

# UPSTREAM DIVISION

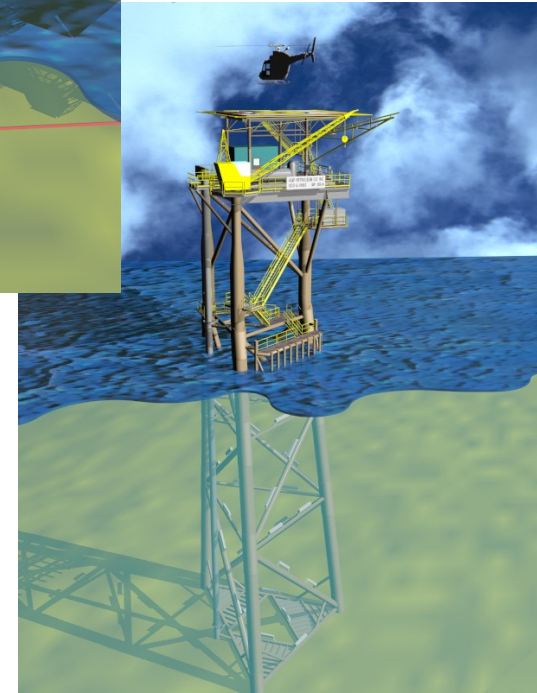
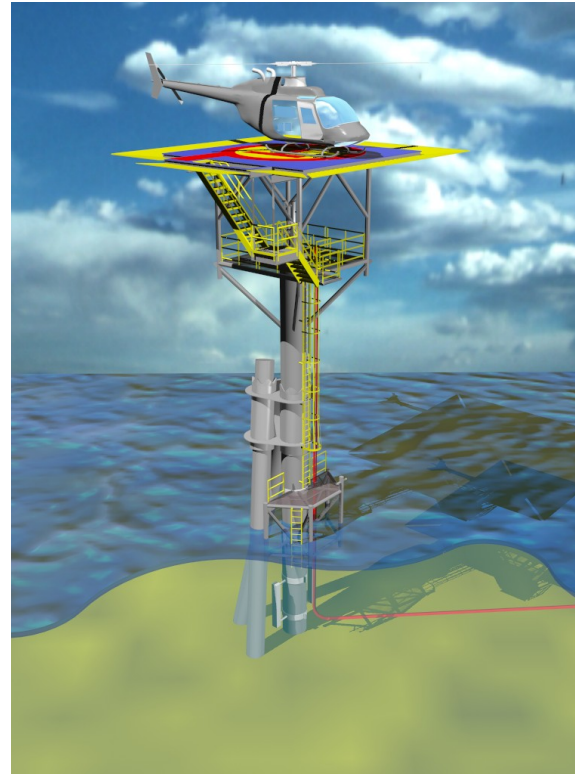
- ◆ Over 30 years of International experience in Engineering, Project Management and Business Development of Oil and Gas and related industries, covering North West and Eastern Europe, Central and South East Asia;
- ◆ Elan Petroleum and its affiliate Upsyde Ltd, have an amazing track record described here below.

# UPSTREAM ACTIVITIES

- 💧 **Process Facilities**
- 💧 **Marine Systems**
- 💧 **Subsea**
- 💧 **Structural Design**
- 💧 **Offshore Pipelines**
- 💧 **Onshore Pipelines**
- 💧 **Project Management**

