

ZEE NEWS (1ST HALF 2010)

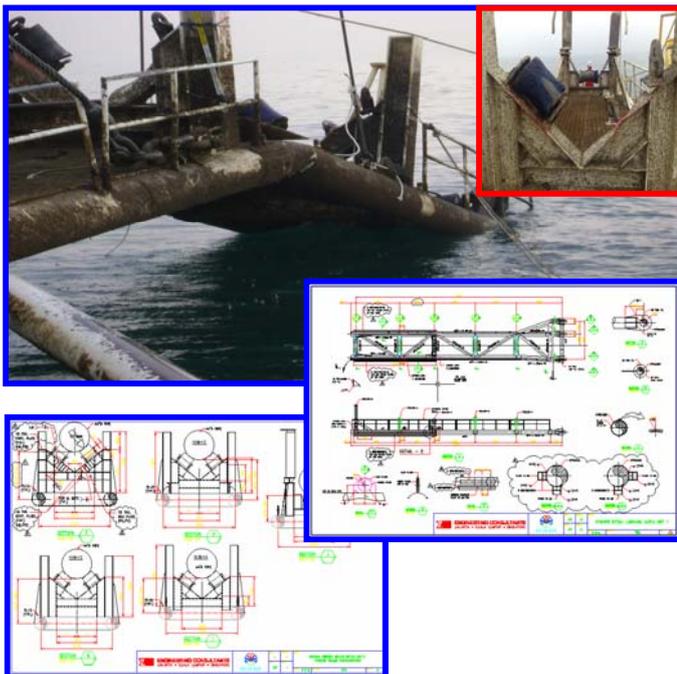
Ever since its inception in 1986, ZEE has been in the forefront of creating innovative solutions to the challenges of offshore engineering, but recently it has risen to even greater heights with the successful completion of several challenging projects. In the early part of 2010 ZEE was very pleased to complete 2 major projects in Sri Lanka. These projects particularly were of significant importance and close to the heart of Mr Herman Ranjith Perera the Technical Director of ZEE who is a Sri Lankan.

RECENTLY COMPLETED PROJECTS

COLOMBO PORT EXPANSION PROJECT, Sri Lanka for Hyundai & Engineering Construction Co Ltd

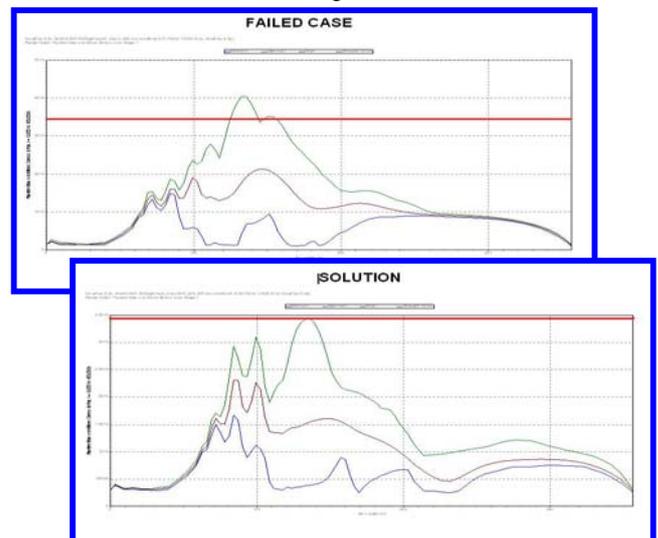
The Colombo South Harbour required a section of the existing crude oil import pipeline to be replaced. This required the rerouting of the new 36" submarine pipeline approximately 6 km in length with a subsea, and a land fall tie-in to the existing pipeline. Hyundai Engineering & Construction Co Ltd (Korea) was awarded the EPCC contract for the project. Hyundai appointed ZEE as their Installation Engineering Consultant.

During pipelay heavy adverse weather was encountered and the Pipe Lay Barge Stinger buckled at mid point. ZEE carried out Rectification Engineering with the material available on site and got the design approved by Germanischer Lloyd within 4 days. This greatly assisted Hyundai to limit the down time to less than 5 days.



