

# HYDRONAV

## TUNU 8 High Pressure Gas Pipeline Construction

Location : Mahakam Delta, Borneo East Kalimantan, INDONESIA

Client : Pt McConnell Dowell Indonesia

Date : July 2002



Pipeline at low tide

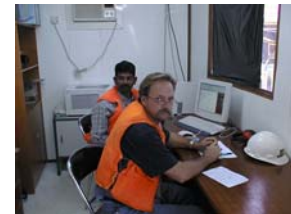
**Background.** PT McConnell Dowell Indonesia won the contract to construct a high pressure gas pipeline for TotalFina's Tunu Field Development Phase 8, in Tunu Field, Handil – East Kalimantan.

The pipe was laid on the sea floor then buried to a depth of 2m using a jetting sled, which ran along the top of the pipe and using water jets to excavate the material underneath the pipe creating a trench for the pipe to sit in. The working area was in the midst of the TUNA 8 oil field with many active pipelines which meant accurate positioning of barges and anchor lines was critically important.

Accurate 3-D as-built position was also required for the pipe after jetting completion, as well as a complete hydrographic survey of the pipeline 'corridor' before and after pipeline construction.

**Solution.** McConnell Dowell purchased the following spread of equipment off HYDRONAV Services, to fully equip 2 Anchor Handling Tugs, one Jetting Barge, one Main barge and one survey boat with positioning and survey equipment:

- Trimble GPS receivers operating in RTK/DGPS modes.
- Odom Dual Frequency Echosounder
- KVH1000 Fluxgate Compass's
- TSS Heave Compensator
- S.G Brown Gyro compass
- Valeport Model VLR740 Tidegauge, Modus IPS depth sensor
- Analog Tidegauge
- Wind transducer
- Trimble HYDROpro Navigation, Construction software
- Trimble HYDROpro Terramodel processing software
- Pacific Crest radio modems



MDI Surveyor's with BMS system on Sierra Barge



Polka Tug towing the jetting barge into position. Both vessels are controlled by HYDROpro BMS software.

**Conclusion.** Hydronav provided complete installation and training services for Pt McConnell Dowell Indonesia on site. The jetting operation runs 24 hours per day during construction and the jetting barge and two anchor handling tugs are permanently monitored and controlled from the survey office on the main Sierra Barge using the HYDROpro Construction BMS software. Anchor positions and commands are relayed by automatically from the survey room by UHF data radio to the Tugs. After completion of jetting the hydrographic survey is carried out using the survey boat and as-built position of pipe is recorded using RTK GPS in backpack, operated from the survey boat.

Mr. Ken Tainton (Geophysical manager for McConnell Dowell Indonesia) had this to say about the project: "The hydrographic survey work for the pipe jetting and burial was originally planned to be contracted out to a local company. McConnell Dowell Indonesia made the decision to perform the survey work ourselves, which meant setting up a complete system from scratch. We were looking for a 'one stop shop' to supply and install the RTK/DGPS instruments and the BMS software, so naturally we contacted Hydronav. We are very pleased with the system's operation, and also the ongoing service, training and assistance provided by Hydronav. We look forward to continuing our relationship with Hydronav on future projects."