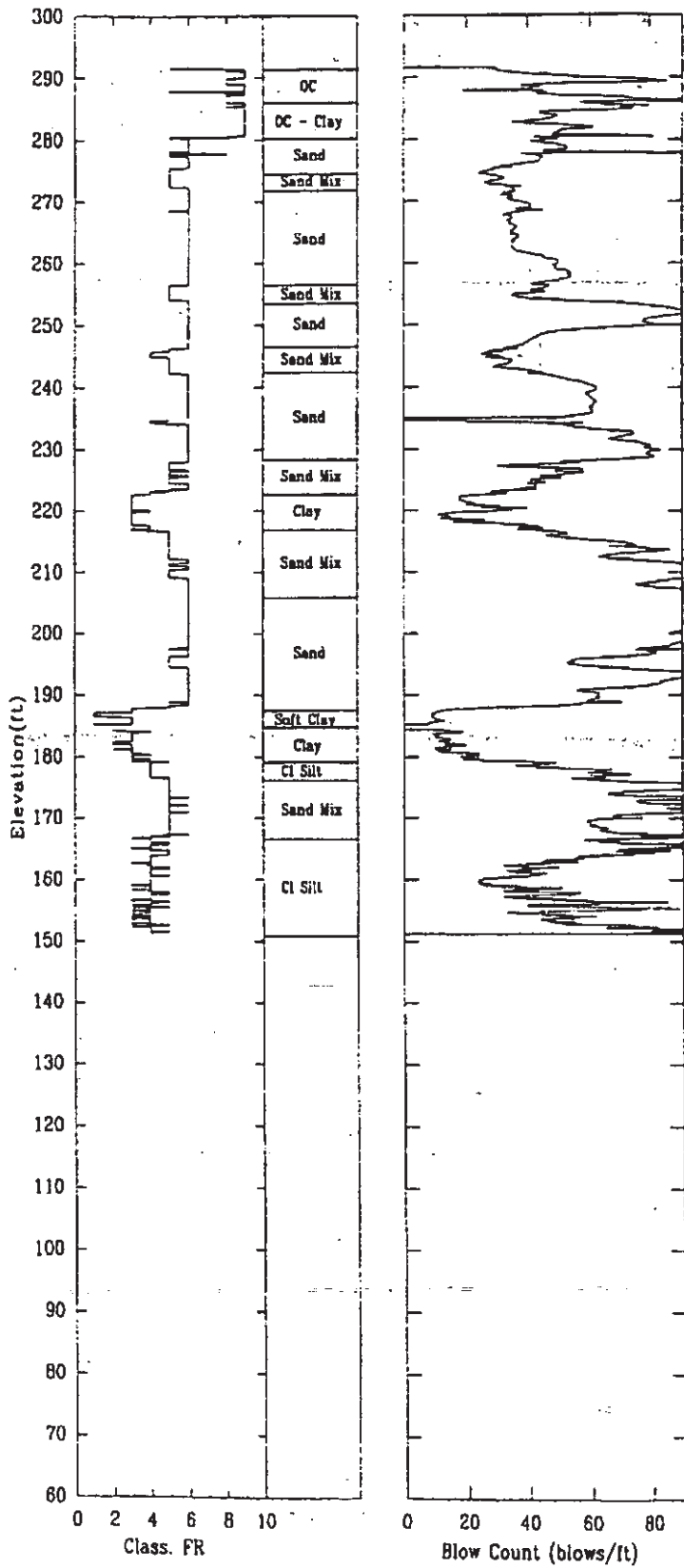
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/26/98R/0

North 78770

East 55583

Elevation 297.6

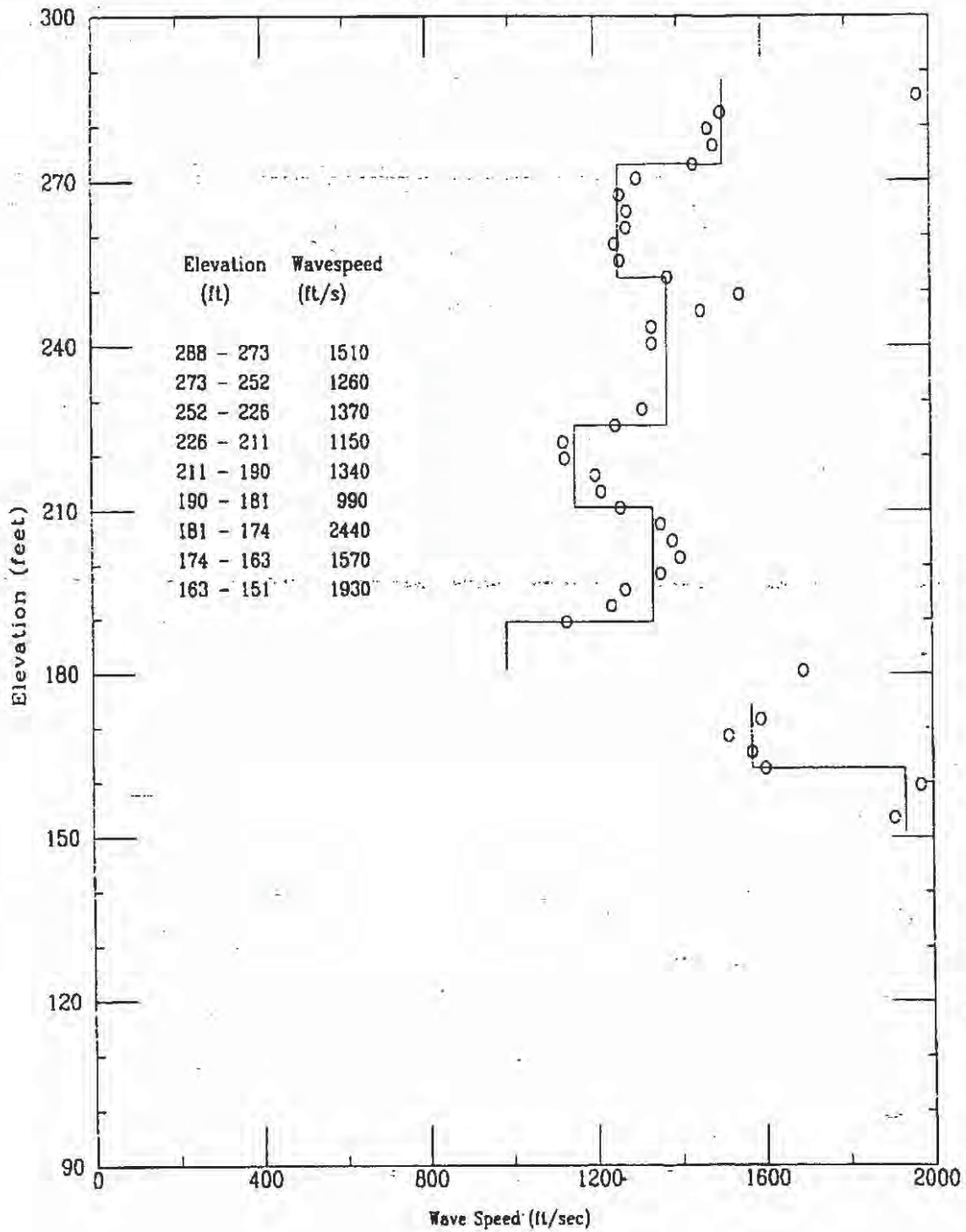


CPT-176

APPLIED RESEARCH ASSOCIATES, INC.

03/26/98

Shear Wave Speeds

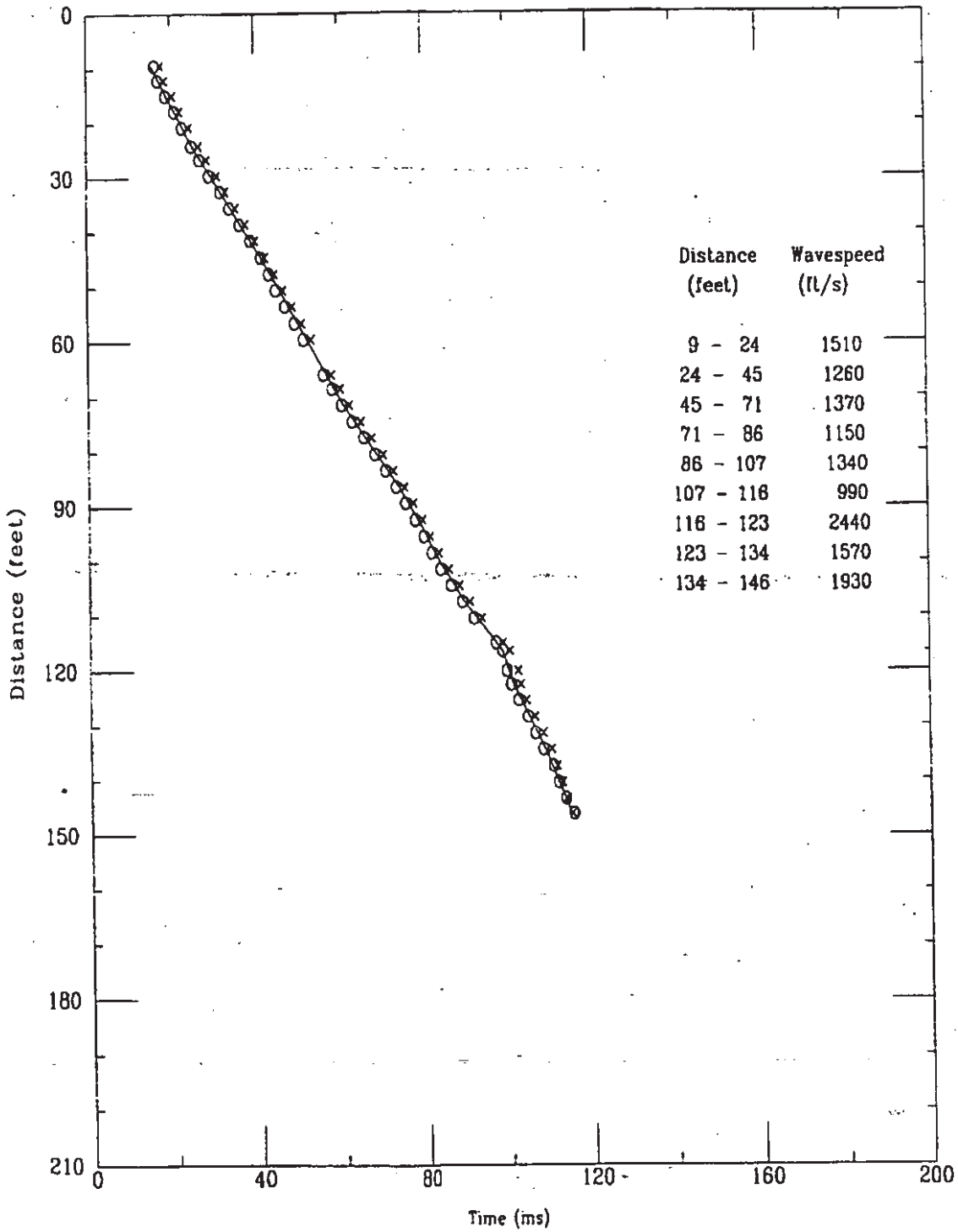


File 326m8055

CPT-176

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

03/26/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-176

S Wave  
03/26/98

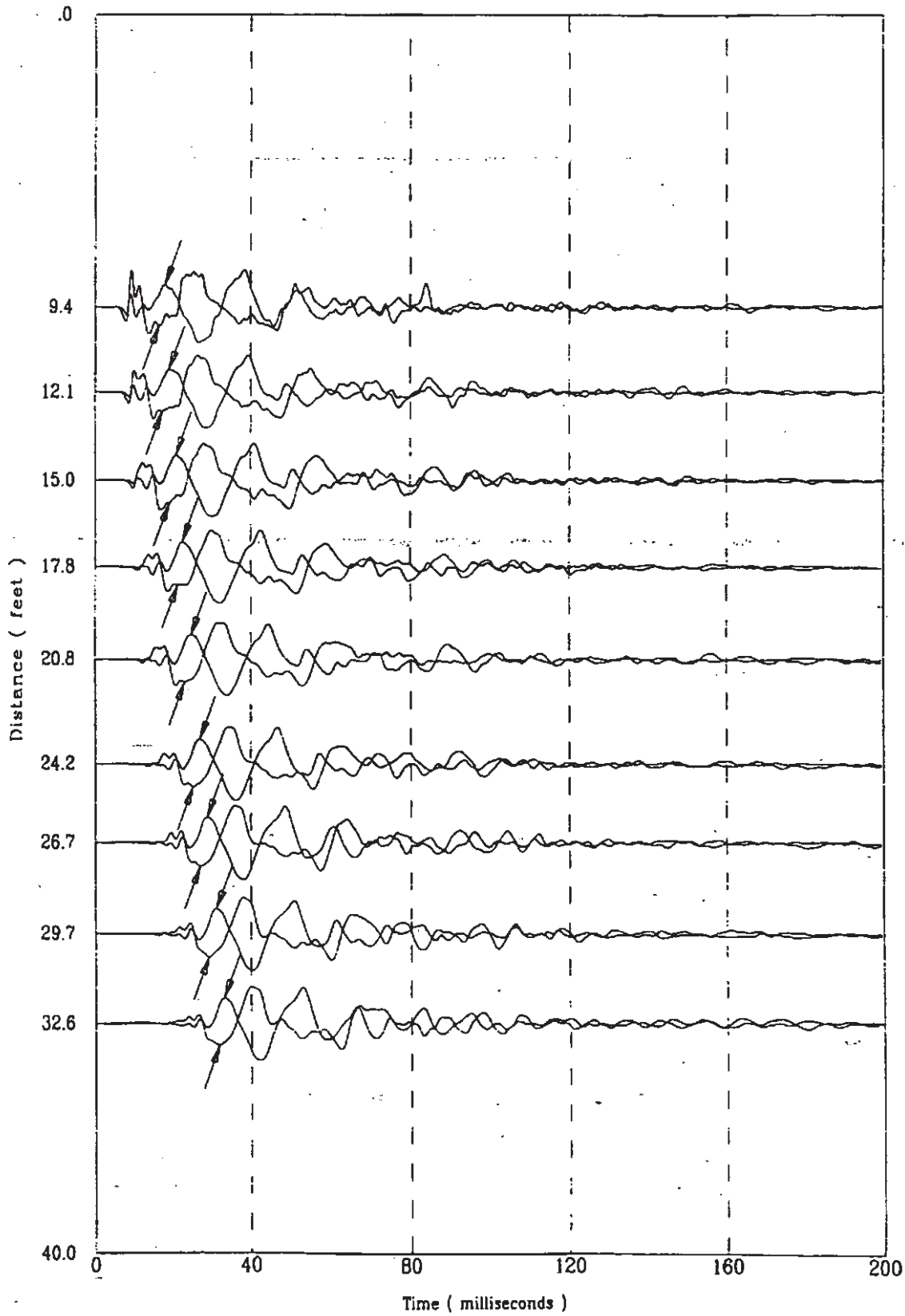
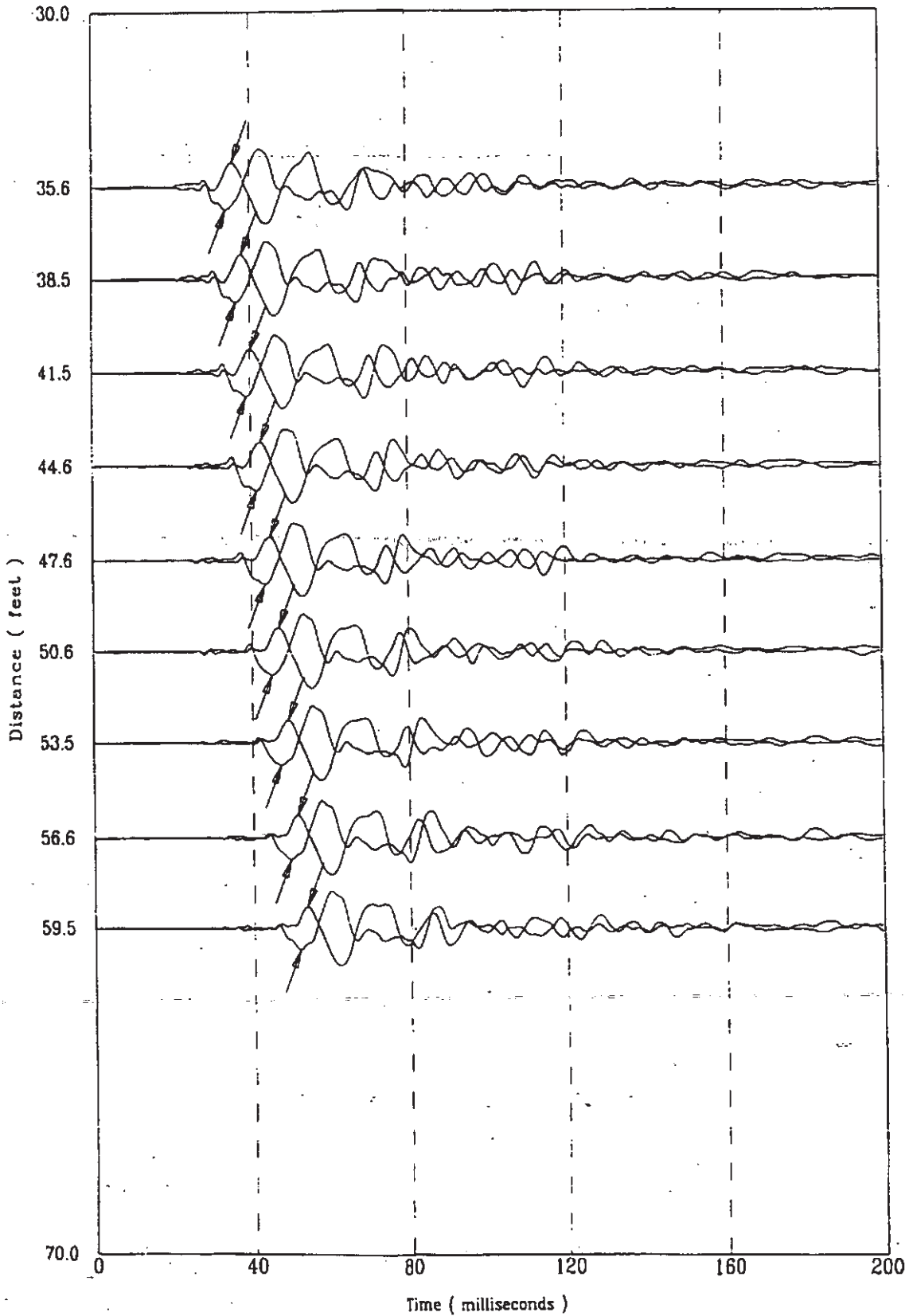


FIG. J26m805S

Applied Research Associates, Inc.  
CPT-176

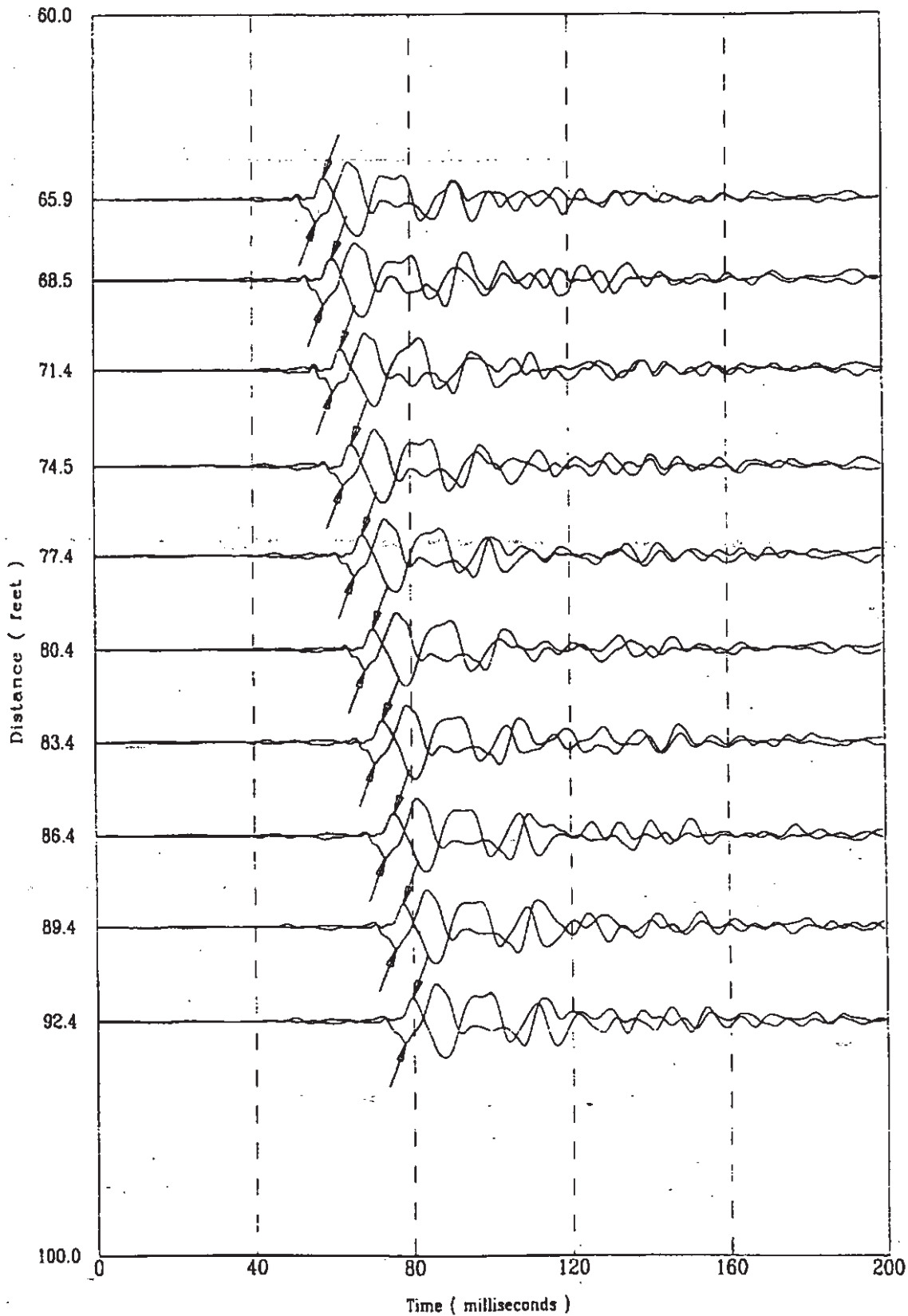
S Wave  
03/26/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-176

S Wave  
03/26/98

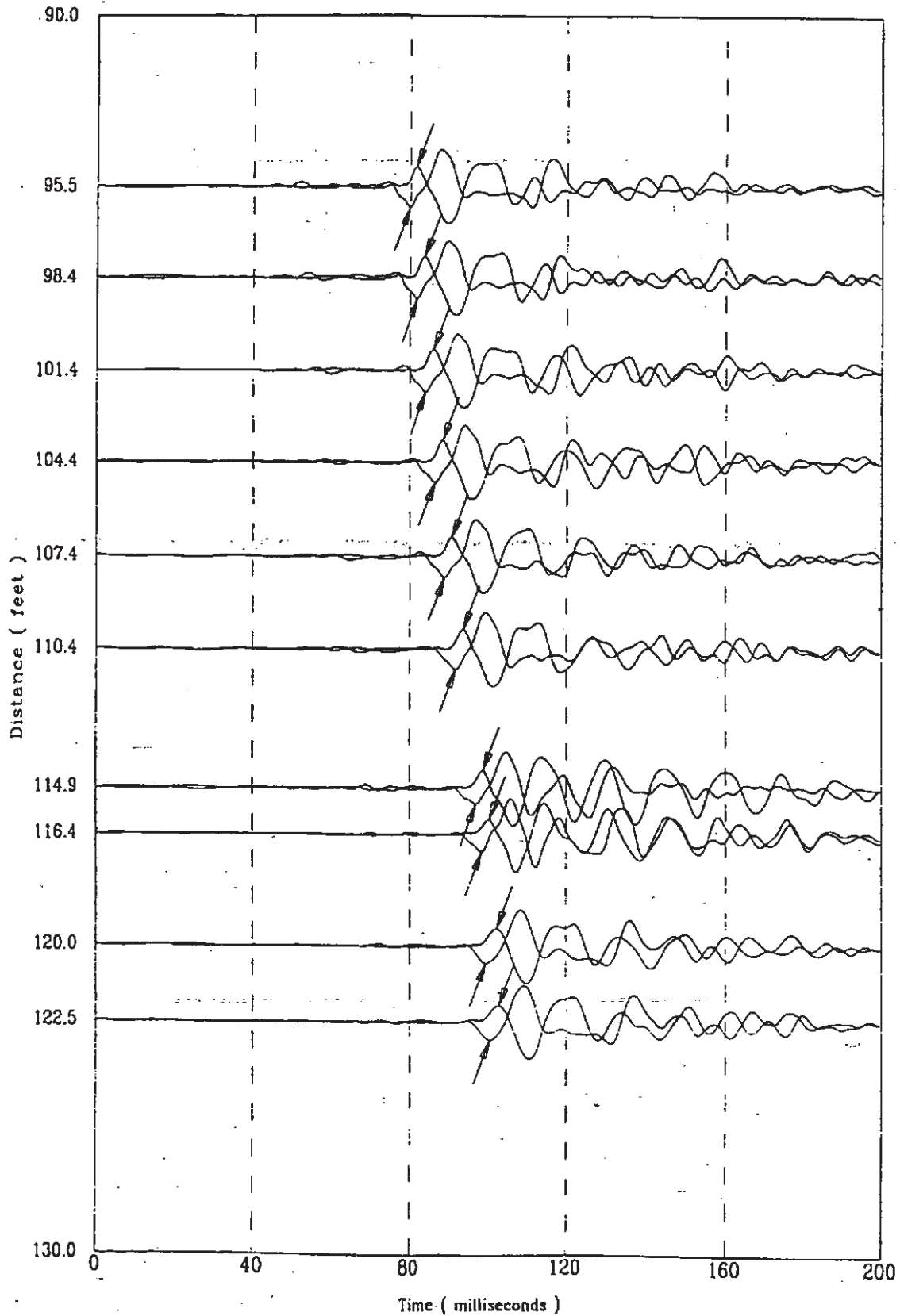


file 326m005S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-176

S Wave  
03/26/98



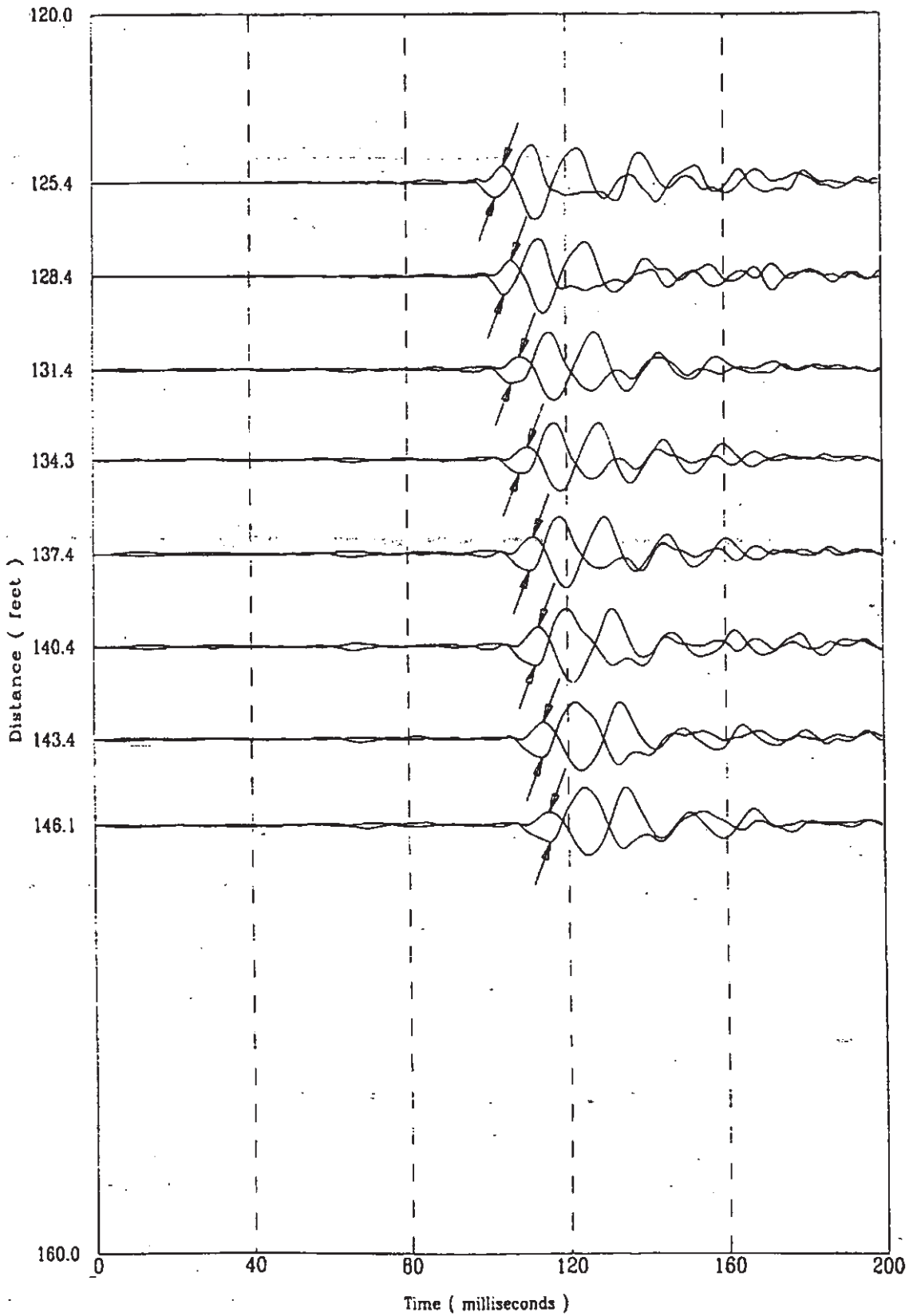
File 326m8055

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-176

S Wave  
03/26/98



FILE 326m805S

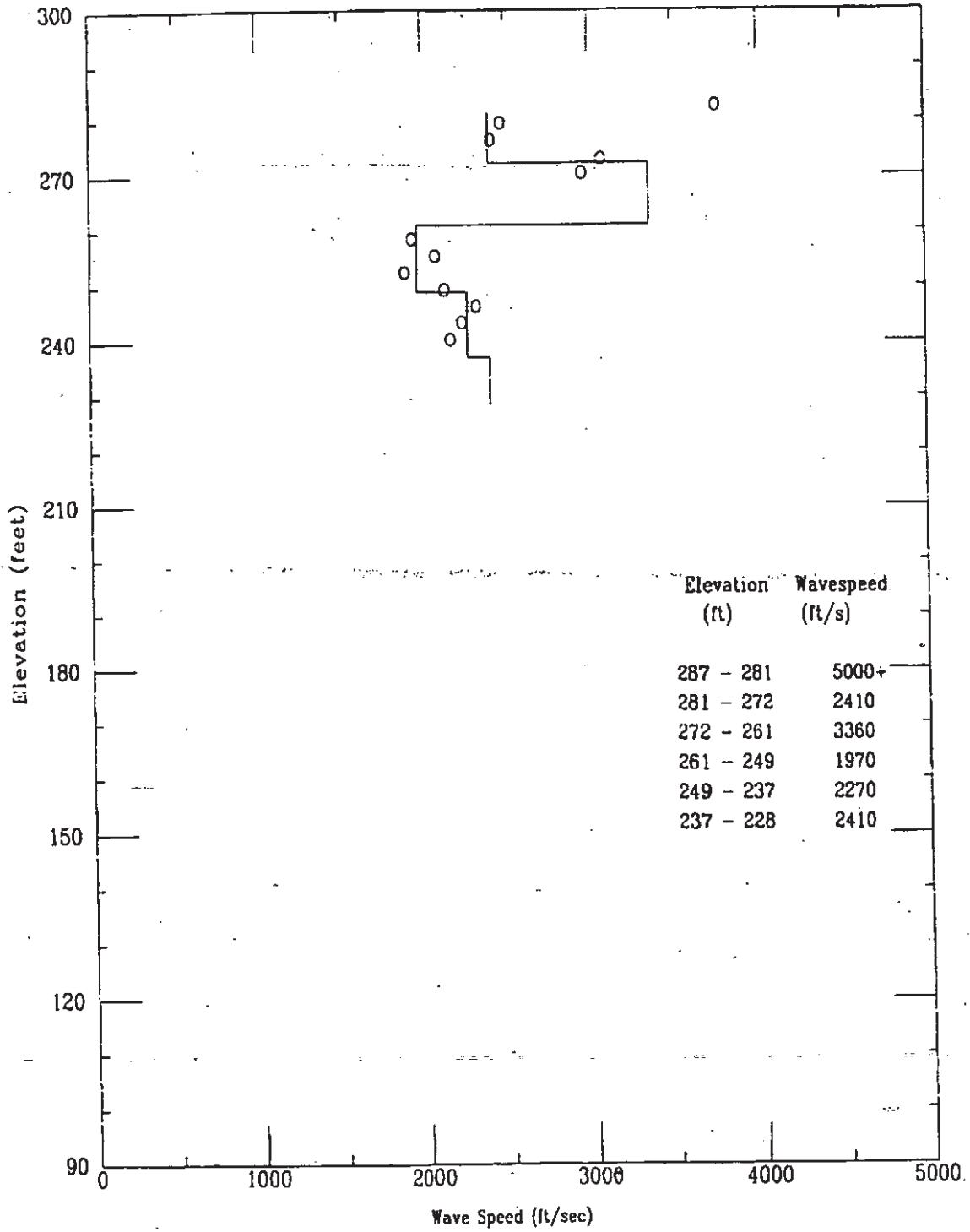
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APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

03/26/98

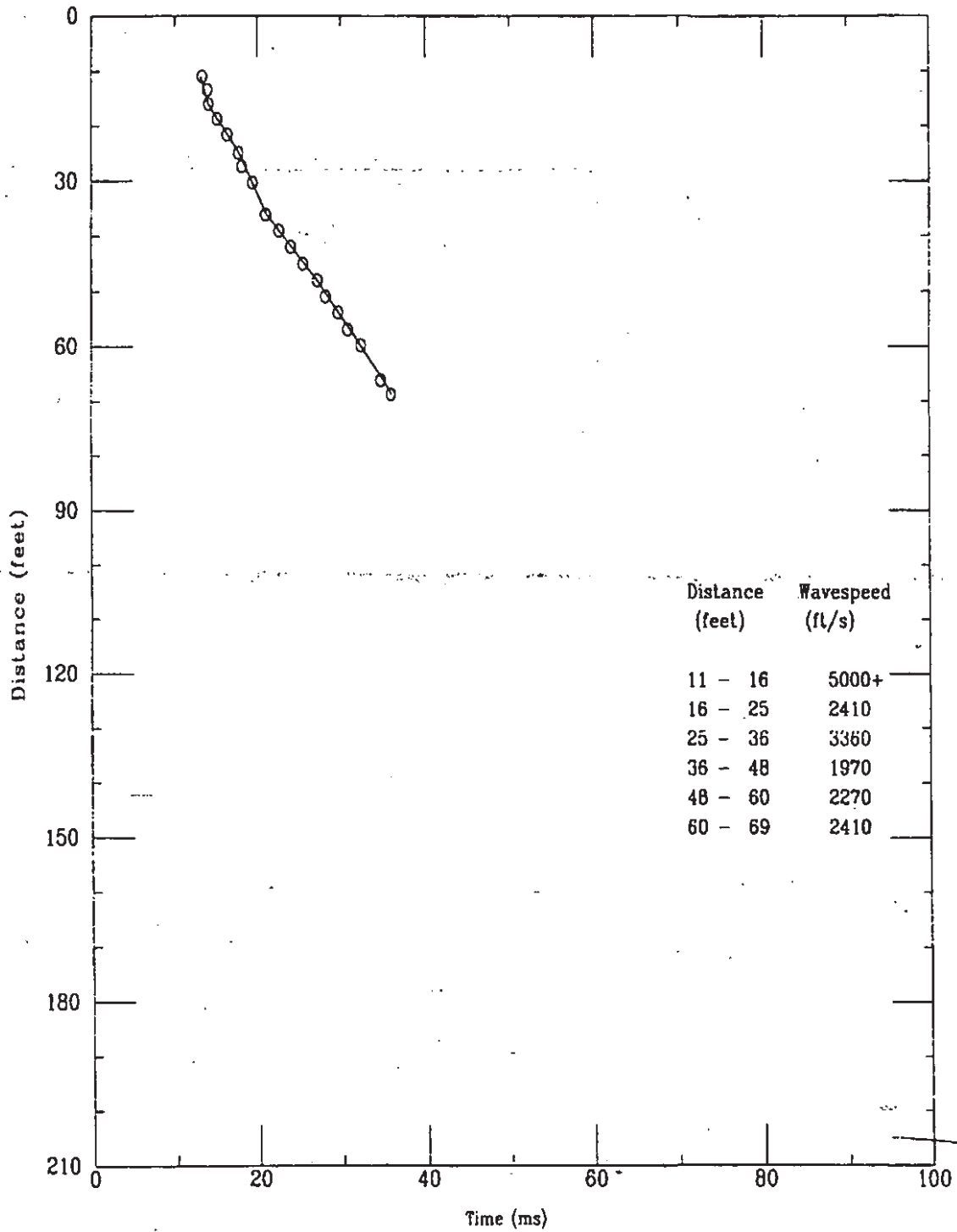


File 326m805S

CPT-176

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

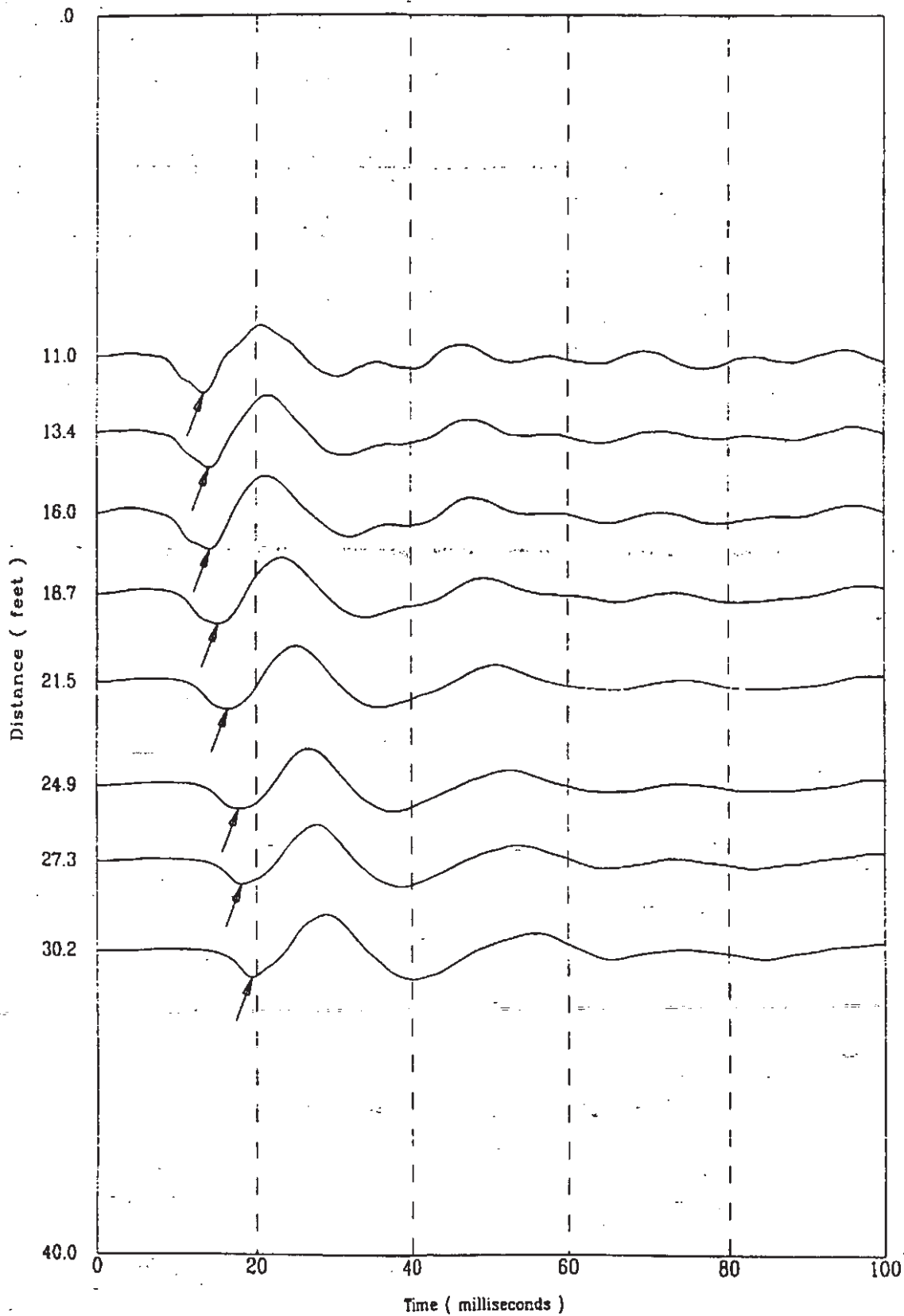
03/26/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-176

P Wave  
03/26/98



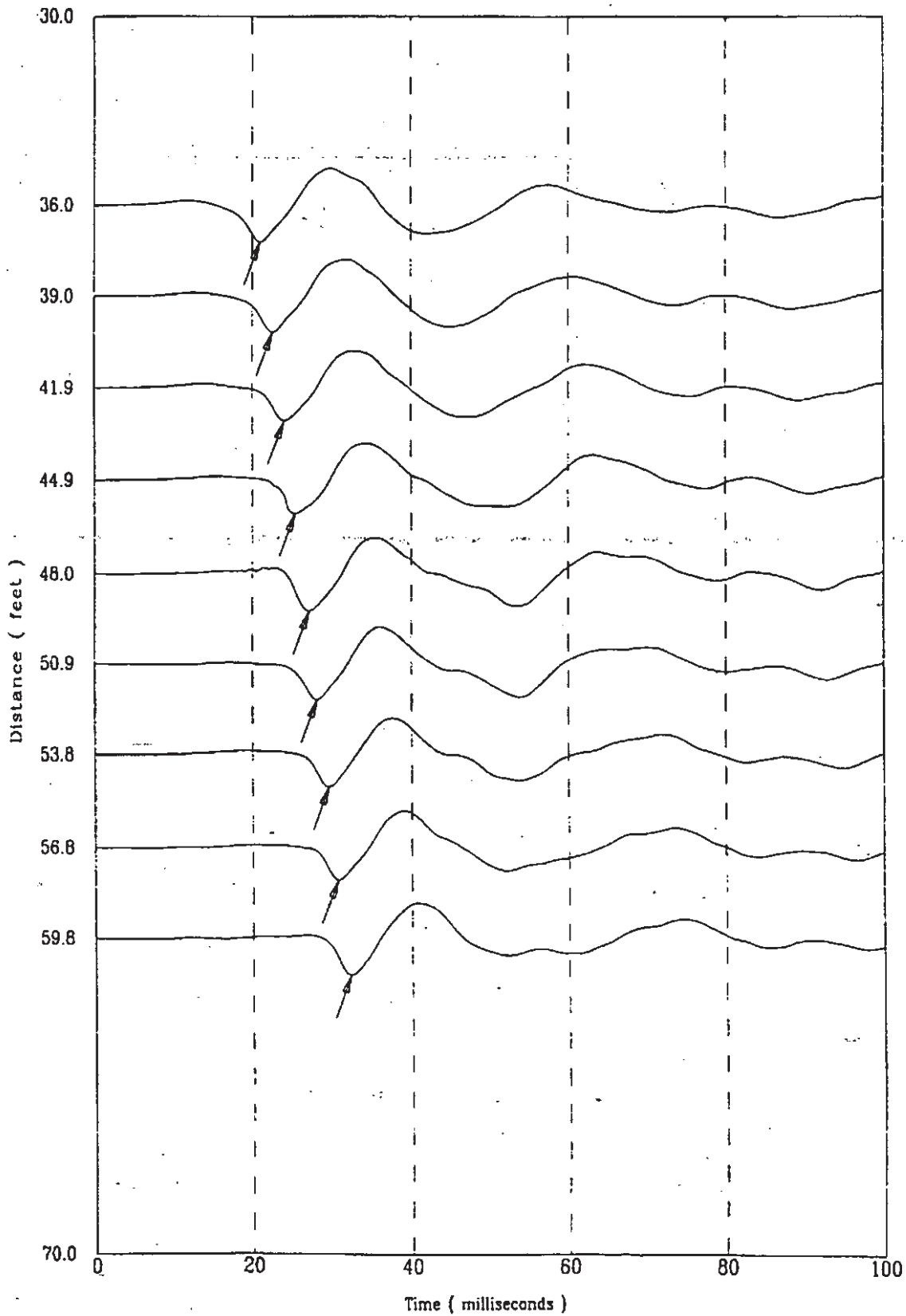
File 326m805S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-176

P Wave  
03/26/98



File 326m805S

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CPT-177

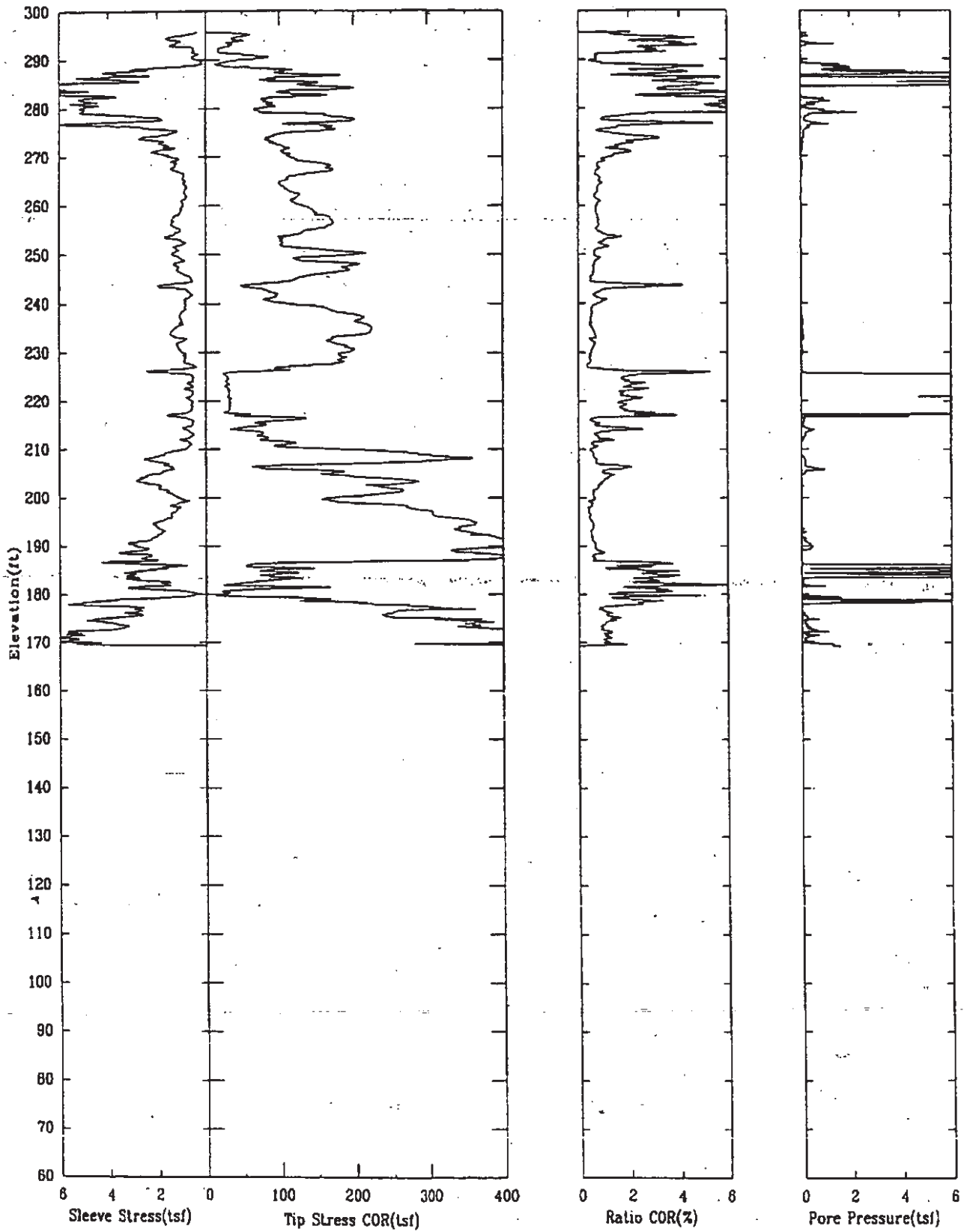
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-0000/  
03/27/98 / 0

North 78770

East 55715

Elevation 301.7



CPT-177

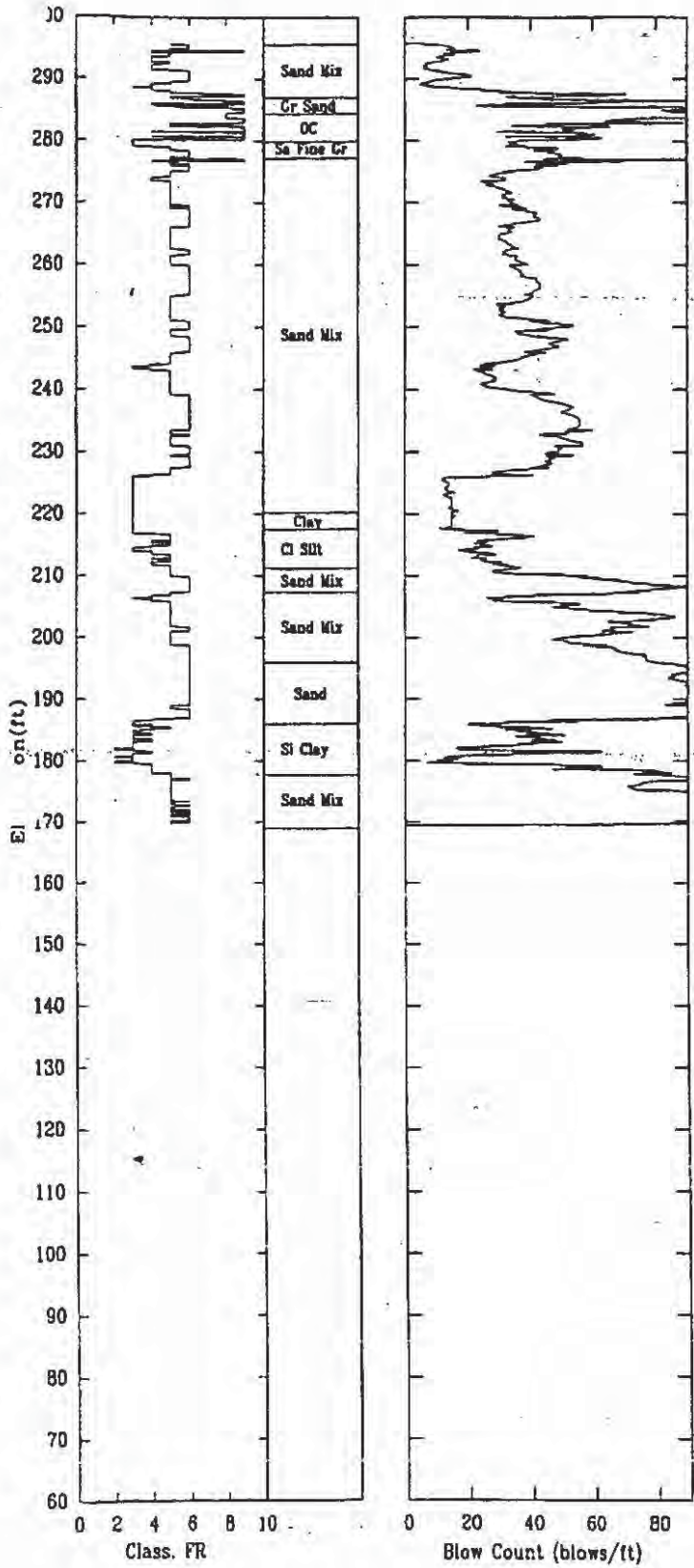
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K-TRT-F-00001  
03/27/98 R/O

North 78770

East 55715

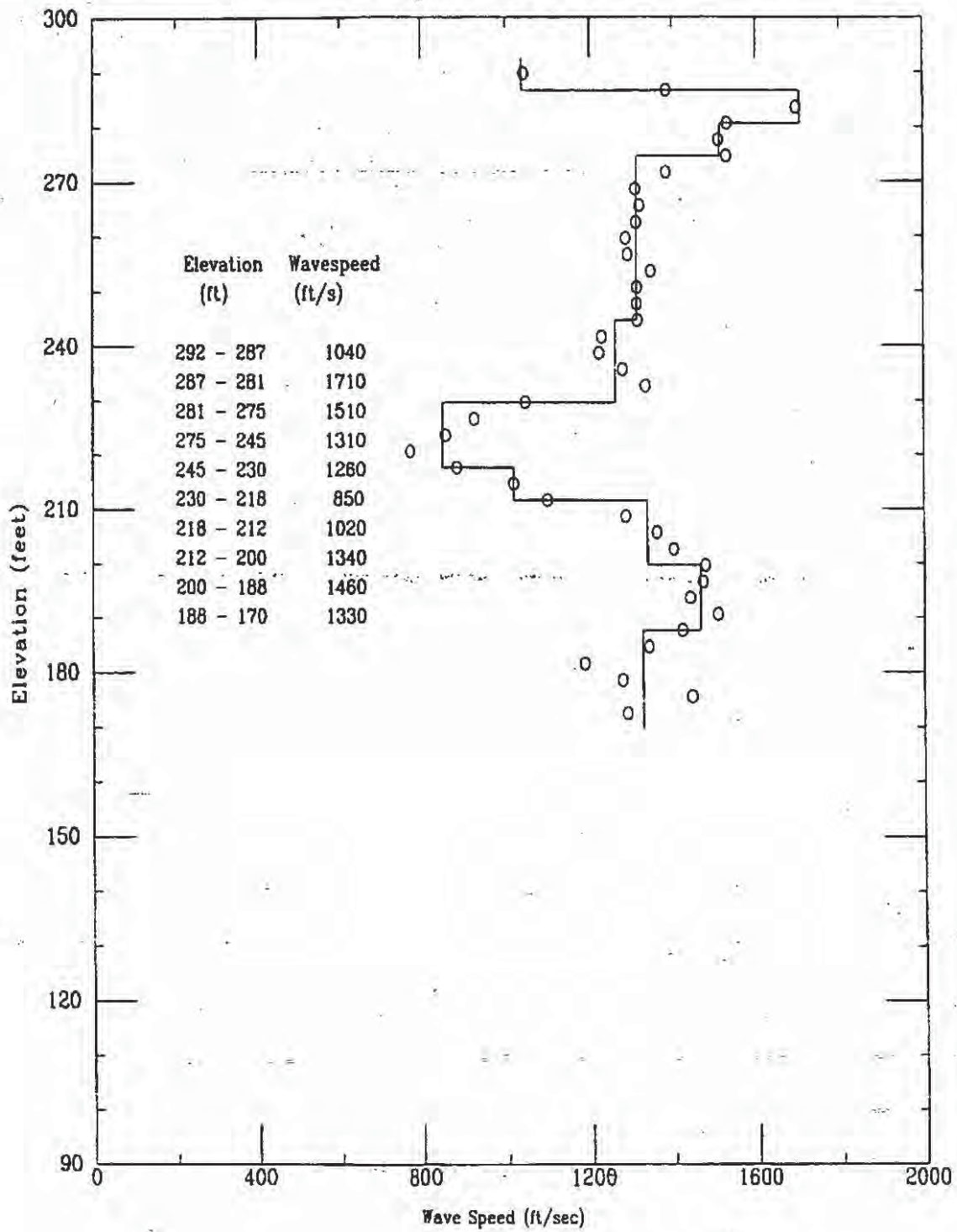
Elevation 301.7



CPT-177

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Speeds

03/27/98



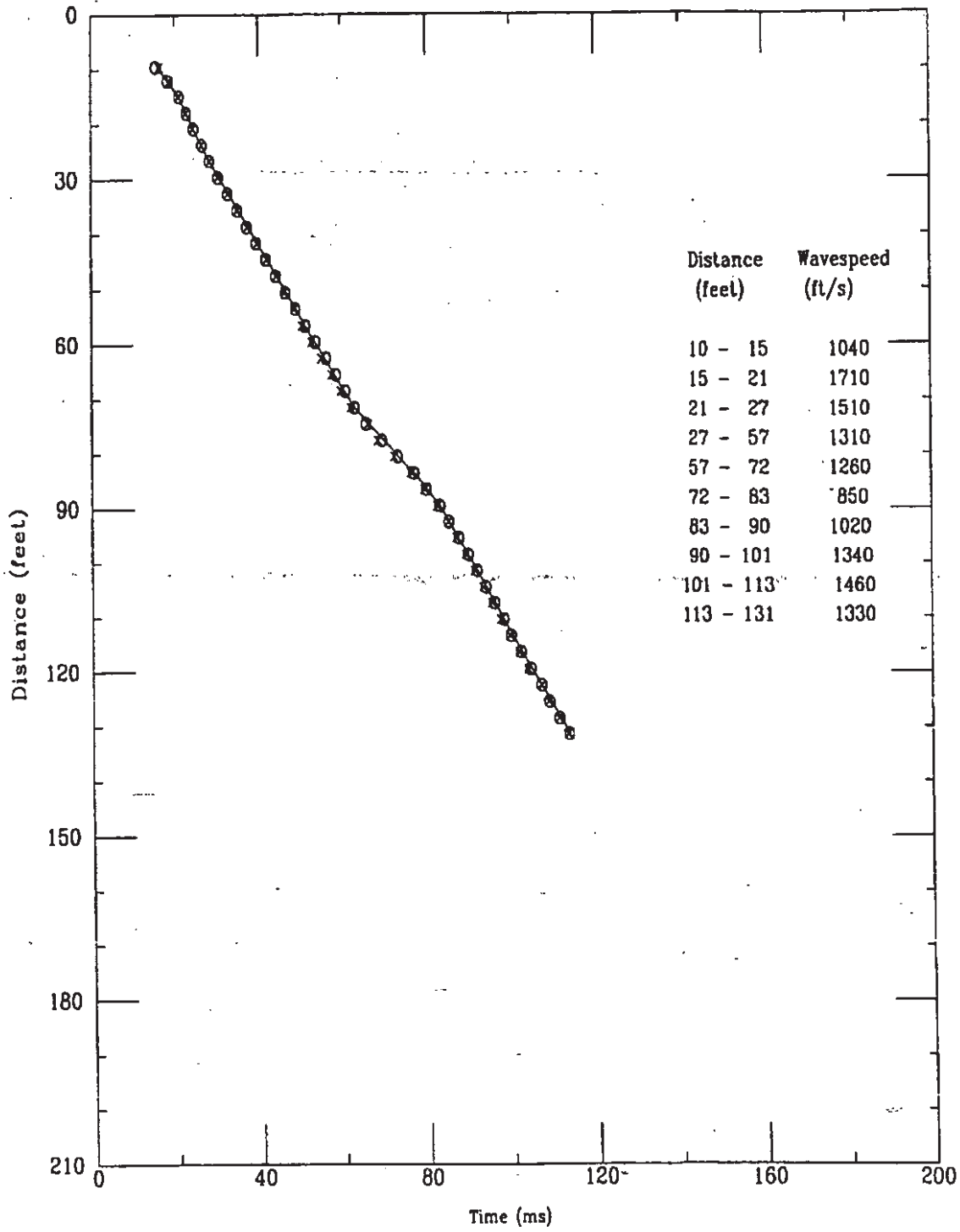
File 327m801S

CPT-177

APPLIED RESEARCH ASSOCIATES, INC.

03/27/98

Shear Wave Time of Peak

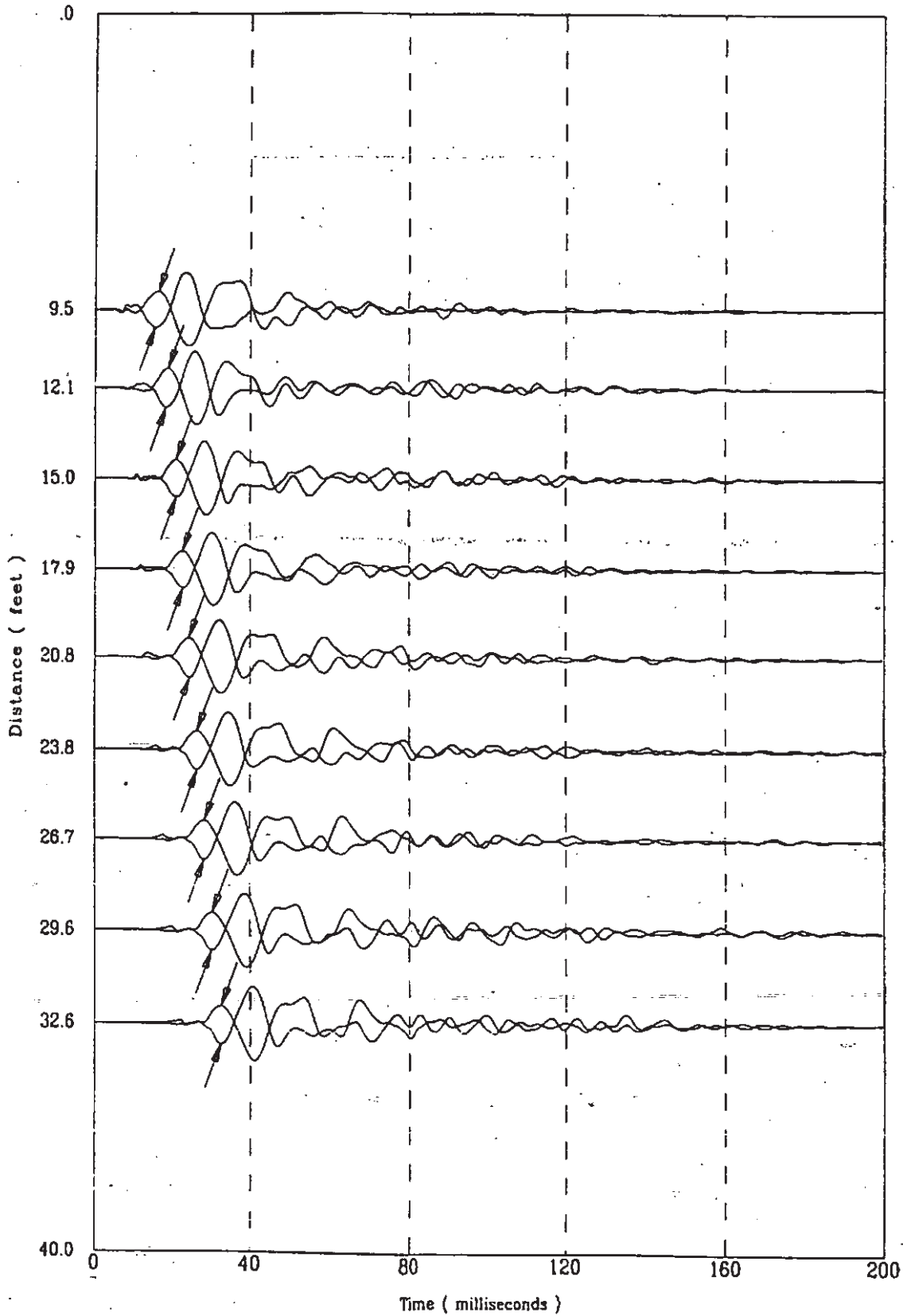




K-TRT-F-00001  
R/0

Applied Research Associates, Inc.  
CPT-177

S Wave  
03/27/98



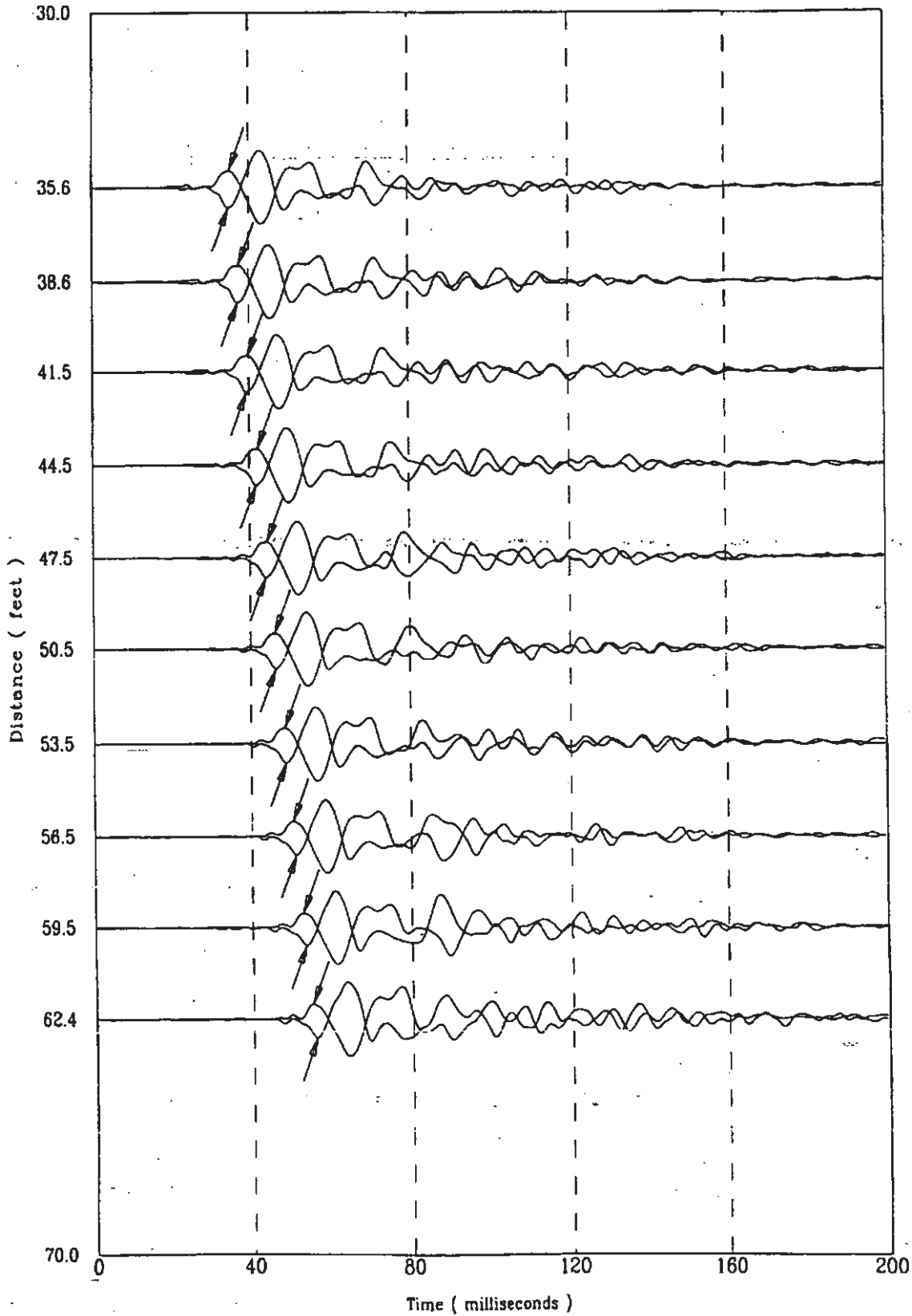
File 327m801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-177

S Wave  
03/27/98



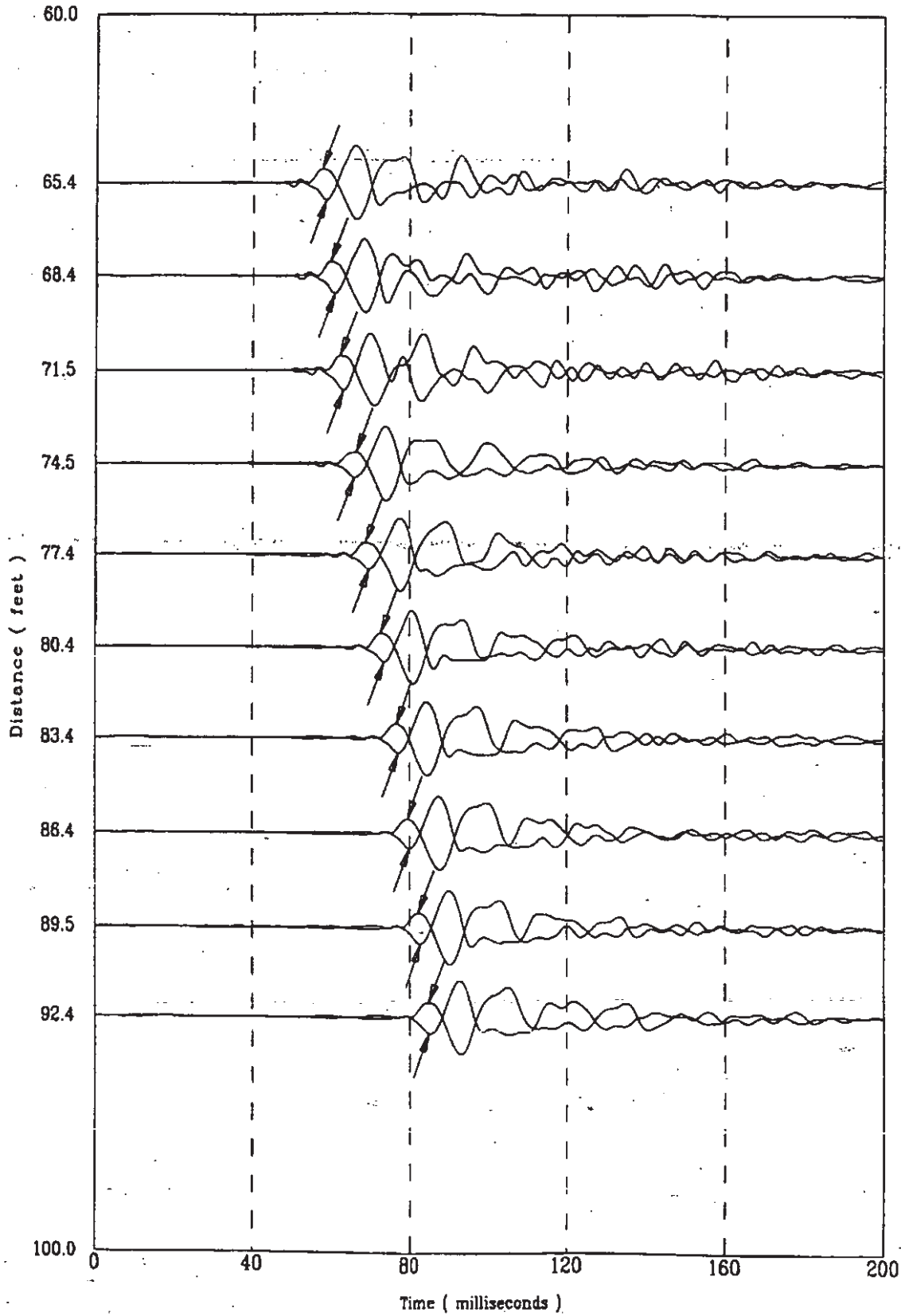
file 327m801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-177

S Wave  
03/27/98



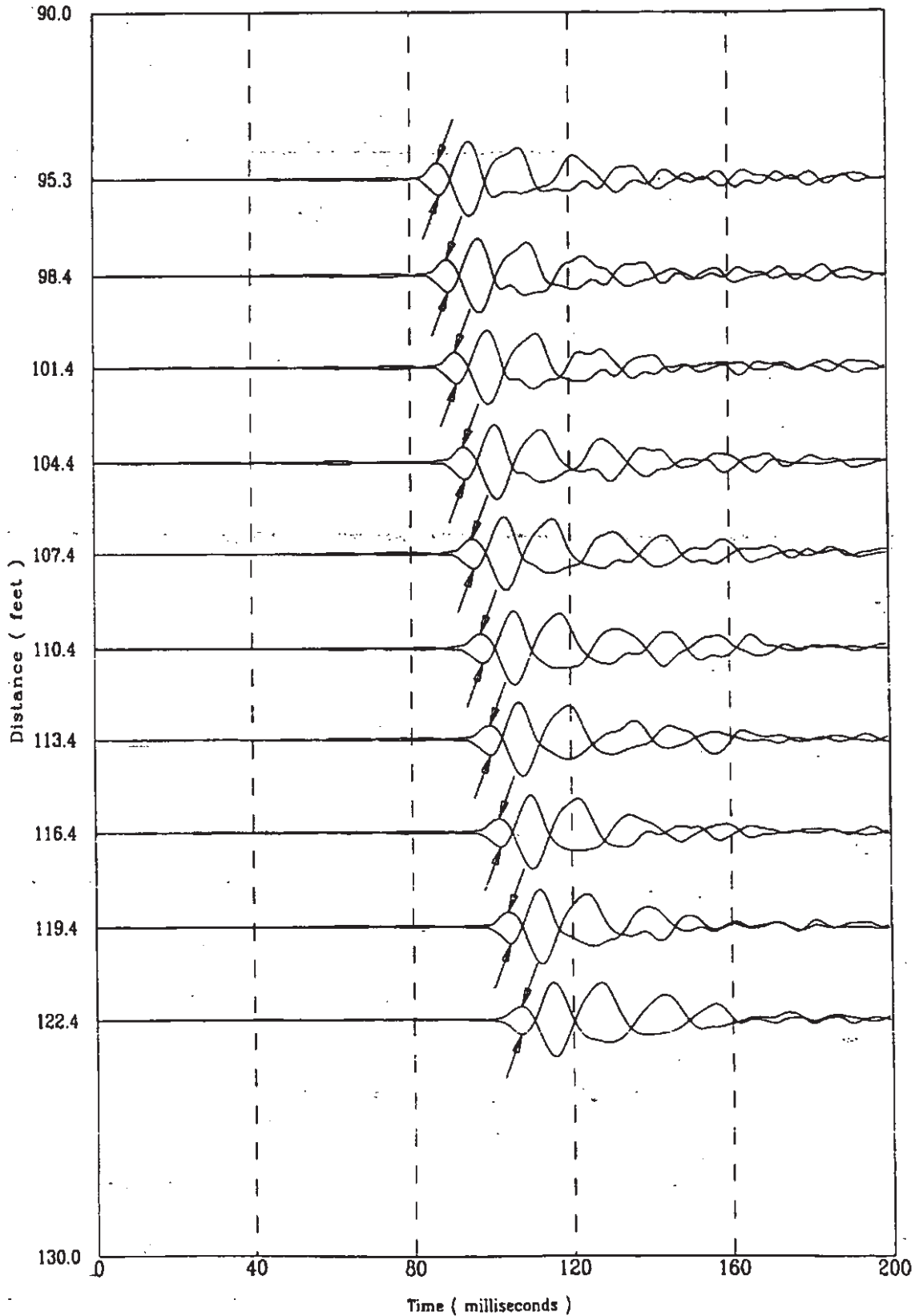
File 327m801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-177

S Wave  
03/27/98



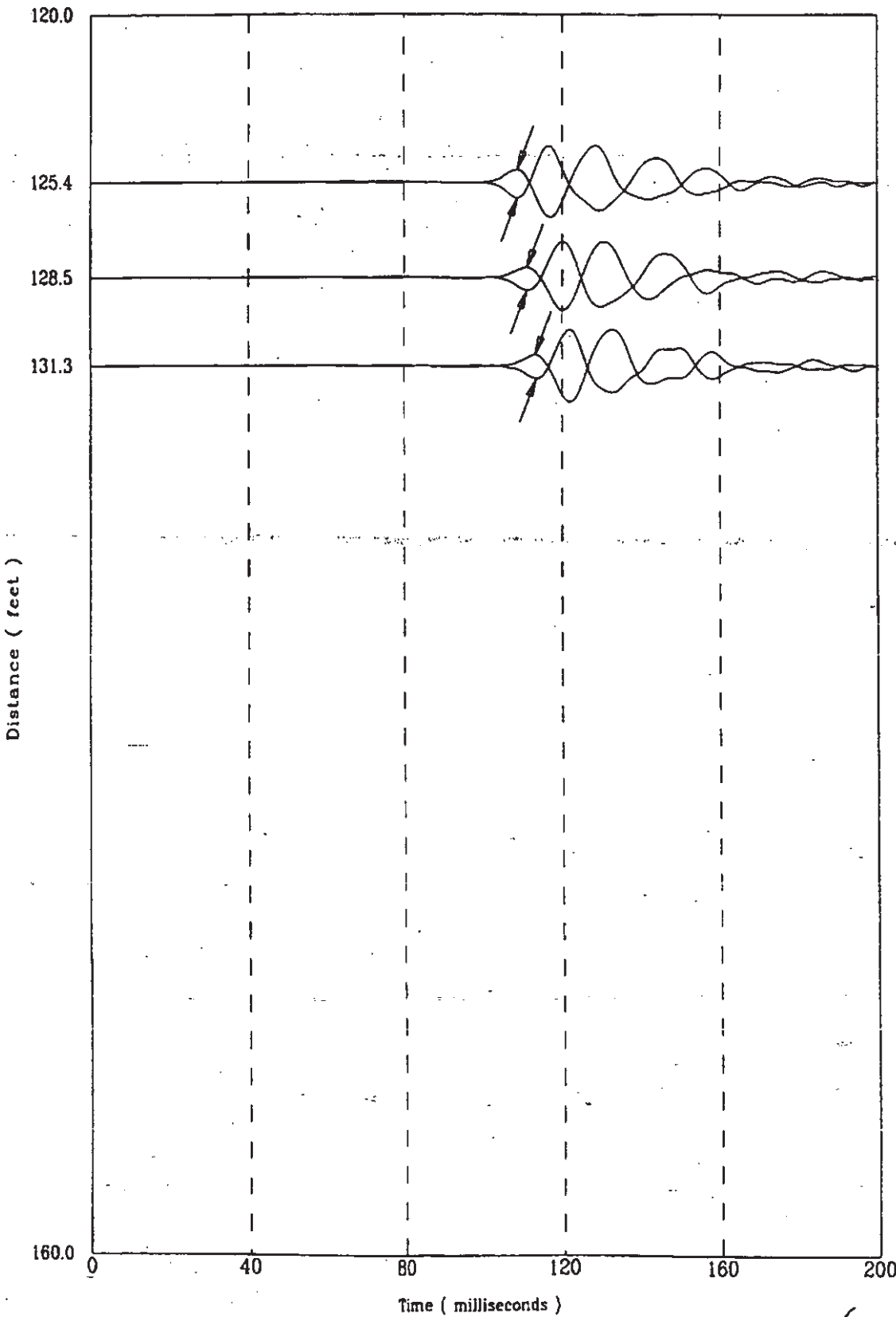
File 327m801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-177

S Wave  
03/27/98



File 327m801S

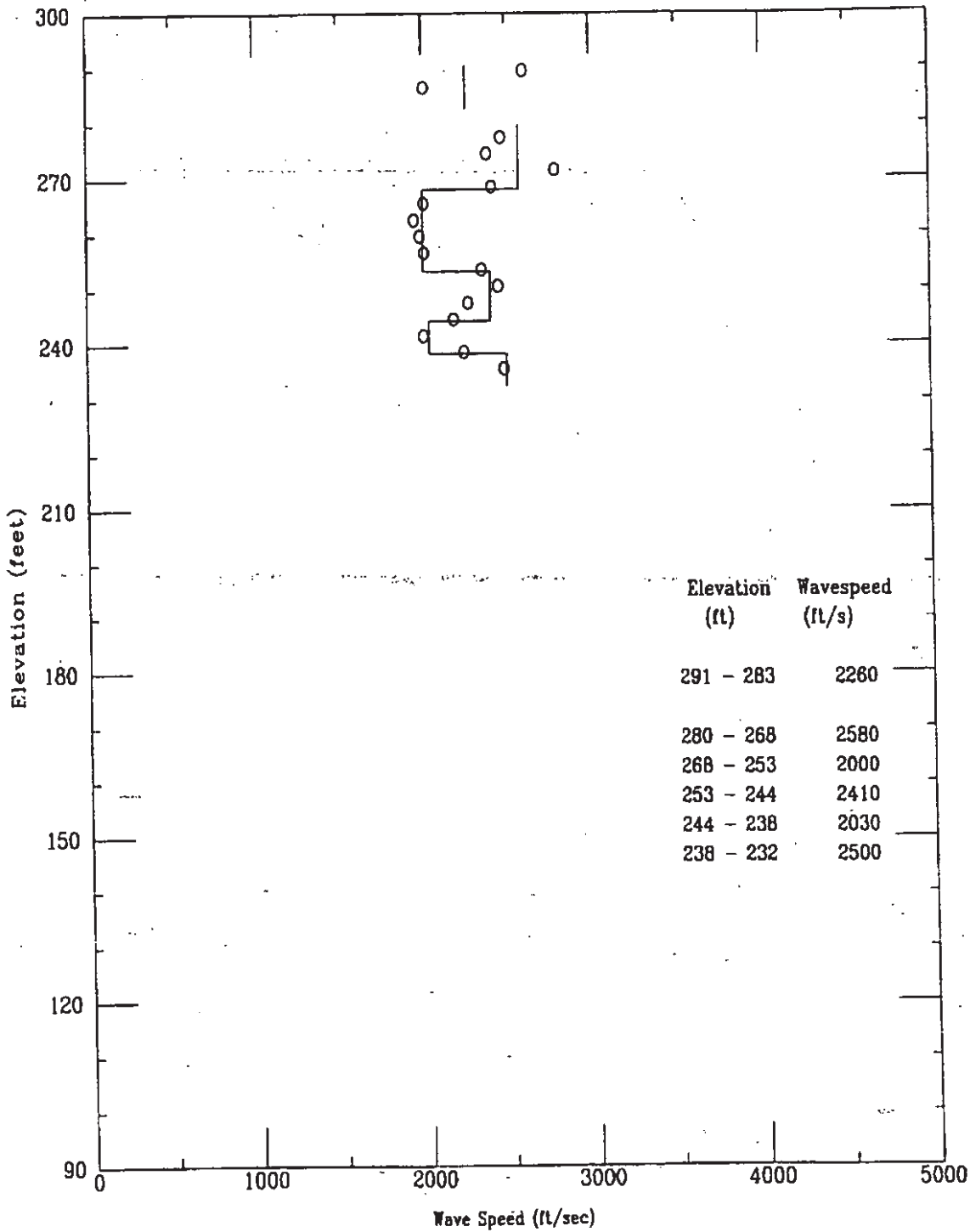
374 of 522

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APPLIED RESEARCH ASSOCIATES, INC.