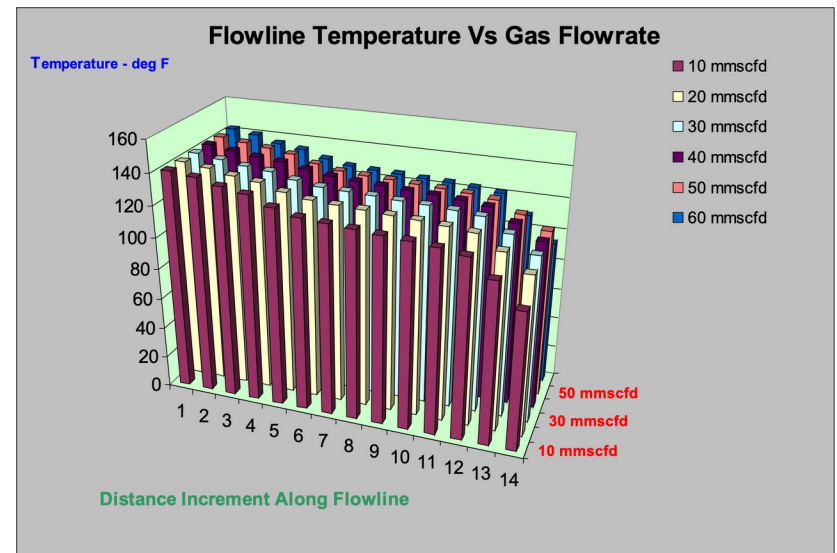
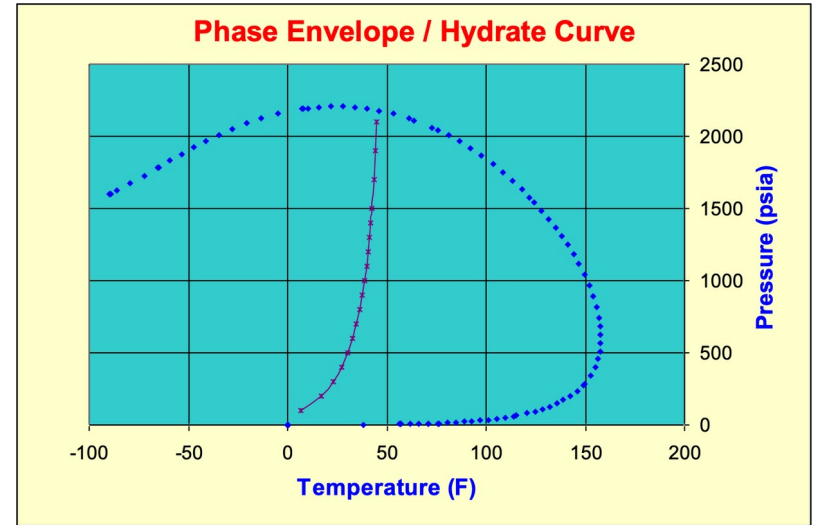
# OFFSHORE STRUCTURES CAPABILITY

- Fixed offshore structure design-braced caisson or minimal tripod
- Offshore structure installation design
- Platform abandonment engineering support
- Pile design for timber and steel prefabricated decks
- Compressor vibration analysis and stiffening design
- Boat landings, riser guards, deck extensions conductor additions, helidecks and drilling templates
- Vessel design – hulls, lay barge stingers, reel design



# FLOW ASSURANCE CAPABILITY

- Deepwater Issues:
  - Wax / Asphaltenes
  - Hydrates
  - Well Heat-Up Times
  - Chemical Injection Rates
  - Insulation / Burial Requirements
  
- Dynamic / Transient Modelling:
  - Well Start-Up Issues
  - Systems Cool-Down Times
  - Slugging Analysis
  - Survival Time (e.g. Hydrates)
  
- OLGA, Pipesim (Multiphase)  
MultiFlash (PVT)
  
- GoM Projects in 1800' WD



# ONSHORE PIPELINES CAPABILITY

- Route Selection & Right Of Way
- Regulatory Authority Approval
- Induced Current Mitigation
- Land Access
- Environmental Impact Assessment
- Process Design
- Metering & SCADA
- River & Road Crossings
- Scraper Traps, Valve & Metering Stations
- Structural Design
- Cathodic Protection
- Coating Systems
- Material Selection
- Procurement & Expediting
- Pressure Testing & Commissioning
- Construction Management & Supervision



