



# Offshore Construction Specialists

Experience At The Coalface of Marine Construction

## **ENGINEERING SERVICES**

**Detailed design and Installation Engineering Analyses for  
Marine Structures, Pipelines , SURF - (Subsea Umbilical,  
Risers and Flowline) & Related Facilities**

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Website [www.offshore-ocs.com](http://www.offshore-ocs.com)



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# INTRODUCTION

The Design and Construction Support Engineering group within OCS supports the company with specific analyses related to the design of marine structures, pipelines and associated facilities and the related Installation Engineering.

The Engineering group also performs specific stand alone Engineering for external clients.

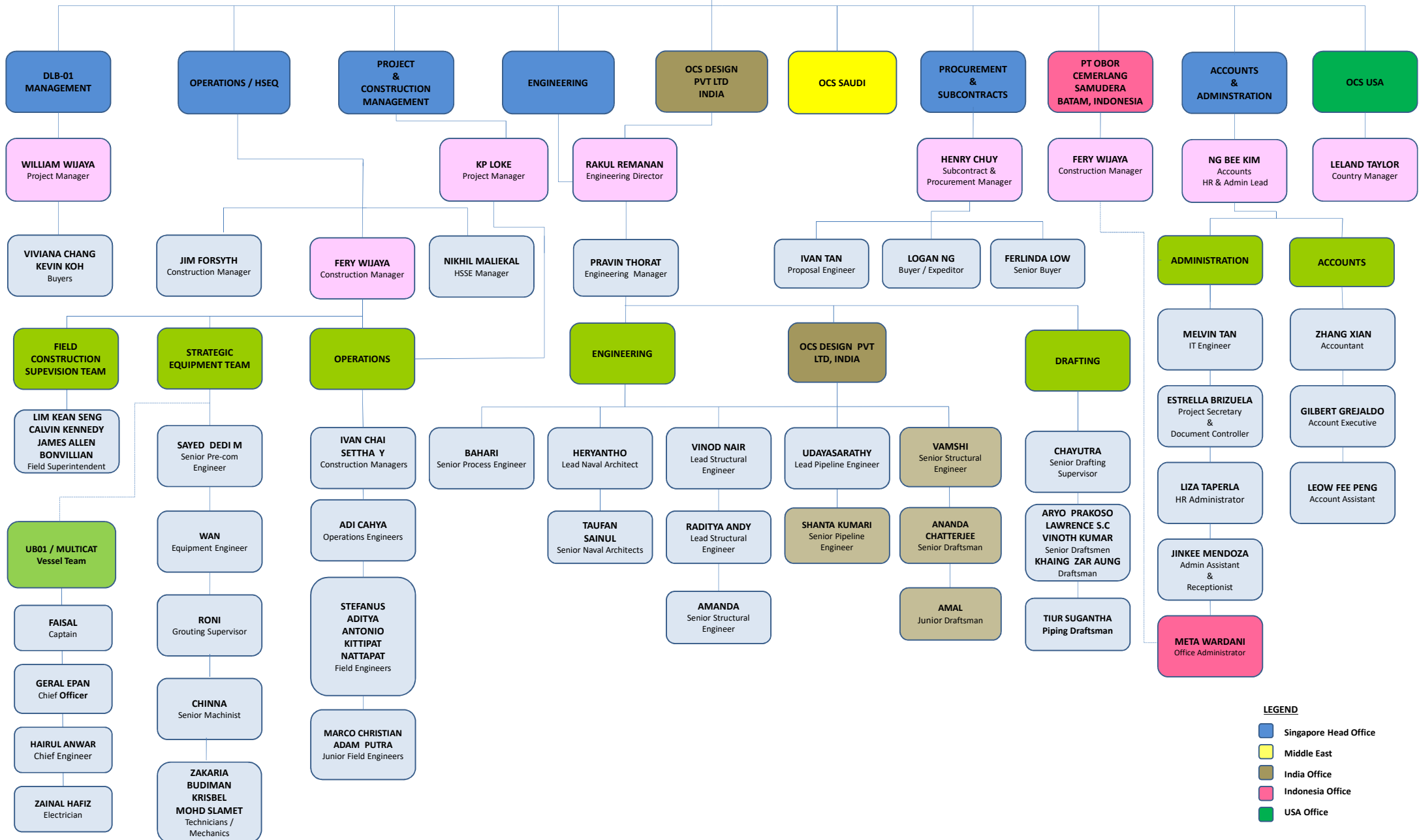
Experience encompasses the full range of structural, naval architectural , pipeline, SURF and geotechnical disciplines.

While the focus is on engineering analysis related to offshore oil and gas facilities the OCS Engineering group can perform general engineering covering a wide range of construction activities.

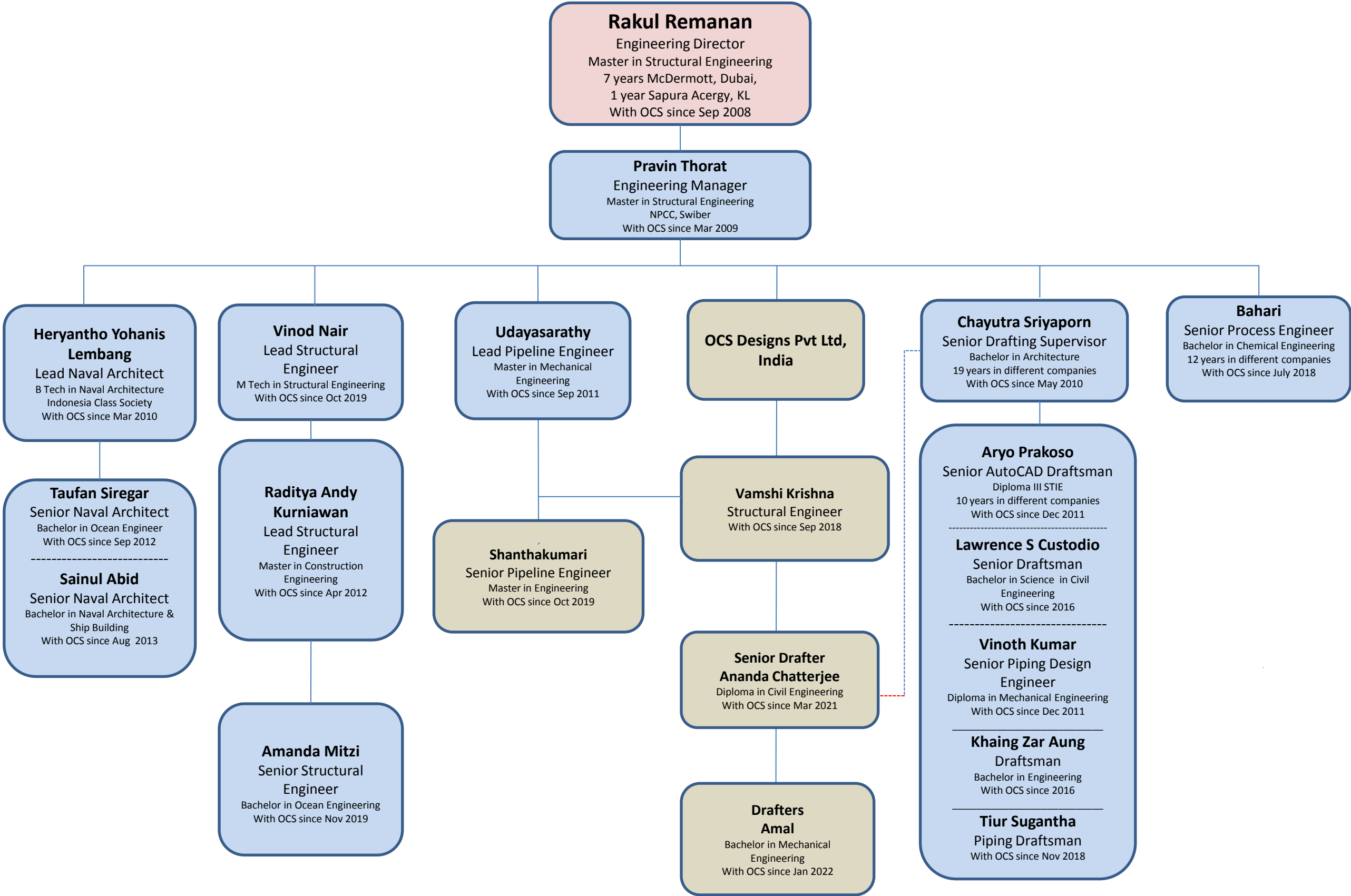


# OCS ORGANISATION CHART

**KEITH JACKSON**  
Managing & Technical Director









# STRUCTURAL DESIGN ENGINEERING

## Detailed Design Engineering includes

- Dynamic Analysis
  - Inplace Analysis And Design
  - Hydrostatic Design
  - Earthquake Analysis
  - Fatigue analysis & Design
  - Push-Over Analysis
  - Load Out Design
  - Sea Transportation Design
  - Launch and Upend Design
  - Float-over Mating Impact Design
  - Lift Installation Design
  - Miscellaneous Structural Design
- 
- Software Used : SACS, STAAD Pro, STAAD Offshore, MathCAD worksheets**



# STRUCTURAL DESIGN ENGINEERING

## **Jacket and Torside Detailed Design.**

The capability includes all pre-service and in-service analyses and designs, including:

- Jacket and Torside Load out Analysis
- Jacket and Torside Transportation Analysis
- Jacket and Torside Lifting Analysis
- Jacket Upending Analysis
- Jacket Launch Analysis
- Jacket and Torside Inplace Analysis
- Jacket and Torside Fatigue Analysis
- Jacket and Torside Seismic Analysis
- Push Over Analysis
- Float Over and Mating design
- All miscellaneous designs like boat landing, crown shims, transition piece design etc.
- Pile design – eigen value analysis for stick up

**Software Used : SACS, STAAD Pro, STAAD Offshore, MathCAD worksheets**



# STRUCTURAL ENGINEERING - INSTALLATION

**The Structural Engineering - Installation includes:**

- Lift Engineering
  - Rigging Designs
  - Padeye design / checks
  - Hook/ Prong checks
- Transportation / Launch / Upend Engineering
  - Sea fastening Analyses/ designs
  - Barge strength checks for transportation
  - Jacket Launch, Lift and Upend Analyses.
- Pile Installation Checks
  - Pile Stopper, stabbing guide Designs
  - Pile Upending and Stick up Checks
- Topside Floatover Analysis
  - Mating analysis checks
  
- Barge Upgrades: Upgrade of marine construction barges to accommodate additional required structural or pipelay capacity. Stinger upgrade or new build designs.
  
