

ZEE NEWS 2011

Ever since its inception in 1986, ZEE has been in the forefront of creating innovative solutions to the challenges of offshore engineering, but recently it has risen to even greater heights with the successful completion of several challenging projects.

RECENTLY COMPLETED PROJECTS

LABUAN WATER PIPELINE PROJECT, Malaysia for Leighton Contractors (M) Sdn Bhd

The project involves the installation of a water pipeline from Mainland Sabah to Labuan Island. The submarine pipeline is approximately 24 km long. The installation contractor for this project is Leighton (M) Sdn Bhd. ZEE Engineering carried out the conceptual and the complete detailed Installation Engineering.

The pipeline had been designed as a 36" OD line, 9.5 mm wall thickness and with a 125 mm thick concrete weight coating. The concrete has been poured to the pipeline through a mould consolidated with re-bars. It was anticipated that the field joints locations may be problematic due to reduction in overall stiffness and stress concentration. Intensive Finite Element Analysis and field tests were carried to establish the relative stiffness of the composite pipe.

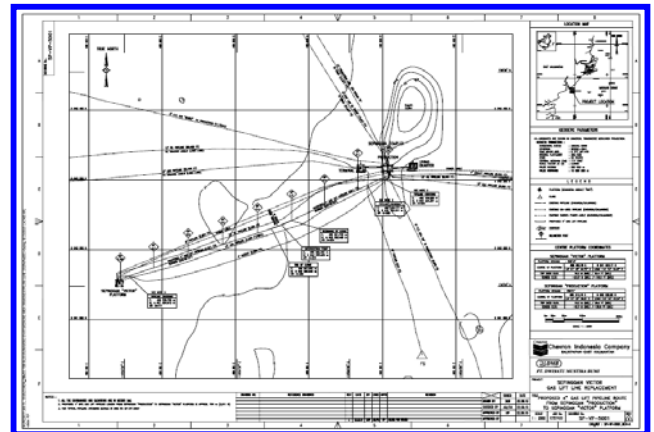


KLO PIPELINE INSTALLATION, Indonesia for PT Dwisatu Mustika Bumi (DMB)

Chevron Indonesia Company intends to replace some existing pipelines and install new lines at several locations. The first line to be replaced is a 12" crude line from Sepinggan "Tango" Platform to Tanjung Jumali Onshore

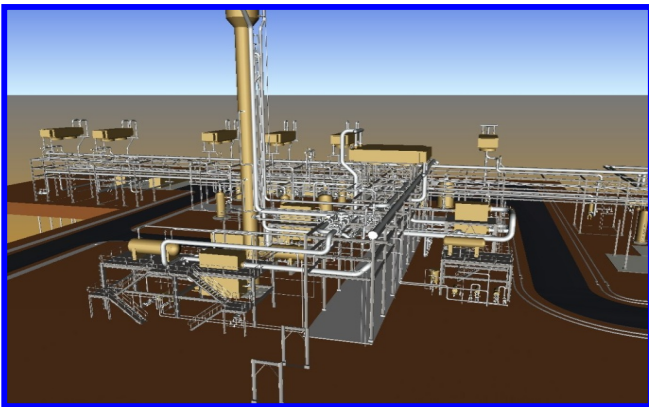
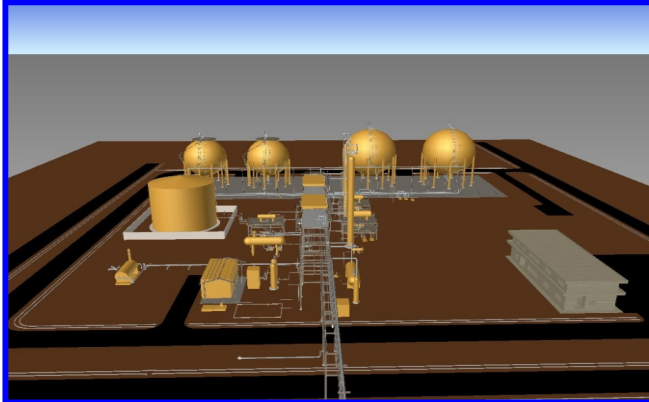
receiving facilities. The length of the line is approximately 24.5 km in water depths varying from 0 to 40 m. The second is a 4" Gaslift line from Sepinggan Production Platform to Sepinggan "Victor" Platform. The length of the line is approximately 1 km in 50 m water depths. The third is a 4" Gaslift line from Attaka "Foxtrot" Platform to Attaka "Oscar" Platform and with approximate length of 11 km in average water depths of 55m.

