

APPENDIX 1: SCIENCE COMPLEMENT AND CREW LIST

Science Complement

Robert S. Detrick	Chief Scientist	WHOI
John Collins	Co-Chief Scientist	WHOI
Carolyn Mutter	Co-Chief Scientist	L-DEO
John Bailey	Engr. Assistant	WHOI
Stef. Budhypramono	Computer Sys. Mgr.	L-DEO
John G. DiBernardo	Pneumatic Engr.	L-DEO
James W. Dolan	Res. Associate	WHOI
Charles W. Donaldson	Electronic Tech	L-DEO
David DuBois	Sr. Res. Assistant	WHOI
Bruce Francis	Science Officer	L-DEO
Robert J. Greaves	Graduate Student	MIT/WHOI
John T. Hallinan	Res. Engineer	WHOI
Graham Kent	Asst. Scientist	WHOI
Laura S. Magde	Graduate Student	MIT/WHOI
Ropate Maiwiriwiri	Airgun Tech	L-DEO
Gil E. Newton	Airgun Tech	L-DEO
Octavio Phillips	Airgun Tech	L-DEO
Karen L. Reiner	Watchstander	L-DEO
Stephen Swift	Res. Specialist	WHOI
F. Beecher Wooding	Res. Associate	WHOI

Ships Officers and Crew

James E. O'Loughlin	Master
Stanley P. Zeigler, Jr.	Chief Mate
William G. Smith	2nd Mate
Jeffery Silvia	3rd Mate
Blaine Heinze	Boatswain
Ellen K. Ochtman	A/B
Kenneth D. Golenski	A/B
Christopher J. Scanlan	A/B
Steve W. Barrows	O/S
Rickey R. Wyatt	O/S
Stephen M. Pica	Chief Engr.
Matthew S. Tucke	1st Engr.
Joseph E. Walla	2nd Engr.
Richard D. Reid	3rd Engr.
Michael L. Spruill	Oiler
Mark R. Christian	Oiler
Manuel J. Ramos	Oiler
Francisco N. Matos	Electrician
Andrew B. Blythe	Steward
John S. Smith	Cook
Robert P. Martin	Utility
Pete A. Martin	Radio Operator

APPENDIX 2: AIRGUN ARRAYS, SOURCE SIGNATURES AND STREAMER CONFIGURATION

During EW 94-16 two different airgun sources were used: a 10-gun, 3005 cu. in. array for the SCS and MCS reflection profiling and a 20-gun, 8420 cu. in. array for refraction shooting. Figure A2-1 shows the chamber sizes and towing arrangement for the 10-gun array while Figure A2-2 shows this same information for the 20-gun array. Figure A2-3 shows source far-field signatures for the 10-gun and 20-gun arrays as recorded by OBS 58 during Deployment #1.

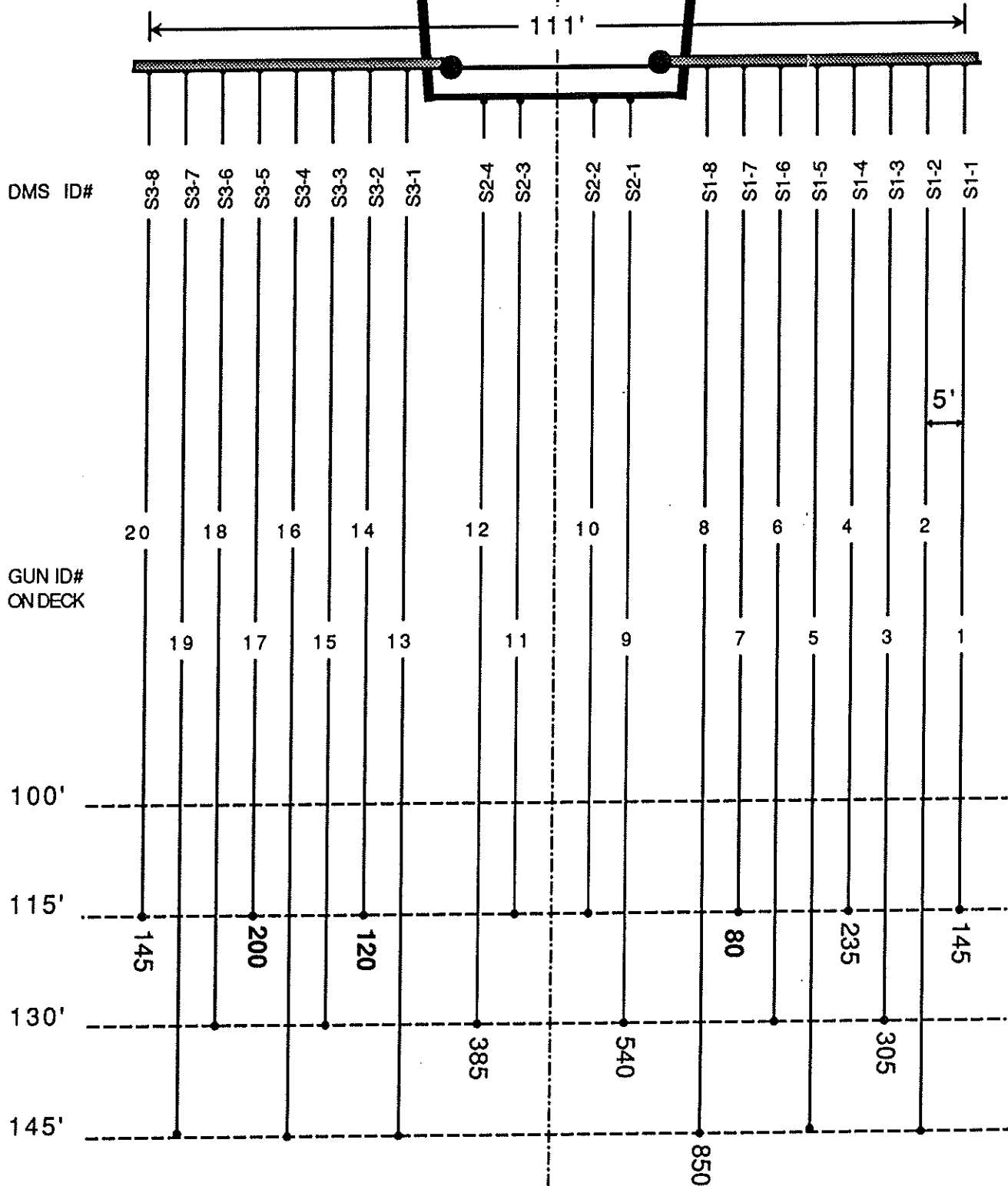
The MCS cable geometry and gun offset distances are shown in Figure A2-4. The MCS streamer was 4264 m in total length with 160 channels in 40 active sections. The SCS streamer (not shown) consisted of a 188 m leader, a 25 m stretch section and a 137.5 m active section comprised of four groups of length 12.5 m, 25 m, 50 m and 50 m respectively. The distance from the guns to the center of the active portion of the SCS streamer is 257 m.