- Installation Aids design : Rigging Platform , Bumpers and guides, chaser frames, spreader bar/frame, lifting frames etc.
- **Software Used : SACS, STAAD Pro, STAAD Offshore, MathCAD worksheets**



# TOPSIDE PROCESS DESIGN

- Reports:
  - Process Simulation Report
  - Line Sizing report
  - Utility Consumption Report
  - Equipmnet sizing Report
  - Process Data Sheet
  - Process Safeguarding Memorandum
  - SAFE chart
  - Cause and effect diagram
  - Line List
- All Associated drawings
  - .
- **Software Used : HYSYS**



# TOPSIDE ELECTRICAL DESIGN

- Specifications and Data Sheets :
  - LV and MV Switchgear
  - LV and MV Motor Control Centre
  - Power and Control cables and Transformers
  - Variable Speed Drives
  - Navigation aids
  - UPS
- All Electrical Calculations and schedules
  - Load list
  - Lighting
  - Cable sizing
  - Power and control schedule
  - Panel schedule
- All Associated drawings
- All Associated MTO
- **Software Used : ETAP**



# TOPSIDE INSTRUMENTATION DESIGN

- Specifications and Data Sheets :
  - Production Manifold Control System ( PMCS)
  - Safety Instrumentation System( SIS)
  - Well Head Control Panel
  - Choke Valve
  - Actuated Ball Valve
  - Control Valve
  - Fusible Plug Loop Panel
- All Calculations and Lists
  - Sizing of control valve, orifice plate, thermos well
  - Instrument Index, PMCS I/O list, SIS I/O list
  - Cable sizing
  - Power and control schedule
  - Panel schedule
- All Associated drawings
- All Associated MTO
- **Software Used :**



# TOPSIDE PIPING DESIGN

- Specifications and Data Sheets :
  - Piping Material Classes
  - Piping Design Specification
  - Piping Hook up standards
  - Valve data sheets
  - Strainer Data sheets
  - Flame arrestor Data sheets
  - Bug screen data sheet
- All Associated drawings
- All Associated MTO
- **Software Used CAESER II**



# RIGID PIPELINE DESIGN ENGINEERING

## **Pipeline Design Engineering includes:**

- Pipeline Wall Thickness checks
- Cathodic protection design
- Route selection
- On bottom stability analysis
- Span Analysis, Crossing design
- Bottom Roughness analysis
- Subsea Tee Protection design
- PLEM and PLET structural Design
- Pipe support design
- Pipe stress analysis
- Riser and spool design
- Pipeline MTO
- Pipeline Specifications

**•Software Used: Offpipe (Static and Dynamic), Offpipe Span module, Orca flex, Caesar II MathCAD worksheets**



# RIGID PIPELINE INSTALLATION ENGINEERING

## **Pipeline Installation Engineering includes:**

### •Pipeline Installation Analysis

- Static and Dynamic Lay Analysis
- Davit Lift Analysis
- Start-up and Lay down analysis : Incl. DMA start up, bow string start up
- Abandonment and Recovery Analysis
- Single Point Lift Analysis
- Pipeline Shifting Analysis
- Local Buckling Checks
- Beach Pull analysis
- Lay Sensitivity Analysis : Incl. stinger angle and tensioner sensitivity
- Weld Repair Analysis
- Above water Tie-in analysis

### •Line Pipe Transportation

- Stacking Height Calculation
- Transportation Calculations and Sea fastening design



# RIGID PIPELINE INSTALLATION ENGINEERING

- Installation aids and Miscellaneous Design

- Start –up , Lay down and Pull heads design
- Beach Pull Hold Back Foundation Design
- Clamp design and bolt tension requirement check
- Concrete coating crushing strength and slipping check

• **Software Used: Offpipe (Static and Dynamic) Orca flex, MathCAD worksheets**



# SURF INSTALLATION ENGINEERING

## **SURF Installation Engineering includes:**

- Cable / Umbilical Installation Engineering

- Cable /Umbilical lay start up analysis inclusive of J Tube Pull Force Requirement
- Static Lay Analysis -Calculation of Lay Profile and Lay Tensions
- Dynamic Lay Analysis – Calculation of limiting environmental parameters
- Inline connector lay analysis
- Subsea end termination laydown analysis
- Fatigue Analysis

- Flexible Hose (Downline) Deployment Analyses

- Static Analysis – Downline top tension and Catenary Calculations for Pre-connection and Post connection
- Static Analysis with Current – Top Tensions & Subsea end static Displacements prior to connection and downline catenaries for Various cases after connection
- Dynamic Analysis - Top tensions, Subsea Termination connection end force and Limiting Environmental parameters Calculation

- **Software Used : Orcaflex (Static and Dynamic), MathCAD worksheets**



# NAVAL ARCHITECTURE

Naval Architectural work scopes performed by OCS includes:

- Tow Analysis

- Stability Checks and Vessel Motion determination
- Towing System Evaluation incl. Bollard Pull Calculation

- Engineered Lift Studies

- To calculate the Dynamic Amplification Factors (DAF) applicable to lifting operations for specific vessels / cranes in specific directional sea states.

- Mooring Analysis

- To determine the mooring tensions at a particular environmental criteria and check the mooring components for this tension and also to determine the maximum allowable environmental criteria based on the mooring pattern
- To determine the vessel excursion

- Jacket Floation and Upending Study

- Jacket configuration during various phases of upending
- Evaluation of jacket clearance to the barge and sea-bed
- Assessment of jacket leg flooding, if required, during upending
- Sling and hook loads
- Jacket stability checks during upending
- Sensitivity studies to investigate the effects of change in jacket weight and shifts in COG



# NAVAL ARCHITECTURE

- Jacket Launch Study

- Barge Ballasting Requirement
- Rocker Arm Reactions
- Jacket Dive Depth
- Maximum Barge Immersion
- Jacket Free Floating Condition stability check

## Topside Floatover/ Mating Studies

- Mating analysis
- Calculation of loads in the LMU and DSF
- Calculation of Loads on the fenders/ mooring

• **Software Used : MOSES, Orcaflex, MathCAD worksheets**



# GEOTECHNICAL ENGINEERING

The Geotechnical Engineering includes:

- Pile Drivability study

- To determine the dynamic stresses on the pile during driving
- To check the adequacy of a hammer to drive the pile
- To optimize the pile sections to reduce the number of offshore splices.

Slope stability checks

Sheet pile design

- **Software Used : GRL WEAP**



# ONGOING & COMPLETED PROJECTS

## COMPLETED PROJECTS

- OSTT to ST jetty pipeline, HPCL
- Apsara Block –A, Krisenergy
- YU Korchagin, Lukoil
- Filanovskogo – Phase –II , Lukoil
- OCS UB01 Miss Pennie
- EPCI for MDA and MBH Field Development
- EPCI for Trunk Pipeline at Bin Omar Field, SOC- Iraq
- Onshore Pipeline Subsidence- McConnell Dowell
- Madura Field Development T & I
- Jangkrik Complex Project
- Mallikai Project- package B
- Gorgon Upstream Pre-commissioning
- Kitchen Lights Unit 3 – Crowley, USA
- Kirinskoye Umbilcal Repair Project
- Cambodia Block A Wellhead Platform
- Badamyar Project
- Gorgon Upstream Project
- NSRP Complex project
- KGOC Gas and Condensate Export System
- Lampung LNG Floating storage and Re Gasification Facilities
- Kris Energy Minimum Facilities Platform.
- Banyu Urip Project
- Apache Julimar Project- ALLSEAS
- Petronas Ketapang





# COMPLETED PROJECTS

- Gorgon Project- Barrow Island LNG Plant
- Essar – Nand Gaurav – Modification to Pipelay barge
- Gorgon Upstream Project- ALLSEAS
- PHE UL
- Pertamina EP-Parigi Hot Tap
- PHE LIMA Subsidence
- Narrows Crossing
- Zawtika Field Development Project
- Deen Dayal Project- HMC
- Bawal (EPCI/Pipeline) – Conoco Indonesia
- PL2 Life Extension – Oil Search
- Arkutun-Dagi Spool Engineering(Sakhalin 1) - Heerema MC
- TSB Development Project – Kangean Energy
- Yolla Mid Life Enhancement project – Origin Energy
- POE Giant - 6 – conversion to pipelay barge
- EMAS Project – Lewek Champion upgrade
- P842 - NuCoastal Bua Ban & Songkhla Field development ( T&I)
- Compressor replacement project - East Belumut – Newfield
- M3Energy-Transportation & Installation of FSO mooring & Riser for JDAB7

**Mobil Cepu Ltd.**

**JGCS**  
CONSORTIUM



REKAYASA



PERTAMINA EP



SAIPEM LEIGHTON  
CONSORTIUM

**Allseas**

**SK E&C**  
INFRA DIVISION

**Apache**

PC KETAPANG II LTD.



PERTAMINA EP



HESS

**ESSAR**

PERTAMINA  
PHE ONWJ

**NEWFIELD**



ONGC



IOEC



ORIGIN



# COMPLETED PROJECTS

- Conoco Philips - North Belut Project – Installation of Subsea cable (T&I)
- Conoco Philips - North Belut Project – Installation of Bridge (T&I)
- Chevron 2009 Installation Campaign
- L & T MHSRP & MHN (ONGC)
- Ujung Pangkah Platform Installation and Flowline Engineering, Procurement , Construction and Installation (EPCI)
- Kambuna Topsides , Risers and Pipeline Installation (T&I)



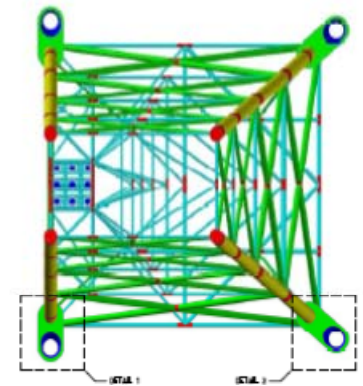
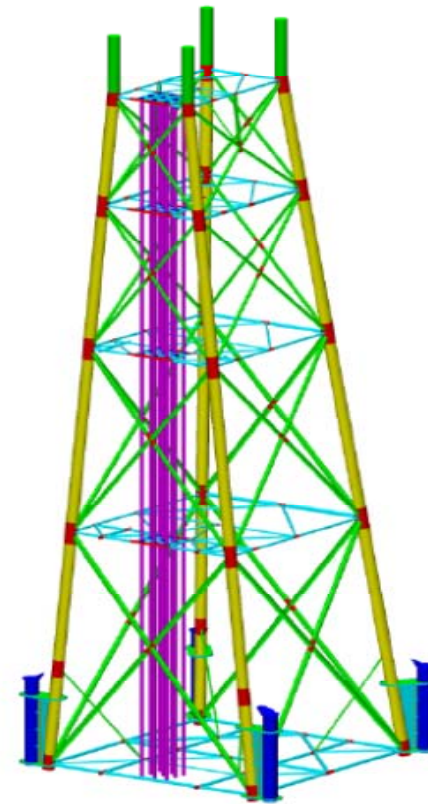
# ONGOING PROJECTS



**Project : Dusasfu Phase-3- Ruche Field Development- Jacket detailed Design**  
**Client : BW Energy –Gabon SA**  
**Operator: BW Energy**

## Jacket Detailed Design

- In-place Analysis
- Jacket Transportation Analysis
- Jacket lifting Analysis
- Jacket On Bottom Stability Analysis
- Jacket Cathodic Protection Design
- Jacket dynamic analysis
- Jacket Fatigue Analysis
- Jacket Load out Analysis
- Jacket Boat Impact Study
- Jacket Mud mat Design
- Jacket Miscellaneous Designs
- Weight Control Report and MTO





