

Riserless Light Well Intervention

Reducing the cost of offshore intervention operations



Riserless Light Well Intervention

Riserless Light Well Intervention (RLWI) represents a safe, efficient and cost-effective intervention method for subsea fields. Reducing the cost of offshore intervention operations is the driving force behind the development of the RLWI technology.

Our equipment has successfully intervened on more than 580 wells over the past 10-years.



System description

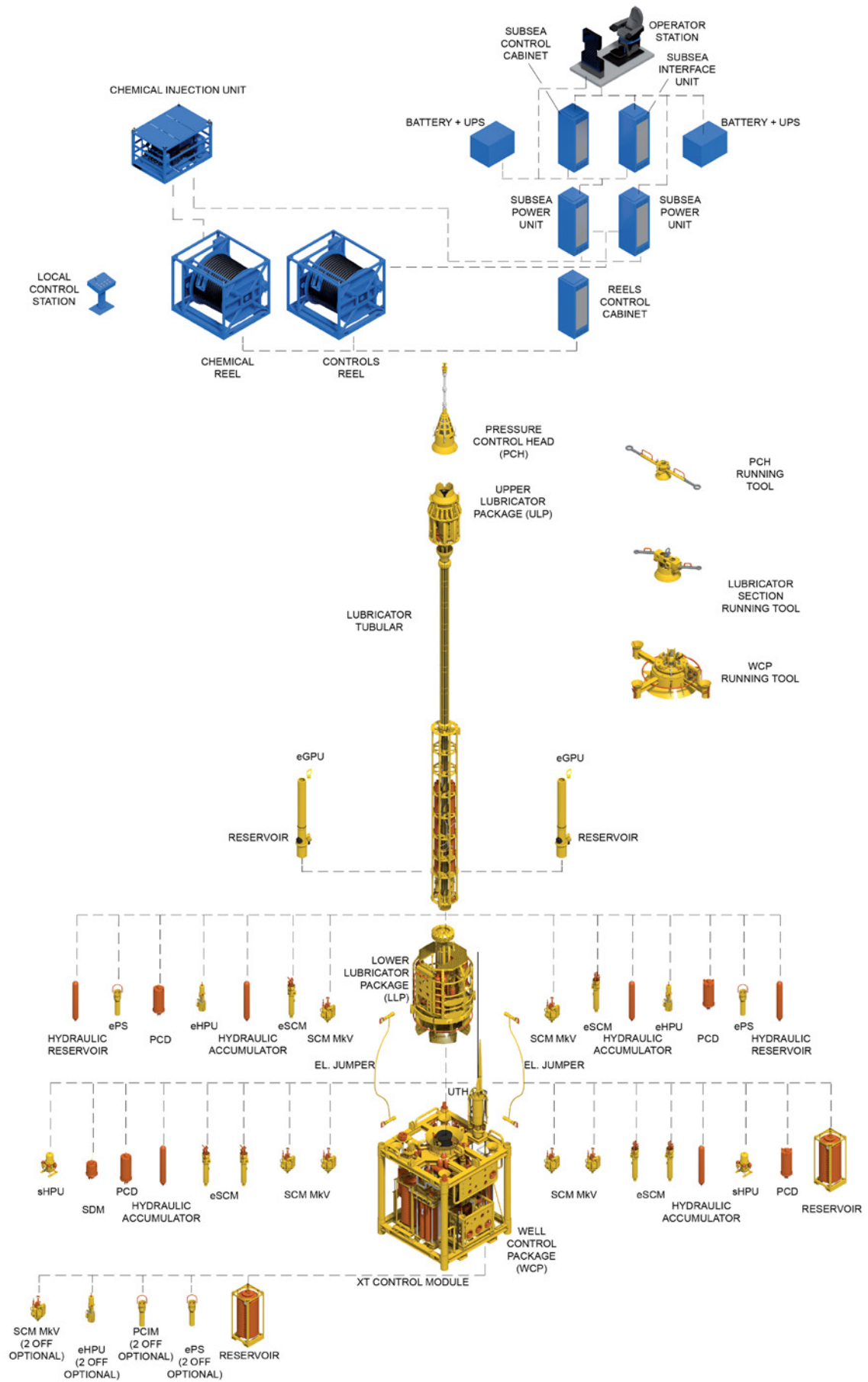
By enabling riserless, wireline and slickline operations, operators are able to bring new wells into production, increase production from existing wells without the need for a rig, or facilitate plug and abandon (P&A) projects .

The RLWI system is flexible and can perform intervention operations in production and injection wells fitted with all types of subsea tree configurations. The system has provision for well killing. It is designed to operate efficiently and competitively in comparison to drilling rig-based intervention operations.