EWING AIRGUN ARRAY- 10 GUN FOR 504B MCS PROJECT

VOLUME= 3005 cu in

MCS
FEEL

Scale: 1"=20'



BOLD = Size change from 20 gun array

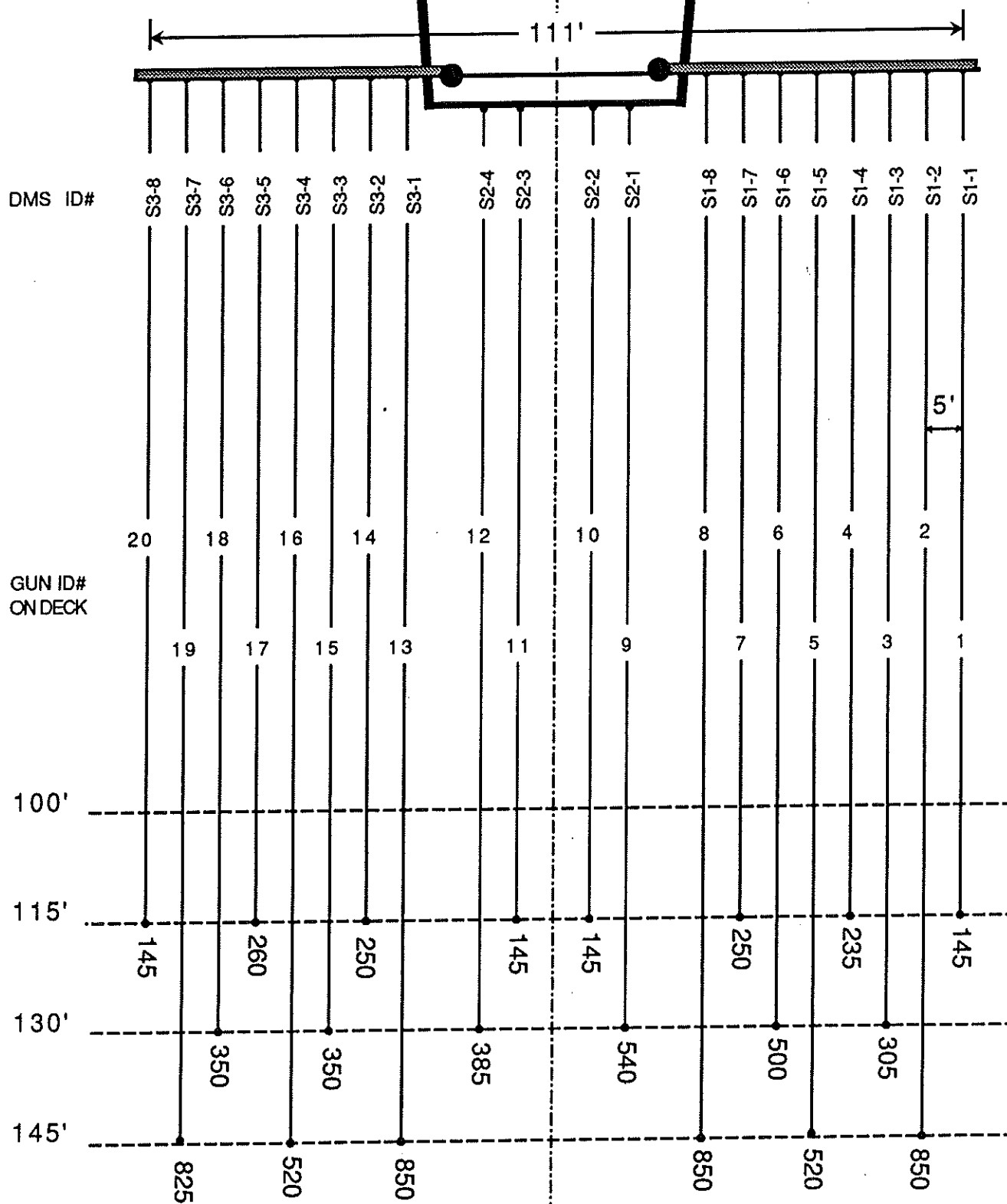