03/27/98

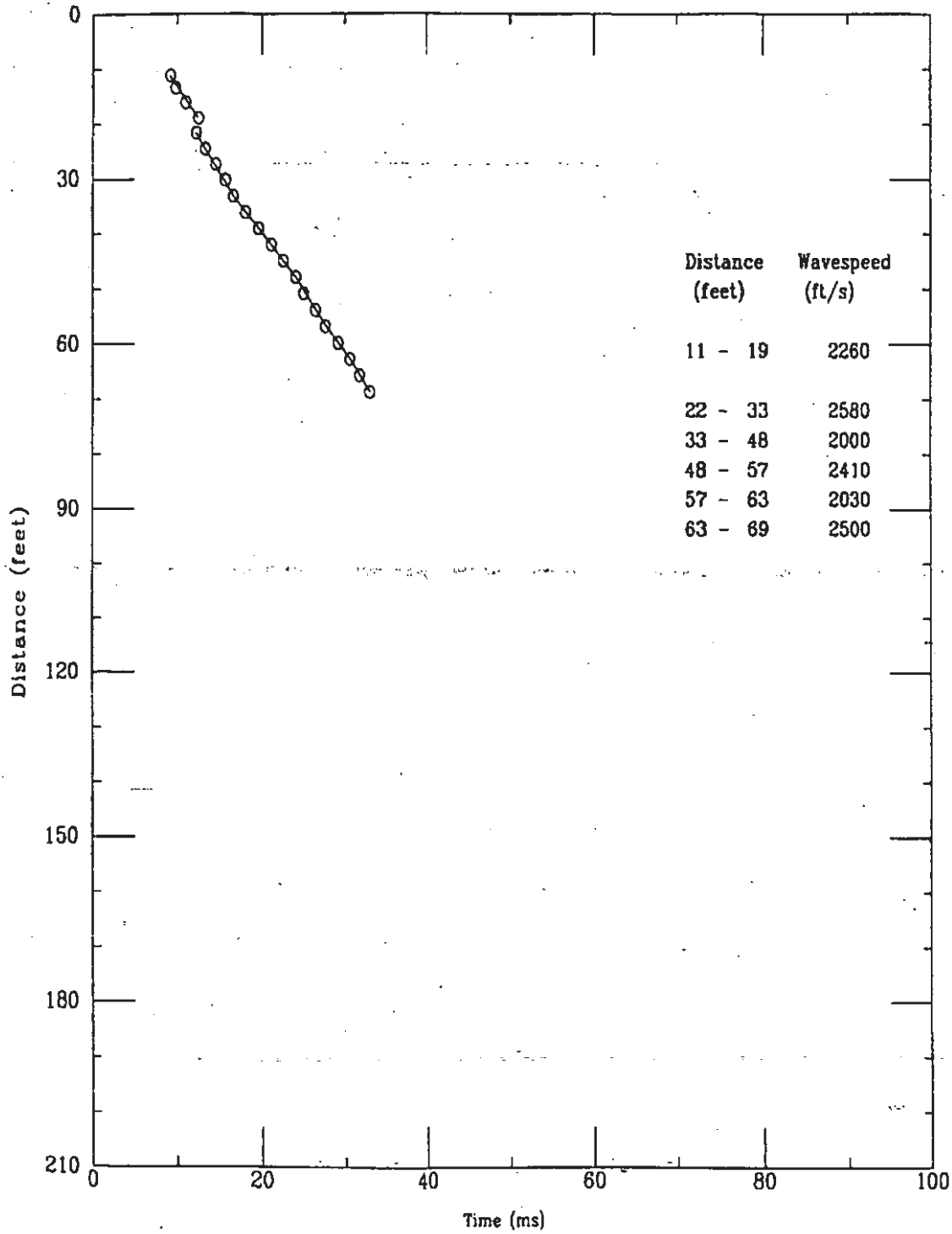
Compression Wave Speeds



CPT-177

APPLIED-RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

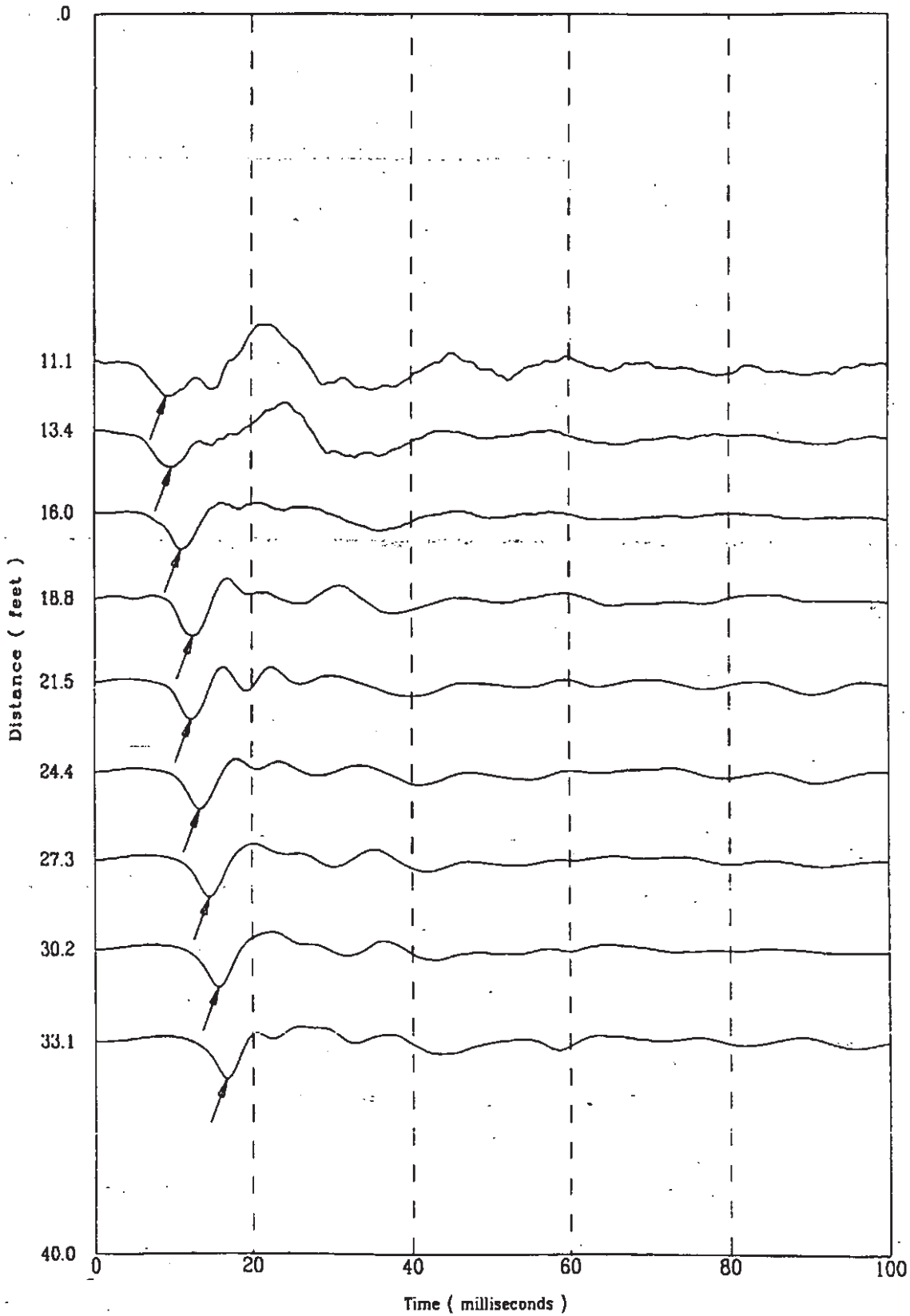
03/27/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-177

P Wave  
03/27/98



327m801S

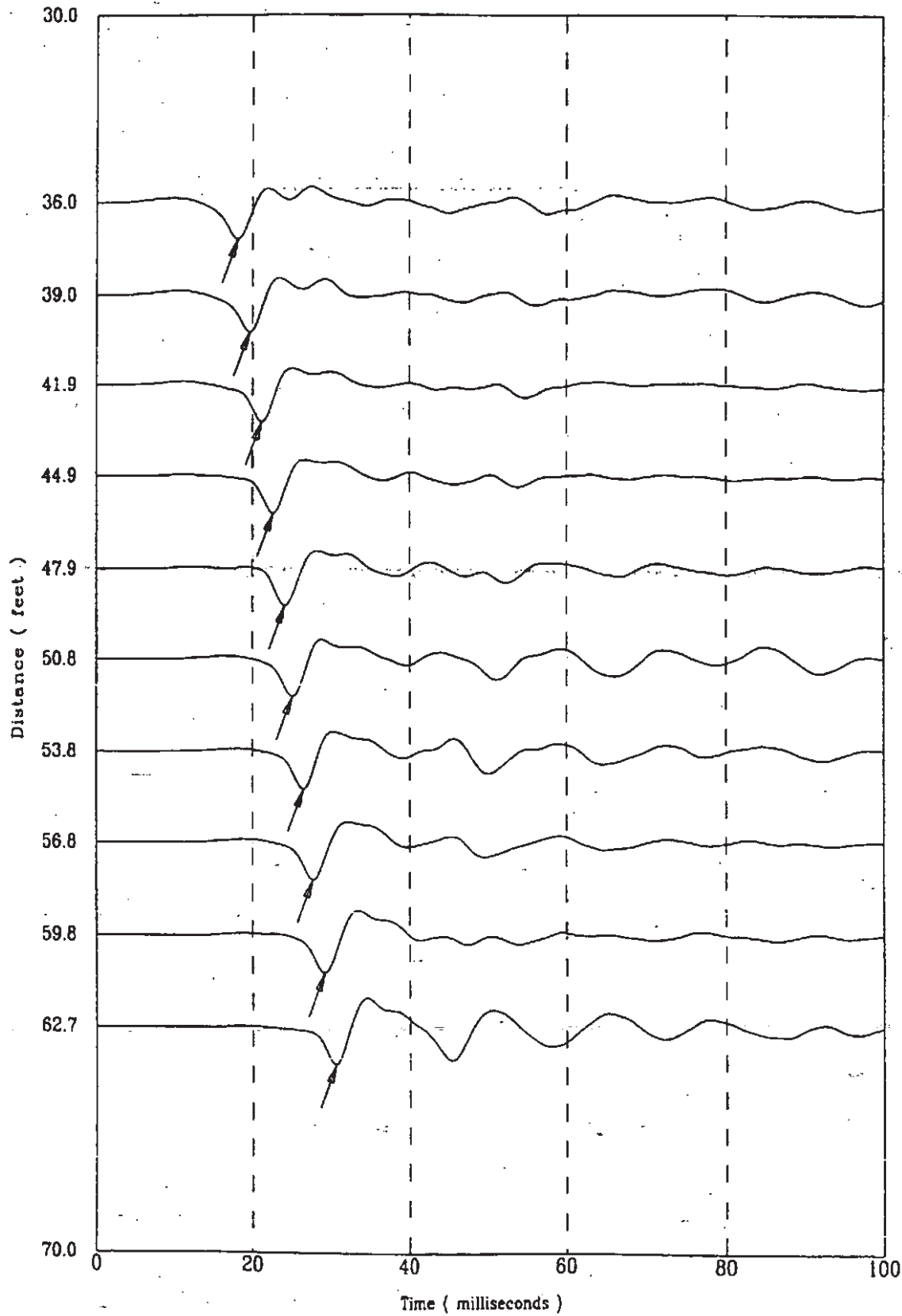
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-177

P Wave  
03/27/98



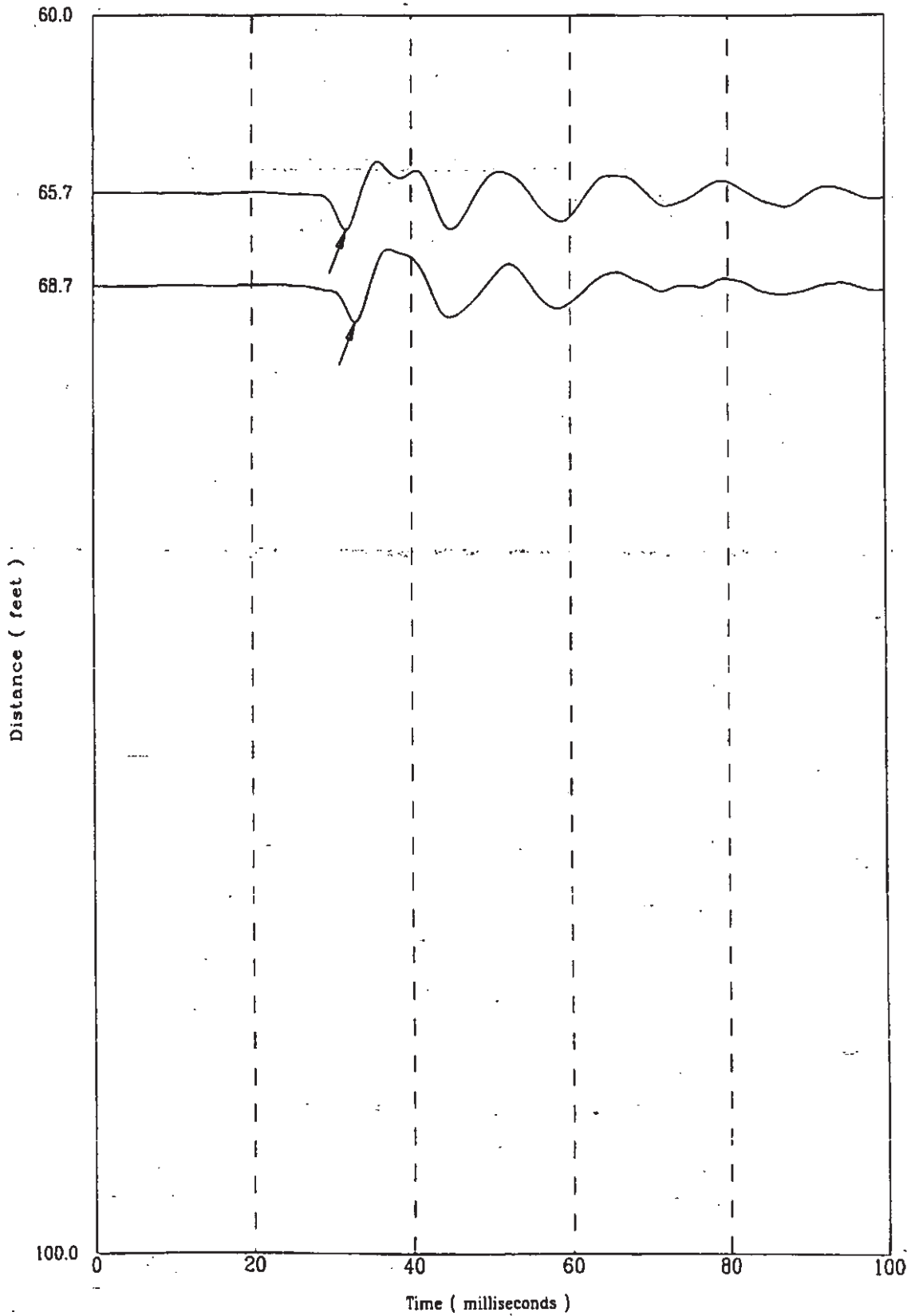
File 327m801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-177

P Wave  
03/27/98



J27m801S

CPT-178

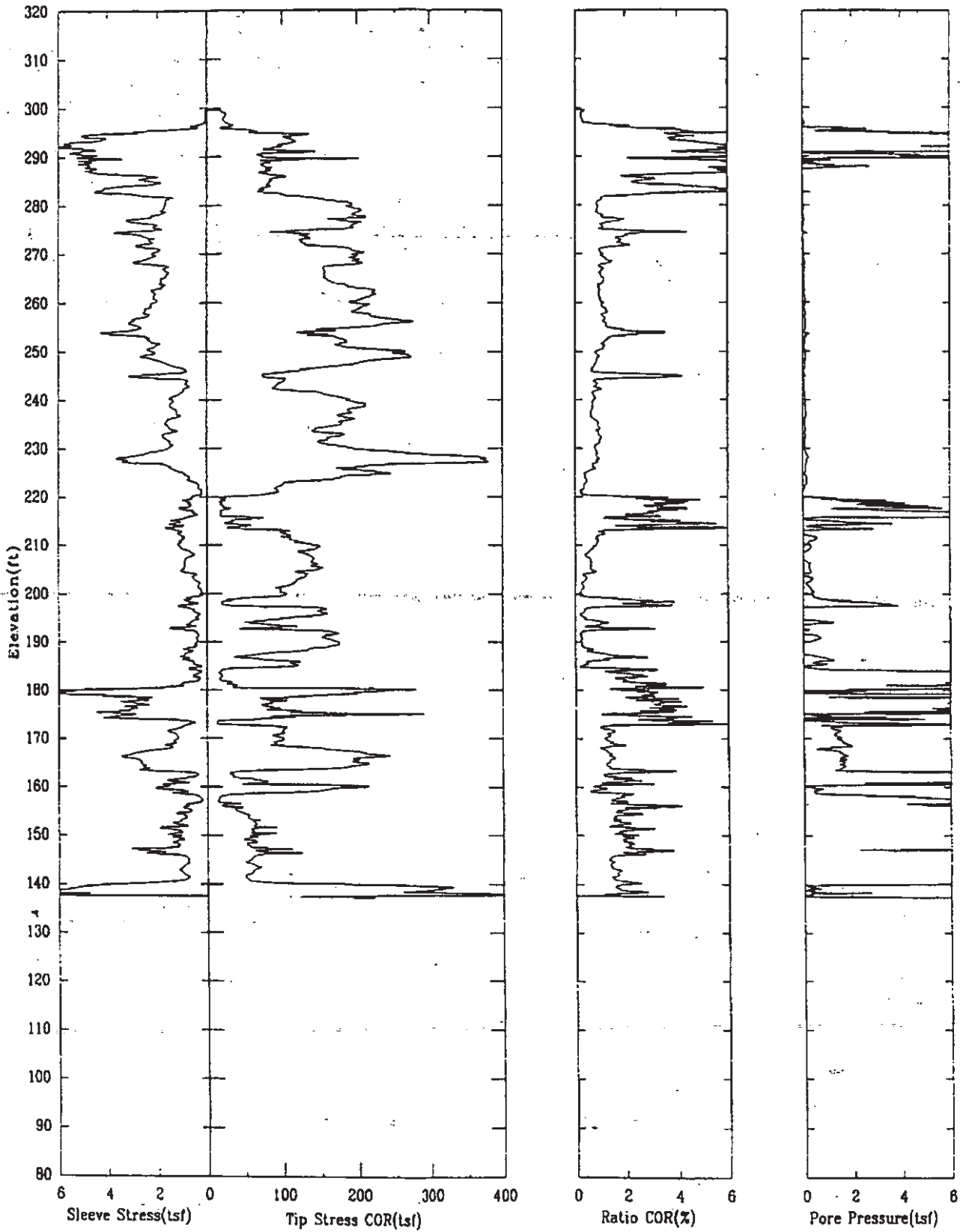
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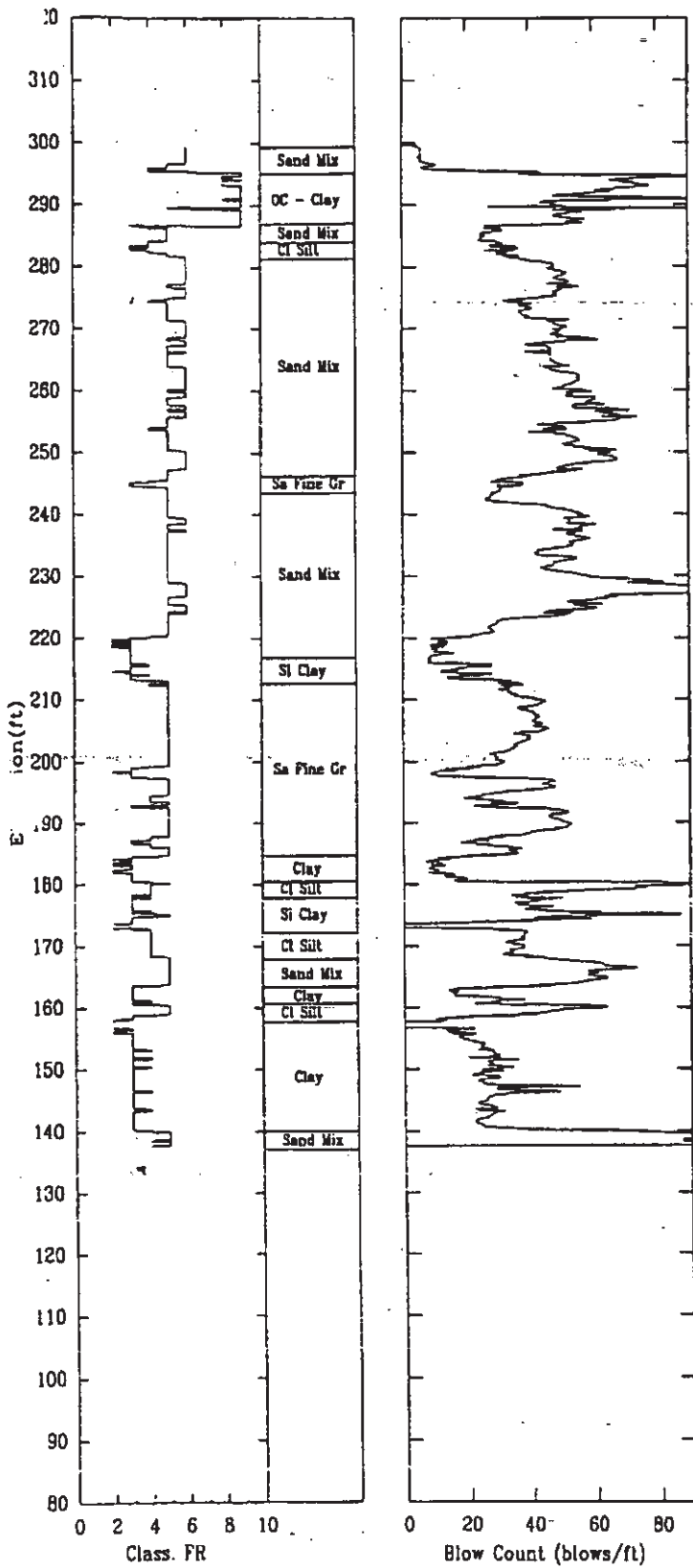
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R/O

North 78640

East 55385

Elevation 305.6

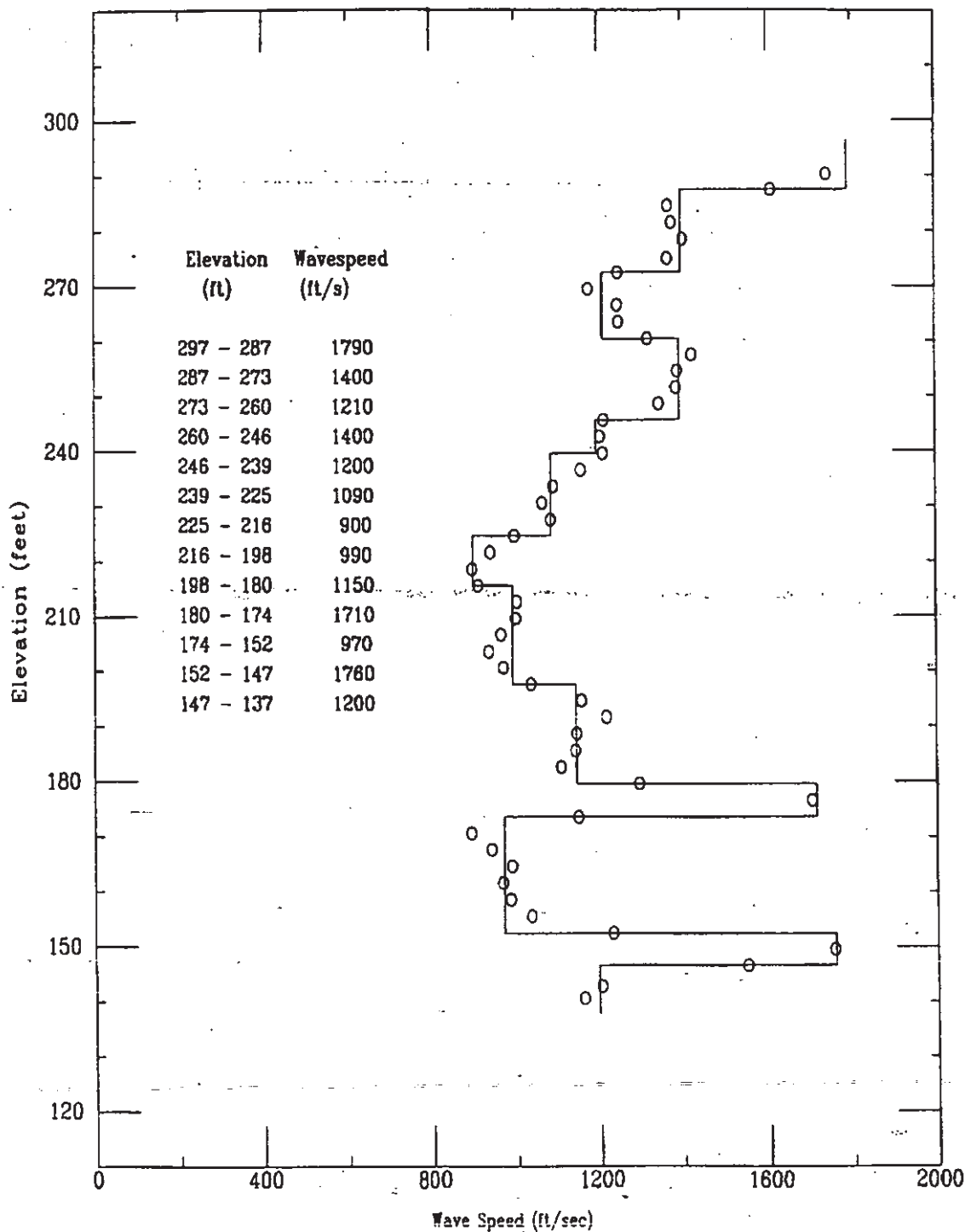




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APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Speeds

03/19/98



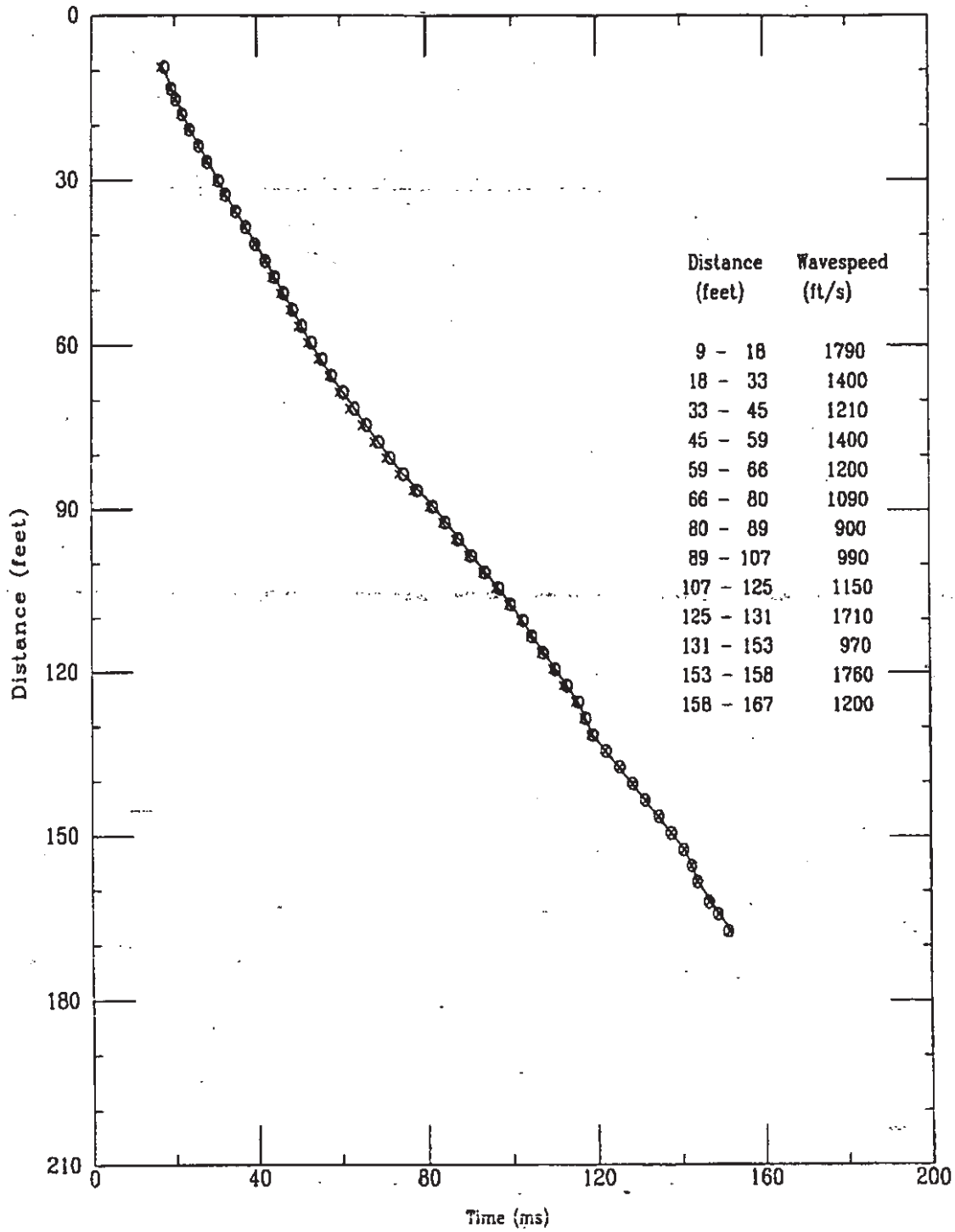
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APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

03/19/98

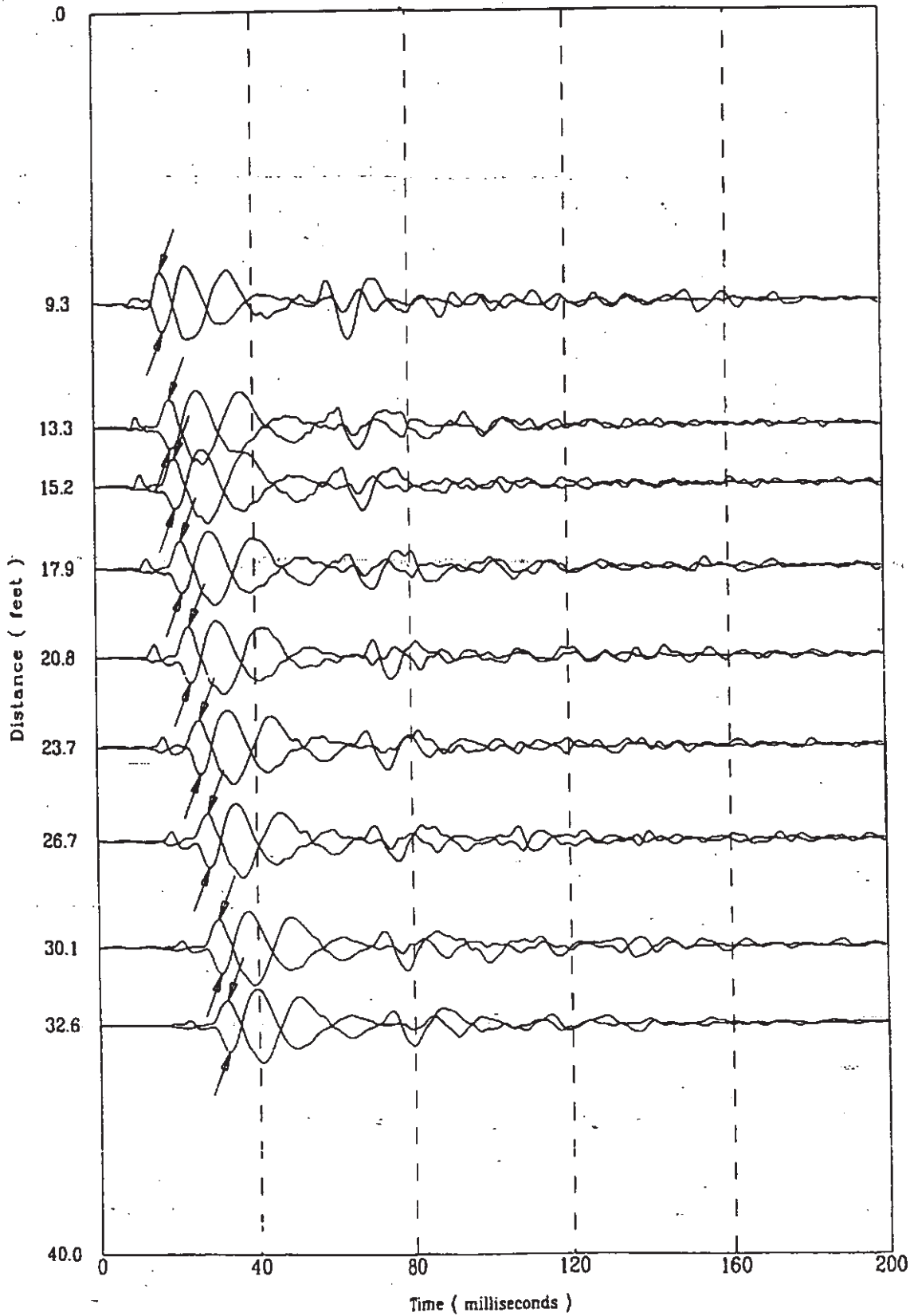


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Applied Research Associates, Inc.  
CPT-178

S Wave  
03/19/98



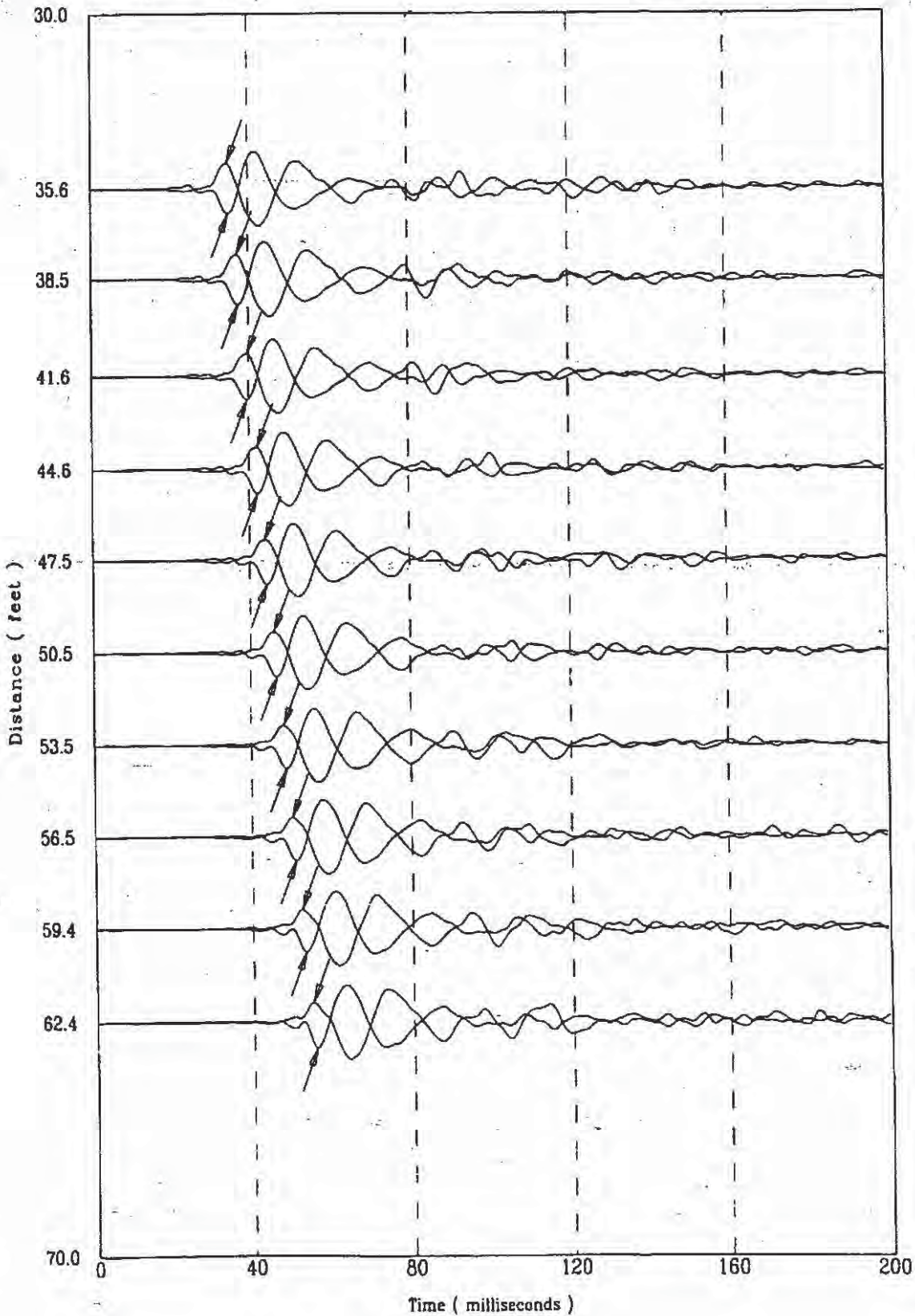
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-178

S Wave  
03/19/98



.19m8015

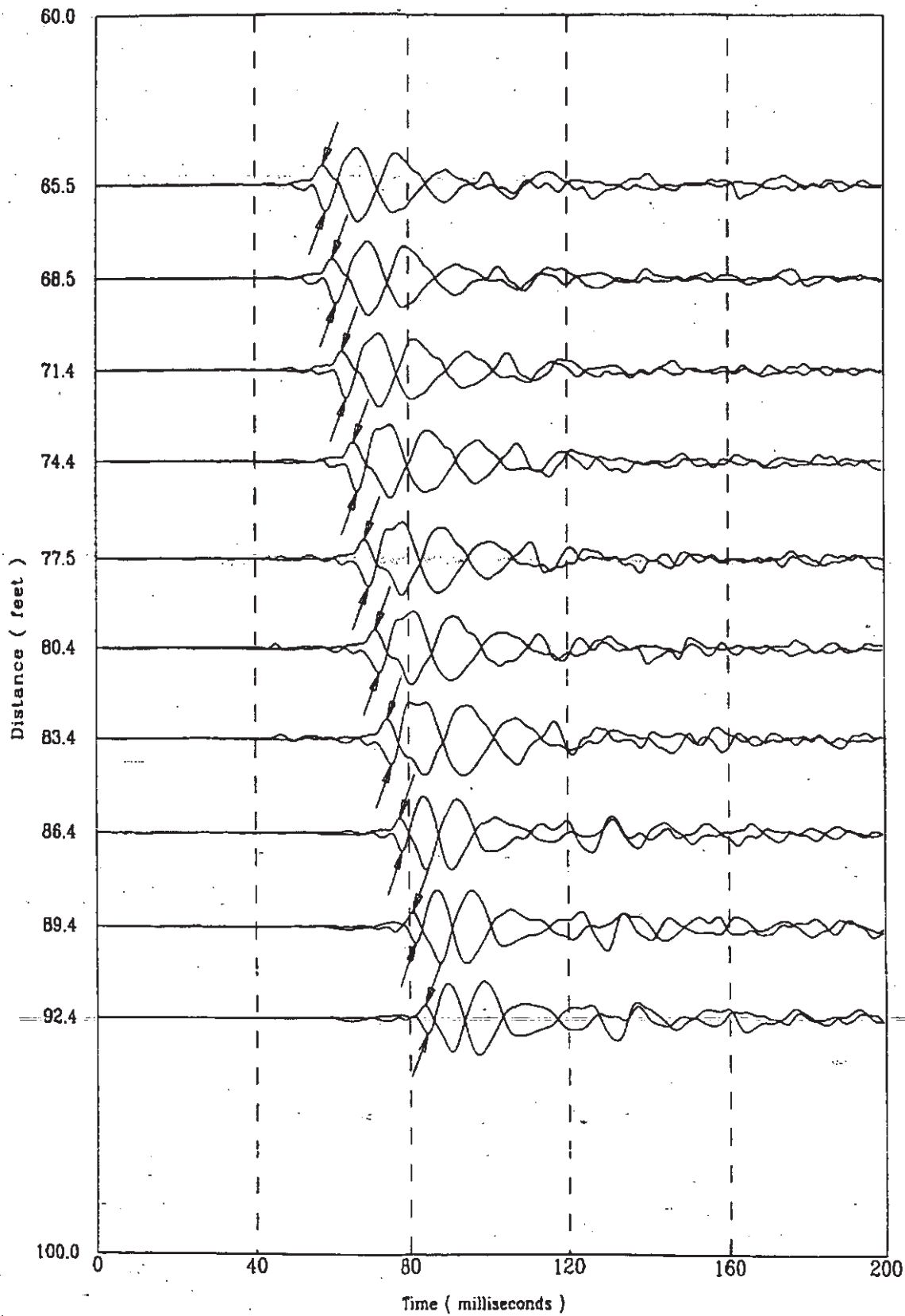
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-178

S Wave  
03/19/98



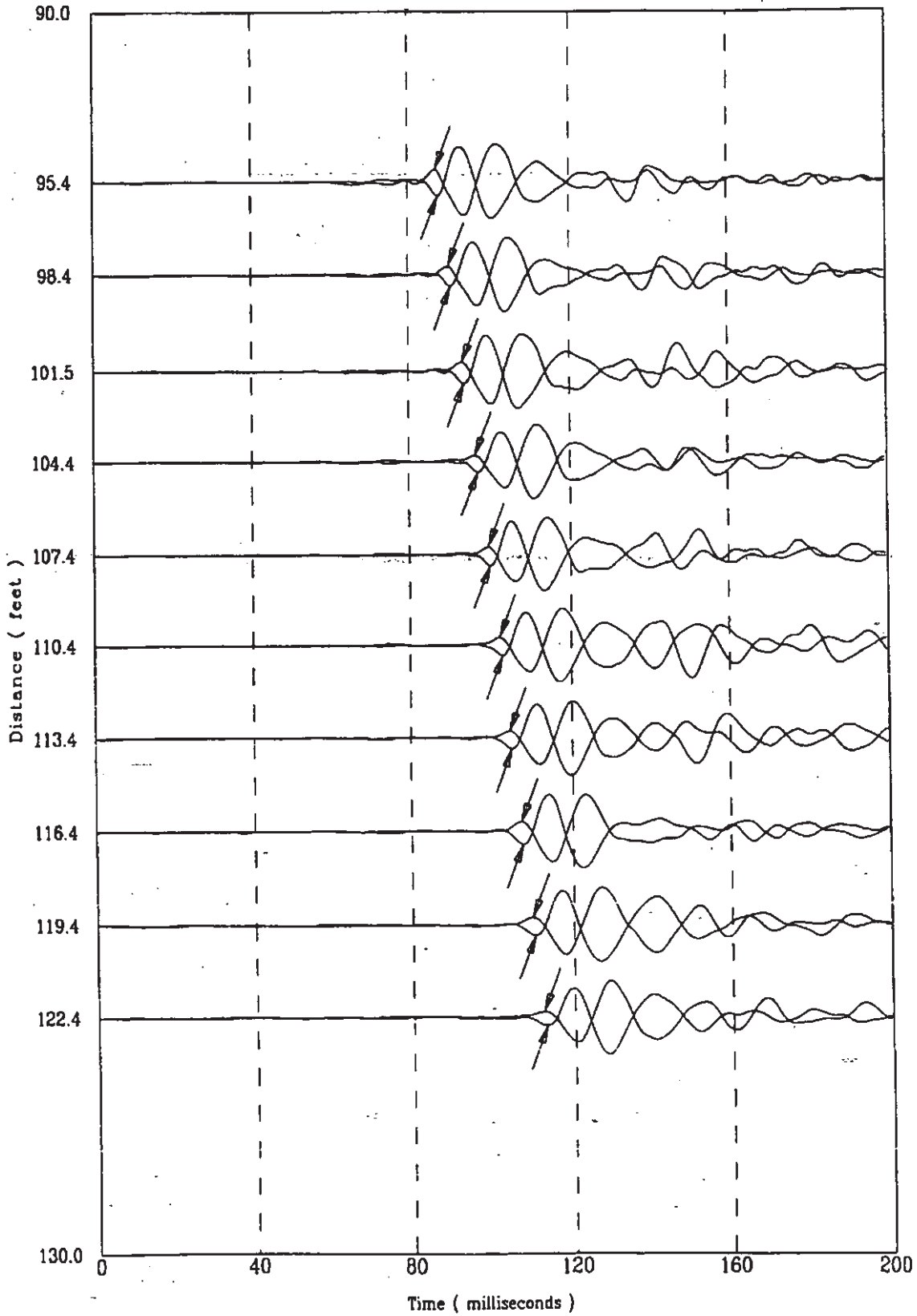
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-178

S Wave  
03/19/98



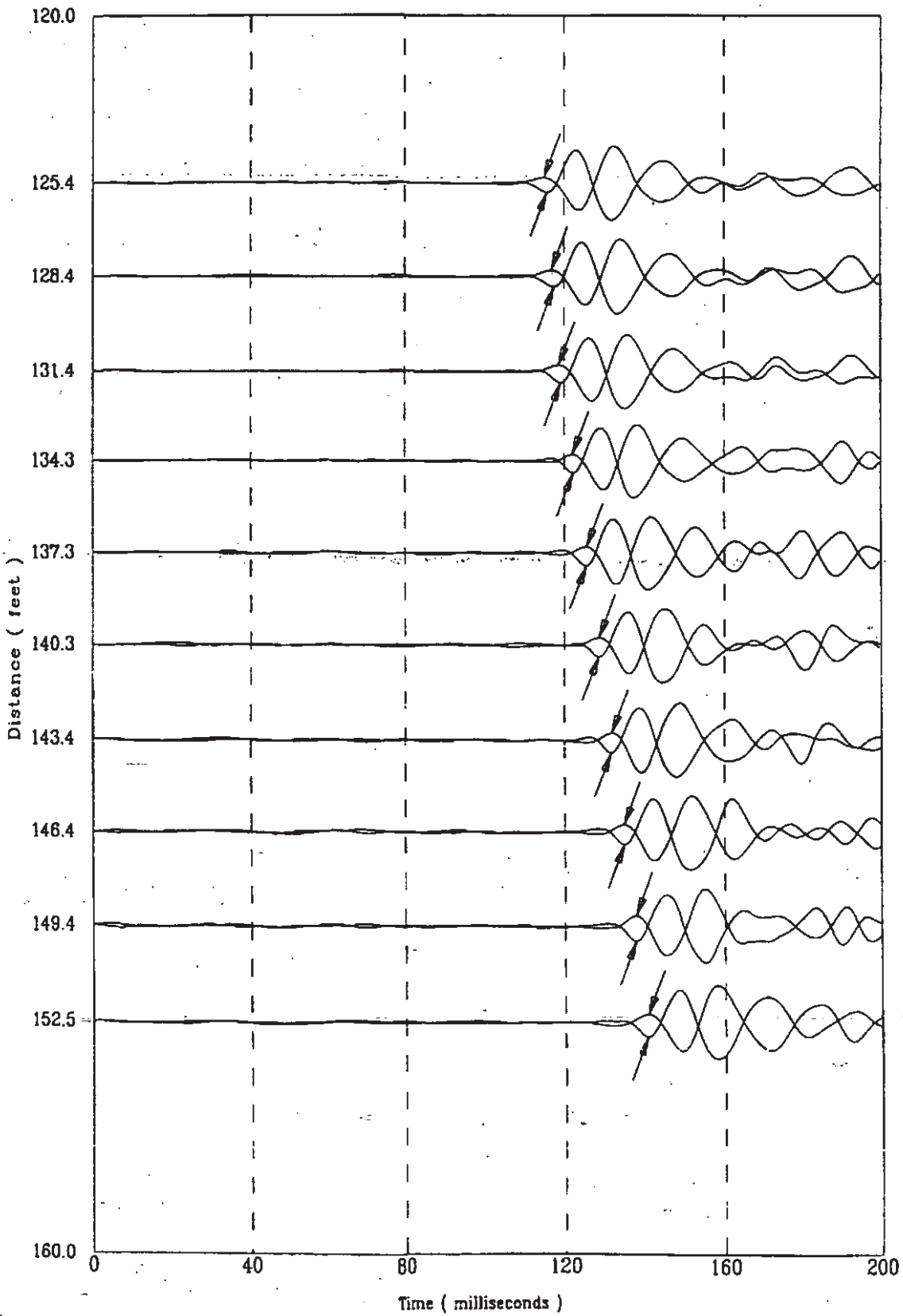
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-178

S Wave  
03/19/98



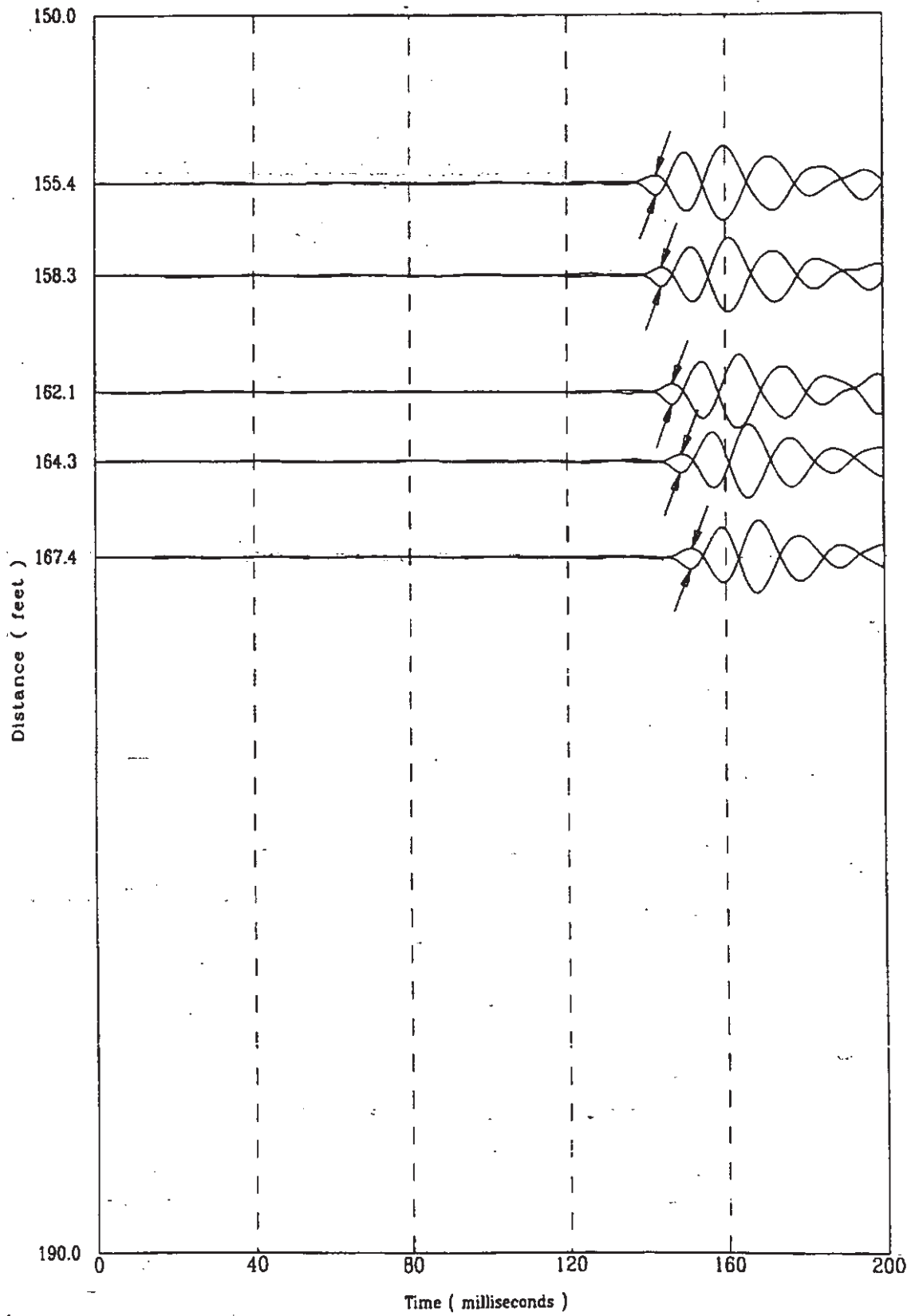
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-178

S Wave  
03/19/98



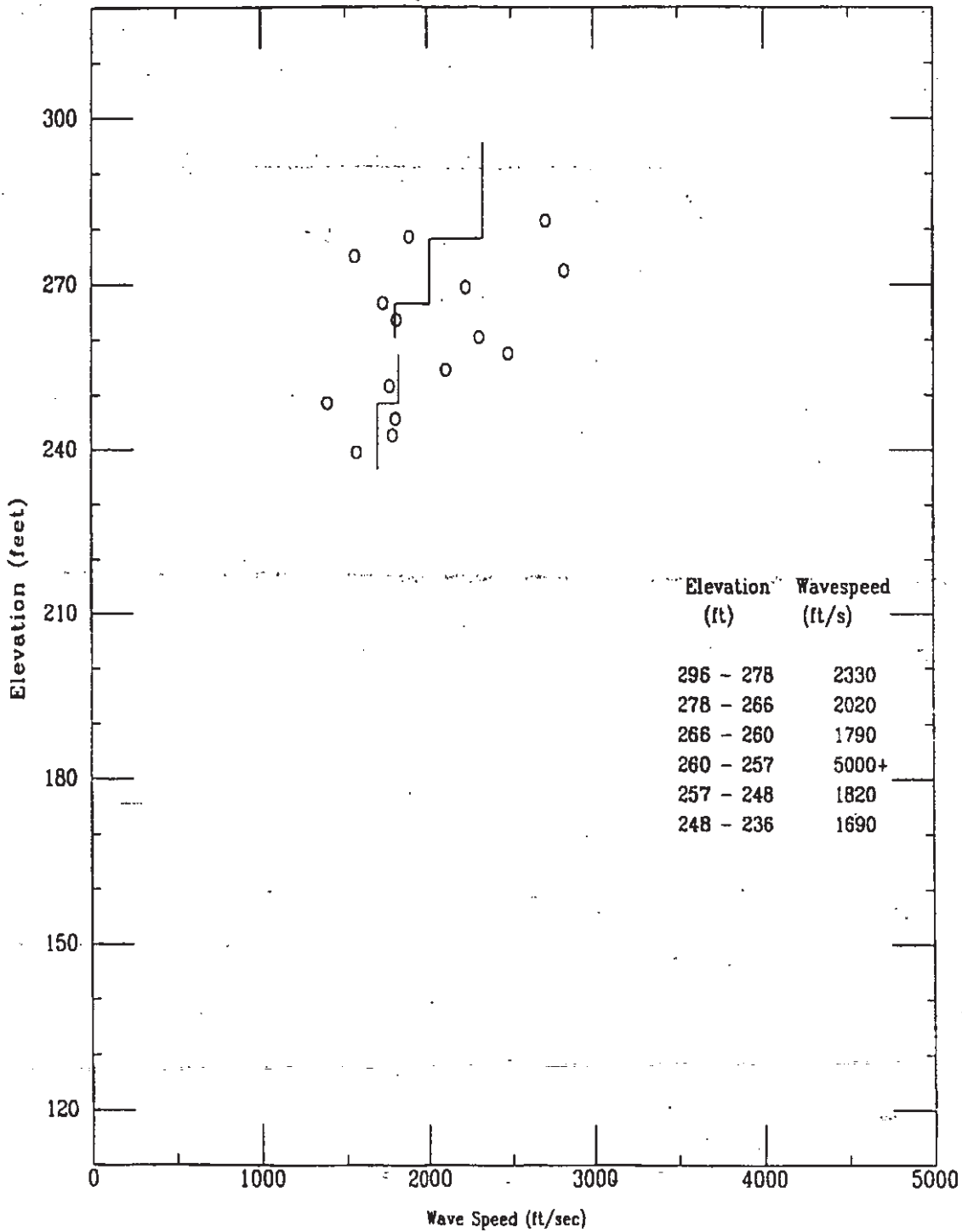
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APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

03/19/98

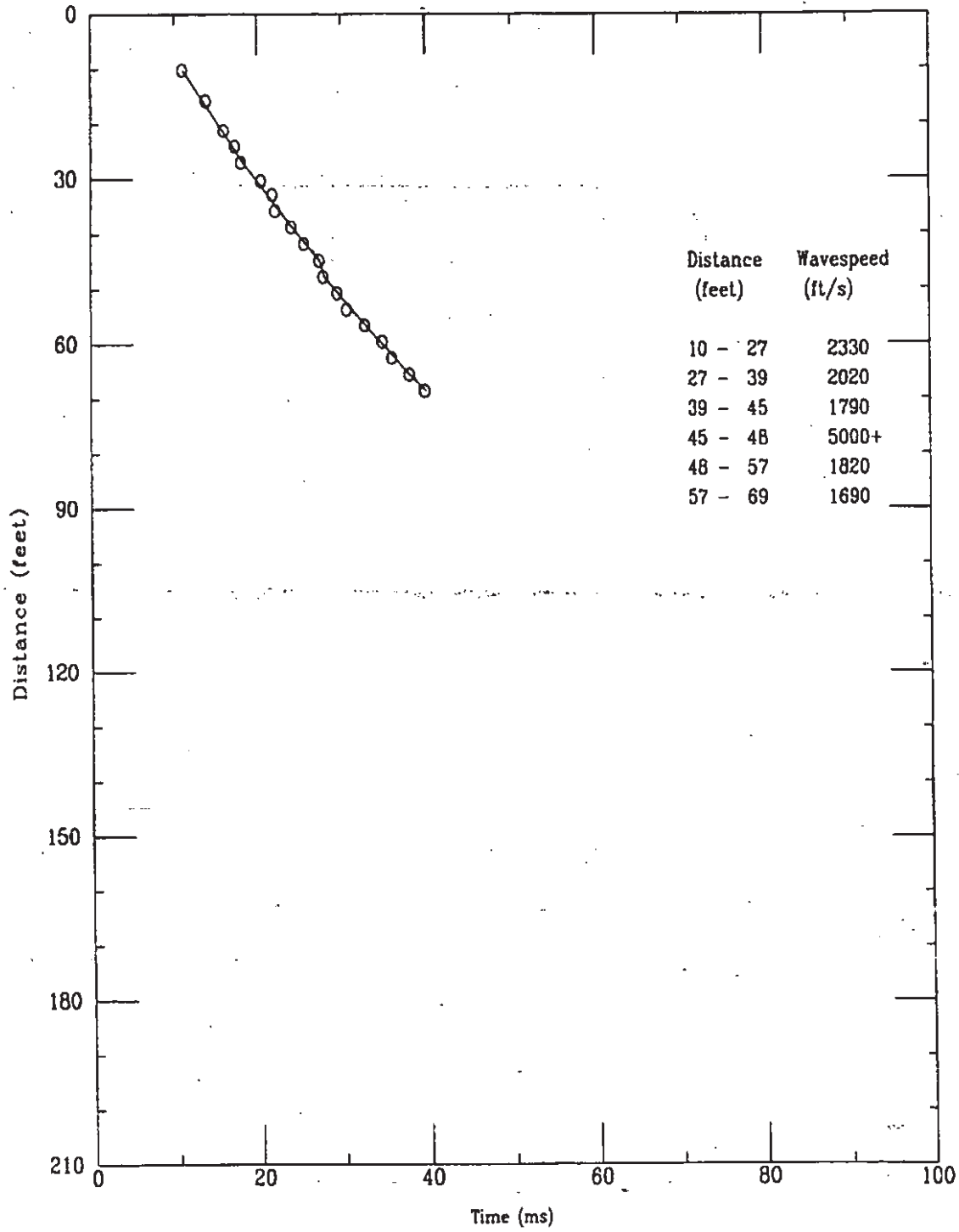


File 419m8015

CPT-178

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/19/98

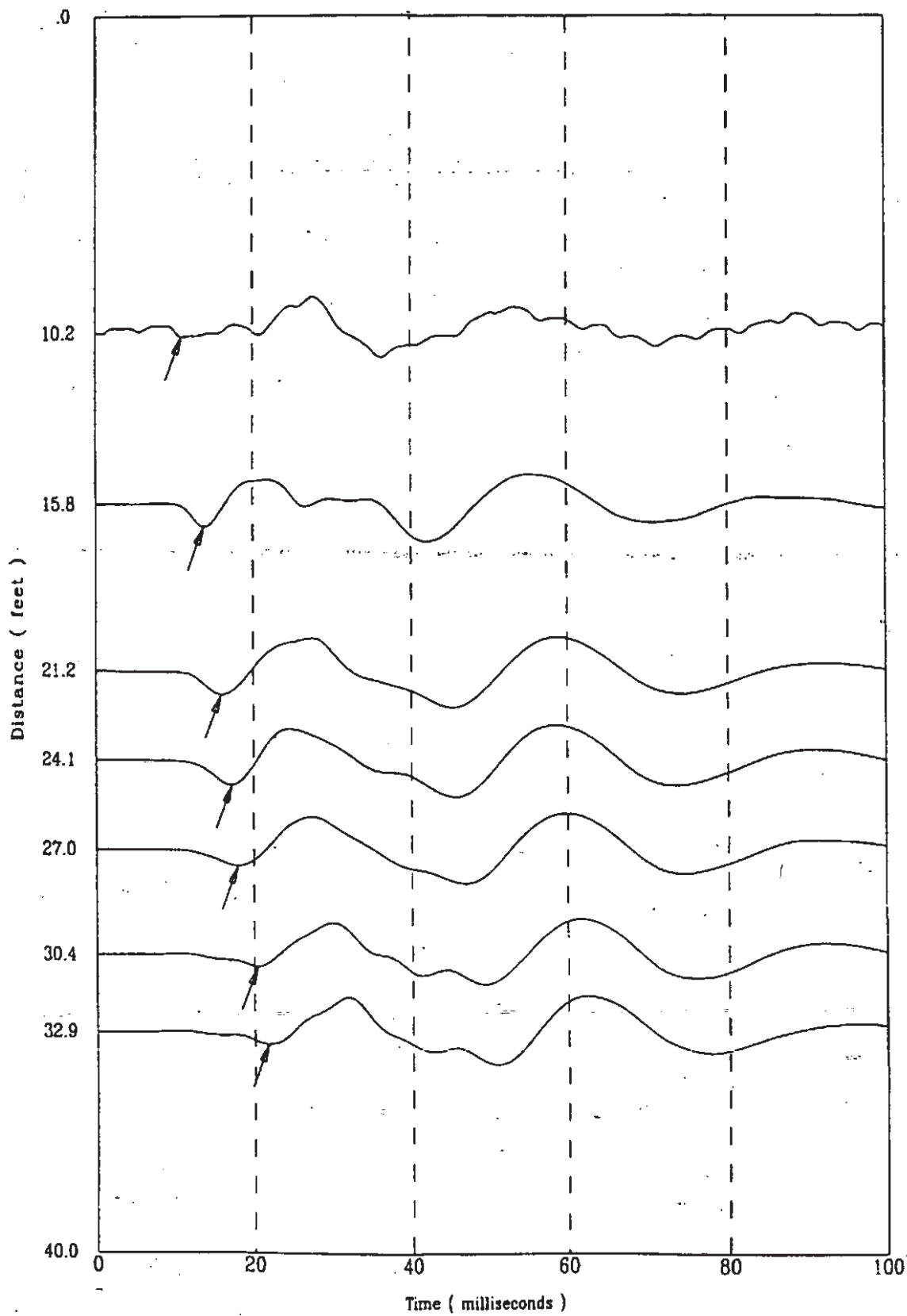


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R/O

Applied Research Associates, Inc.  
CPT-178

P Wave  
03/19/98



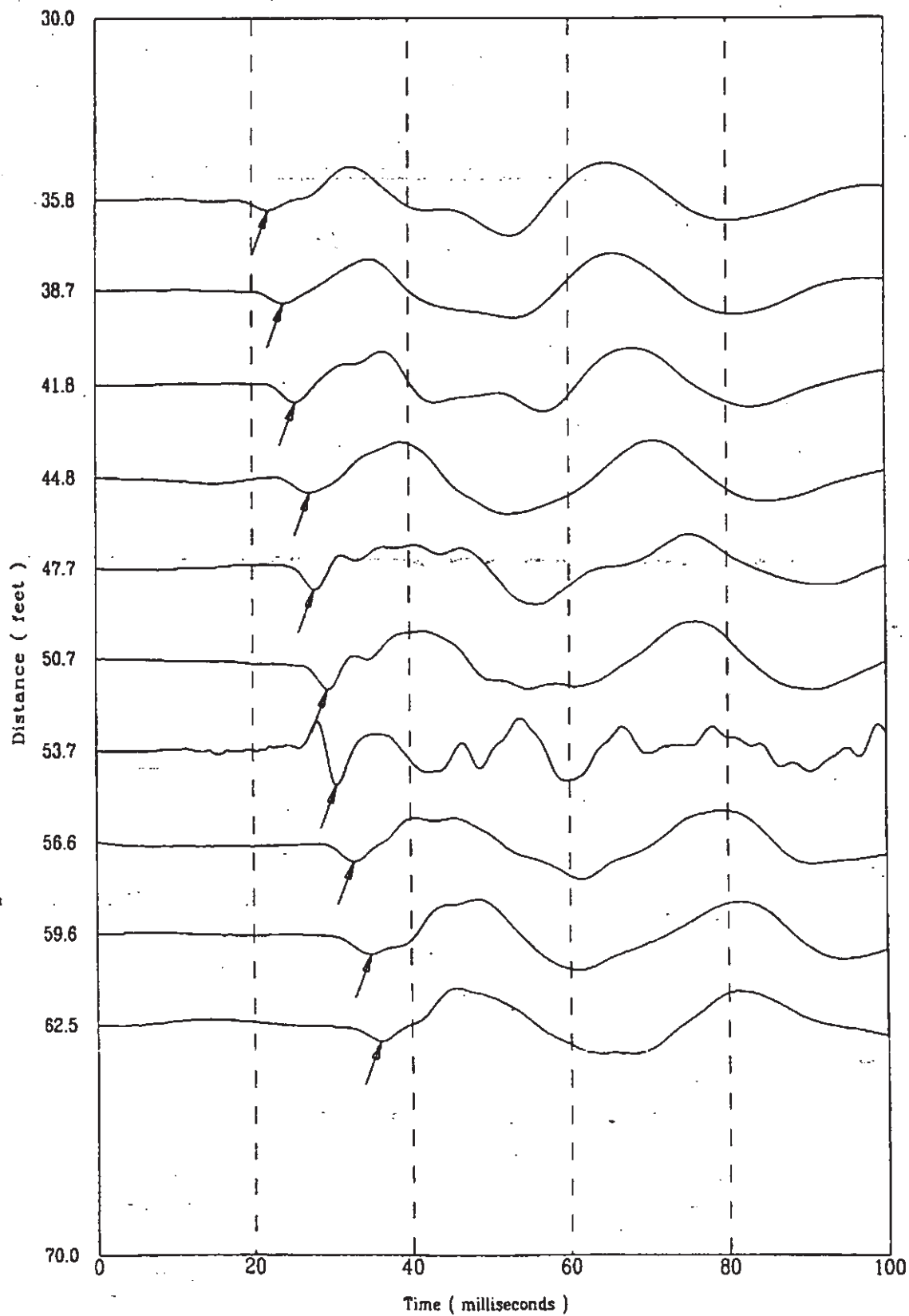
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R/O

Applied Research Associates, Inc.  
CPT-178

P Wave  
03/19/98



m801S



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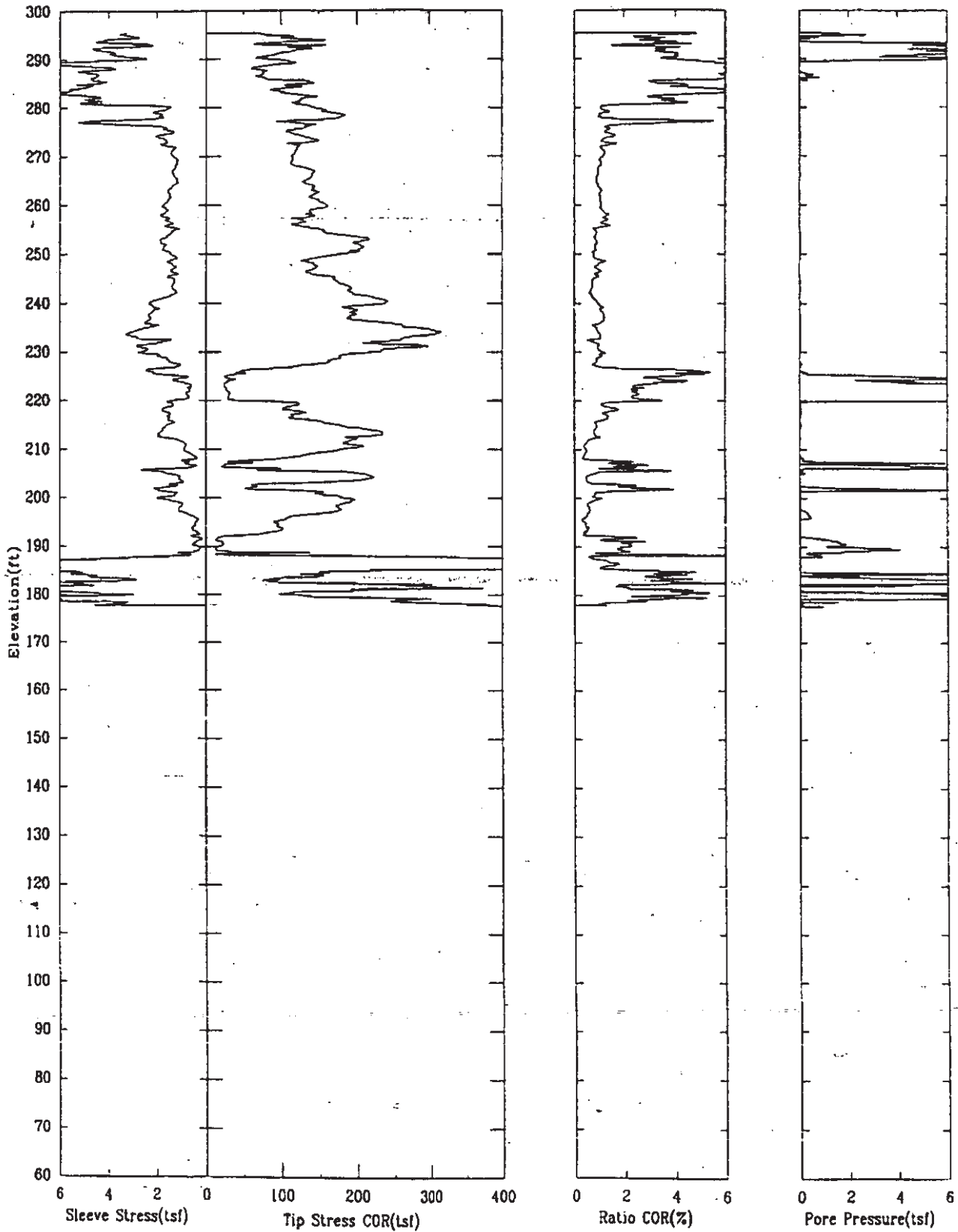
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K-TRT-F-00001  
03/24/98 / o

North 78640

East 55518

Elevation 301.4



CPT-179

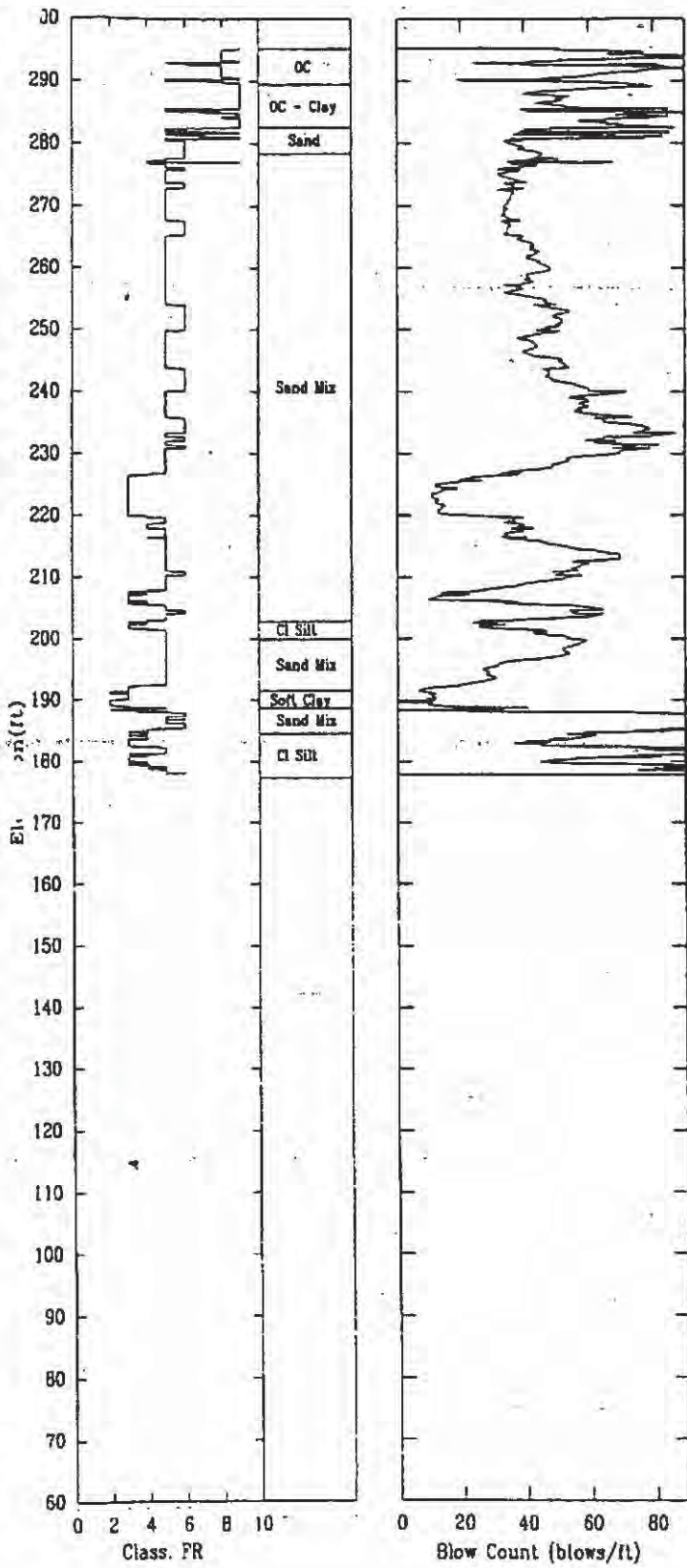
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K-TRT-F-0000/  
03/24/98/0

North 78640

East 55518

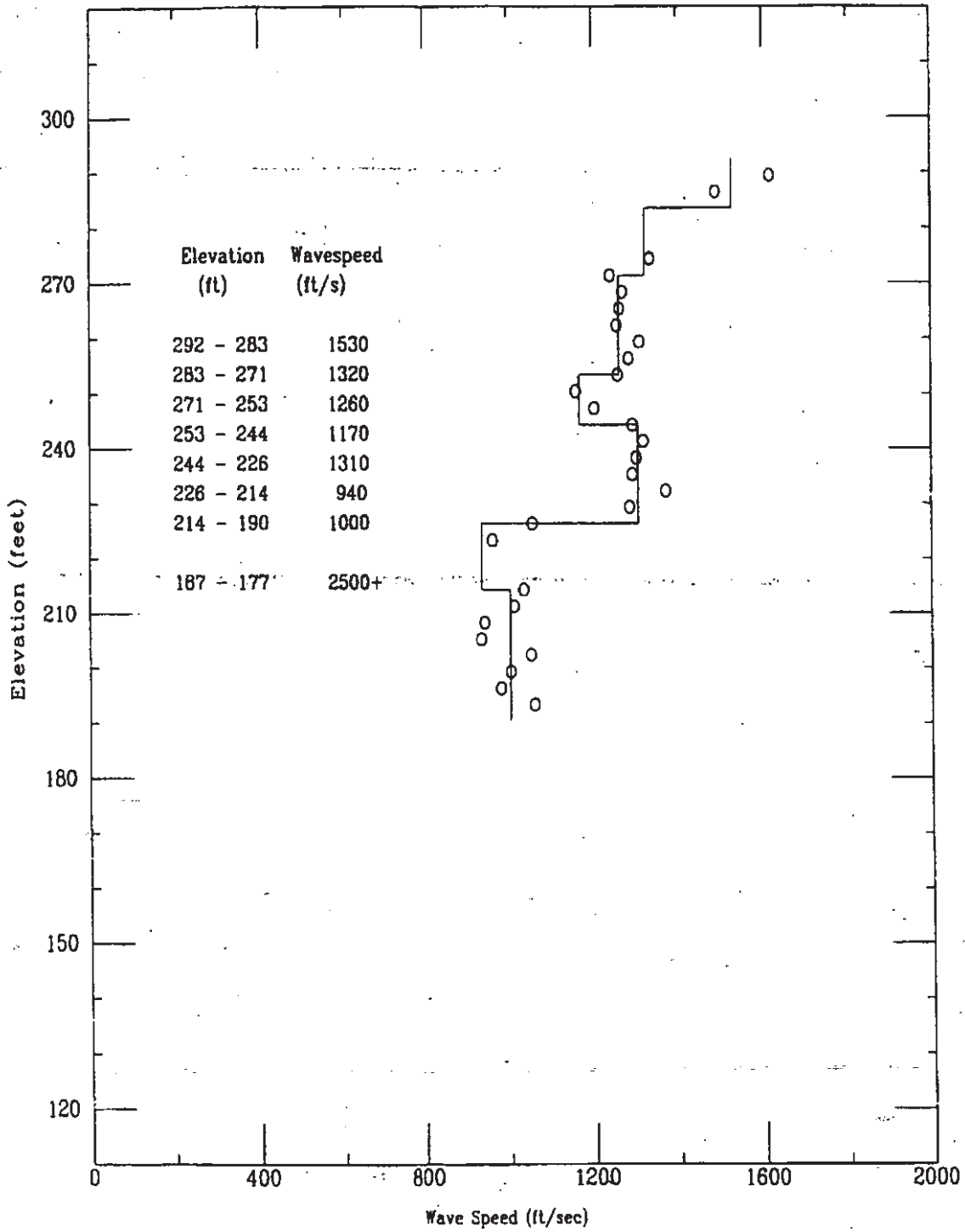
Elevation 301.4



CPT-179

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Speeds

03/24/98



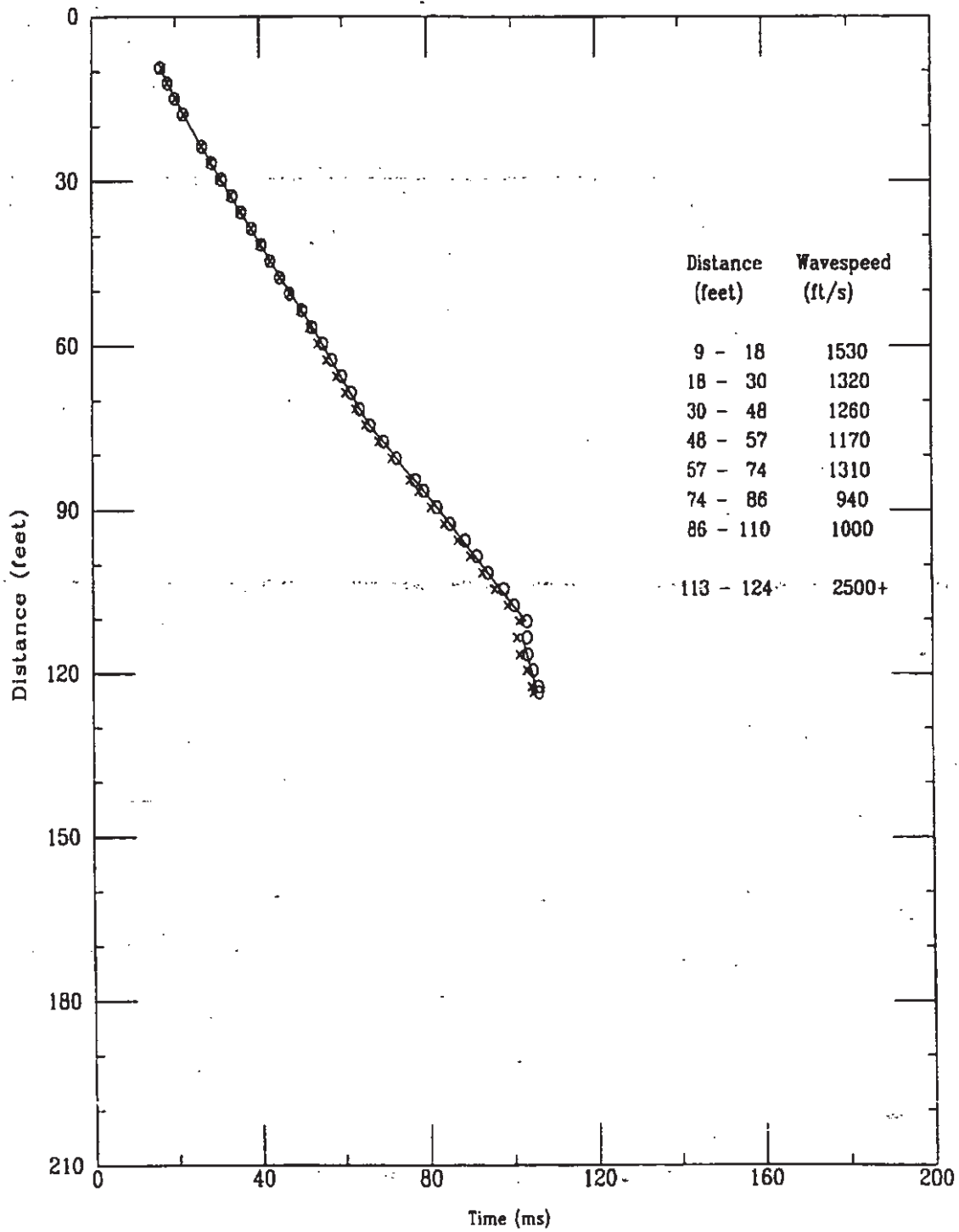
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CPT-179

APPLIED RESEARCH ASSOCIATES, INC.

