

EXPLANATION OF PROPOSED OPERATION

Digicon Geophysical Corp. (Digicon) is engaged in exploration for petroleum and petroleum products. Digicon proposes to test and operate a system of seismic data recovery, known as DIGISEIS, which requires the use of multiple frequencies in the 72 MHz band for transmission of telemetry data.

The DIGISEIS system was developed to explore the so-called twilight zone of offshore oil and gas exploration. This is the area that is too shallow for normal marine operations and too deep for conventional land based shallow water operations.

There is a significant data quality problem due to the high noise level from wave action and from the inability to properly plant geophones for good coupling to the sea floor. The previous systems were FM systems having a dynamic range of 48-60 dB with no means of true amplitude recovery. The DIGISEIS system has a dynamic range of 120-132 dB. The true amplitudes are faithfully recorded.

The other means of data quality enhancement is to have more seismic receptor groups available. This imposes the requirement for large numbers of channels. We wish to record a minimum of 150 channels on the shallow water phase of the exploration effort. In order to record 150 channels efficiently, one should have 180 channels available. In order to derive this many channels, it is necessary to use a portion of the spectrum in TV channel 4 and 5. However, in view of the low power proposed and the fact that operations will be in remote areas, no harmful interference to TV channel 4 or 5 receiver is anticipated. Indeed, it is more likely that interference will be caused to the telemetry transmitters from TV operations.

In order to operate in this fashion, it was necessary to develop a means of automatically adjusting the transmitter power on the buoy to use the minimum amount of radiated power from the buoy that would give us reliable data. By measuring the received power at the buoy from the command transmitter, we automatically scale the power from the buoys to prevent overloading the preamplifier in the receiver permitting closer spacing of buoy frequencies. The maximum power used will not exceed 1 watt.

The test program that will be pursued over the next 24 months will be to see how long we can go on power without causing loss of signal quality and to further develop data compaction techniques.

Accordingly, Digicon submits that:

1. It has an organized plan of development leading to a specific objective.
2. The actual transmission by radio is essential to proceed beyond the present stage of the program.
3. The program promises to provide a substantial contribution to the expansion or extension of the radio art by exploring new concepts in radio transmission of data.
4. The program will be conducted by qualified personnel.