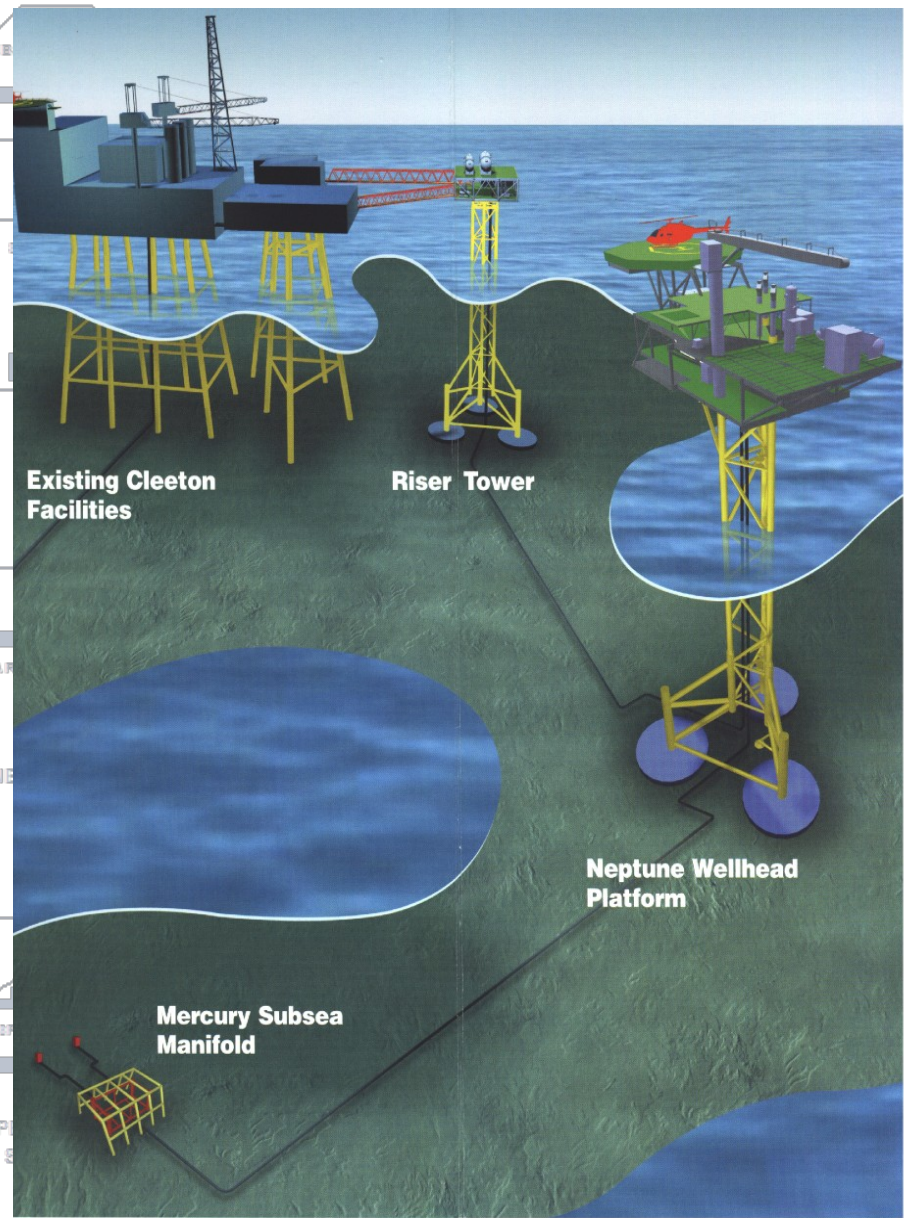
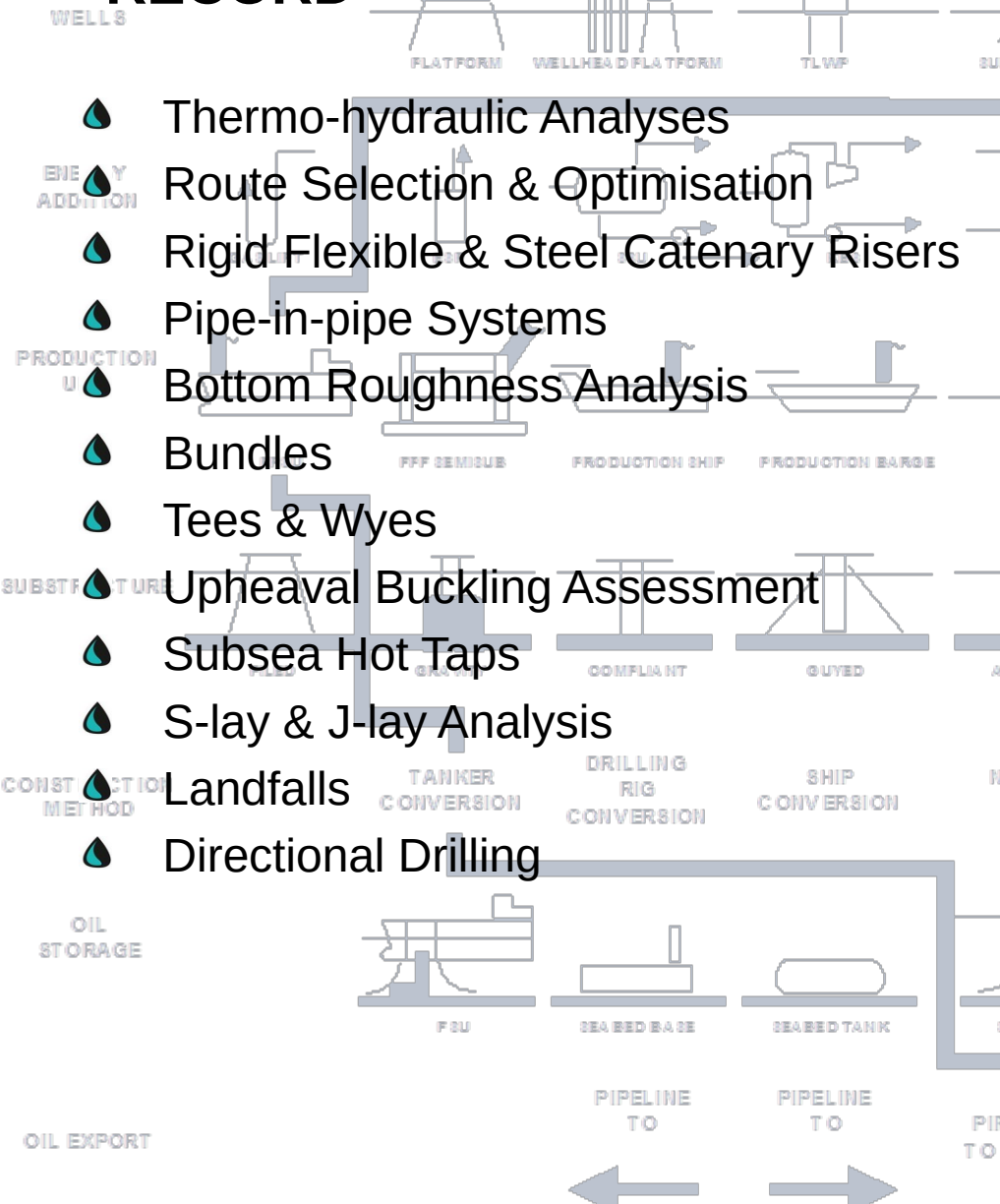