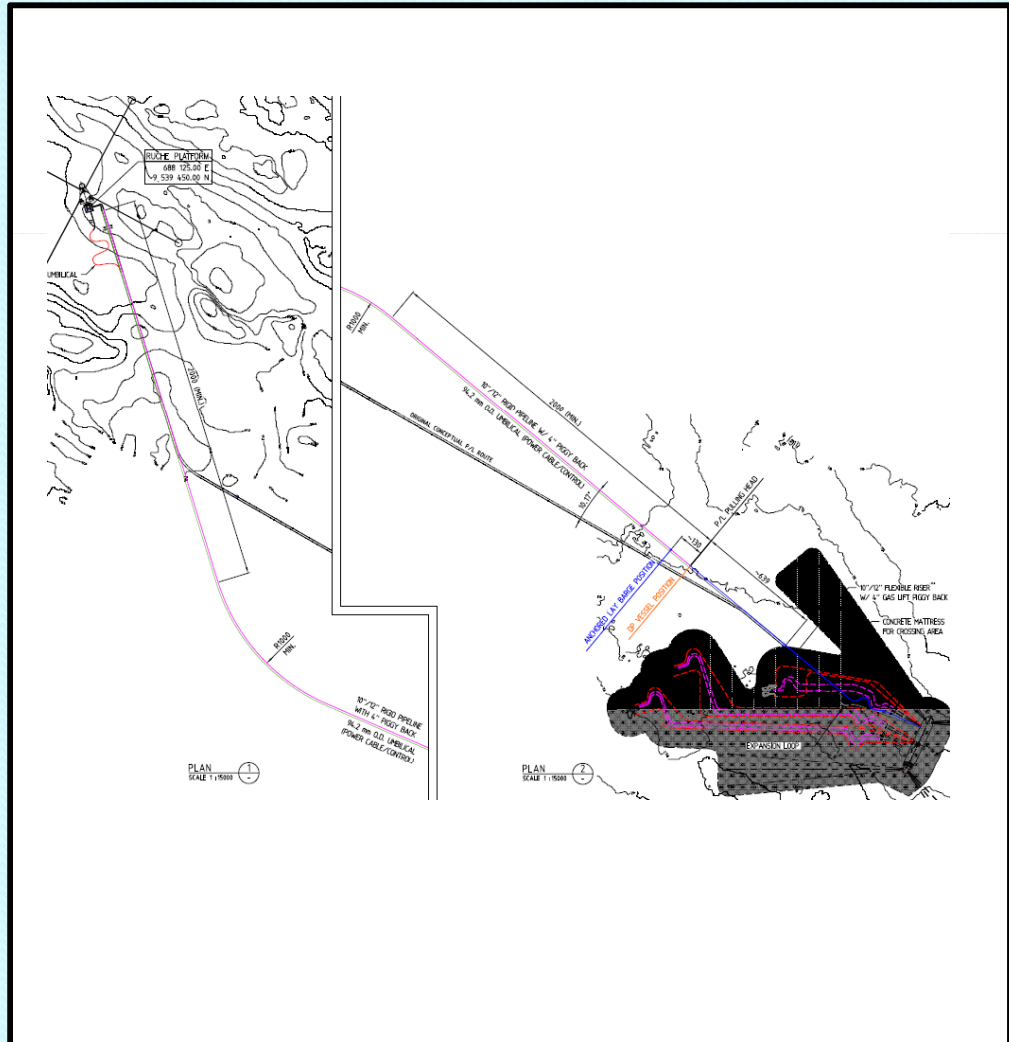
# ONGOING PROJECTS



**Project : Dusasfu Phase-3- Ruche Field Development- Pipeline detailed Design**  
**Client : BW Energy –Gabon SA**  
**Operator: BW Energy**

## Pipeline Detailed Design

- Pipeline wall thickness verification
- Pipeline Expansion Analysis
- Pipeline Global Buckling Analysis
- On Bottom Stability Analysis
- Pipeline Span Analysis
- Pipeline On Bottom Roughness Analysis
- Pipeline Crossing Analysis
- PLET/ PLEM, Spool design
- Pipe Stress Analysis
- Pipeline MTO





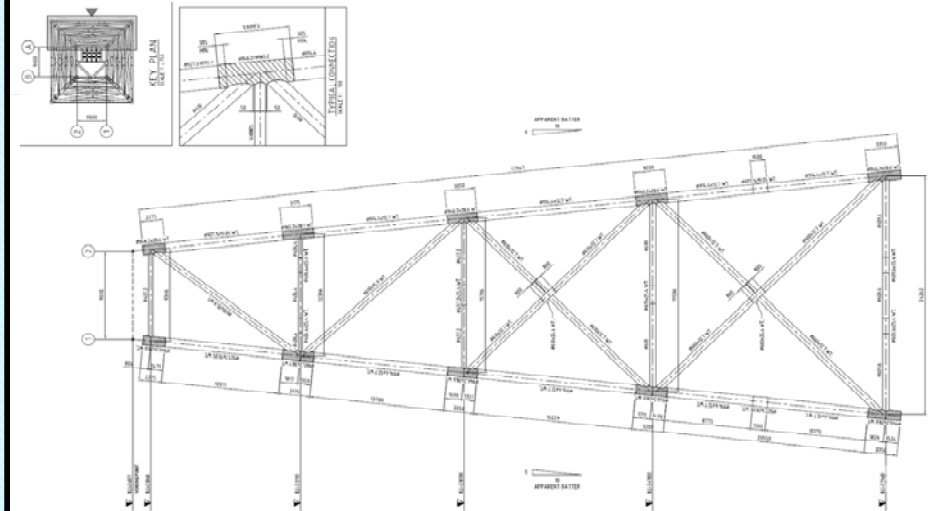
# ONGOING PROJECTS



**Project : Apsara Block A- Mini Platform – Structural Detailed Design**  
**Client : KrisEnergy (Apsara) Company Limited**  
**Operator: KrisEnergy**

## Jacket and Topping Detailed Structural Design

- In-place Analysis
- Transportation Analysis
- lifting Analysis
- Jacket On Bottom Stability Analysis
- Jacket Cathodic Protection Design
- Dynamic analysis
- Fatigue Analysis
- Load out Analysis
- Jacket Boat Impact Study
- Jacket Mud mat Design
- Miscellaneous Designs
- Weight control report and MTO





# ONGOING PROJECTS



**Project : Apsara Block A- Mini Platform – Piping and Process Detailed Design**  
**Client : KrisEnergy (Apsara) Company Limited**  
**Operator: KrisEnergy**

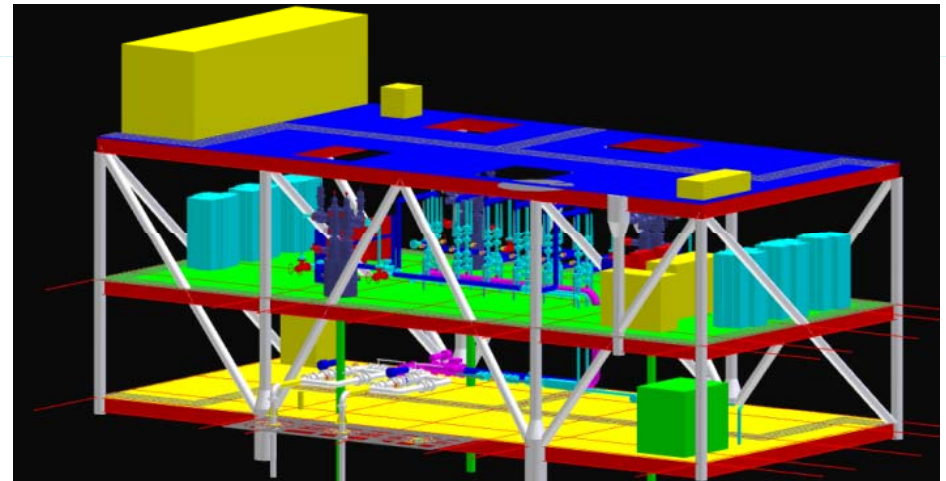
## **Piping and Process Design**

### Piping Design

- Specification and data sheets
- Pipe stress analysis and pipe support design
- Isometrics and GAs
- MTO

### Process Design

- All package designs
- P&IDs
- Process Simulation and Line sizing
- Utility consumption and equipment sizing
- Process data Sheets
- Safe charts and Cause and effect diagrams





# ONGOING PROJECTS



**Project : Production Barge (Ingenium II) Cambodia Apsara Block A Project**

**Client : KrisEnergy (Apsara) Company Limited**

**Operator: KrisEnergy**

## **Piping and Process Design**

### Piping Design

- Specification and data sheets
- Pipe stress analysis and pipe support design
- Isometrics and GAs
- MTO

### Process Design

- All package designs
- P&IDs
- Process Simulation and Line sizing
- Utility consumption and equipment sizing
- Process data Sheets
- Safe charts and Cause and effect diagrams





# ONGOING PROJECTS



**ExxonMobil**

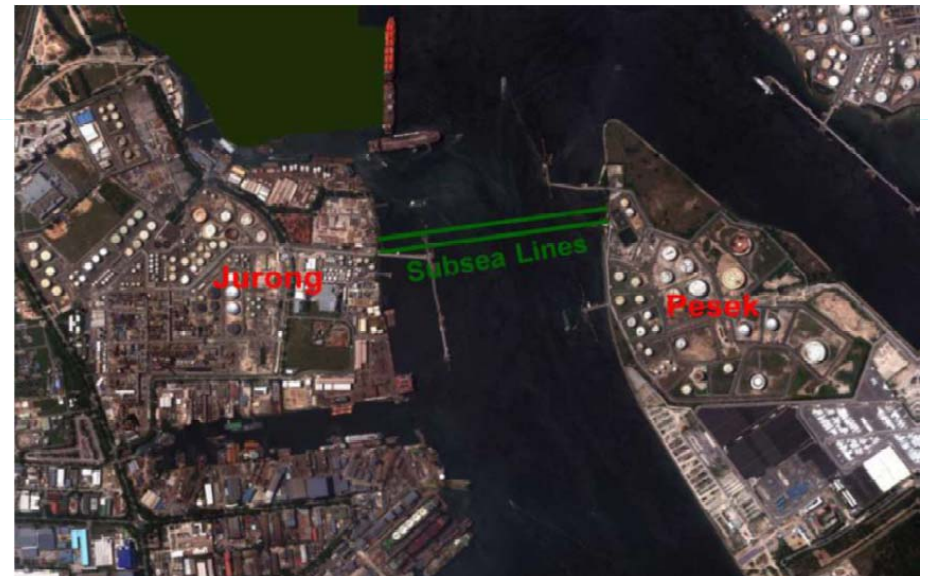
**Project : Pesek Group II Lube Storage Project- Mech 4**  
**Client : HPCL**  
**Client: Chiyoda Singapore (pte) Limited**  
**Operator: Exxon Mobil Asia Pacific Pte Ltd**

EPC – 3 New Pipes Pull through the existing 24” subsea pipeline, detailed design:

- Subsea Pipeline Bundle pull through design
- Subsea Pipeline Detailed Design
- Subsea Pipeline Shore – Subsea – Shore – Bundled pull installation - Detailed Installation Engineering
- Pipeline Procurement
- Pipeline Construction/Installation

Installation Engineering

- Pipeline pull analysis/ buoyancy calculation
- Spool lift analysis & Installation Studies
- Installation Aids Design





