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Halliburton Geophysical Services, Inc. provided a SYLEDIS radio positioning system to conduct a survey for the Bridge Oil Company of Australia in permit area T15P, in the North Tasmanian Region of Australia.

Aboard M/V Magnificent Creek the SYLEDIS was interfaced to the CMS III (Configurable Marine System). The CMS is a fully integrated, real time instrumentation system for controlling and monitoring the navigation and survey functions necessary to meet the high accuracy requirements of marine geophysical exploration needs. The CMS was specifically designed by Geophysical Services Inc. to meet these needs.

The CMS III is designed around Texas Instruments model 980 and 990 microcomputers. One of the major responsibilities of the CMS is to provide an integrated navigation capability for seismic line control. The real-time multisensor navigation function, incorporated in the CMS, derives positional data from a variety of sources; including satellite, sonar, gyro-compass, range/range and hyperbolic radio positioning systems interfaced directly to the CMS hardware.

As well as providing for the magnetic tape recording of data for off-line post processing, the system performs automatic line and shot control based on distance measured equal shotpoint spacing along the great circle path between the required endpoints of a seismic line. In addition to the navigation function of the CMS, the system also includes the capabilities related to streamer tracking, airgun array monitoring and control as well as automatic data logging.

The basic vessel navigation subsystems functions of the CMS include integrated multirange radio positioning system navigation and a GEONAV (GEOdetic NAVigation) integrated satellite navigation system capability.

The integrated multi-range radio positioning system function of the CMS allows for the integration of up to a maximum of 12 multi-system range/range and/or hyperbolic range readings. Raw range readings are recorded on tape for each shotpoint for application in post processing. In addition, vessel velocity component computations, based on the rate of change of range readings are calculated and applied to the continuous line and shot control of the CMS for accurate steering of the vessel and on the desired seismic line.