# ONSHORE PIPELINES TRACK RECORD

- ◆ GNPC Sudan, Unity & Heglig fields, conceptual and basic design of 60 flowlines
- ◆ Shell Brunei Tutong Gas Feed 14 inch 7km
- ◆ EPMI, Malaysia, Onshore Crude Oil Metering Skid
- ◆ Petronas Prai-Gelugor 24 inch 10km Crossing
- ◆ CPC, Sri Lanka, basic design & construction supervision of 16 inch 6km Gas Oil Line
- ◆ GTCL Bangladesh, EPC management of 30 inch 50km gas pipeline
- ◆ Melrose Galata Bulgaria - 10 x 60km EPC Management
- ◆ Hill International – Romania Pipeline 2 x 40" x 1200km – Independent review
- ◆ Dove energy –Yemen – Condition assessment & new pipeline design
- ◆ KPS Technology – Turkmenistan – Design review of flowlines & 56"OD x 120km gas export.
- ◆ Ambatovy – Madagascar – Design, building & supply 2 x 26" pig launcher / receivers
- ◆ KPS Technology – China – Prepare review of all pipeline design codes
- ◆ Axseum Solutions – Afghanistan – 90km replacement gas pipeline
- ◆ TDW – Abu Dhabi – Project Management, design, build 20 high pressure sour service pig launcher skids
- ◆ OMV Yemen – Design of flowlines and gas export pipeline.