03/24/98

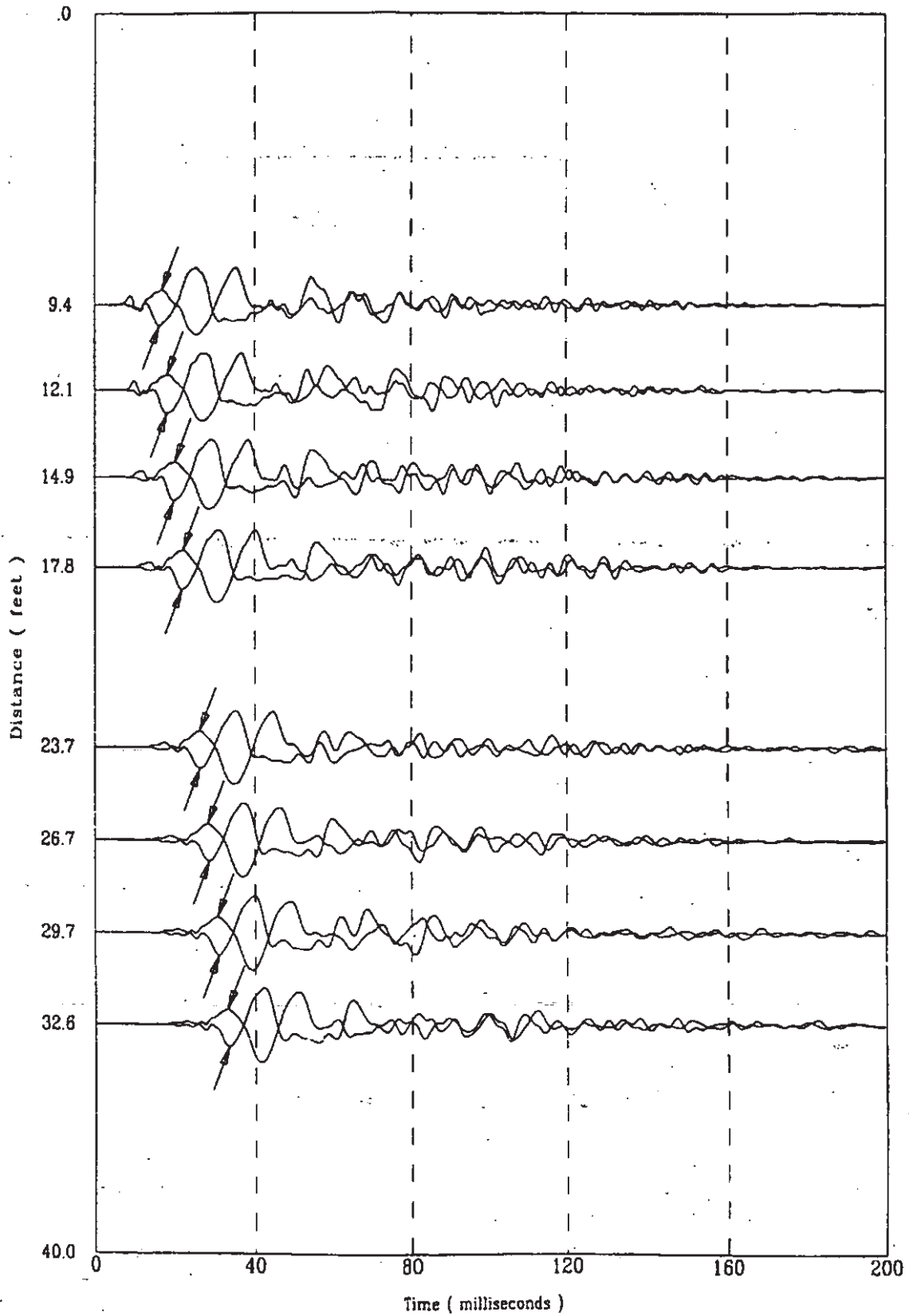
Shear Wave Time of Peak



File 324m804S

Applied Research Associates, Inc.  
CPT-179

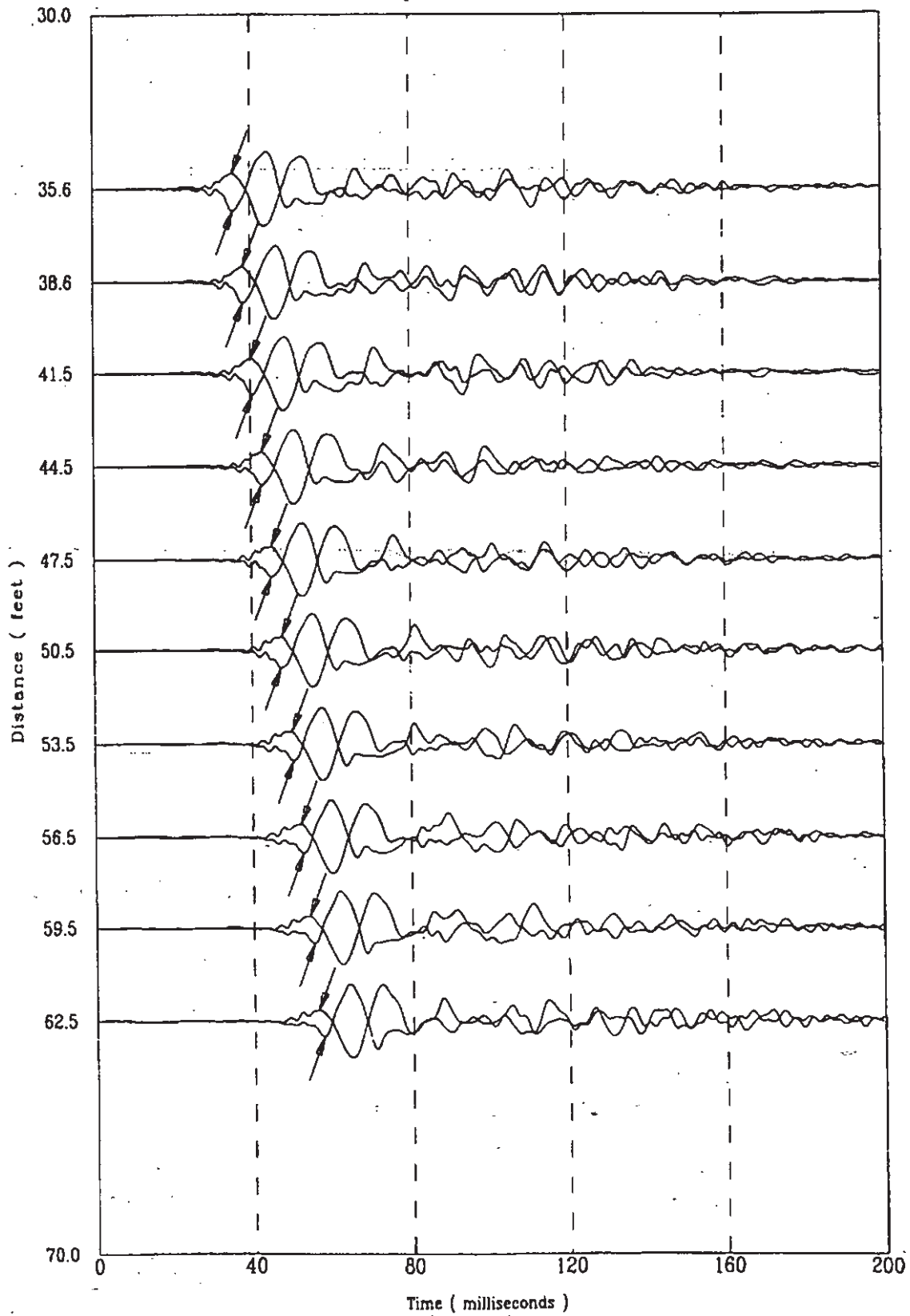
S Wave  
03/24/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-179

S Wave  
03/24/98



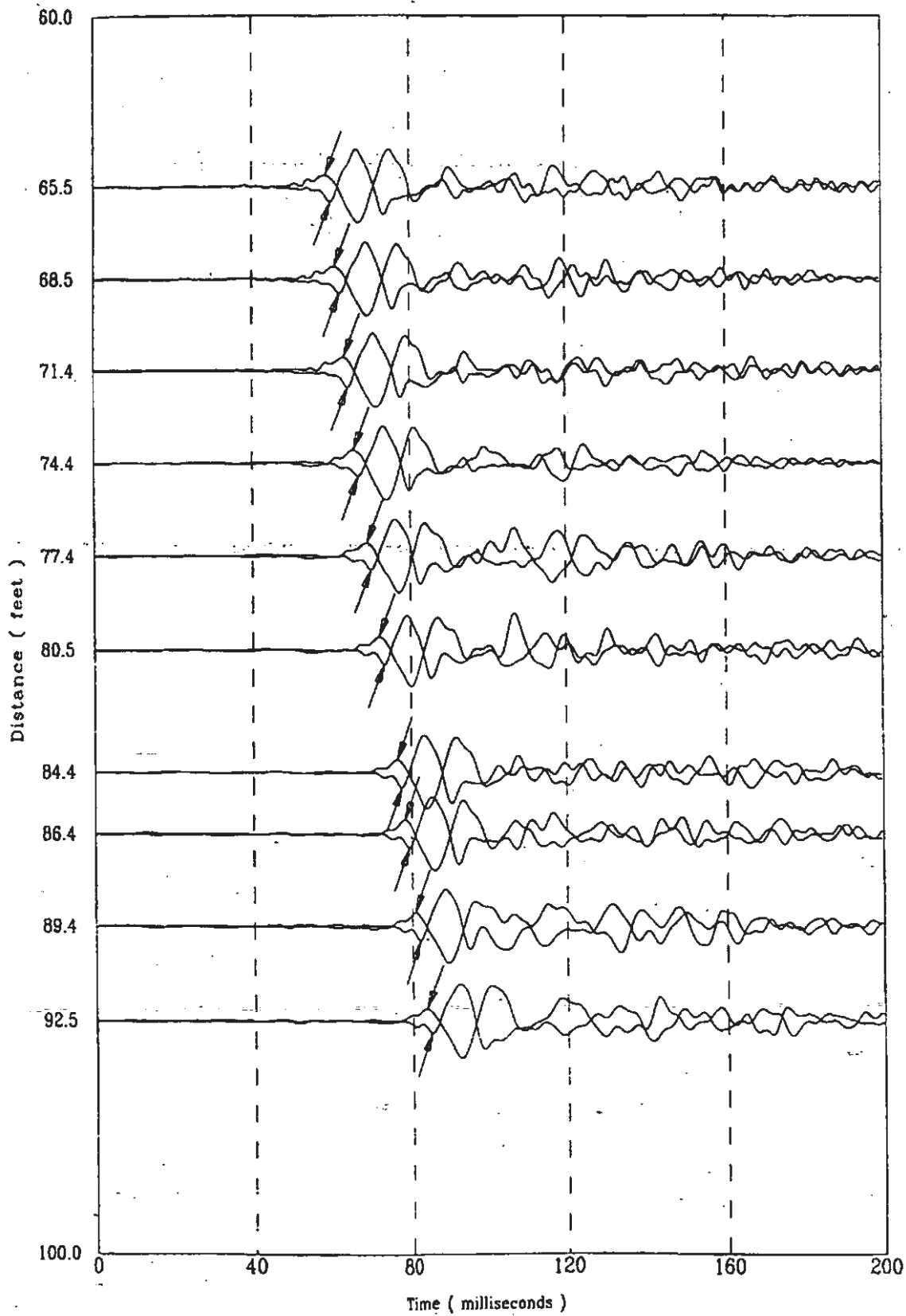
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-179

S Wave  
03/24/98



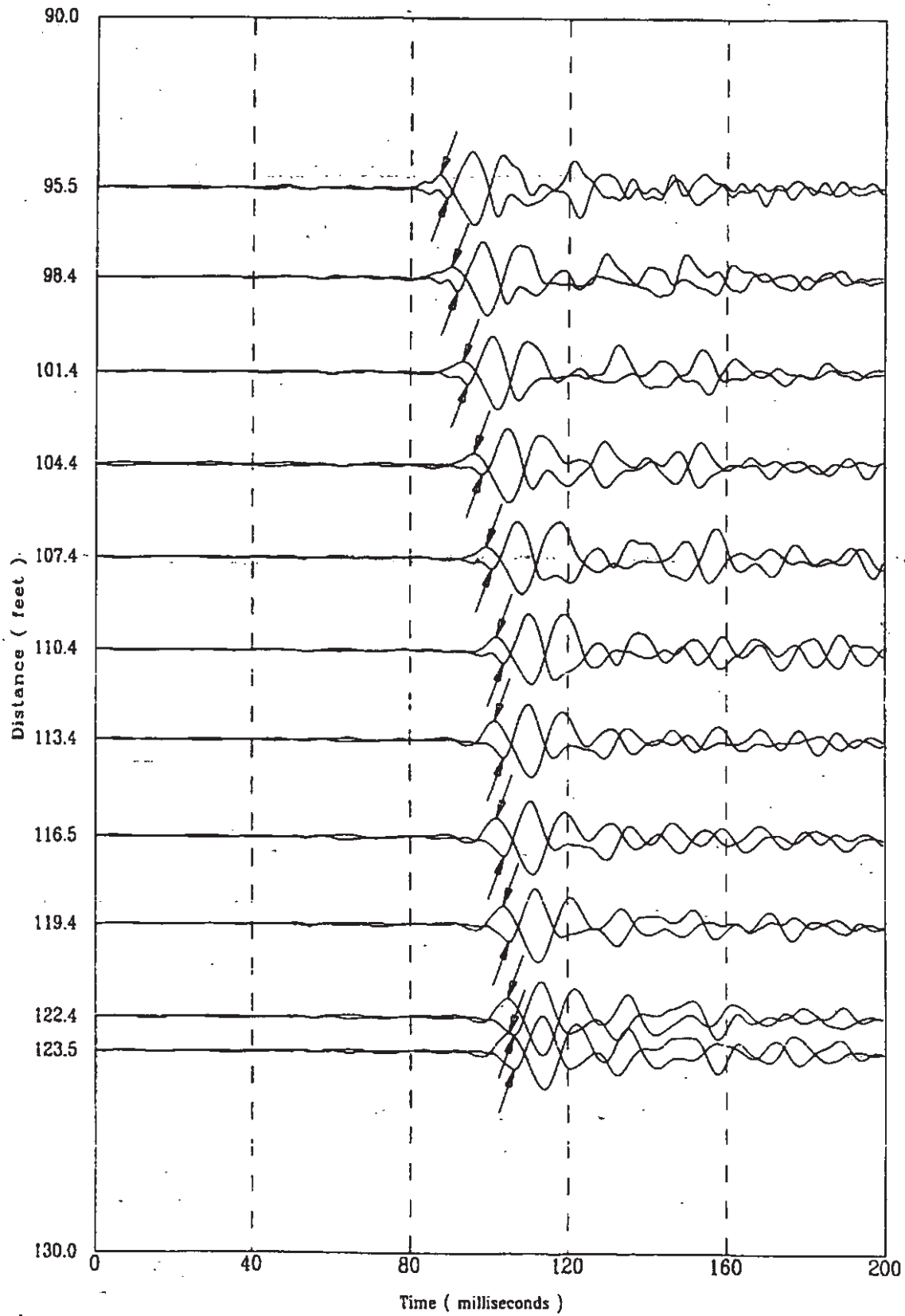
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-179

S Wave  
03/24/98



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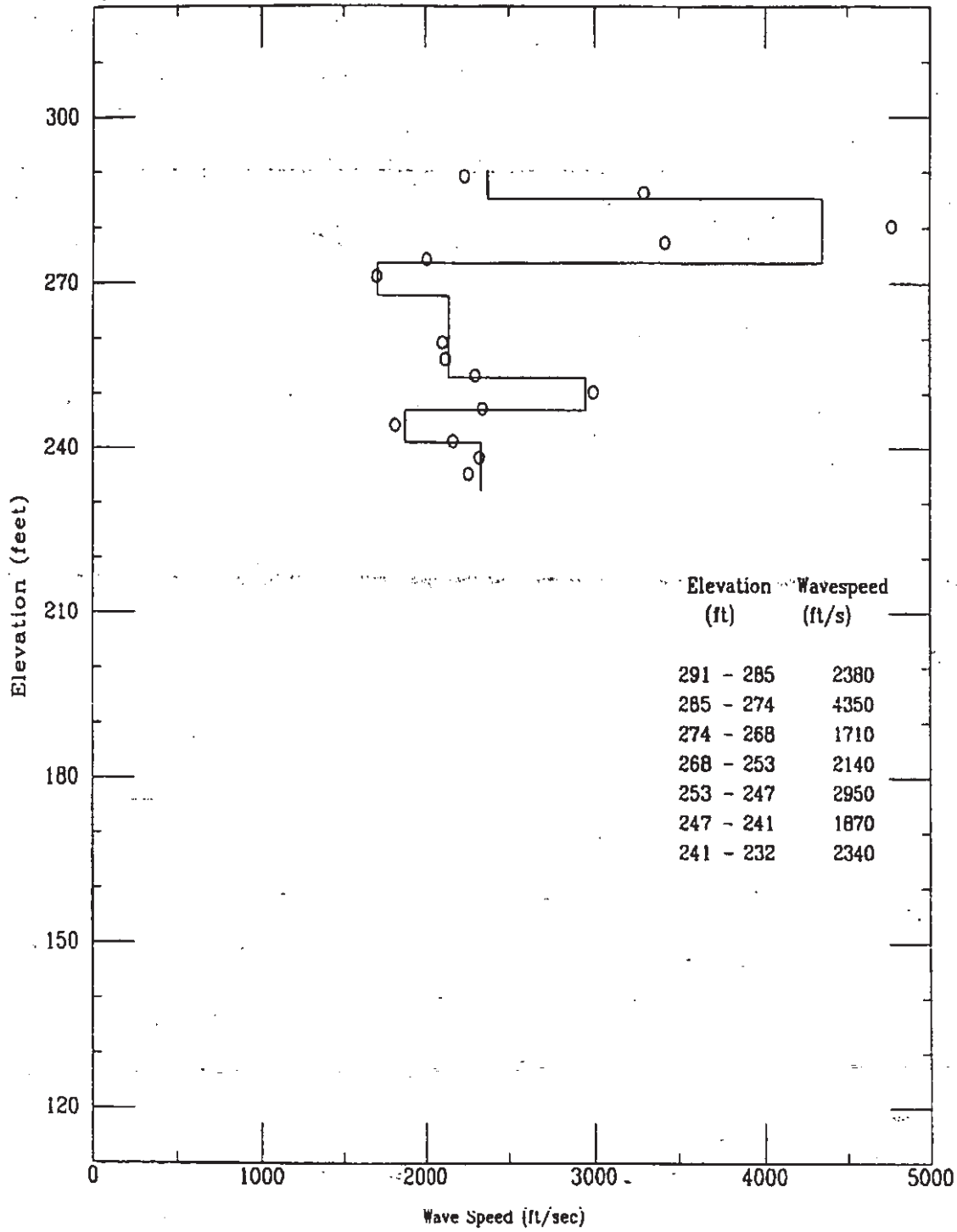


CPT-179

APPLIED RESEARCH ASSOCIATES, INC.

03/24/98

Compression Wave Speeds

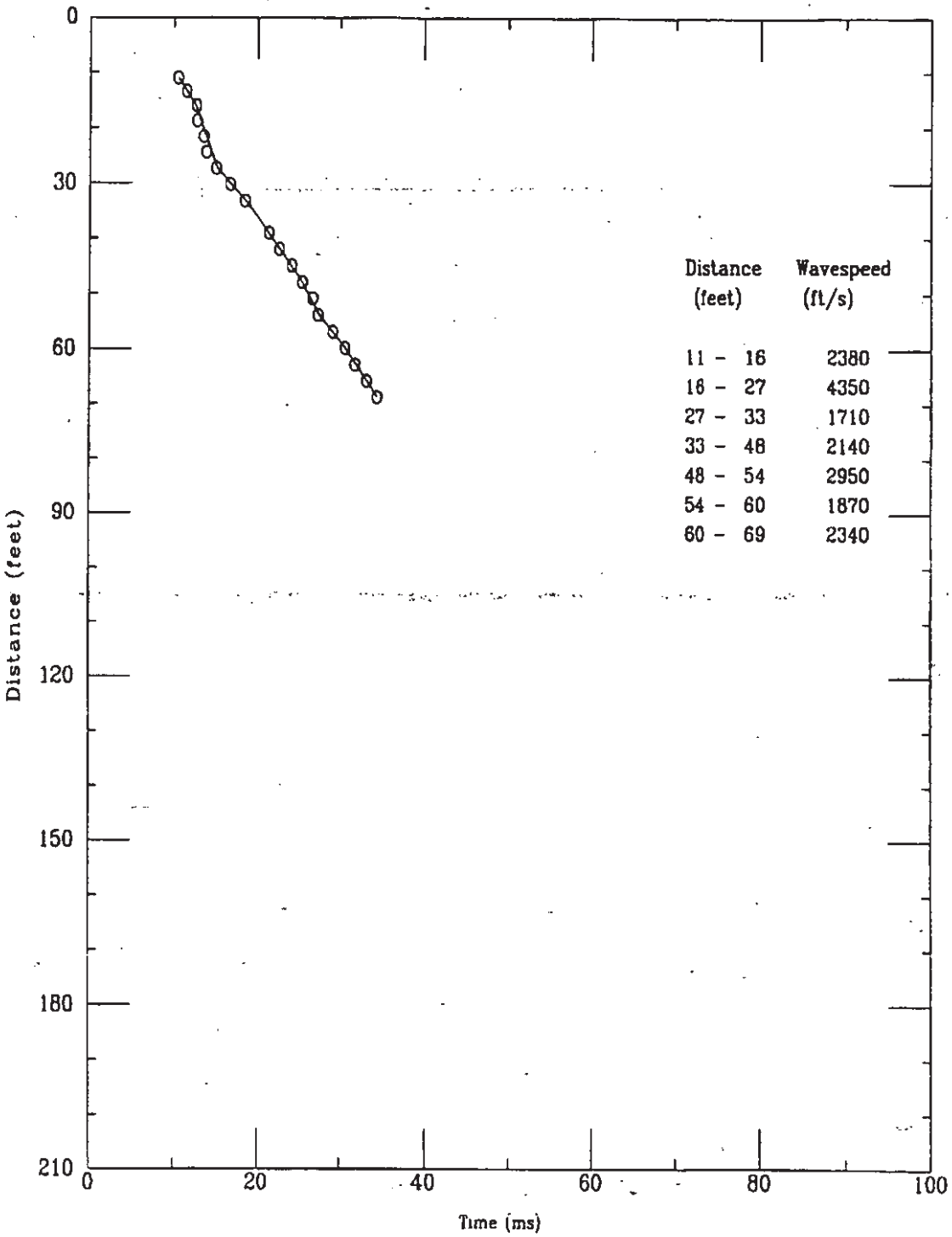


File 324m804S

CPT-179

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/24/98

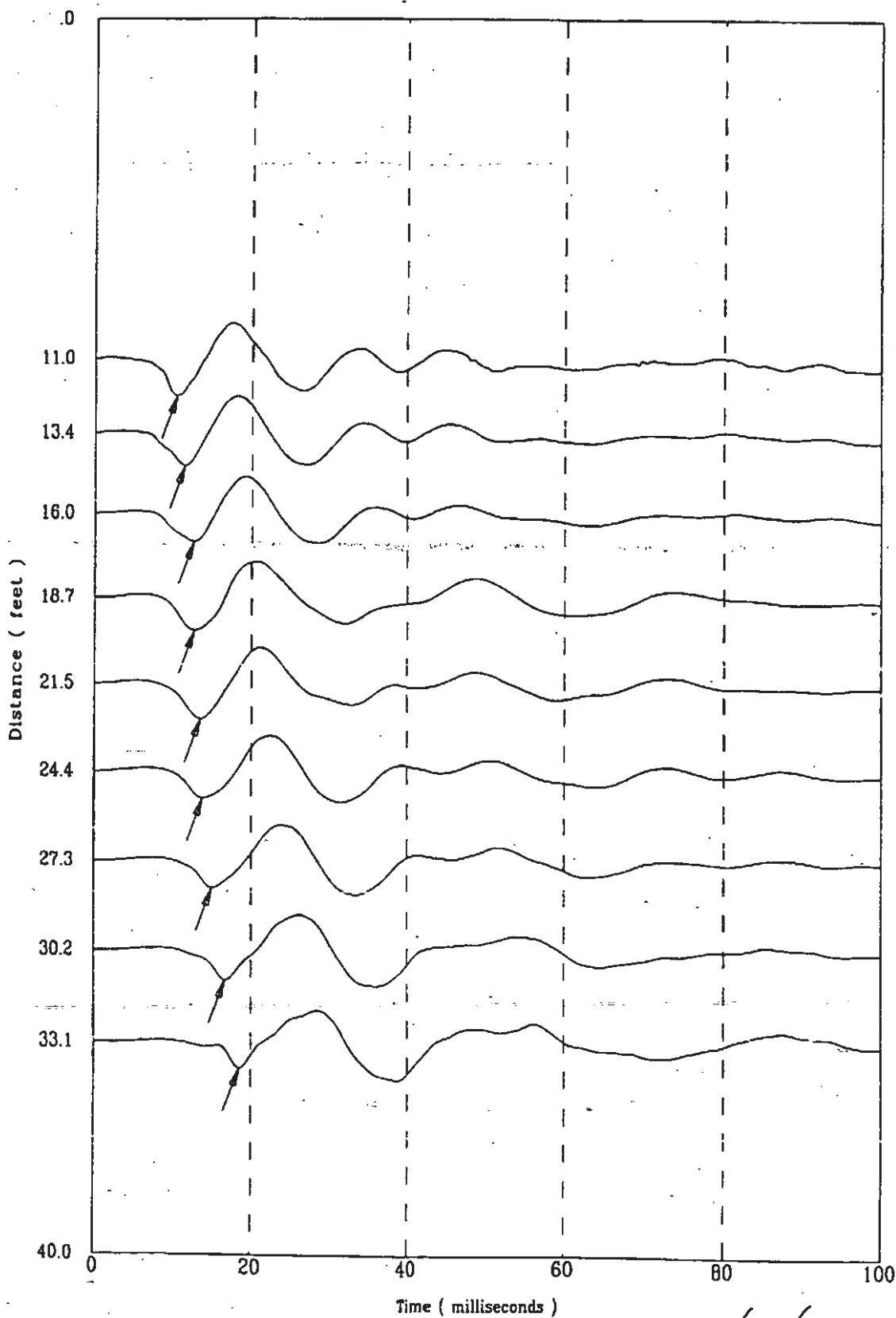


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K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-179

P Wave  
03/24/98



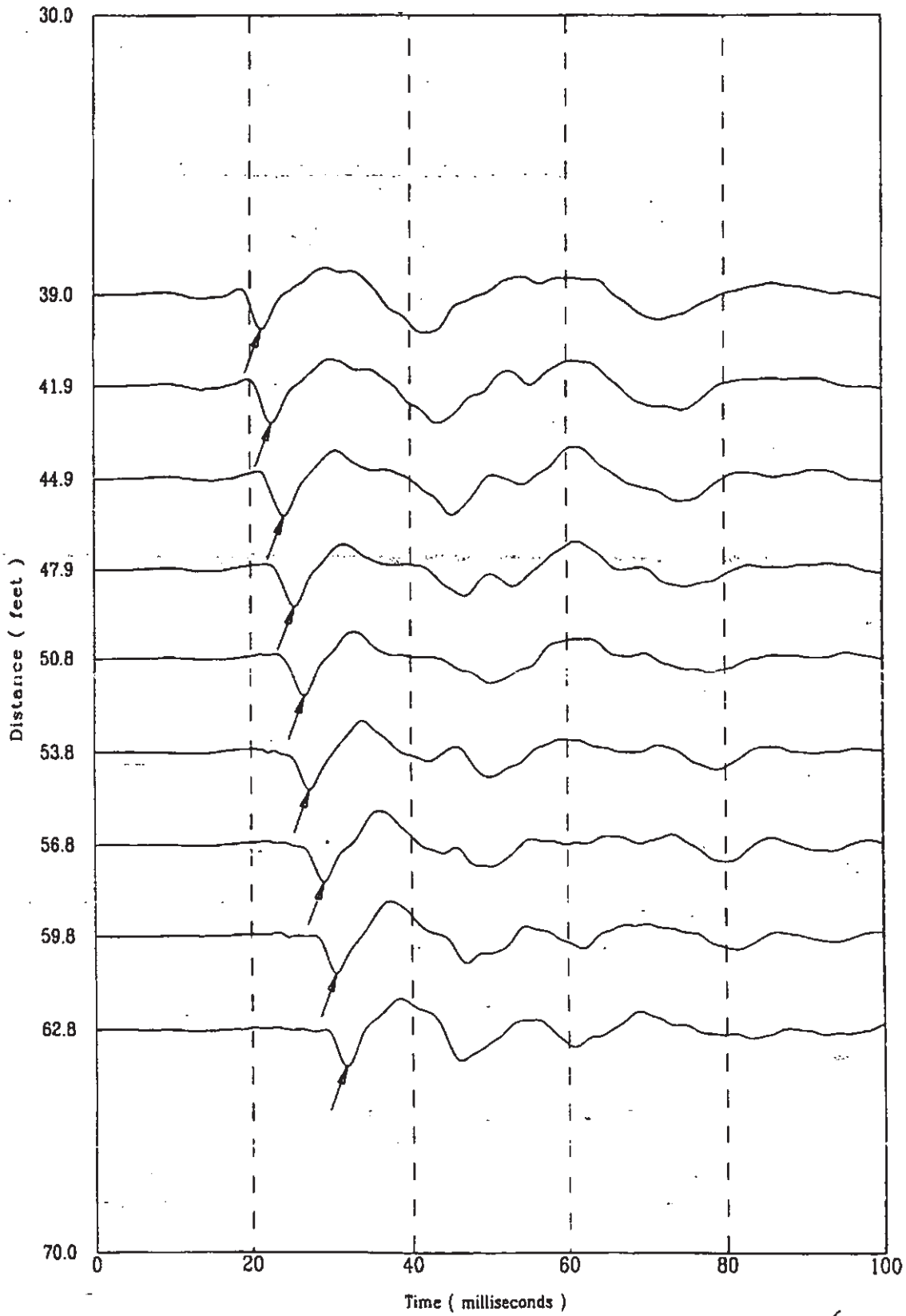
File 324m804S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-179

P Wave  
03/24/98



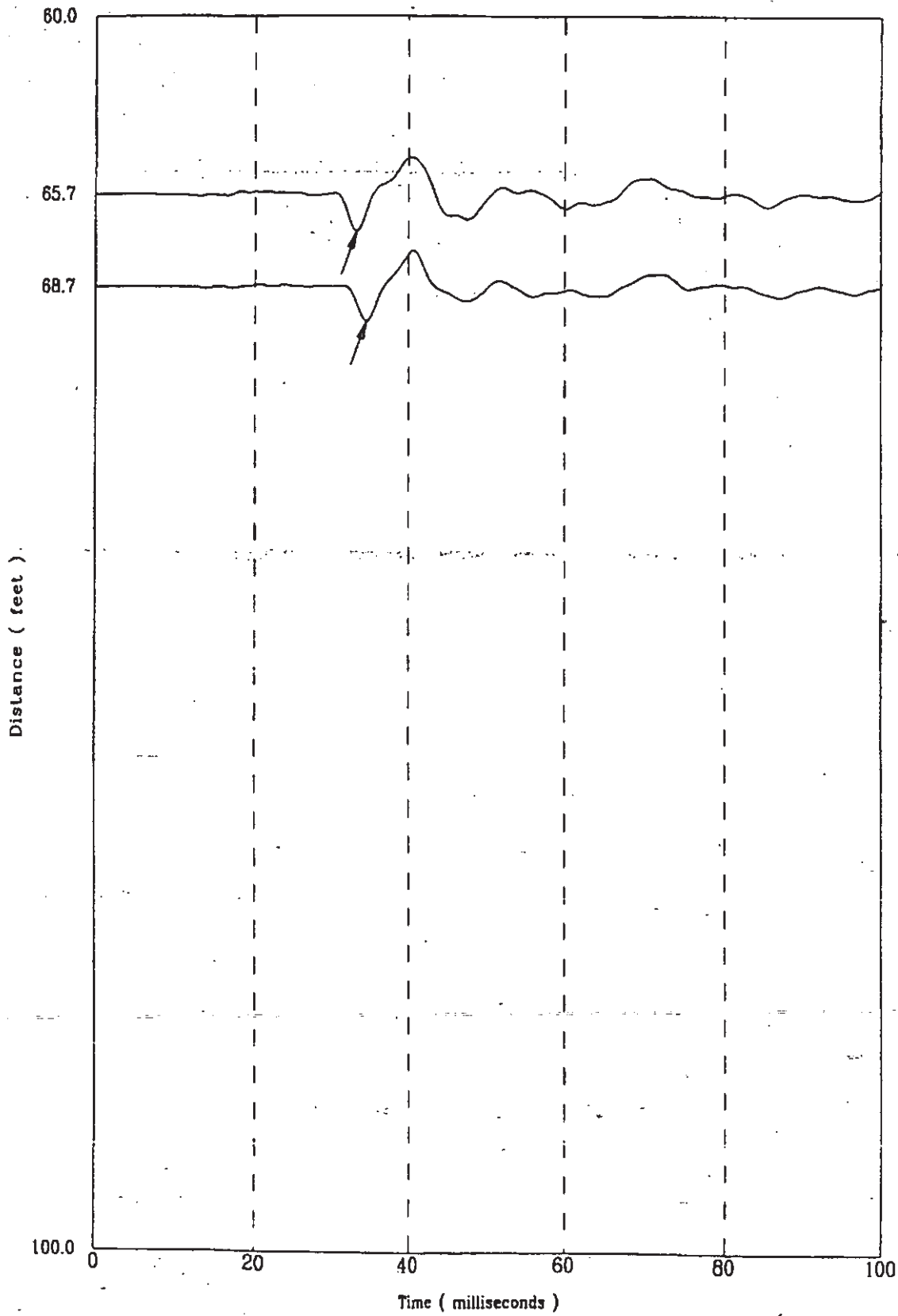
324m8045

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-179

P Wave  
03/24/98



File 324m804S

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APPLIED RESEARCH ASSOCIATES, INC.

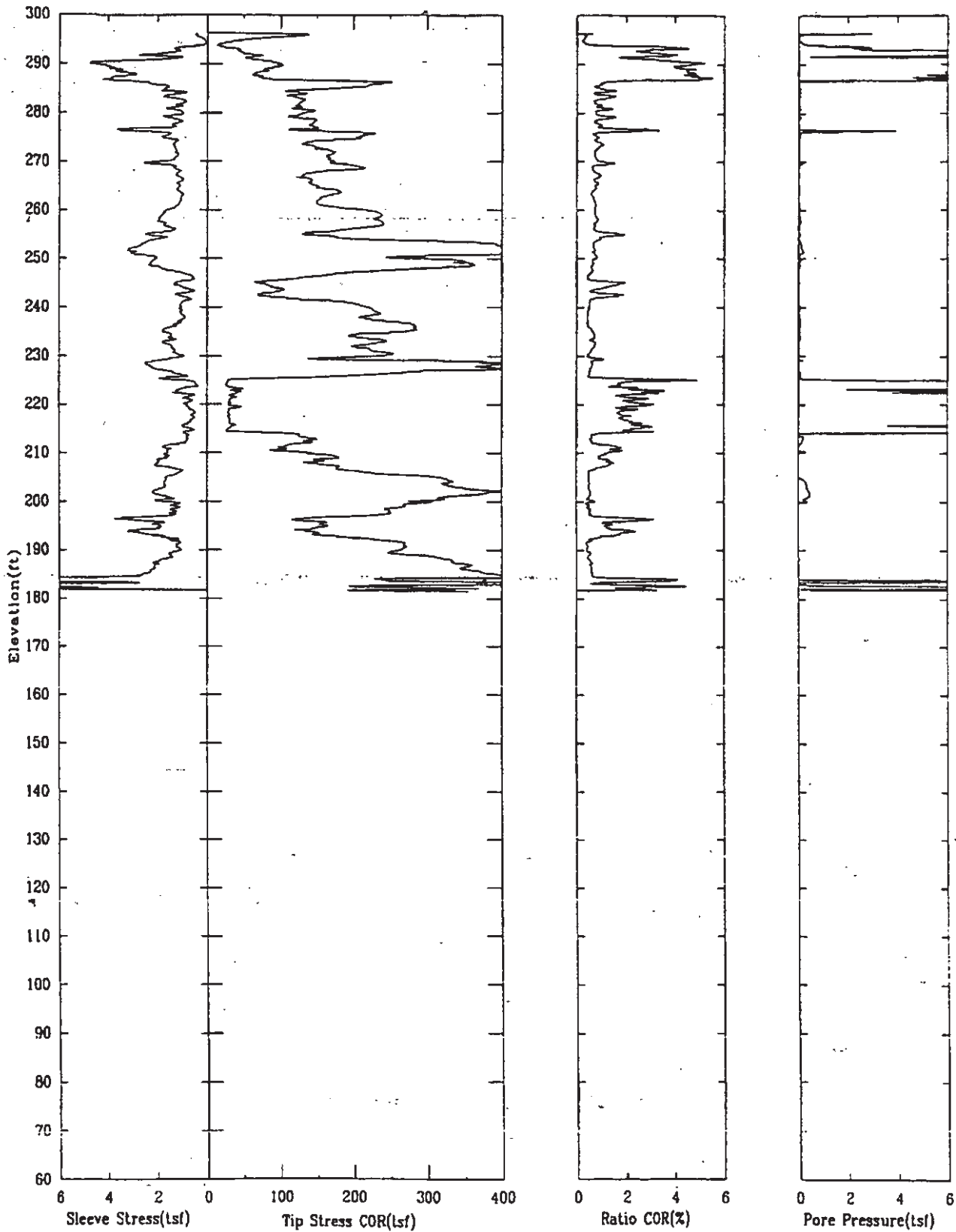
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03/26/98/0

North 78640

East 55650

Elevation 302.3



CPT-180

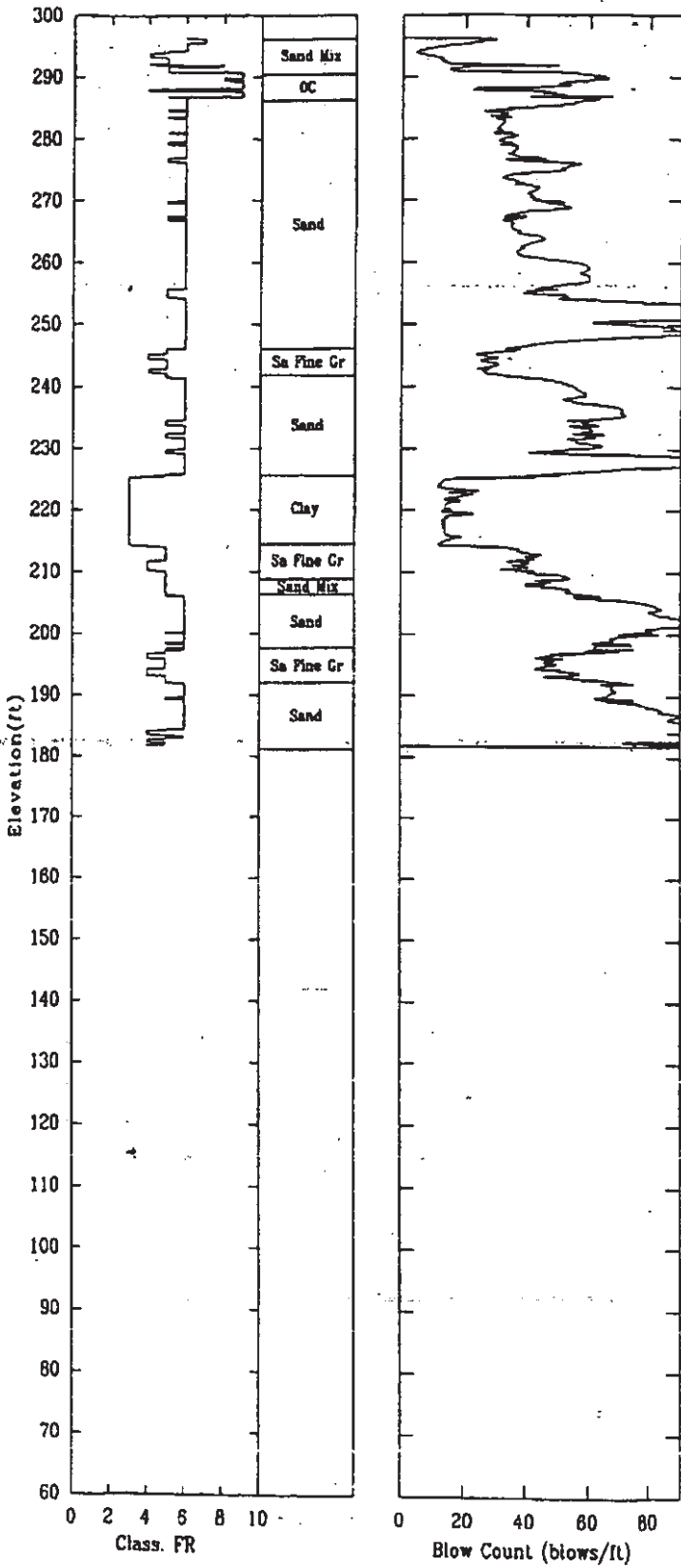
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03/26/98/0

North 78640

East 55650

Elevation 302.3

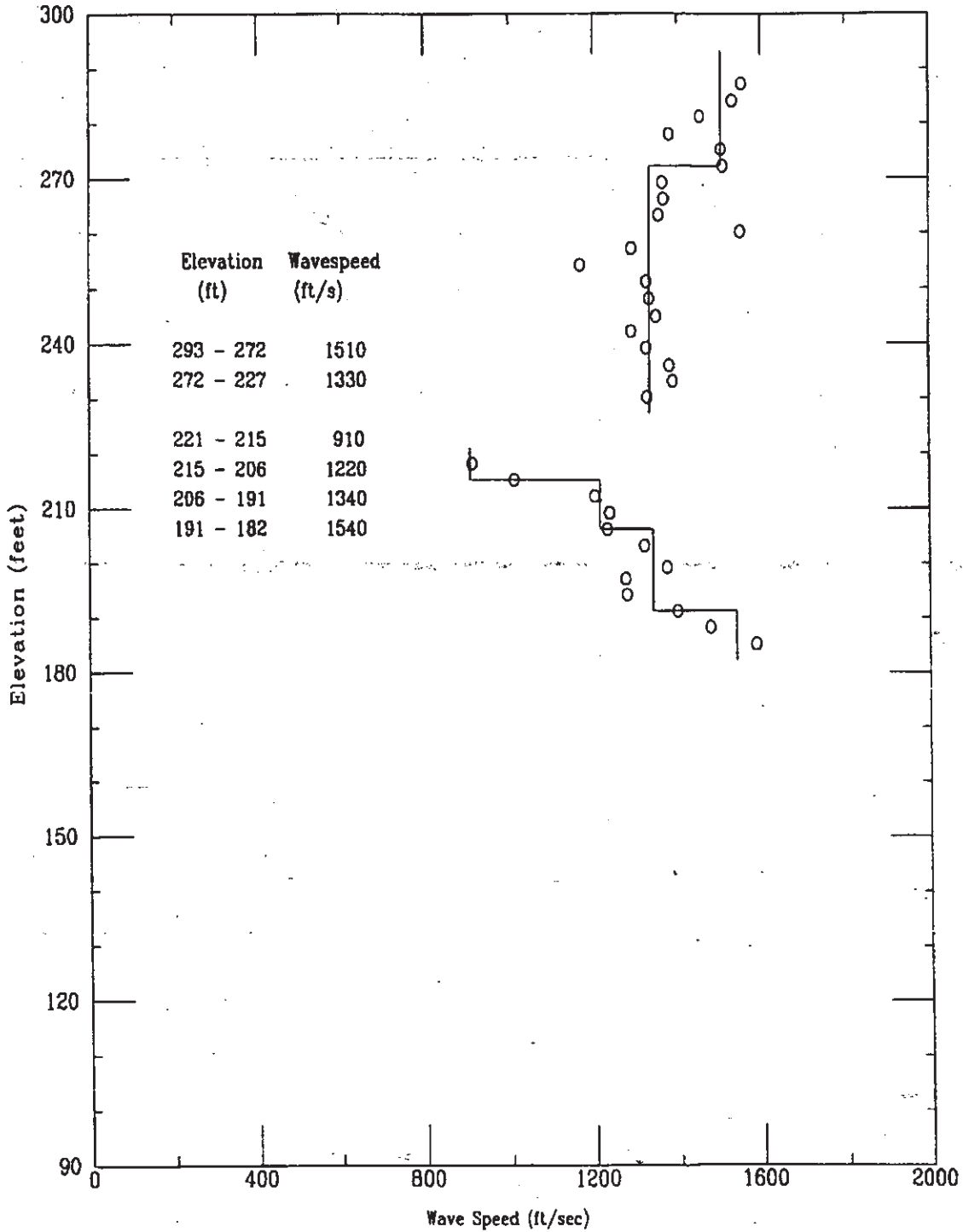


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APPLIED RESEARCH ASSOCIATES, INC.

03/26/98

Shear Wave Speeds

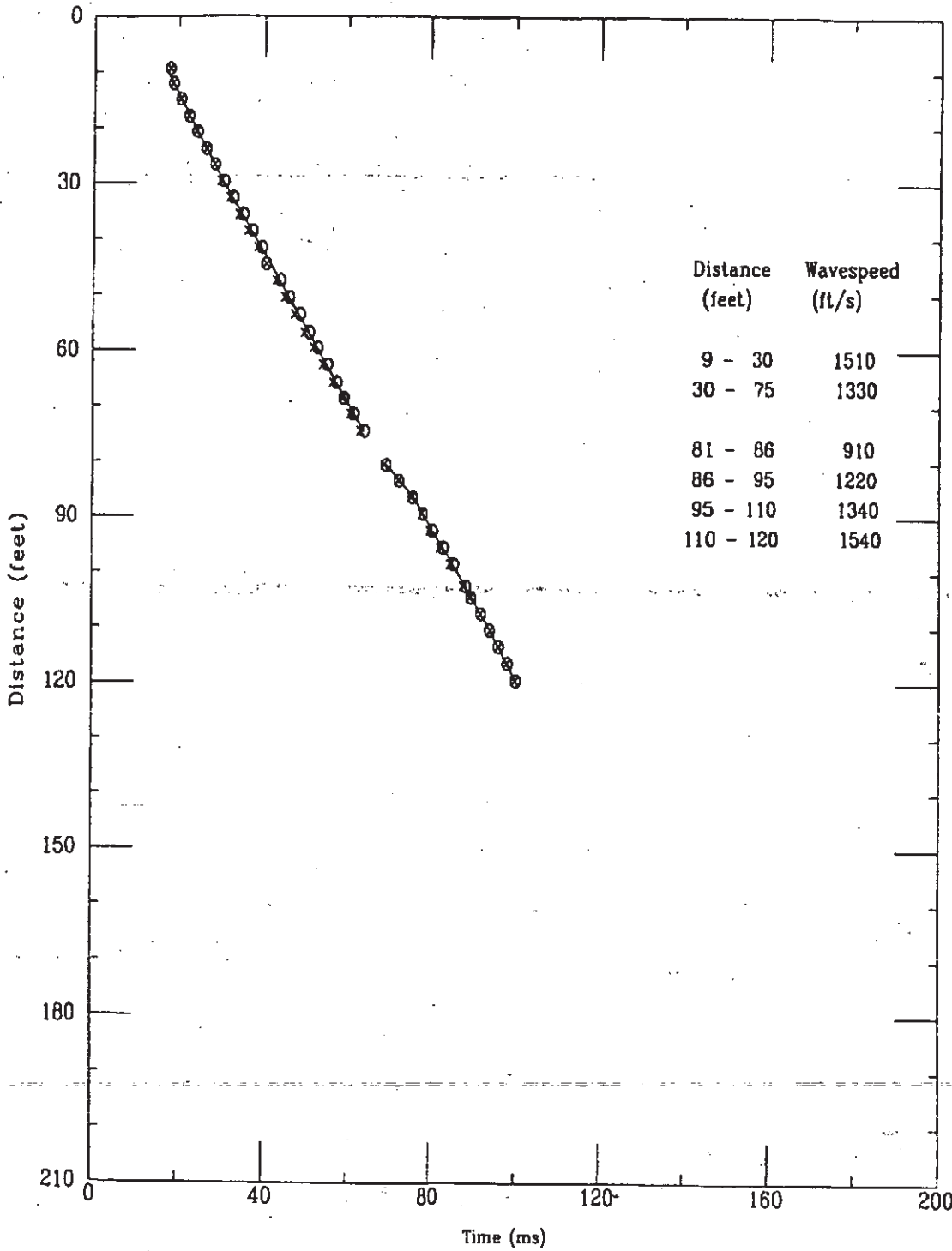




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APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

03/26/98

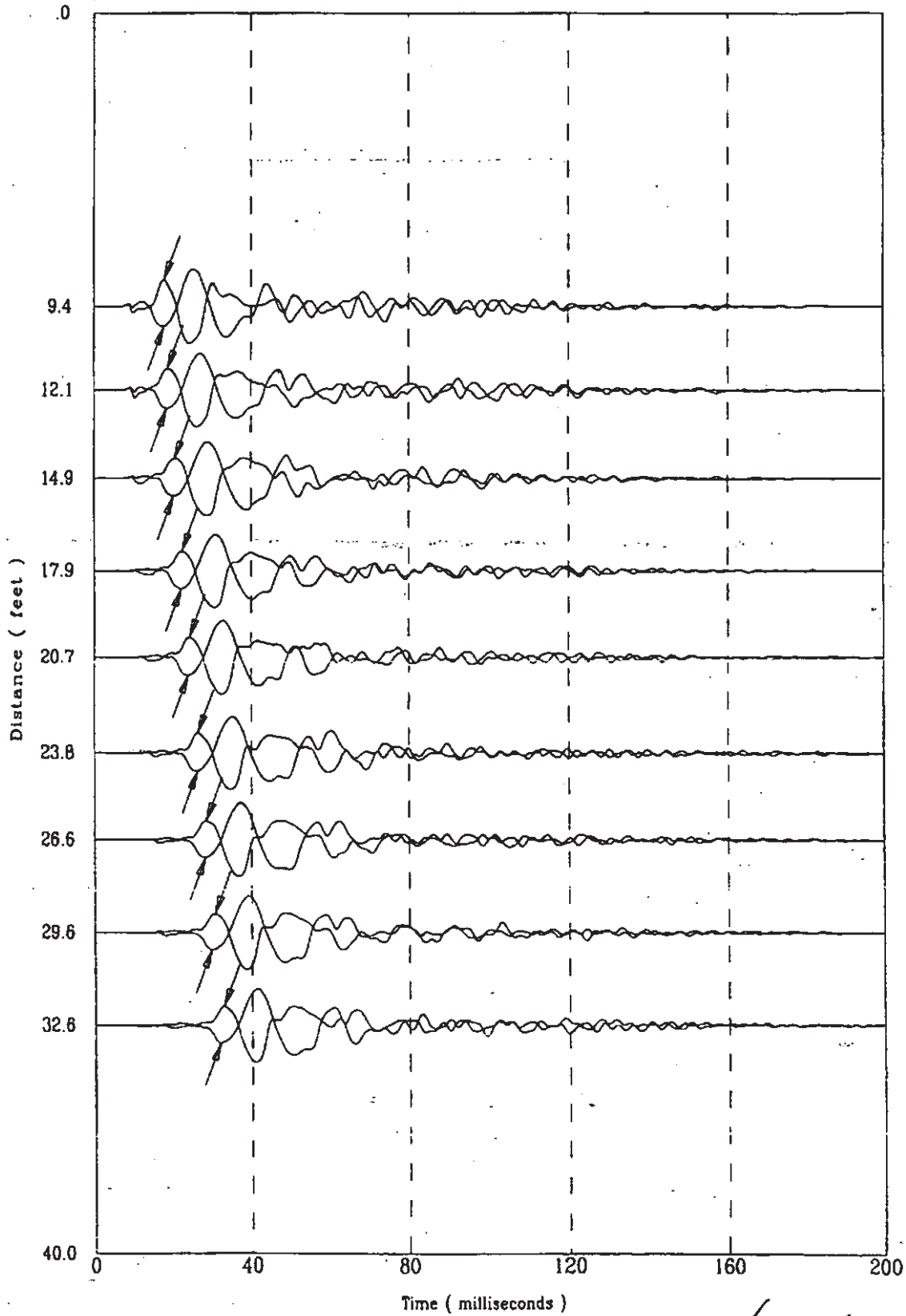


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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-180

S Wave  
03/26/98

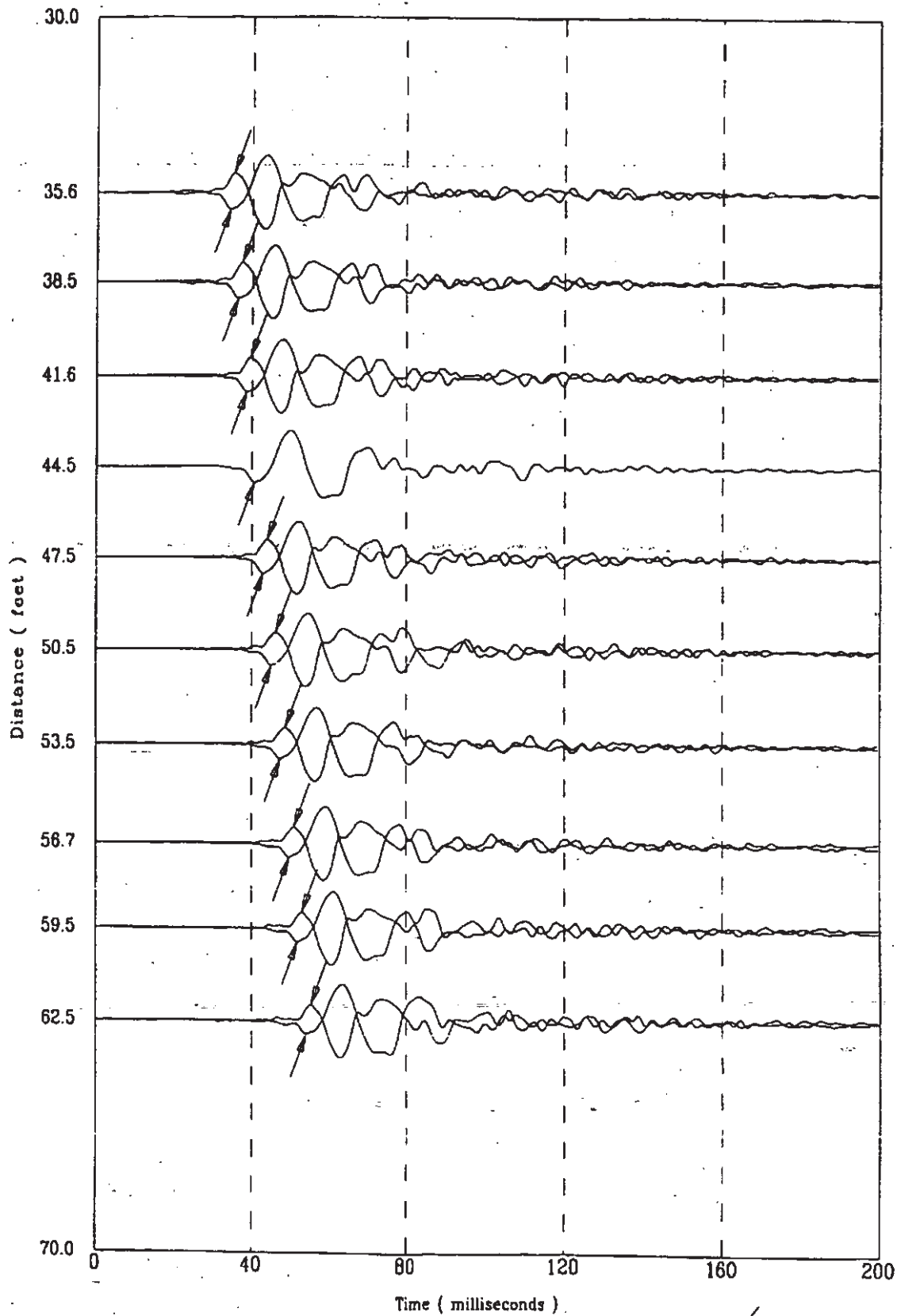


326m802S

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Applied Research Associates, Inc.  
CPT-180

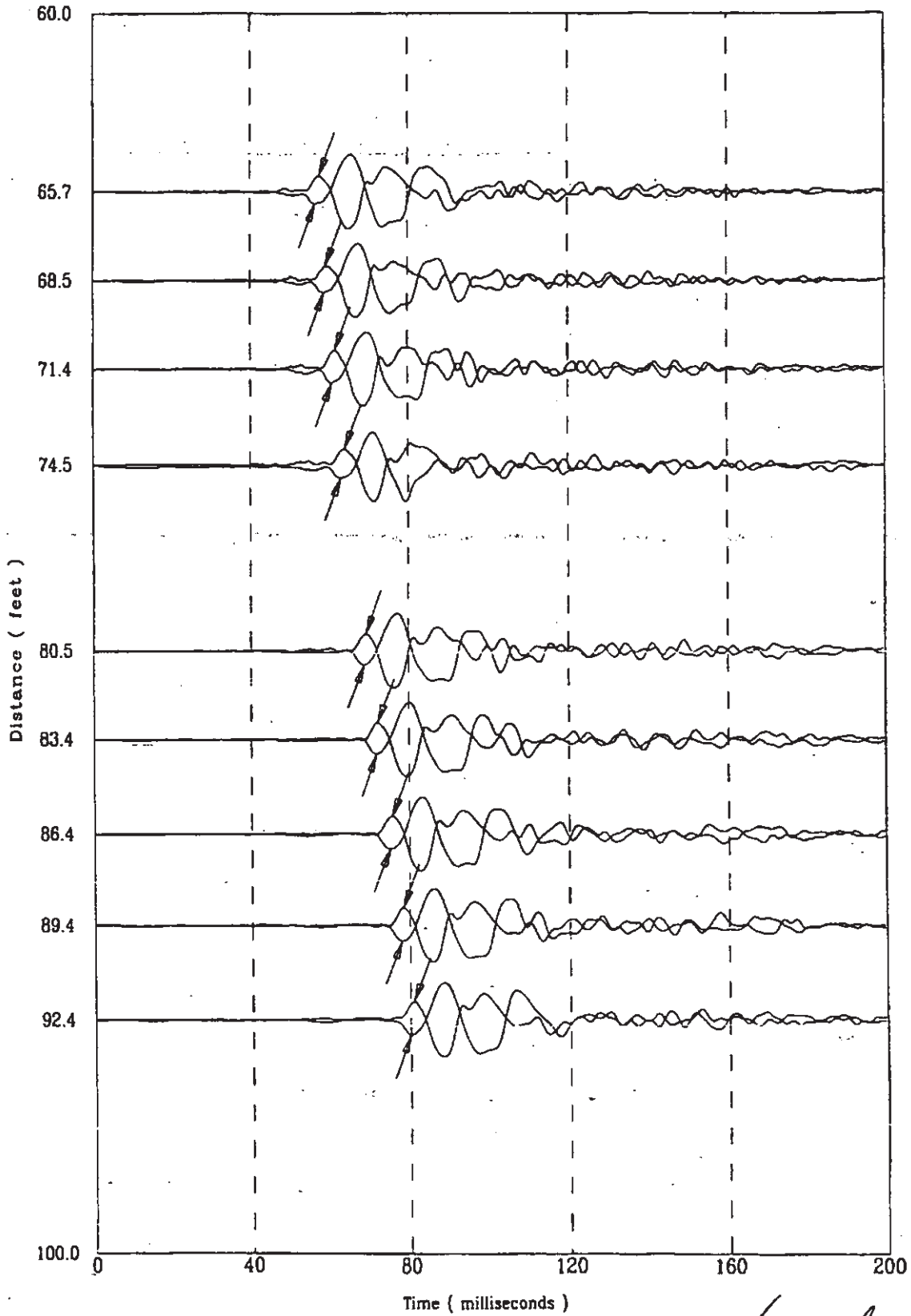
S Wave  
03/26/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-180

S Wave  
03/26/98



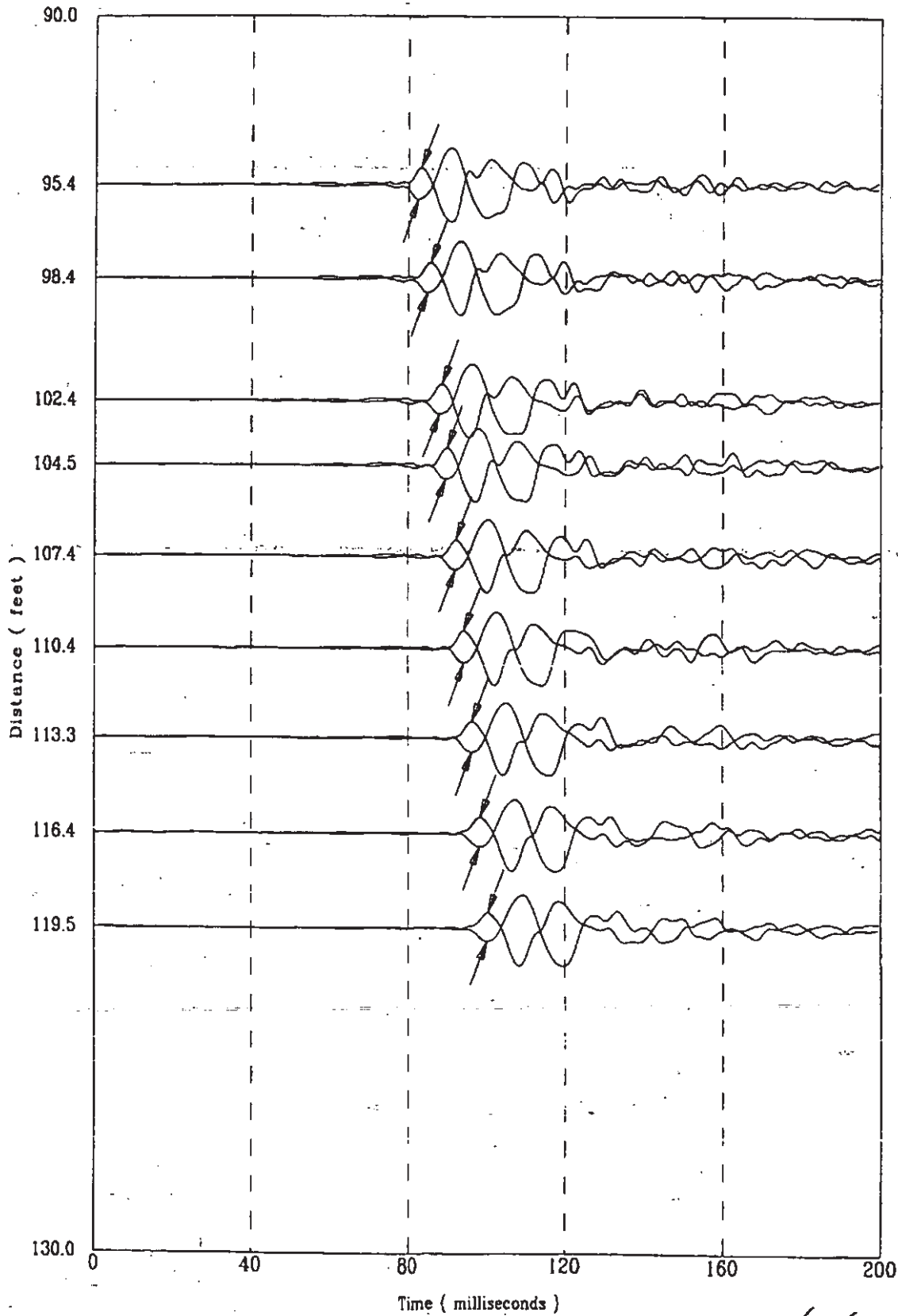
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R/O

Applied Research Associates, Inc.  
CPT-180

S Wave  
03/26/98



File 328m.802S

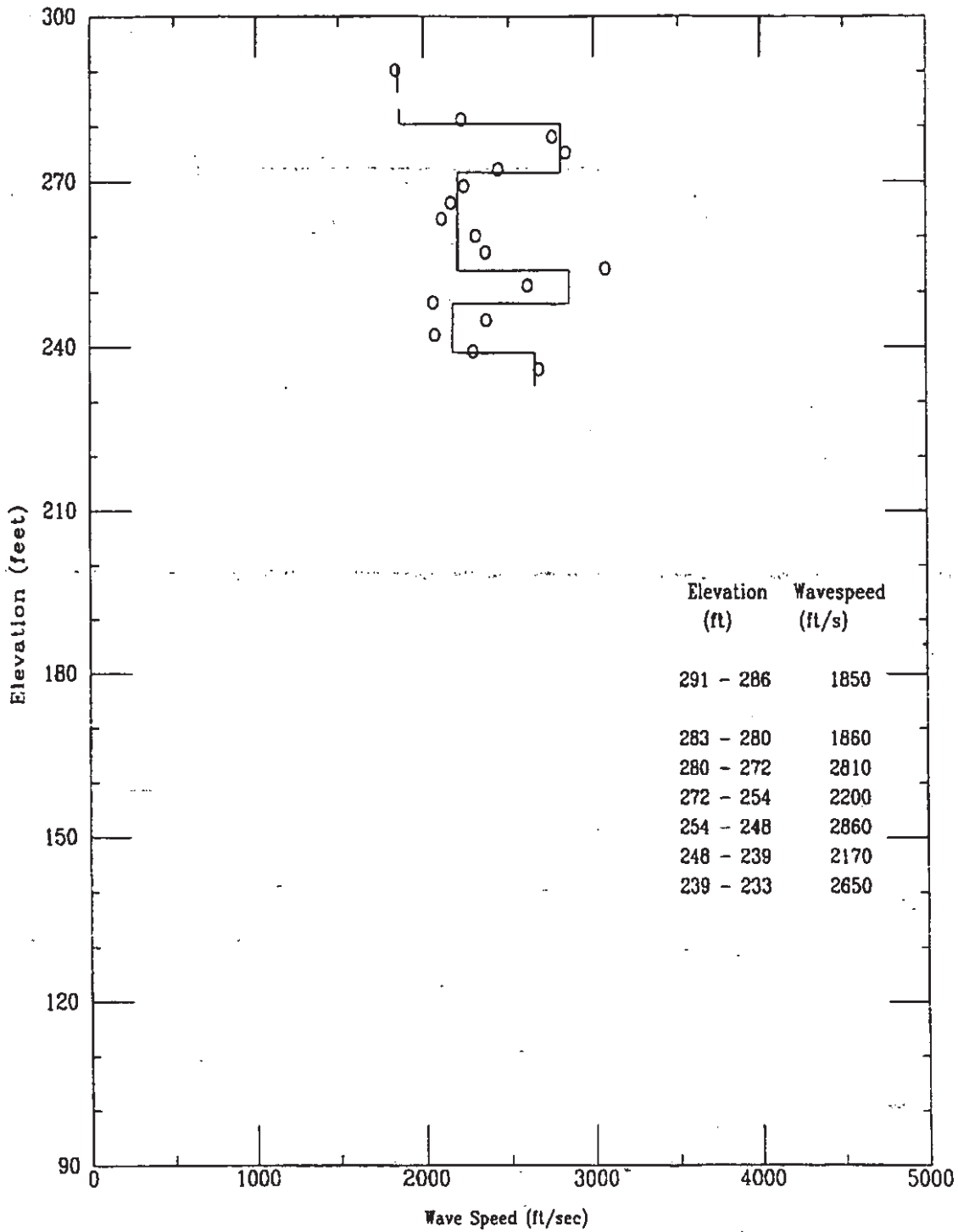
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APPLIED RESEARCH ASSOCIATES, INC.