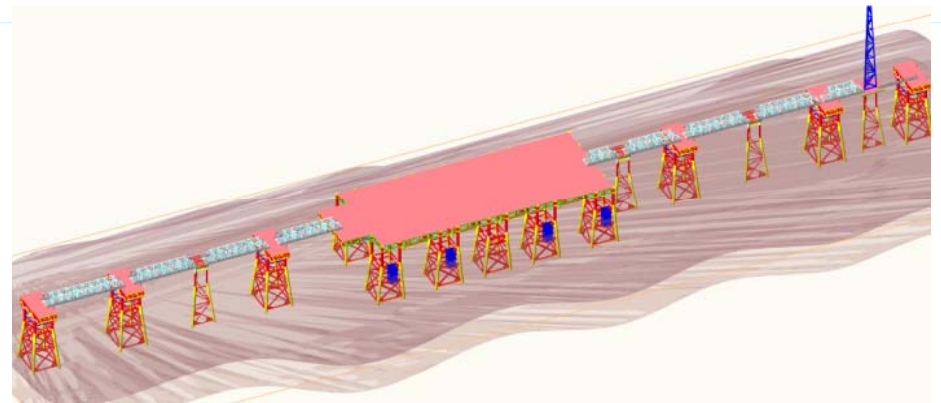
# ONGOING PROJECTS



**Project : Pre FEED – LNG Loading/ Unloading Jetty Client : HPCL**  
**Operator: CLP-Hong Kong**

## **Pre FEED Design of the Loading and Berthing Jetty**

- Berthing Load calculation
- Mooring and Berthing dolphin topside and jacket design
- Pile Design
- Bridge Design





# ONGOING PROJECTS



**Project : OSTT Jetty to ST Jetty - Pipeline**  
**Client : HPCL**  
**Operator: HPCL**

## Detailed design/ FEED Endorsement

- Pipeline design ( Onshore and Offshore), including stress analysis, cathodic protection, bottom roughness.
- Pipe Support Design
- Spool Design
- Riser Design
- Riser clamp design
- All Associated Electrical and Instrumentation
- Piping Design
- MTO preparation
- TBE preparation

## Installation Engineering

- Pipeline pull analysis/ buoyancy calculation
- Trenching analysis
- Barge mooring analysis
- Riser lift analysis
- Riser installation- Davit lift analysis





# ONGOING PROJECTS



Caspian  
Hydra  
Technologies



**ЛУКОЙЛ**  
НЕФТЯНАЯ КОМПАНИЯ

**Project : YU Korchagin**  
**Client : Caspian Hydra Technologies**  
**Operator: Lukoil**

## SCOPE

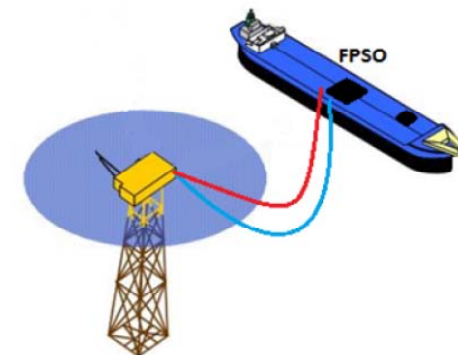
- Floatover and Mating Analysis of one topside
- Mooring analyses
- Sub structure installation nalysis
- Fender design
- Transportation and sea fastening design of the DSF for topside



**Project : Cambodia Block A – APSARA Wellhead Platform**  
**Client : Krisenergy**

## SCOPE

- FEED Process Design
- FEED Electrical Design
- FEED Instrumentation Design
- FEED Piping design





# COMPLETED PROJECTS



Caspian  
Hydra  
Technologies



**ЛУКОЙЛ**  
НЕФТЯНАЯ КОМПАНИЯ

**Project : Filanovskogo- Phase 2**  
**Client : Caspian Hydra Technologies**  
**Operator: Lukoil**

## SCOPE

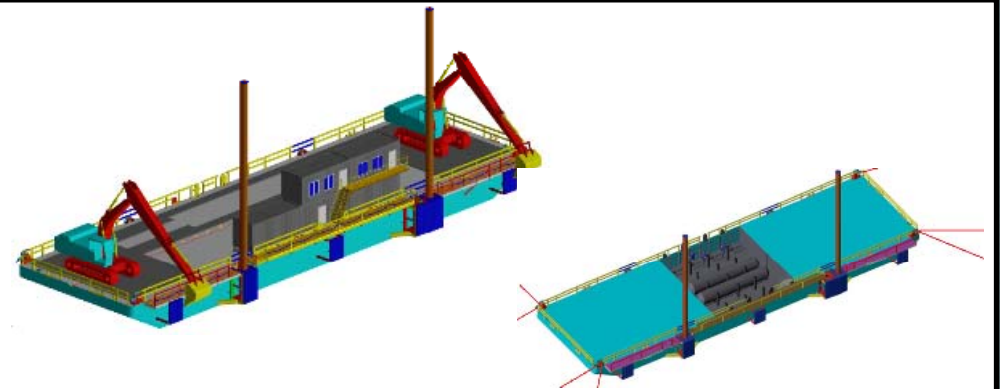
- Floatover and Mating Analysis of two topsides
- Mooring analyses
- Fender design
- LMU (Leg Mating Units) shell design
- Sand Jack Design



**Project : OCS UB 01 Miss Pennie**  
**Client : OCS**

## SCOPE

- Utility barge conceptualisation
- Utility Barge naval architectural design
- Utility Barge equipment design
- Utility barge fabrication management and supervision





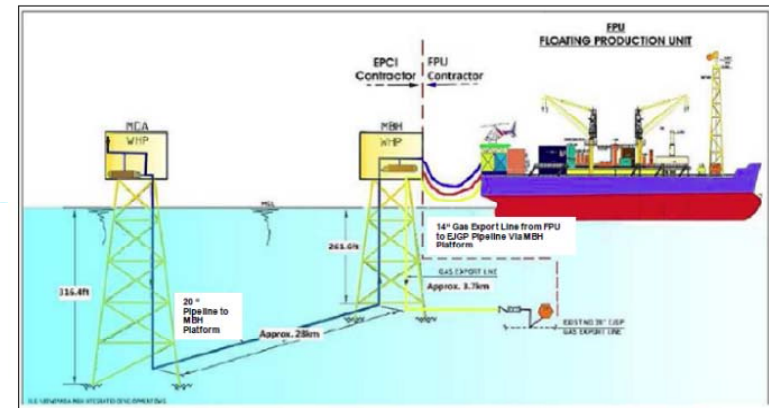
# FINISHED/ONGOING PROJECTS



**Project : EPCI for MDA and MBH Field Development**  
**Client : PT Timas**  
**Operator: HCML**

## SCOPE

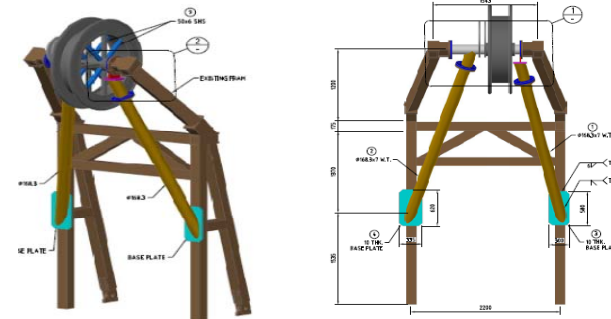
- Jacket Upending Analysis (2 nos)
- Jacket and topside lift analysis (2 nos)
- Pile drivability (2 nos)
- Structures transportation analysis (2 nos)
- Structures sea fastening design (2 nos)
- Installation Aids design report (2 nos)



**Project : Baker Hughes**  
**Client : Baker Hughes**

## SCOPE

- Design check of hose deployment skid
- Strengthening proposal for the hose deployment skid





# ONGOING PROJECTS



**Project : EPC for Trunk Pipeline at Bin Omar Oil Field**  
**Client : Chemi-link, Dubai**  
**Operator: SOC, Iraq**

## SCOPE

- On shore Pipeline detailed design
- Data sheet preparation
- MTO preparation
- Specification preparation
- Procurement assistance
- Civil work reports
- Electrical design, data sheets and specifications
- Launcher/ receiver design
- Instrument control design, including SCADA system
- Pipeline Process design





# ONGOING/ COMPLETED PROJECTS



**Project : PHE WMO**  
**Client : PT Timas**  
**Operator: Pertamina**

## SCOPE

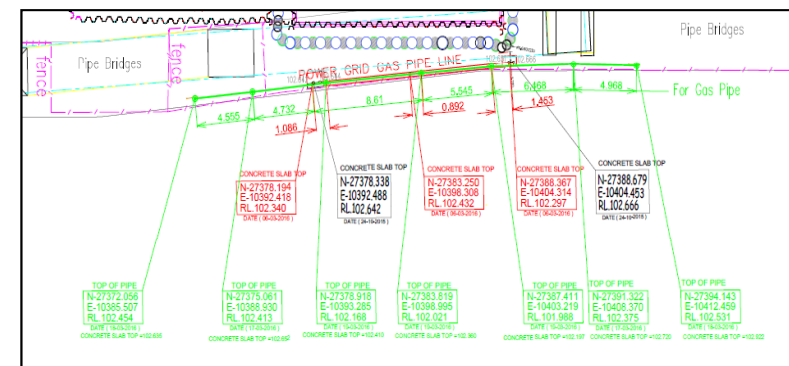
- Jacket Upending Analysis
- Jacket and topside lift analysis
- Pile drivability
- Structures transportation analysis
- Structures sea fastening design
- Installation Aids design report



**Project : Pipeline Subsidence Rectification**  
**Client : McConnell Dowell**

## SCOPE

- Stress analysis for the subsided/ sunken onshore pipeline
- Stress analysis for rectification of onshore pipeline subsidence





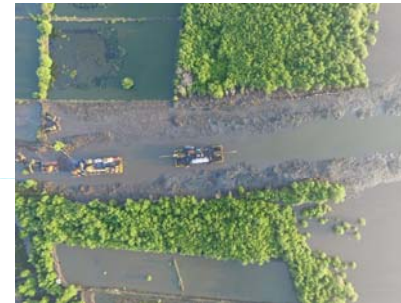
# COMPLETED PROJECTS



**Project : Madura BD Field Development- T & I**  
**Client : PT Timas**  
**Operator: HCML**

## SCOPE

- Pipeline beach pull analysis
- Pipeline pre trenching analysis
- Trench slope stability checks
- Pre trenching barge sea fastening design
- Barge transportation analysis



**Project : Baker Hughes**  
**Client : Baker Hughes**

## SCOPE

- Subsea sampling unit design
- Subsea sampling unit fabrication
- Clump weight design
- Clump weight fabrication





# COMPLETED PROJECTS



**Project : Mallikai Project – Package B**  
**Client : Technip**  
**Operator: Shell**

## SCOPE

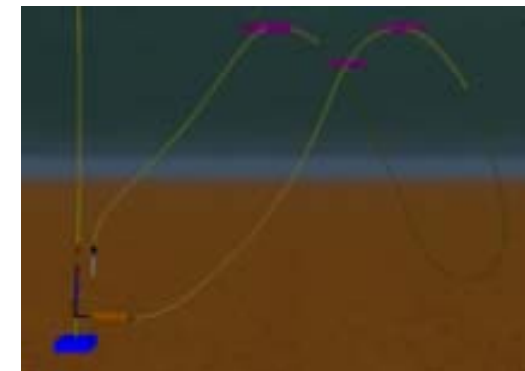
- Grout Bag design for free span correction
- Sea fastening design of the free span correction spread