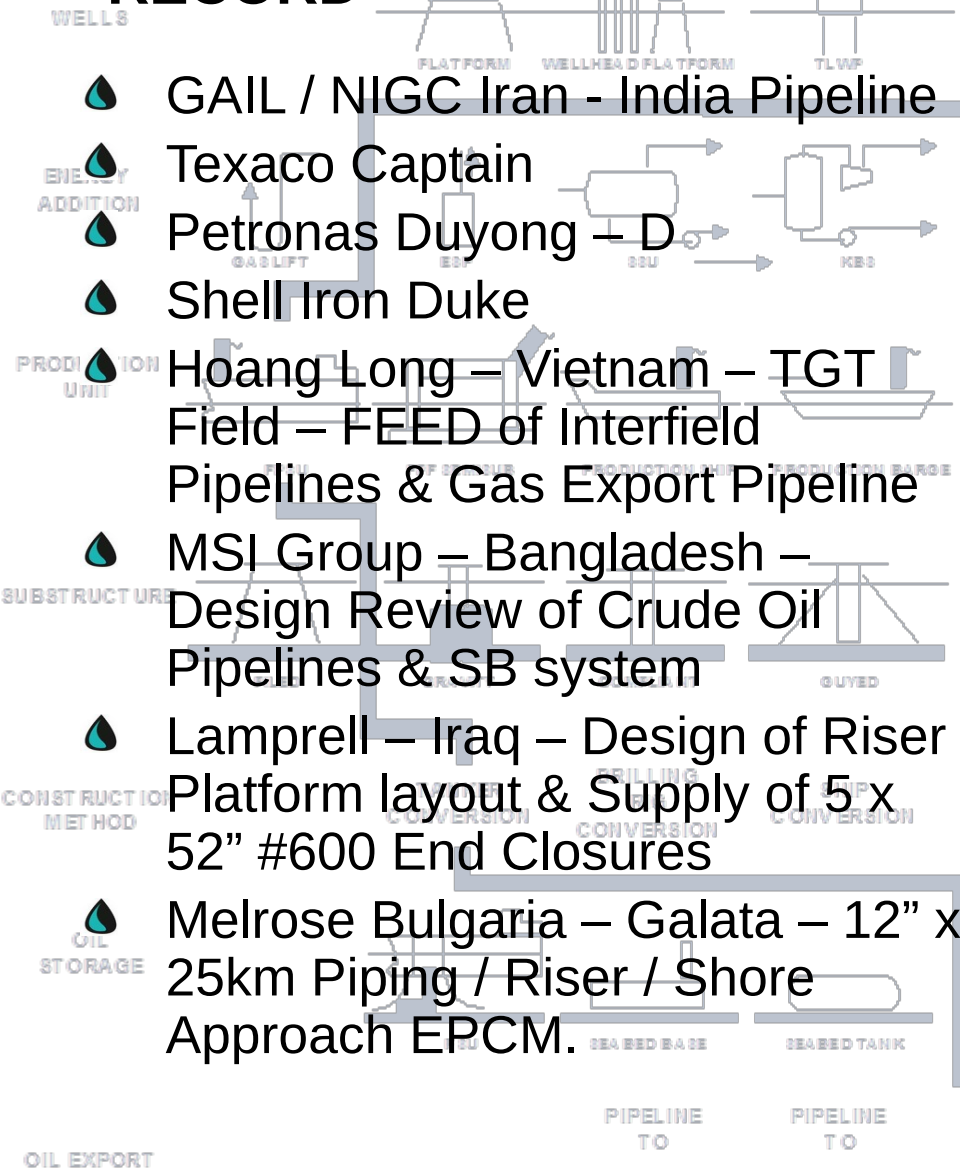










# RISER & SUBMARINE PIPELINE TRACK RECORD





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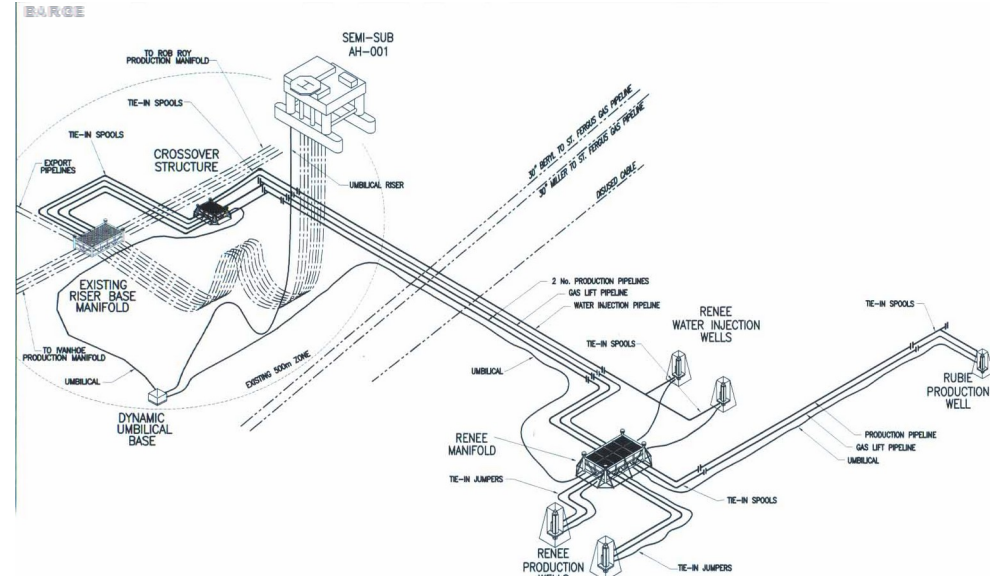
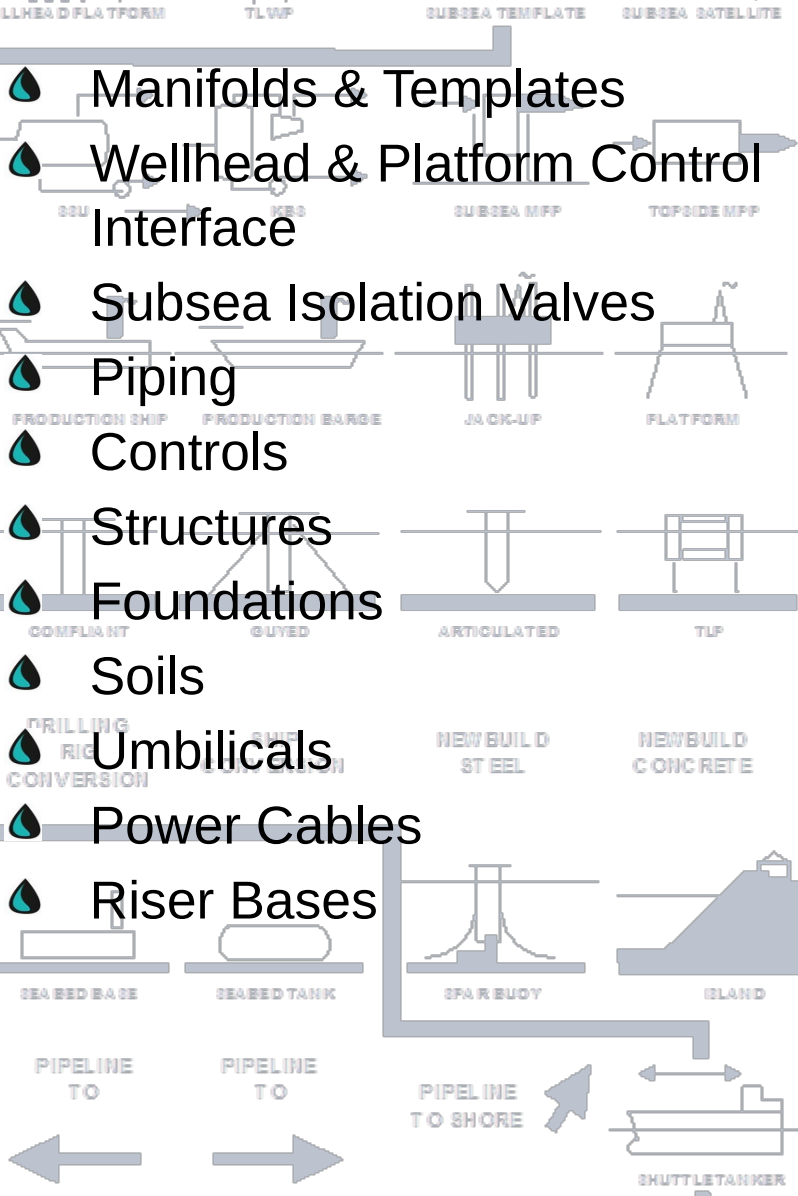
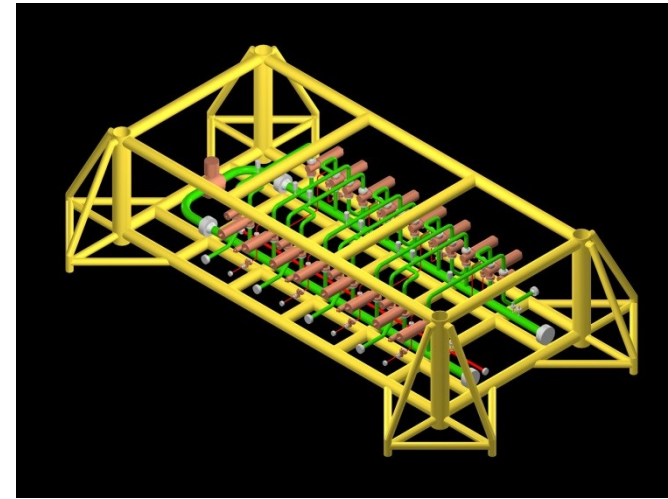
-  GAIL / NIGC Iran - India Pipeline
-  Texaco Captain
-  Petronas Duyong – D
-  Shell Iron Duke
-  Hoang Long – Vietnam – TGT Field – FEED of Interfield Pipelines & Gas Export Pipeline
-  MSI Group – Bangladesh – Design Review of Crude Oil Pipelines & SB system
-  Lamprell – Iraq – Design of Riser Platform layout & Supply of 5 x 52" #600 End Closures
-  Melrose Bulgaria – Galata – 12" x 25km Piping / Riser / Shore Approach EPCM.





# SUBSEA CAPABILITY

- 🔹 Manifolds & Templates
- 🔹 Wellhead & Platform Control Interface
- 🔹 Subsea Isolation Valves
- 🔹 Piping
- 🔹 Controls
- 🔹 Structures
- 🔹 Foundations
- 🔹 Soils
- 🔹 Umbilicals
- 🔹 Power Cables
- 🔹 Riser Bases



# FLOATING PRODUCTION, STORAGE AND OFFLOADING TRACK RECORD

- 🔹 Petronas / Trenergy MASA
- 🔹 MALEO– Indonesia – Jack Up Conversion to MOPU
- 🔹 CENDOR – Malaysia – Jack Up Conversion to MOPU
- 🔹 GPS Producer 1 – Dubai – Jack Up – Refit and Transportation
- 🔹 Coastal Energy – Thailand – Jack Up AD22 Condition Assessment
- 🔹 Coastal Energy – Thailand – Jack Up H156 Condition Assessment
- 🔹 Coastal Energy – Thailand – Jack Up TridentVI Condition Assessment
- 🔹 Ranhill Worley – Malaysia – D18 Field Concept Upgrade – Jack Up conversion to water injection platform.
- 🔹 GMOS Malaysia – Nigeria – FPSO DP1 – Assessment of topsides equipment review of marine systems.