MUTHURAJAWALA SPBM AND SECOND OFFSHORE PIPELINE PROJECT, Sri Lanka for Leighton Contractors (M) Sdn Bhd

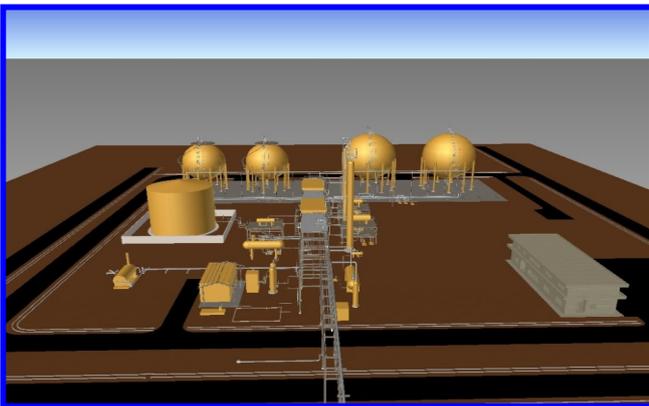
Ceylon Petroleum Storage Terminals Ltd (CPSTL) required a new Submarine pipeline to be installed connecting the existing SPBM to storage tanks at the Muthurajawala Tank Farm. The pipeline is 18" and the approximate length is 6 km. The project also included 0.6 km of Directional Drilling at the Land Fall.



As the pipeline had been laid through a reef, adverse weather conditions were encountered and the pipeline underwent a wet buckle. The site weather conditions and other critical data were passed on to ZEE which was able to simulate the problem via the advanced computer package ORCAFLEX. After identifying the problem which was biaxial bending due to the curve in the pipeline route, and the dynamic stress caused by the unfavourable heavy sea state, ZEE was able to propose a solution by reviewing the route curvature, Stinger dip angle and the Tensioner. With the proposed solution the pipeline was installed successfully well before the worsening monsoon weather conditions thus ensuring a huge savings on expenditure.

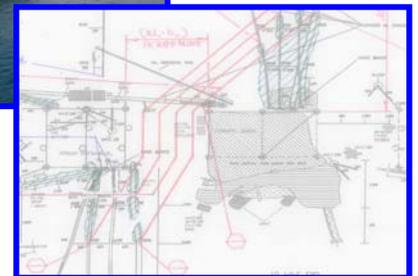
SOUTH SUMATRA NGL PROJECT, Indonesia for PT E1-PERTAGAS

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 EPC 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.



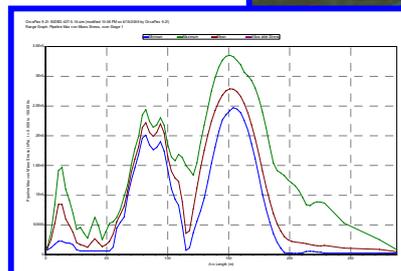
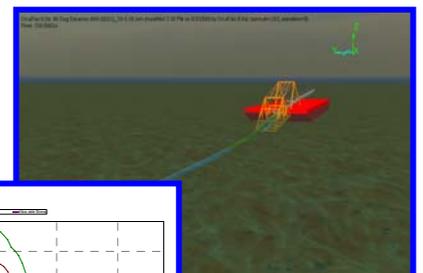
KJO-RELOCATION OF EX-LOADING DOCK PIPELINES, Saudi Arabia for KJO

Al-Khafji Joint Operations (KJO) is currently producing oil and associated gas from a natural divided zone offshore. The oil and gas treatment is carried out offshore. As the offshore platform has reached the end of its designed life KJO has decided to re-route the entire top-side piping under water to the on-shore control station. ZEE as pipeline sub contractors to Aker Engineering International (Malaysia) carried the rerouting design, compiled specifications, and vendor appraisals.



SHUQAIQ 2-FUEL IMPORT PIPELINE PROJECT, Saudi Arabia for Leighton Contractors (M) Sdn Bhd

The site is located approximately 10 km South of Ash Shuqaiq, approximately 100 km South West of Abha and approximately 140 km North of Jizan on the shores of Red Sea. The project involved the installation of SPM and the associated submarine pipeline to shore. The Installation contractors were Leighton Contractor (Malaysia) Sdn Bhd. ZEE Engineering carried out the related Residual Engineering.



ON GOING 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.