03/26/98

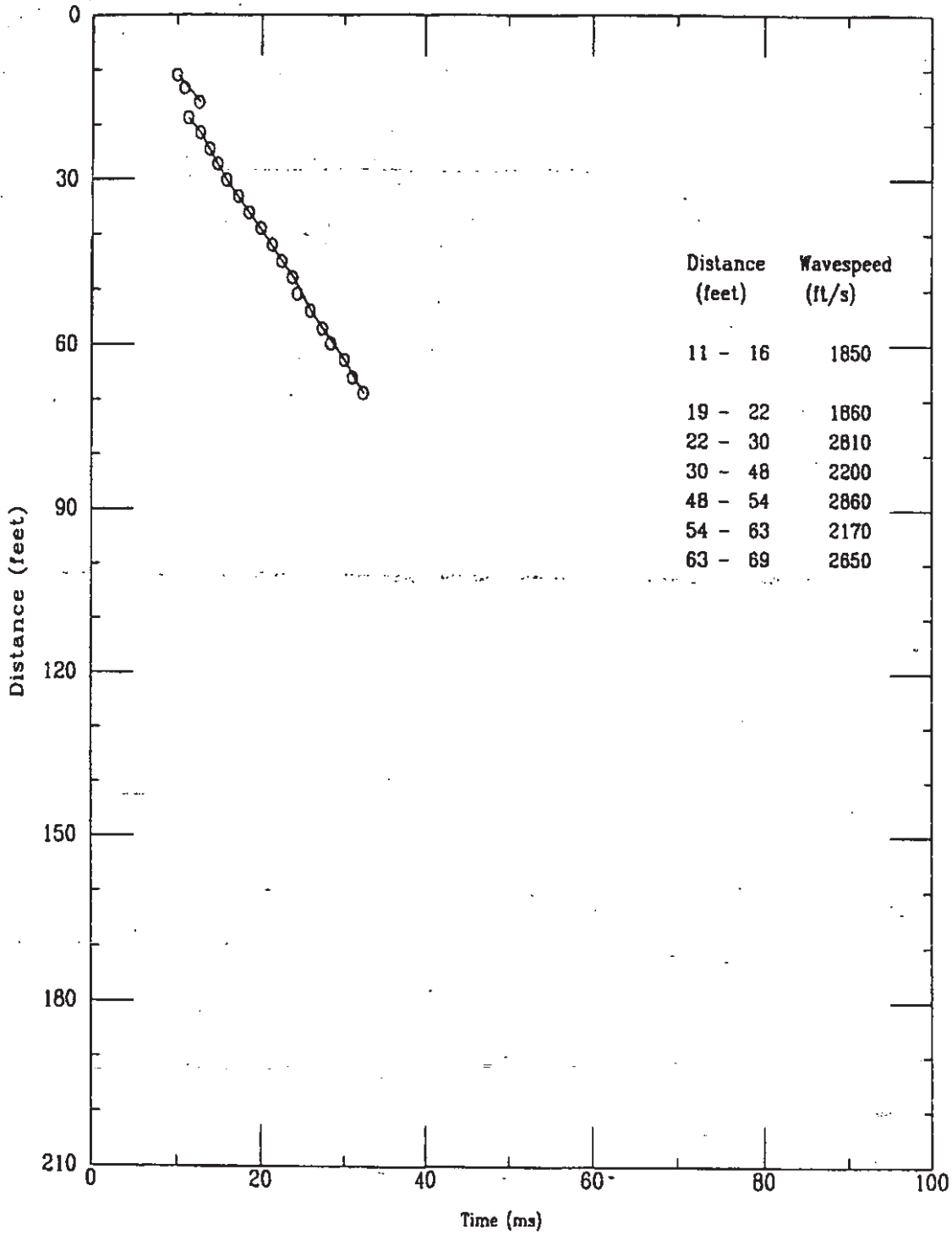
Compression Wave Speeds



CPT-180

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

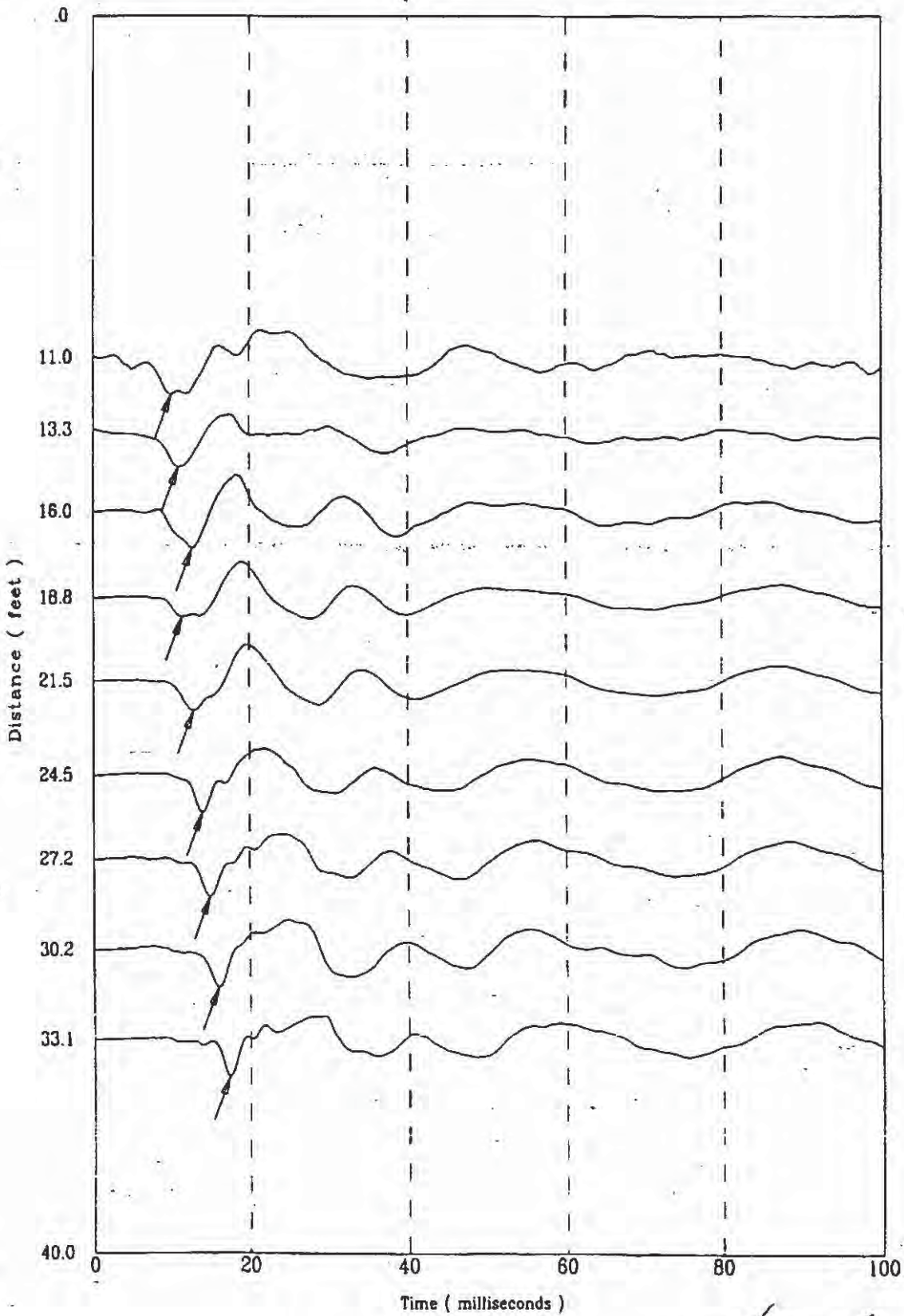
03/26/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-180

P Wave  
03/26/98



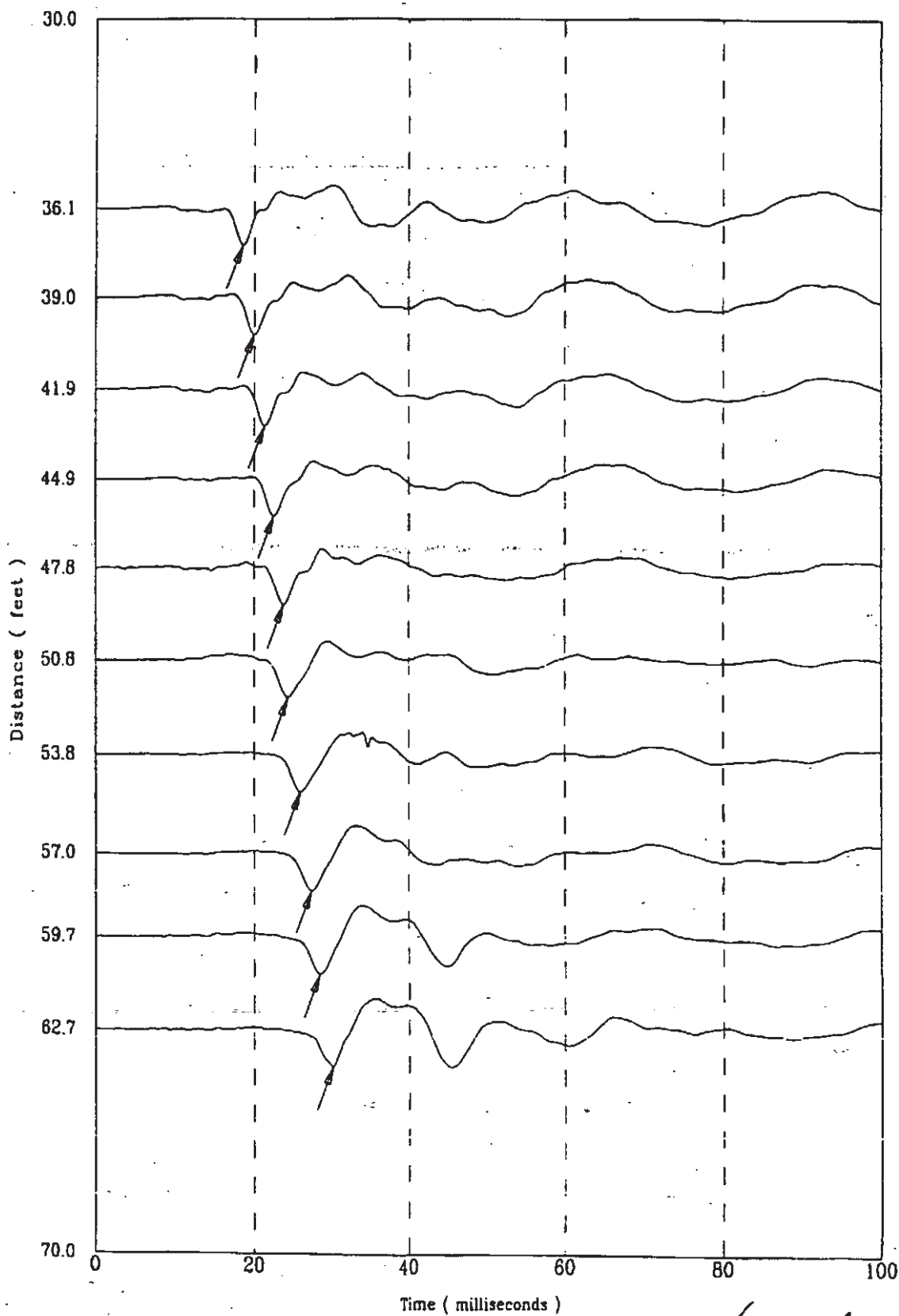
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Applied Research Associates, Inc.  
CPT-180

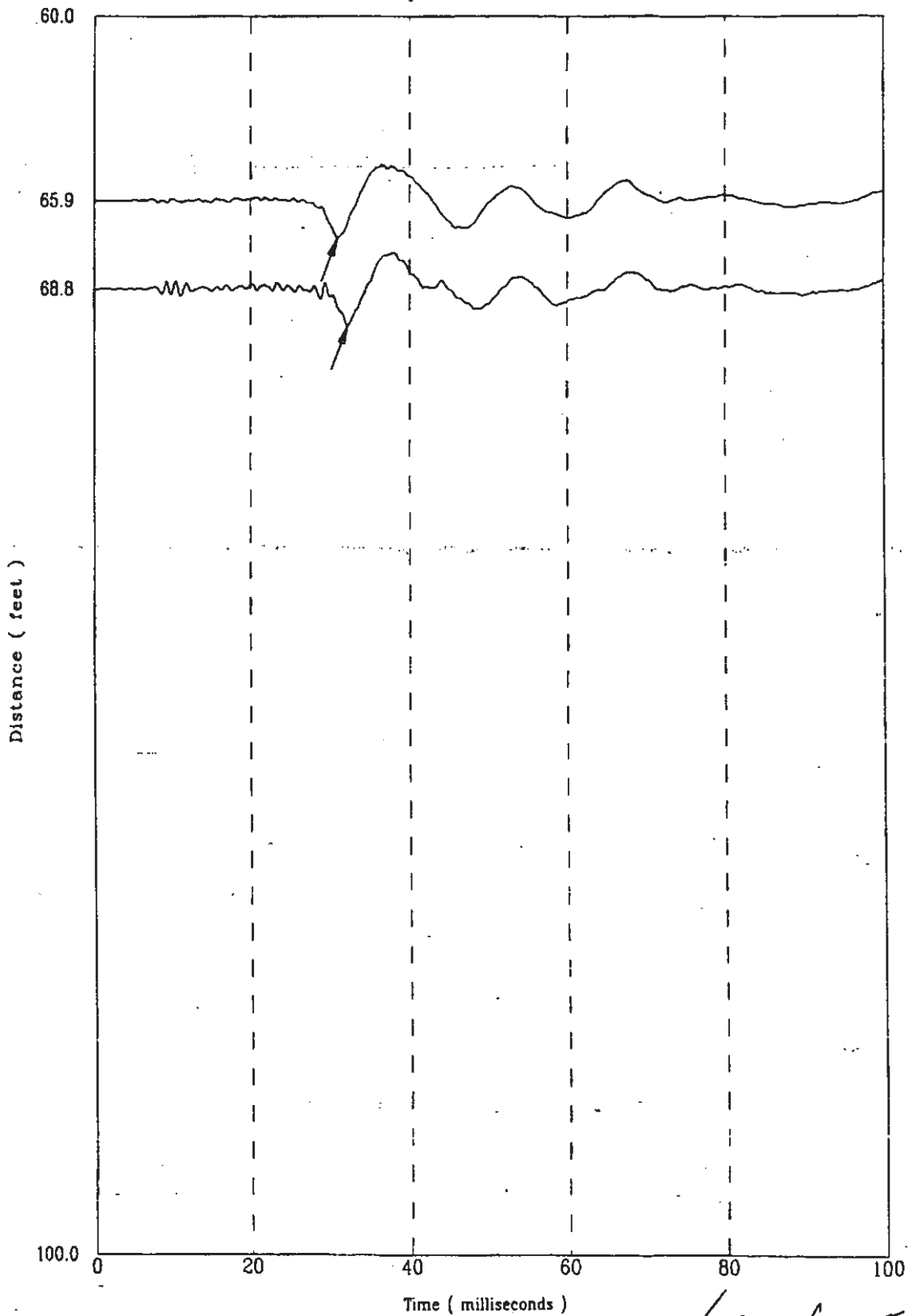
P Wave  
03/26/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-180

P Wave  
03/26/98



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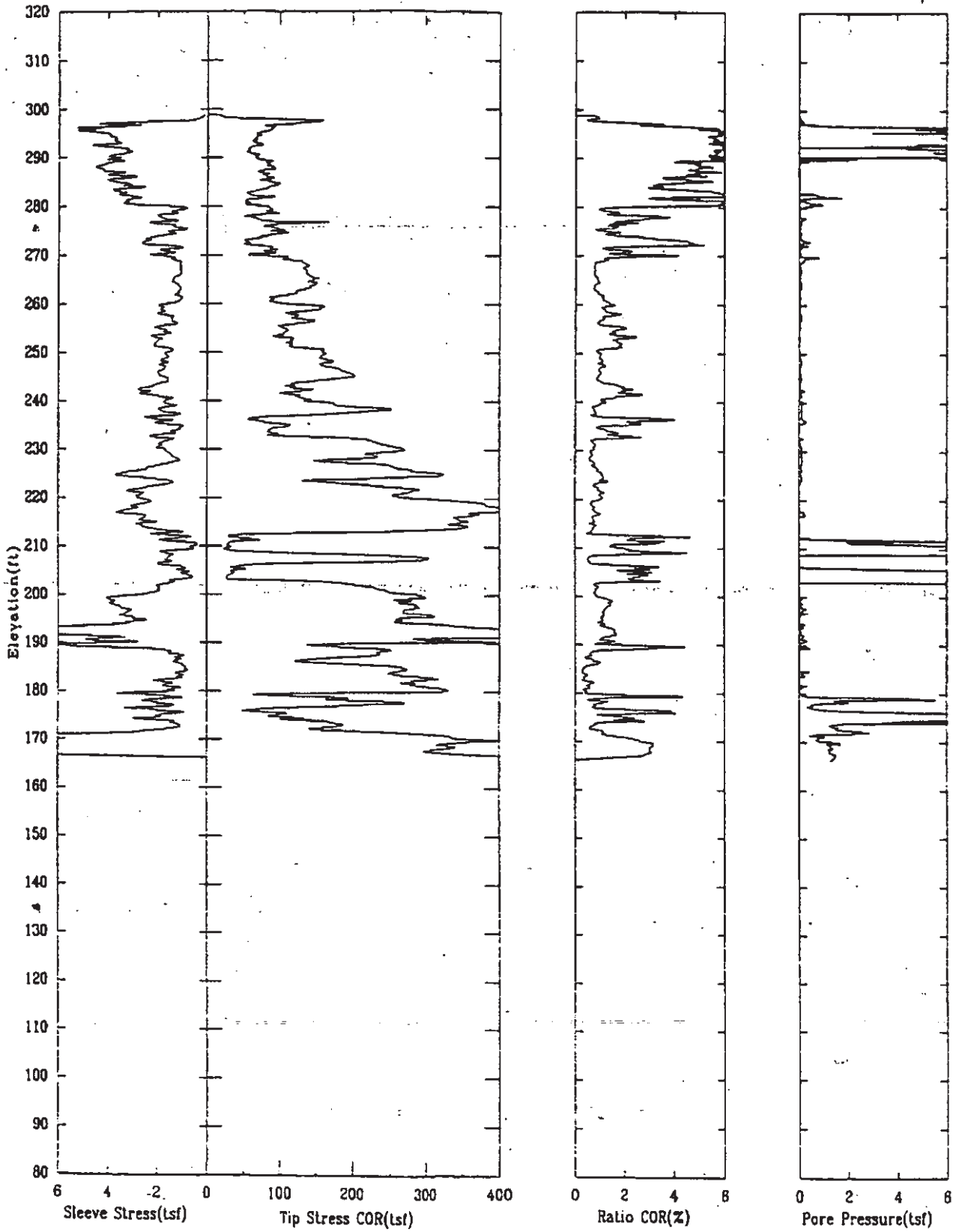
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03/10/98 / 0

North 78510

East 55330

Elevation 304.9



CPT-181

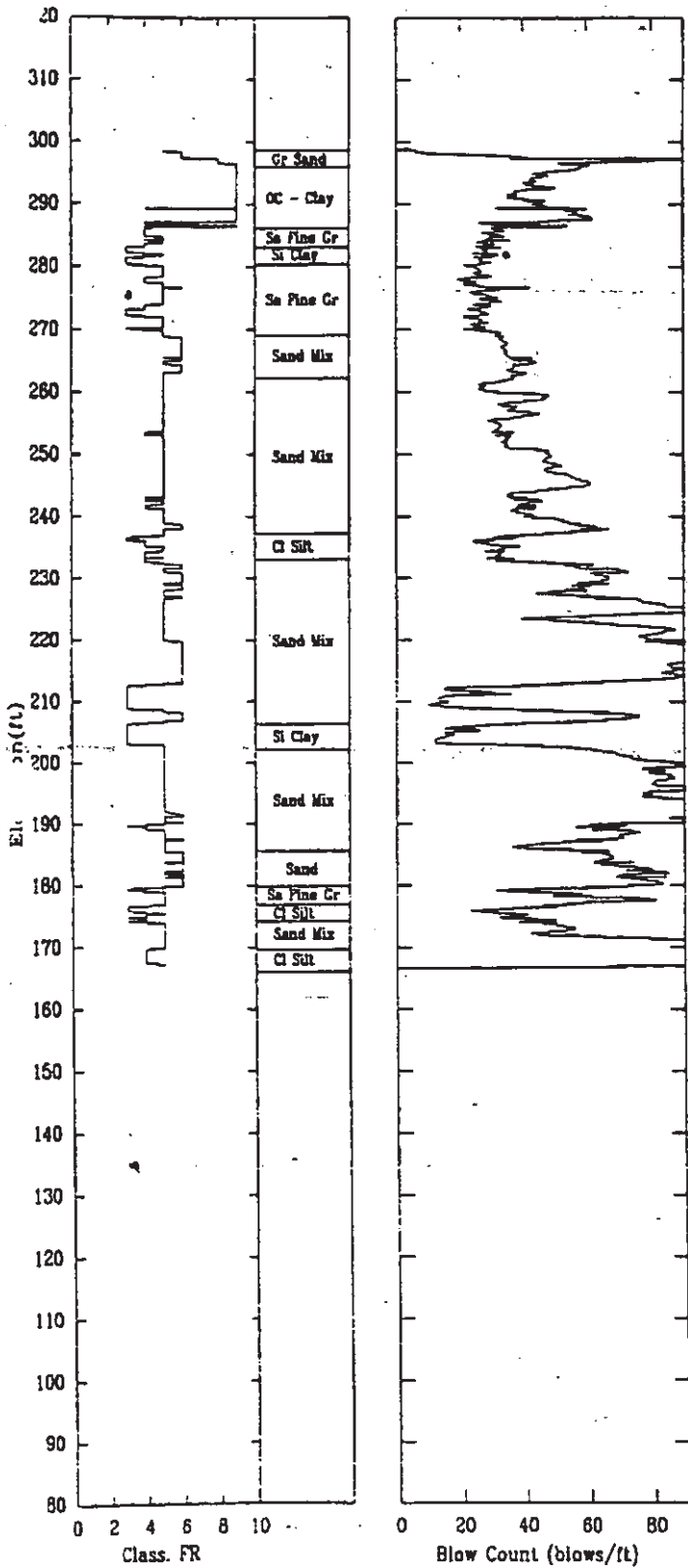
APPLIED RESEARCH ASSOCIATES, INC.

North 78510

East 55330

Elevation 304.9

K-TRT-F-00001  
03/10/98 / 0

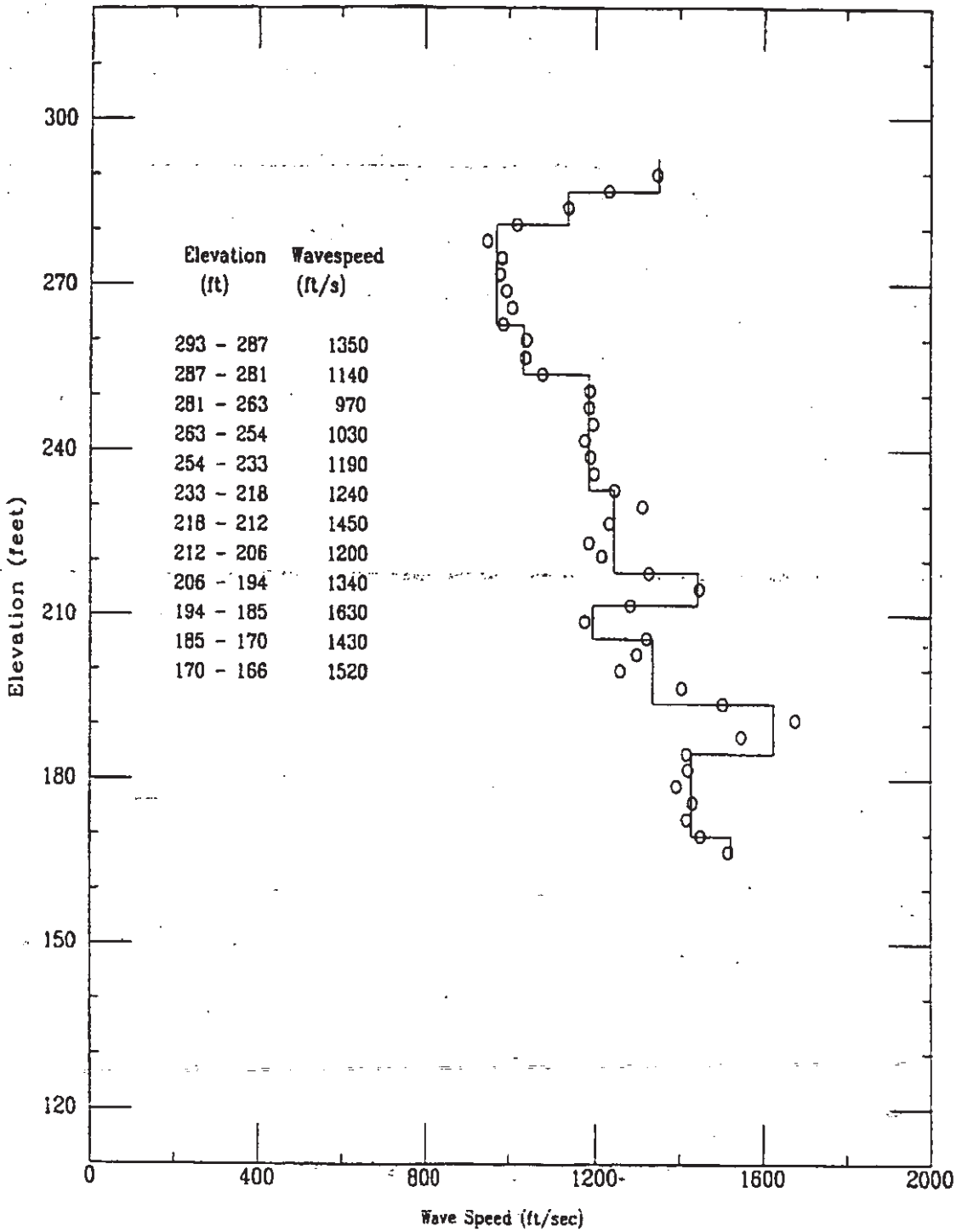


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APPLIED RESEARCH ASSOCIATES, INC.

03/10/98

Shear Wave Speeds



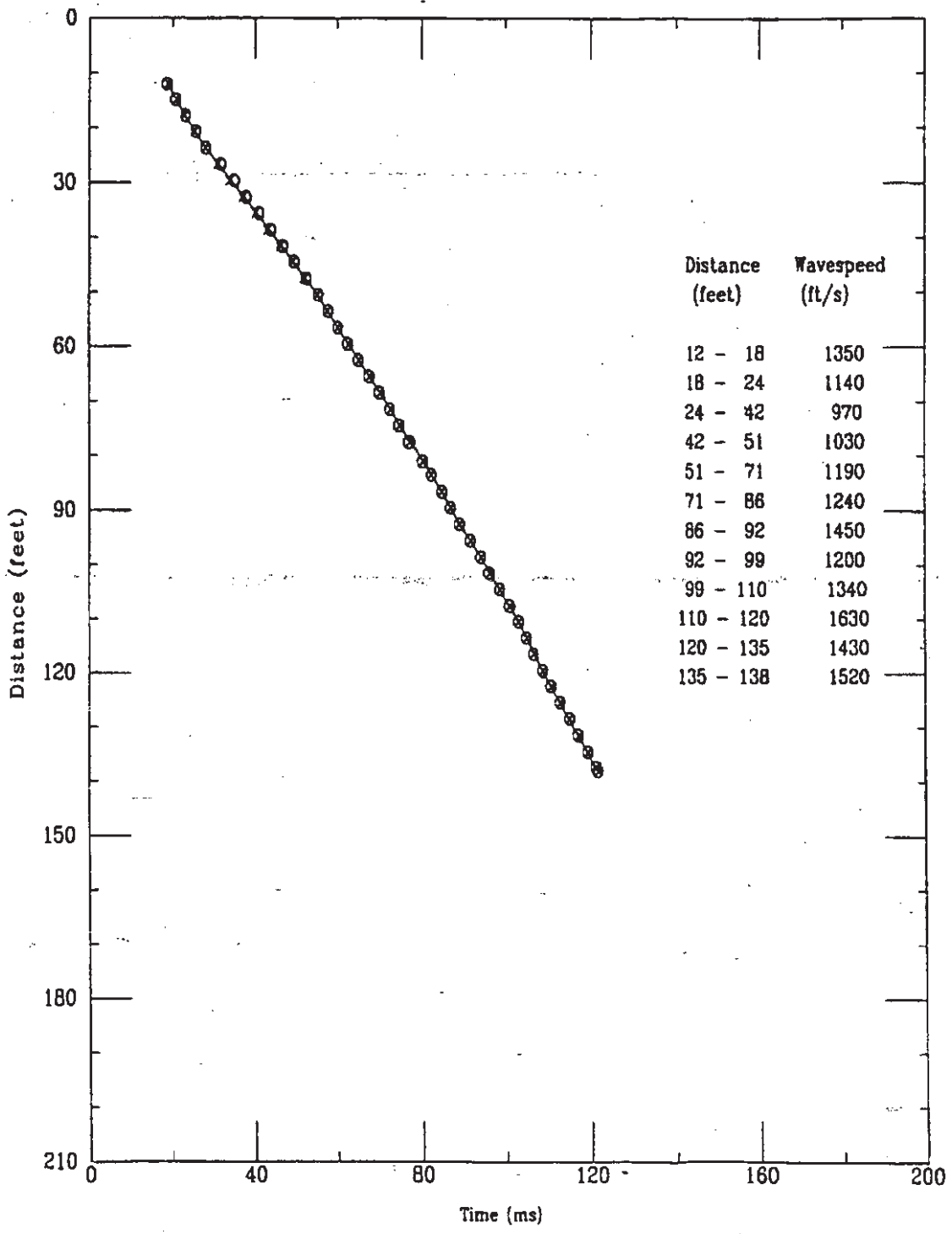
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APPLIED-RESEARCH ASSOCIATES, INC.

03/10/98

Shear Wave Time of Peak

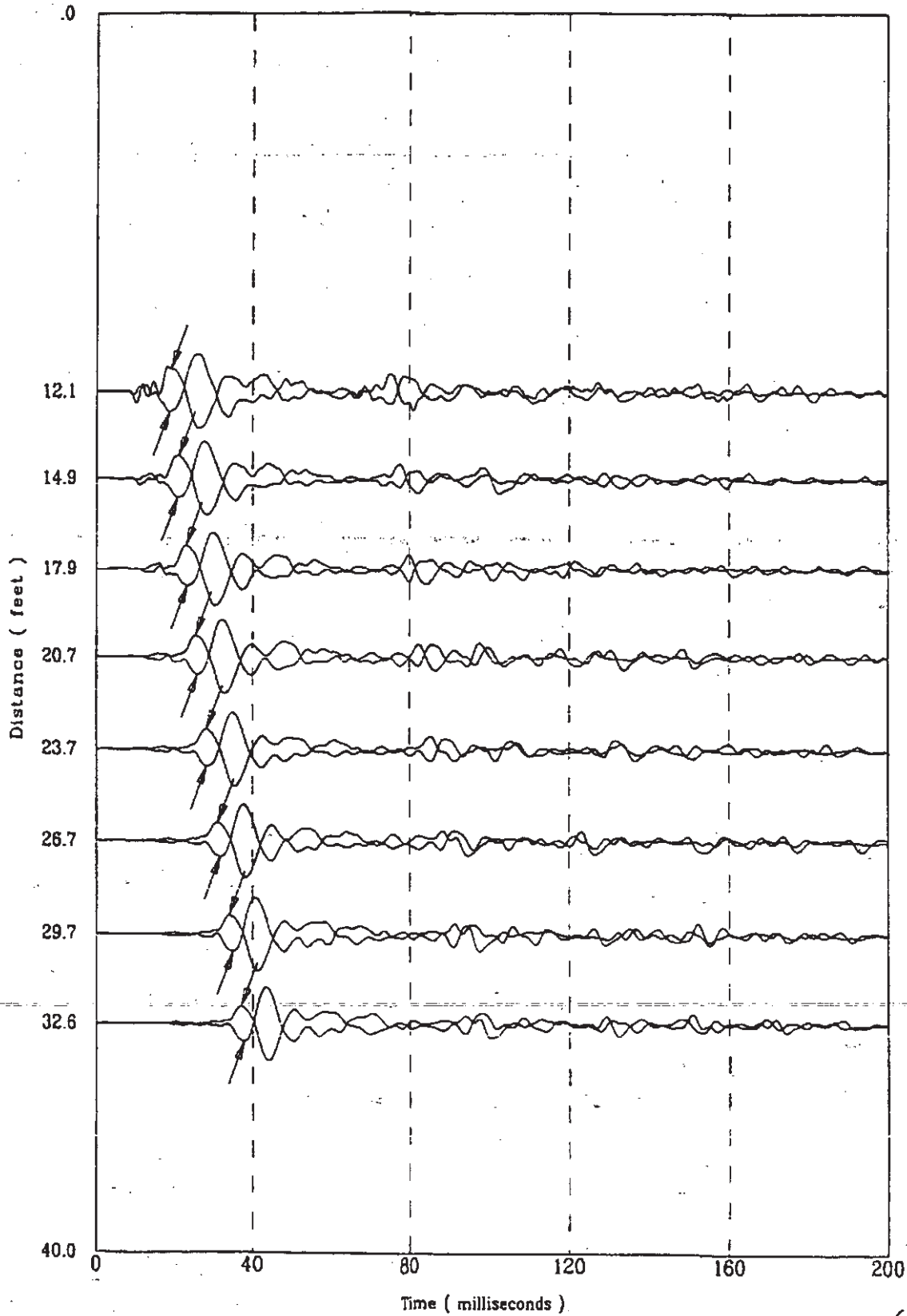


File 410m801S

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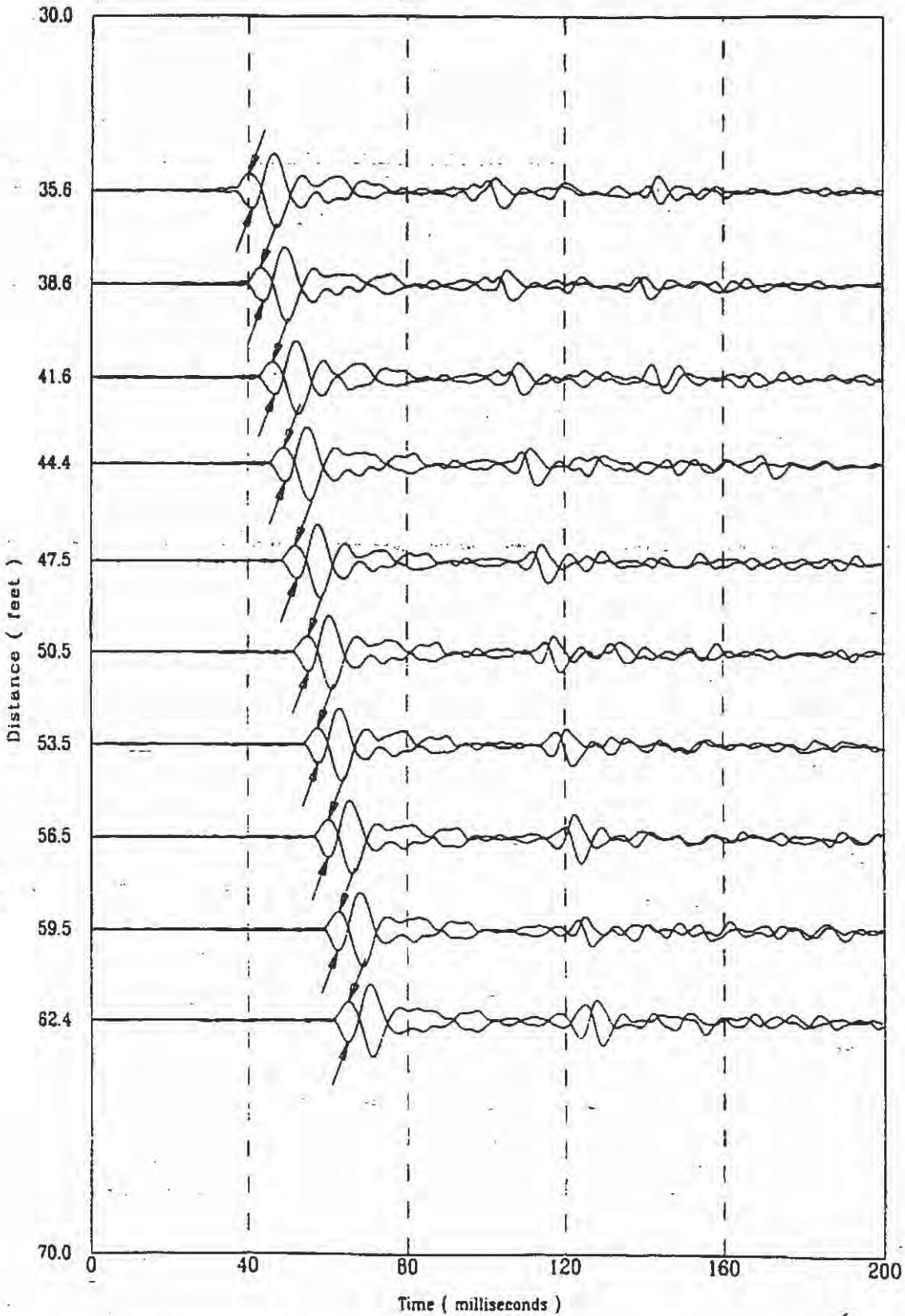
Applied Research Associates, Inc.  
CPT-181

S Wave  
03/10/98



Applied Research Associates, Inc.  
CPT-181

S Wave  
03/10/98

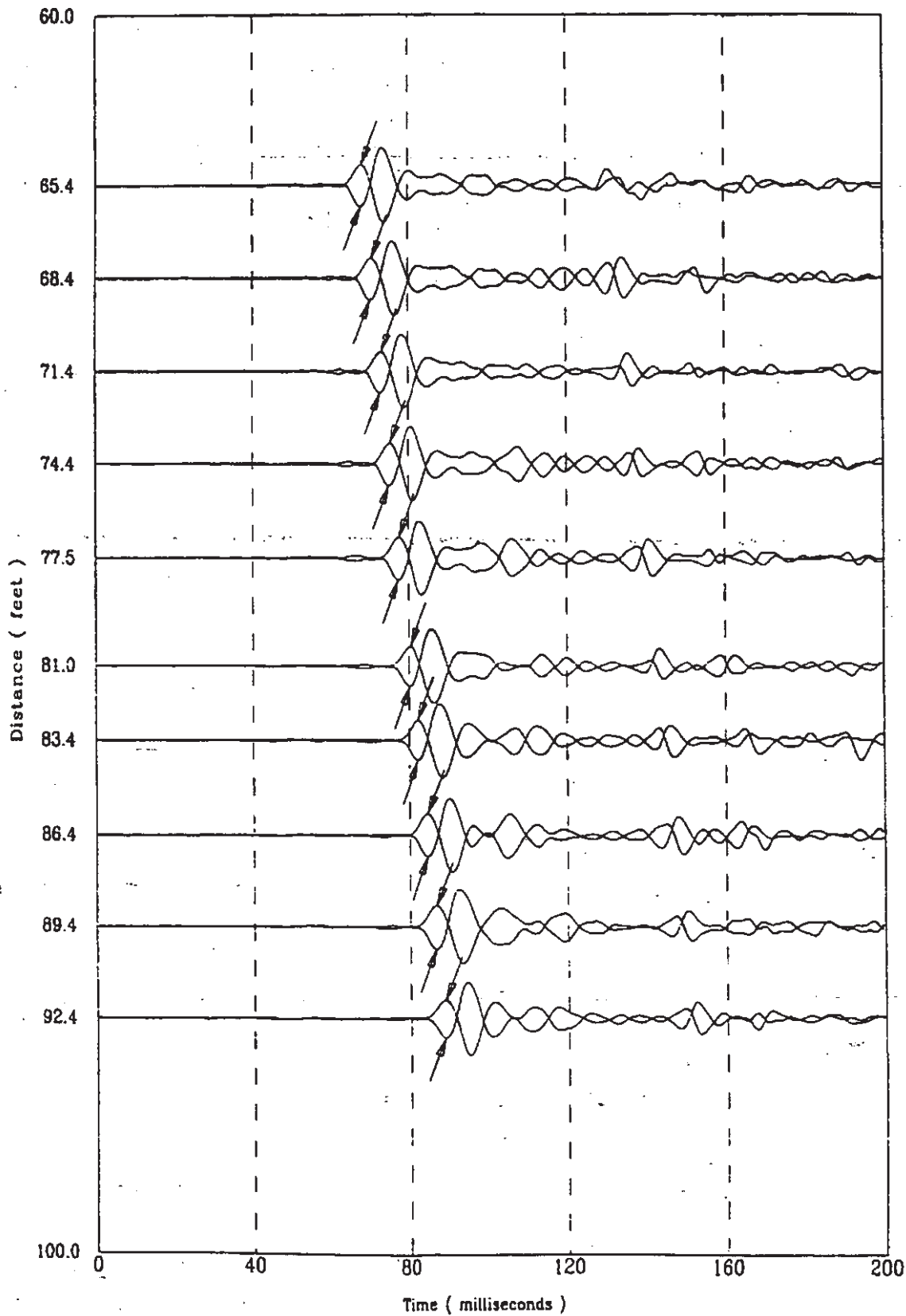


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Applied Research Associates, Inc.  
CPT-181

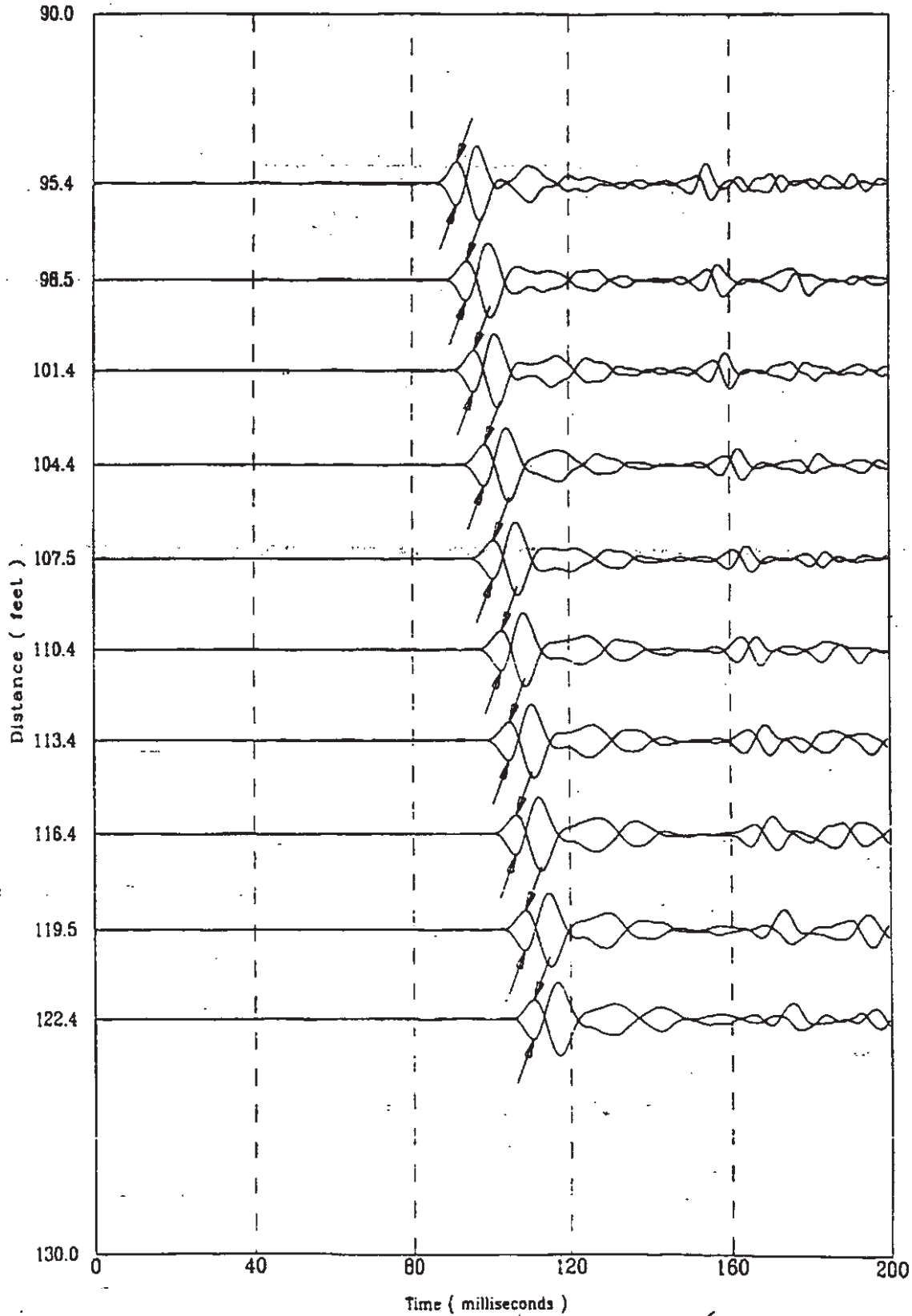
S Wave  
03/10/98



K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-181

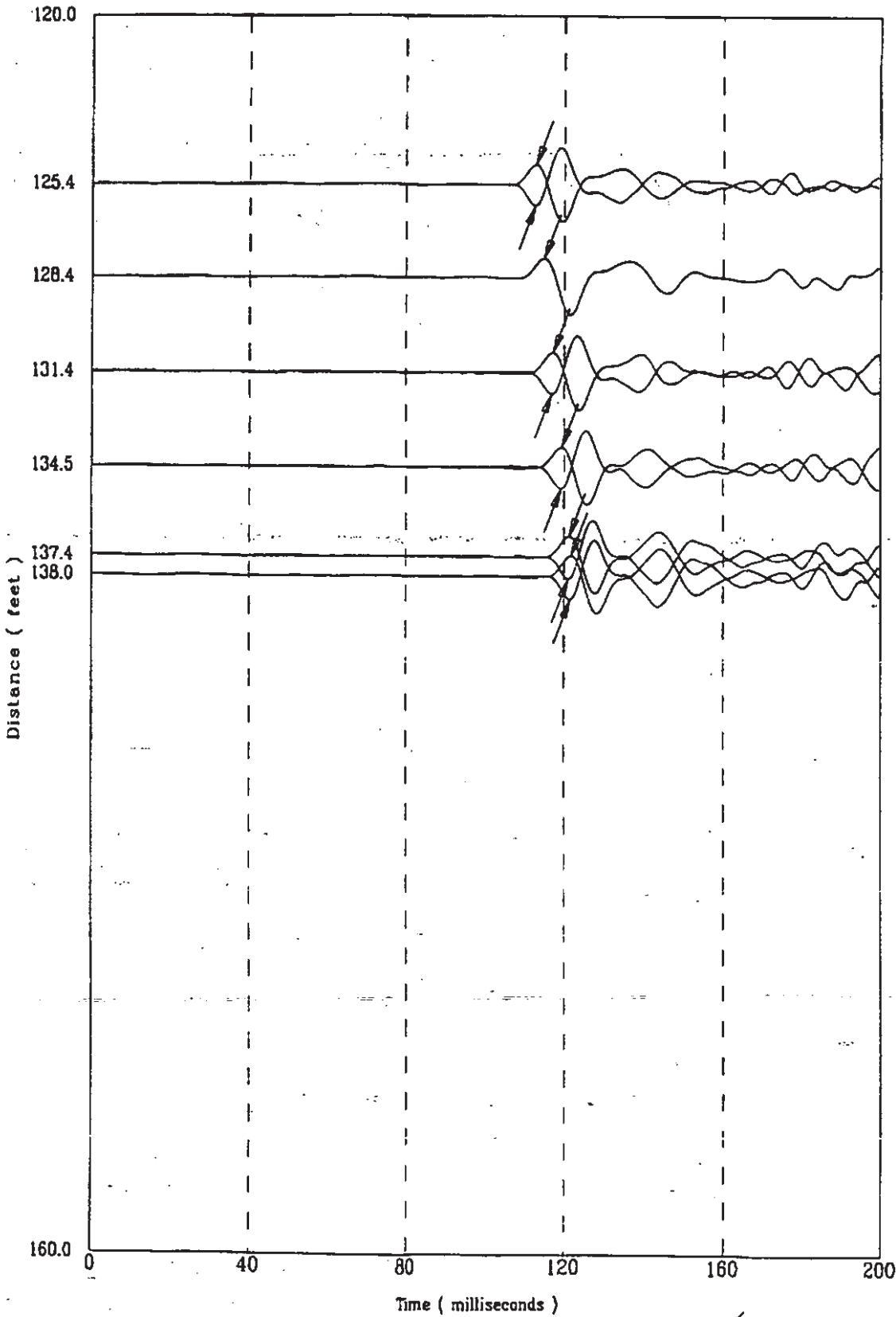
S Wave  
03/10/98



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Applied Research Associates, Inc.  
CPT-181

S Wave  
03/10/98

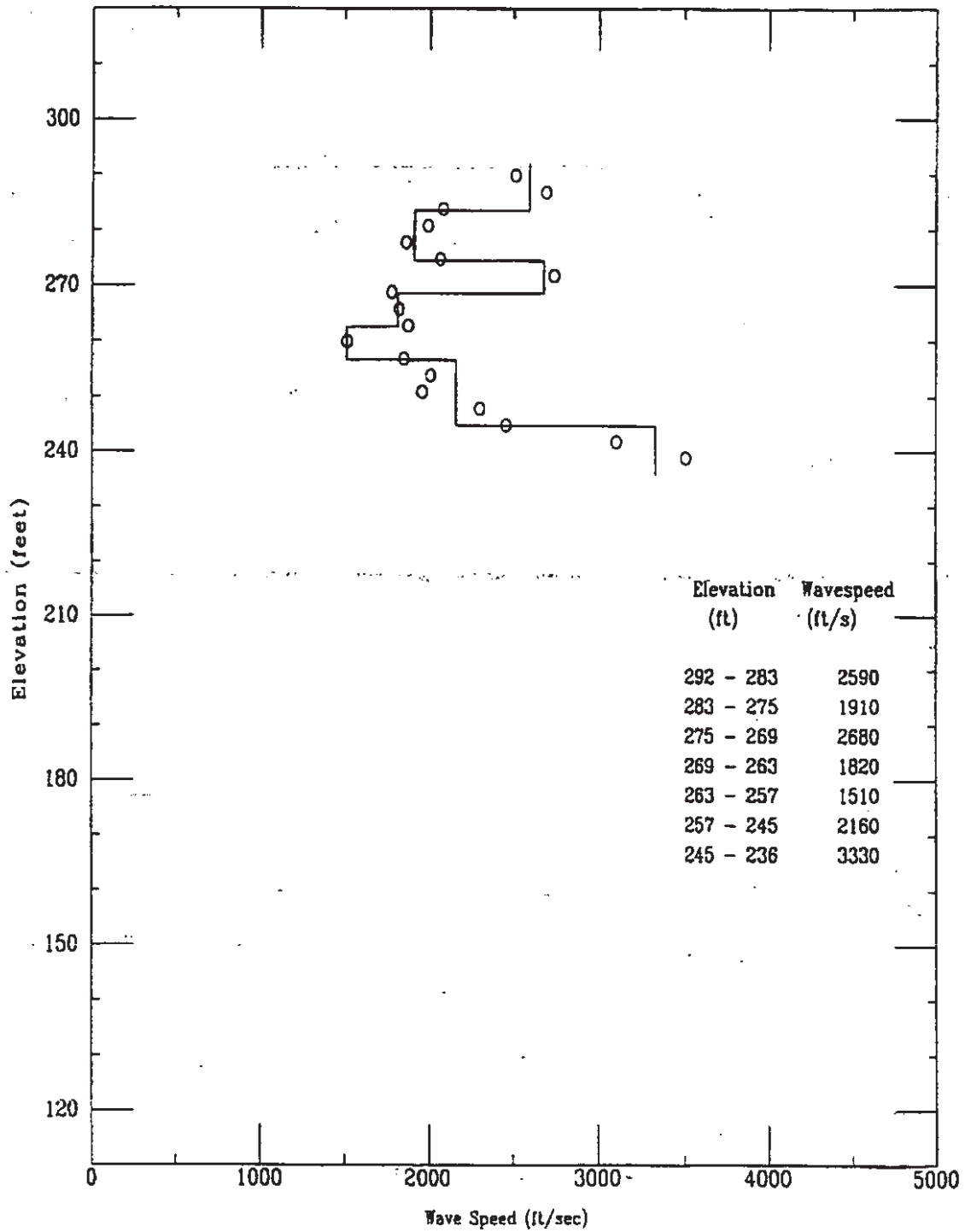


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APPLIED RESEARCH ASSOCIATES, INC.

03/10/98

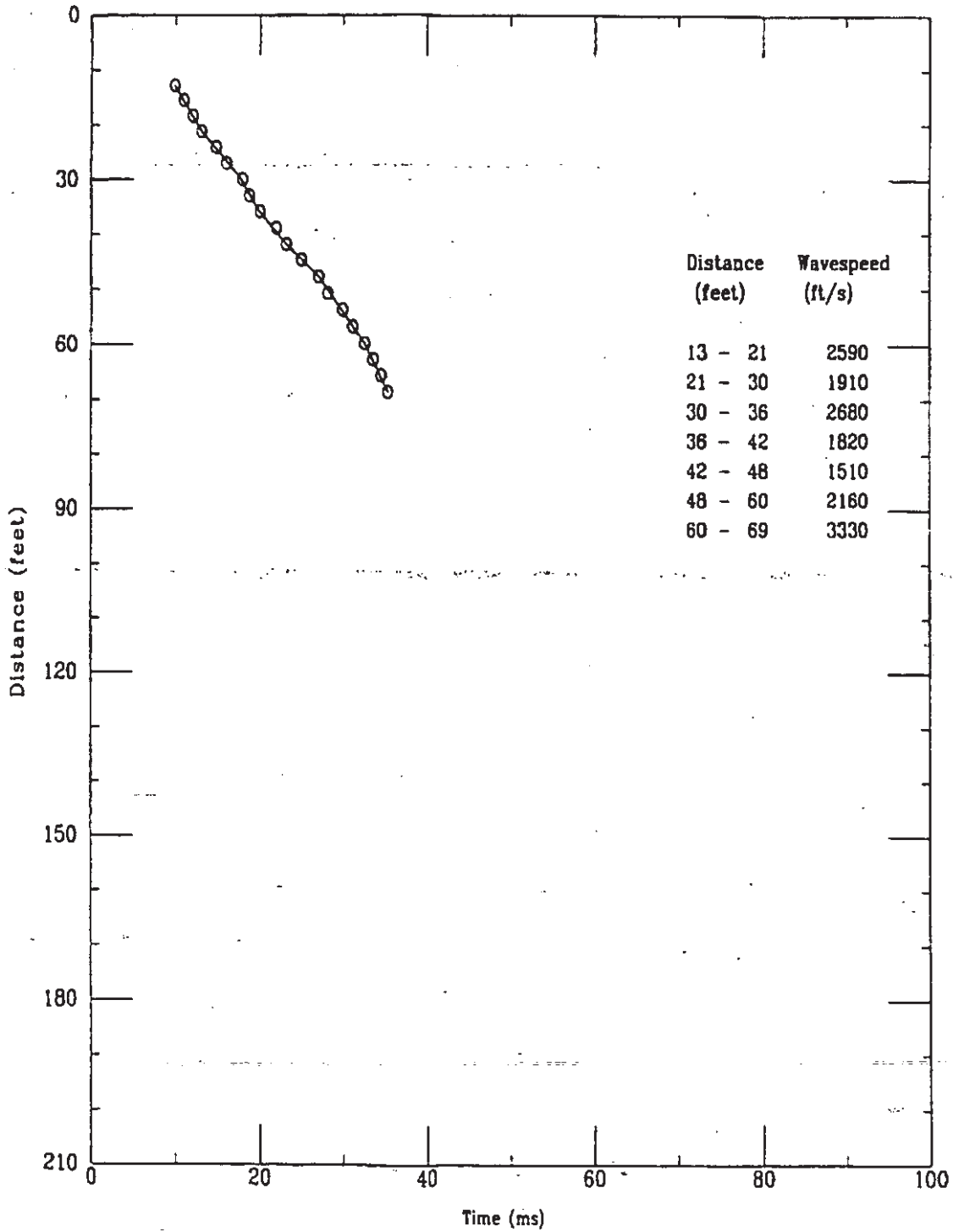
Compression Wave Speeds



CPT-181

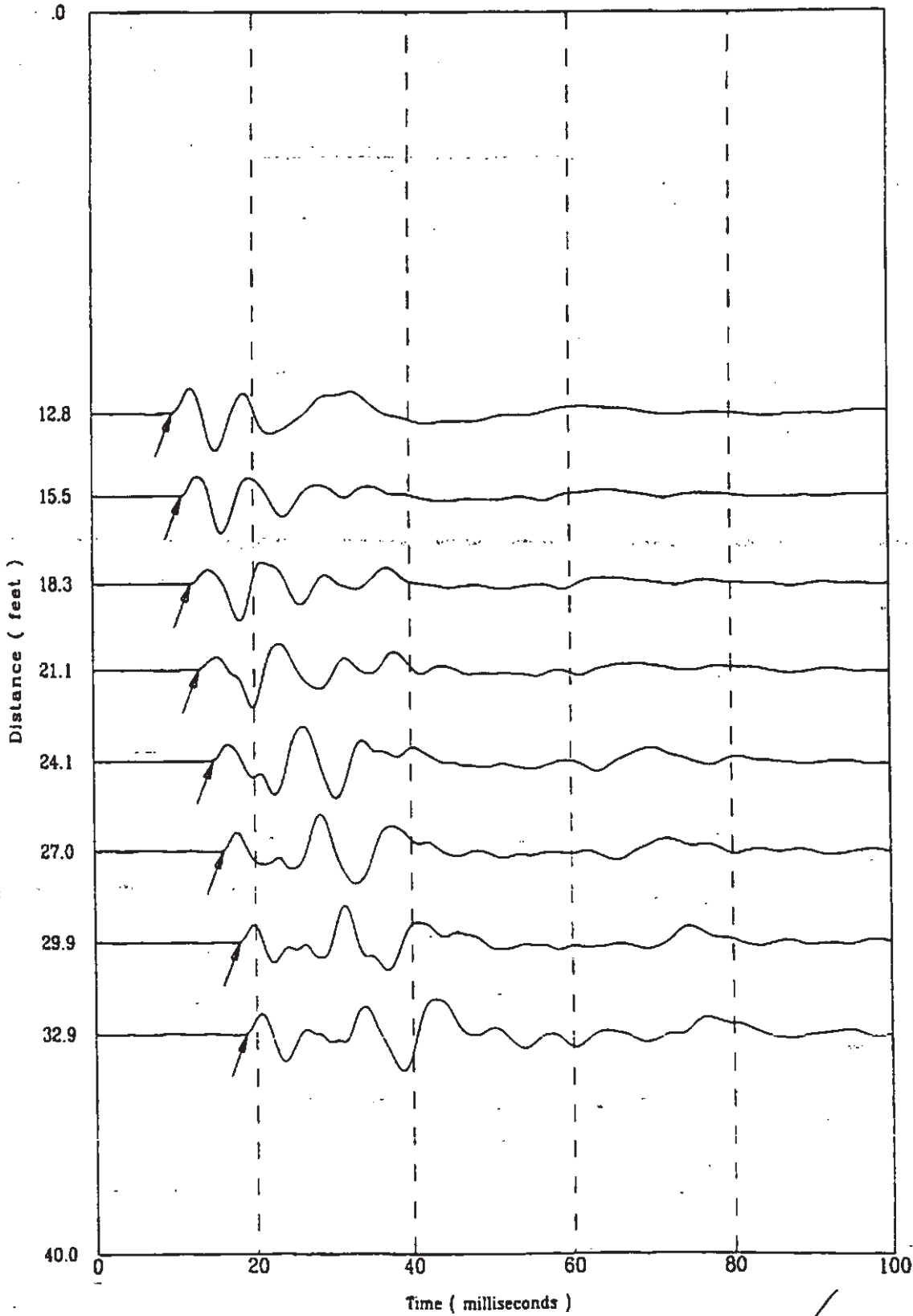
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Compression Wave Time of Peak

03/10/98



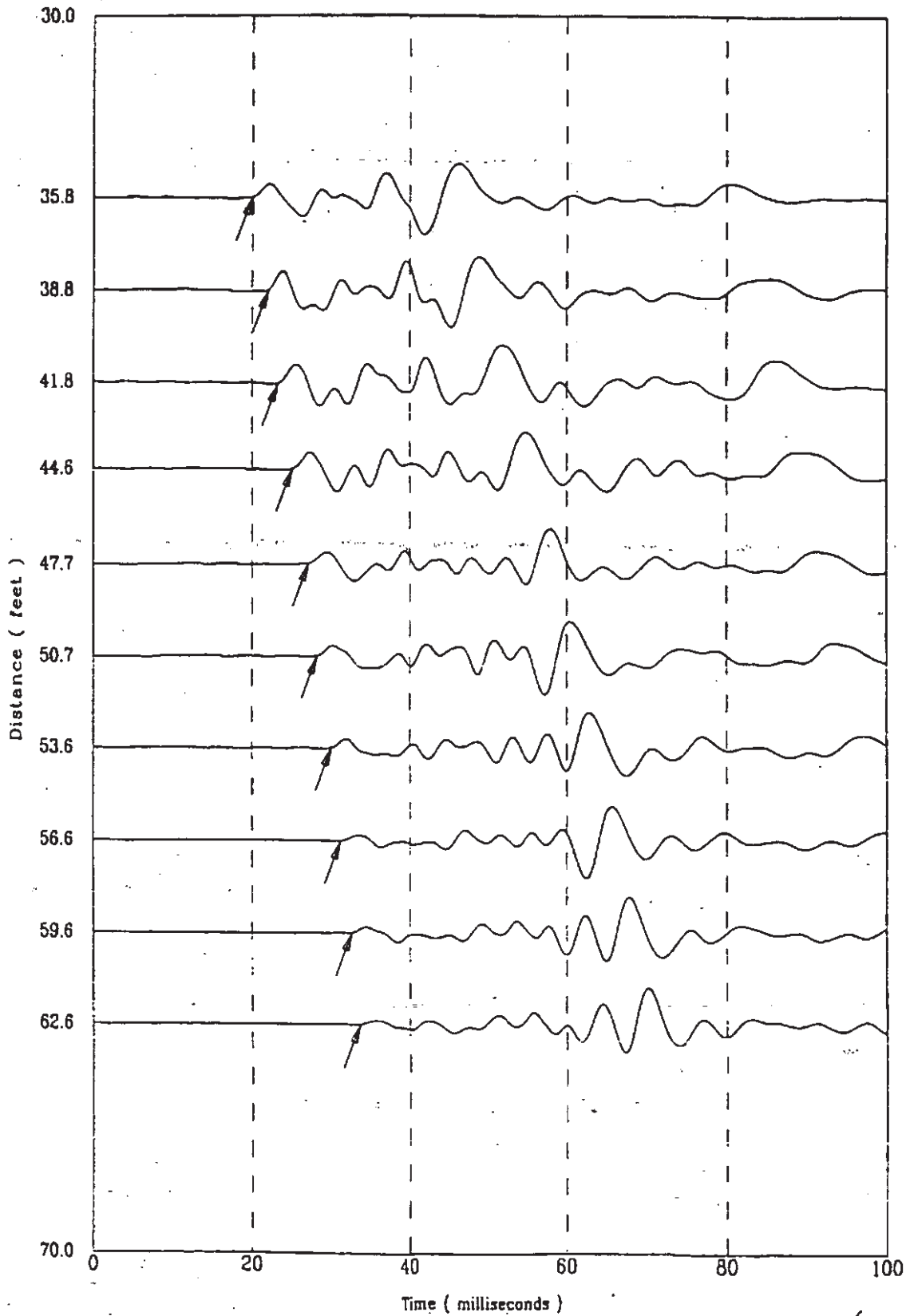
Applied Research Associates  
CPT-181

P Wave  
03/10/98



Applied Research Associates  
CPT-181

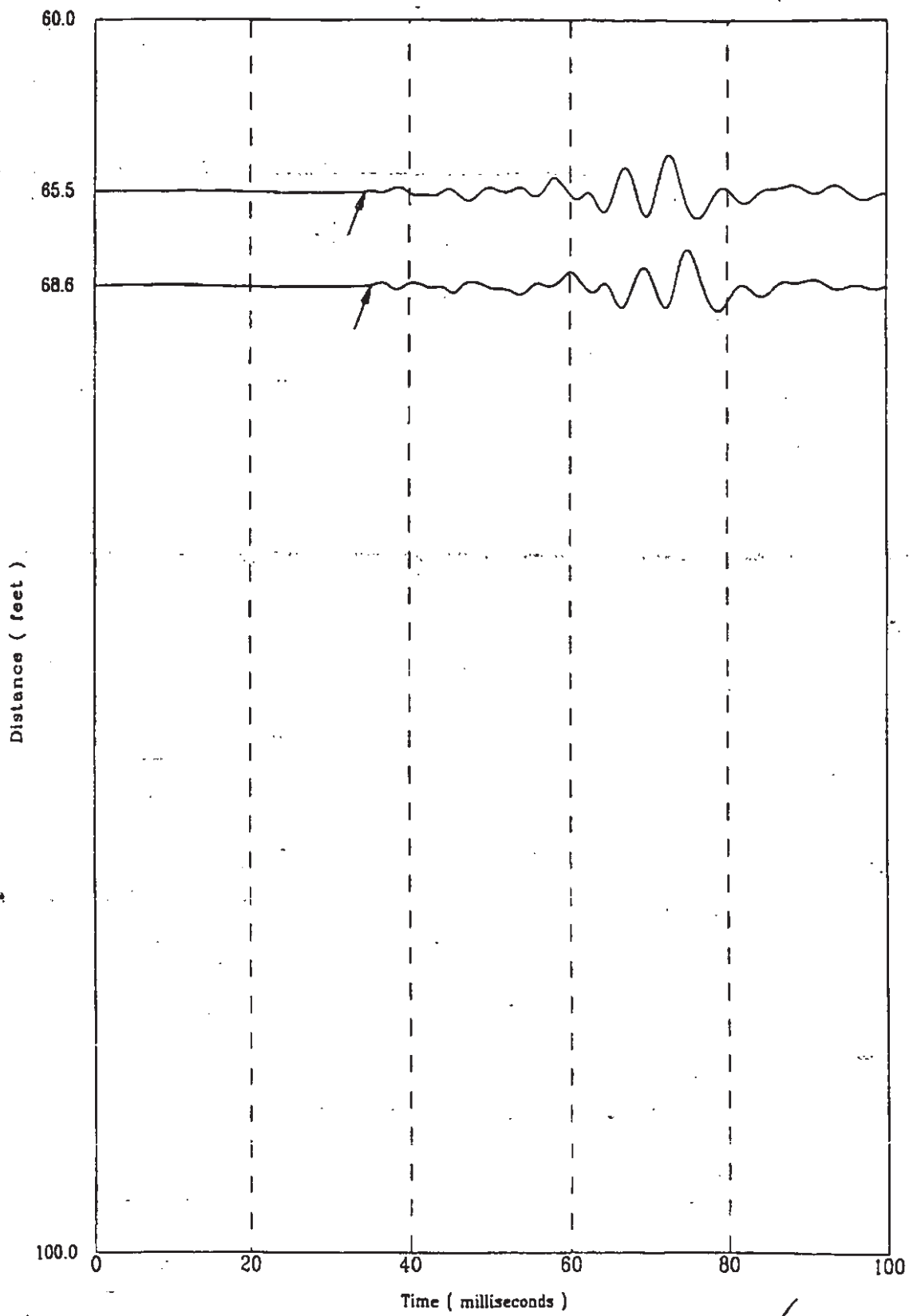
P Wave  
03/10/98



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R/O

Applied Research Associates  
CPT-181

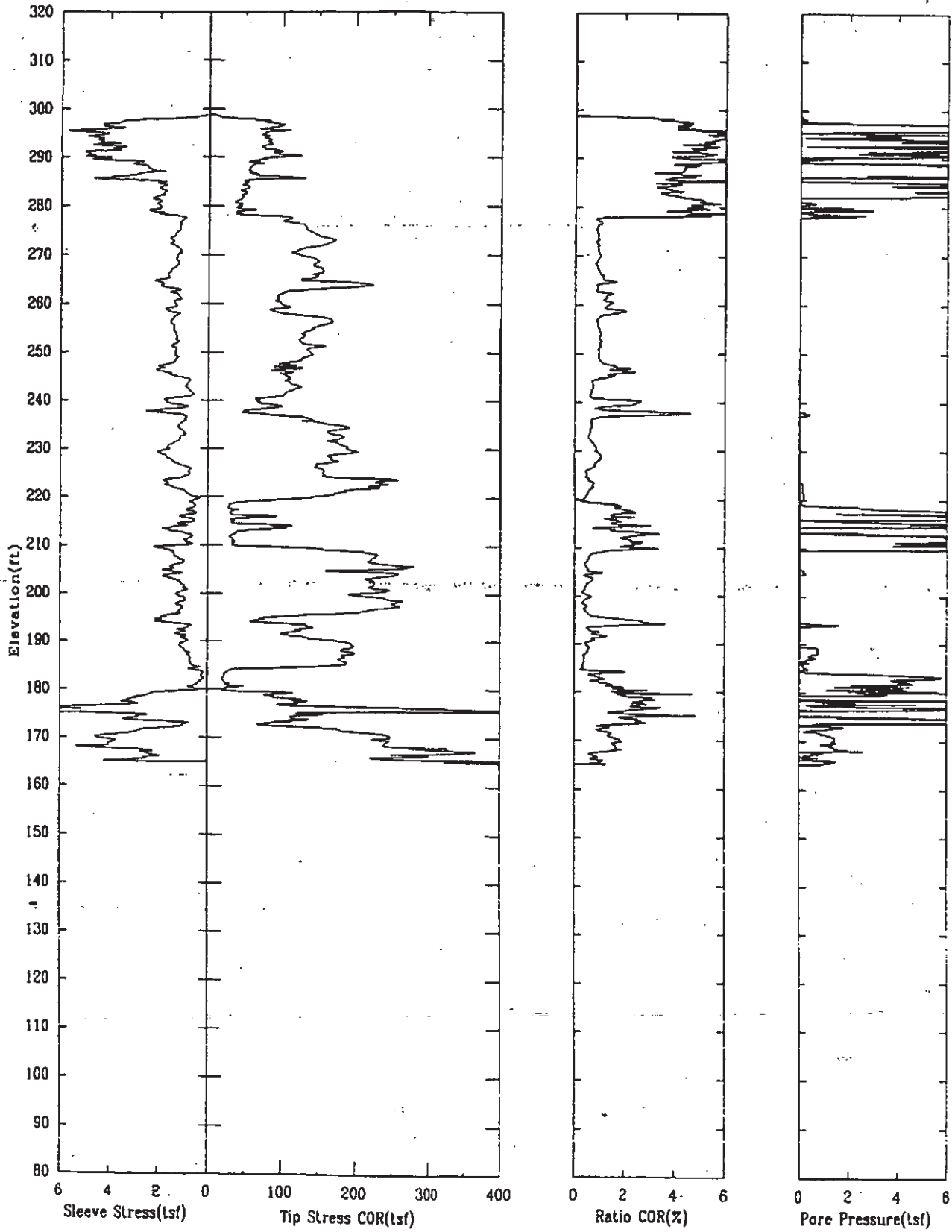
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03/10/98



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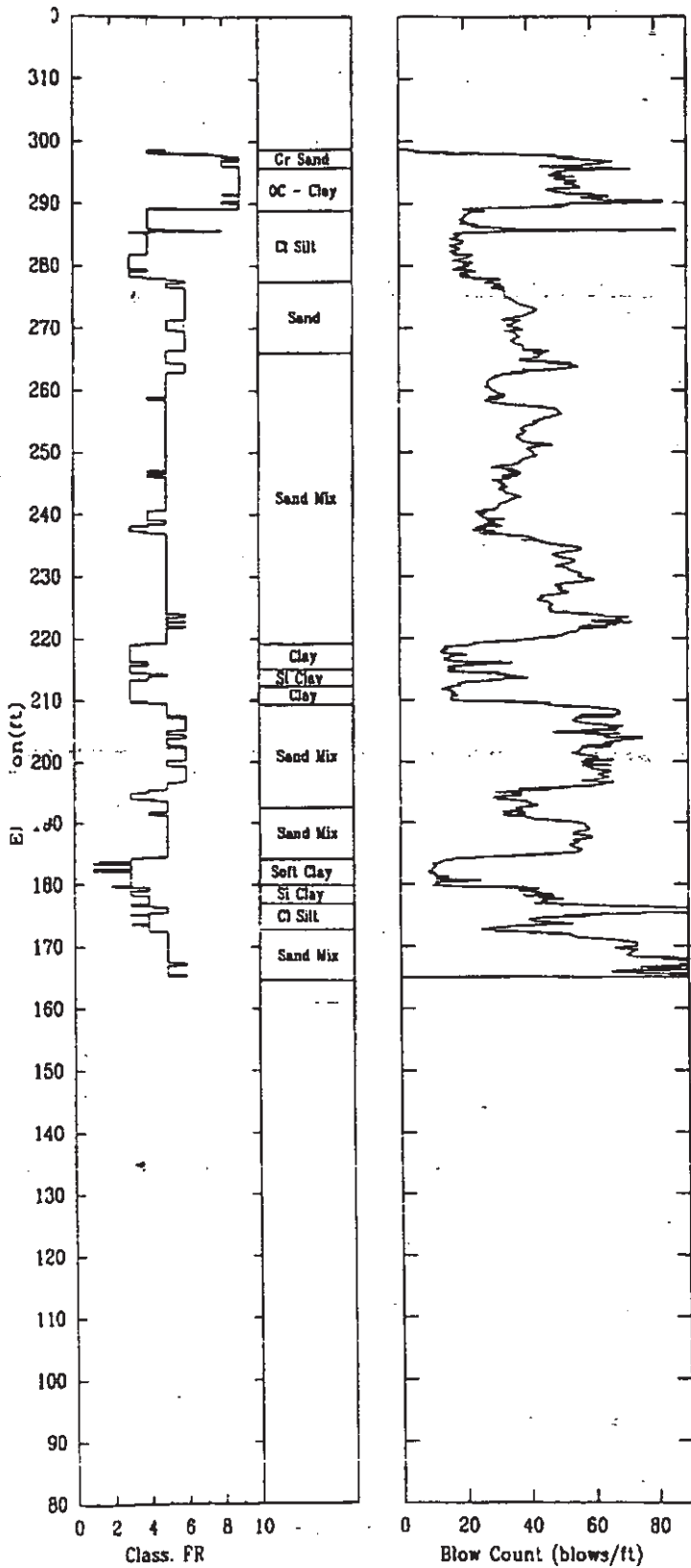
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K-TRT-F-00001  
03/23/98 R/O

North 78510

East 55451

Elevation 304.8

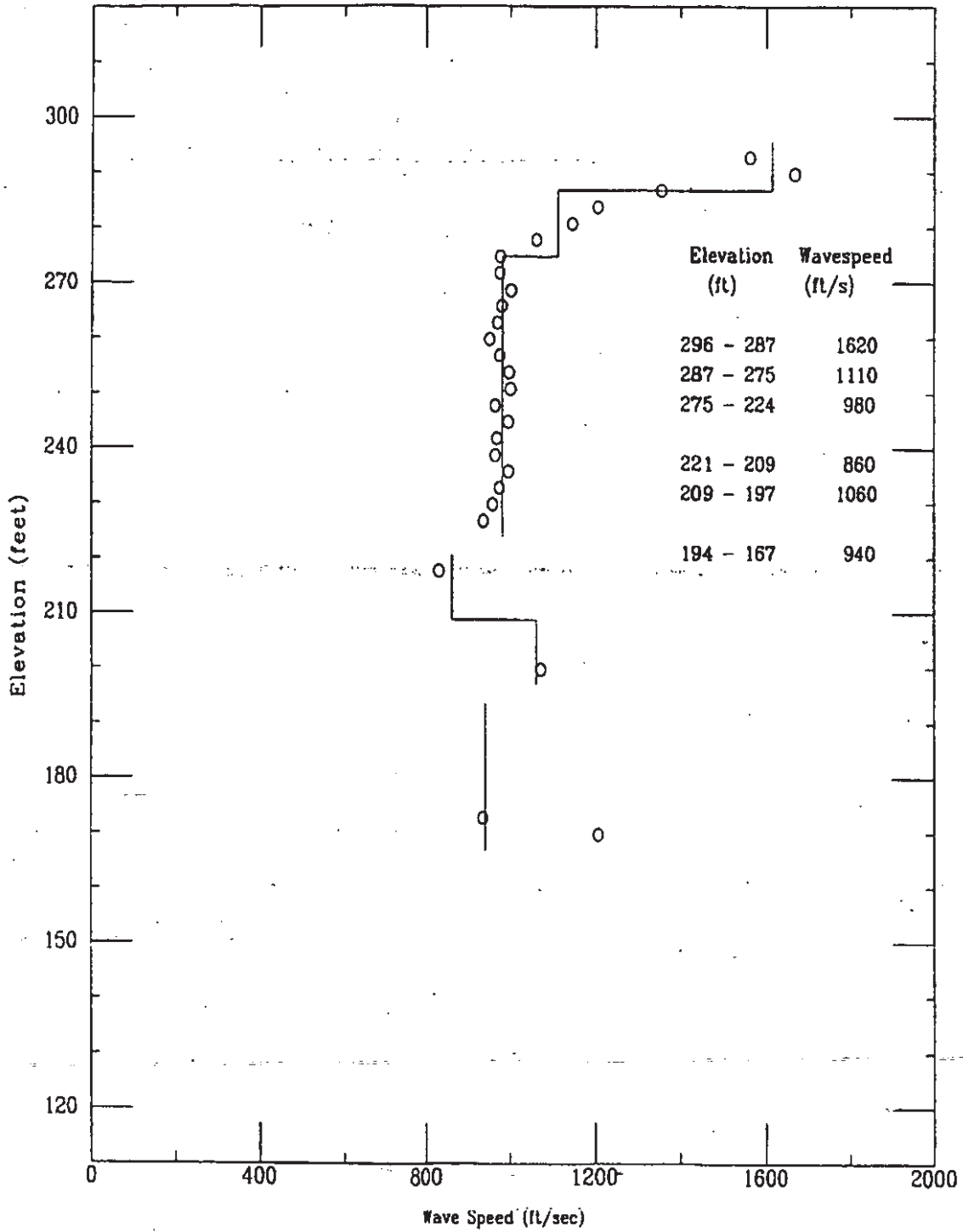


CPT-182

APPLIED-RESEARCH ASSOCIATES, INC.

03/23/98

Shear Wave Speeds



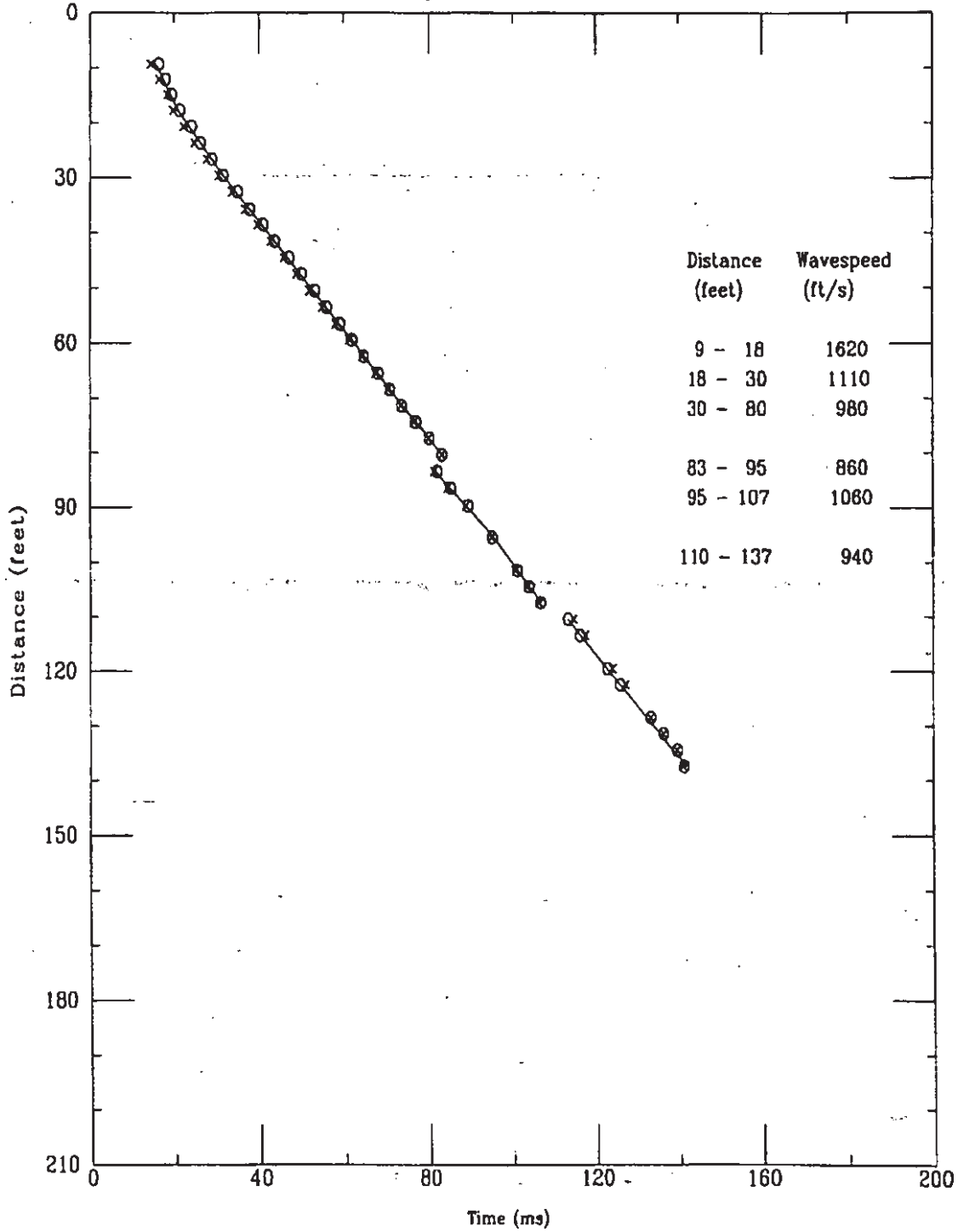
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CPT-182

APPLIED RESEARCH ASSOCIATES, INC.