# PROJECT MANAGEMENT CAPABILITY

- ◆ Cost estimating & FEED studies
- ◆ AFE preparation
- ◆ Feasibility studies
- ◆ Construction Management
- ◆ Client Representatives
- ◆ Inspection
- ◆ Procurement
- ◆ Contractor Installation Reviews
- ◆ Contractor Bid Analysis
- ◆ Regulatory & Permits





## PROJECT MANAGEMENT TRACK RECORD

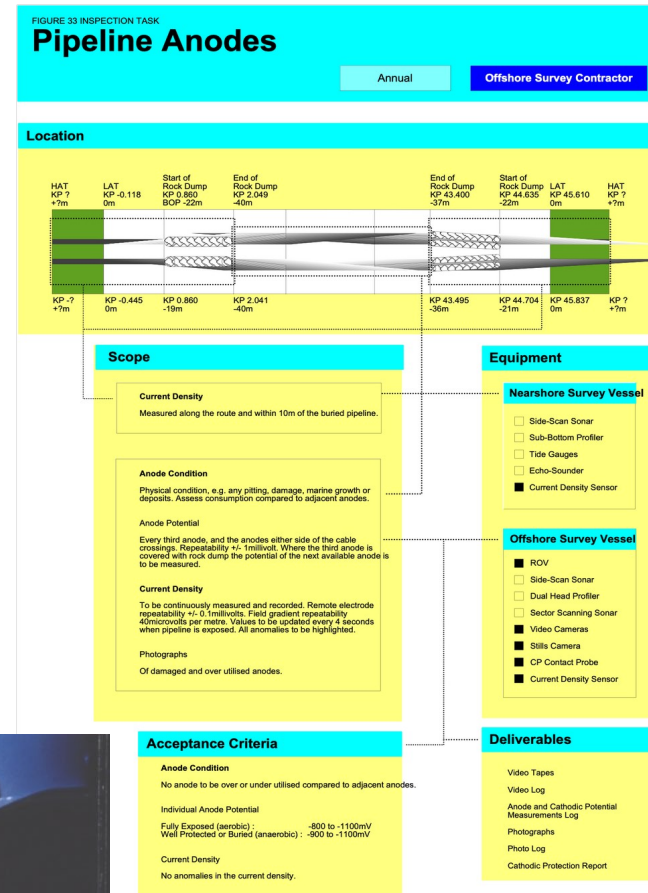
- 💧 SLP MacCulloch
- 💧 Phillips Ann
- 💧 ENAGAS Strait of Gibraltar Gas Pipelines
- 💧 BP General Engineering
- 💧 Wellstream Flexibles
- 💧 Korea Gas Incheon Harbour Crossing
- 💧 Elgin Franklin
- 💧 Shell Southern Field Unit
- 💧 Talisman Ross
- 💧 Marathon East Brae
- 💧 Statoil Europipe
- 💧 British Gas Rosetta
- 💧 Petronas / Trenergy MASA Development



# COMMISSIONING & IMR TRACK RECORD

- 🔹 Strait of Gibraltar Gas Pipelines
- 🔹 Mobil Buckland, Waveney, Mallory, Skene & Nevis
- 🔹 Shell Southern Fields Unit
- 🔹 Marathon East Brae
- 🔹 British Gas Morecambe Bay
- 🔹 British Gas ECA