16 Oct, 94- baf

EWING AIRGUN ARRAY- 20 GUN FOR 504B MCS PROJECT

VOLUME= 8420 cu in

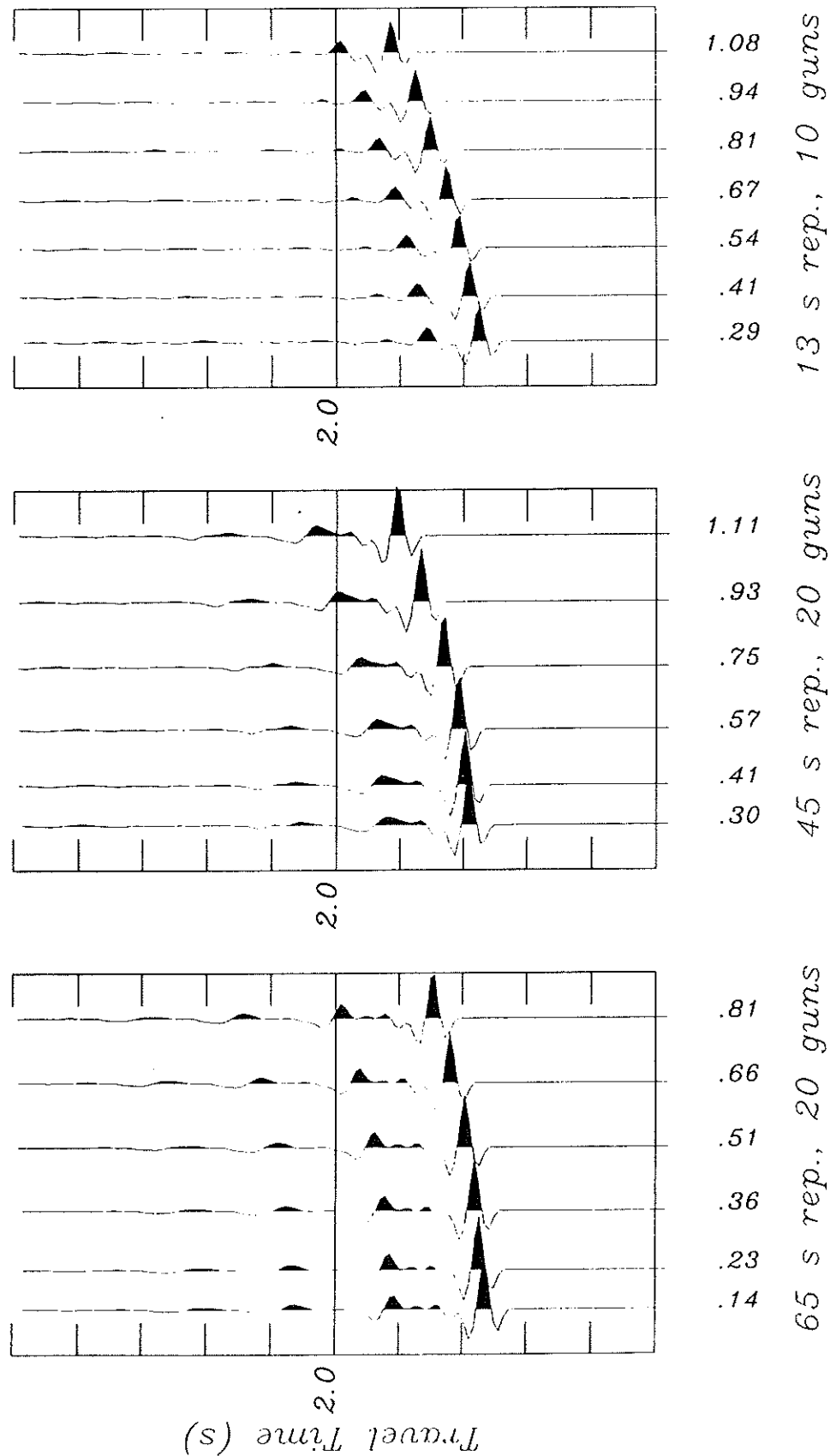
MCS
REEL

Scale: 1"=20'