03/23/98

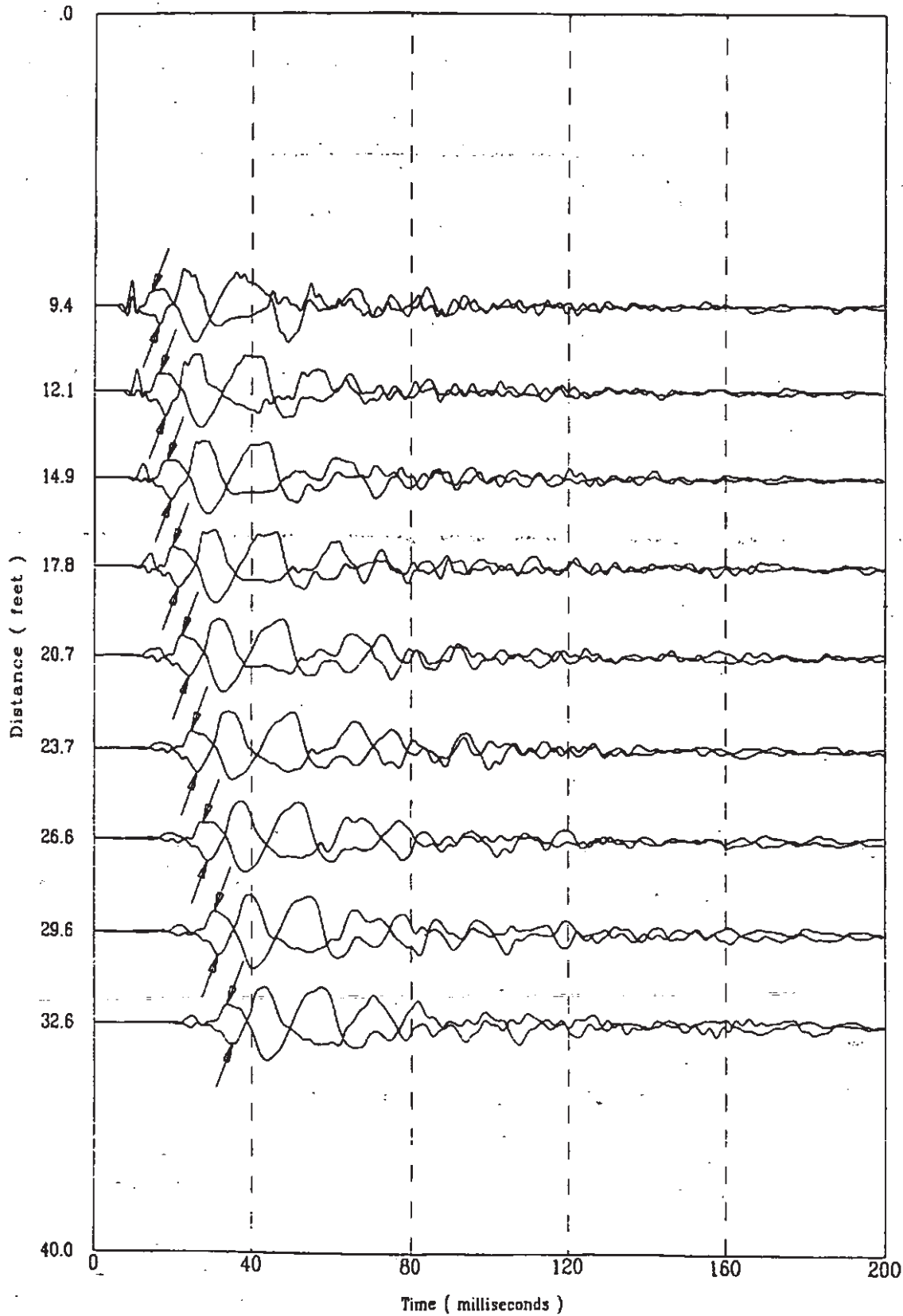
Shear Wave Time of Peak



File 323m801S

Applied Research Associates, Inc.  
CPT-182

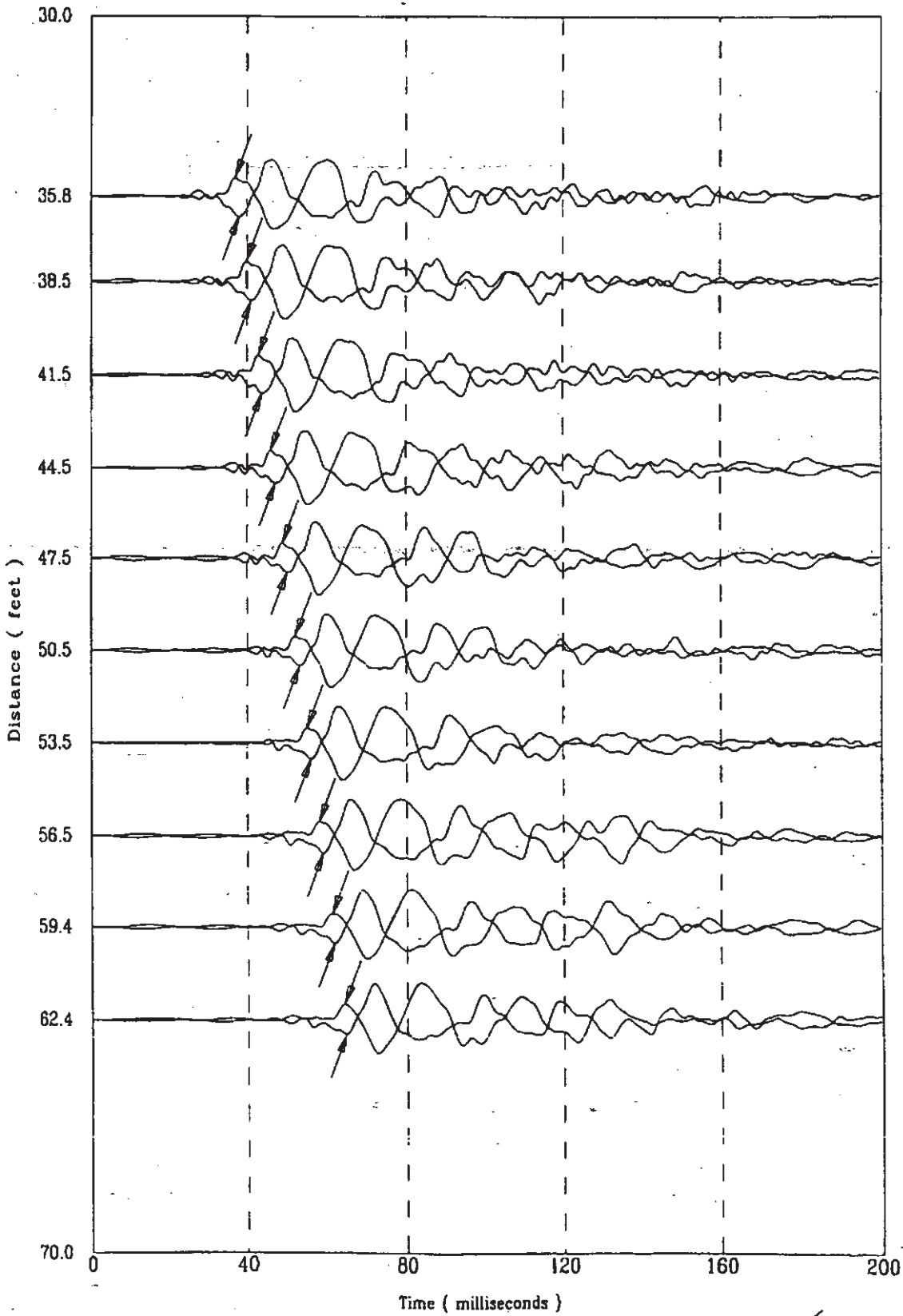
S Wave  
03/23/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-182

S Wave  
03/23/98



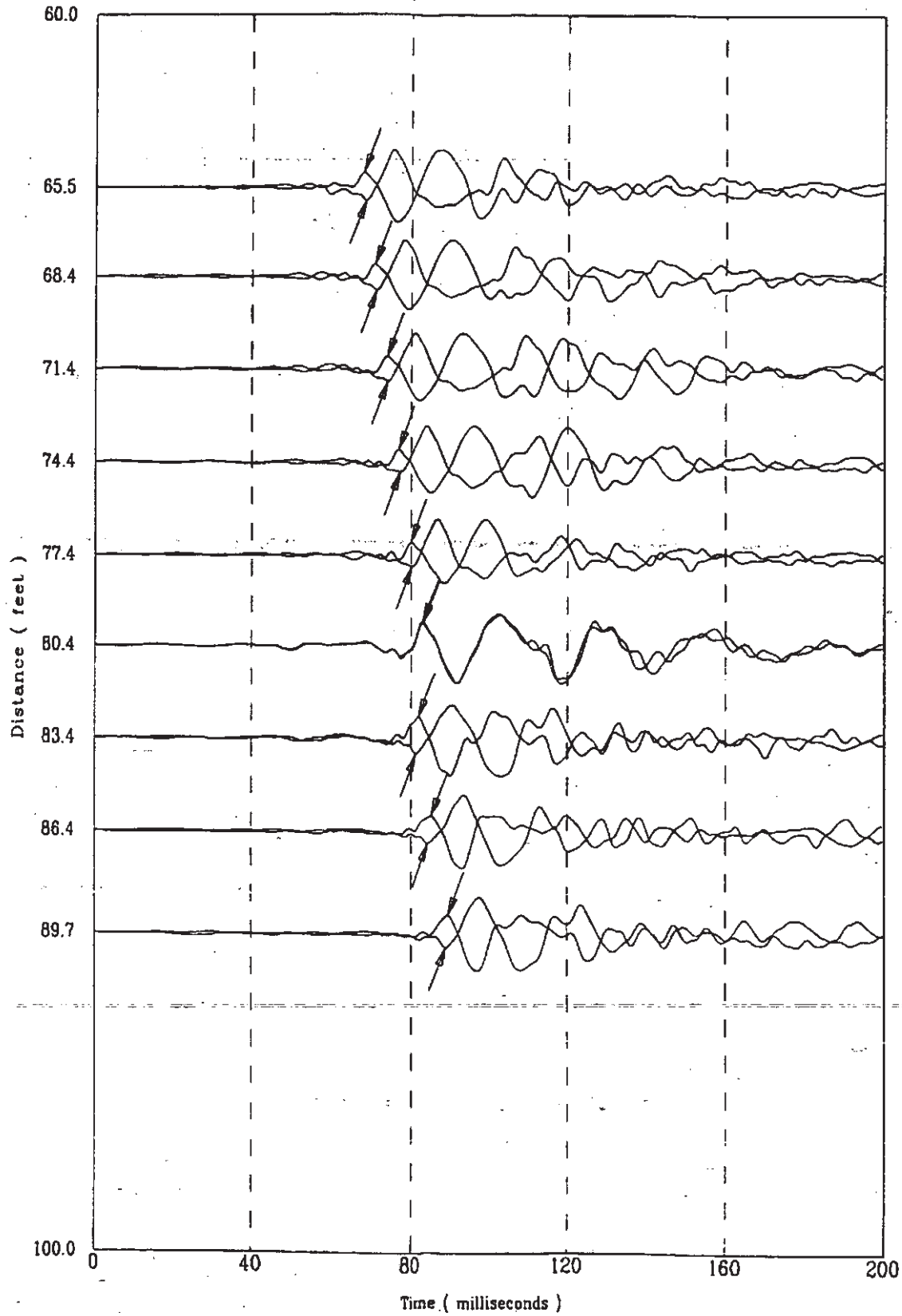
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K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-182

S Wave  
03/23/98



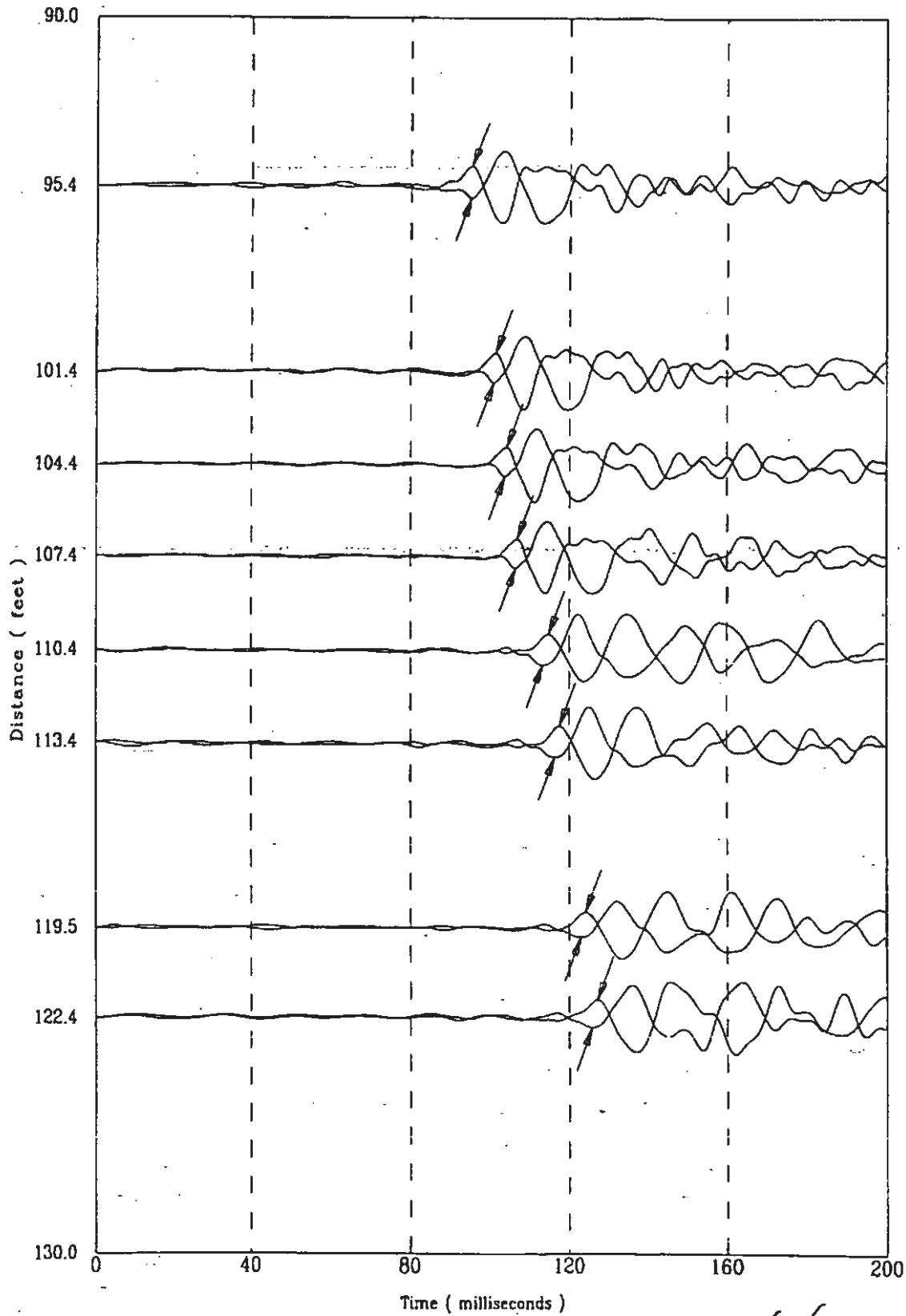
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-182

S Wave  
03/23/98



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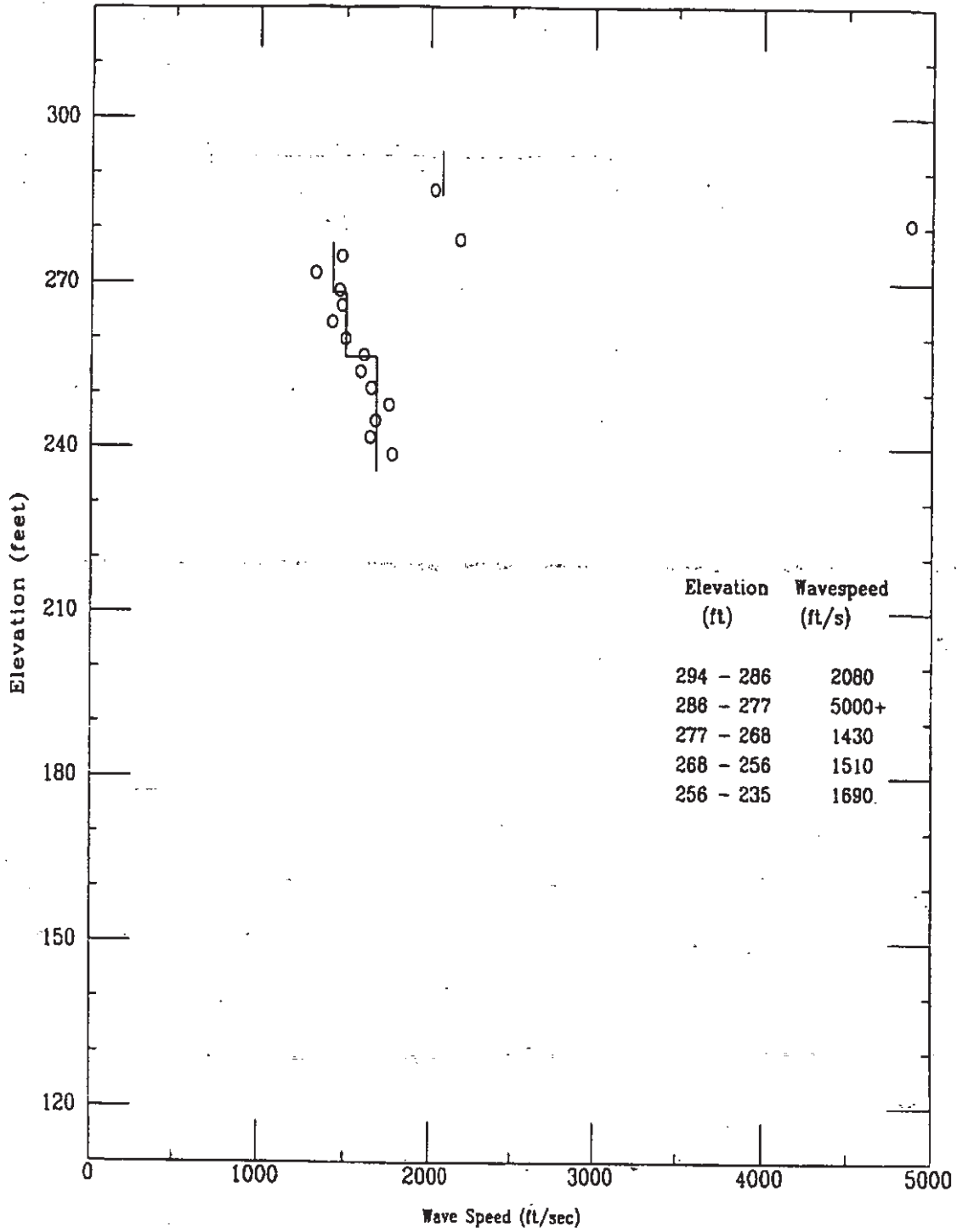


CPT-182

APPLIED RESEARCH ASSOCIATES, INC.

03/23/98

Compression Wave Speeds

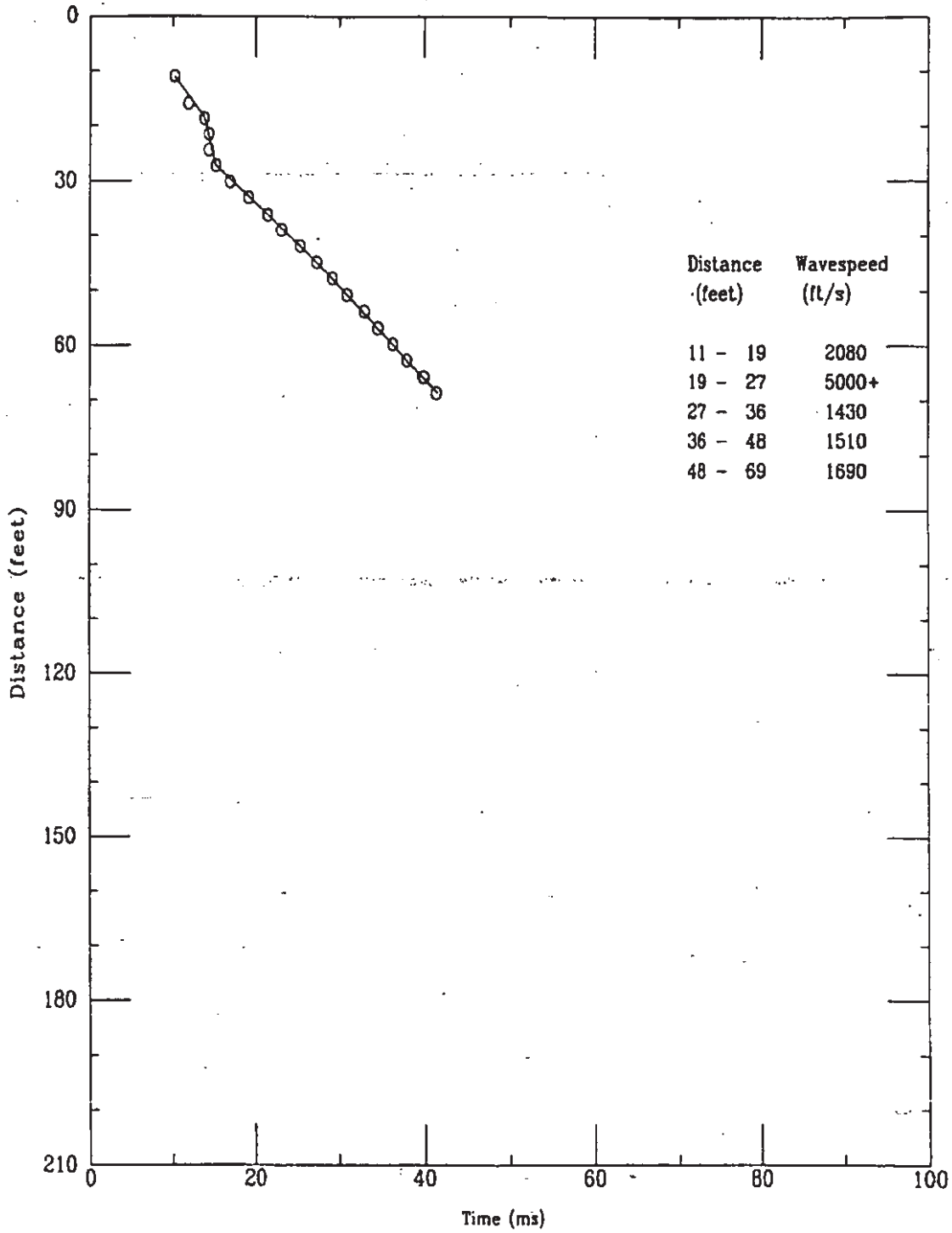


File 323m801S

CPT-182

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/23/98

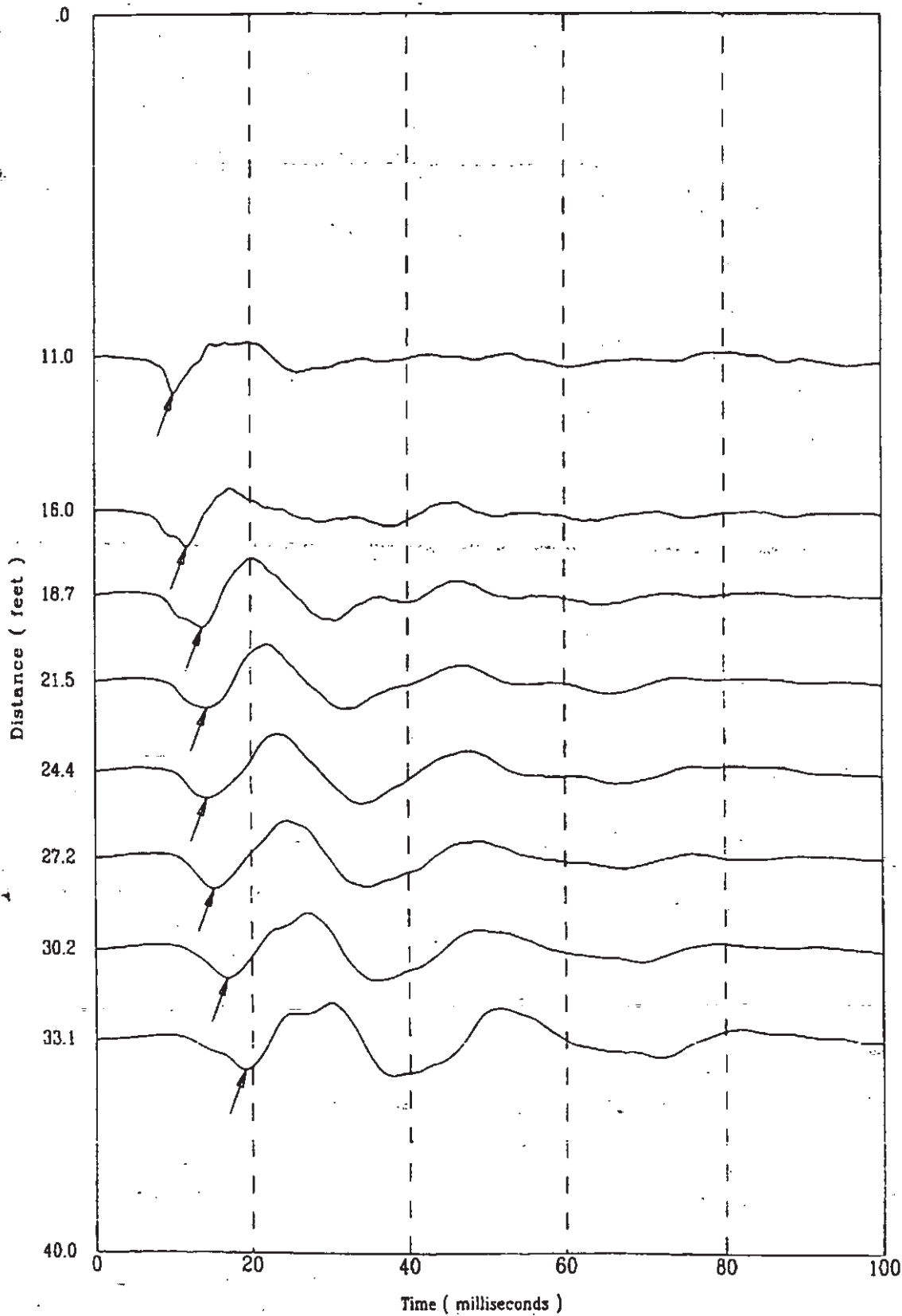


File 323m801S

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-182

P Wave  
03/23/98



File 323m801S

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CPT-183

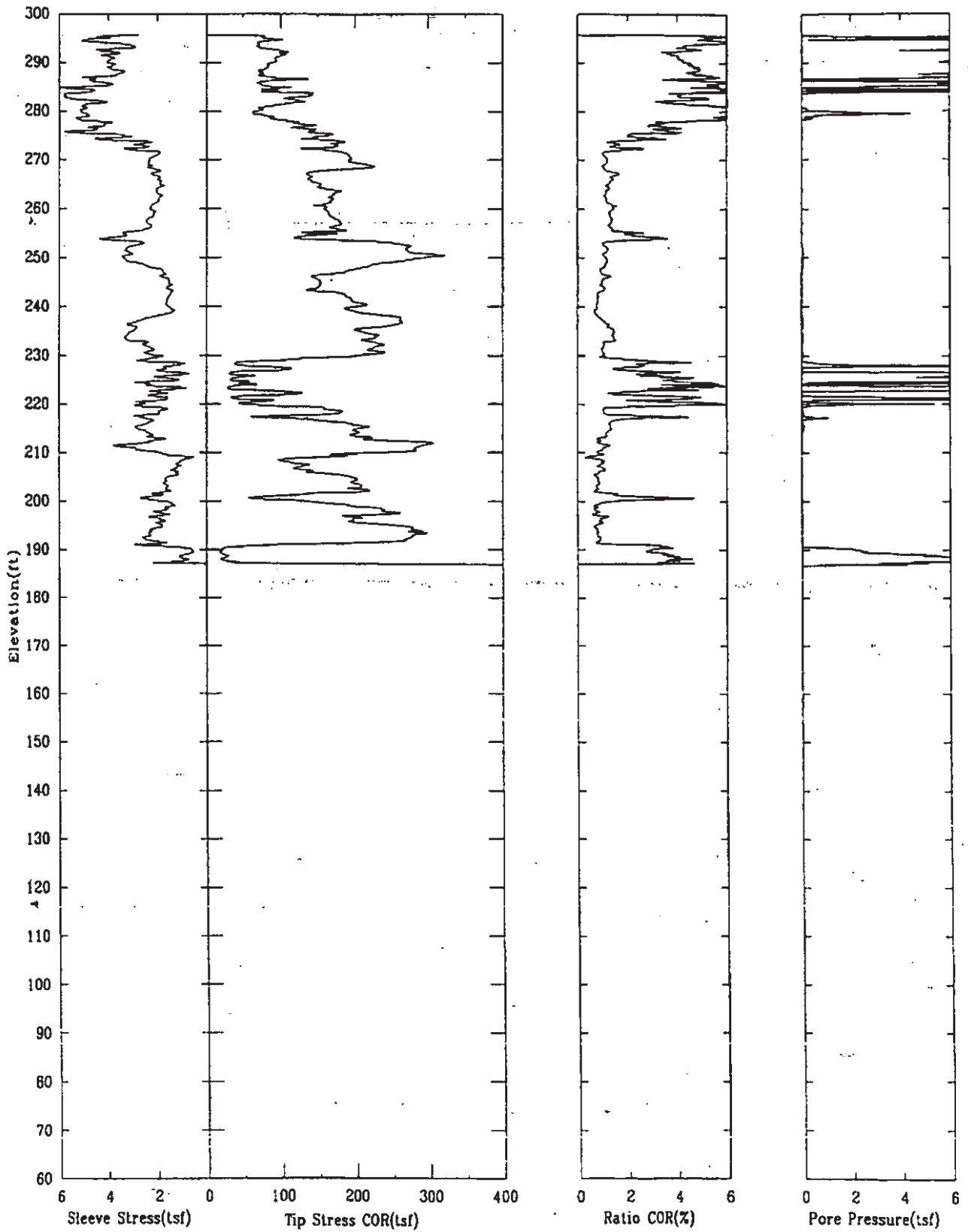
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-0000/  
03/25/98/0

North 78510

East 55583

Elevation 301.7



CPT-183

APPLIED RESEARCH ASSOCIATES, INC.

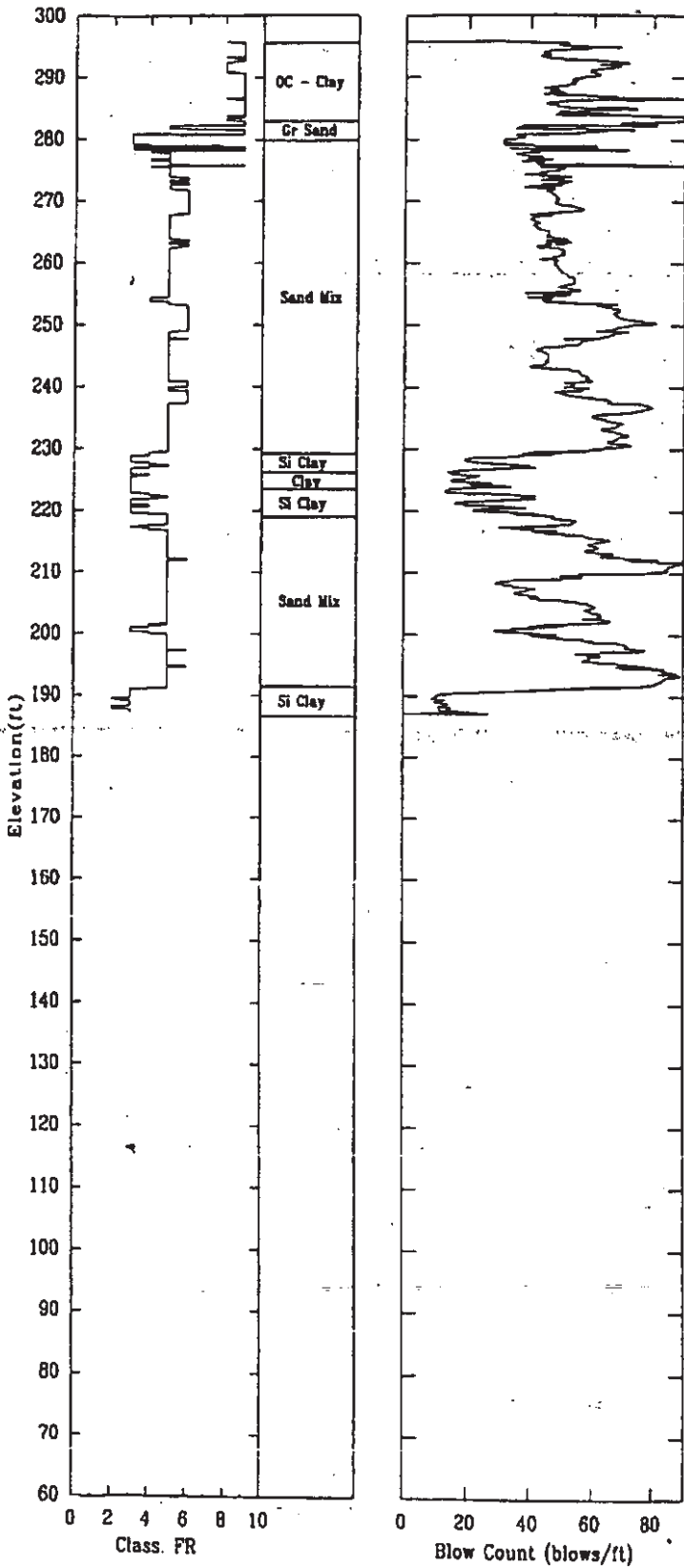
K-TRT-F-00001

03/25/98/0

North 78510

East 55583

Elevation 301.7

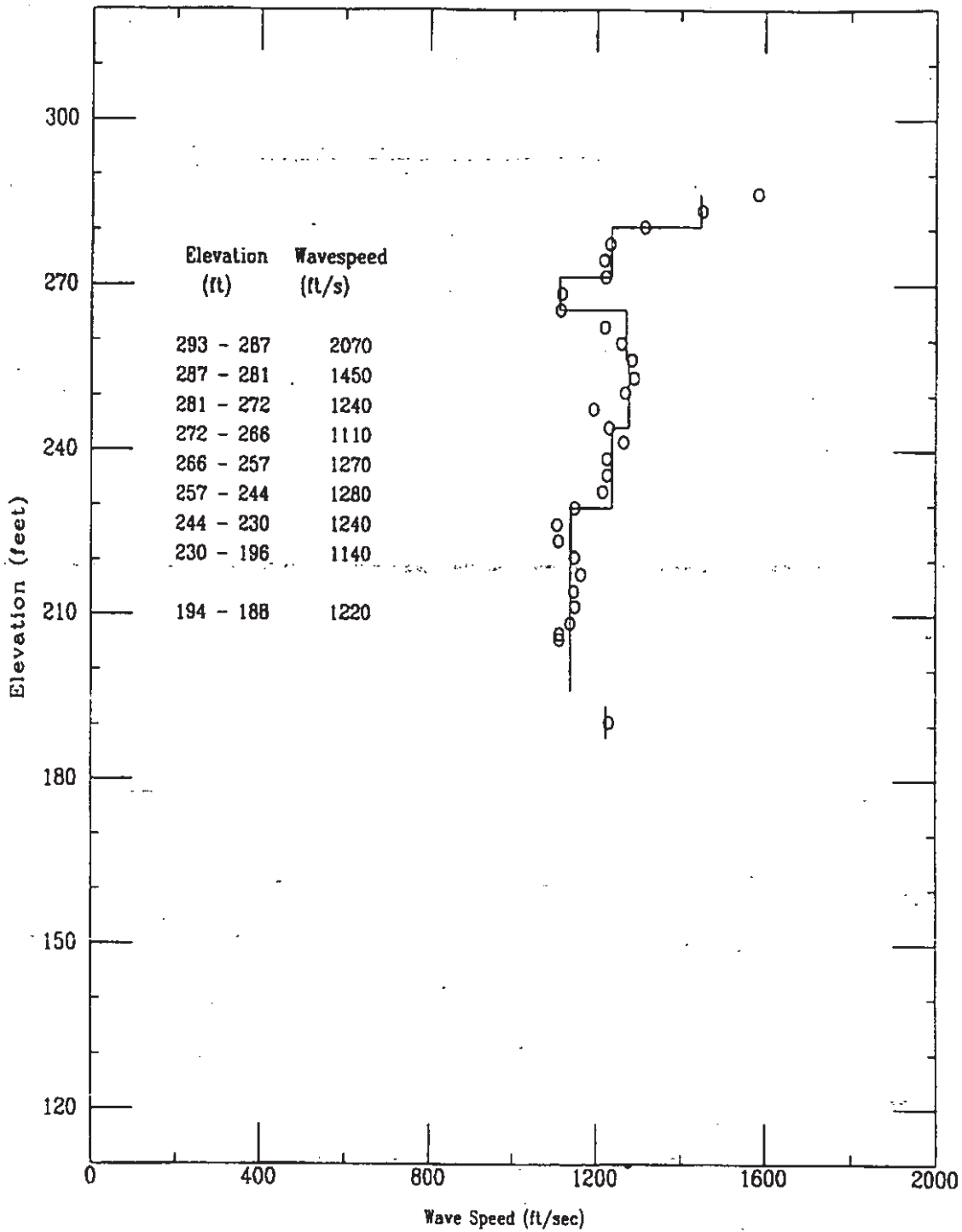


CPT-183

APPLIED-RESEARCH ASSOCIATES, INC.

03/25/98

Shear Wave Speeds



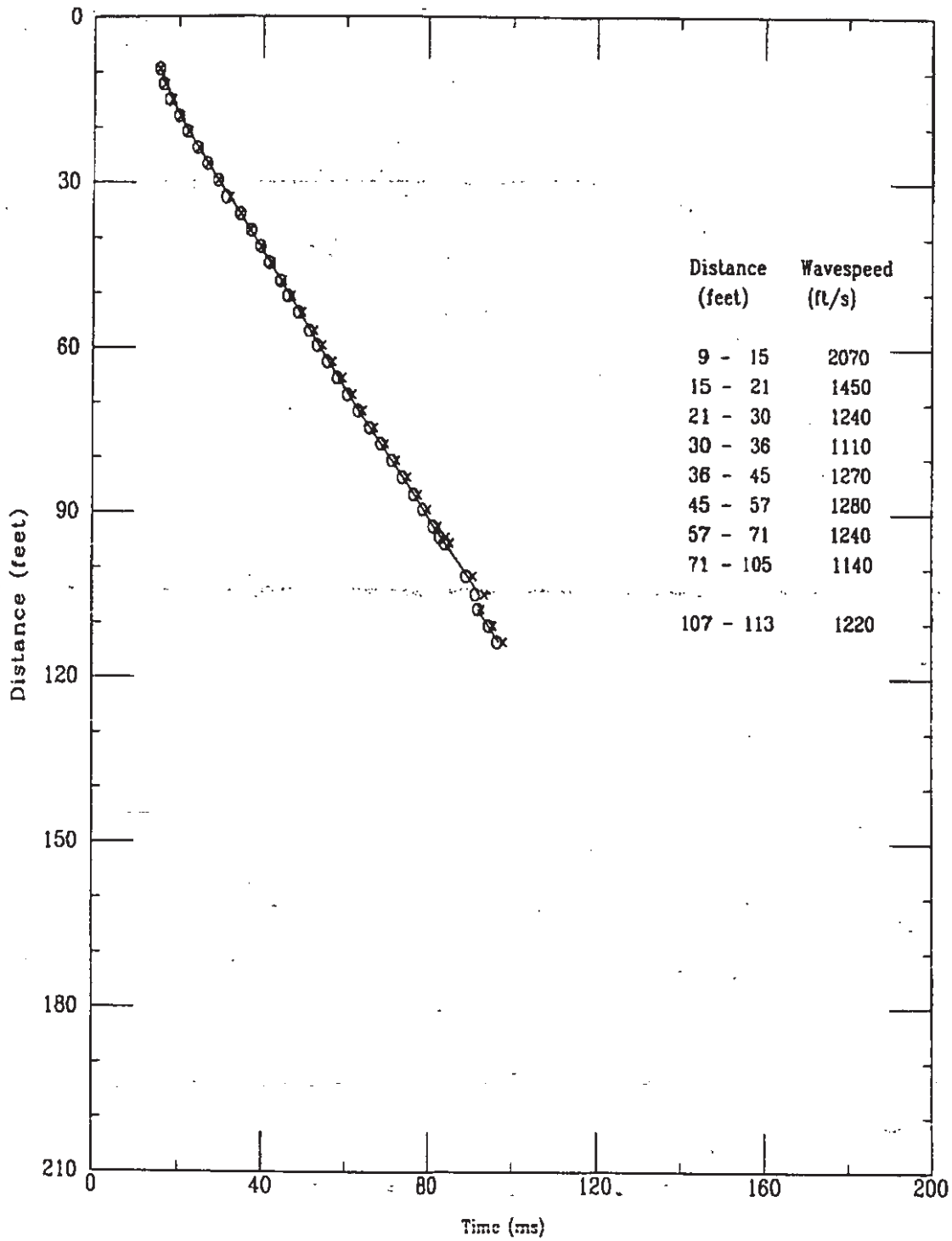
File 325m804S

CPT-183

APPLIED RESEARCH ASSOCIATES, INC.

03/25/98

Shear Wave Time of Peak



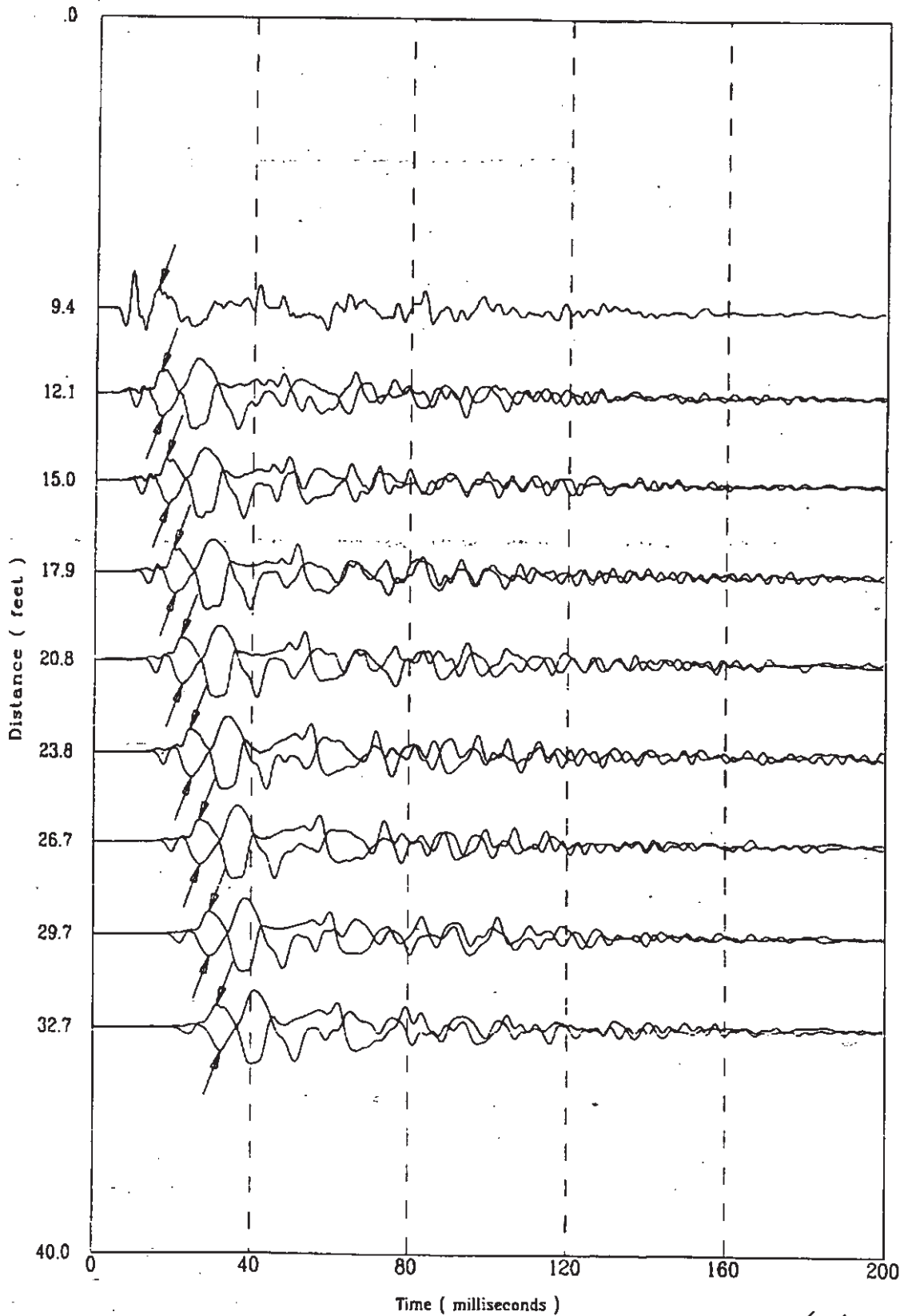
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-183

S Wave  
03/25/98



325m804S

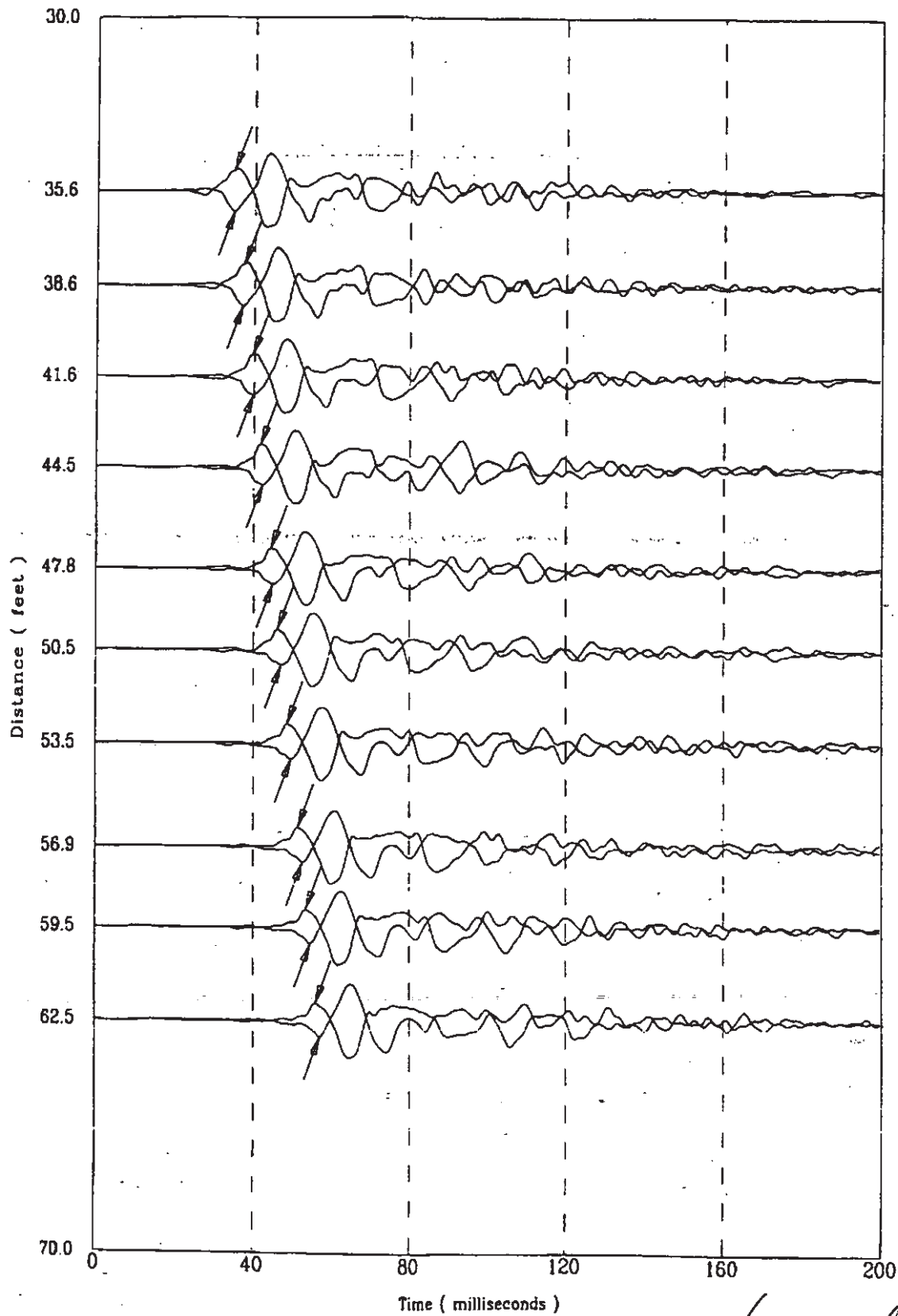
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-183

S Wave  
03/25/98



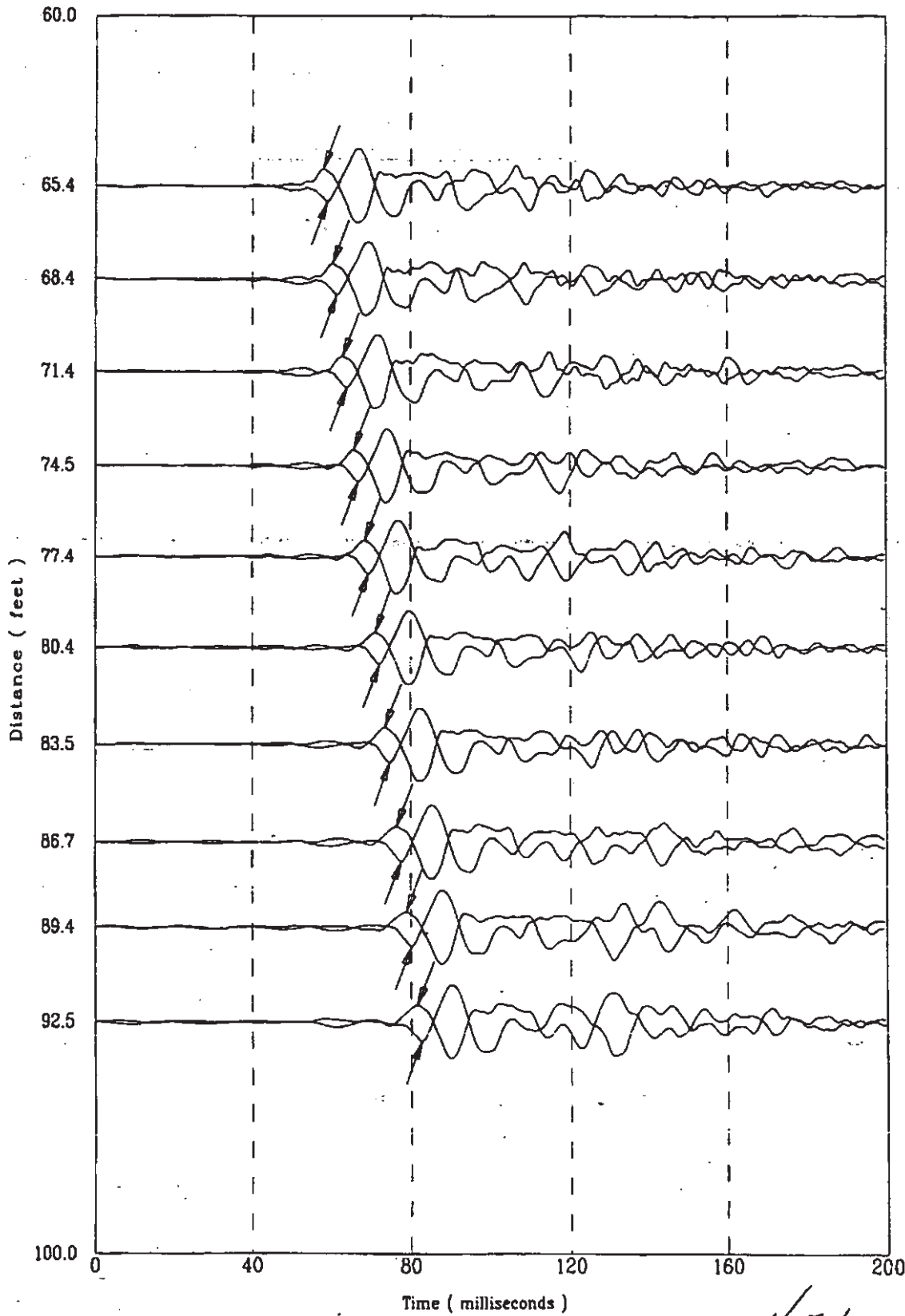
File 325m804S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-183

S Wave  
03/25/98



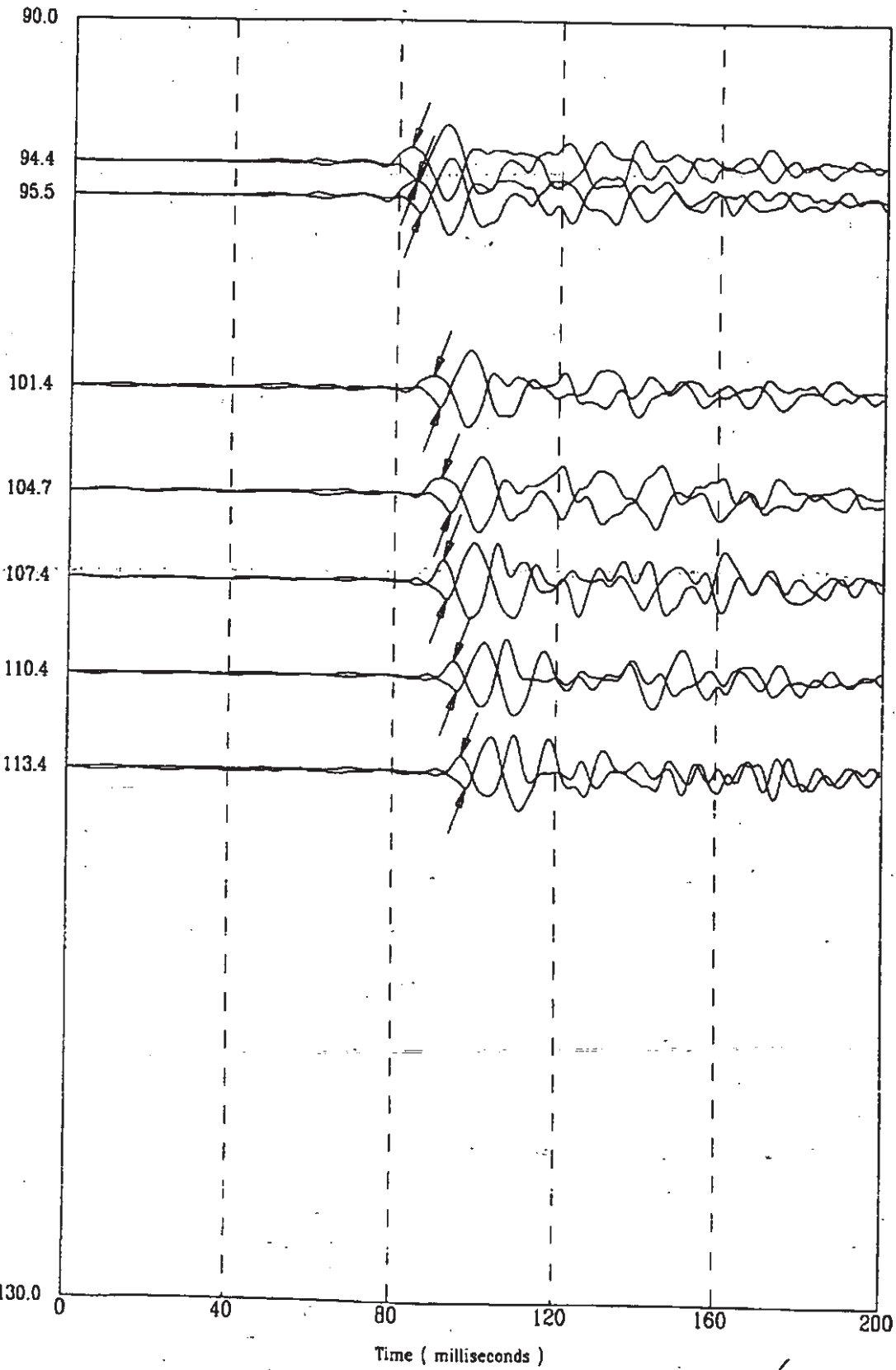
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-183

S Wave  
03/25/98



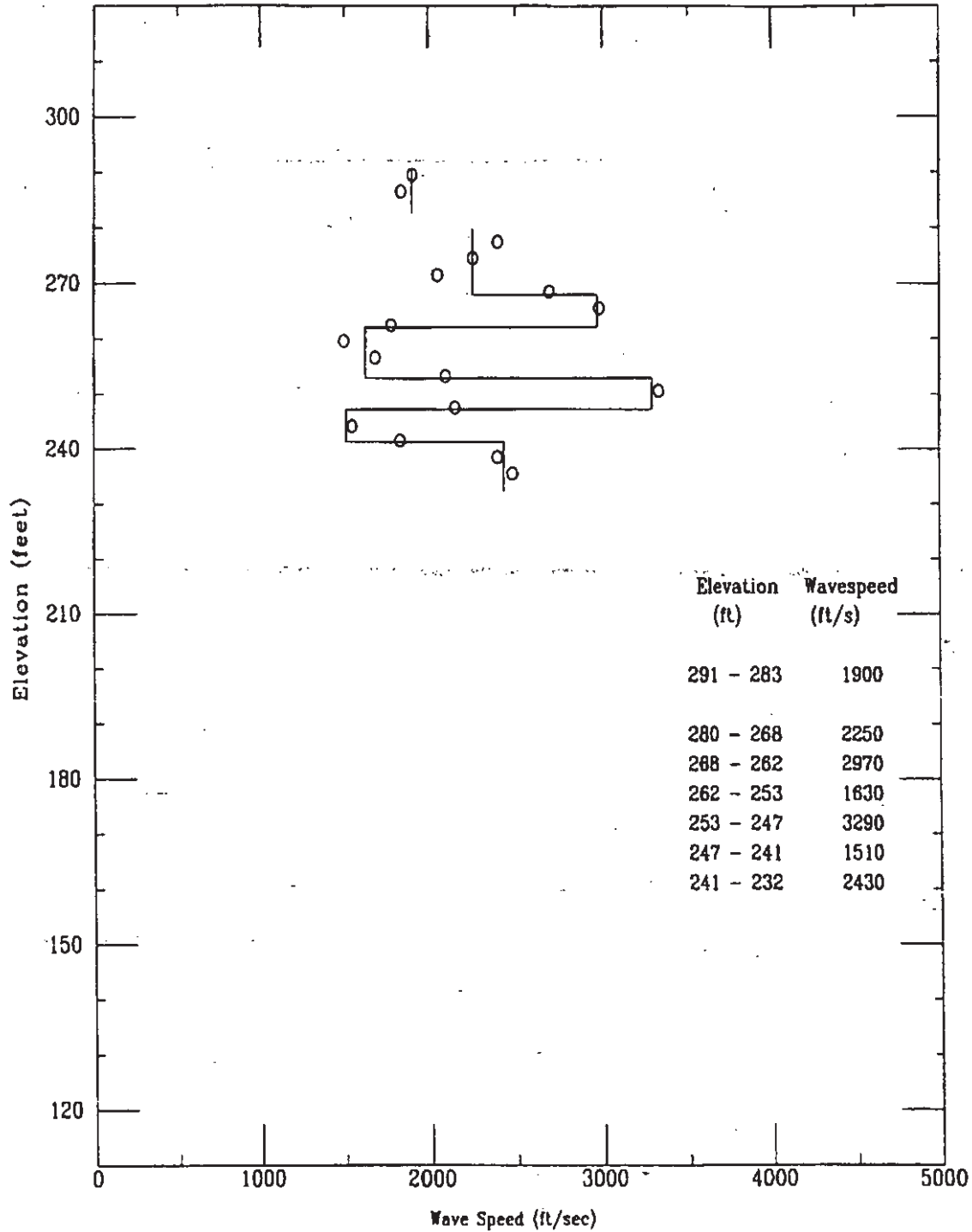
452 of 522

CPT-183

APPLIED RESEARCH ASSOCIATES, INC.

03/25/98

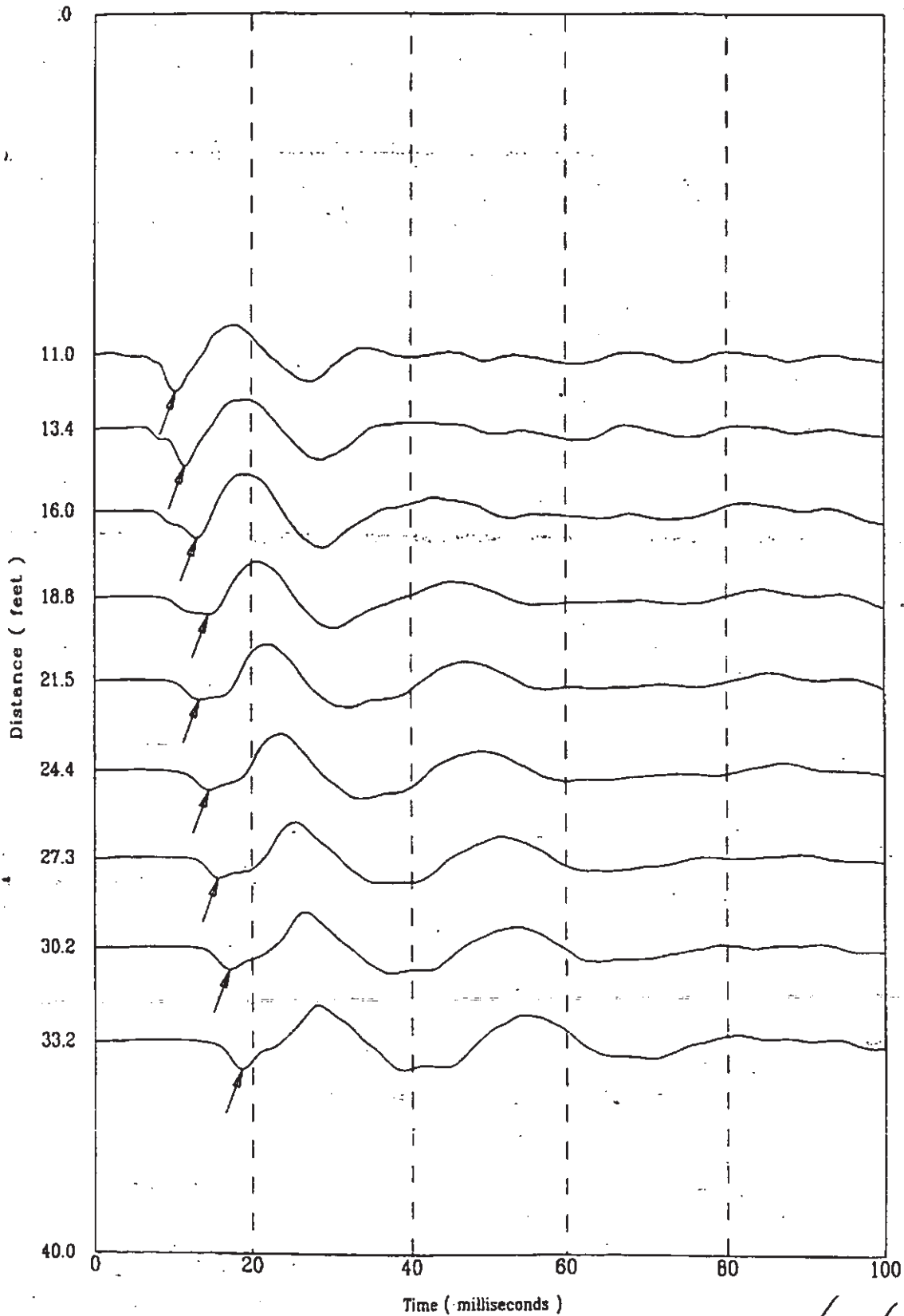
Compression Wave Speeds



K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-183

P Wave  
03/25/98



File 325m804S

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CPT-185

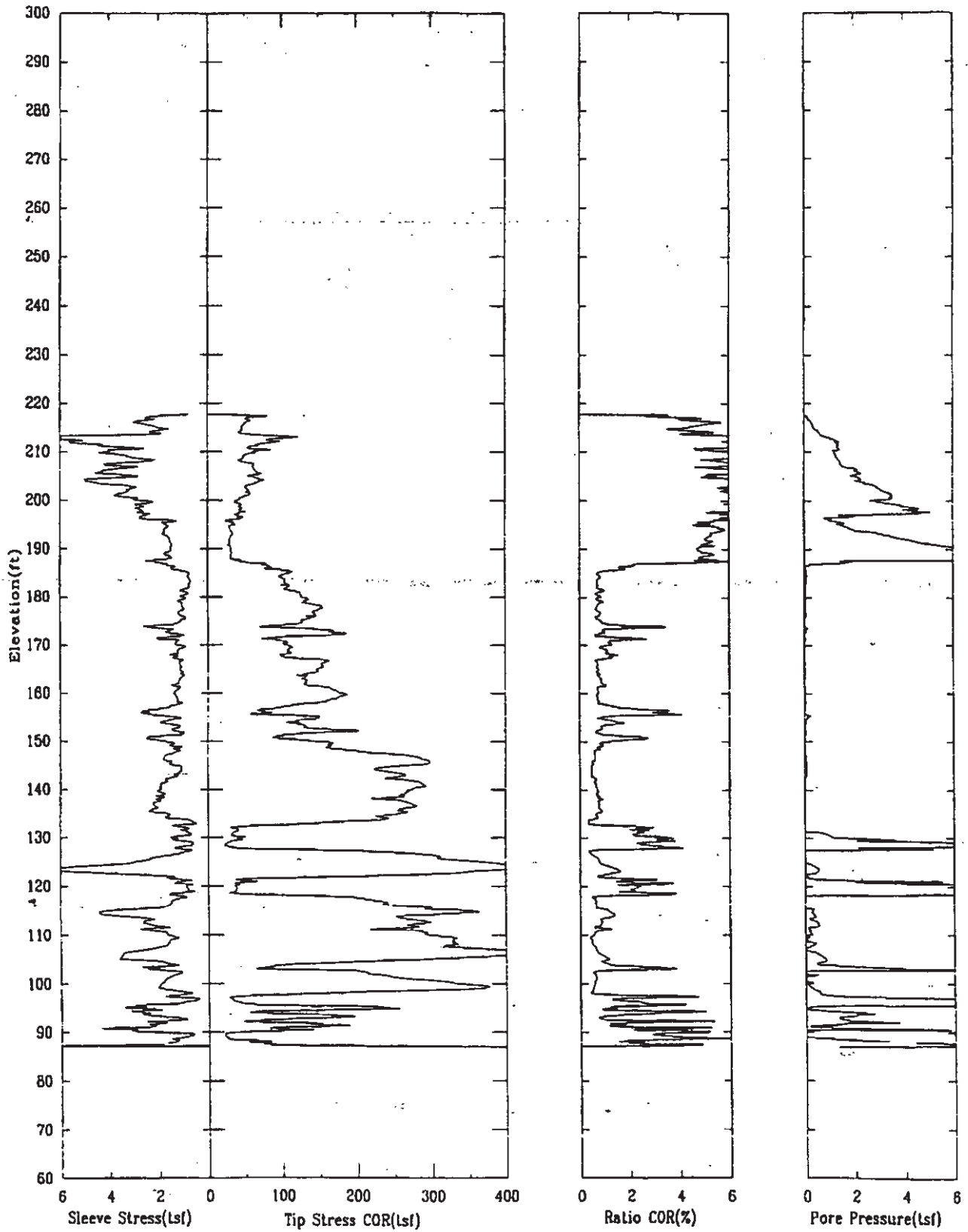
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/18/98 / 0

North 78380

East 55385

Elevation 223.7



CPT-185

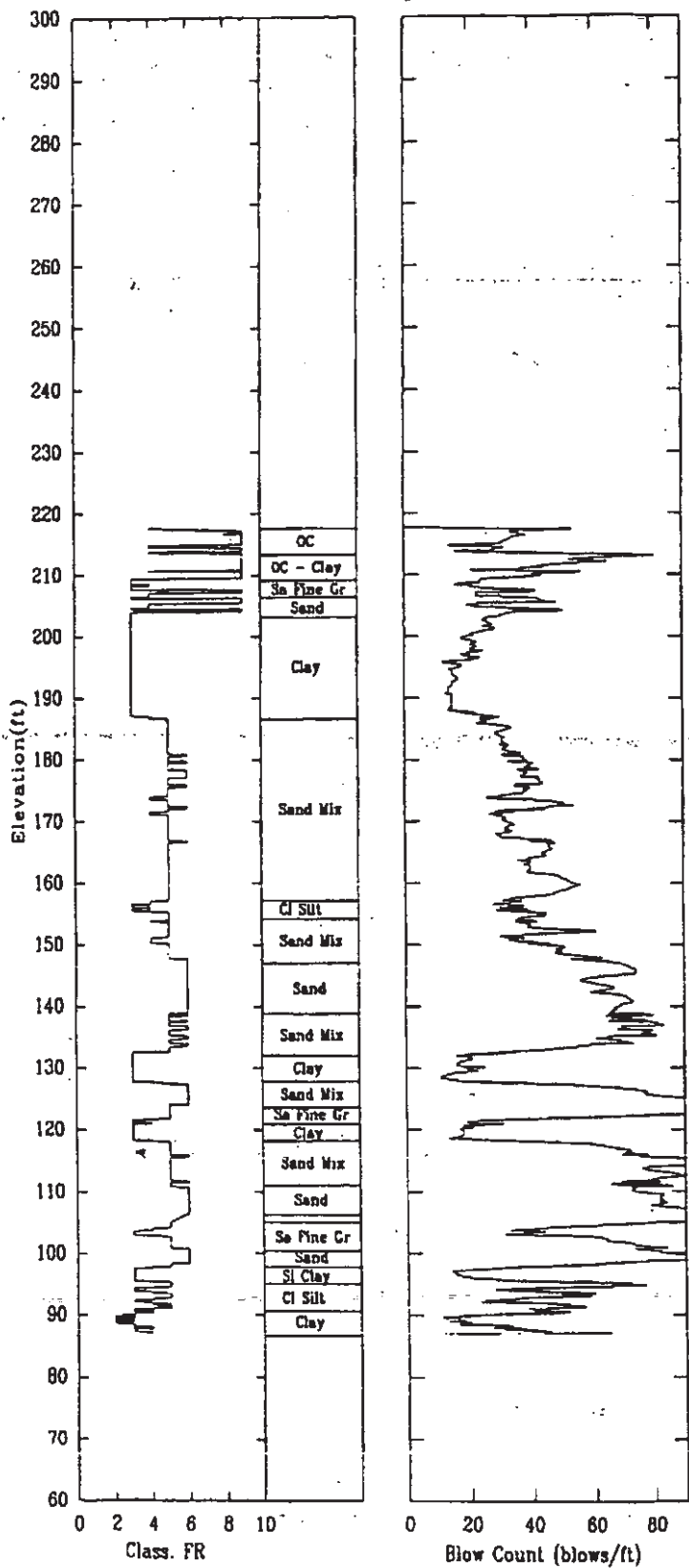
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-0000/  
03/18/98R/0

North 78380

East 55385

Elevation 223.7

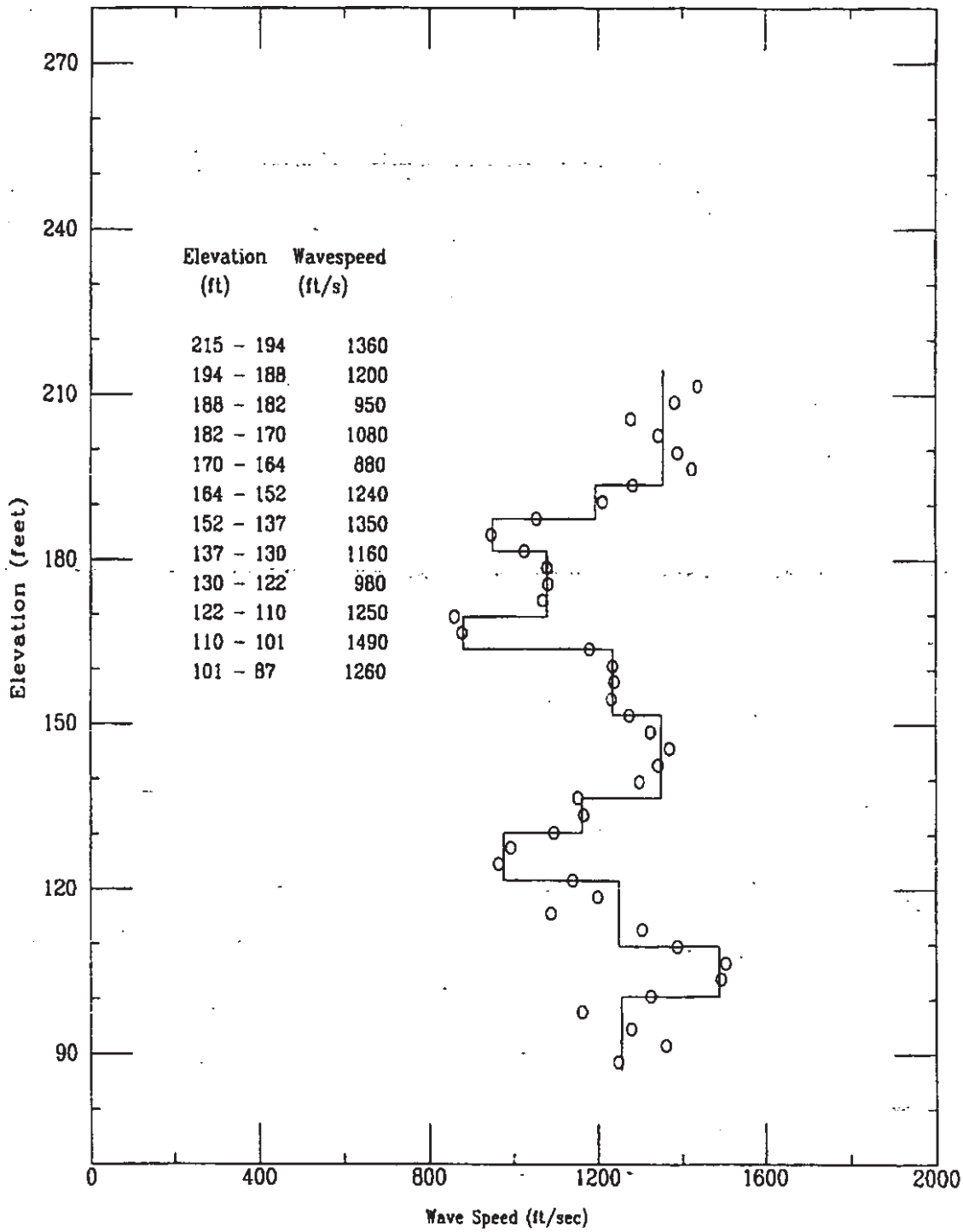


CPT-185

APPLIED RESEARCH ASSOCIATES, INC.

03/18/98

Shear Wave Speeds



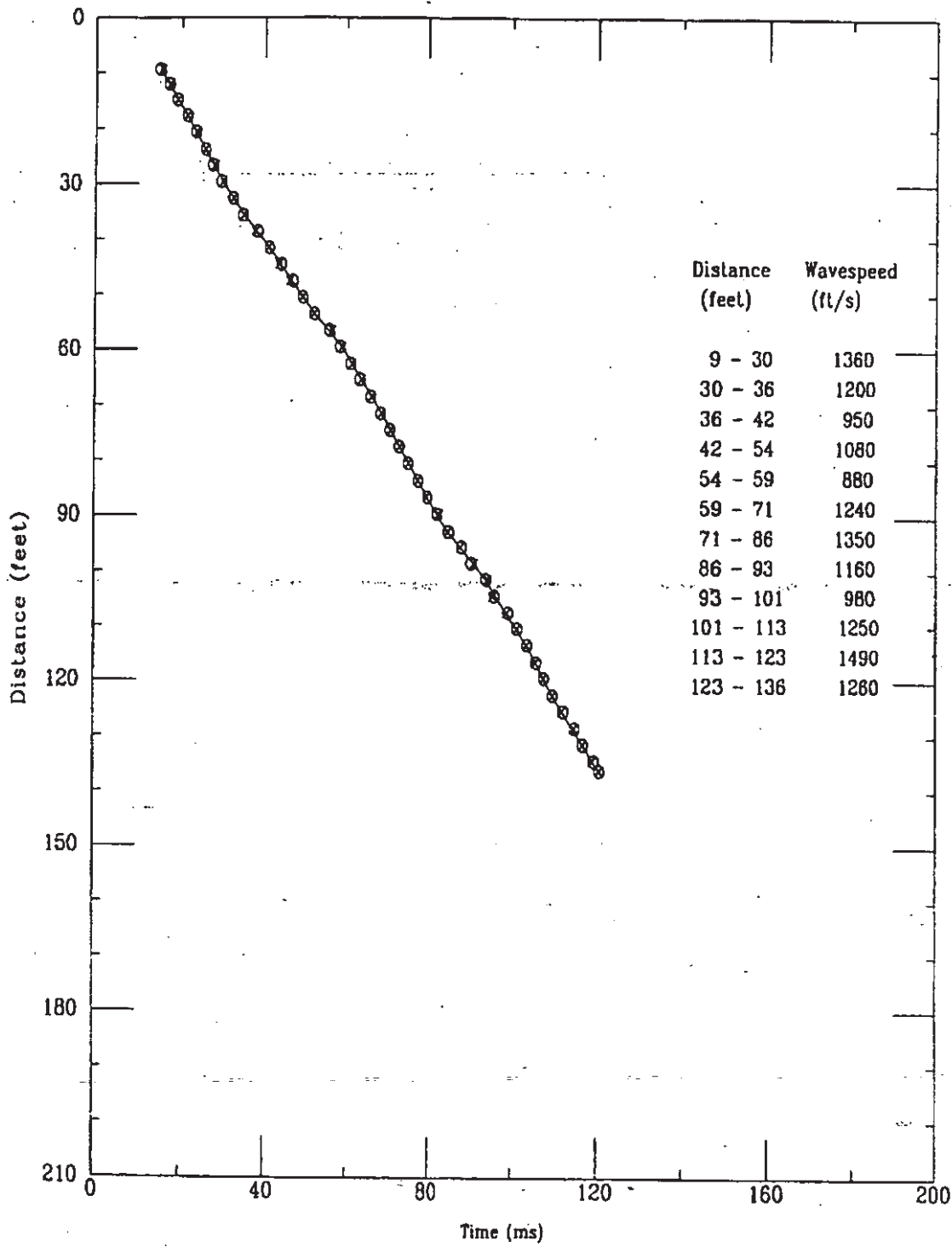


CPT-185

APPLIED RESEARCH ASSOCIATES, INC.