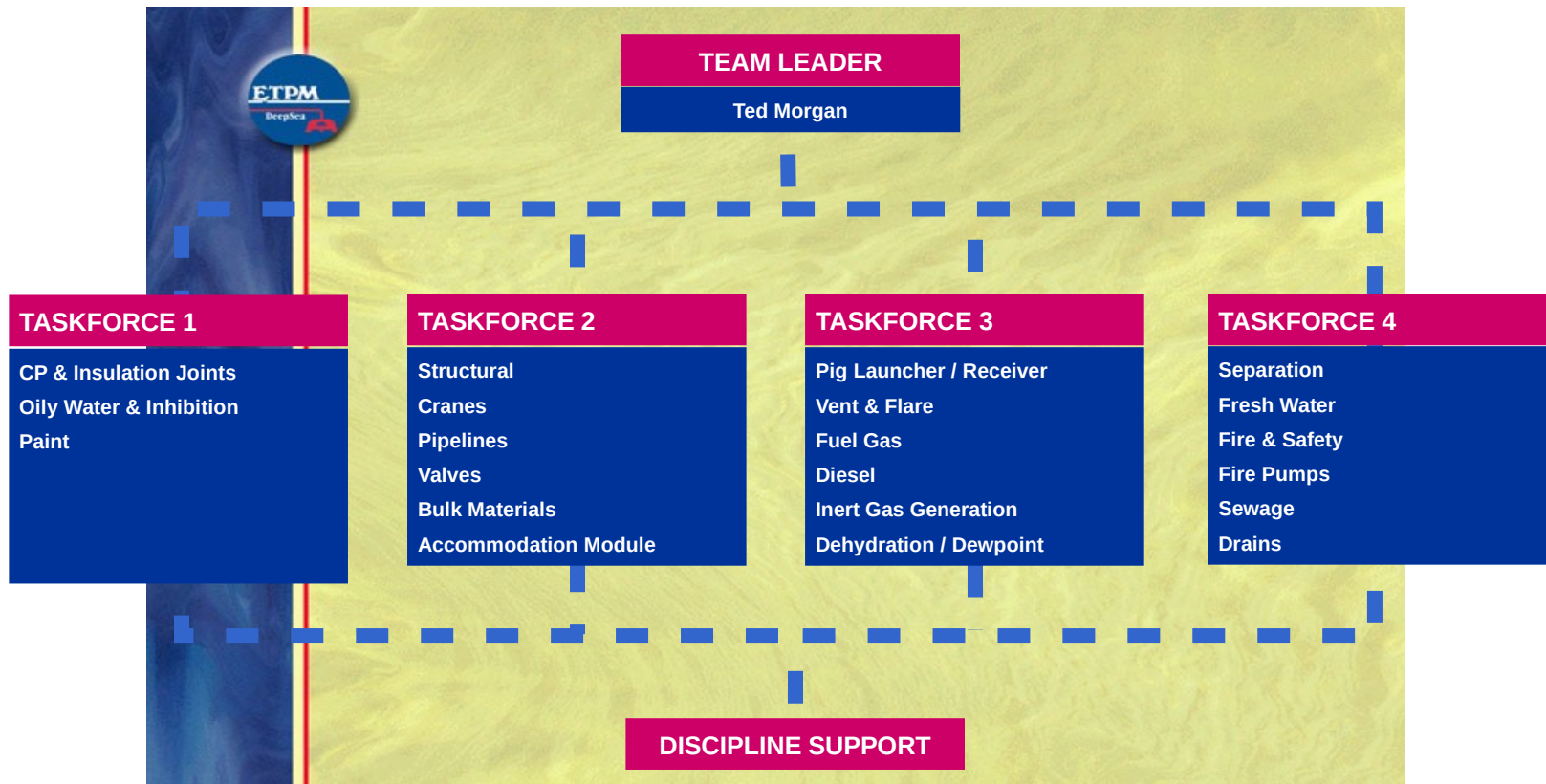
- 🔹 Norske Shell Heidrun
- 🔹 Phillips Della
- 🔹 Talisman Ross
- 🔹 Phillips Ann
- 🔹 Elf Norge Froy



# PROCUREMENT & EXPEDITING TRACK RECORD

British Gas ECA

British Gas Rosetta





# COMPANY SOFTWARE PACKAGES

- ◆ OLGA (Multiphase Production & Transmission)
- ◆ ETAP (Short Circuit Analysis)
- ◆ WINSIM (Process Simulation)
- ◆ SAGE-PROFILE (Non-linear Finite Element 3D Pipeline)
- ◆ ALGOR (Stress, Vibration, Heat Transfer Analysis)
- ◆ ABACUS (Geometric Modelling)
- ◆ ORCAFLEX (Flexible Risers, SCR's, Moorings)
- ◆ CrackWise (Weld Defect Assessment)
- ◆ TLNET (Liquid Pipeline Network)
- ◆ TGNET (Gas Pipeline Network)
- ◆ MNET (Multiphase Pipeline Network)
- ◆ CEASAR II (Piping Stress Analysis)
- ◆ SynerGEE (Gas Pipeline Network)
- ◆ STRUCAD (Structural Analysis)
- ◆ SACS (Structural Analysis)
- ◆ Pipesim (Pipeline and Network Simulator)
- ◆ FATHOM (Liquid Pipeline Network)
- ◆ OFFPIPE (Offshore Pipeline Installation)
- ◆ GASWORKS (Gas Pipeline Network)
- ◆ PIPE (Facilities Design Package)
- ◆ AGA (Pipeline Stability Analysis)
- ◆ RCS (Reciprocating Compression Solutions)
- ◆ GRLWEAP (Pile Driveability Analysis)