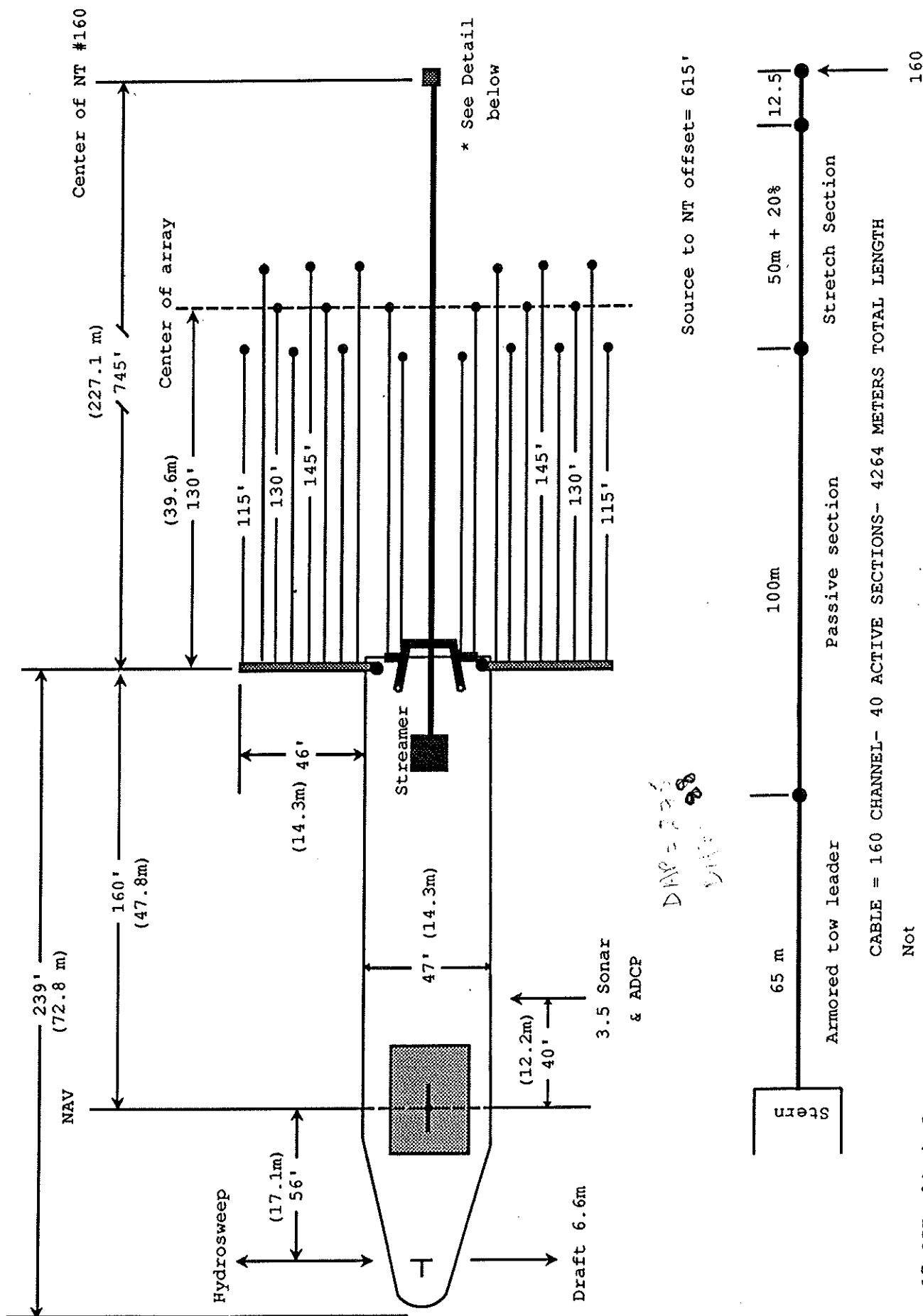


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Comparison of Ewing Array Signatures