03/18/98

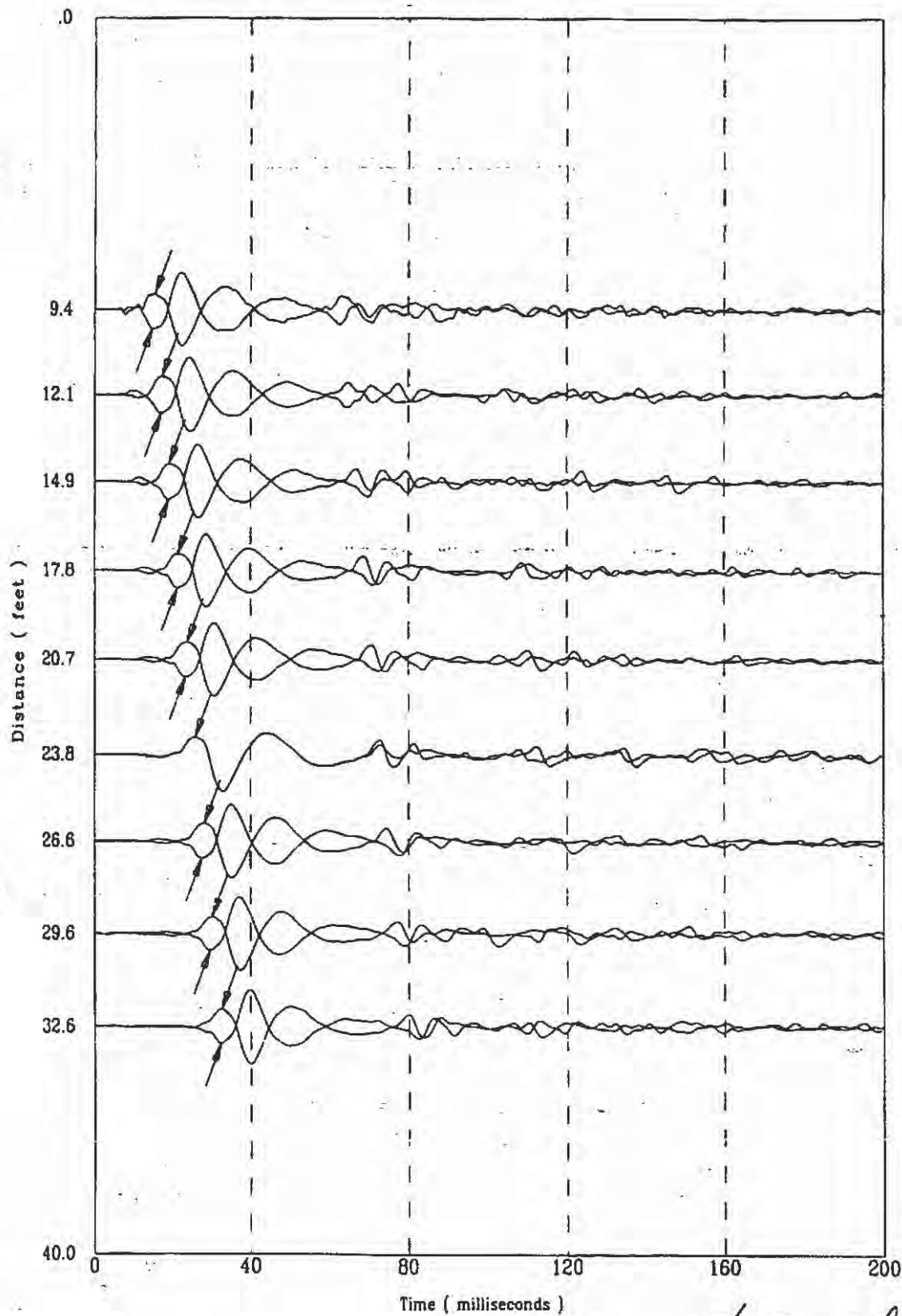
Shear Wave Time of Peak



K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-185

S Wave  
03/18/98



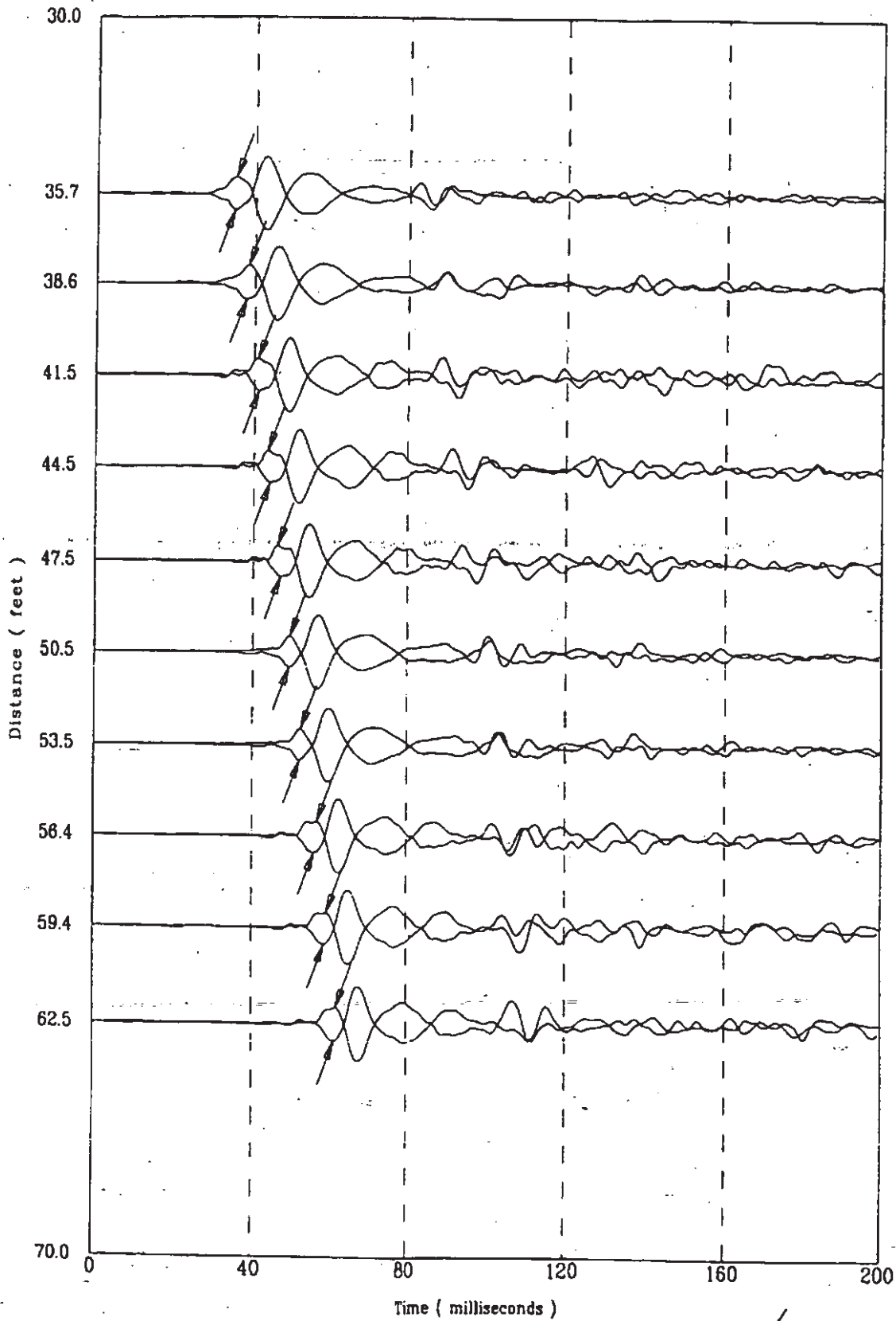
.18m802S

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K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-185

S Wave  
03/18/98

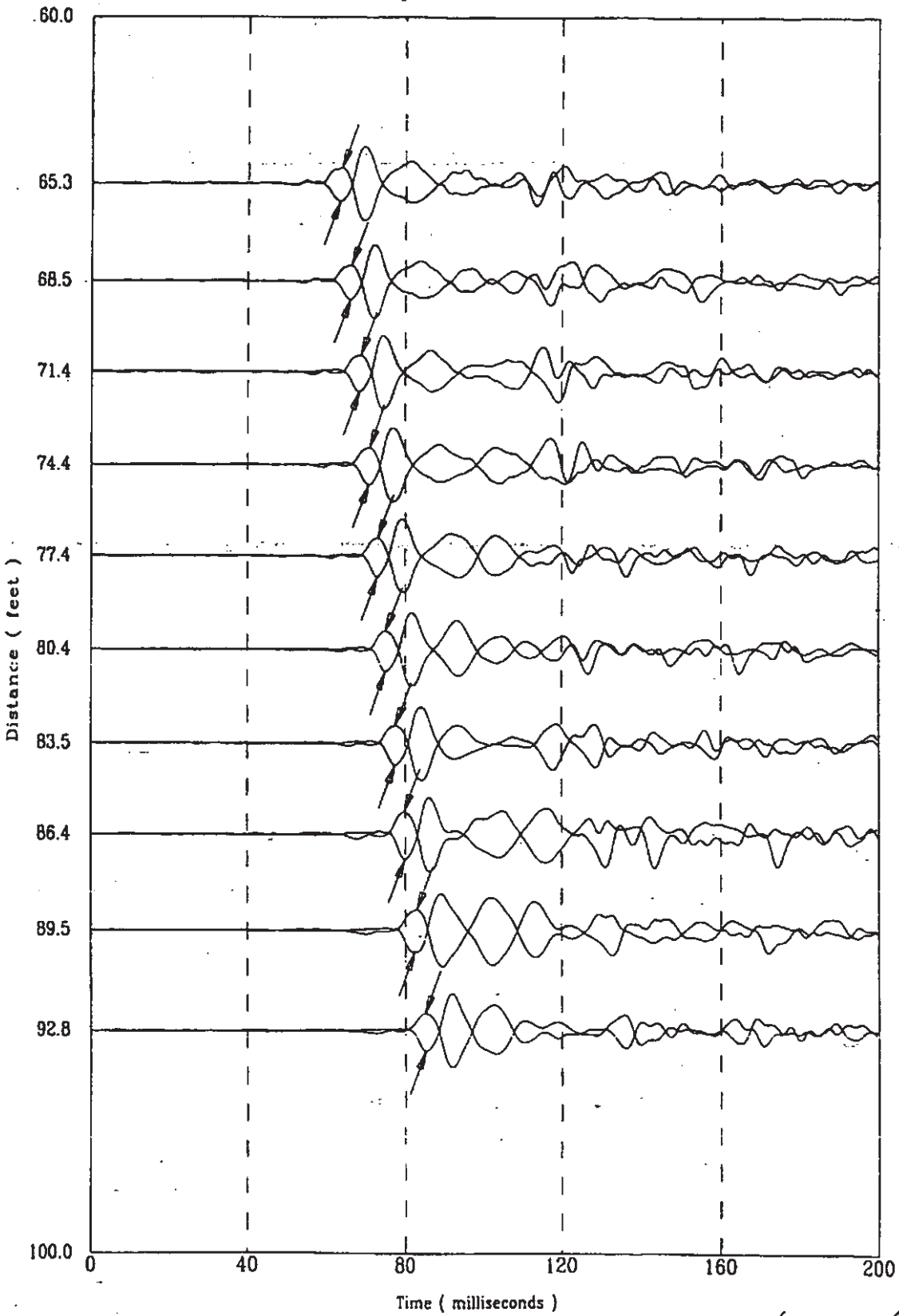


File 418m802S

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Applied Research Associates  
CPT-185

S Wave  
03/18/98

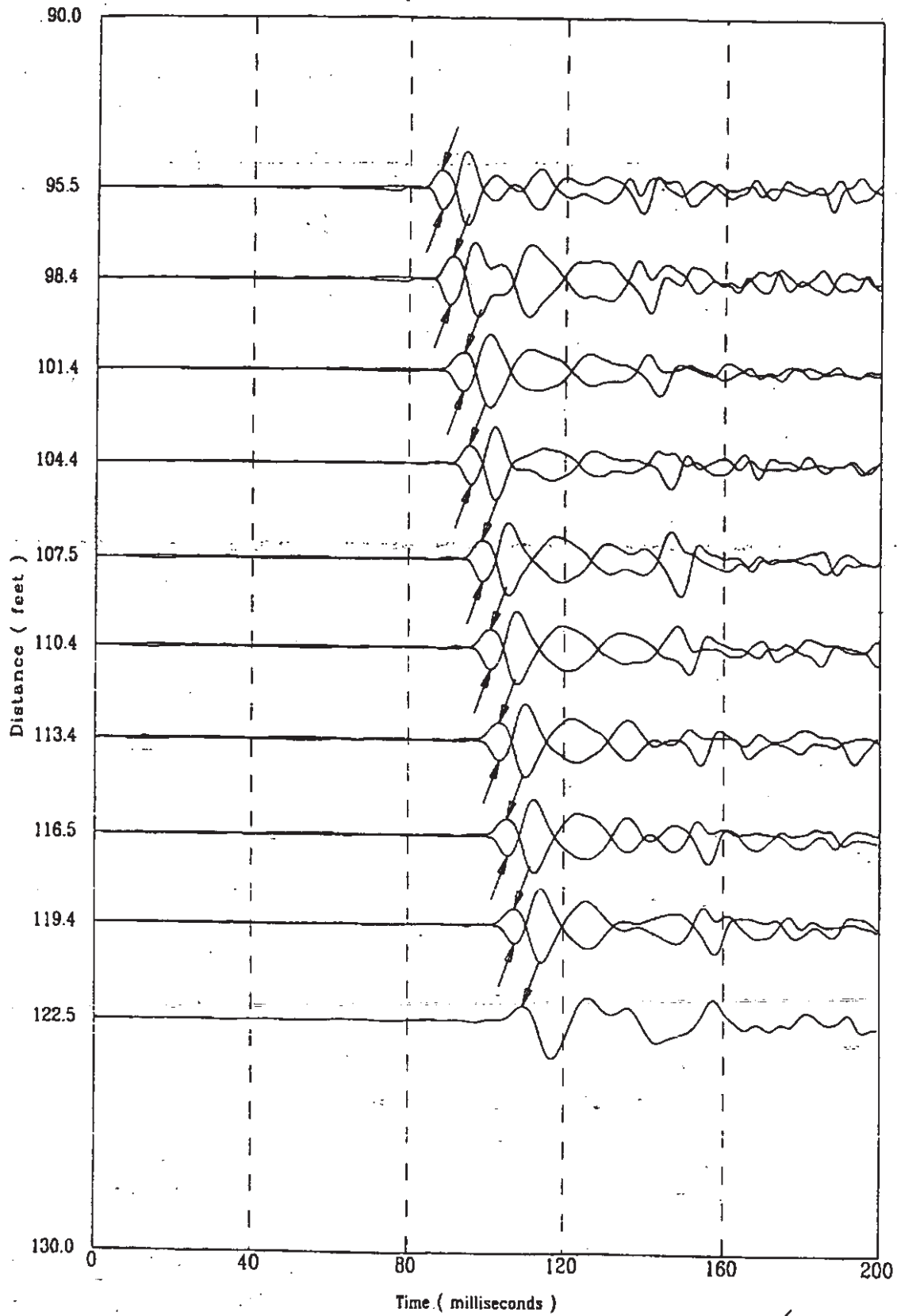


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K-TRT-F-00001  
R/0

Applied Research Associates  
CPT-185

S Wave  
03/18/98



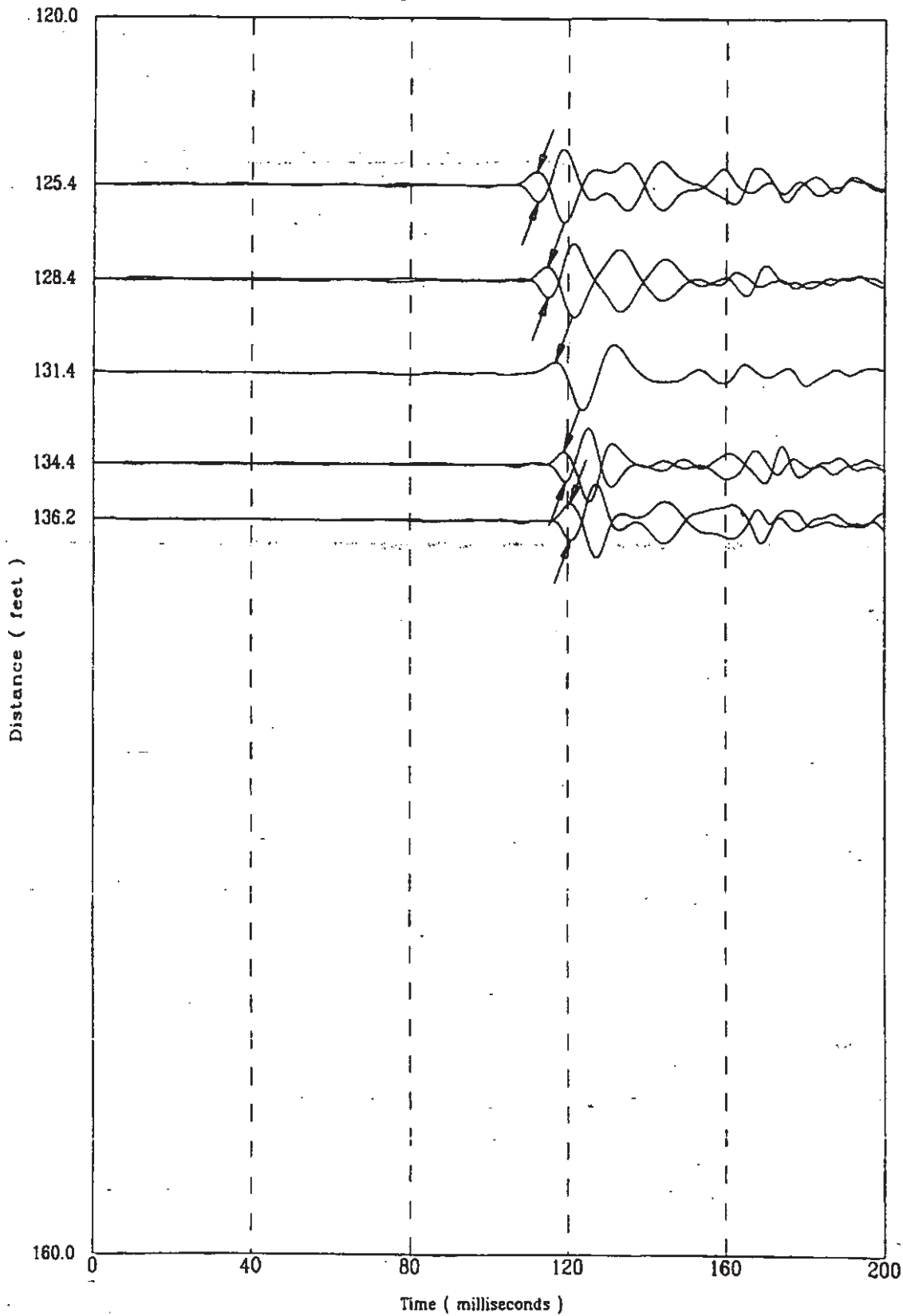
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K-TRT-F-00001  
R/O

Applied Research Associates  
CPT-185

S Wave  
03/18/98



418m802S

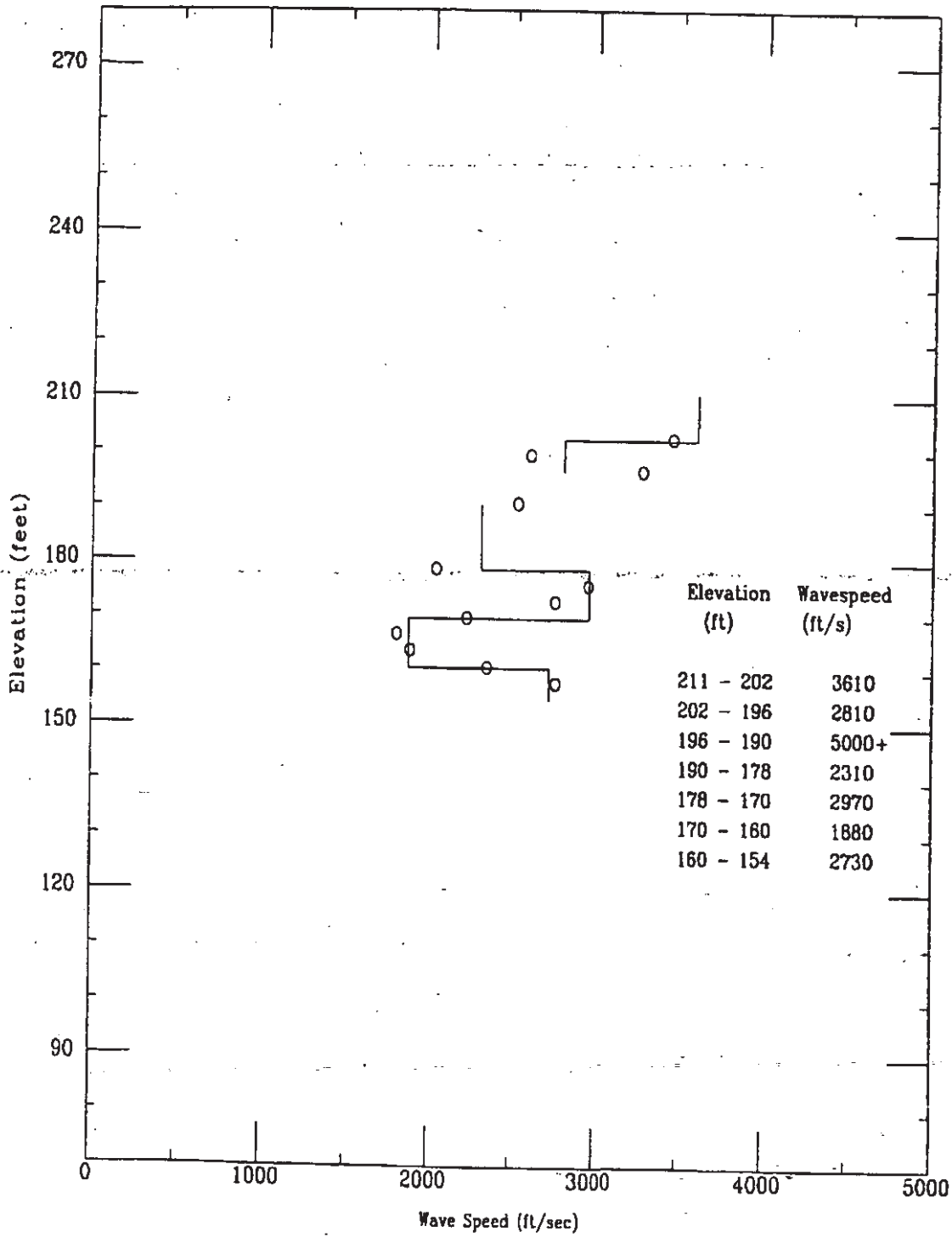
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CPT-185

APPLIED RESEARCH ASSOCIATES, INC.

03/18/98

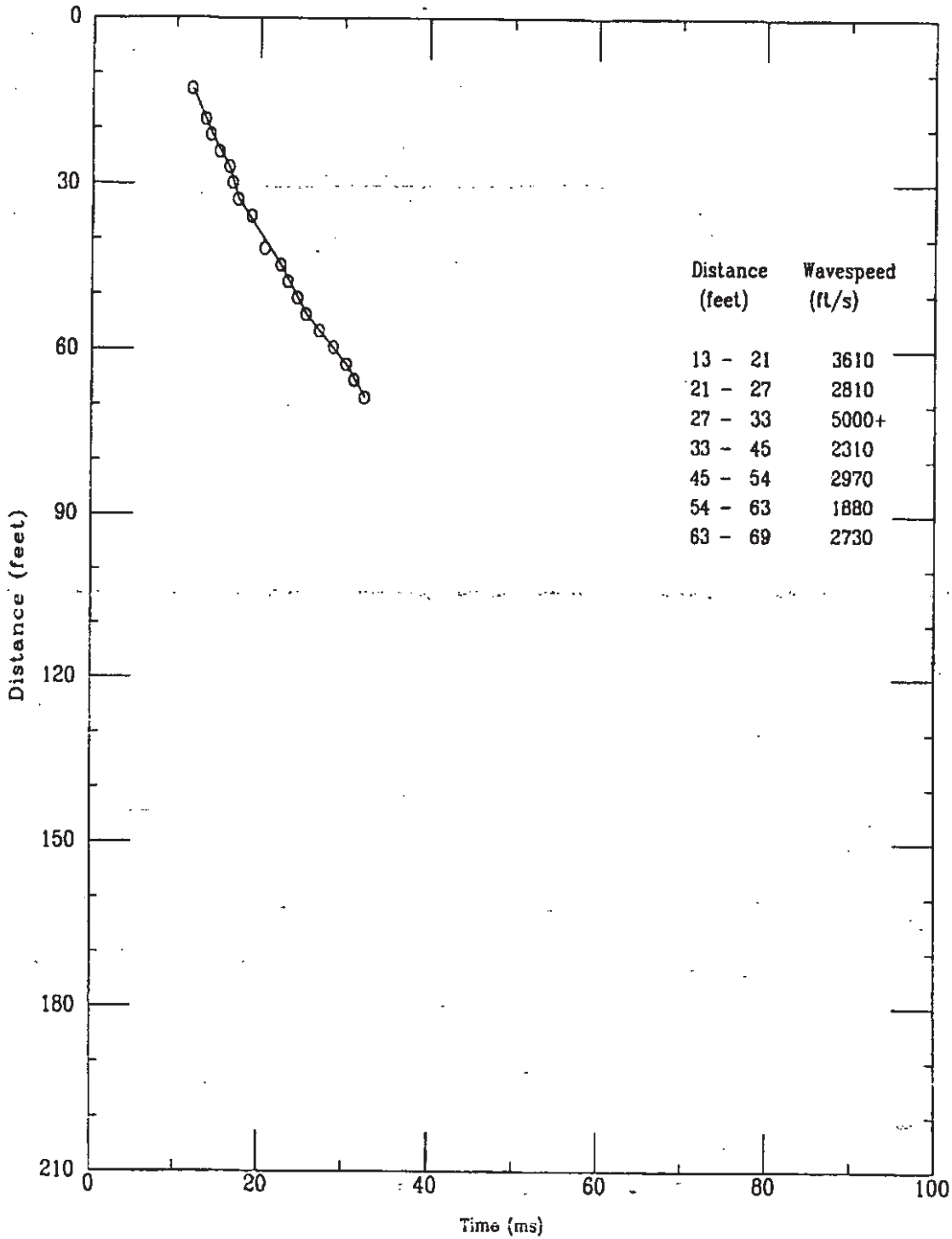
Compression Wave Speeds



CPT-185

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

03/18/98



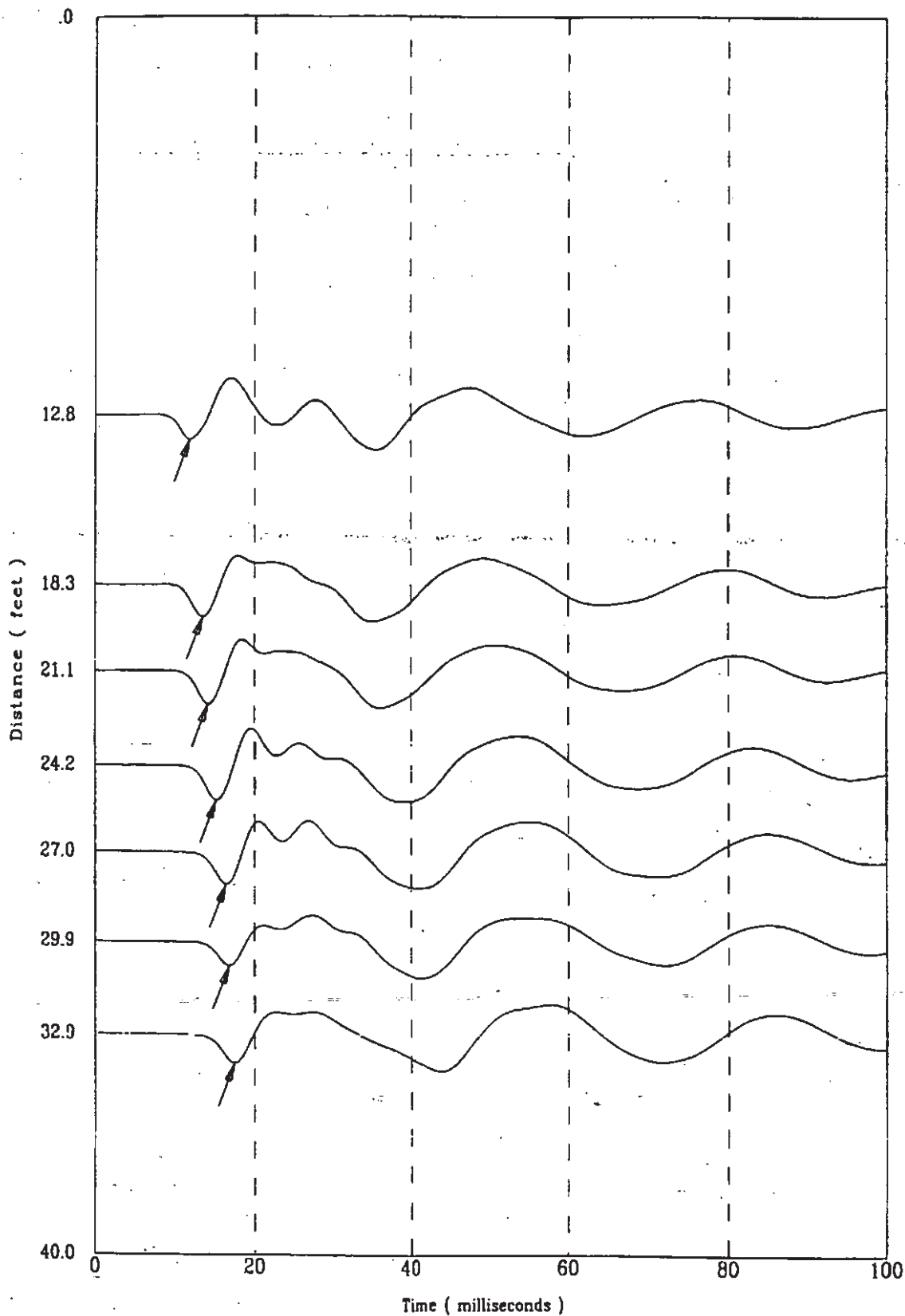
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-185

P Wave  
03/18/98



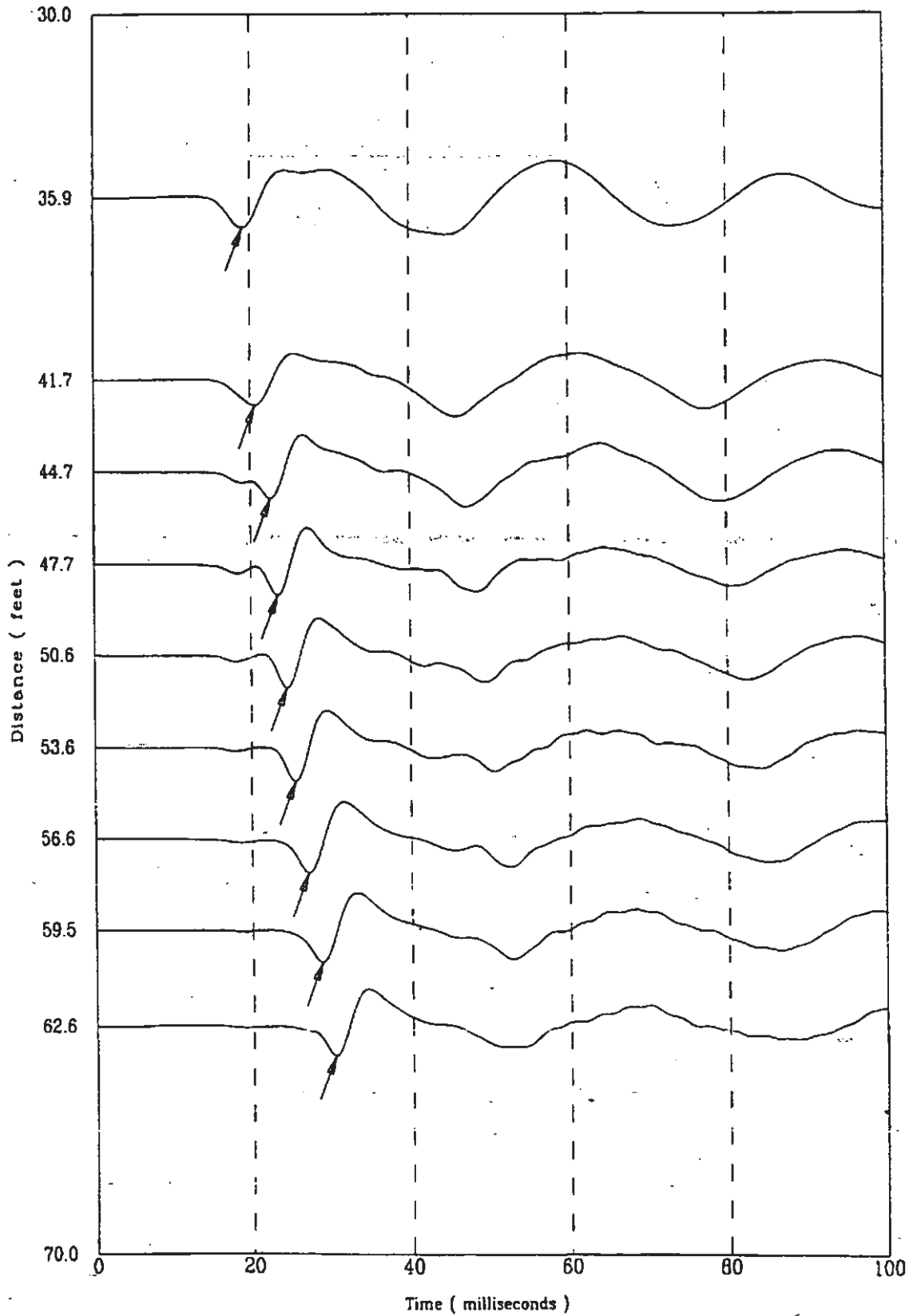
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-185

P Wave  
03/18/98



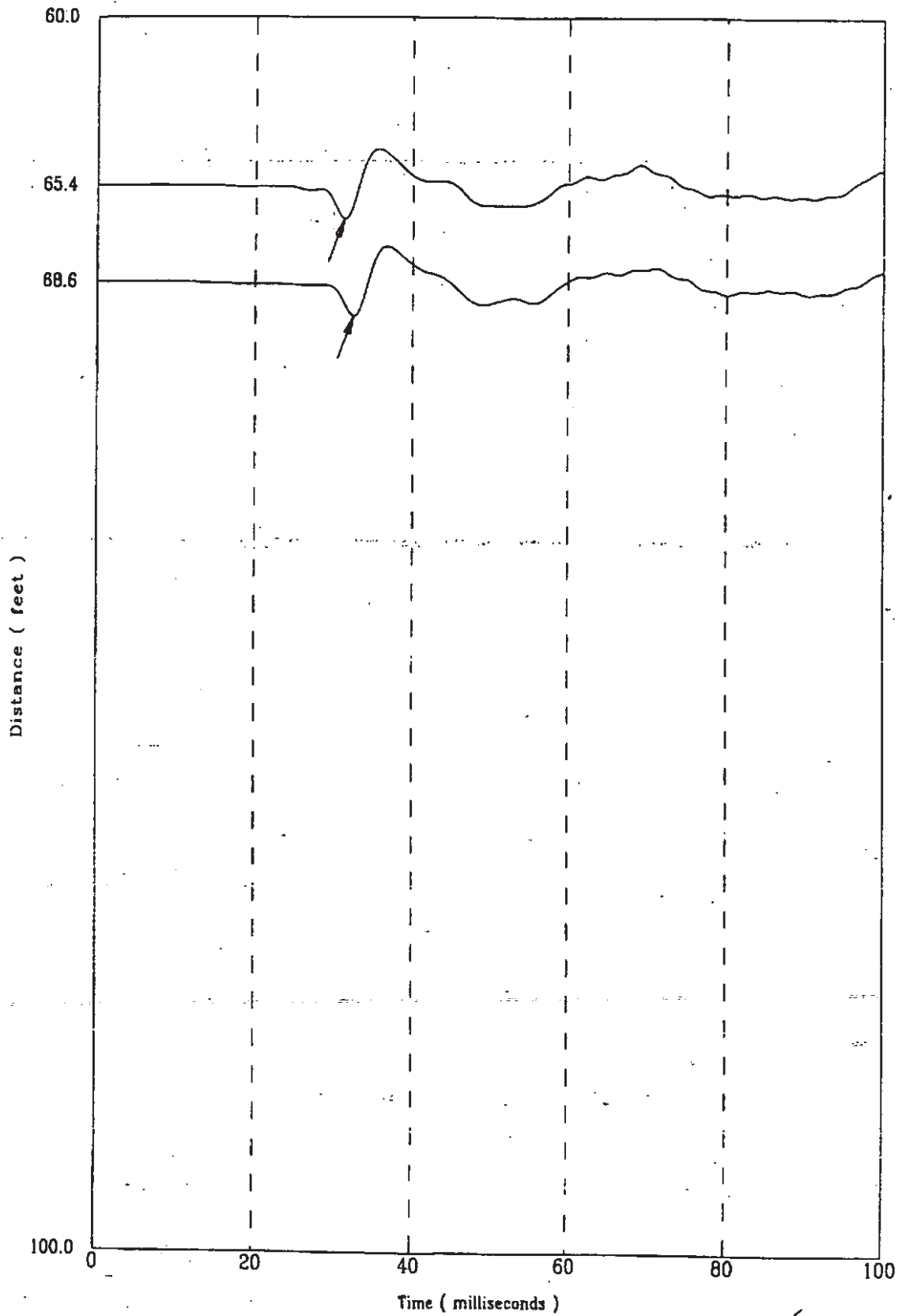
file 418m002S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-185

P Wave  
03/18/98



File 418m802S

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CPT-186

APPLIED RESEARCH ASSOCIATES, INC.

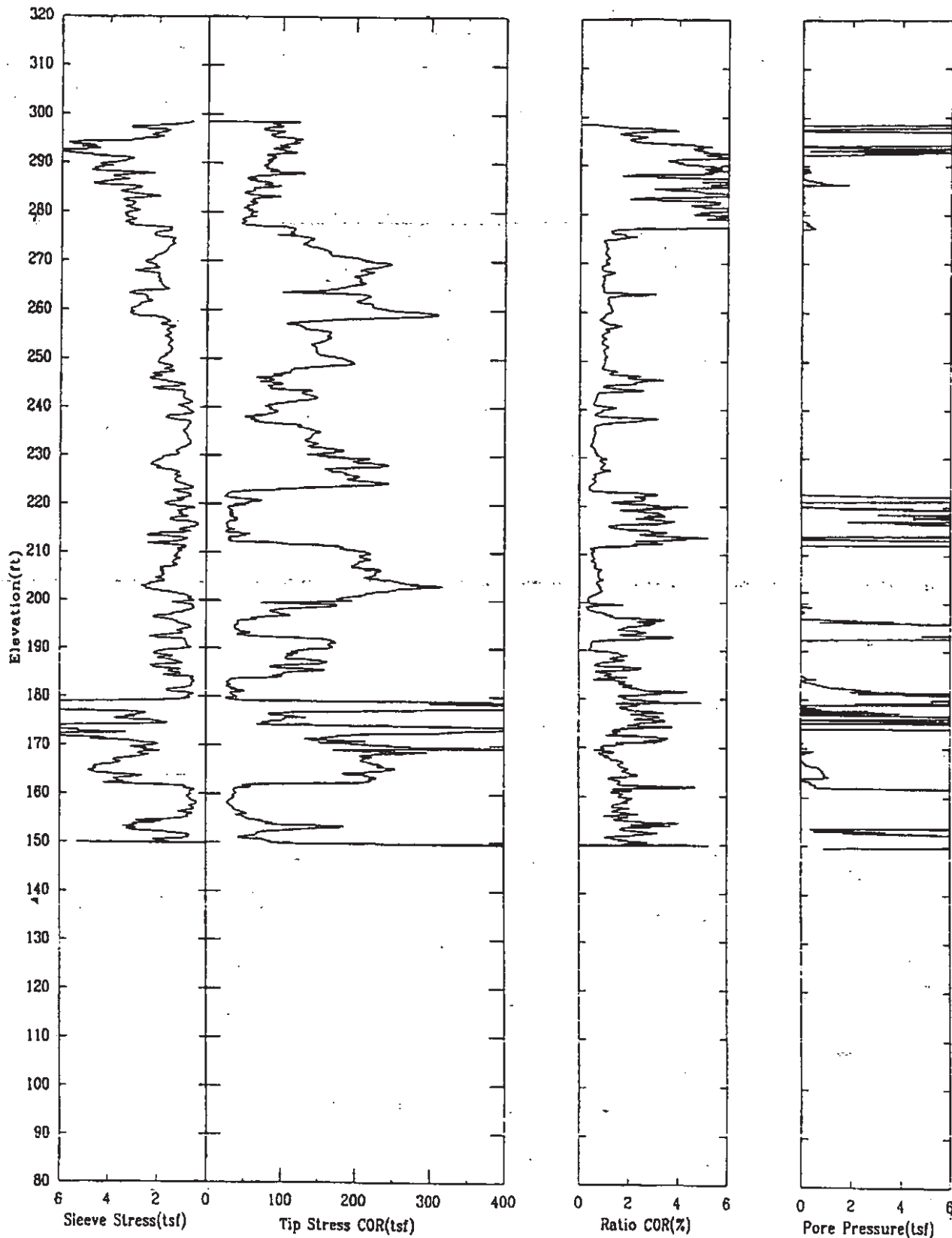
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03/24/98/0

North 78380

East 55518

Elevation 304.5



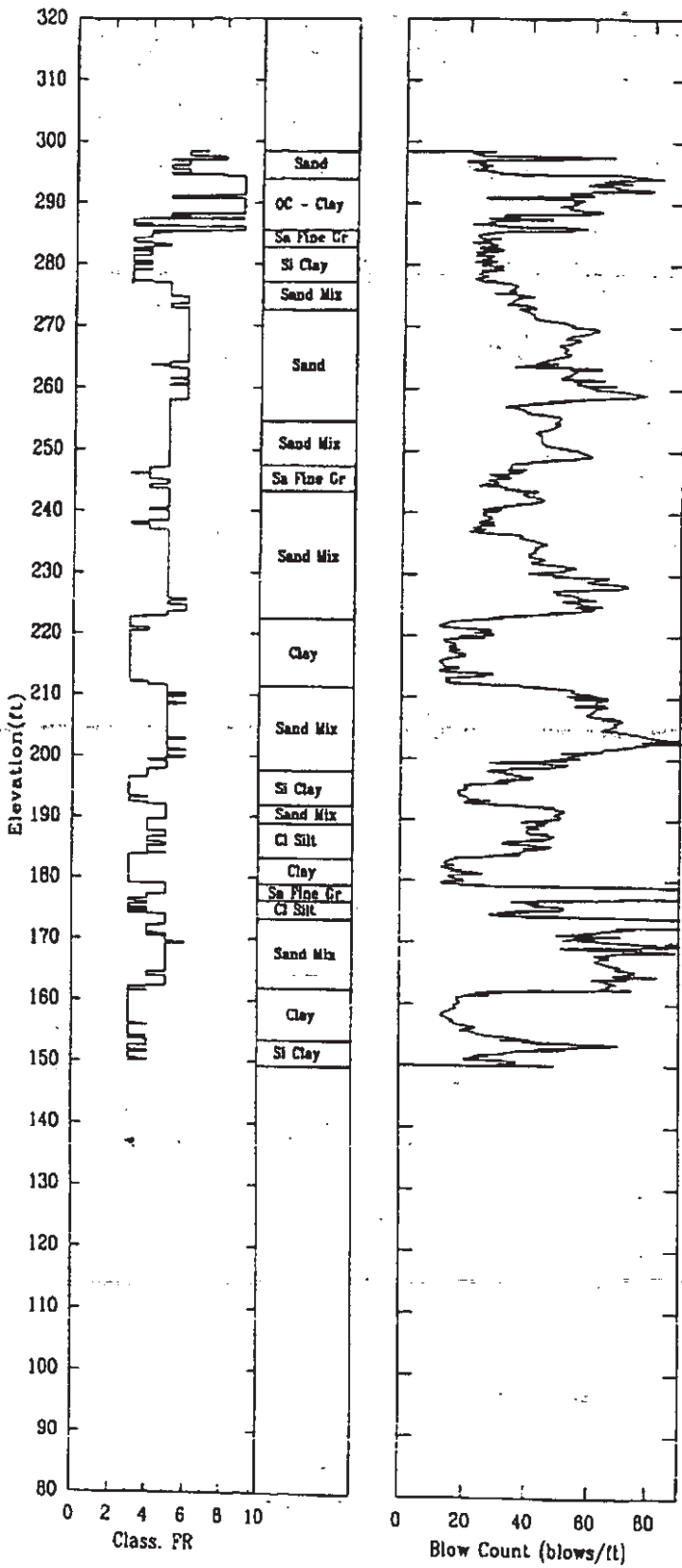
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APPLIED RESEARCH ASSOCIATES, INC.

North 78380

East 55518

Elevation 304.5

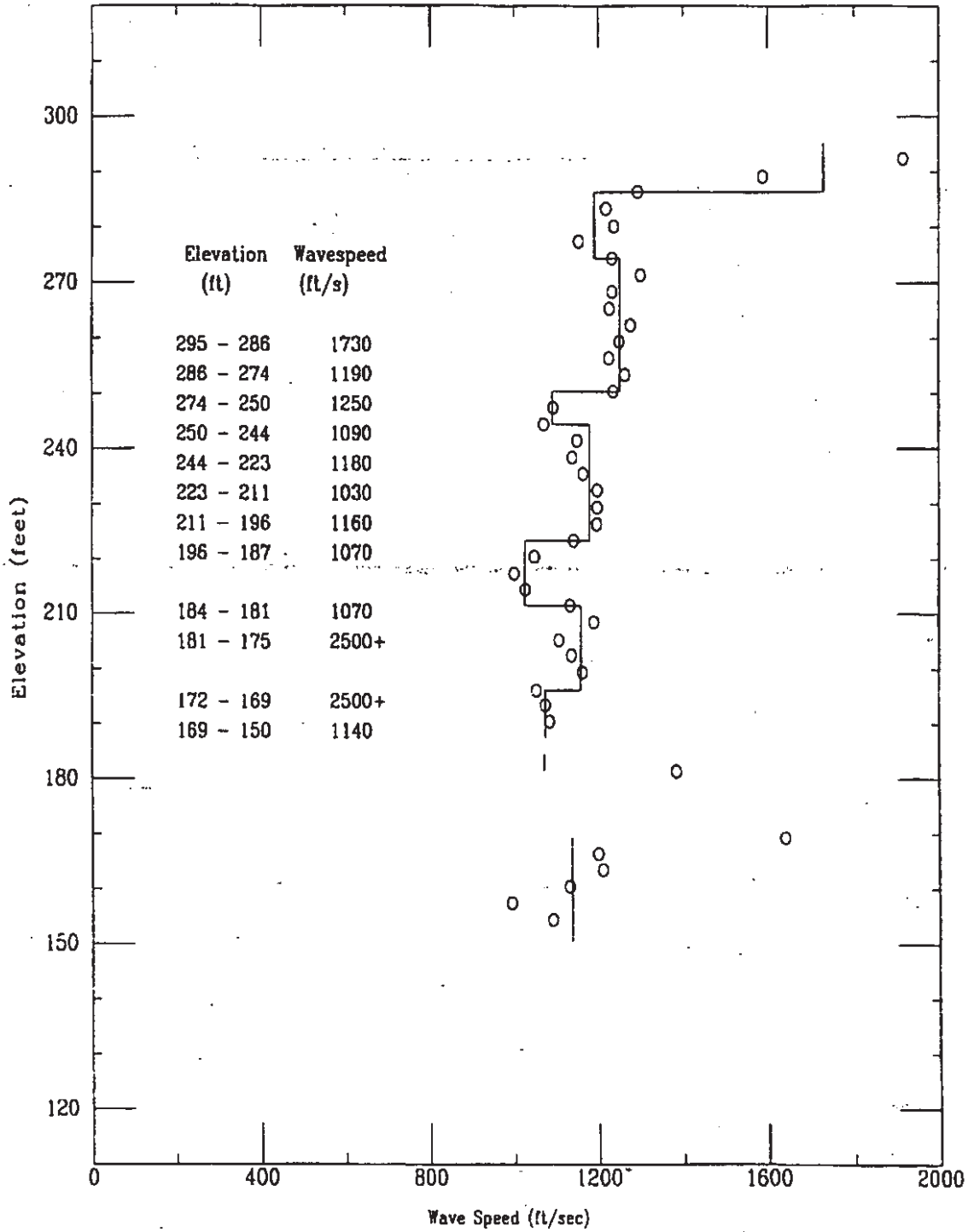


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APPLIED RESEARCH ASSOCIATES, INC.

03/24/98

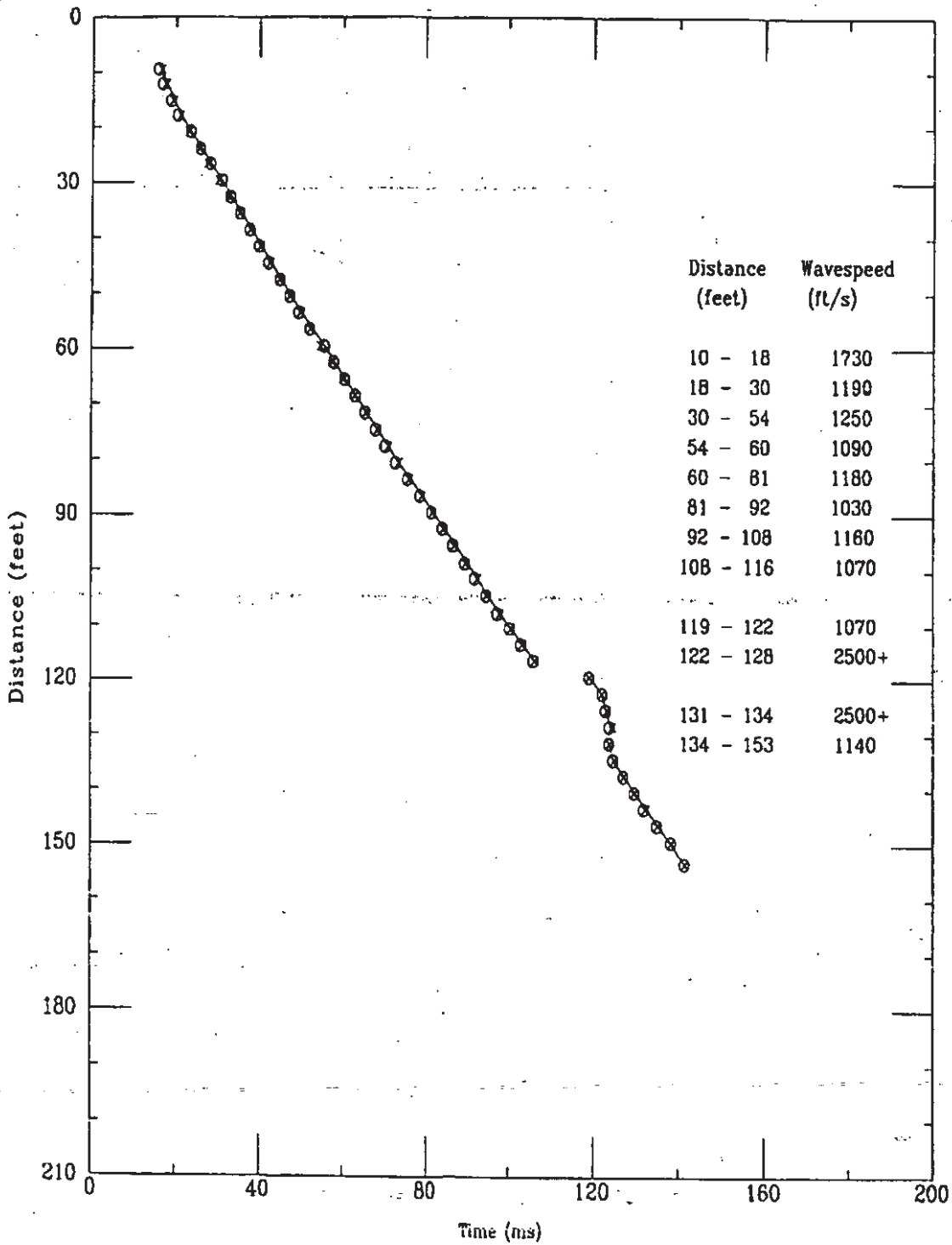
Shear Wave Speeds



CPT-186

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

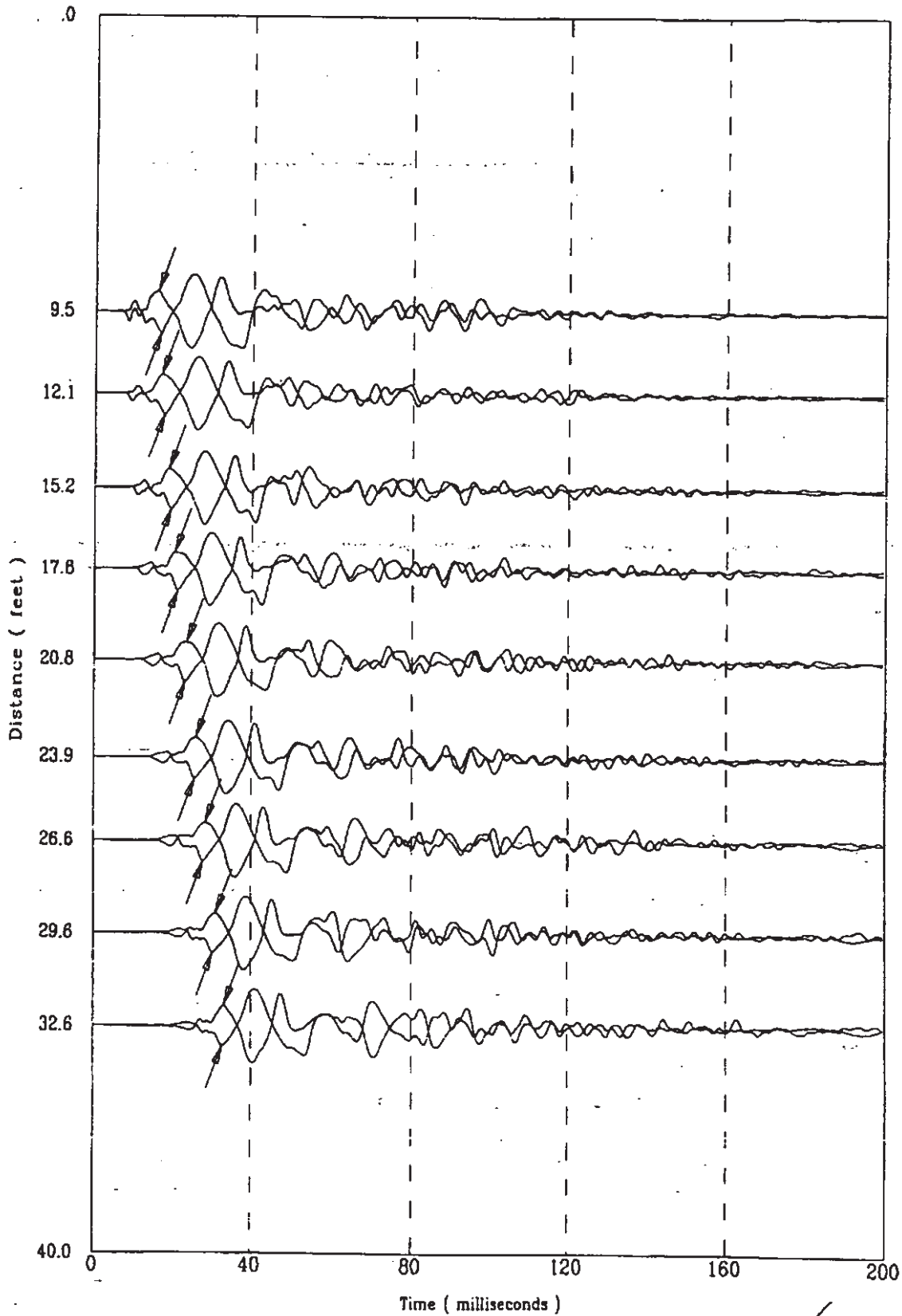
03/24/98



File 324m801S

Applied Research Associates, Inc.  
CPT-186

S Wave  
03/24/98



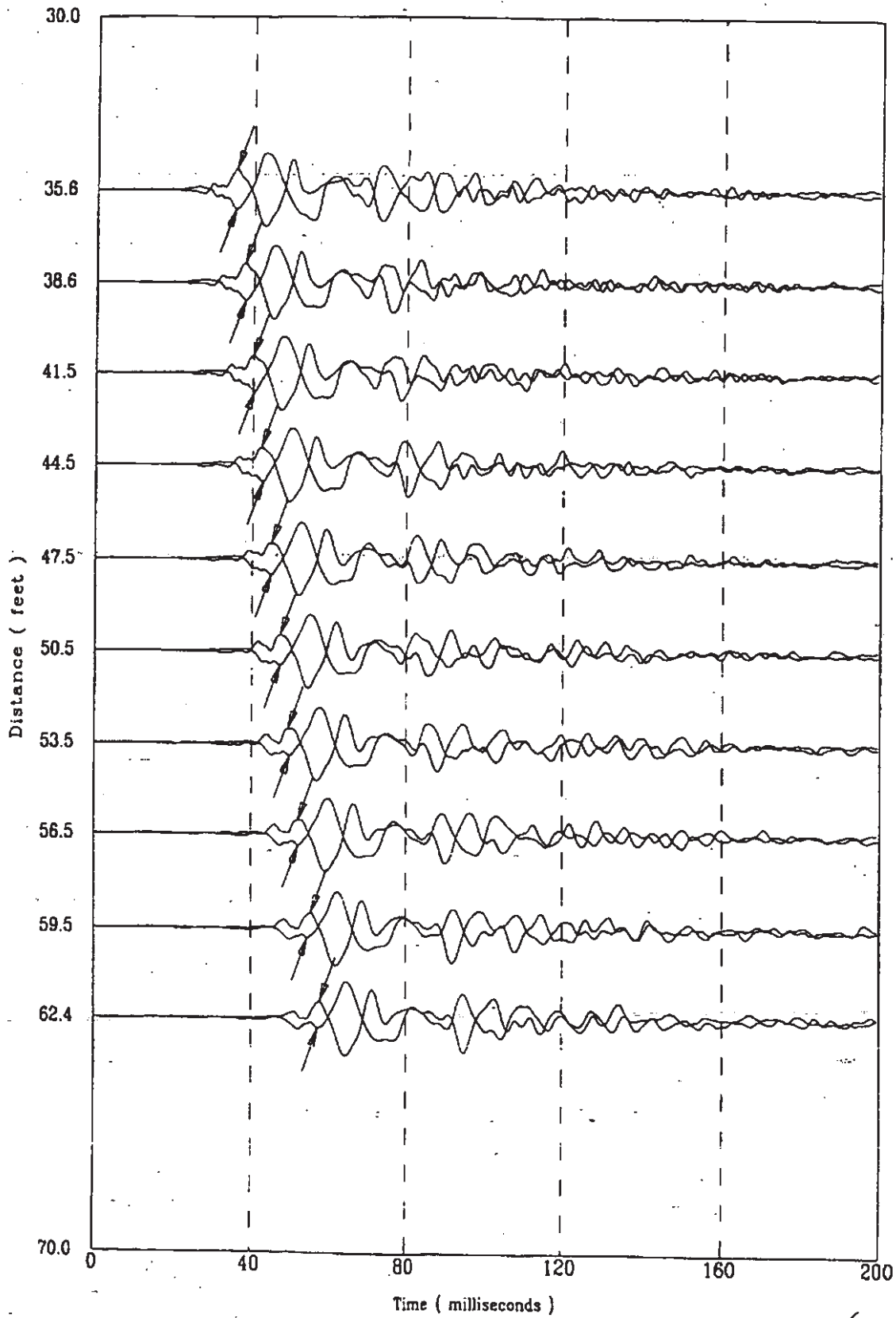
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-186

S Wave  
03/24/98



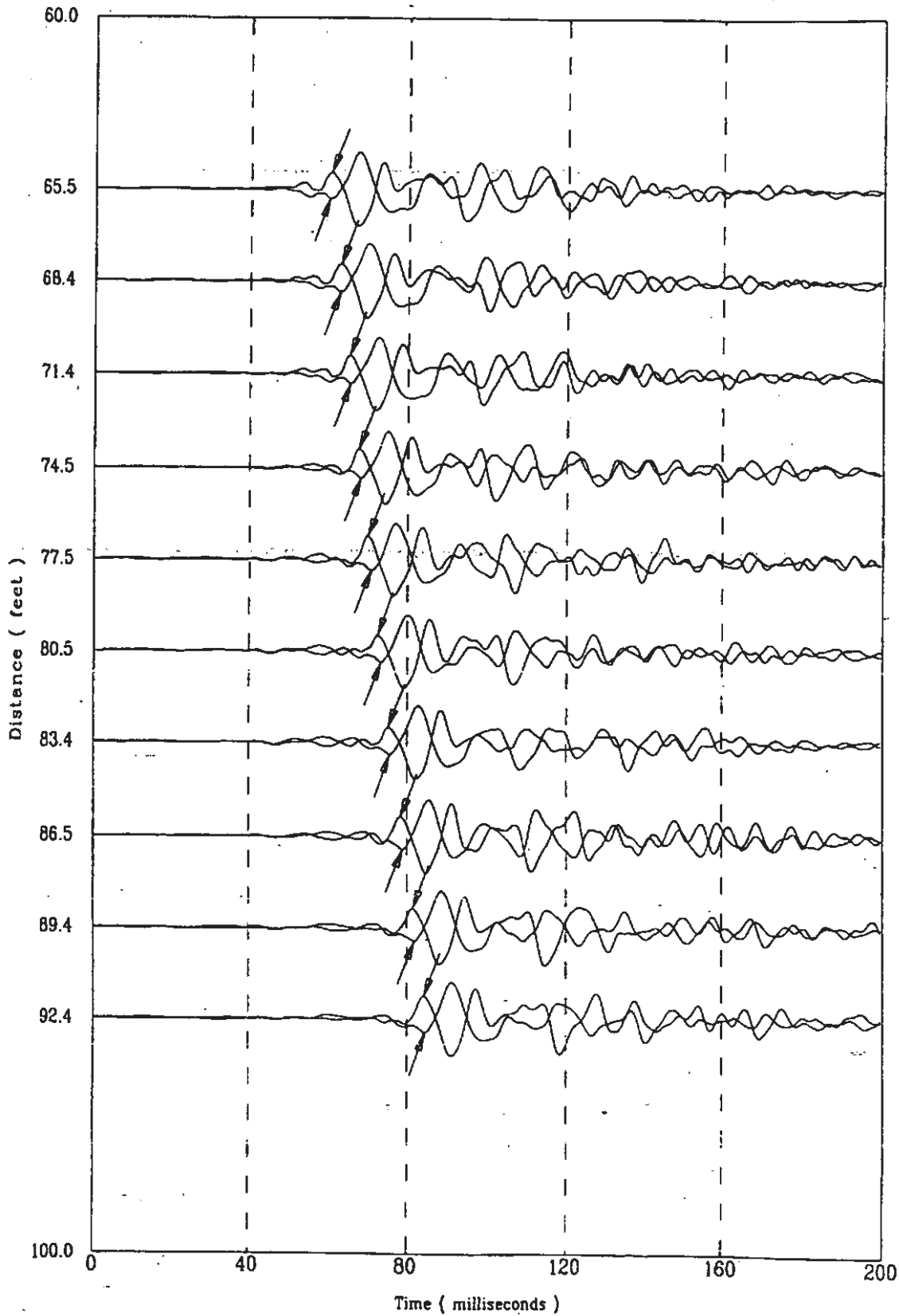
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-186

S Wave  
03/24/98



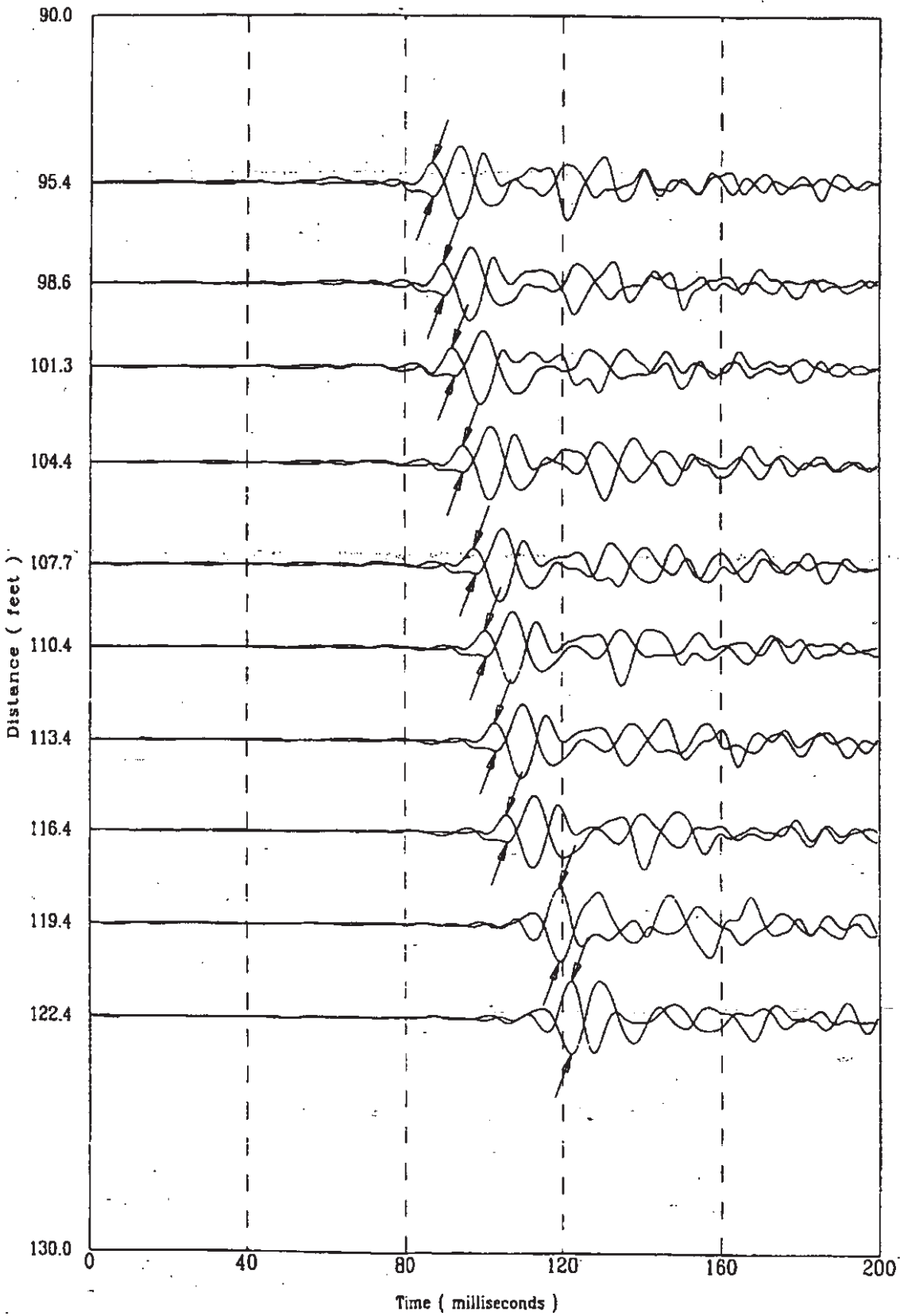
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K-TRT-F-0000/  
R/o

Applied Research Associates, Inc.  
CPT-186

S Wave  
03/24/98



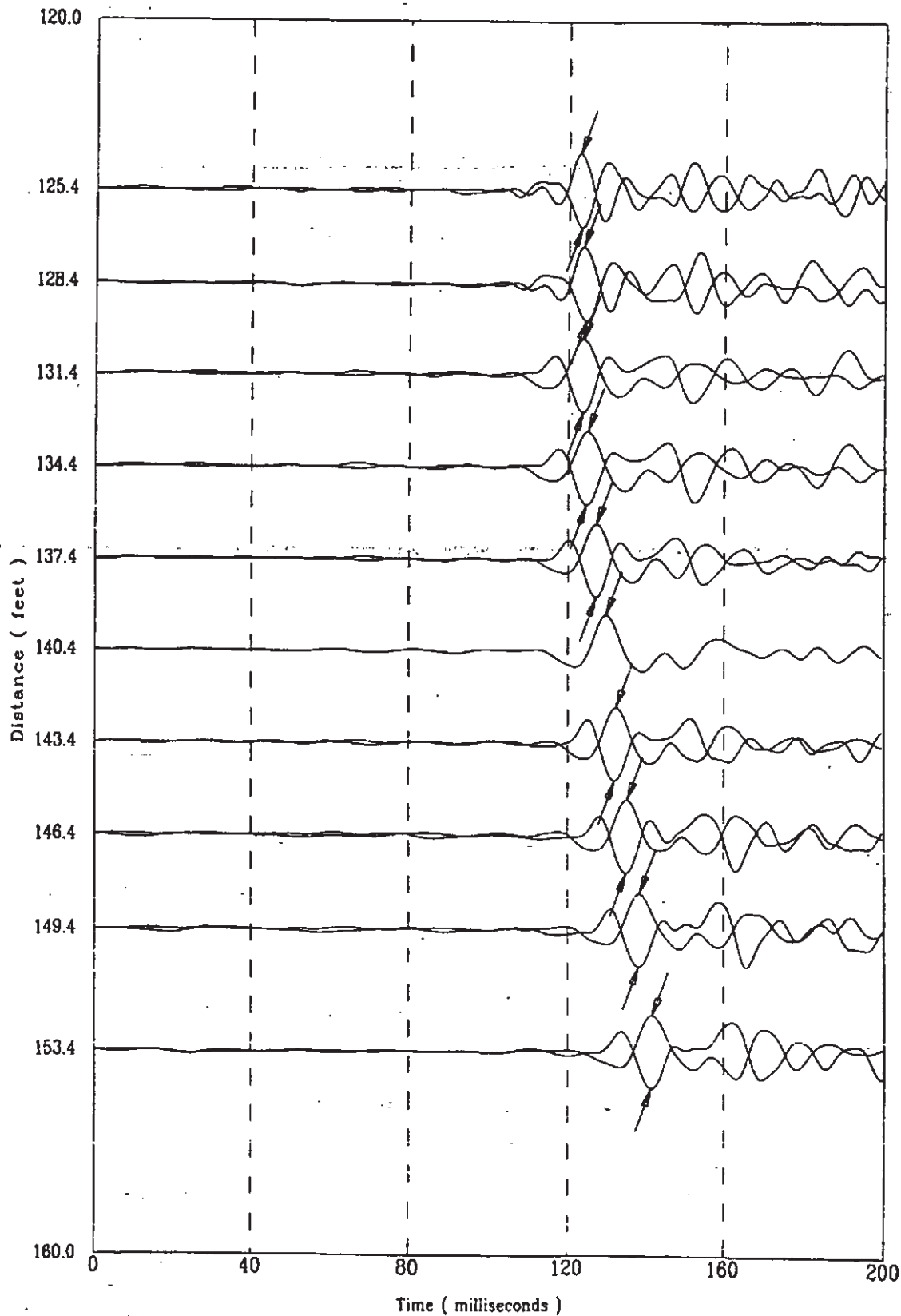
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-186

S Wave  
03/24/98



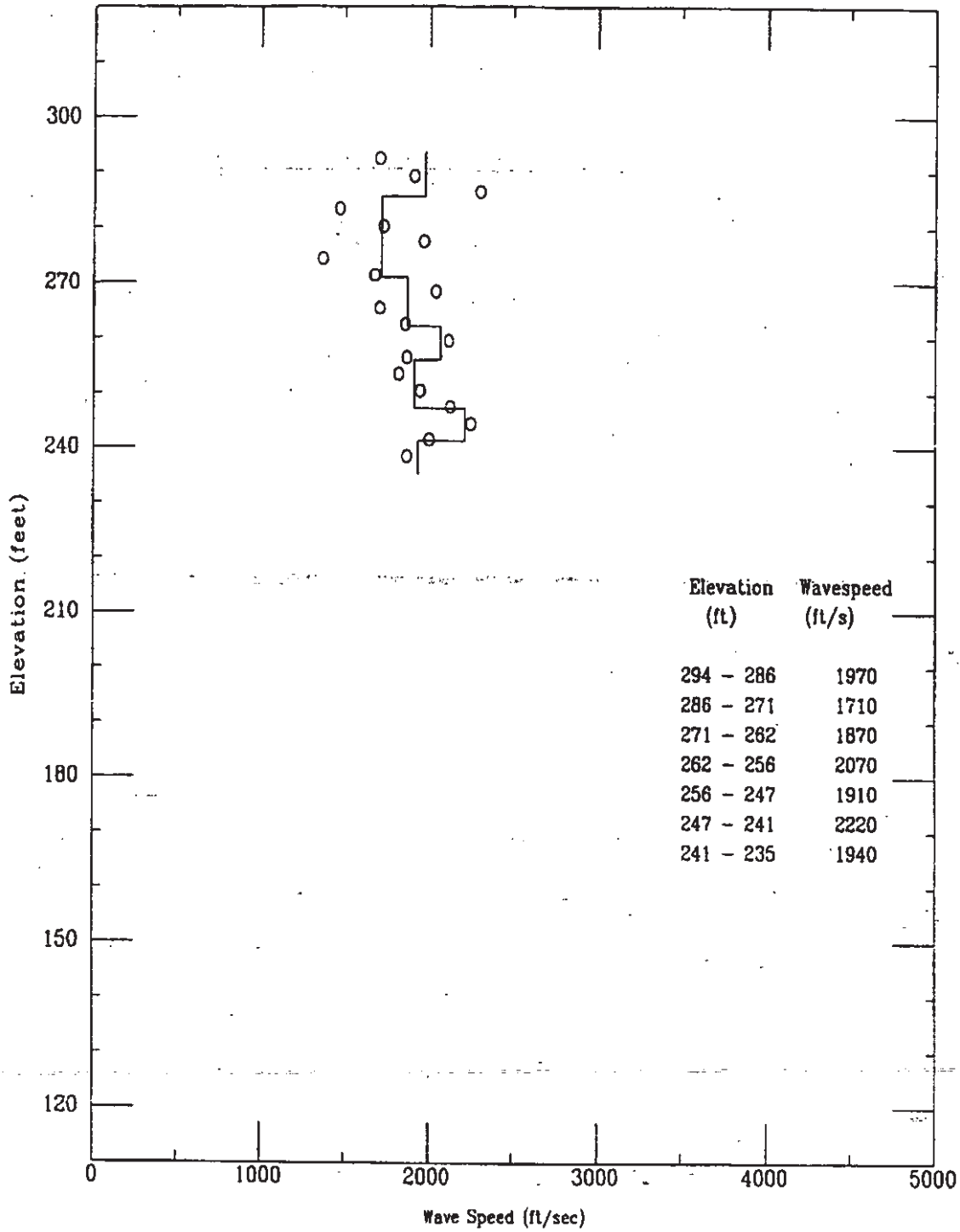
F. .m801S

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CPT-186

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Speeds

03/24/98

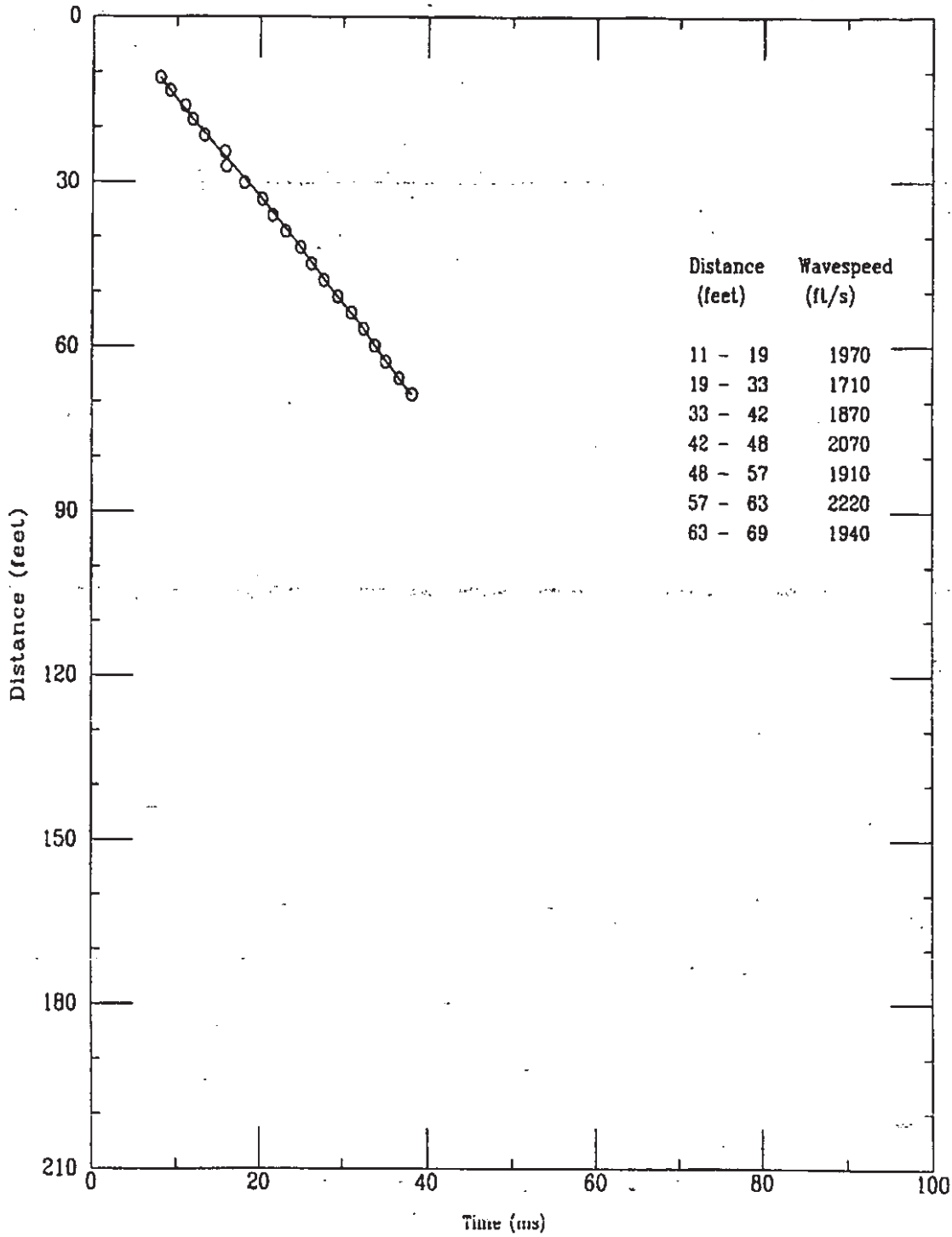


File 324m801S

CPT-186

APPLIED RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

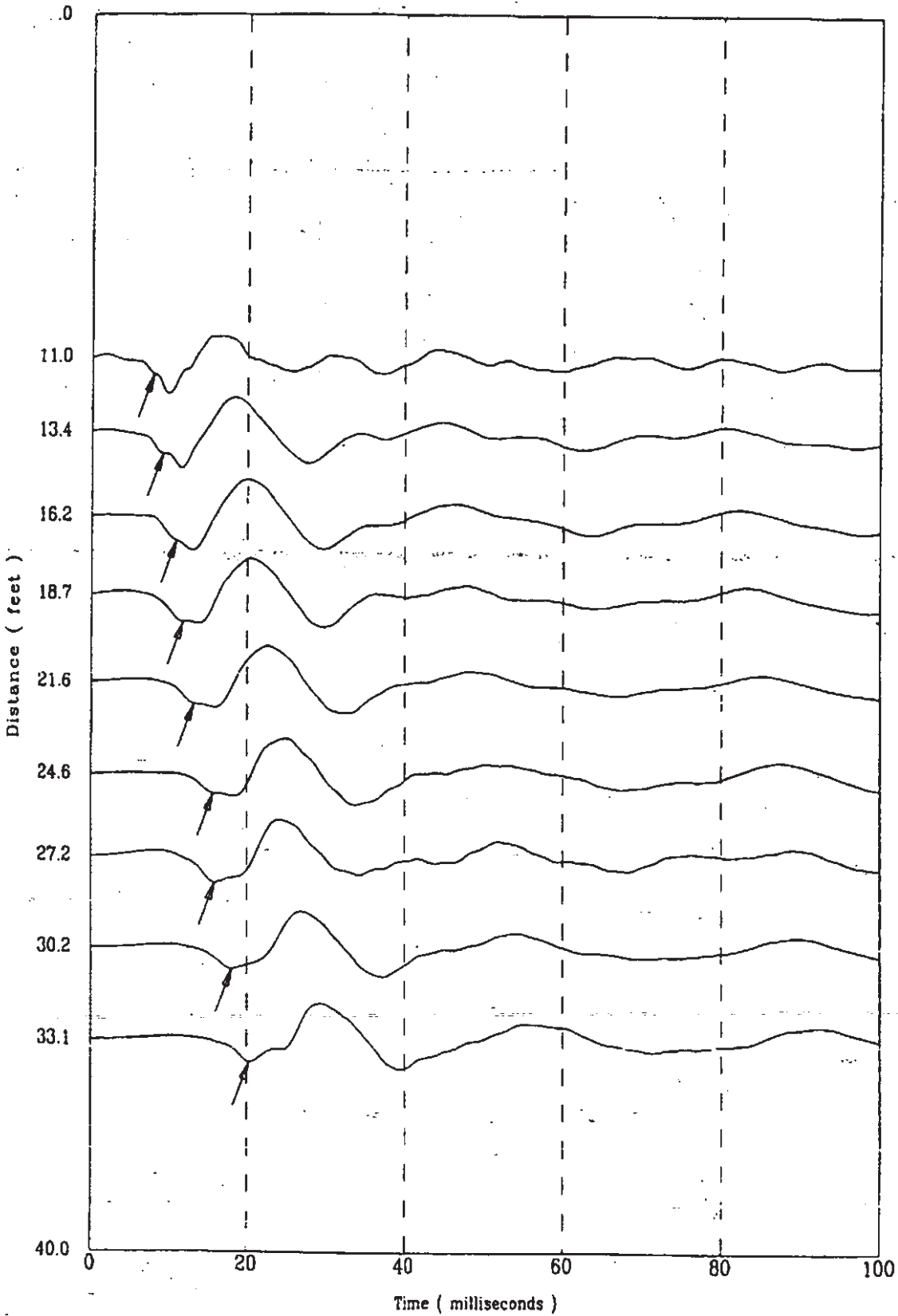
03/24/98



File 324m801S

Applied Research Associates, Inc.  
CPT-186

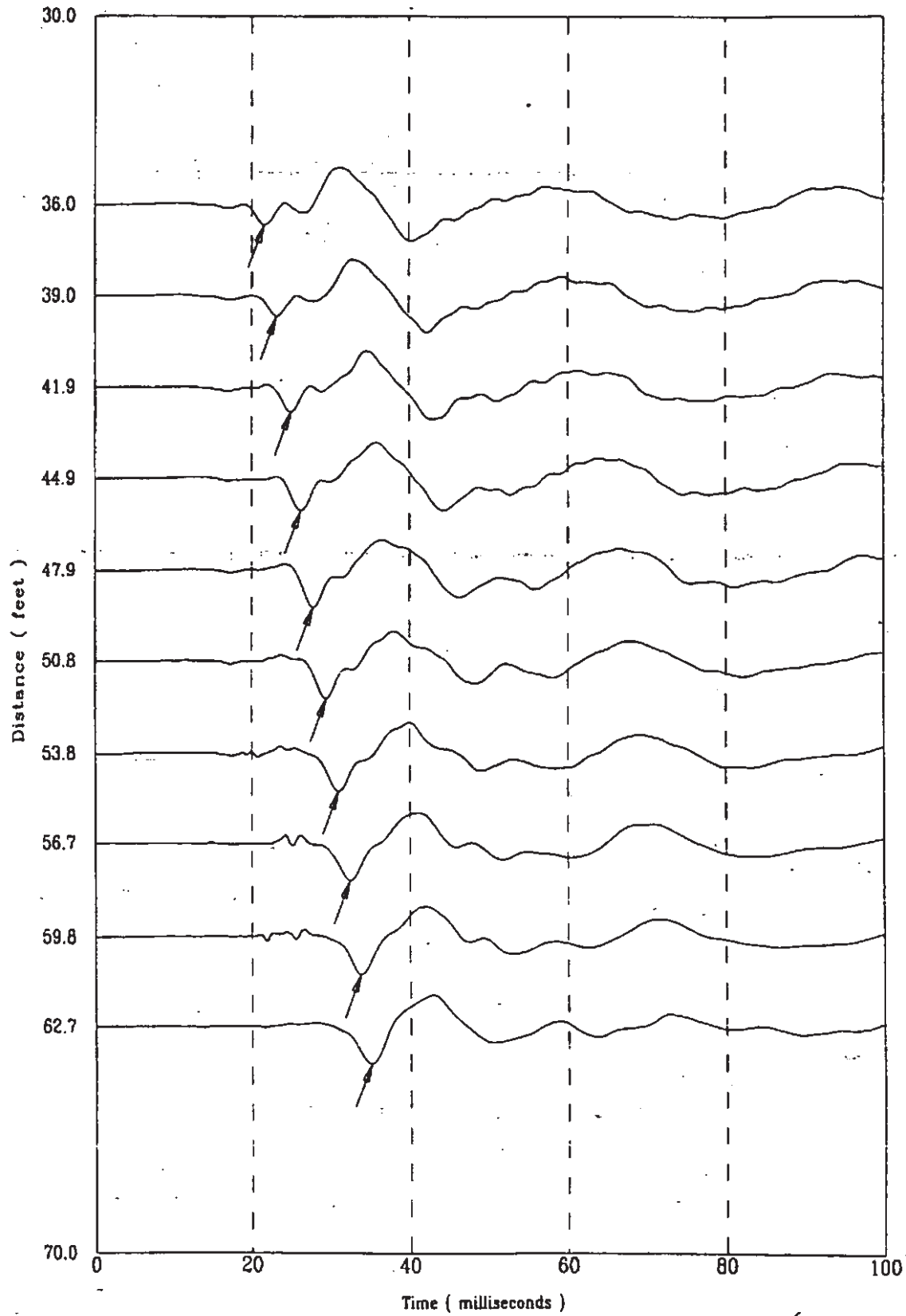
P Wave  
03/24/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-186