**Project : Gorgon Upstream Pre-commissioning**  
**Client : Baker Hughes**

## SCOPE

- CTU (coiled Tubing) Dynamic Analysis Report





# COMPLETED PROJECTS



**Project: Wheatstone Project**  
**Client : Baker Hughes**  
**Operator: Chevron**

## SCOPE

- Cyclonic loading check on equipment
- Stability of equipment under cyclonic loading



**Salpem**

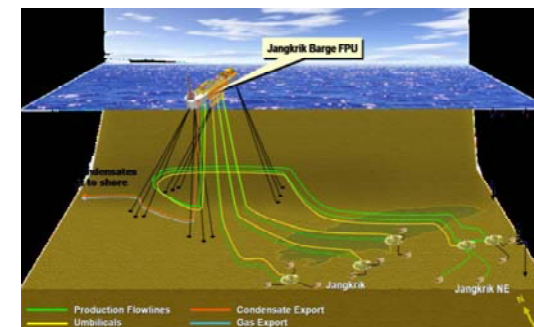


**PT. TIMAS SUPLINDO**  
ENGINEERING & CONSTRUCTION

**Project : Jangkrik Complex Project**  
**Client : PT Timas/ Saipem**

## SCOPE

- Pipeline Field Data Book





# COMPLETED PROJECTS



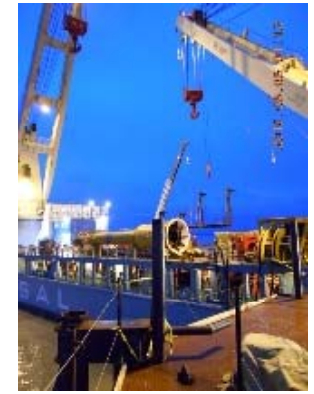
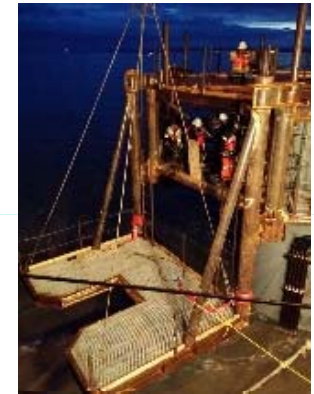
**CROWLEY**

**Project: Kitchen Lights Unit 3**

**Client : Crowley Solution Pte Ltd**

## SCOPE

- Pile Driving and drilling deck design
- King Pile Subsea Template design
- Installation Aids design
- Installation engineering of all the above
- Sea fastening design of all the above





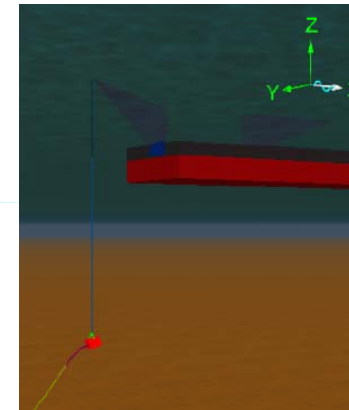
# COMPLETED PROJECTS



**Project: Kirinskoye Umbilical Repair Project**  
**Client : MRTS, Russia**

## SCOPE

- SDU Recovery Analysis
- Field Data book for Umbilical



**Project : Badamyar Project**  
**Client : Sapura Acergy/ Total E&P , Myanmar**

## SCOPE

- Early engineering: Floatation and upending analysis of 3 Jackets.
- Propose buoyancy tank geometry
- Pile drivability analysis
- Jacket and Topsides transportation analysis
- Jacket levelling frame design
- Jacket Upending Analysis- 3 jackets





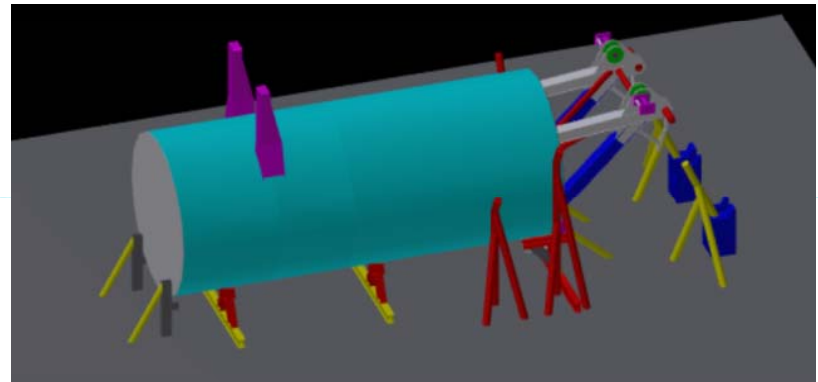
# COMPLETED PROJECTS



**Project: Wheatstone SGS Project**  
**Client : Sapura Acergy ( Australia) Pty Ltd (SAPLA)**

## SCOPE

- Bumpers and guides design for landing of buoyancy tank
- Sea fastening design of buoyancy tank



**Project : Baker Hughes**  
**Client : Baker Hughes**

## SCOPE

- Injector Frame design
- Injector frame lift design ( DNV 2.7-3)
- Coiled Tubing Deployment analysis
- Coiled tubing fatigue analysis
- Fabrication of Injector frame to DNV 2.7-3





# COMPLETED PROJECTS

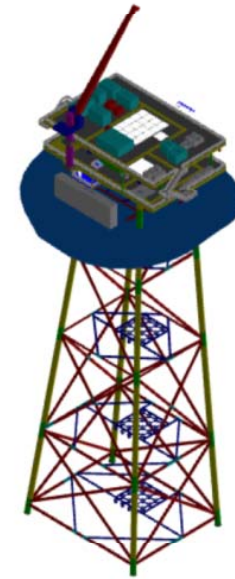


**Project : Cambodia Block A Wellhead Platform**  
**Client : Krisenergy**

## SCOPE

Conceptualisation and detailed design of the jacket and topside including

- Jacket Transportation Analysis and design
- Jacket lift analysis and Design
- Jacket and topside In place Analysis and design
- Pile design
- Jacket and topside secondary steel design
- Jacket and deck fatigue analysis
- Primary steel drawings
- Primary Steel MTO





# COMPLETED PROJECTS

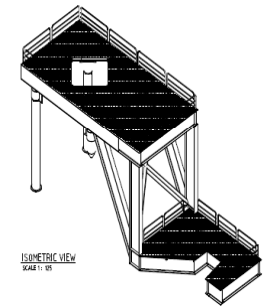


**CROWLEY**

**Project: Kitchen Lights Unit 3**  
**Client : Crowley Maritime Corporation**

## SCOPE

- Design of Pile driving and drilling deck
- Design of man riding basket



**Mobil Cepu Ltd.**



**Project : Banyu – Urip – FSO and Mooring Tower Installation**  
**Client : Rekhayasa/ Mobil Cepu**

## SCOPE

- Station keeping analysis of FSO during installation
- Force calculation on mooring tower during FSO installation
- Bollard pull/ Tug requirement calculation during FSO installation





# COMPLETED PROJECTS

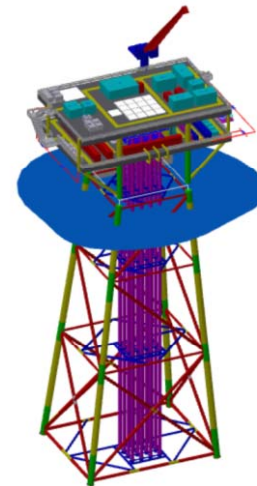


**Project : Wassaana Wellhead Platform**  
**Client : Krisenergy**

## SCOPE

Conceptualisation and detailed design of the jacket and topside including

- Jacket Transportation Analysis and design
- Jacket lift analysis and Design
- Jacket and topside In place Analysis and design
- Pile design
- Jacket and topside secondary steel design
- Jacket and deck fatigue analysis
- Primary steel drawings
- Primary Steel MTO





# COMPLETED PROJECTS



**Project : NSRP Complex project**  
**Client : Zentech, SKEC, JGCS**  
**Operator: NSRP**

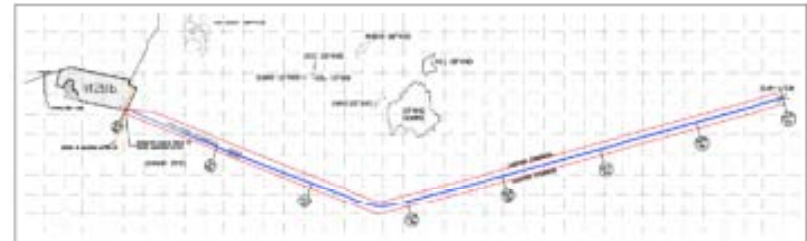
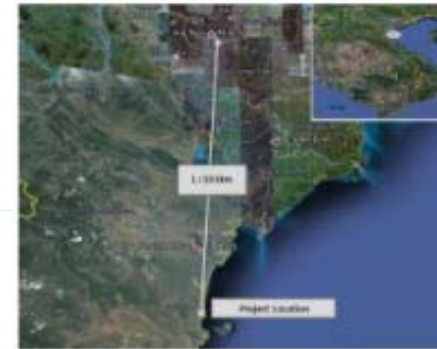
## SCOPE

### Review of

- Pipeline:
  - All the pipeline detailed design documents,
  - MTO
  - Specifications

### Preparation

- Pipeline operating manuals
- Quantitative Risk Analysis Document
- Corrosion Management Plan
- Emergency Response Plan





# COMPLETED PROJECTS



**Mobil Cepu Ltd.**

**Project : Banyu Urip**  
**Client : Rekhayasa**  
**Operator: Mobil Cepu**

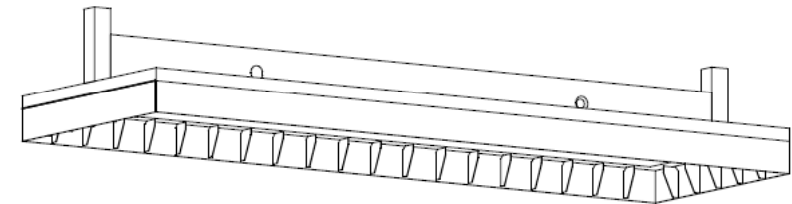
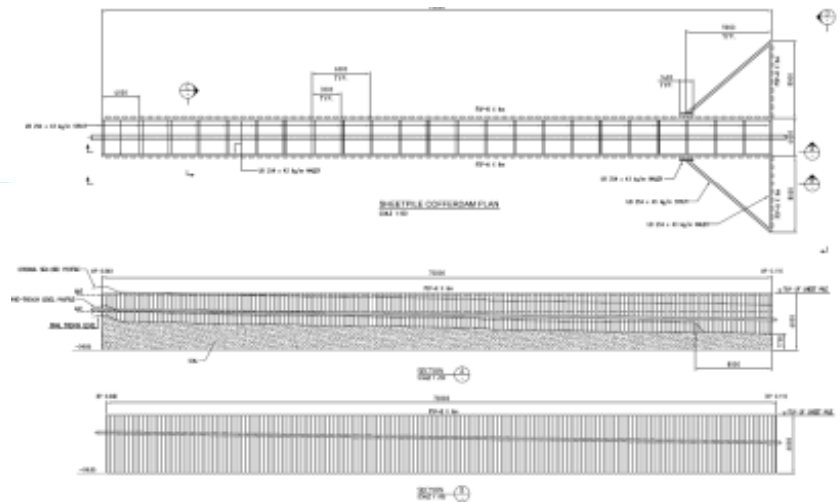
## SCOPE