MAURICE EWING SETBACK AND OFFSET DIAGRAM

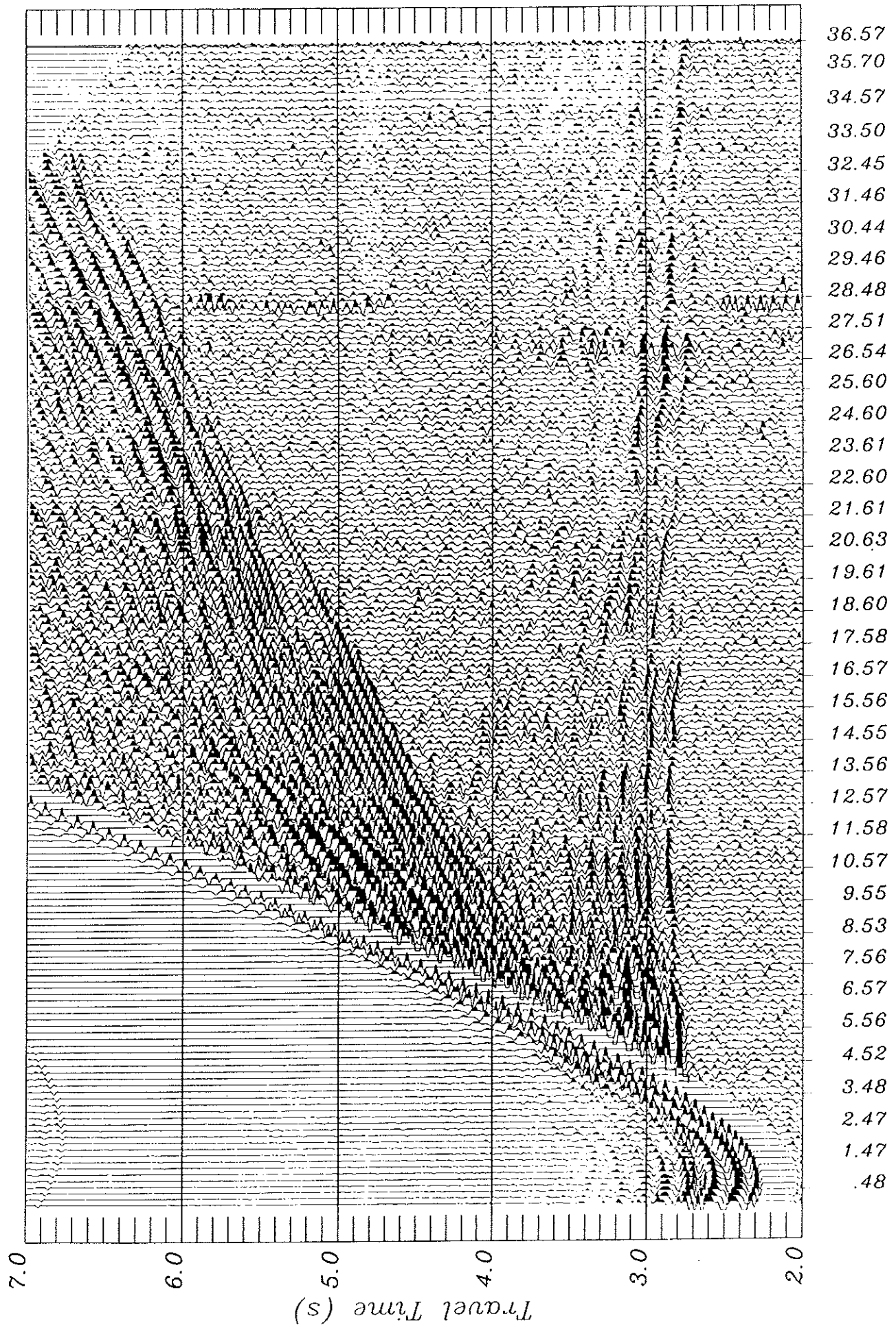


APPENDIX 3: COMPARISON OF RECORD SECTIONS FOR DIFFERENT AIRGUN SOURCES AND FIRING INTERVALS

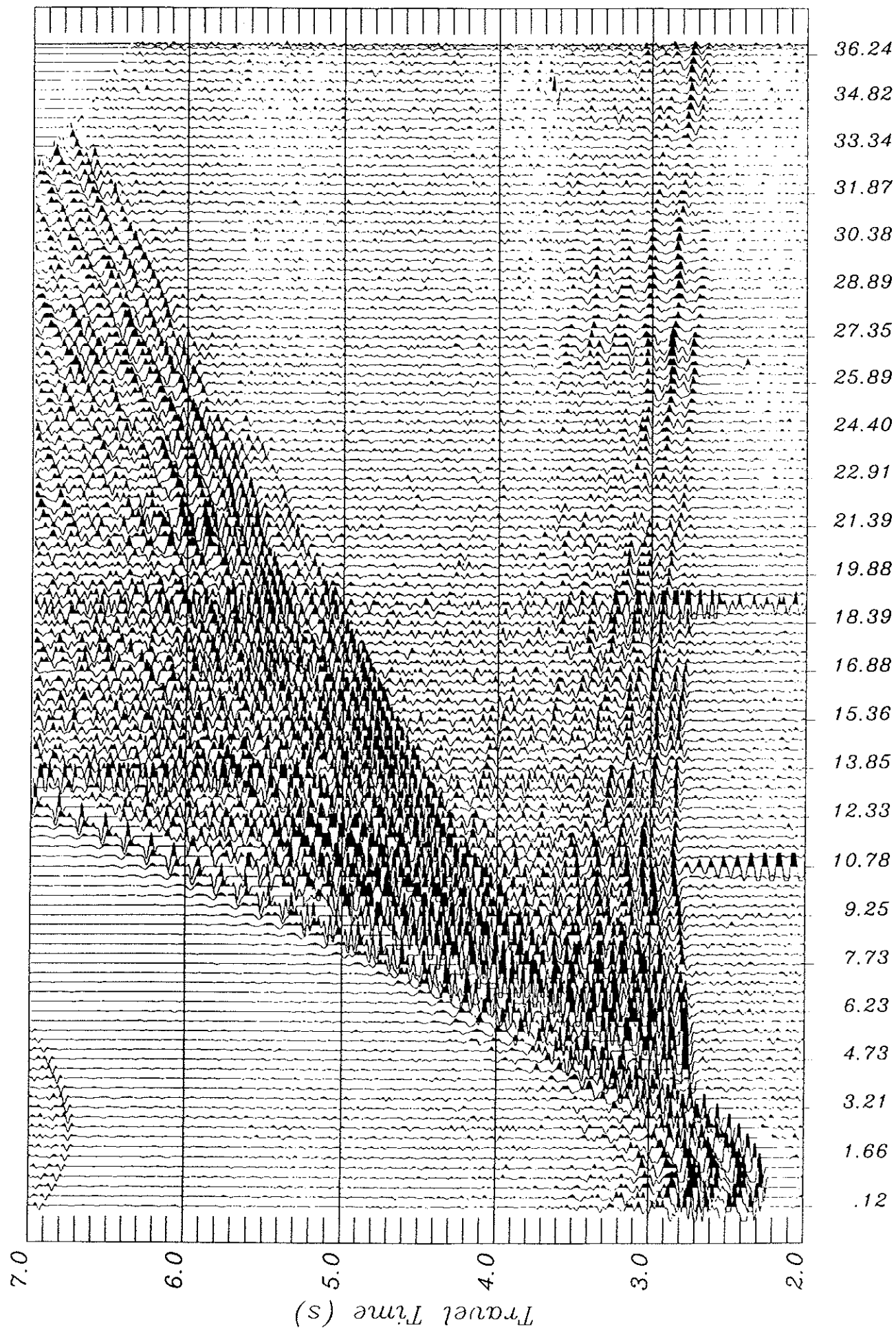
Figure A3-1a-e shows OBS record sections for both the 10-gun and 20-gun arrays, plotted at identical scales, for several different firing intervals. Figures A3-1a and b compare hydrophone data for the 20-gun array for a 43 s and 65 s rep rate (shot intervals of ~100 and 150 m at 4.5 kts). The ambient noise level is much higher when a 43 s rep rate is used due to water column reverberations from prior shots. Similarly Figures A3c and d show that