P Wave  
03/24/98



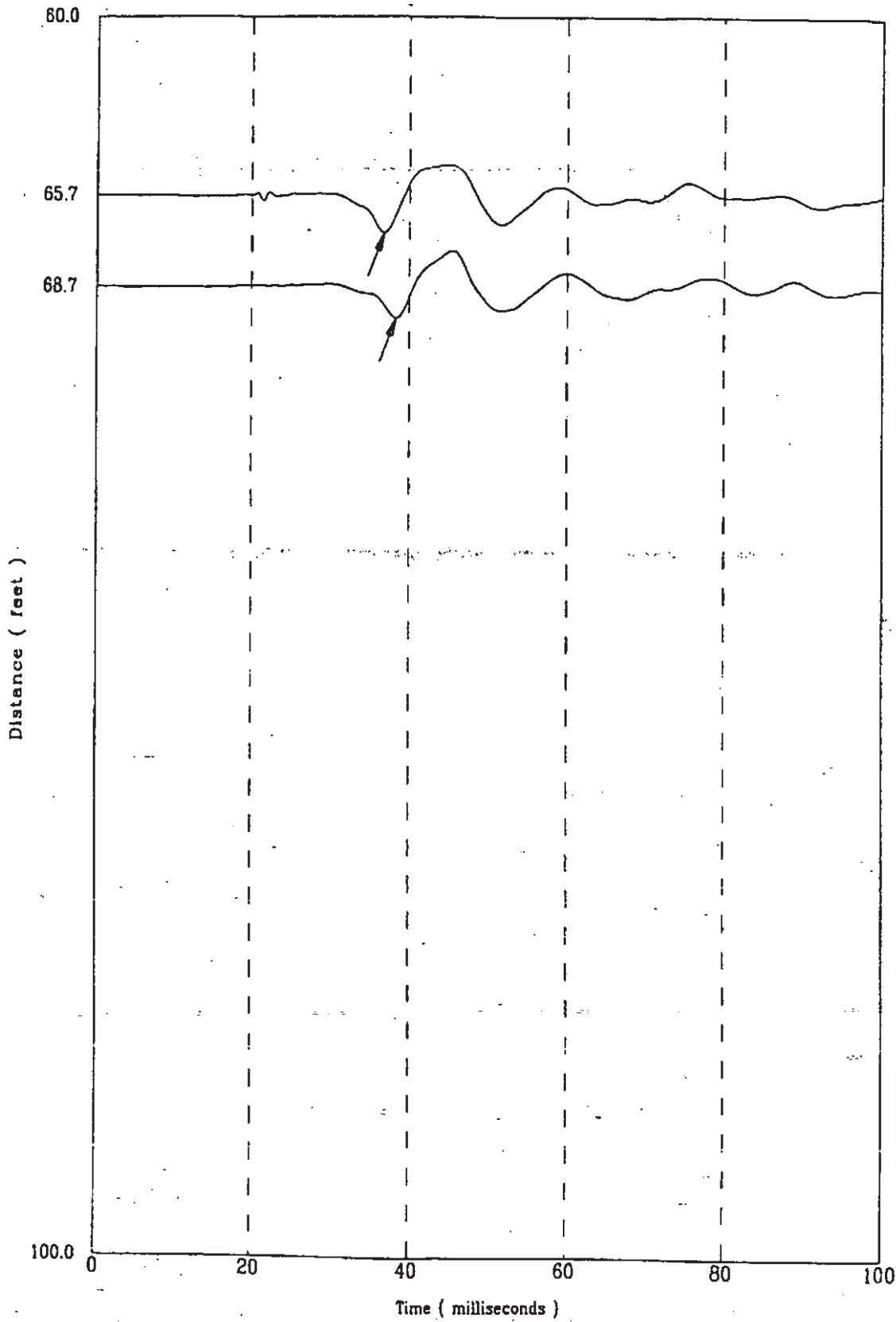
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-186

P Wave  
03/24/98



File 324m801S

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CPT-188

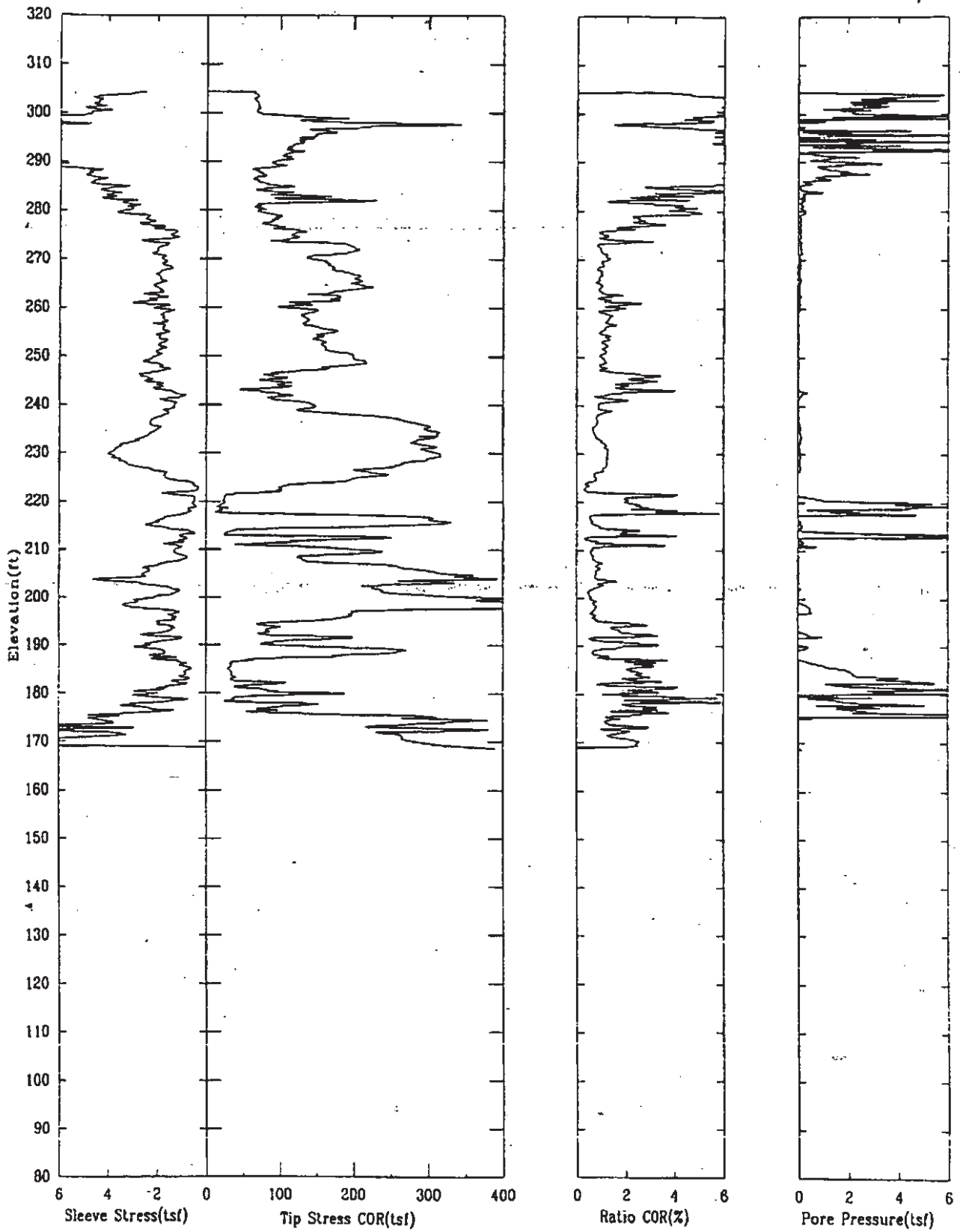
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/09/98/0

North 78250

East 55330

Elevation 310.4



CPT-188

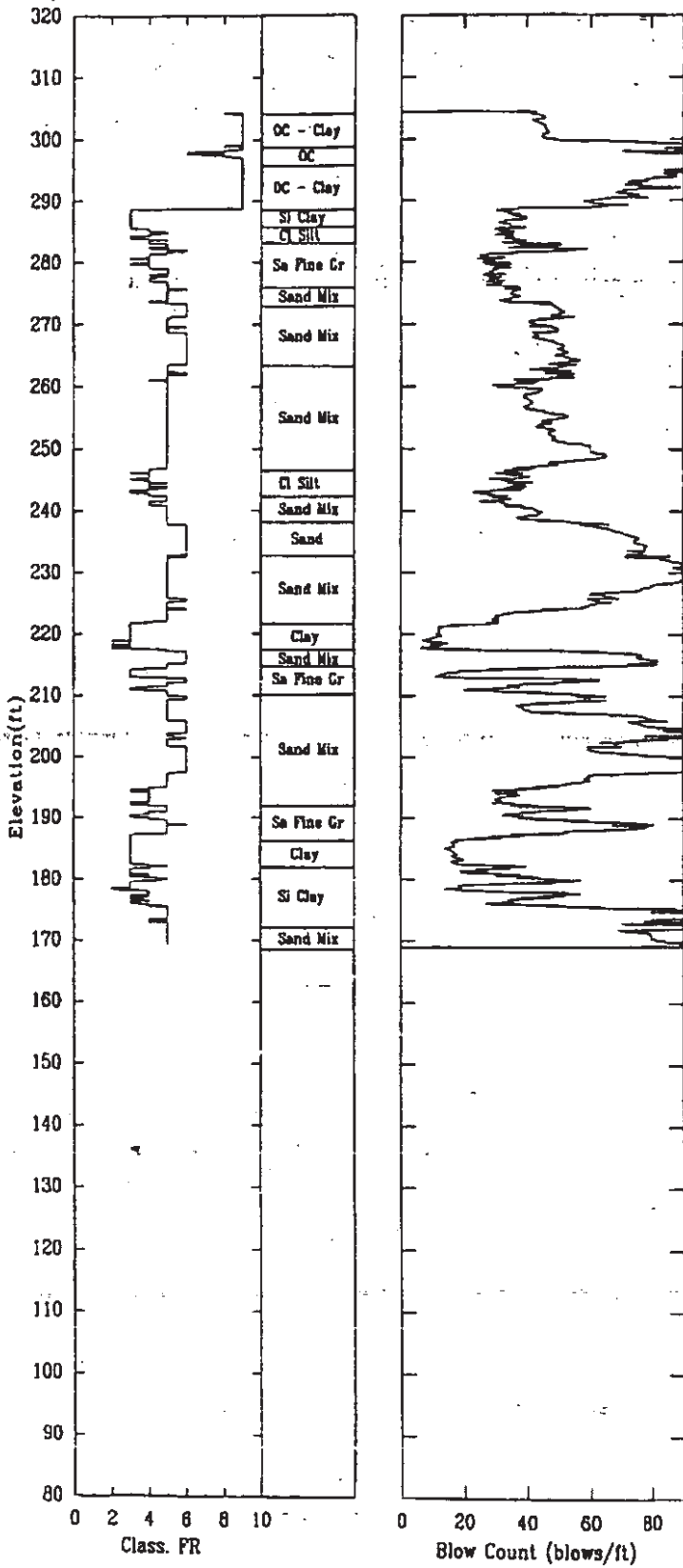
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-0000/  
03/09/98 / o

North 78250

East 55330

Elevation 310.4

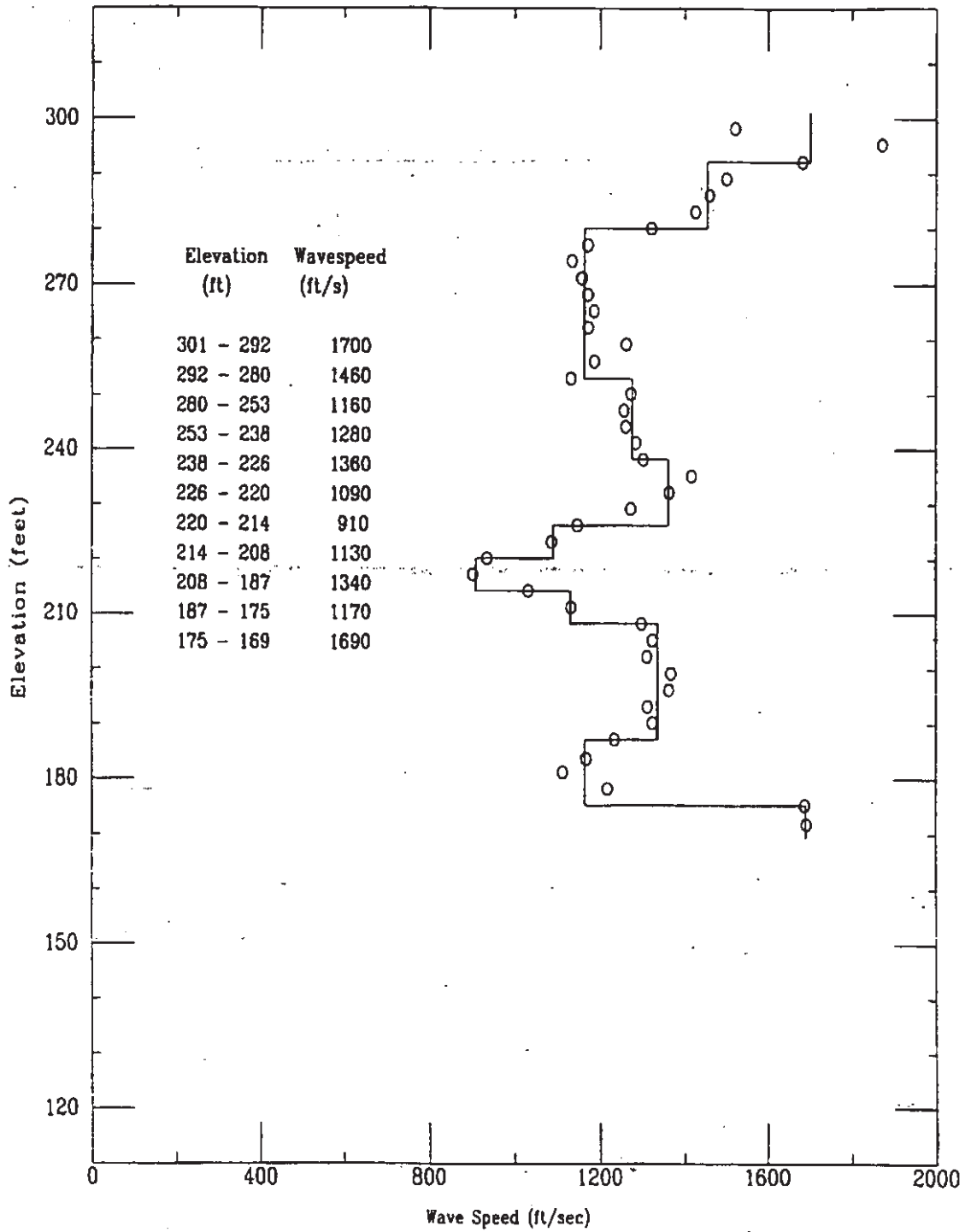


CPT-188

APPLIED RESEARCH ASSOCIATES, INC.

03/09/98

Shear Wave Speeds

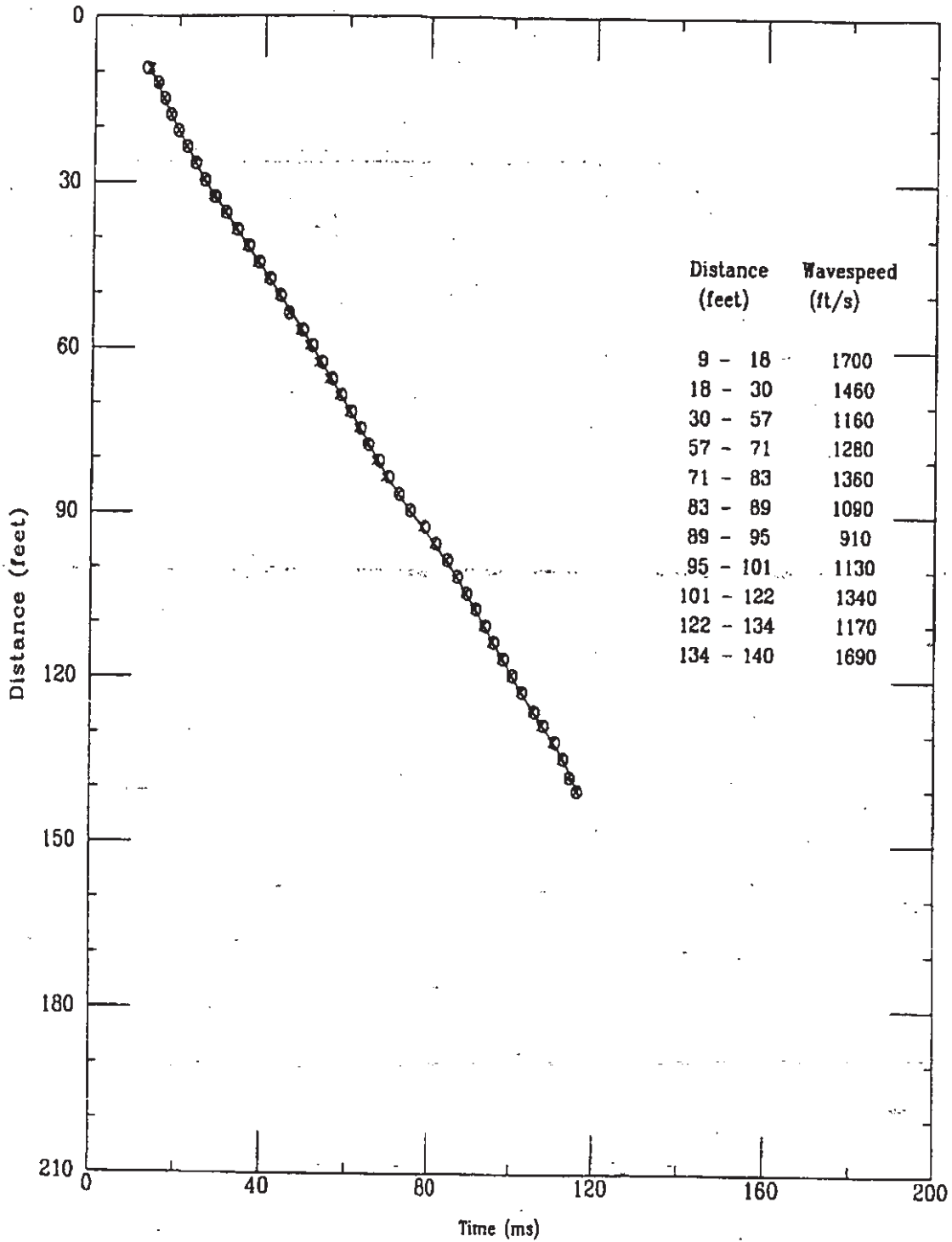


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APPLIED RESEARCH ASSOCIATES, INC.

03/09/98

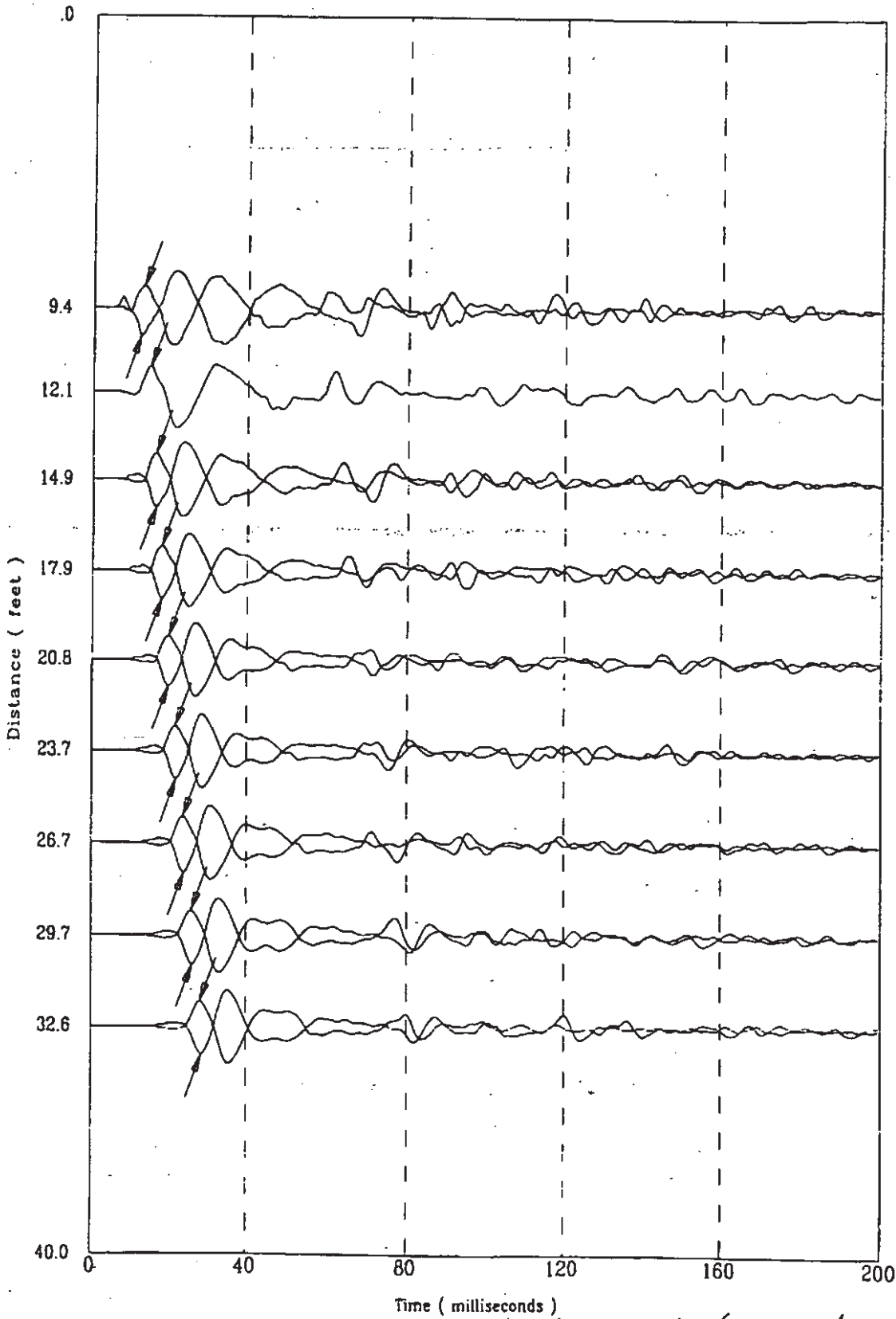
Shear Wave Time of Peak



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-188

S Wave  
03/09/98



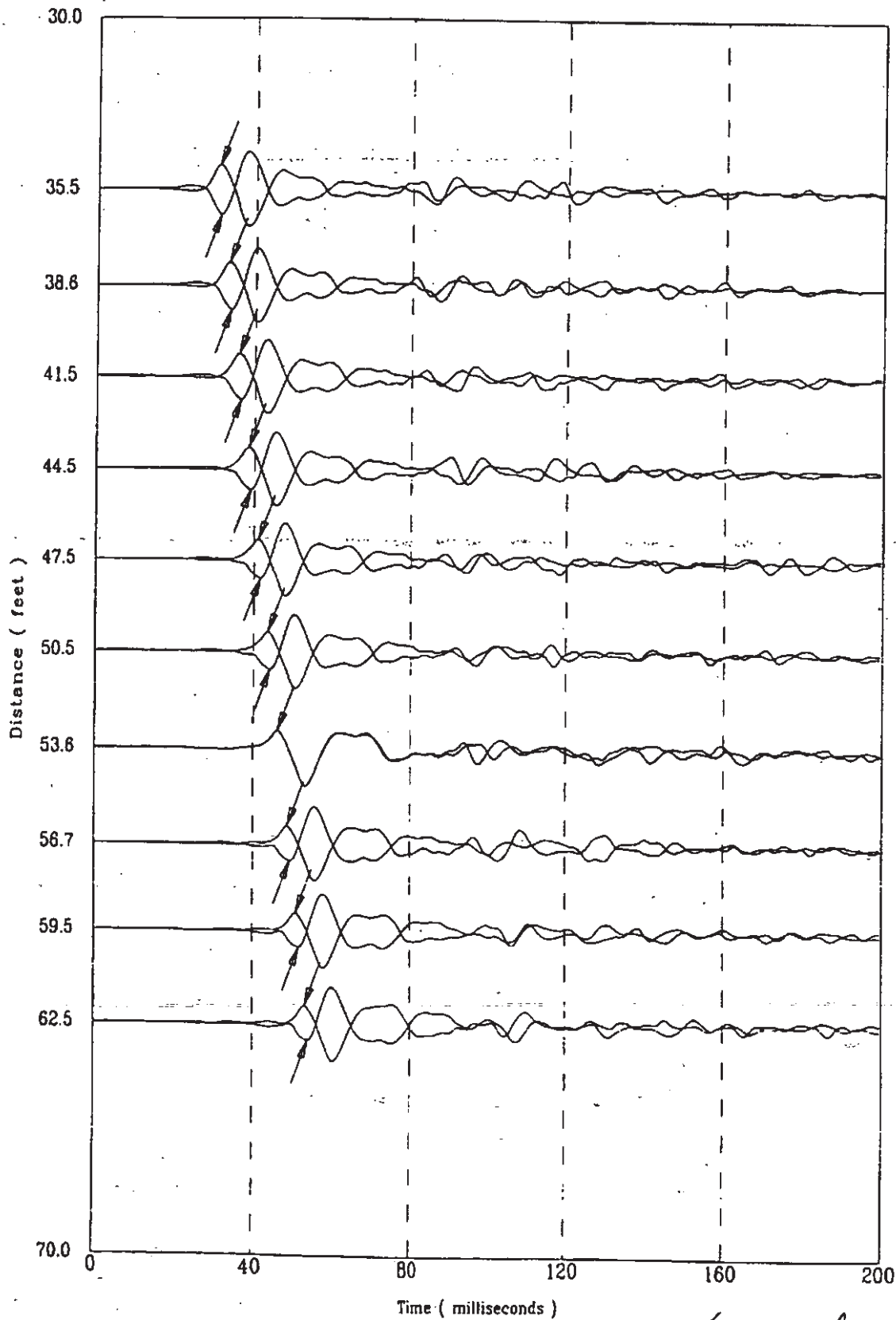
File 409m801S

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-188

S Wave  
03/09/98



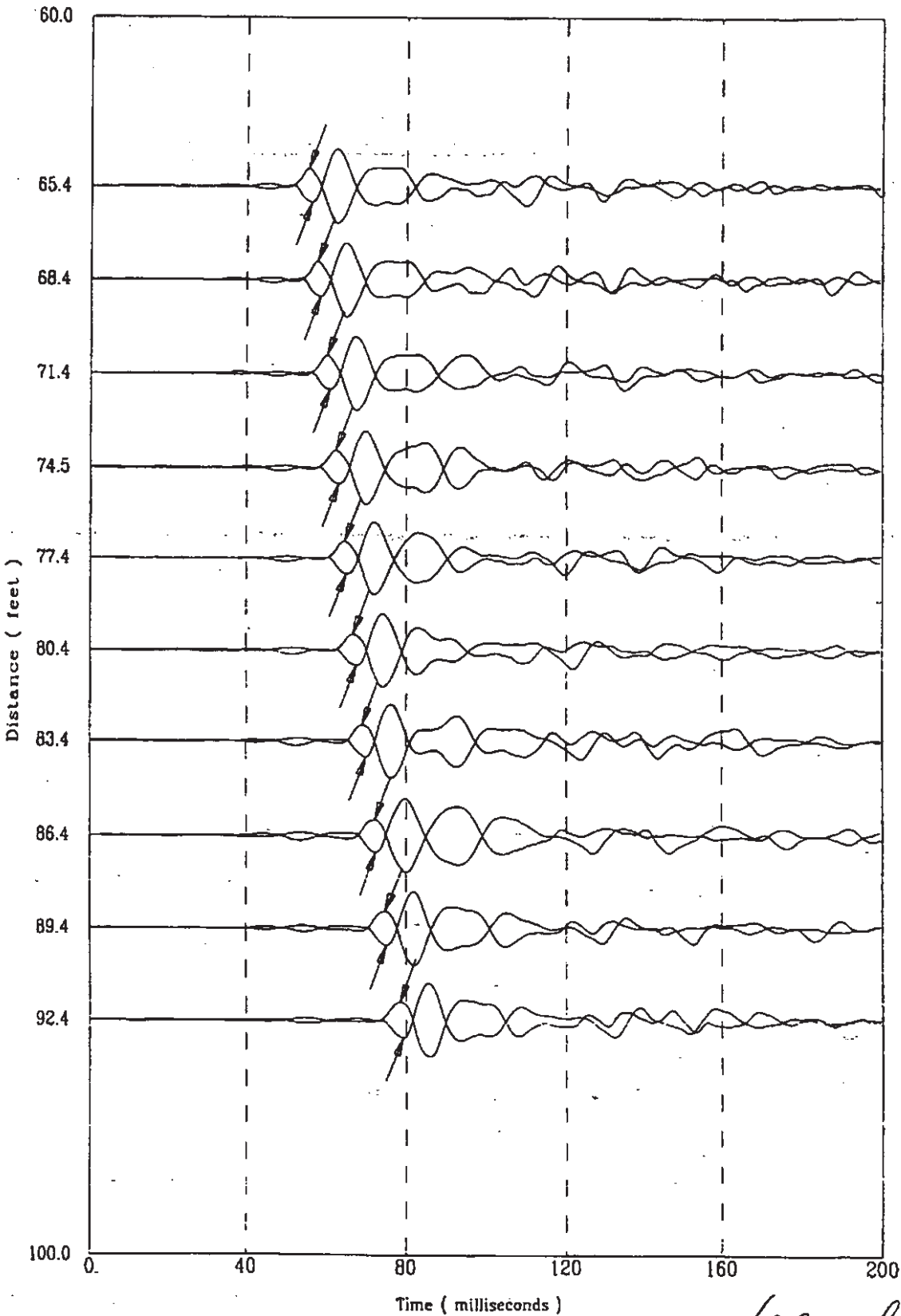
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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-188

S Wave  
03/09/98



File 409m801S

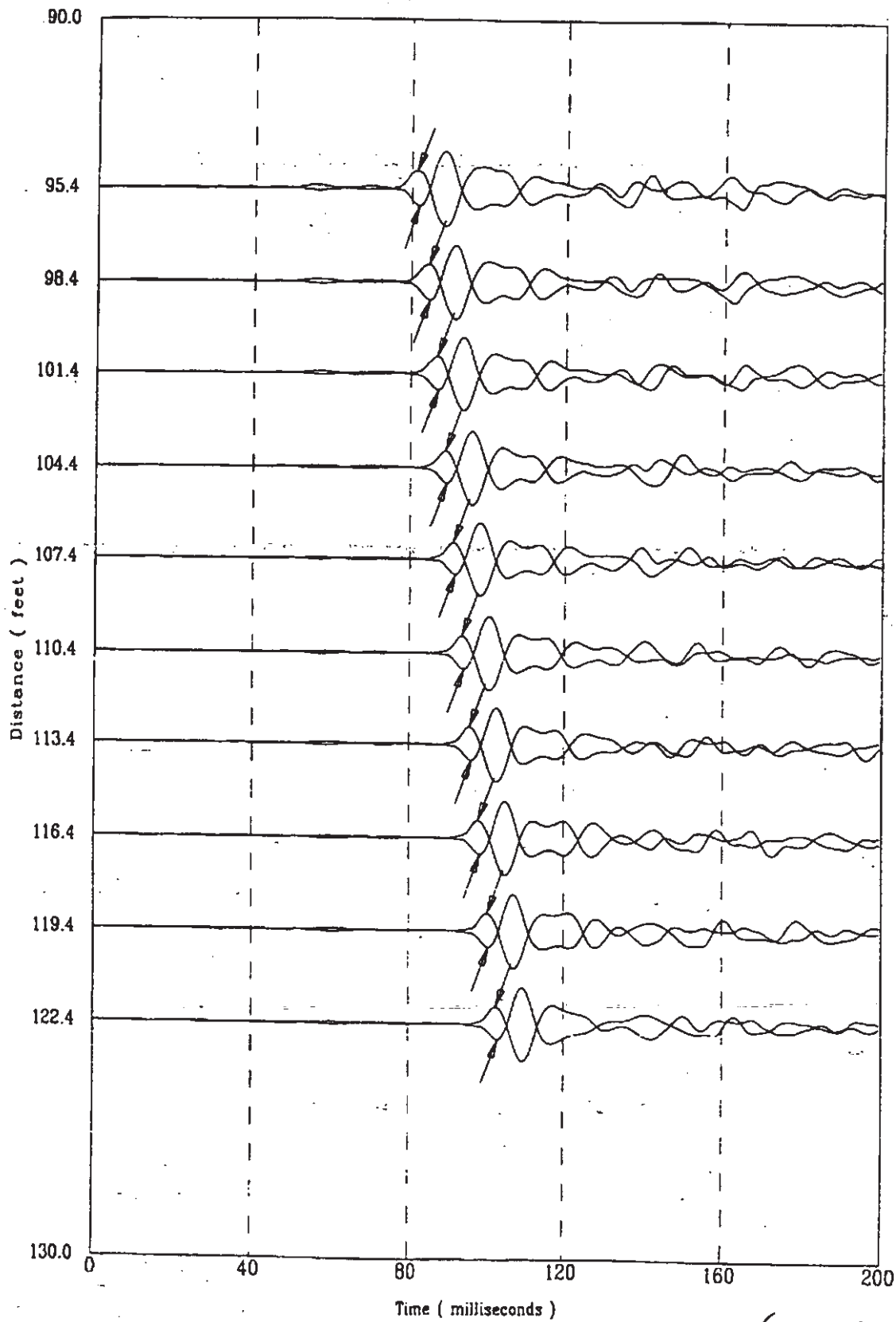
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K-TRT-F-00001  
R/0

Applied Research Associates, Inc.  
CPT-188

S Wave  
03/09/98



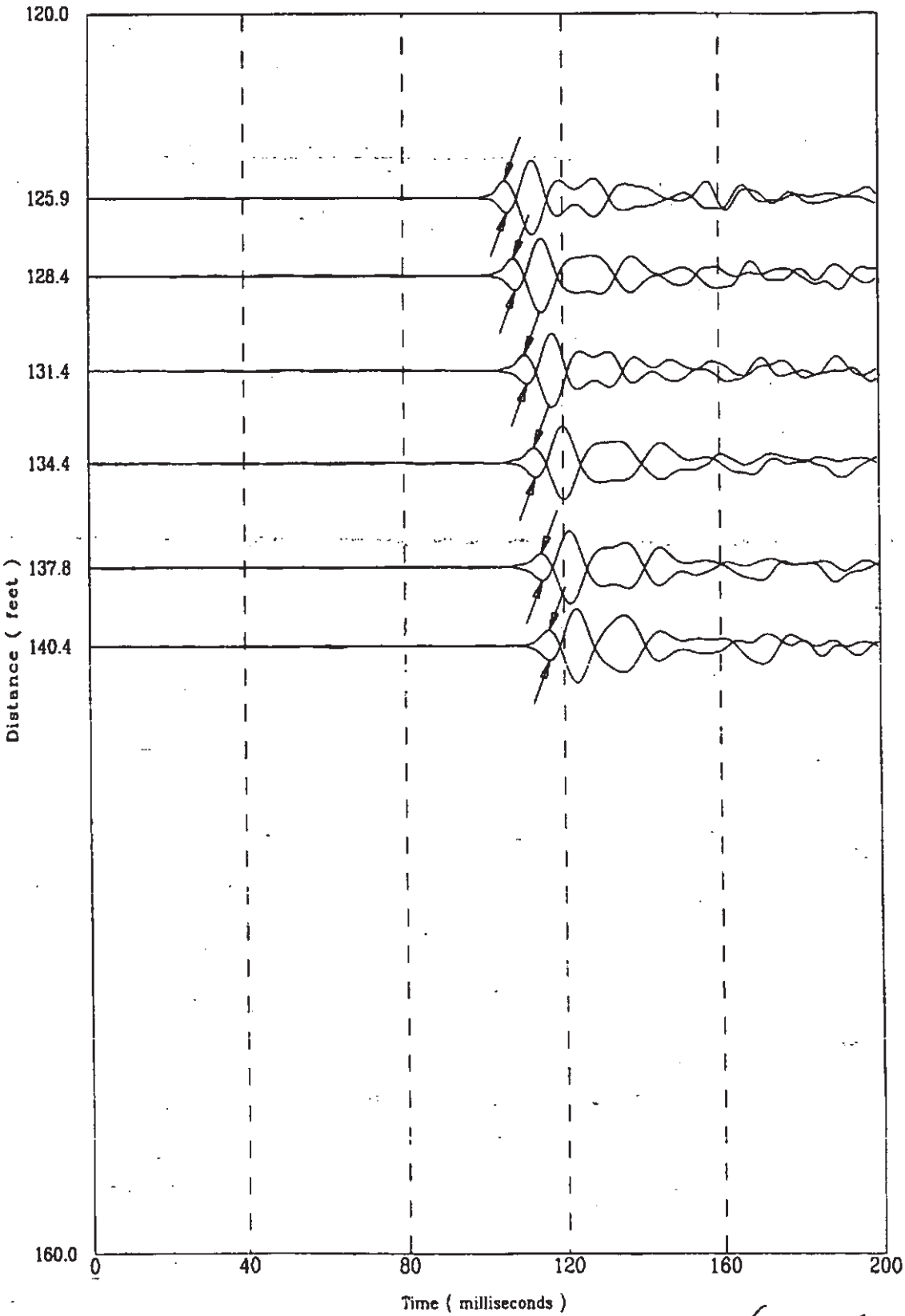
File 409m801S

490 of 522

K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-188

S Wave  
03/09/98



FILE 409m8015

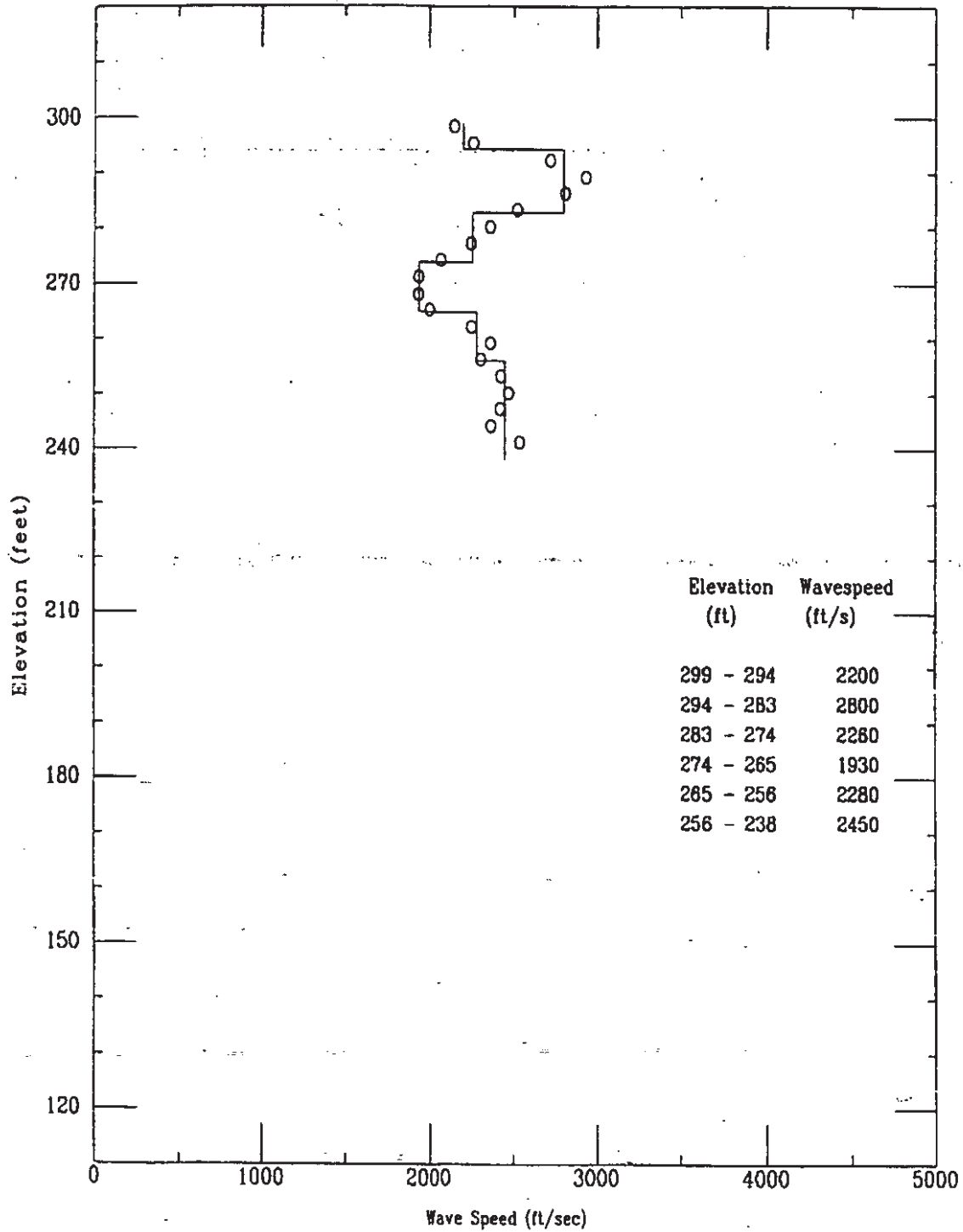
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CPT-188

APPLIED RESEARCH ASSOCIATES, INC.

03/26/98

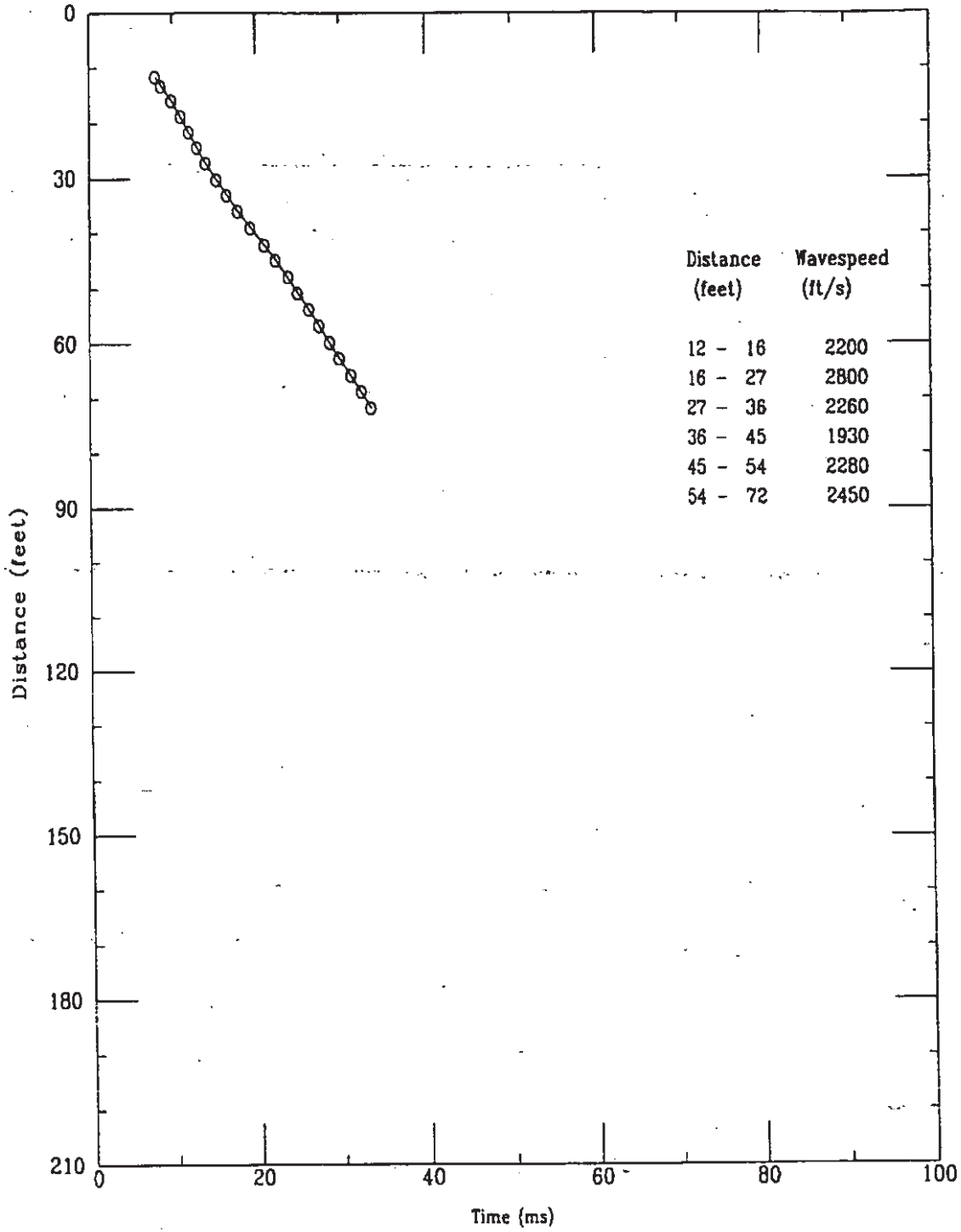
Compression Wave Speeds



CPT-188

APPLIED-RESEARCH ASSOCIATES, INC.  
Compression Wave Time of Peak

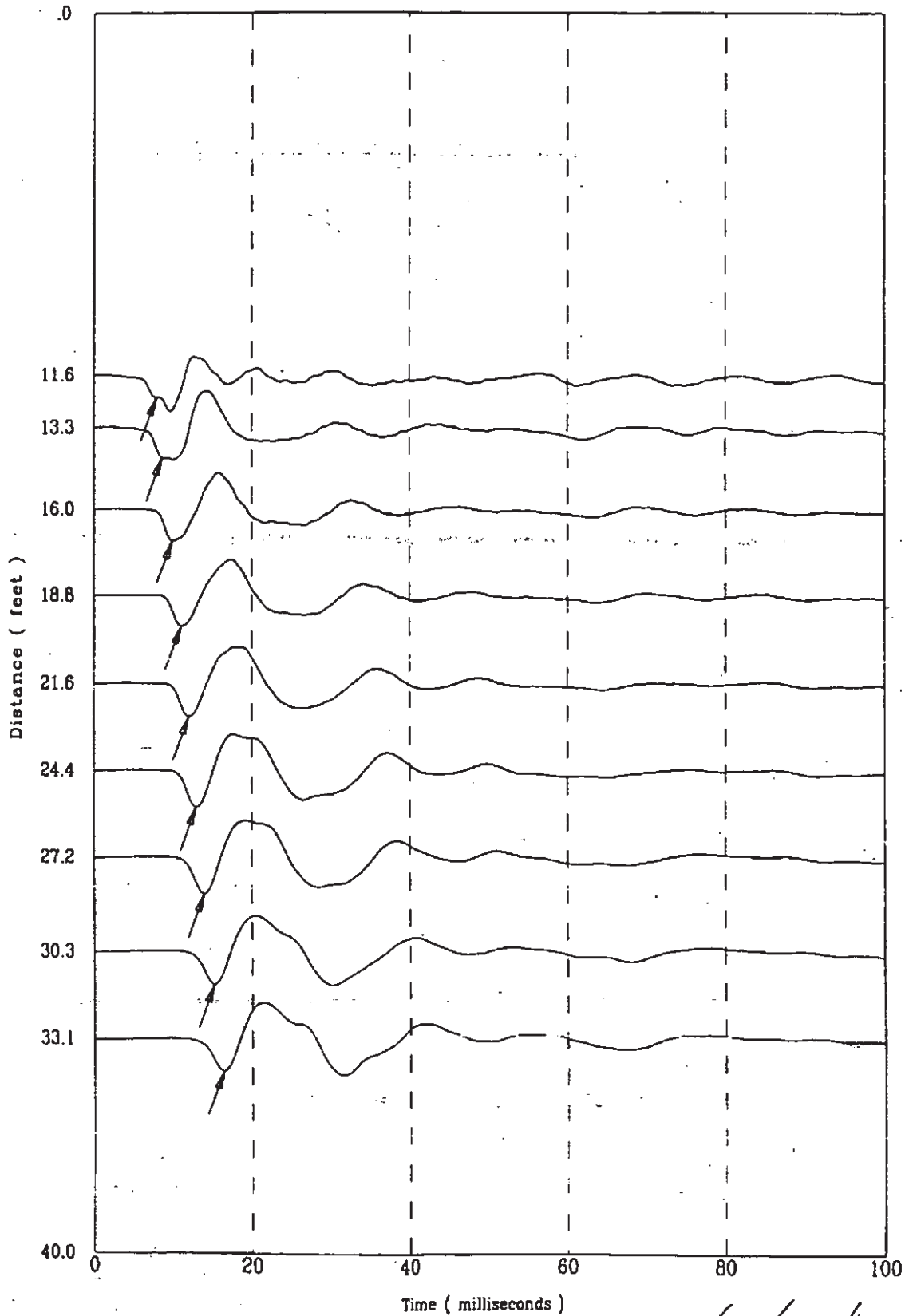
03/26/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-188

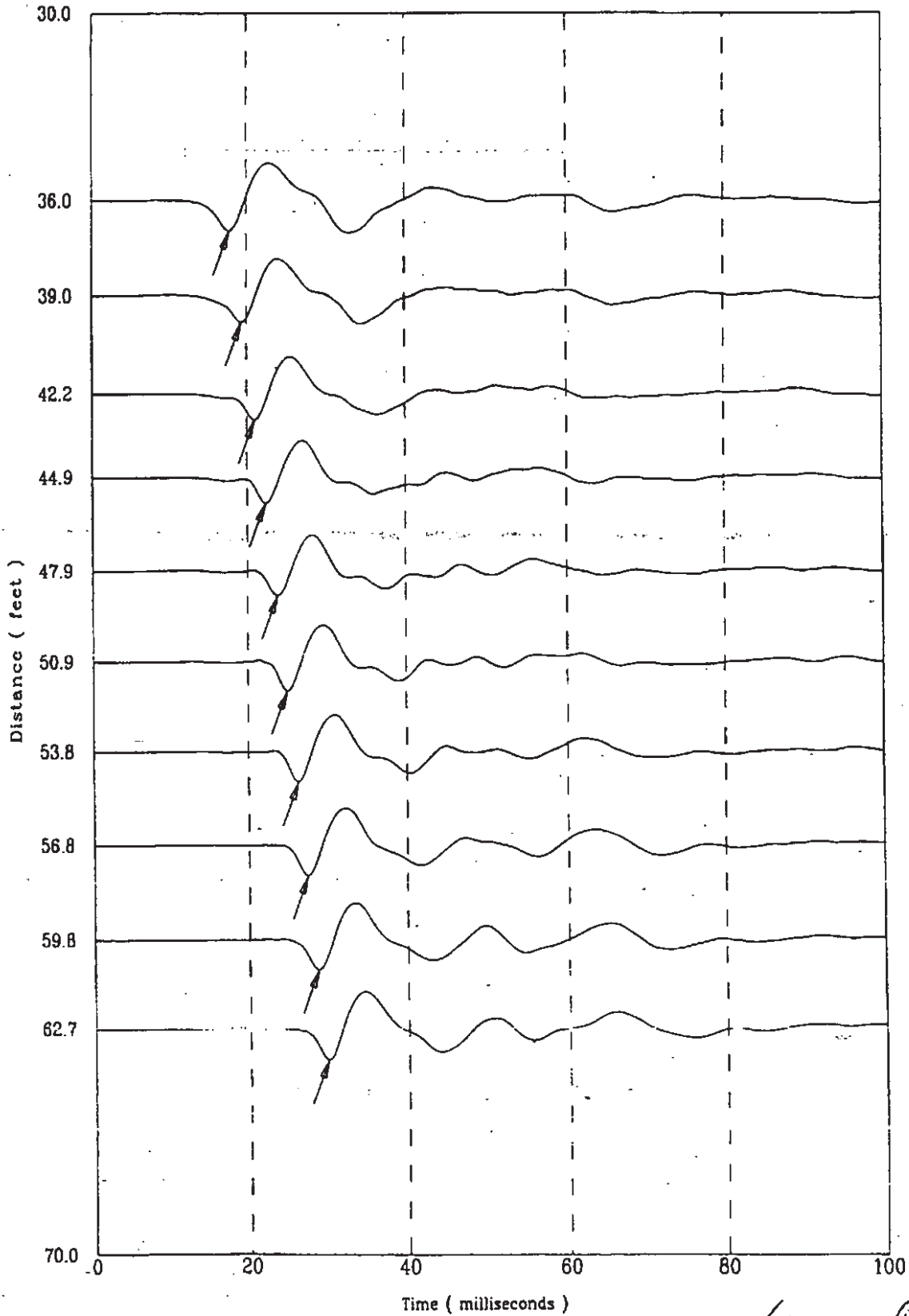
P Wave  
03/26/98



K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-188

P Wave  
03/26/98



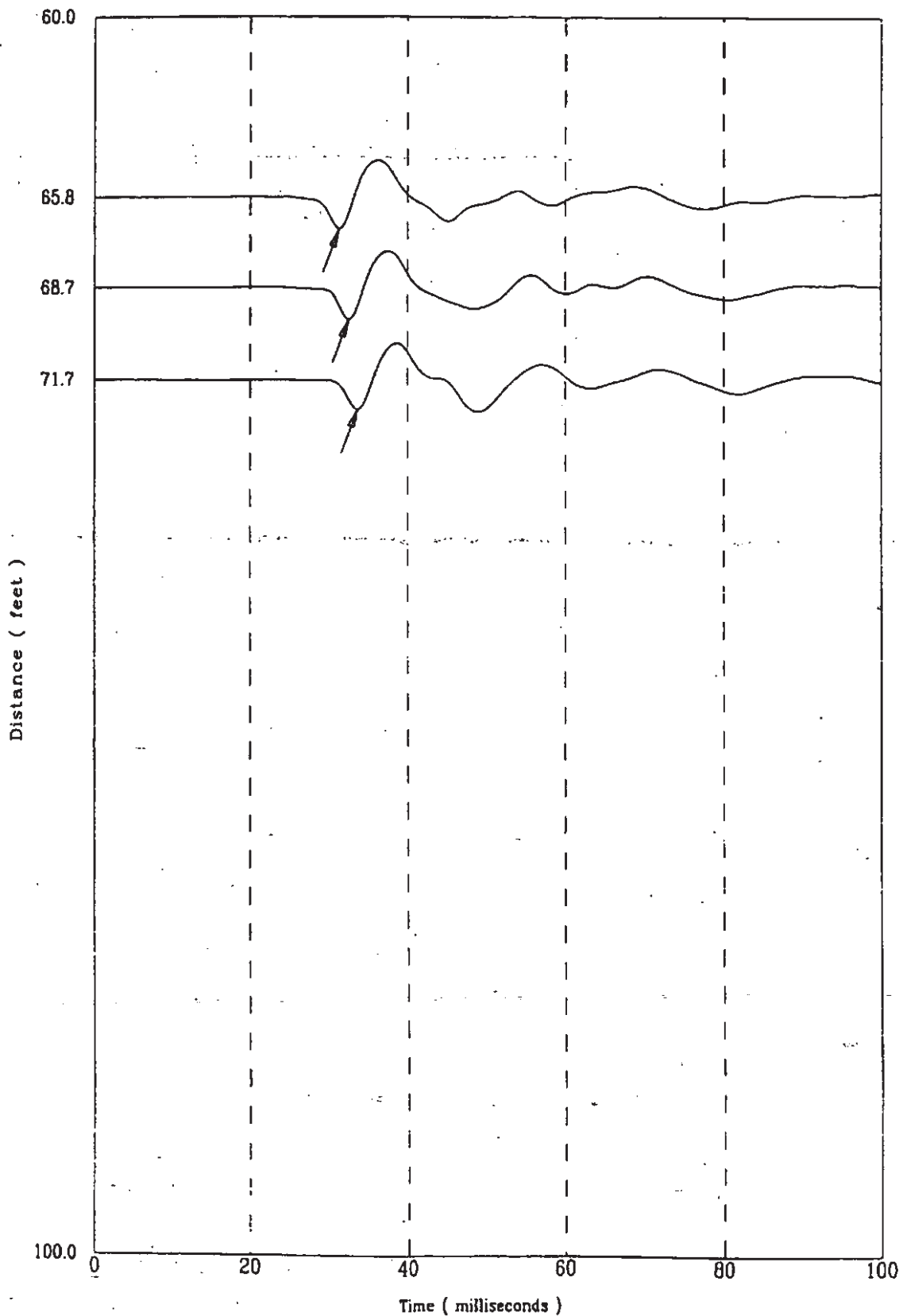
File 328m01S

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K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-188

P Wave  
03/26/98



File 326m801S

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CPT-189

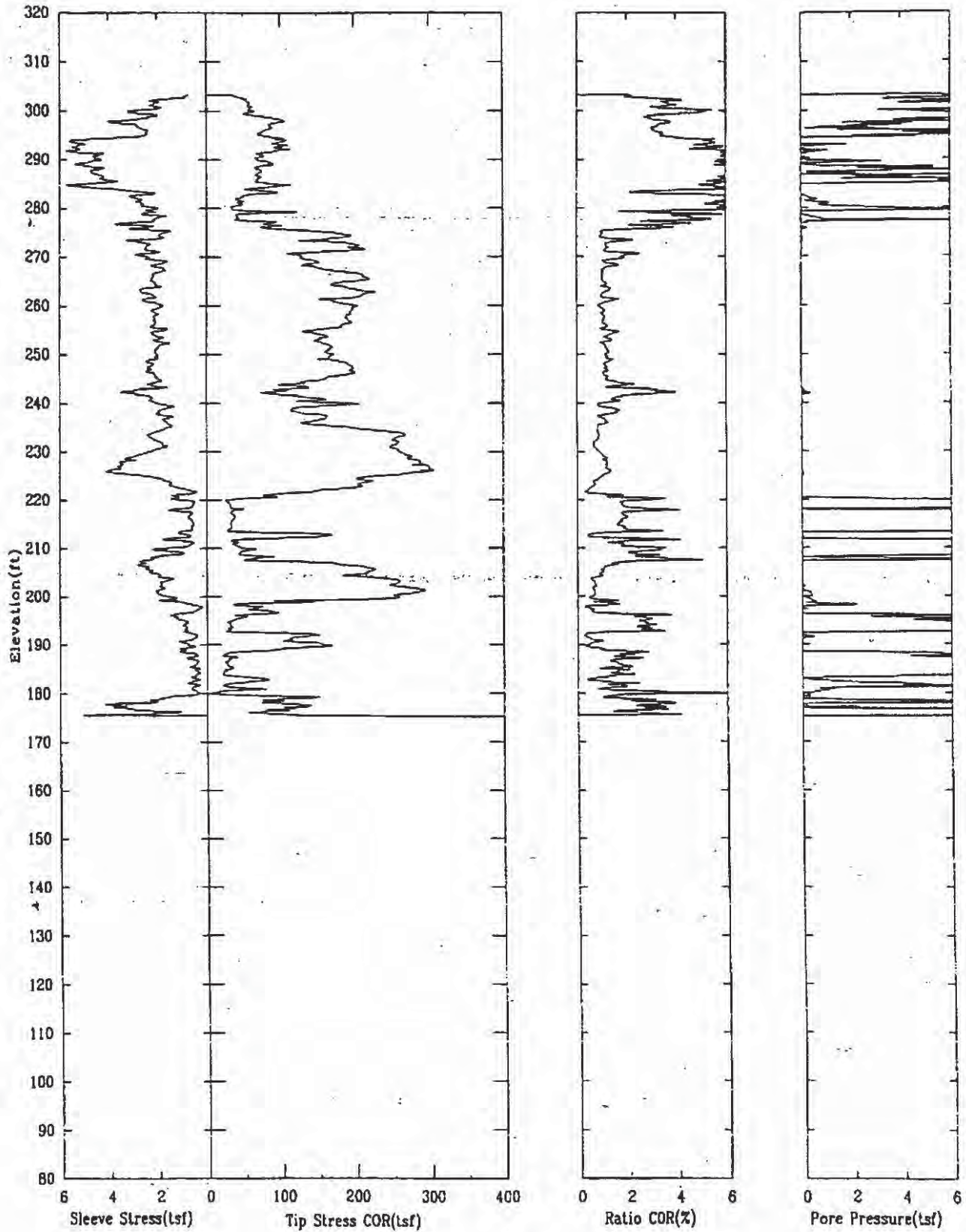
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/23/98/0

North 78250

East 55451

Elevation 309.2





CPT-189

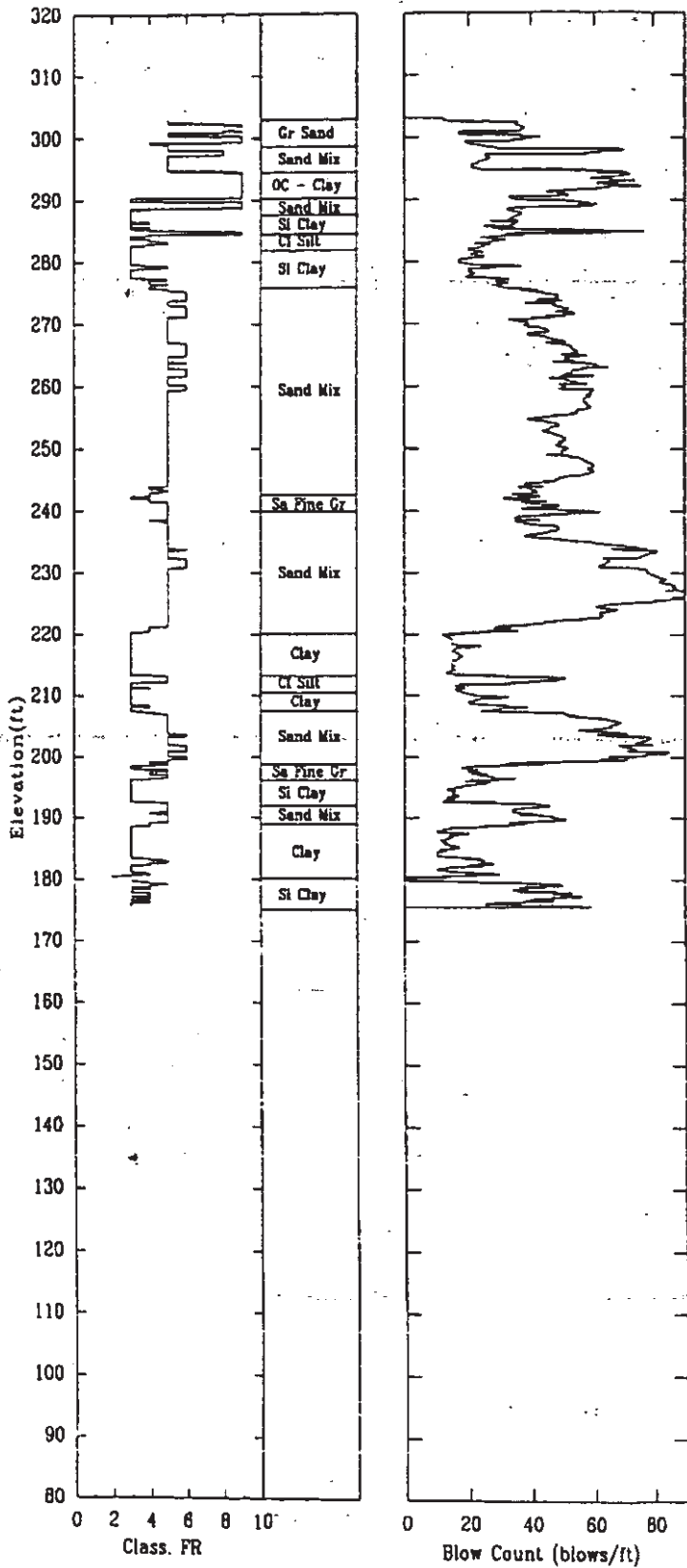
APPLIED RESEARCH ASSOCIATES, INC.

K-TRT-F-00001  
03/23/98 / 0

North 78250

East 55451

Elevation 309.2

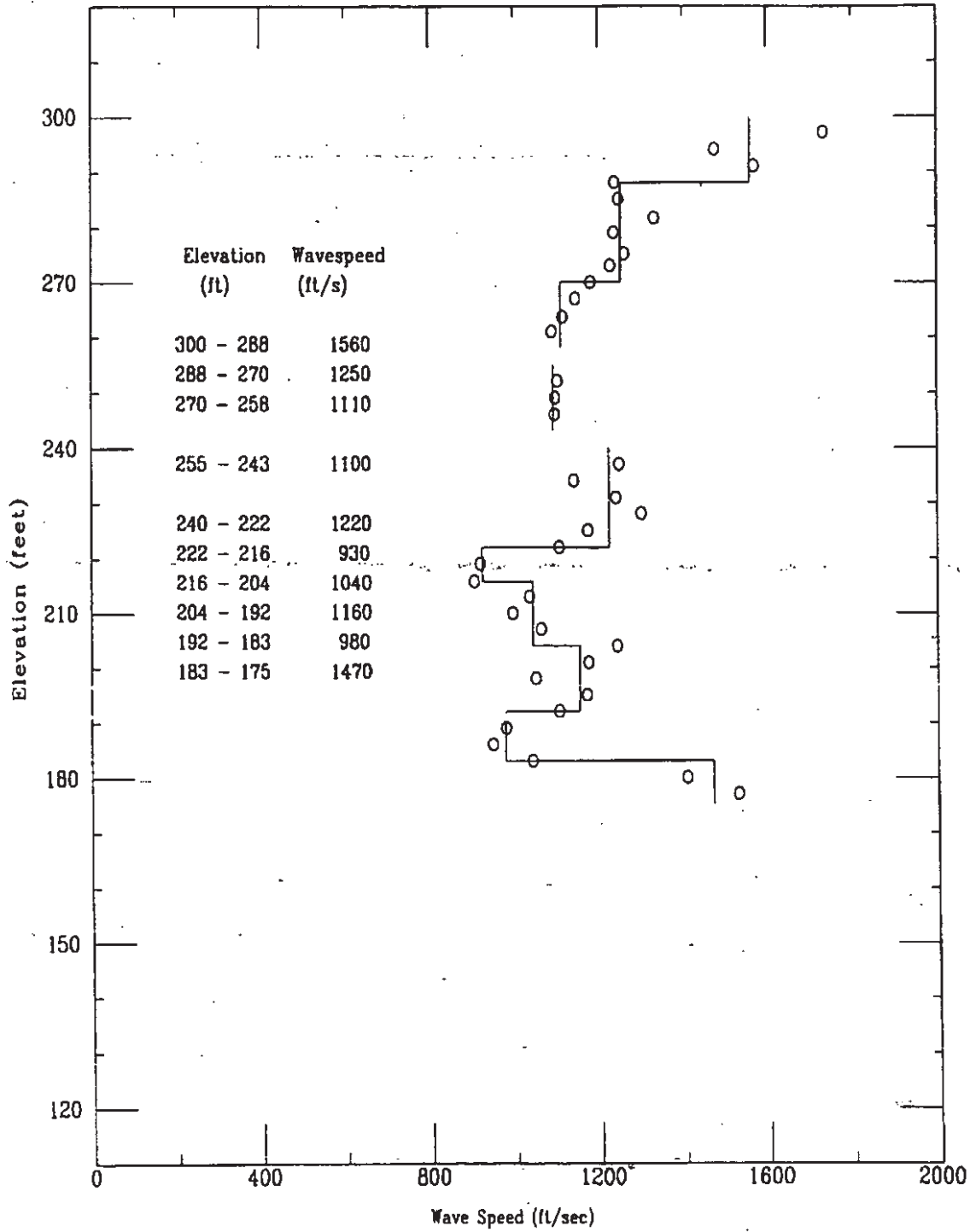


CPT-189

APPLIED RESEARCH ASSOCIATES, INC.

03/23/98

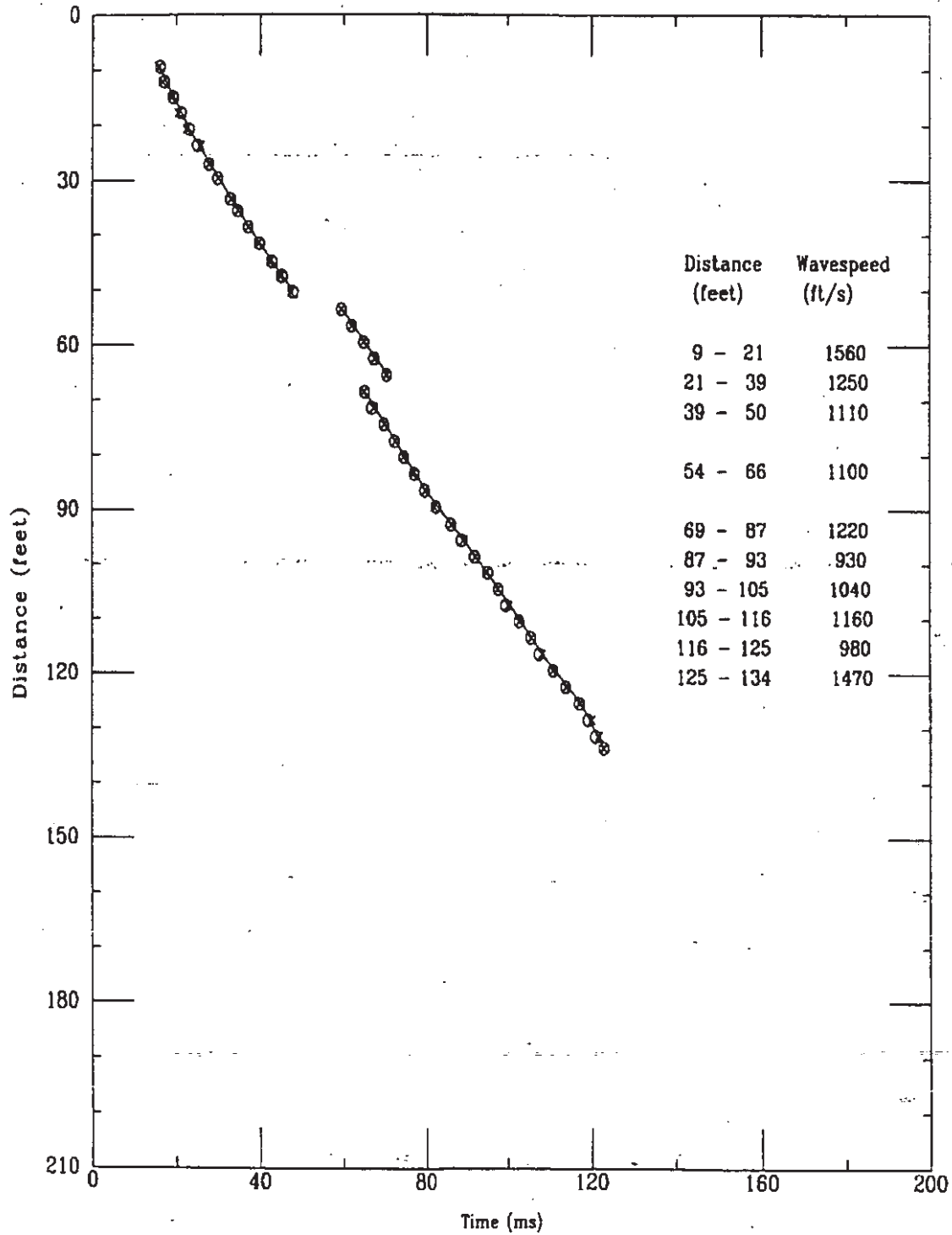
Shear Wave Speeds



CPT-189

APPLIED RESEARCH ASSOCIATES, INC.  
Shear Wave Time of Peak

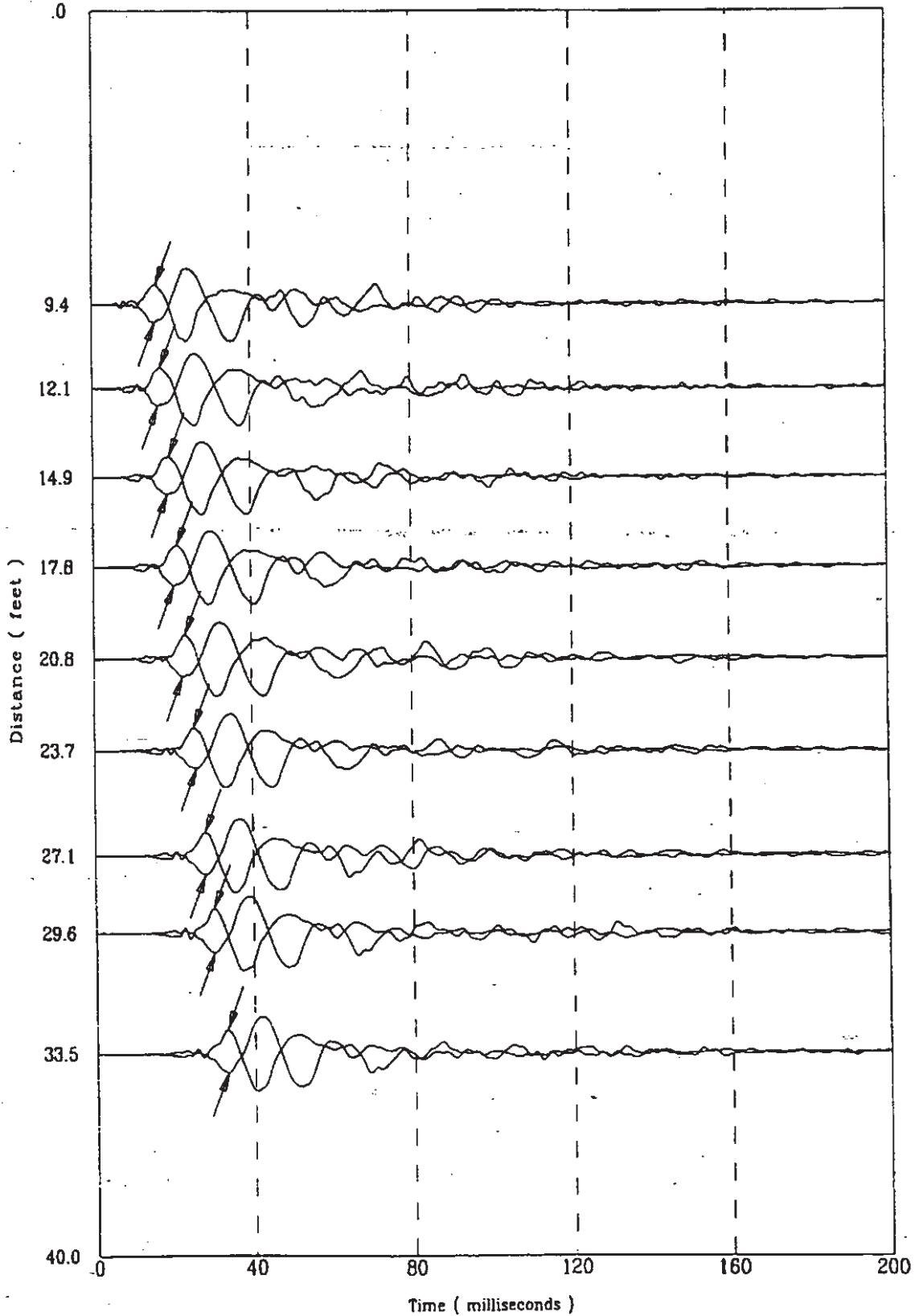
03/23/98



K-TRT-F-0000/  
R/O

Applied Research Associates, Inc.  
CPT-189

S Wave  
03/23/98



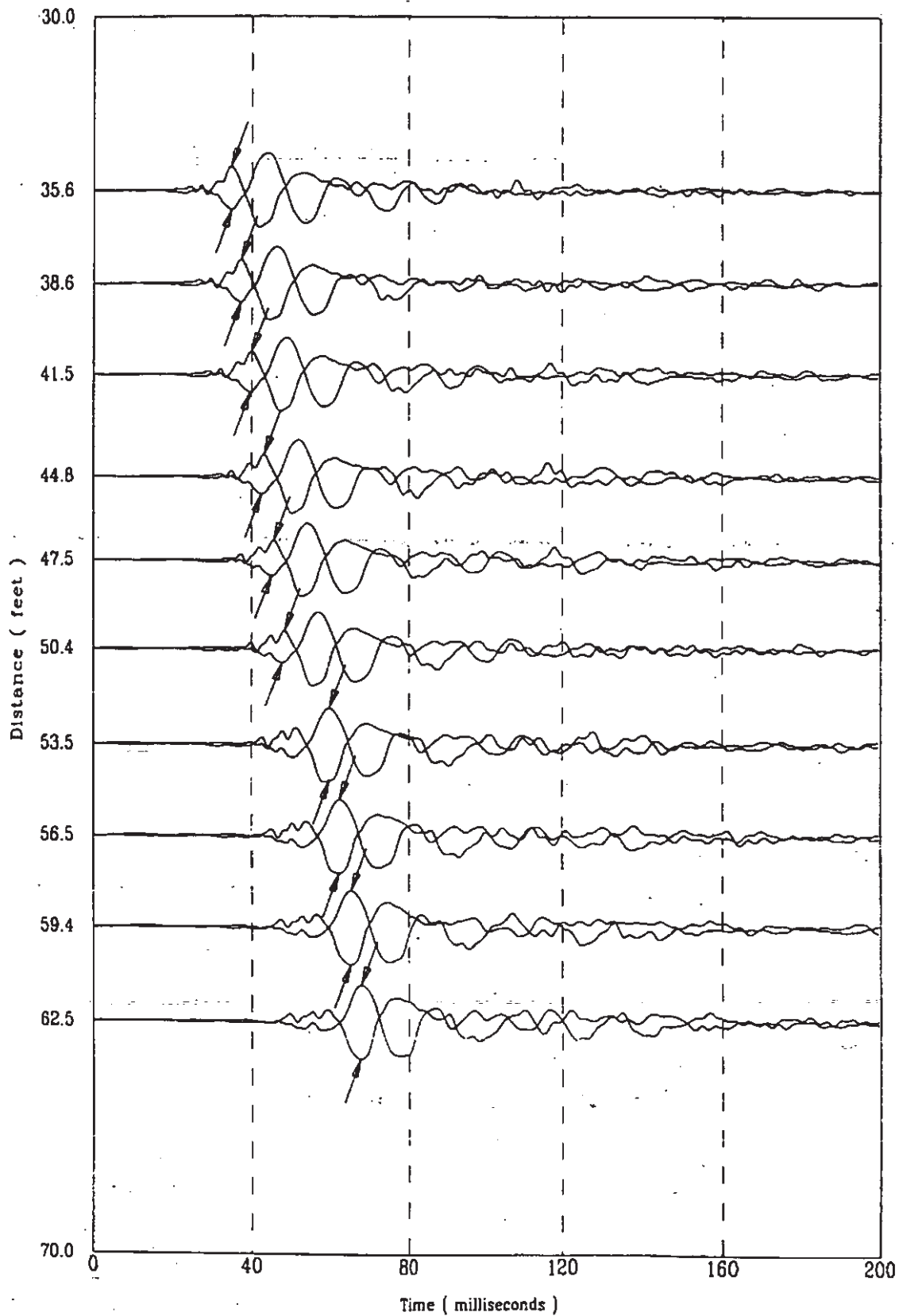
File 323m8045

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K-TRT-F-00001  
R/O

Applied Research Associates, Inc.  
CPT-189

S Wave  
03/23/98



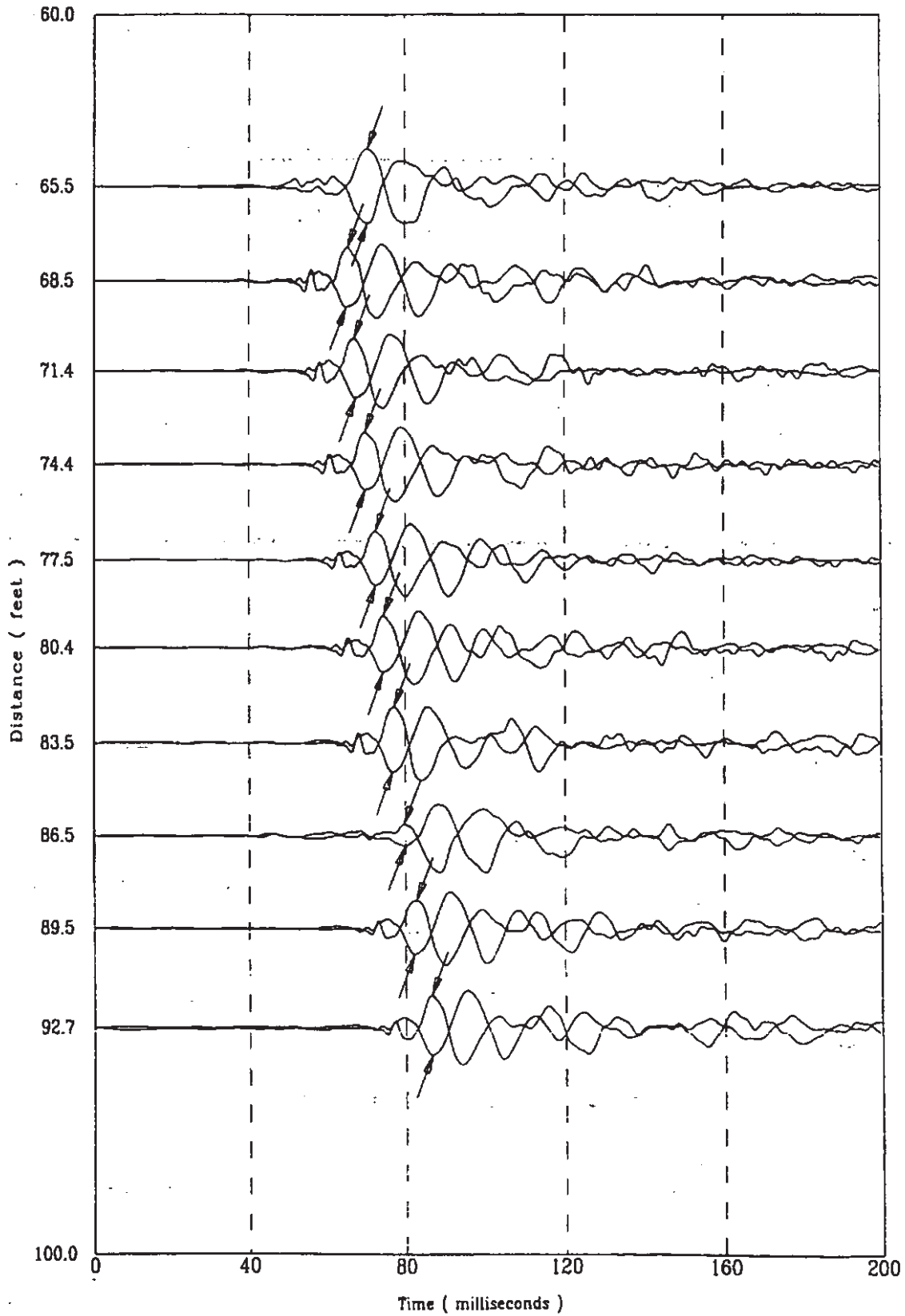
File 323m004S

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K-TRT-F-00001  
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S Wave  
03/23/98

