

ACKNOWLEDGMENTS

The continuous velocity logs obtained from wells can, under simplified but realistic physical assumptions, be used to produce synthetic seismograms which closely resemble actual seismograms obtained from shot hole explosions. The production of the synthetic seismograms is accomplished in two stages, which are detailed in Sections 1 and 2.

Section 1 deals exclusively with the acquisition of velocity data from strip graphs. This was accomplished by using a Calcomp Digitizer. All software for the Digitizer was developed from the ground up, and implemented on a Digital Equipment Corporation Microvax Workstation.

In Section 2 the concepts of wave propagation through the earth's strata, along with the seismic convolutional model of the earth are dealt with. Additionally, the use of the Fast Fourier Transform as a tool in seismic signal processing is brought to the fore. Finally, an actual velocity log was digitized and processed to yield a synthetic seismogram.

All software development for this project was done on a MICRO VAX 3500 minicomputer, supported by the VAX/VMS operating system. VAX 11 Fortran was used exclusively as the programming language for all aspects of this project.