ambient noise levels are lower for an 84 s rep rate than for a 65 s rep rate. The level of prior shot noise for the 10-gun array fired at a 65 s rep is comparable to a 20-gun array fired at an 84 s interval.

Note that in comparing Figure A3-1c-e that the 20-gun array produced higher S/N and much better secondary arrivals (converted shear waves) than the 10-gun array.

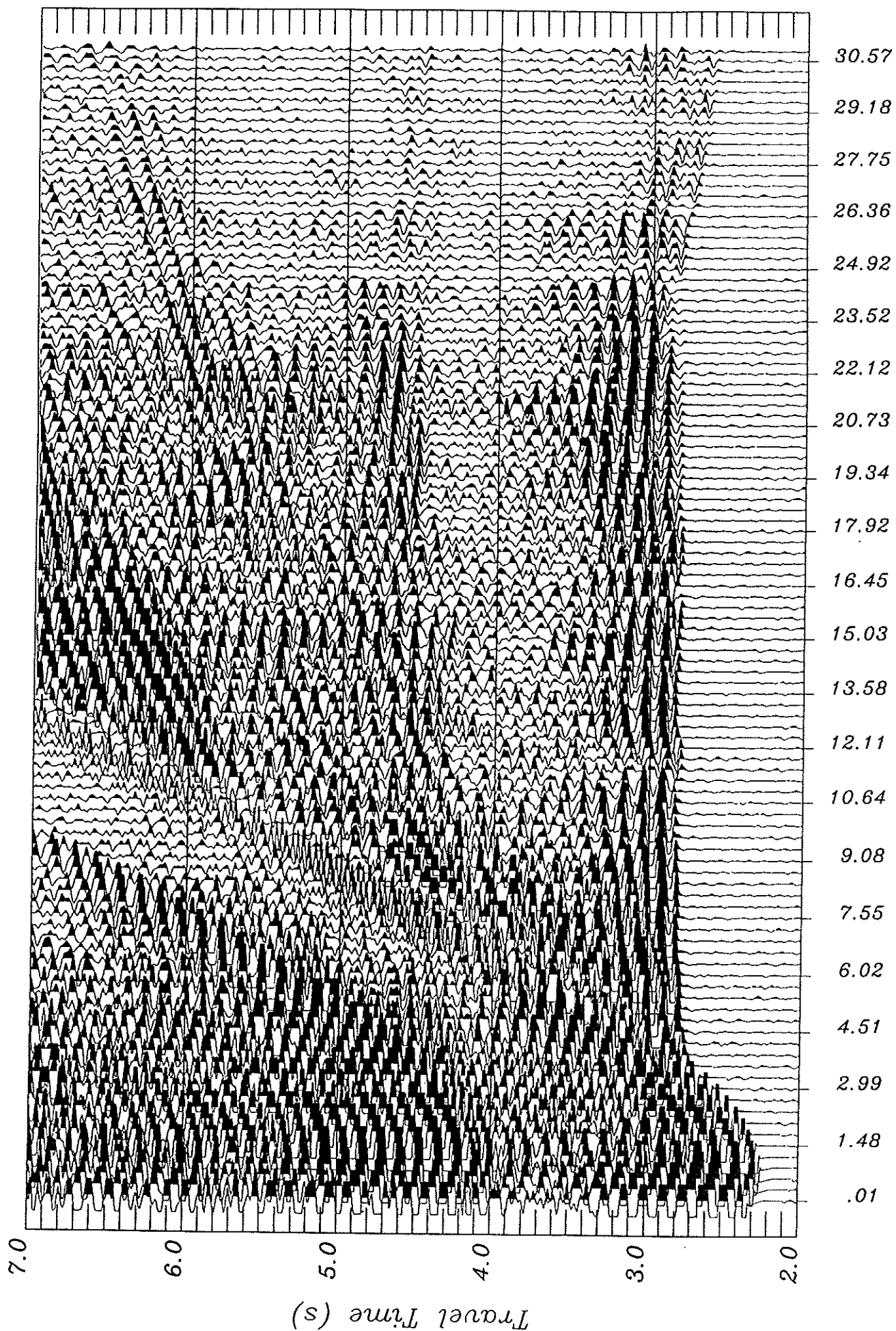
For refraction shooting in the Hole 504B experiment we found the 20-gun array, fired at a 65 s repetition was the best compromise between source power, shot spacing and minimization of prior shot noise. For SCS and MCS profiling we used the 10-gun array.



