

4. SURVEY METHODS AND PROCEDURES (Cont'd)

4.5 Analogue Systems (Cont'd)

4.5.3 Seismic Reflection Profiling

The technique of seismic profiling employs a source of acoustic energy with sufficient power and low enough frequency content to penetrate the seafloor and obtain echoes from the underlying strata. The sound source, typically a boomer or sparker, sends a pulse of energy to the seabed, where part is transmitted and part reflected. The transmitted signal, as it penetrates the sub-seafloor sediments, is in turn part-reflected and part-transmitted at succeeding interfaces, separating materials with different acoustic impedances. The reflected components travel as a long wave-train up through the water column and are received by a hydrophone towed at the sea-surface next to the sound source. The hydrophone passes the signal inboard to various filters and amplifiers, before presentation on a graphic recorder. A continuous time section is built-up on the recorder by firing the acoustic source several times per second and printing the returned echoes side-by-side on the paper record.

For the PELICAN-5 site survey, a boomer was employed as the sound source. Short, high voltage electrical pulses are passed from the capacitor bank, down the electrical cable to the boomer coil.