### Review of

- Pipeline:
  - Field Data Book
  - RAO generation
  - Beach pull analysis
- Naval Architectural:
  - Transportation analysis
  - Mooring analysis Pipeline Installation

### Design of

- Cofferdam for beach pull
- Concrete sleepers





# COMPLETED PROJECTS



**Project : KGOOC Gas and Condensate Export System**

**Client : Essar**

**Operator: KGOOC**

## SCOPE

- Pipeline:
  - Field Data Book for 1 trunk line
  - Above water tie in
  - Beach Pull Analysis
- Naval Architectur"
  - Mooring analysis and Anchor Pattern Drawings



**Project : Apache Julimar**

**Client : Allseas**

**Operator: Apache**

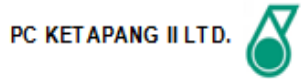
## SCOPE

- Seafastening Design for PLETS





# COMPLETED PROJECTS



**Project :Bukit Tua Development Project**

**Client : PT Timas Suplindo**

**Operator: PC Ketapang - Petronas**

## SCOPE

- Pipeline:
  - Field Data Book for 3 nos infield pipelines and 1 export line
  - 2 nos of above water tie in analysis
  - Beach pull analysis
  - Trenching Analysis
  - Support analysis for HDD string pull
- Structural:
  - Jacket / Deck Lifting rigging design
  - Pile drivability analysis
  - Jacket and deck sea fastening analysis
- Naval Architectural:
  - Transportation analysis for jacket and deck
  - Transportation analysis for pipe haul
  - Mooring analysis for Jacket/ Deck/ Pipeline Installation





# COMPLETED PROJECTS



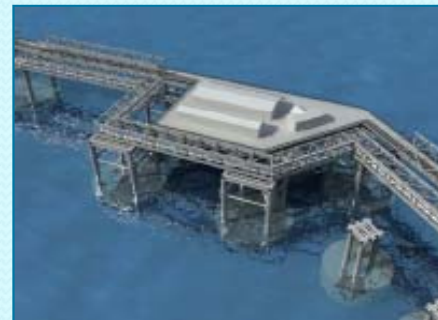
Chevron Australia

**Project : Gorgon Project- Barrow Island LNG Plant**  
**Client : Norce - Solstad**  
**Operator: Chevron**

## SCOPE

### 113 numbers of lift installation

- Naval Architectural:
  - Mooring analysis for Roadways and topside installations ( 15 nos)
  - Engineered lift study for Roadways and topside installations (15 nos)





# COMPLETED PROJECTS



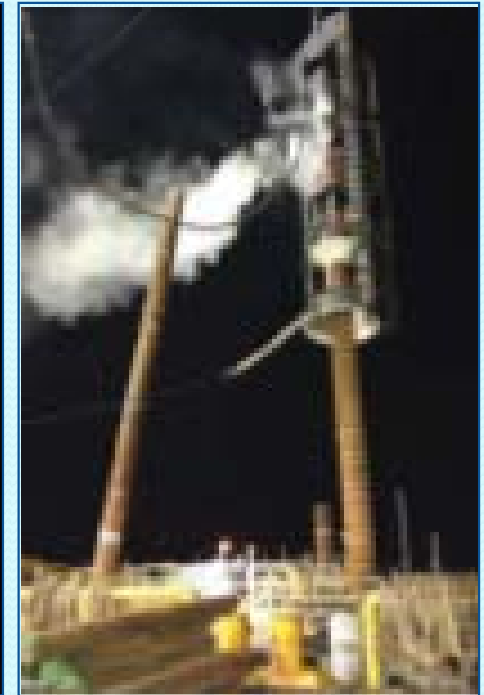
**Project : PHE UL**

**Client : PT Timas Suplindo**

**Operator: Pertamina Hulu Energi**

## SCOPE

- Pipeline:
  - Field Data Book for infield pipeline
- Structural:
  - Jacket / Deck Lifting rigging design
  - Pile drivability analysis
  - Jacket and topside seafastening design
- Naval Architectural:
  - Transportation analysis of jacket and deck
  - Pipe haul transportation analysis
  - Mooring analysis for Jacket/ Deck/ Pipeline Installation





# COMPLETED PROJECTS



**Project : Narrows Crossing**  
**Client : MCJV**

## SCOPE

- Pipeline:
  - Pipe pull analysis
  - Pipe pull Catenary Analysis
  - Pipe pull hydro dynamic force check.





# COMPLETED PROJECTS



**Project : Lima Subsidence Remediation Project**

**Client : PT Timas Suplindo**

**Operator: Pertamina EP**

## SCOPE

- Naval Architectural:
  - Mooring analysis for the hook up and accommodation support barges
  - Review of all transportation analysis reports





# COMPLETED PROJECTS

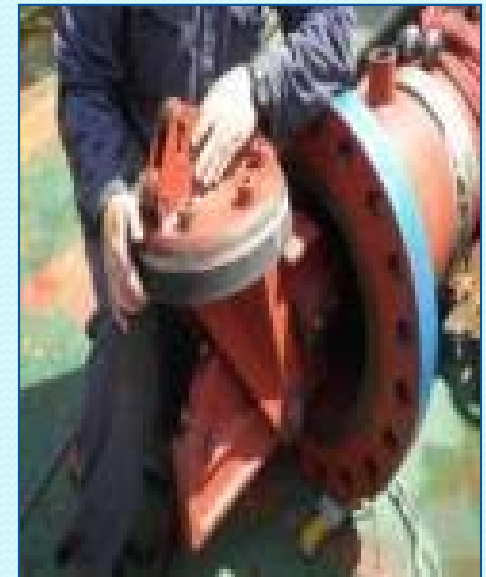


**PT. TIMAS SUPLINDO**  
ENGINEERING & CONSTRUCTION

**Project : Parigi Hot Tap**  
**Client : PT Timas Suplindo**  
**Operator: Pertamina EP**

## SCOPE

- Pipeline:
  - Pipeline Detailed design Verification
  - Pipeline Installation Engineering
- Structural:
  - Design of subsea protection structures
  - Design of Concrete sleepers
- Naval Architectural:
  - Mooring Analysis
  - Transportation Analysis





# COMPLETED PROJECTS



**Project : Zawtika Development Project – Phase 1A**  
**Client : Larsen & Toubro -Sapura**  
**Operator: PTTEP**

## SCOPE

- Pipeline:
  - Field Data Book for 2 nos of 18" infield pipelines
- Structural:
  - Jacket / Deck Lifting rigging design
  - Pile drivability analysis
  - Chaser Frame design
  - Pile Launch system design
  - Pile Lifting Design
- Naval Architectural:
  - Launch analysis for 3 jackets ( Apprx 150m long )
  - Upending Analysis for 3 jackets
  - Mooring analysis for Jacket/ Deck/ Pipeline Installation
  - Engineered Lift study – Deck





# COMPLETED PROJECTS

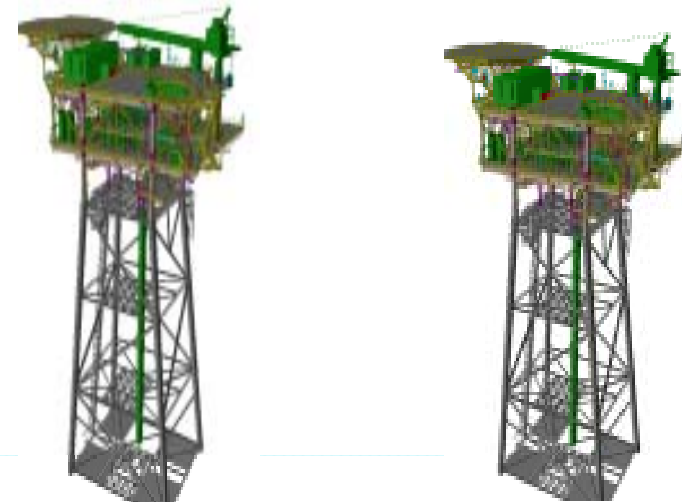


**Project : Mafumeira Project**  
**Client : Heerema Marine Contractor**  
**Operator: Chevron**

## **SCOPE**

WHP SUL, WHP Centro, Tripod, Bridge and LQP Platforms

- Structural:
  - Jacket, deck and bridge Sea fastening concepts
  - Jacket ,Deck and Bridge Rigging design





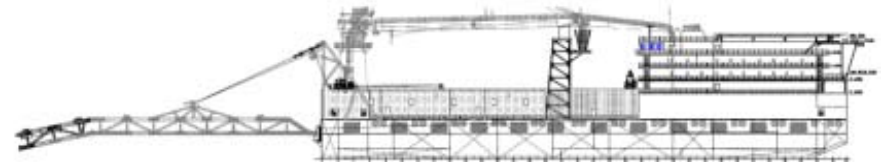
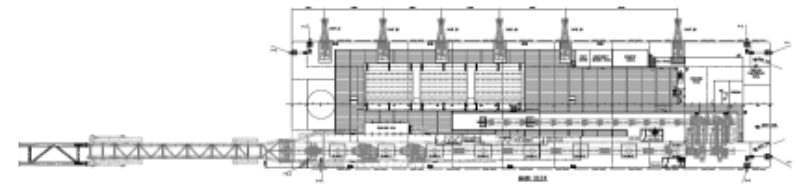
# COMPLETED PROJECTS



**Project : Essar – Nand Gaurav – Modification to Pipelay Barge**  
**Client : Essar**  
**Operator: NA**

## SCOPE

- All engineering and drawings required to convert the crane barge Nand Gaurav to a Pipelay barge , including the stinger design