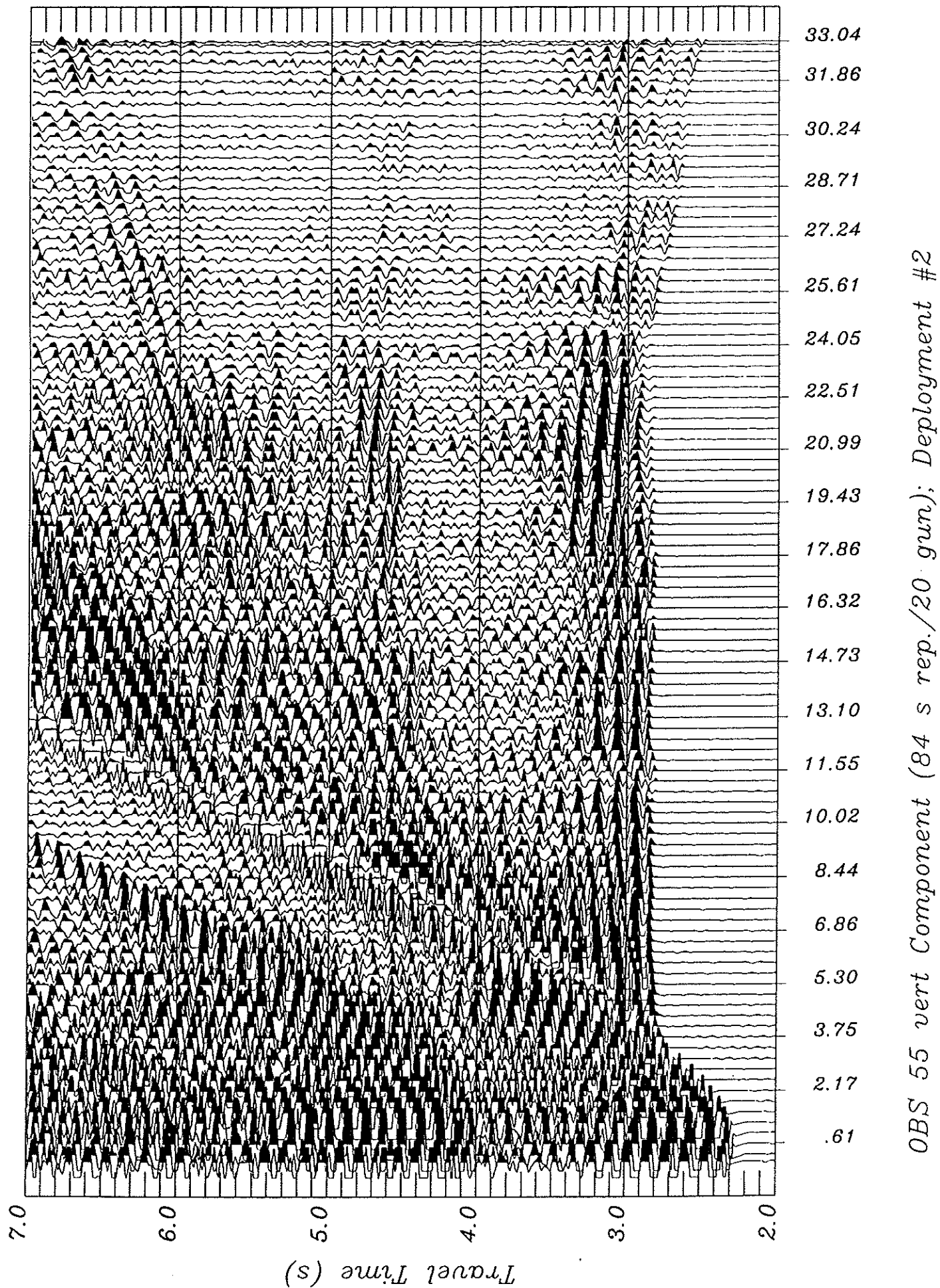
OBS 54 Hydro. Component (43 sec rep); Deployment #1

