

SURF



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*Projecting the Future*

# SURF

Since the 1980's Clough have been setting records for subsea services delivered in some of the world's harshest and deepest subsea environments. Our goal is to deliver construction optimised EPIC solutions by combining state-of-the-art engineering with practical construction, installation, operations and maintenance expertise, supported by our leading edge construction vessels Normand Clipper and Normand Clough.

Clough's subsea services include:

- Subsea construction, umbilicals, risers and flowlines (SURF)
- Subsea structures / manifolds / riser-bases / protection structures
- Spools and tie-in systems
- FPSO or TLP moorings installation and hook-up
- Full subsea field installations including all of the above
- Inspection, Repair and Maintenance (IRM), and light construction
- Well intervention, well abandonment and field decommissioning services (through the Clough Helix JV)

Clough's experience encompasses the delivery of projects in water depths ranging from 0 to 2,200 metres throughout the oil and gas provinces of the world.

## PROJECT EXPERIENCE

### **Subsea Intervention Services: Wild Well Control**

**Client:** Wild Well Control Inc

**Location:** Gulf of Mexico

**Year Completed:** 2010

**Scope of work:** The provision of associated subsea intervention services for offshore platform decommissioning and subsea construction works via the Normand Clough.



Normand Clough in Gulf of Mexico

### **Neptune LNG Deepwater Port Terminal**

**Client:** Advanced Production & Loading (APL)

**Location:** Offshore Boston, USA

**Year Completed:** 2009

**Scope of work:**

Offshore installation and construction activities, carried out by subsea construction vessel Normand Clipper.



Normand Clough was freshly painted with the Solstad colour scheme in April 2010



Neptune LNG Deepwater Port Terminal Project

### Hurricane Repair Works

**Client:** Apache Corporation Limited

**Location:** Gulf of Mexico

**Year Completed:** 2009

**Scope of work:**

Supply the specialist subsea construction vessel Normand Clipper, associated logistics and engineering support to perform subsea work, recovery and remedial work on a number of offshore oil facilities in the Gulf of Mexico for an initial term of two years.



Normand Clipper working on Apache Hurricane Repairs in Gulf of Mexico

### Basker Manter Subsea Installation

**Client:** Upstream Petroleum

**Location:** Bass Strait, Victoria, Australia

**Year Completed:** 2006

**Scope of work:** Installation works associated with the development of the Basker and Manta oil fields, including the installation and tie-in of various subsea flowlines and control umbilicals. All construction activity was located in the Gippsland Basin, offshore Victoria in water depths of approximately 160m.

### Mutineer Exeter Project

**Client:** Santos Limited

**Location:** North West Shelf, Western Australia

**Year Completed:** 2005

**Scope of work:**

An Engineering, Procurement, Installation and Commissioning (EPIC) contract, in conjunction with consortium partners Subsea 7, for the installation of approximately 10km of 12 inch diameter rigid Corrosion Resistant Alloy (CRA) lined steel pipeline, piggy-backed with a 2 inch diameter carbon steel well services pipeline, connecting each field to a Floating Production, Storage and Offloading (FPSO) vessel located between the two fields. The flowlines were thermally insulated to maintain product temperature (heat of the fluid at extraction (100°C).



Mutineer Exeter Project

# Clough Services

For complex projects, sometimes grand designs and the best made plans don't work in reality. That's why Clough offers an integrated Engineering, Procurement and Construction (EPC) service based on the concept of 'Constructability.'

Constructability is how our EPC capabilities come together in a project management technique we've evolved over our 90-year history. Constructability underpins our EPC solutions to ensure all engineering designs are buildable.

Clough's multi-disciplinary, engineering-led EPC services range from concept and front-end engineering design, detailed design, procurement, construction, installation, commissioning and operations and maintenance support for onshore and offshore oil and gas projects.



## Domestic Gas

- Conceptual and Front End Engineering Design
- EPC/EPCM for upstream gas processing facilities and onshore pipelines
- Modularisation, fabrication and construction



## LNG

- Conceptual and Front End Engineering Design
- Detailed design for offplot facilities
- Modularisation and fabrication
- EPCM or EPC delivery
- Project infrastructure development including onshore pipelines, compression and nodal stations
- Marine infrastructure including jetties



## Platforms & Pipelines

- Conceptual, Front End Engineering and Detailed Design
- Installation of conventional platforms and pipelines
- Self-installing platforms
- Installation of topsides using the float-over method
- Process topside, jacket and wellhead platform fabrication



## SURF

- Conceptual, Front End Engineering and Detailed Design
- Full subsea field installations including:
  - Umbilicals, risers and flowlines
  - Subsea structures, manifolds, riser-bases, protection structures
  - Spools and tie-ins
  - FPSO or TLP moorings
- Inspection, Repair and Maintenance



## Asset Support

- Onshore and offshore asset support including:
- Brownfield engineering
  - Operations and maintenance
  - Shutdowns and campaign management
  - Commissioning
  - Decommissioning

Cover image: Installation of the mid water arch as part of Santos' Mutineer Exeter Project, North West Shelf

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