# COMPLETED PROJECTS



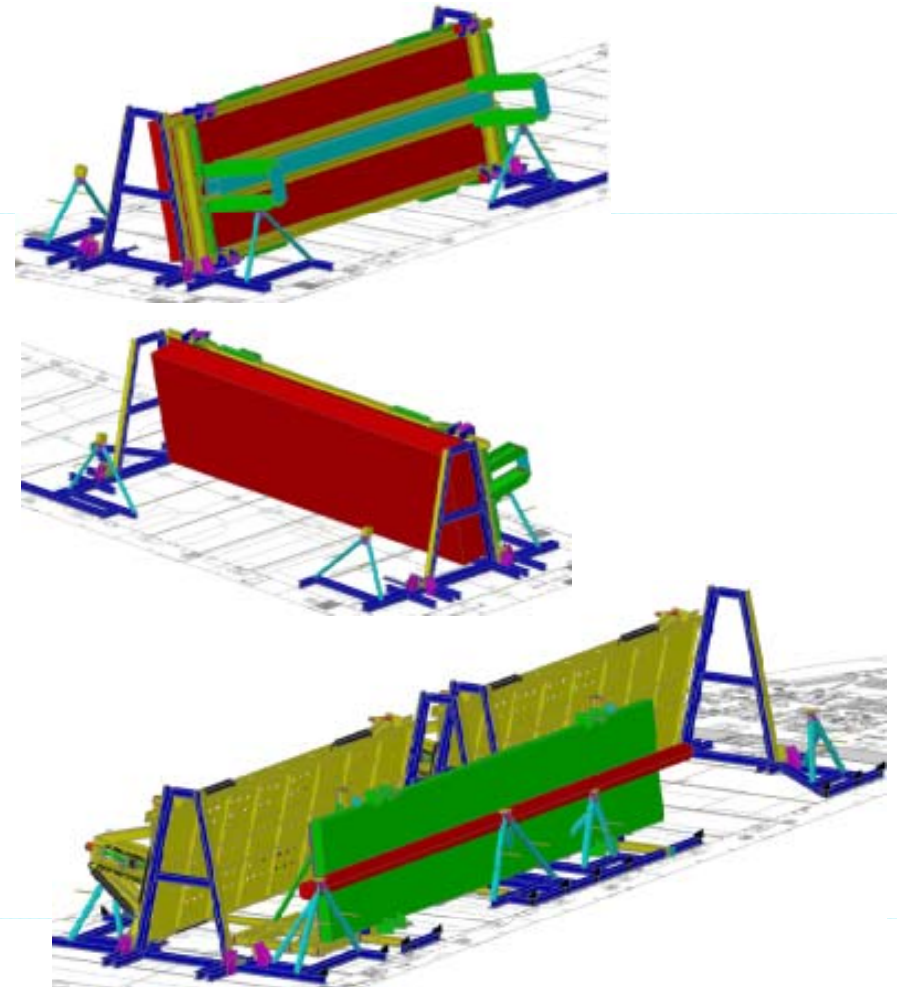
**Project : Gorgon Upstream Project**

**Client : Allseas**

**Operator: Chevron**

## SCOPE

- Seafastening Design for S Mode and J Mode PLETS, APS structures , Buckle Initiators





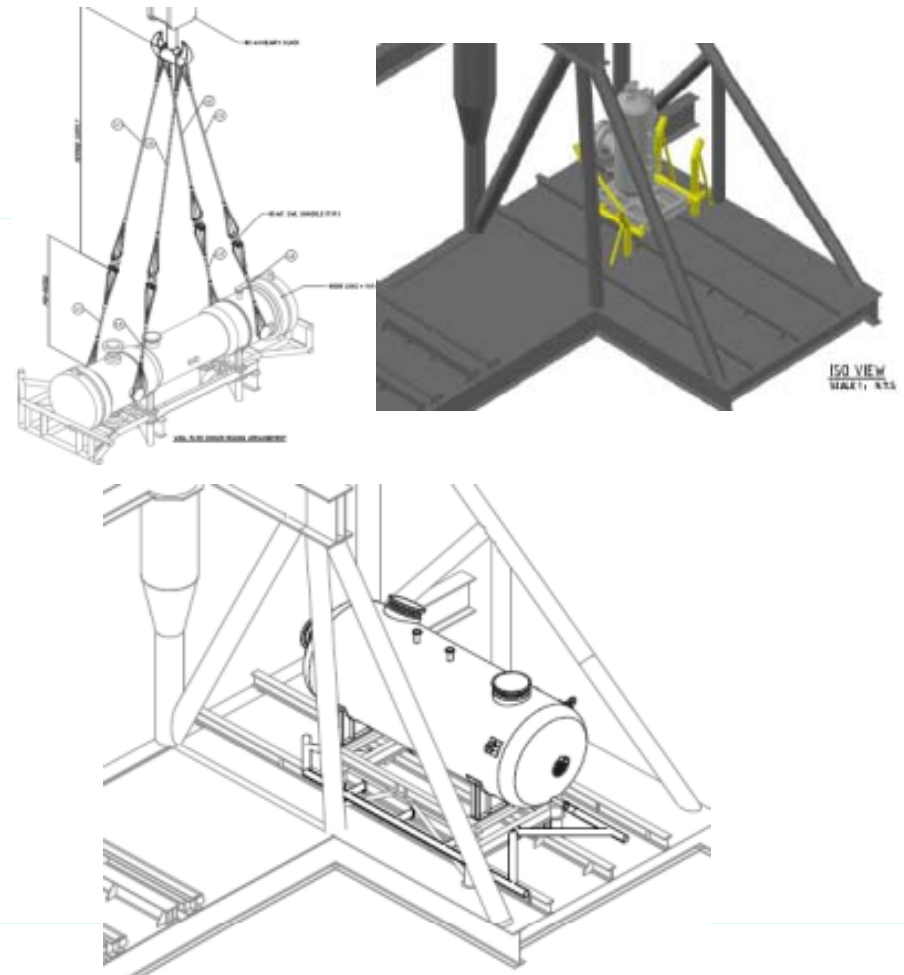
# COMPLETED PROJECTS



**Project : Deen-Dayal West**  
**Client : Heerema Marine Contractor**  
**Operator: GSPC**

## SCOPE

- Design/ Design check of extension platform
- Design of bumpers and guides for the installation of equipment
- Design of skid beams for the skidding of equipments
- Rigging design for the equipment installation





# COMPLETED PROJECTS



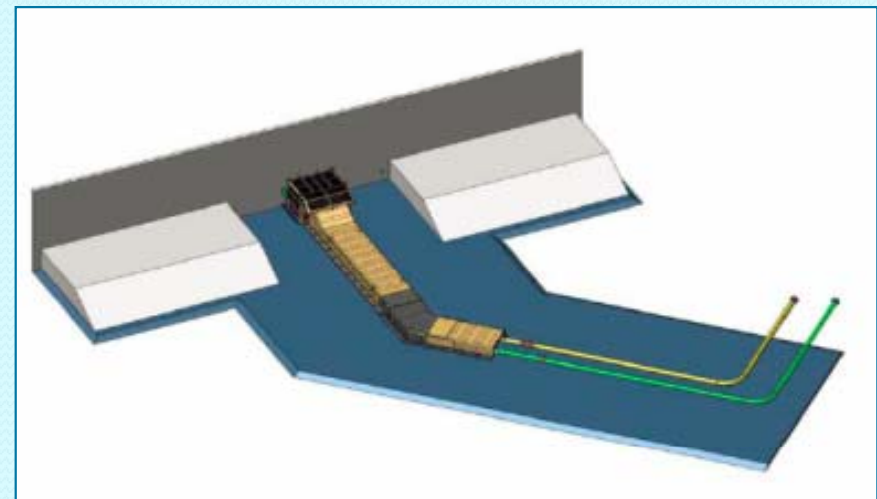
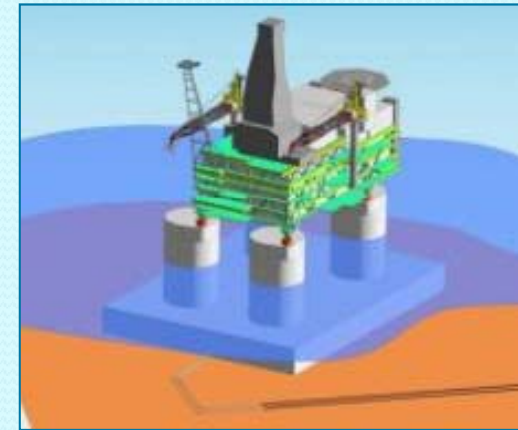
**Project : Arkutun-Dagi Field Development (Sakhalin-1)**

**Client : Heerema Marine Contractor**

**Operator: Exxon Neftegas Ltd (ENL)**

## SCOPE

- Spool and tunnel lift engineering
- Engineering Design for tunnel re-configuration
- Installation procedure for spools and tunnel installation
- Tunnel re-configuration Engineering including
  - In place analysis
  - Ice loading
  - Rock Placement
  - CP checks
- Transportation vessel stability and Grillage and seafastening analysis and design.
- Preparation of fabrication drawings for spools and tunnel sections





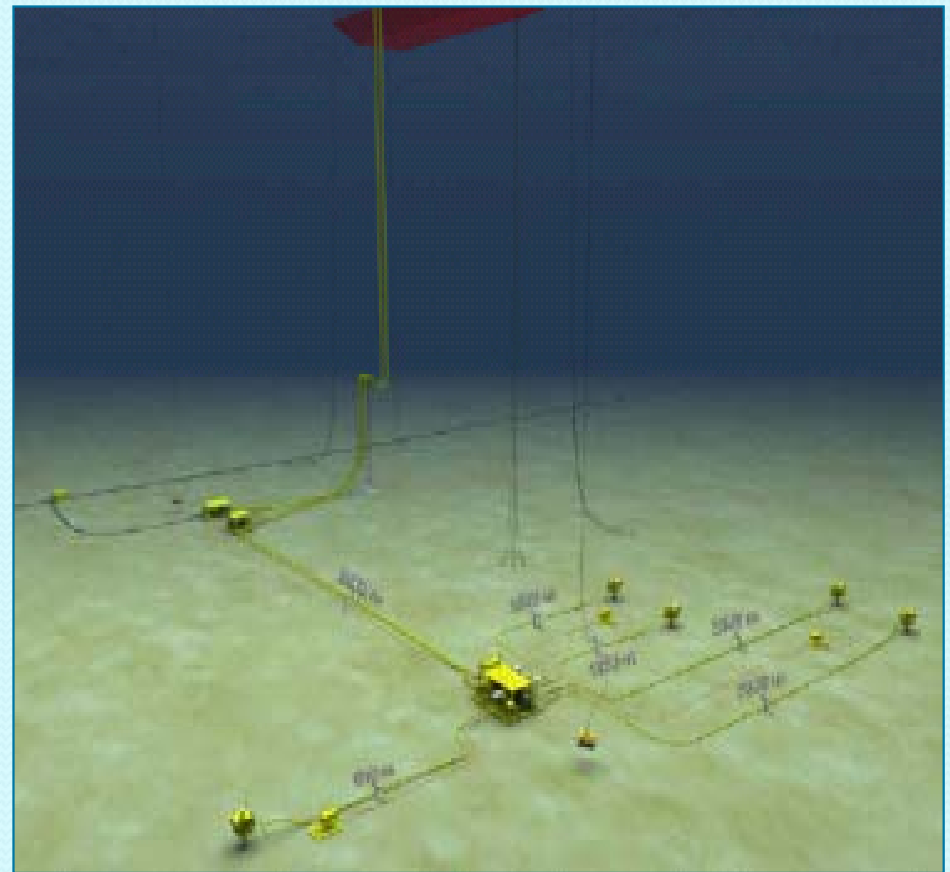
# COMPLETED PROJECTS



**Project : TSB Development Project**  
**Client : Kangean Energy Indonesia Limited**

## SCOPE

- Tow/ stability analysis and sea fastening design of riser base, manifold and hot tap protection.
- Installation engineering of above structures.
- Pipeline Installation Engineering included
  - Static and Dynamic Pipelay Analysis
  - Abandonment and Recovery Analysis
  - Start-Up and Lay down Analysis
  - Weld Repair Analysis
  - Local Buckling Checks
- Flowline and umbilical installation engineering
- Pipe haul tow/stability analysis and sea fastening design