The EPCC contract has been awarded to PT Dwisatu Mustika Bumi (DMB) who appointed ZEE / ISB to carry out all the Residual Engineering related to the project.



SOUTH SUMATRA NGL PROJECT, Indonesia for PT E1-PERTAGAS

A first for ZEE, the completion of a FEED study for the South Sumatra NGL Project refinery. The operator for this complex is PT E1-PERTAGAS, a joint venture between E1 Corporation (Korea) and Pertamina (Indonesia). The project was to carry out a FEED study, resulting in the preparation of all documentation for EPCC RFQ tender. The refinery comprises a 250 MMscfd Extraction Plant to recover Natural Gas Liquid (NGL) from existing pipeline gases, a 87 Km pipeline, a Fractionator Plant to separate the NGL into Propane, Mixed LPG and condensate for sale. Cost estimates were also carried for $\pm 10\%$ accuracy.



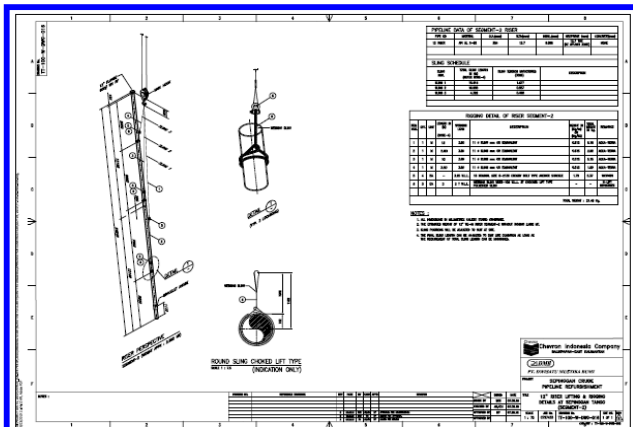
KAKAP BLOCK MODIFICATIONS, Indonesia for Star Energy (Kakap) Ltd

ZEE / ISB are carrying out the general engineering services contract for 2 years for Star Energy (Kakap) Ltd. This contract is to provide reimbursable engineering services to support offshore facilities modifications in the Kakap block. Currently the Kakap field is producing oil from platforms KH, KF, KG and KRA and 5 sub sea wells. Oil is produced and shipped to the Kakap Natuna FPSO for storage and export via tankers.



PTT RISER PLATFORM, Thailand for Punj Lloyd Ltd

PTT Public Company Ltd currently operates the Riser Platform called PTT Riser Platform (PRP) in the Gulf of Thailand. This platform is located to the North of the Erawan Riser Platform (ERP). PTT has awarded an EPCC contract to Punj Lloyd group (Indonesia) for the Platform Compression Facilities Project to install 3 gas turbine compressors and associated equipment. Punj Lloyd appointed ZEE / ISB as the engineering consultant for the project, including installation engineering.



ON GOING PROJ

Tanzania, premier oil, SAAG, BPCL

JACKET and TOPSIDE TRANSPORTATION ANALYSIS, Malaysia for Keabangan Petroleum Operating Company (KPOC)

The Kababangan Petroleum Operating Company is currently embarking on the KBB Northern Hub Project to develop Oil and Gas reserves offshore Sabah, Malaysia. The KBB will be a single Integrated (PdUQ) platform located in 140 m water depth. The Jacket is estimated to be 15000 T and the topside 20000 T which will be installed by float over method.

Aker Engineering Malaysia (AEM) has been appointed as the Engineering Consultant for the project. AEM appointed ZEE to carry out design verification for the transportation barge motion and deflection by carrying independent analysis for the Jacket and Top side.