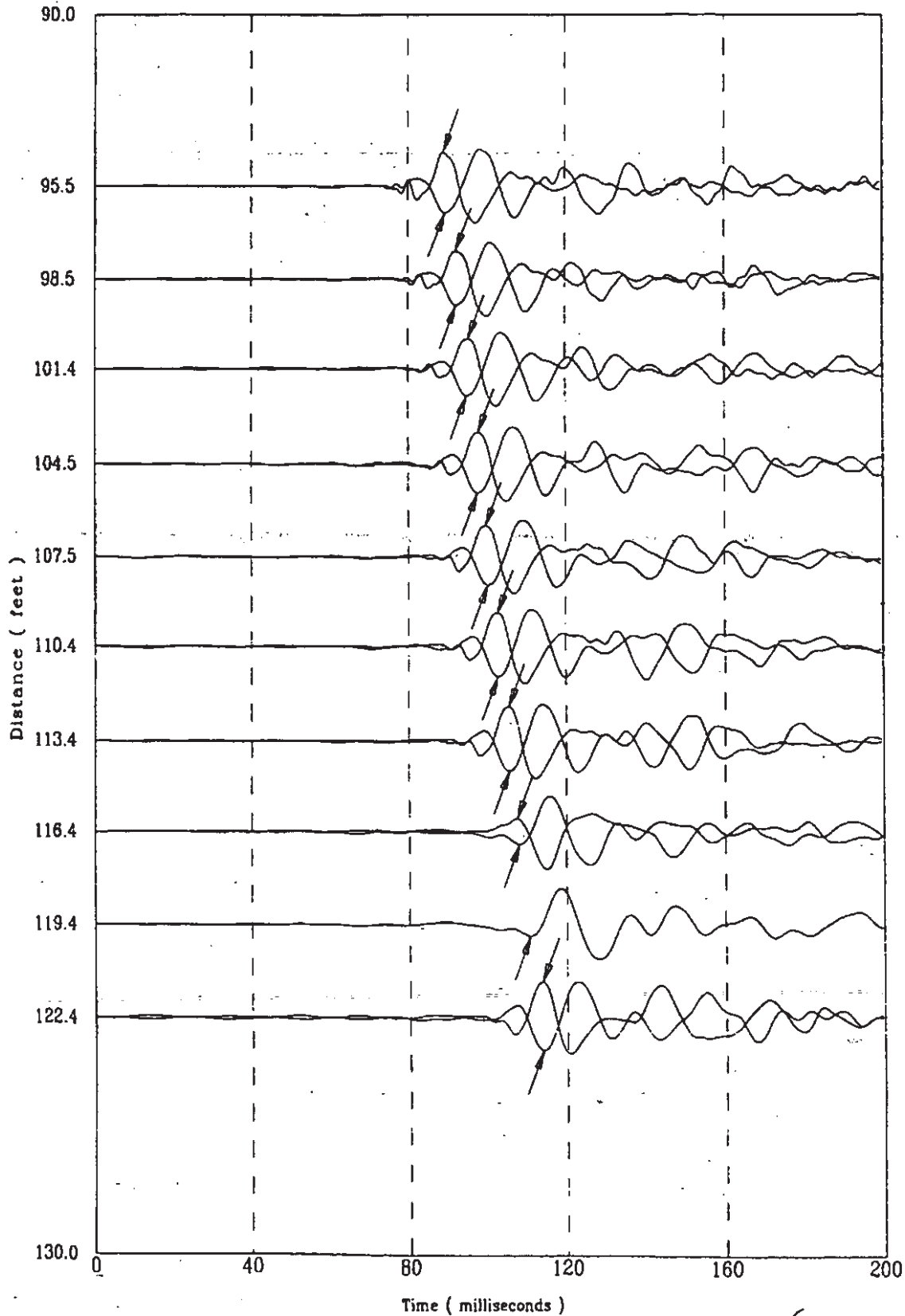


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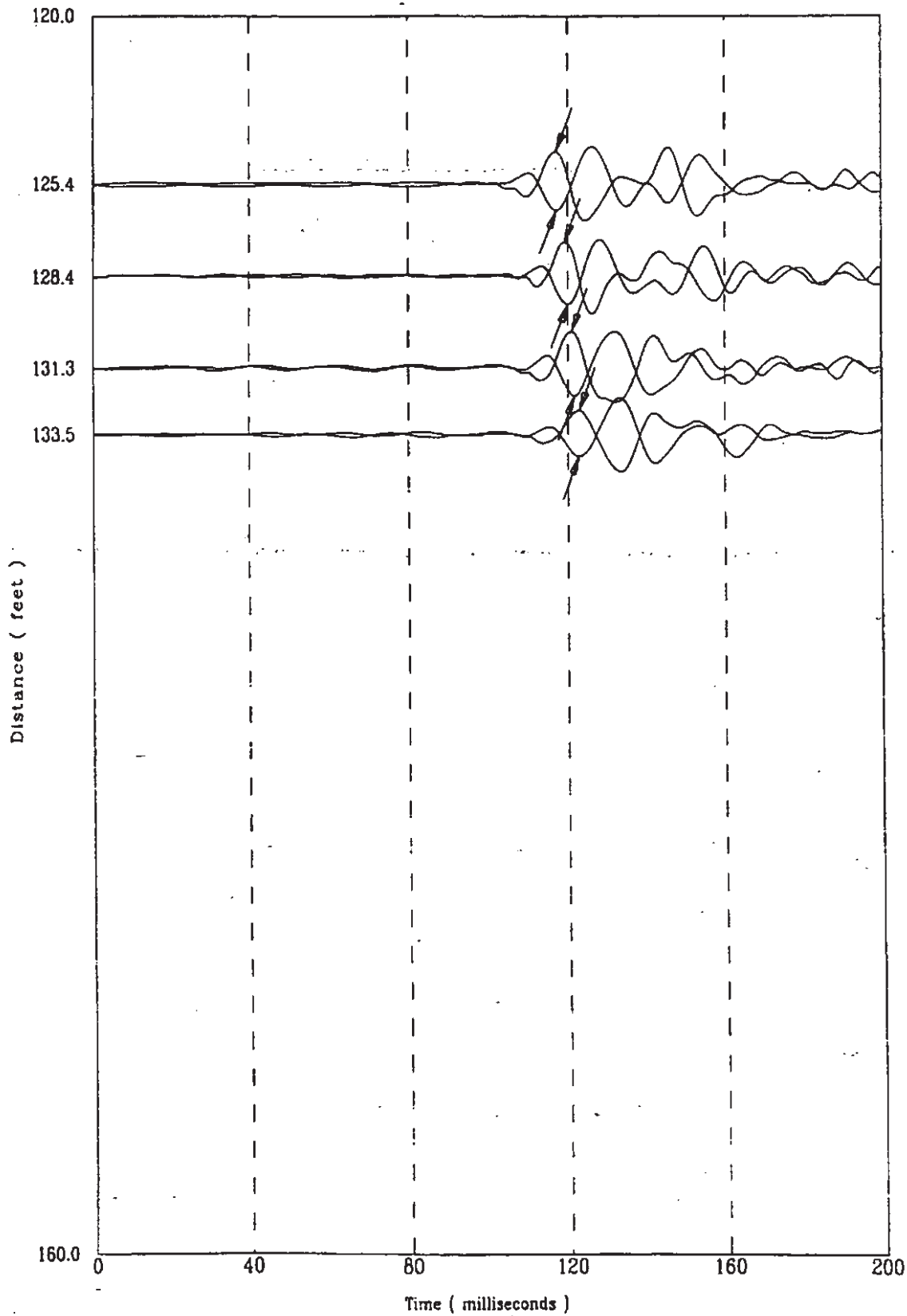
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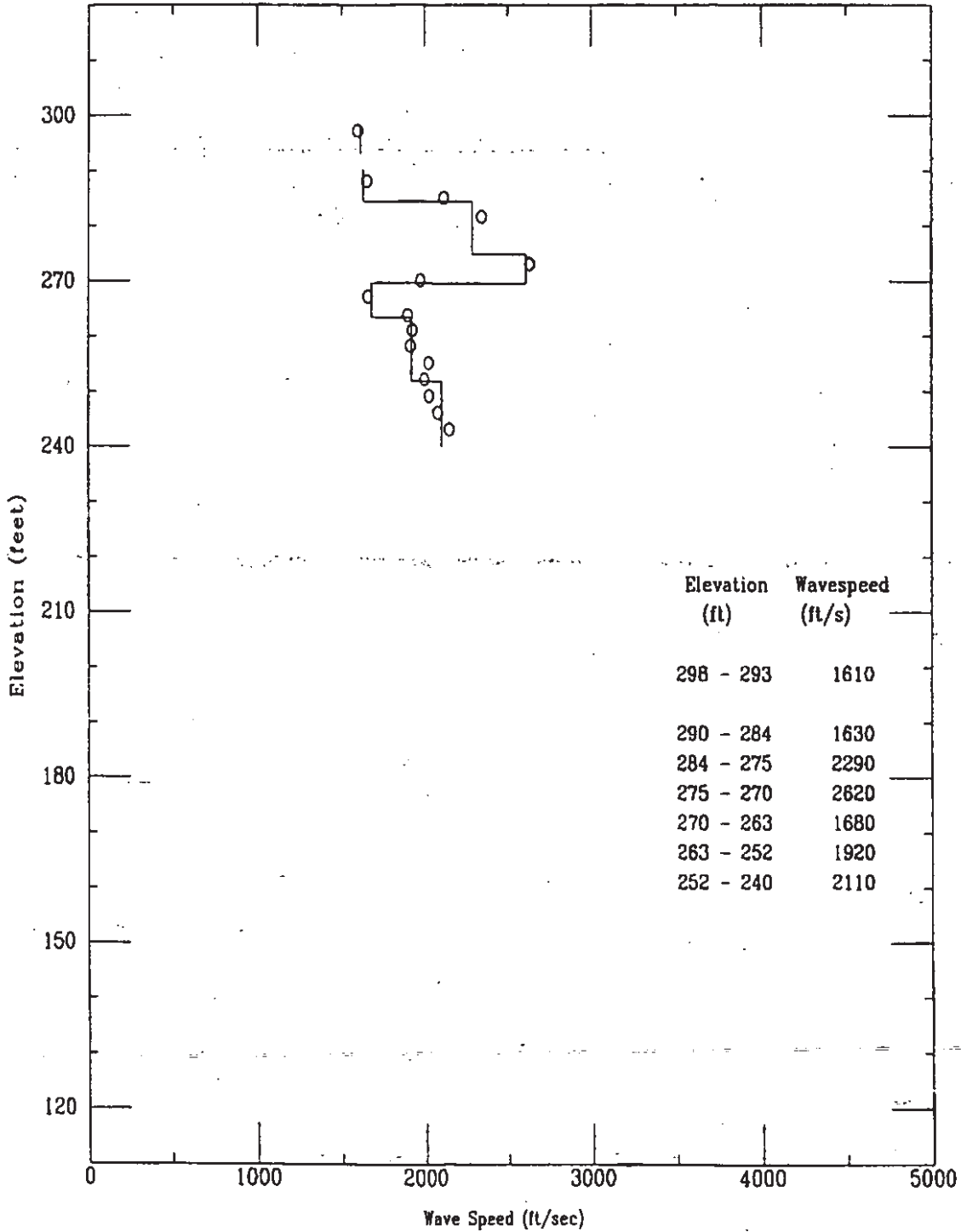


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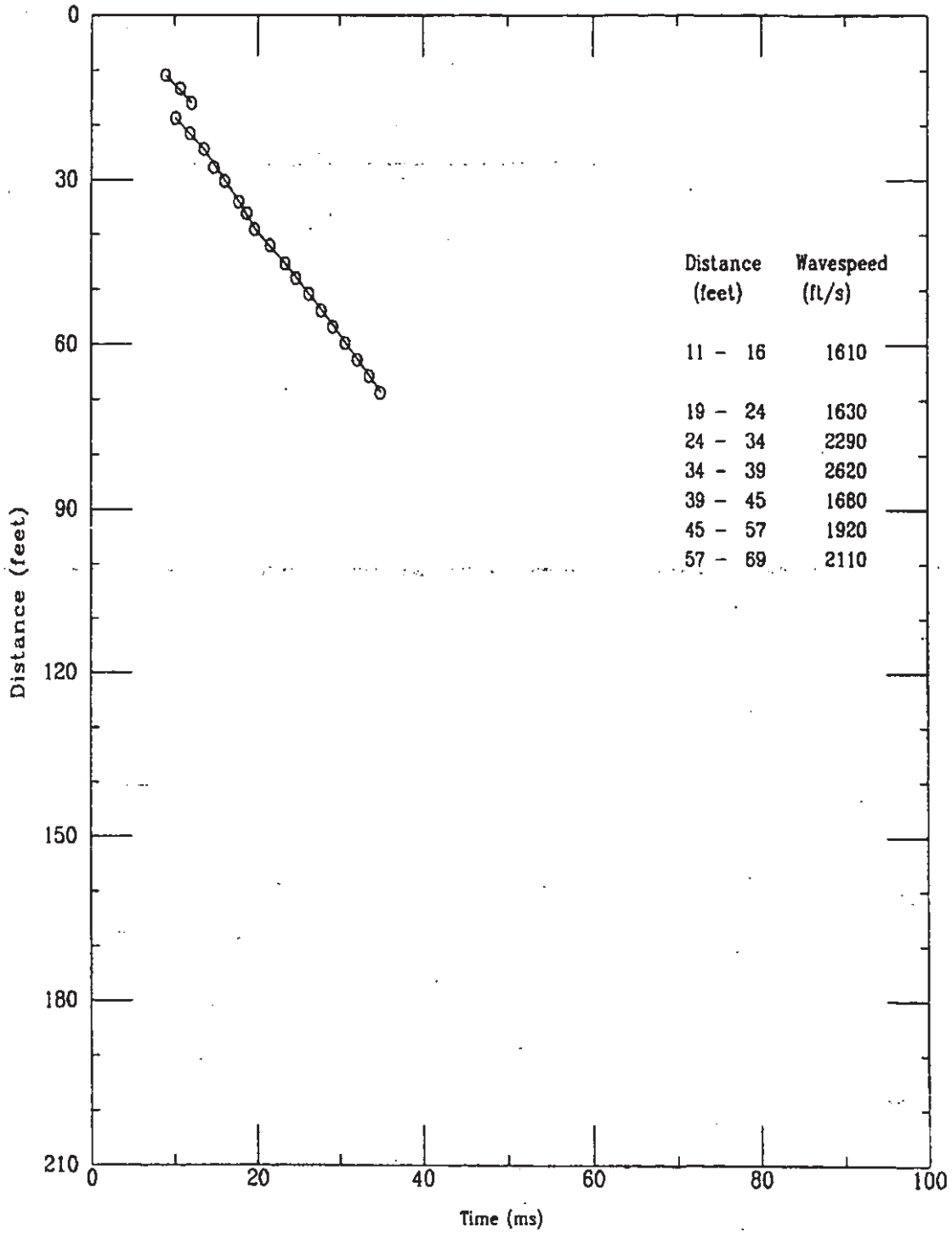
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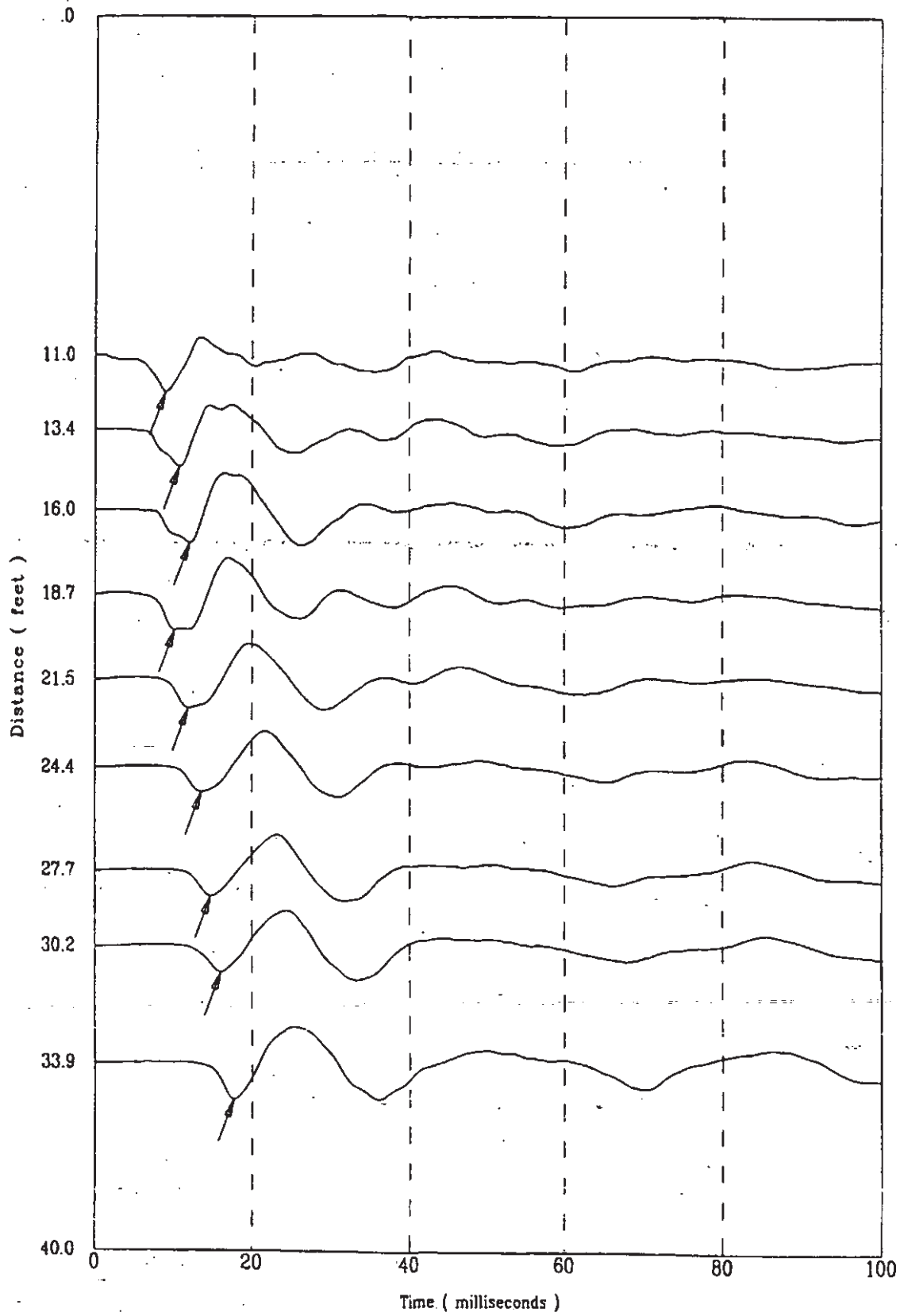
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Compression Wave Time of Peak

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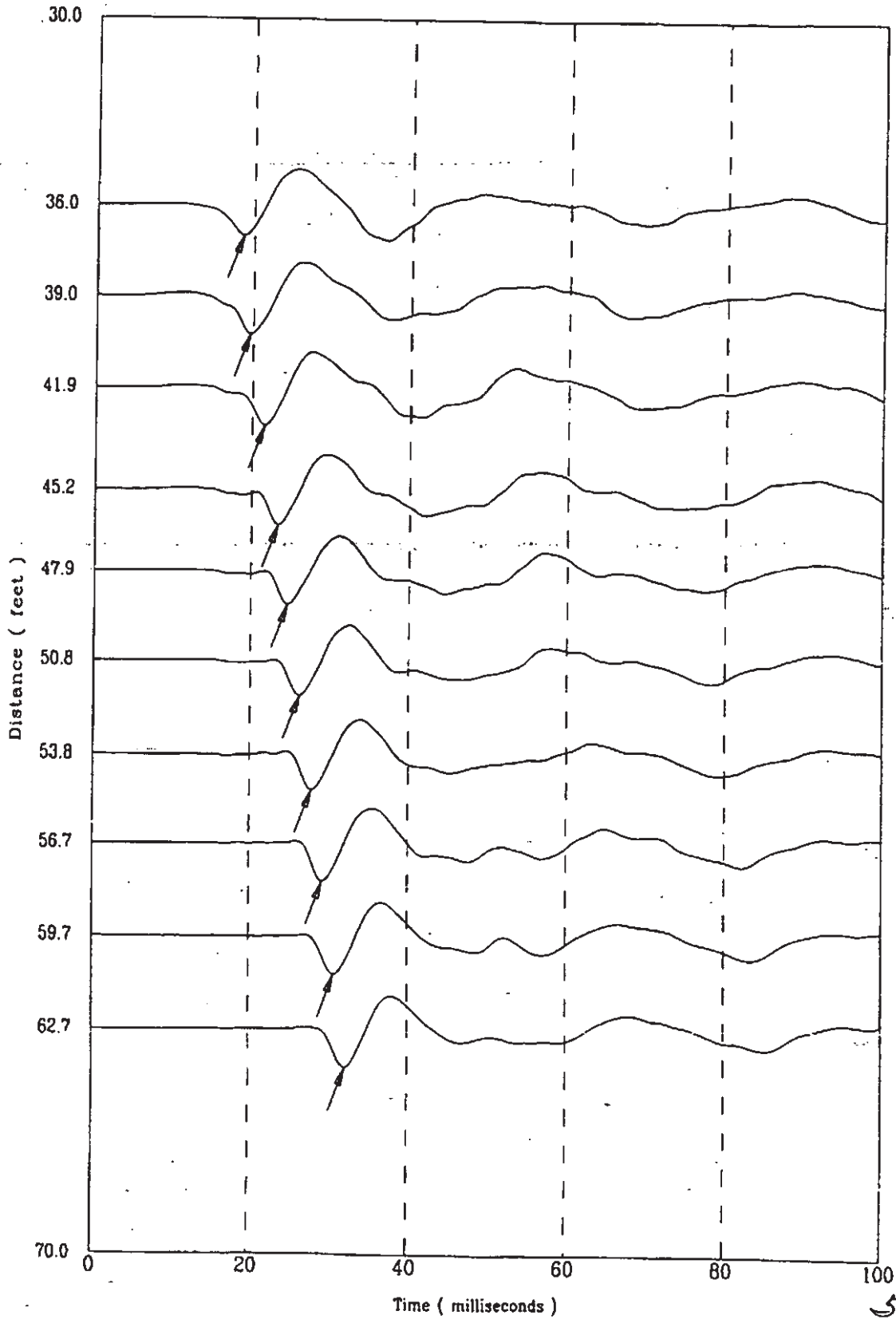
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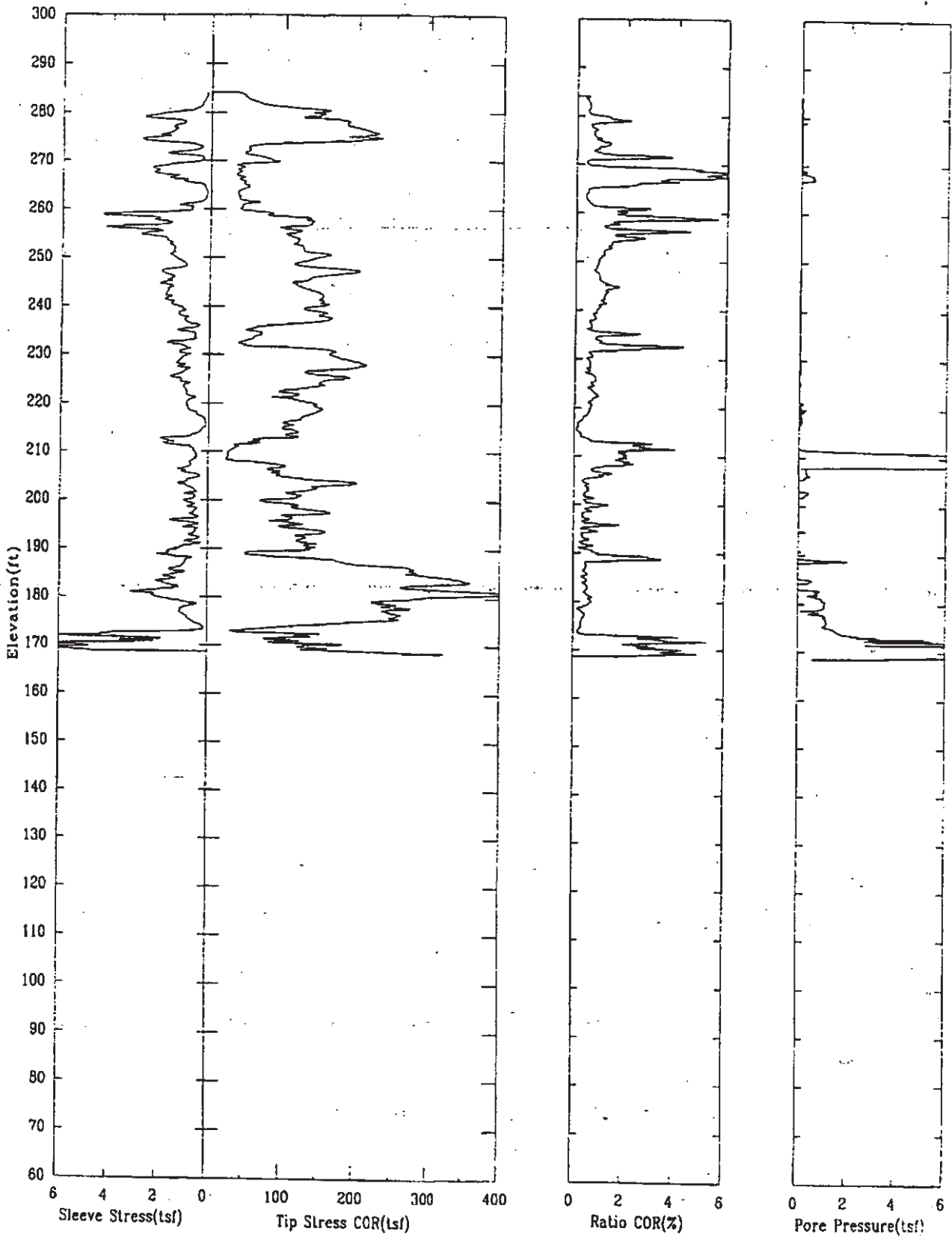
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East 55135

Elevation 290.1



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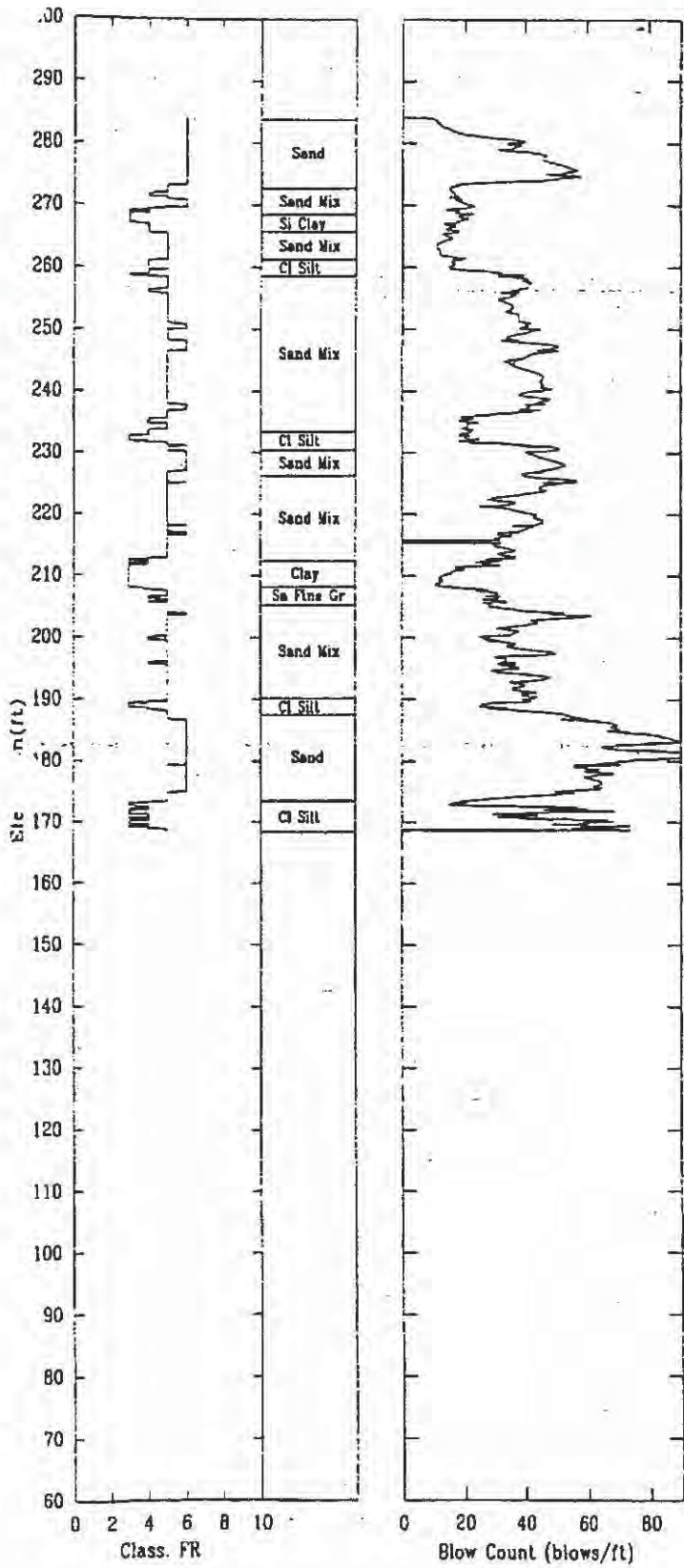
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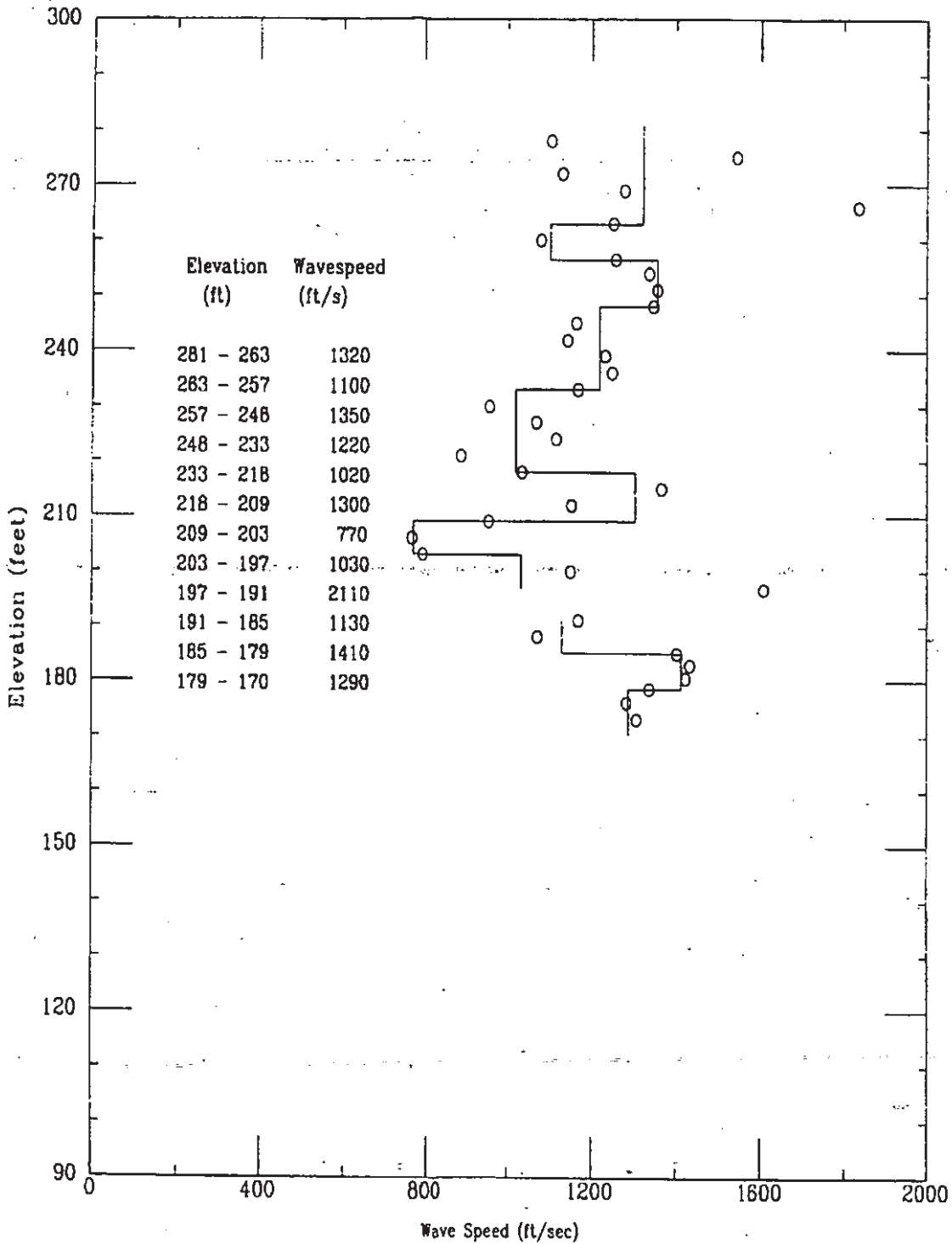


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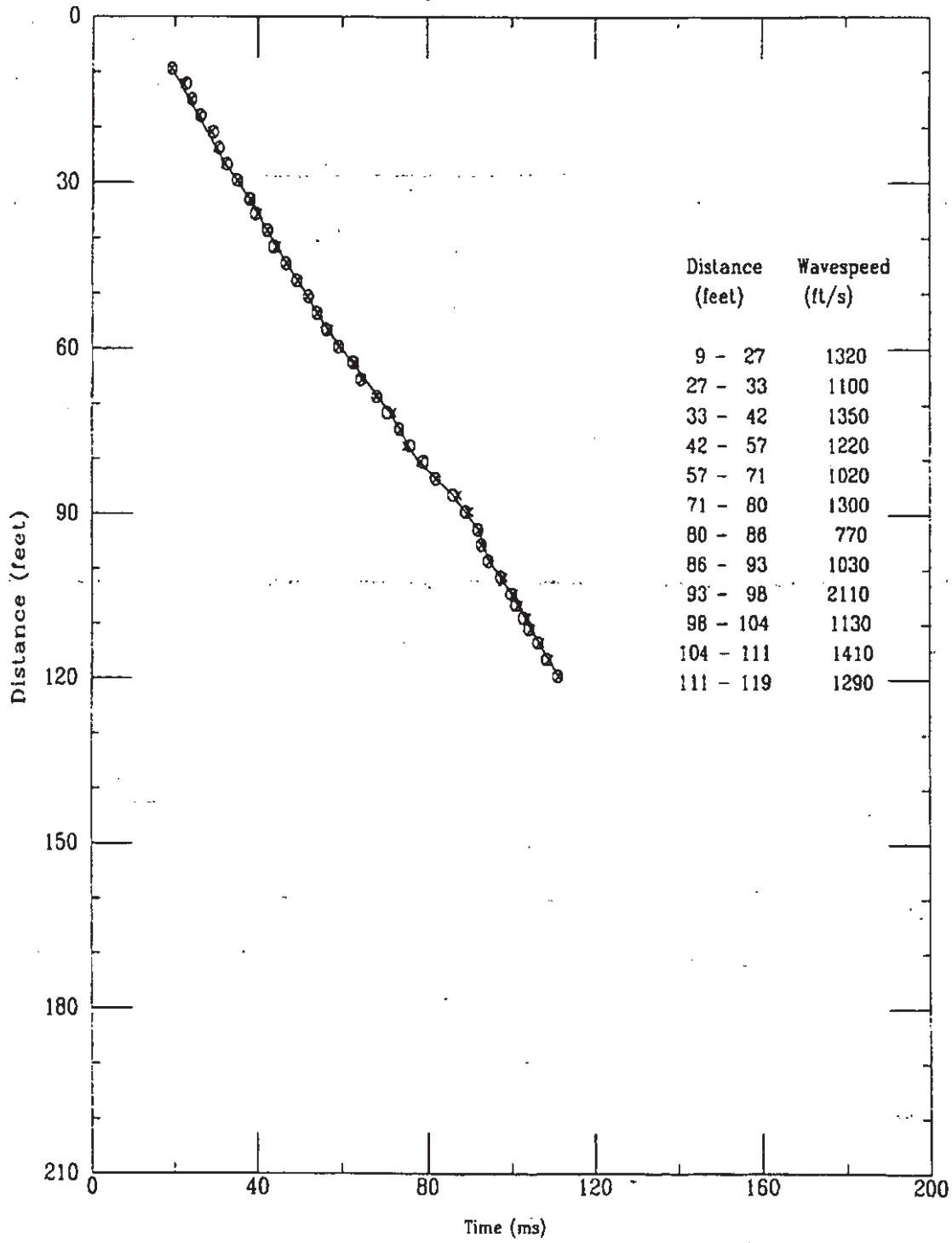


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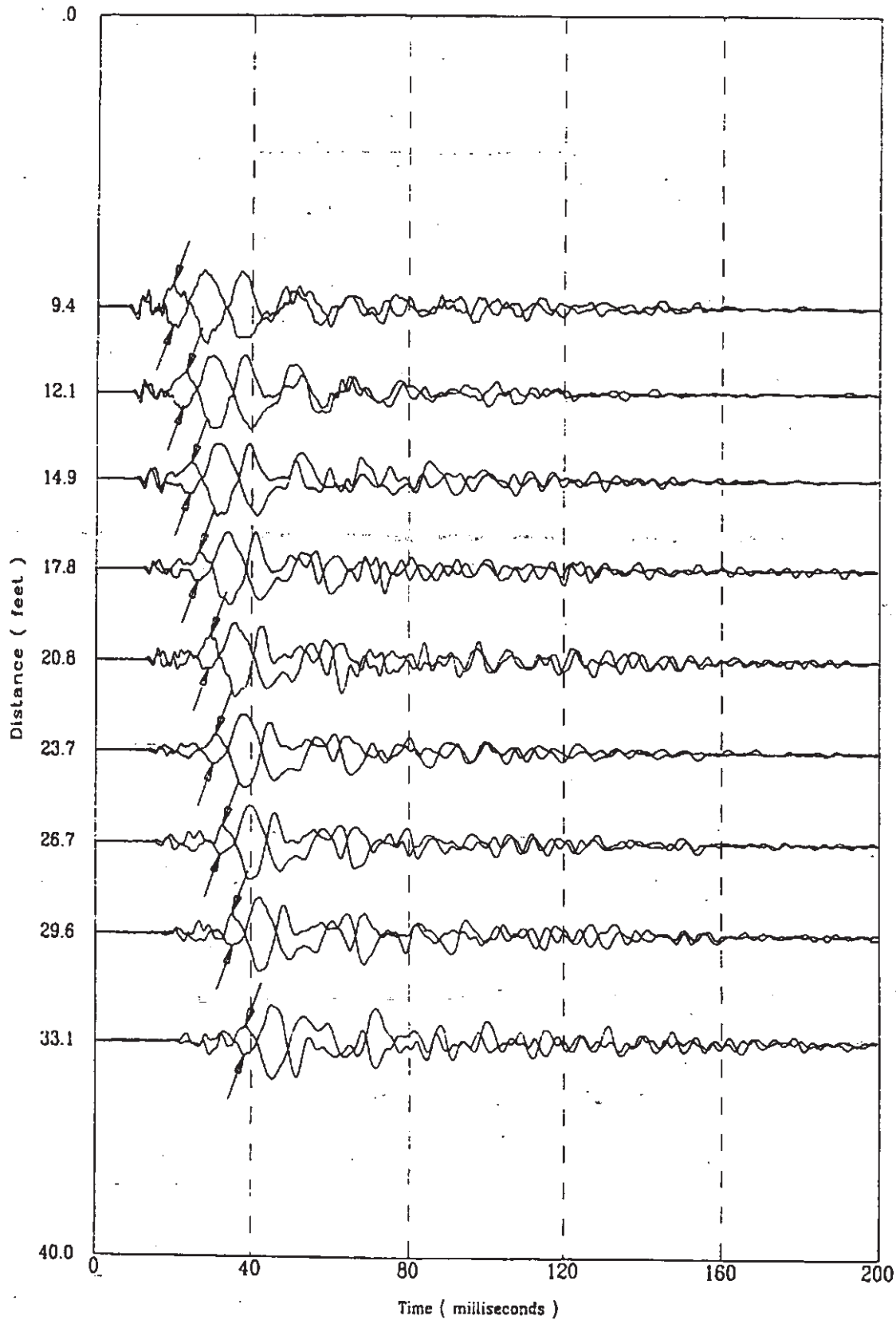
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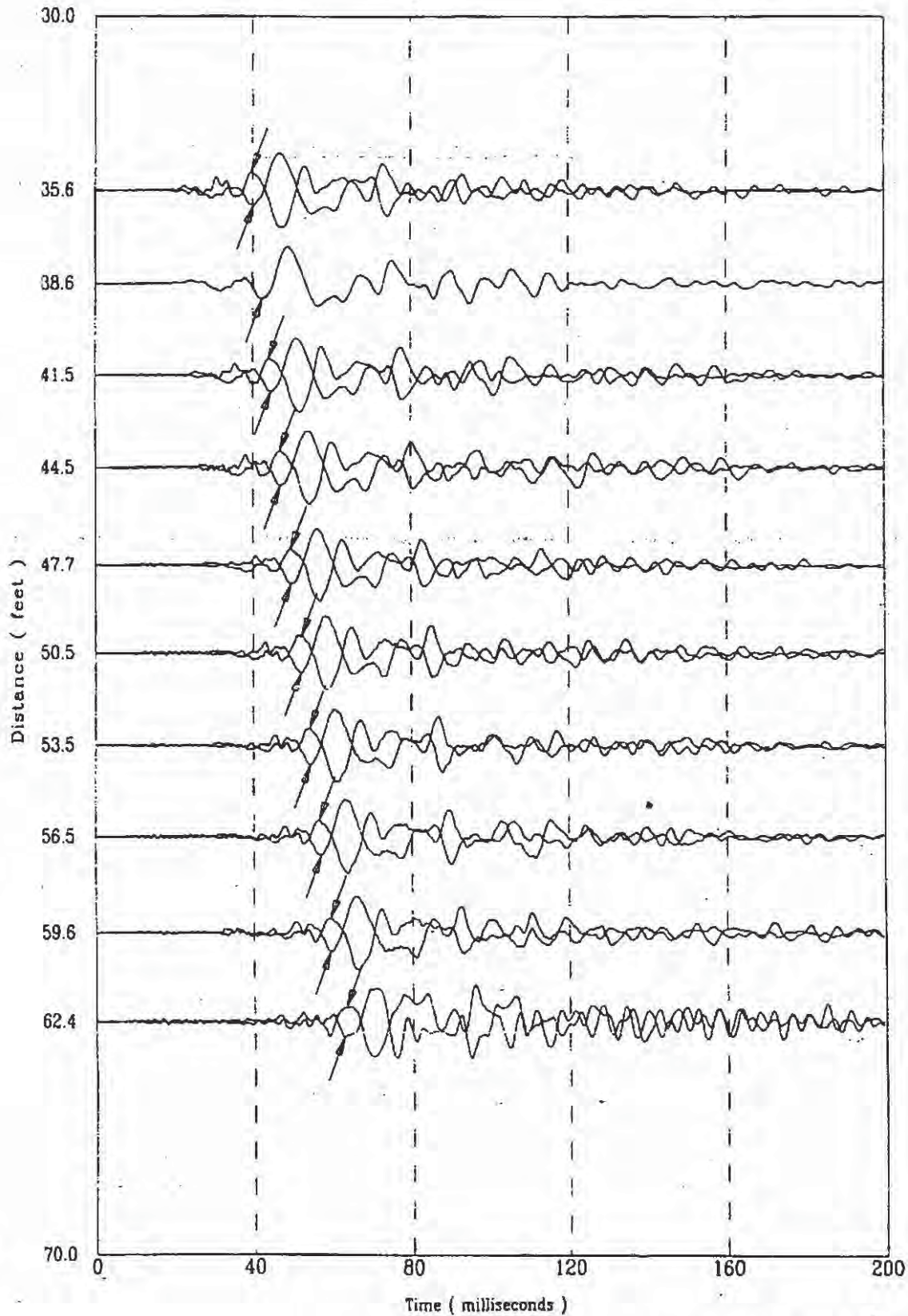
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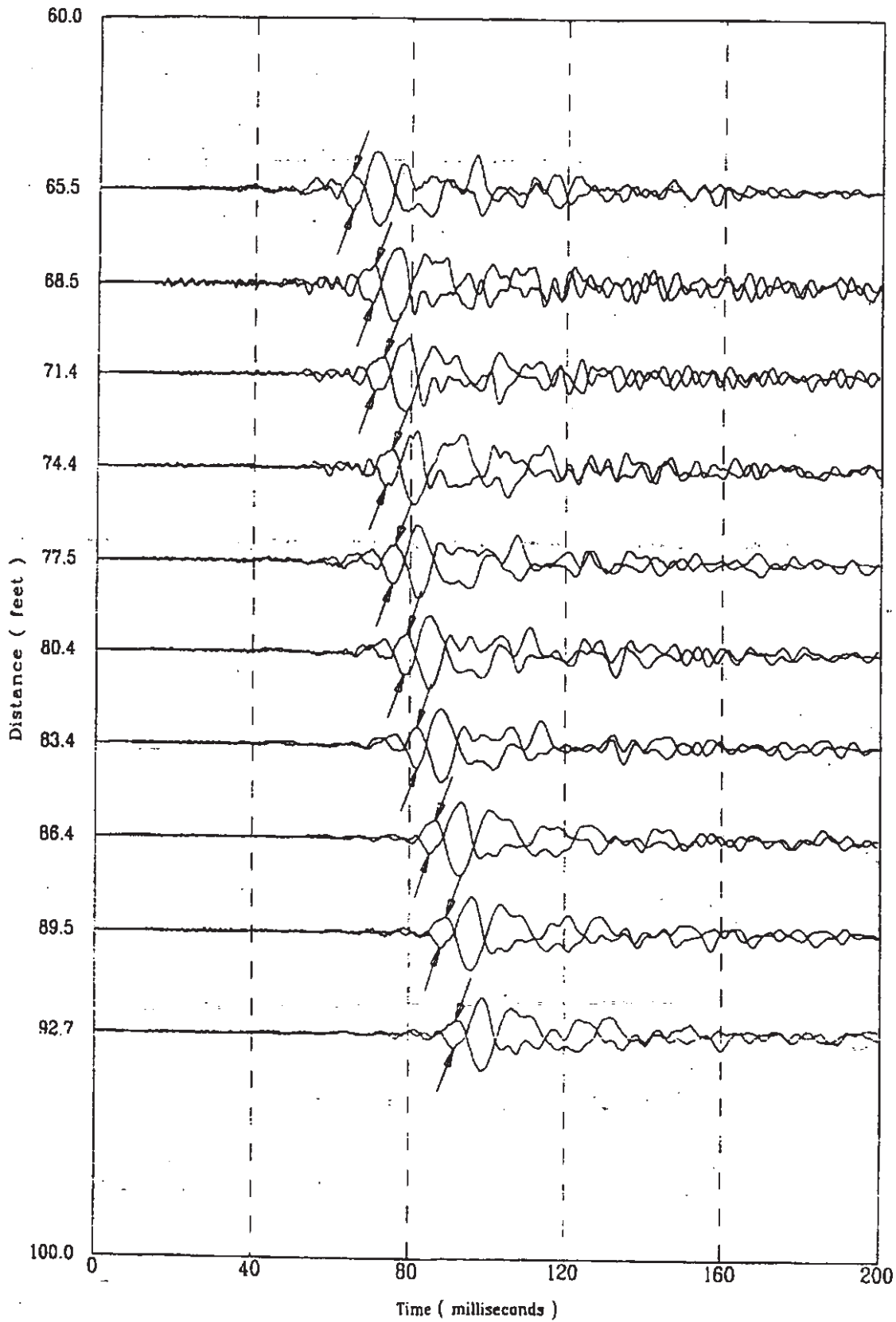


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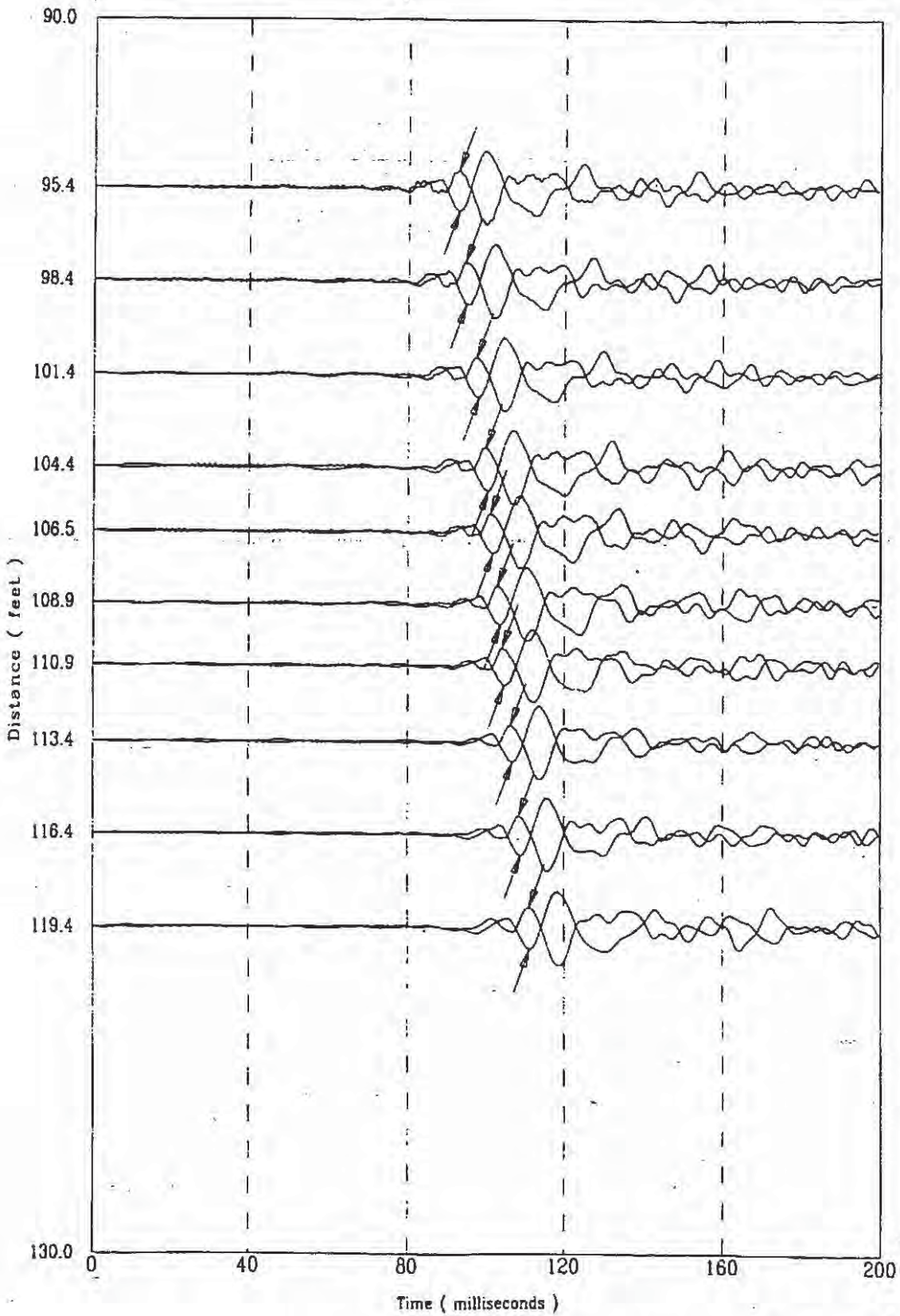
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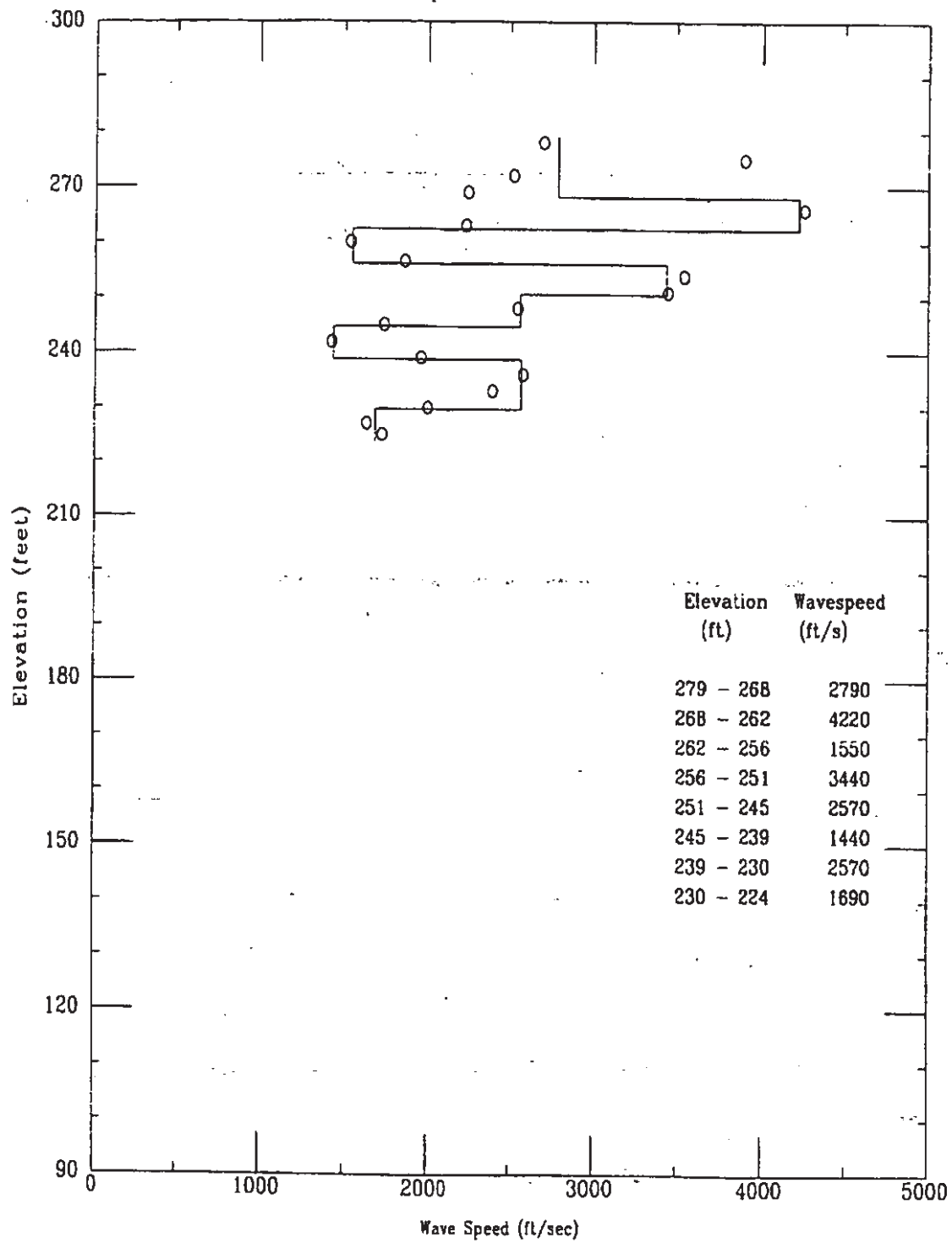


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Compression Wave Speeds

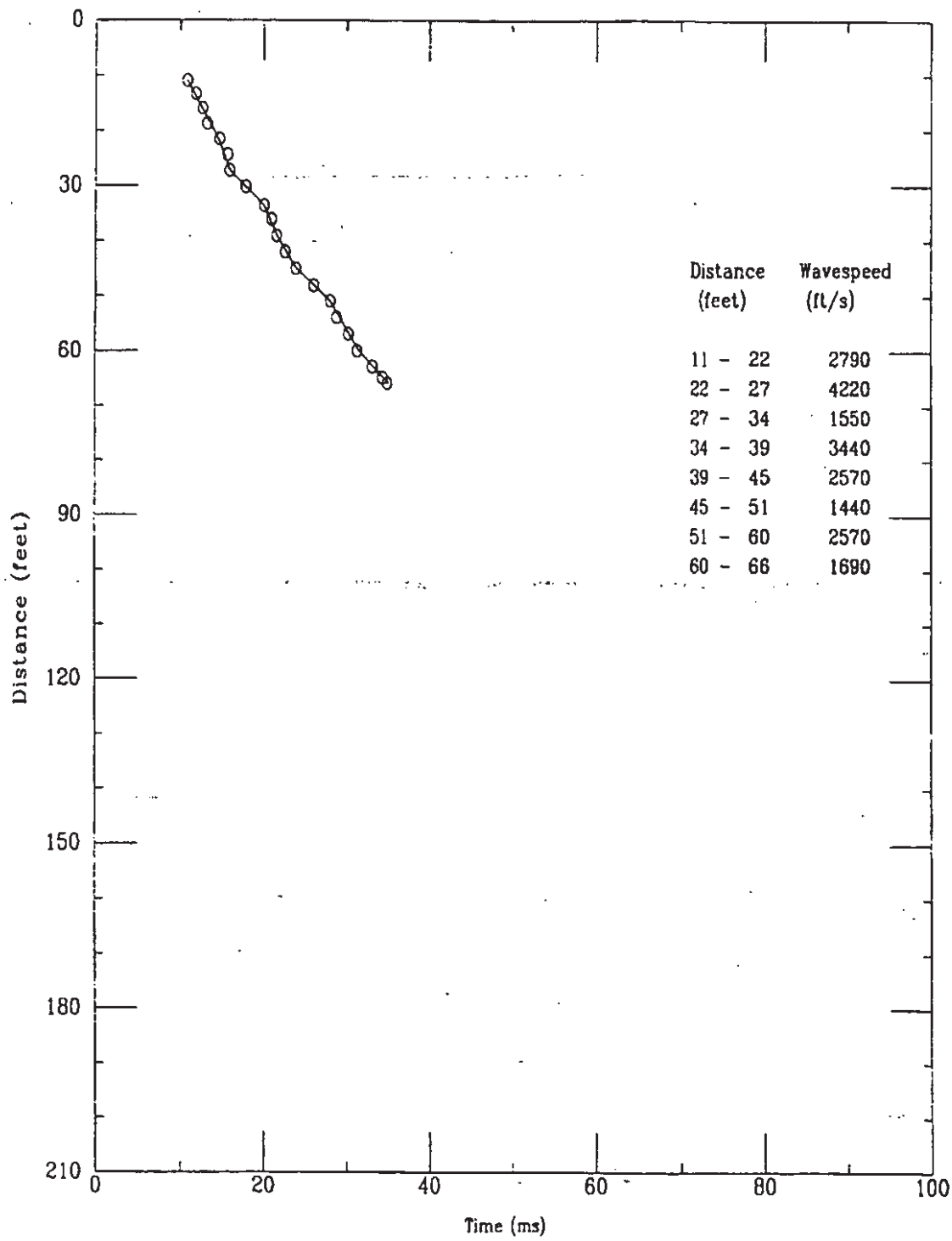




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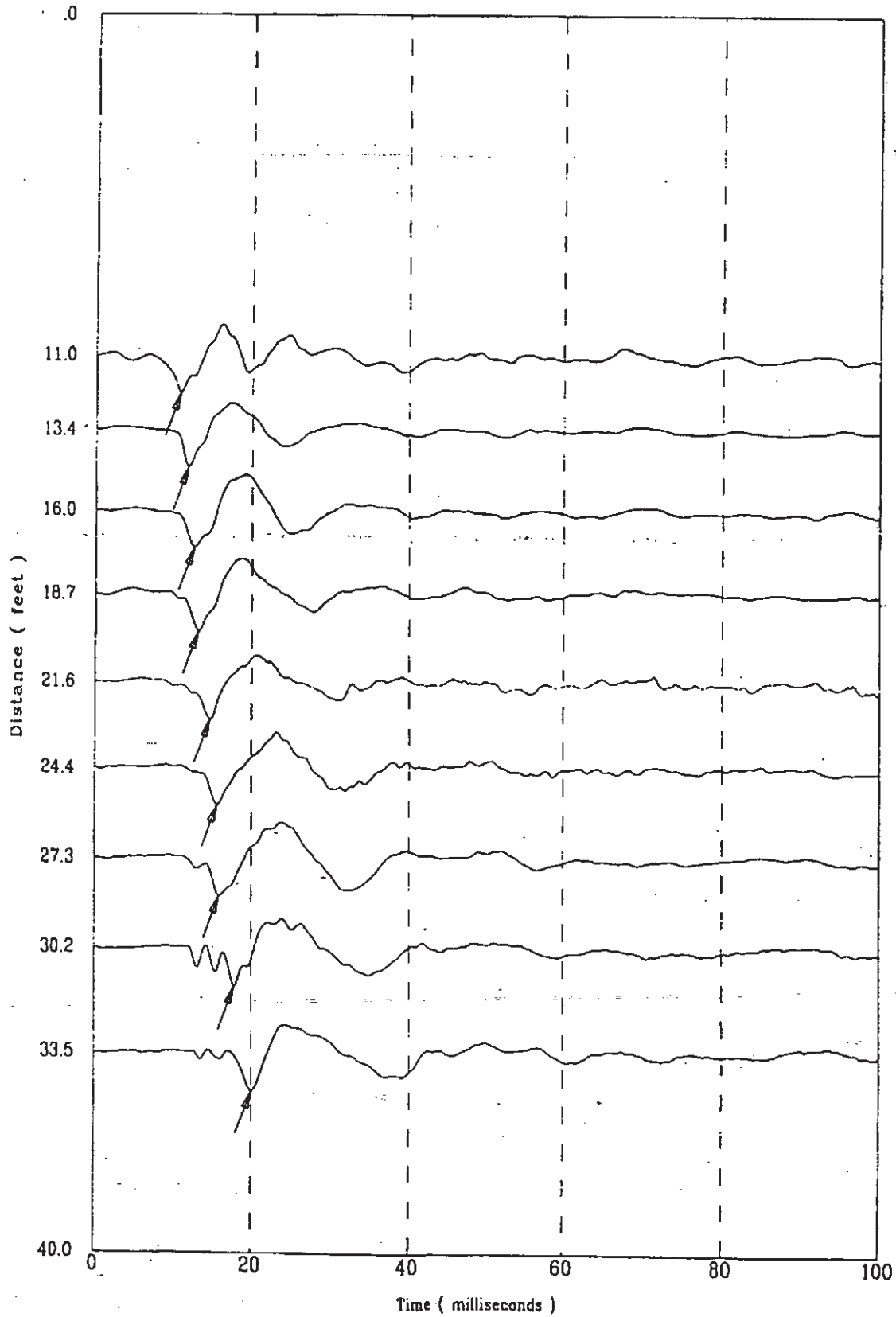
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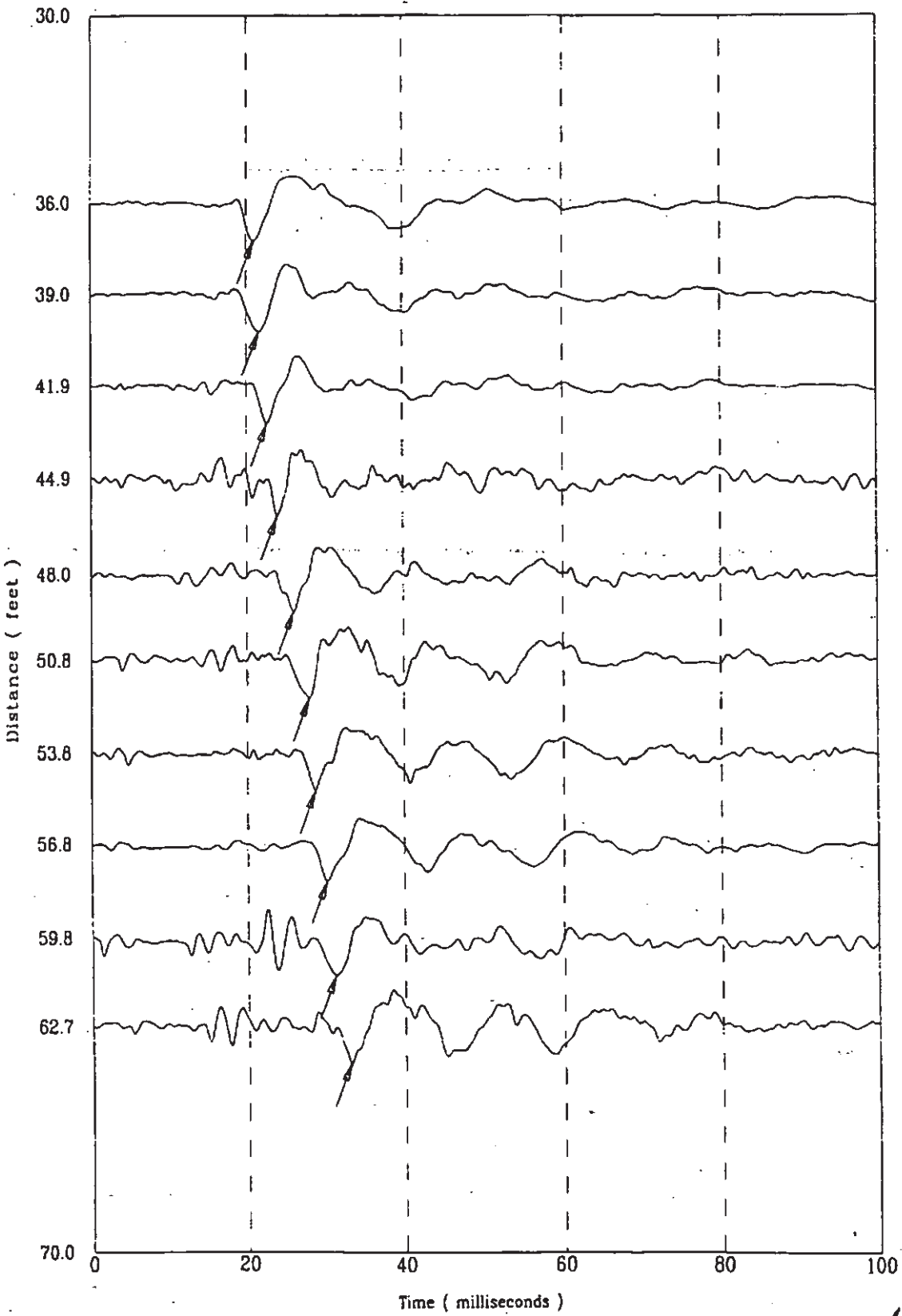
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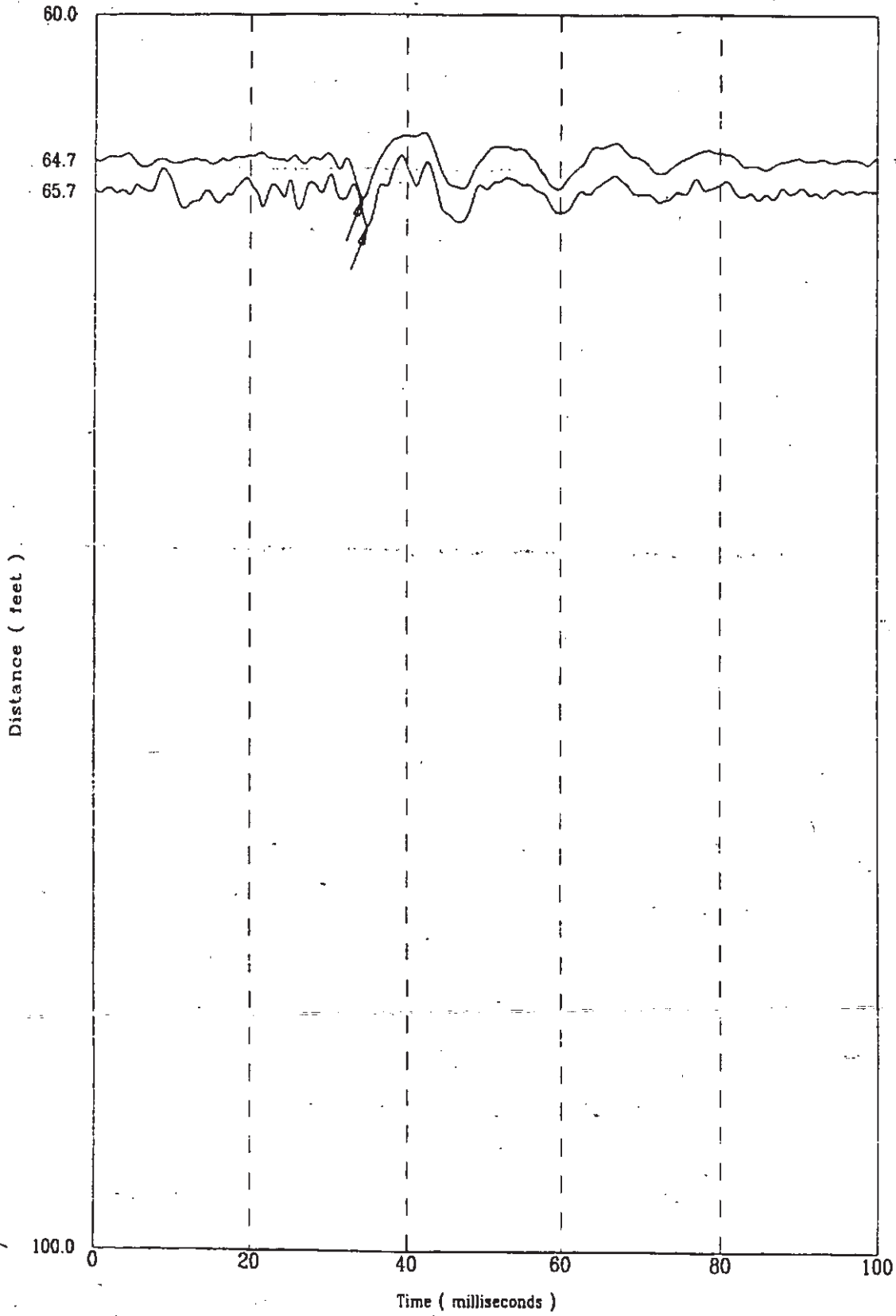
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04/14/98



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AD82776M-017-A-AR3

K-TRT-F-00001 R/O

DOE CONTACT: BRENT GUITEZ  
5-3919

Westinghouse Savannah River Company  
Document Approval Sheet

Document No.  
K-TRT-F-00001

Title  
F-AREA NORTHEAST EXPANSION REPORT (U) V6LH2  
Key Words (list 3)  
GEOTECHNICAL

Primary Author/Contact (Must be WSRC) Location Phone No. Position User ID  
FRANK H. SYMS 730-2B-1084 26927 GEOLOGIST Y4711

Organization Code Organization (No Abbreviations)  
EA3B0 SITE GEOTECHNICAL SERVICES

Other Authors Approval Requested by (date)  
8/23/99

Has an invention disclosure, patent application or copyright application been submitted related to this information?  Yes  No If yes, date submitted \_\_\_\_\_

Disclosure No. (If Known) \_\_\_\_\_ Title \_\_\_\_\_  
If no, do you intend to submit one?  Yes  No If yes, projected date \_\_\_\_\_

**Information Product Description**  
 Technical Report  
 Semiannual  Annual  Final  Topical  Other \_\_\_\_\_  
 Administrative Report  
 Semiannual  Annual  Final  Topical  Other \_\_\_\_\_  
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 Conference Submission\*  
 Abstract  Conf. Paper  Conf. Proceeding  
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 \*Conference Location (City, State, Country) \_\_\_\_\_  
 \*Conference Dates \_\_\_\_\_ m/d/y thru \_\_\_\_\_ m/d/y  
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References  In Public Literature  Routing Concurrently  Approved for Release  Other \_\_\_\_\_

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Derivative Classifier C.D. ROBERTO Classification (U) Topic GEOTECHNICAL DATA REPORT

Intended Distribution  Unlimited (release to public)  Site Use Only  Corporate/University Partner  
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 Overall  S  C  UCNI  U  
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OSTI Subj. Category No. 54 Routing class/tec/DOE Editor/Illustrator/On-line Support MSD Project No.

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Westinghouse  
Savannah River Company

August 18, 1999

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Brent Auterrey  
5-3919

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P.O. Box 616  
Aiken, SC 29802

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S&TI

Ms. W. F. Perrin, Technical Information Officer  
U. S. Department of Energy - Savannah River Operations Office

Dear Ms. Perrin:

REQUEST FOR APPROVAL TO RELEASE SCIENTIFIC/TECHNICAL INFORMATION

The attached document is submitted for classification and technical approvals for the purpose of external release. Please complete Part II of this letter and return the letter to the undersigned by 8/23/1999. The document has been reviewed for classification and export control by a WSRC Classification staff member and has been determined to be Unclassified.

*Kevin J. Schmidt*  
Kevin J. Schmidt, WSRC STI Program Manager

I. DETAILS OF REQUEST FOR RELEASE

Document Number: K-TRT-F-00001

Author's Name: F. H. Syms

Location: 730-2B, 1084

Phone 2-6927

Department: Site Geotechnical Services

Document Title: F-Area Northeast Expansion Report, Volumes 1 and 2

Presentation/Publication:

Meeting/Journal:

Location: N/A  
Meeting Date:

*OSTI Reportable*

II. DOE-SR ACTION

Date Received by TIO 08/19/99

- Approved for Release
- Approved Upon Completion of Changes
- Approved with Remarks
- Not Approved
- Revise and Resubmit to DOE-SR

Remarks: \_\_\_\_\_

*W. F. Perrin*  
W. F. Perrin, Technical Information Officer, DOE-SR

8/23/99  
Date

US DEPARTMENT OF ENERGY  
ANNOUNCEMENT OF U. S. DEPARTMENT OF ENERGY (DOE)  
SCIENTIFIC AND TECHNICAL INFORMATION (STI)

RECORD STATUS (select one):

X.. New ..... Revised Data ..... Revised STI Product

Part I: STI PRODUCT DESCRIPTION

A. STI PRODUCT TYPE (select one)

X.. 1. Technical Report

a. Type:  Topical  Semiannual  Annual  Final Other (specify) .....

b. Reporting Period (mm/dd/yyyy).....thru .....

..... 2. Conference

a. Product Type: ..... Conference Proceedings ..... Conference Paper or Other (abstracts, excerpts, etc.) \_\_\_\_

b. Conference Information (title, location, dates) .....

..... 3. Software Manual ( The actual software package should be made available simultaneously. Follow instructions provided with ESTSC F 1 and ESTSC F 2.)

..... 4. Journal Article

a. Type:  Announcement citation only \_\_\_\_ Preprint \_\_\_\_ Postprint

b. Journal Name .....

c. Volume..... d. Issue ..... e. Serial identifier (e.g., ISSN or CODEN) .....

..... 5. S&T Accomplishment Report

..... 6. Book

..... 7. Patent Application

a. Date Filed (mm/dd/yyyy) \_\_\_\_/\_\_\_\_/\_\_\_\_

b. Date Priority (mm/dd/yyyy) \_\_\_\_/\_\_\_\_/\_\_\_\_

c. Patent Assignee .....

..... 8. Thesis/Dissertation

B. STI PRODUCT TITLE F-Area Northeast Expansion Report, Volumes 1 and 2.....

C. AUTHOR(s) F. H. Syms.....

E-mail Address(es):

D. STI PRODUCT IDENTIFIER

\_\_\_ 1. Report Number(s) K-TRT-F-00001.....

\_\_\_ 2. DOE Contract Number(s) DE-AC09-96SR18500.....

\_\_\_ 3. R&D Project ID(s) .....

\_\_\_ 4. Other Identifying Number(s) .....

E. ORIGINATING RESEARCH ORGANIZATION Savannah River Site.....

F. DATE OF PUBLICATION (mm/dd/yyyy) .....

G. LANGUAGE (if non-English) English.....

(Grantees and Awardees: Skip to Description/Abstract section at the end of Part I)

H. SPONSORING ORGANIZATION .....

I. PUBLISHER NAME AND LOCATION (if other than research organization) .....

Availability (refer requests to [if applicable])

J. SUBJECT CATEGORIES (list primary one first) 54.....

Keywords Geotechnical, Actinide Packaging, Subsurface.....

K. DESCRIPTION/ABSTRACT

A geotechnical program has been completed in F-Area at the Savannah River Site in South Carolina. This program investigated the subsurface conditions for the area known as the "northeast expansion" located in the F-Area.

US DEPARTMENT OF ENERGY

ANNOUNCEMENT OF U. S. DEPARTMENT OF ENERGY (DOE)  
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DOE F 241.1 (p. 2 of 2)

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    - (2) Document Location \_\_\_\_\_
  - b. Field Office Acronym \_\_\_\_\_
  - c. Declassification date (mm/dd/yyyy) \_\_\_/\_\_\_/\_\_\_
  - d. Declassification Status: \_\_\_ Declassified \_\_\_ Sanitized \_\_\_ Never classified
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- 6. Small Business Technology Transfer (STTR) Release date (mm/dd/yyyy) .....
- 7. Proprietary/Trade Secret
- 8. Patent Pending
- 9. Protected data \_\_\_ CRADA \_\_\_ Other (specify) \_\_\_\_\_ Release date (mm/dd/yyyy) .....
- 10. Official Use Only (OUO)
- 11. Program-Directed Special Handling (specify) \_\_\_\_\_
- 12. Export Control/ITAR/EAR
- 13. Unclassified Controlled Nuclear Information (UCNI) \_\_\_\_\_
- 14. Classified Classification Level/Category of:
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  - b. The STI Product Unclassified.....
- 15. Other information relevant to access (specify; for OSTI internal use only) \_\_\_\_\_

B. OTHER (information useful to include in published announcement record which is not suited for any other field on this form)

C. CONTACT AND RELEASING OFFICIAL

1. Contact (if appropriate, the organization or site contact to include in published citations who would receive any external questions about the content of the STI Product or the research information contained therein)

Name and/or Position K.J. Schmidt, Manager STI Program & Site Support  
E-mail \_\_\_\_\_ Phone (803) 725-2321  
Organization Westinghouse Savannah River Company

2. Releasing Official  I verify that all necessary reviews have been completed (e.g. Patent, Copyright, ECI, UCNI, etc.)  
Released by (name) K. J. Schmidt Date (mm/dd/yyyy) \_\_\_\_\_  
E-Mail \_\_\_\_\_ Phone \_\_\_\_\_ (803) 725-7373