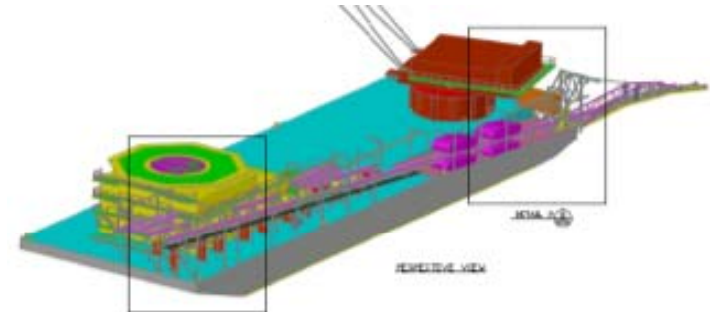
# COMPLETED PROJECTS

**Project : POE- Giant - 6 – Conversion to Pipelay Barge**  
**Client : Pioneer Offshore**

## SCOPE

Conversion to pipelay barge, including:

- Pipe tunnel
- Read rack and monorails
- Tensioner and roller foundations
- Conveyor system
- Stinger and A Frame design
- Barge strength checks

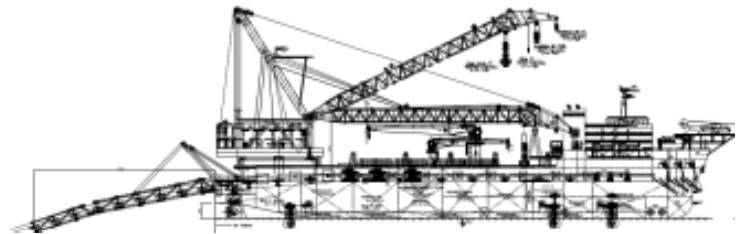


**Project : South Pars Gas Field Development - 12 (SP 12B)**  
**Client : Offshore Marine Contractors- IOEC**

## SCOPE

Installation Engineering – SP12B Pipeline:

- Static and Dynamic Pipelay Analysis
- Abandonment and Recovery Analysis
- Start-Up and Lay down Analysis
- Weld Repair Analysis
- Local Buckling Checks





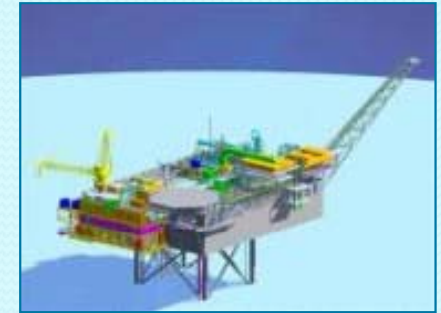
# COMPLETED PROJECTS



**Project : Yolla Midlife Enhancement Project**  
**Client : Origin Energy**

## SCOPE

- Rigging design for 9 modules
- Sea fastening design of 9 modules
- Installation Aids design for the installation of 9 modules
- Rig Mooring optimization Study

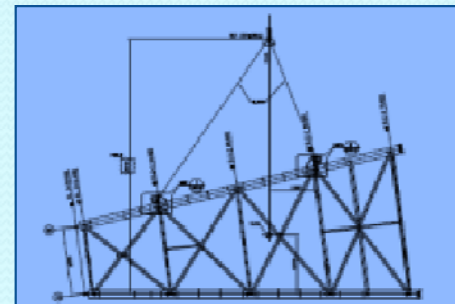


**Project : MHN Process Platform and Living Quarters Project**  
**Client : L & T - ONGC**

## SCOPE

Review of the installation documents of the following:

- MNP launch Jacket
- MLQ Lift and Upend Jacket
- MNF1 and MNF2 Tripods





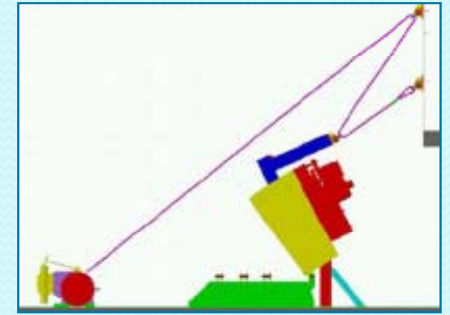
# COMPLETED PROJECTS



**Project : Lewek Champion A & R Sheave Tilting Engineering**  
**Client : EMAS**

## SCOPE

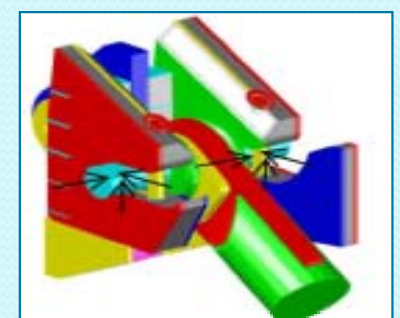
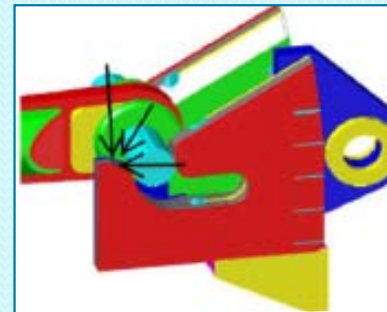
- Tilting Arm and Padeye design
- Tilted configuration stopper design
- Tilted configuration hinge check
- A & R sheave foundation bolt check for maximum A & R tension



**Project : Lewek Champion Stinger Hitch Modification Client**  
**: EMAS**

## SCOPE

- Conceptualization of operation friendly stinger hitch
- Design of the stinger hitch
- Design of barge strengthening





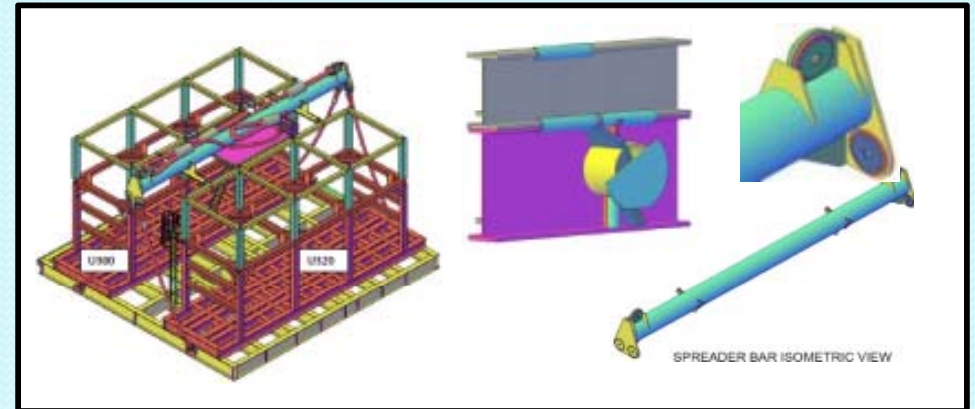
# COMPLETED PROJECTS



**Project : Compressor Replacement Project- East Belumut**  
**Client : Newfield**

## SCOPE

- Design of integration skid
- Lift rigging design including Spreader bar and lift point design



A Subsidiary of Coastal Energy

**Project : P842\_NuCoastal Bua Ban & Songkhla Field development**  
**Client : NuCoastal (Thailand) limited**

## SCOPE

- Tow/ stability analysis and sea fastening design of jacket , piles, flare boom, and deck
- Lift Rigging design for topside and jacket
- Design of temporary platform for pile installation, pile stopper and stabbing guide design





# COMPLETED PROJECTS



**Project : Transportation and Installation of FSO Moorings and Riser for JDA B-17**

**Client : M<sub>3</sub>ENERGY JDA SDN BHD/ Carigali -PTTEP**

## SCOPE

- Pile Drivability Analysis
- Tow analysis and sea fastening design of piles
- Miscellaneous designs of:
  - Chaser pile
  - Chaser frame
  - Tensioner ramp
  - Chain spreader bar
  - Pile stopper
  - Riser overboard chute
  - Access Platform below turret
  - Riser hang-off collar
  - Chain Pull-in A Frame
  - Chain Tensioning padeye





# COMPLETED PROJECTS



**Project : North Belut Project- Installation of Cable**  
**Client : Conoco Phillips**

## SCOPE

- Cable Installation analysis
- Tow analysis and sea fastening design of Cable reel



**Project : North Belut Project- Installation of Bridge**  
**Client : Conoco Phillips**

## SCOPE

- Rigging Design of bridge
- Tow analysis and sea fastening design of bridges





# COMPLETED PROJECTS



**Project : Mumbai High South Field Re-Development Phase II Project**  
**Client : Sapura Acergy/ L&T/ ONGC**

## SCOPE

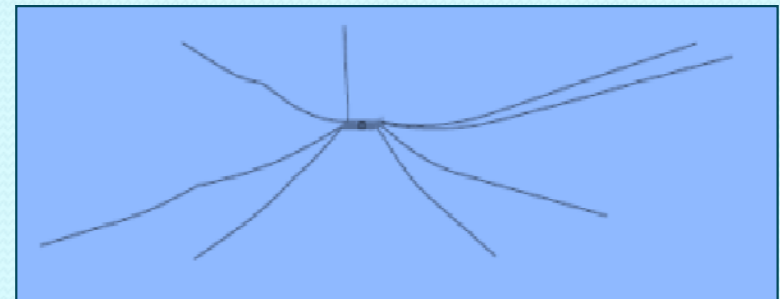
- Rigging Design of jackets RS15, RS16 and RS17
- Rigging design of deck RS15, RS16 and RS17
- Design of jetting platform and jetting string for pile refusal remedial contingency



**Project : Chevron 2009 Installation Campaign**  
**Client : Chevron Thailand Exploration and Production Ltd**

## SCOPE

- Mooring analysis for:
  - KPWF Platform Installation
  - BEWT Platform Installation
  - MAWG Platform Installation





# COMPLETED PROJECTS



**Project : PRP PLATFORM MODULE INSTALLATION (ERAWAN FIELD)**

**Client : NorCE Offshore**

**Operator : PTT/Chevron**

## SCOPE

- Structural:
  - 6 x Module Lifting rigging design
  - 6 x Module Guides and Bumpers design
  - Pile drivability analysis.
- Installation
  - Module Installation procedure
  - Mooring analysis for Module Installation
  - Offshore Field Engineering





# COMPLETED PROJECTS



**Project : Ujung Pangkah Platform Installation and Flowline EPCI**  
**Client : Amerada HESS**

## SCOPE

- Pipeline:
  - Field Data Book for 6", 12" and 16" pipeline
  - Transportation analysis and sea fastening design for pipe hauls
  - Pipelay Barge Mooring Analysis
  - Davit lift / Riser Installation analysis
  - Innovative pipeline start-up analysis using two barge
- Structural:
  - Jacket / Deck Lifting rigging design
  - sea fastening design - Jacket/ deck
  - Pile drivability analysis
  - Deck Load out Analysis - Indicative
  - Installation Frame Design
  - Chaser Frame design
- Naval Architectural:
  - Tow / stability analysis – Jacket/ deck
  - Mooring analysis for Jacket/ Deck Installation
  - Engineered Lift study - Jacket







Thank You