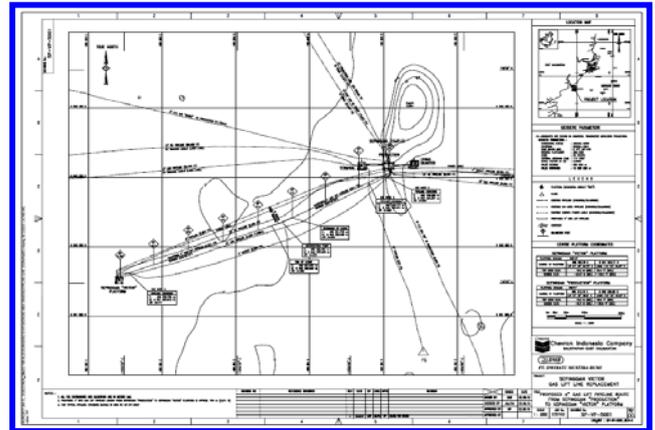


KLO PIPELINE INSTALLATION, Indonesia for PT Dwisatu Mustika Bumi (DMB)

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"

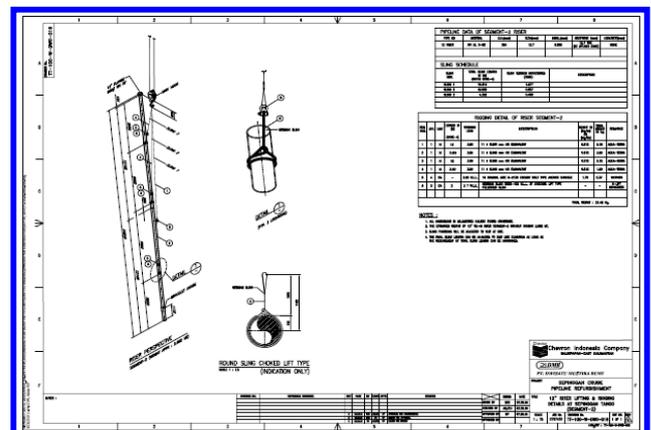
Platform and with approximate length of 11 km in average water depths of 55m.

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.



PTT RISER PLATFORM, Thailand for Punj Lloyd Ltd

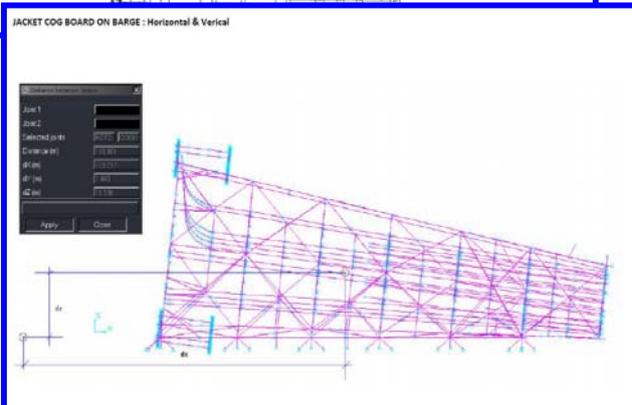
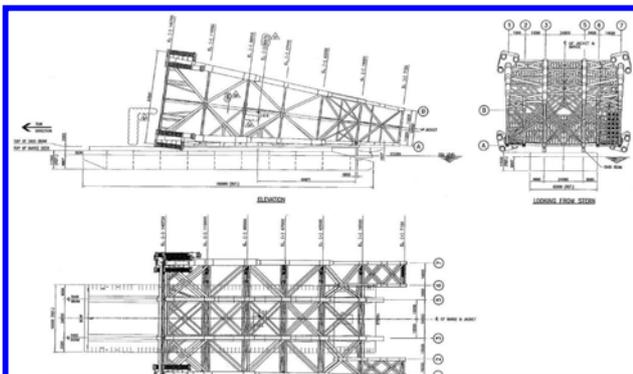
PTT Public Company Ltd currently operates the Riser Platform called PTT Riser Platform (PRP) in the Gulf of Thailand. This platform is located to the North of the Erawan Riser Platform (ERP). PTT has awarded an EPCC contract to Punj Lloyd group (Indonesia) for the Platform Compression Facilities Project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



JACKET and TOPSIDE TRANSPORTATION ANALYSIS, Malaysia for Kebabangan 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.



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.

