

**Paper 12****High resolution 2-D seismic survey in the Malay Basin****ABDUL RAZAK NURIN, KURT B. TWEEDY & JESMEE ZAINAL RASHID**

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On June 7, 1993, Esso Production Malaysia Incorporated (EPMI) completed another successful 2-D seismic survey in the Malay Basin. This year's 2-D acquisition differed slightly from previous years in that we employed two survey designs: the conventional 2-D survey and the shallow seismic high resolution 2-D survey, both targeted at different objectives. The conventional 2-D acquisition was designed to firm up prospects as well as to infill existing coarse regional grid over prospective areas in both PM-5 and PM-8 areas. The high resolution 2-D survey was designed to improve resolution of thin reservoir units at relatively shallow depths (< 1500 meters) on the north flank of PM-8 area. A total of 2889 kms (chargeable) of conventional 2-D and 1649 kms (chargeable) of high resolution 2-D data were acquired using Digicon's M/V Geotide.

The recording of high resolution 2-D seismic survey idea surfaced as a result of excellent data quality obtained during recent site survey work where reservoir units were better resolved down to 1 second two way travel time when compared to conventional 2-D. To meet this challenge, EPMI, with the assistance of the Geophysical Operations Group at EEC, designed acquisition parameters for the high resolution survey. This parameter design included the modelling of the air-gun array for broad band signal

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generation, using shorter group interval for high frequency preservation and finer subsurface sampling, and shallower cable and gun depths to help preserve data at the higher end of the frequency spectrum. The most challenging parameter design to honor in the field was to keep the cable at the depth of 3 meters which requires near perfect sea conditions.

At the time this abstract is written, most of the high resolution data is being processed. Test processing results are very encouraging with indications that the reservoir units are better resolved with significantly wider bandwidth compared to the conventional 2-D data set acquired in previous years. There does not appear to be any problem with penetration down to the target depths of at least 1500 meters (basement) and we consider this data to be an important improvement in seismic acquisition.

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