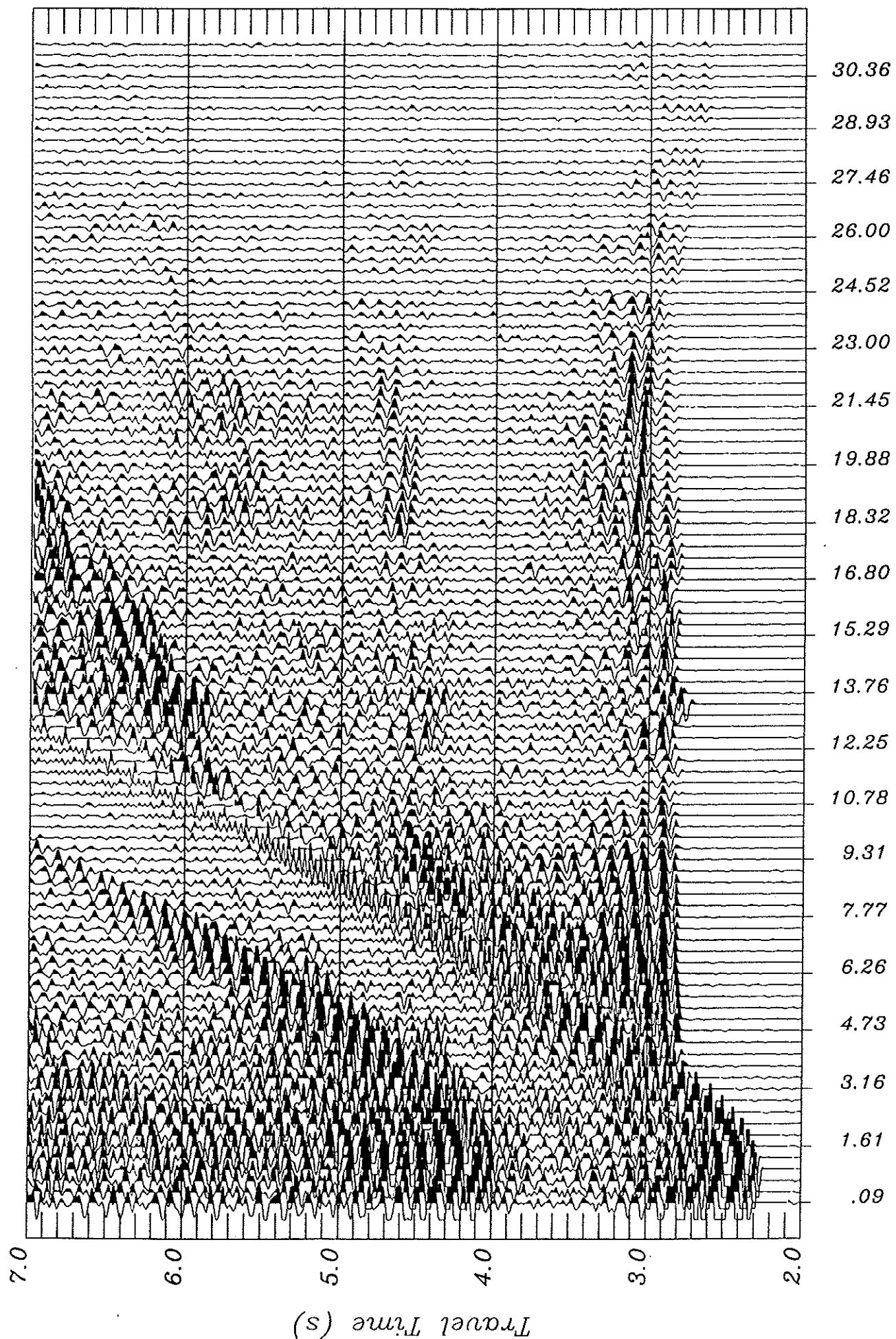


OBS 54 Hydro. Component (65 s rep.); Deployment #1



OBS 55 vert Component (65 s rep./20 gun); Deployment #2





OBS 55 vert Component (65 s rep./10 gun); Deployment #2