It is currently available in 7-1/16" 10,000 psi configuration. It includes Upper and Lower Lubricator Packages, together with a Well Control Package (WCP) and adapters to suite most subsea tree types.

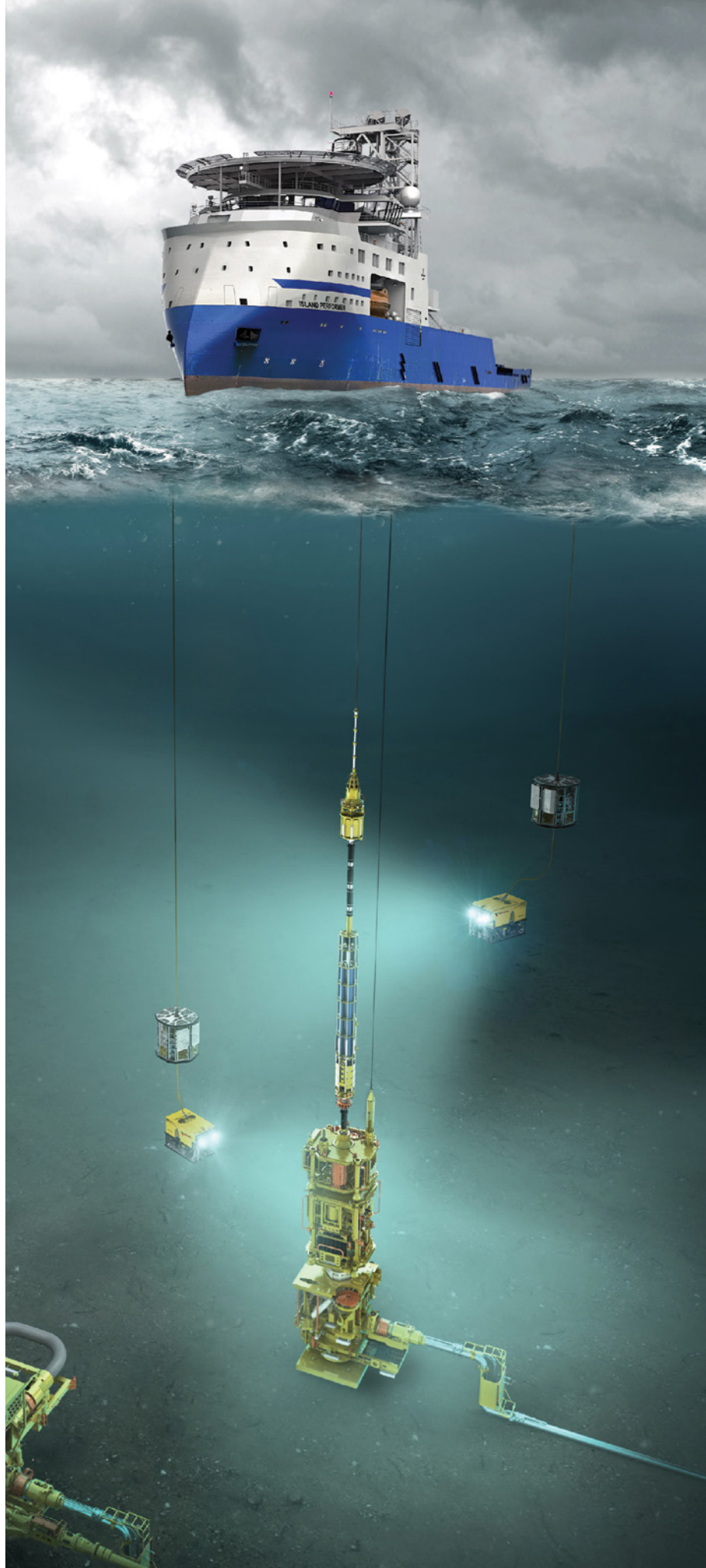
RLWI system overview





System Data

- ▶ Water depth: 2,000 m / 6,500 ft
- ▶ Design pressure: 690 bar / 10,000 psi
- ▶ Bore diameter: 7 1/16 " / 179.4 mm
- ▶ Total weight (air): 85 ton
- ▶ Total height: 34m / 72ft
- ▶ Maximum toolstring length: 22 m / 72 ft
- ▶ Compatible with horizontal and conventional trees, from all manufacturers
- ▶ All types of wireline operations
- ▶ All types of wireline and slickline operations
- ▶ Dedicated closed-circuit control system for subsea tree control
- ▶ Capable of pumping into the well and circulating fluids through downlines into Lower Circulation Module
- ▶ Two barriers in all flow paths from the well to the environment
- ▶ SIL 2 verified shut down and disconnect sequences



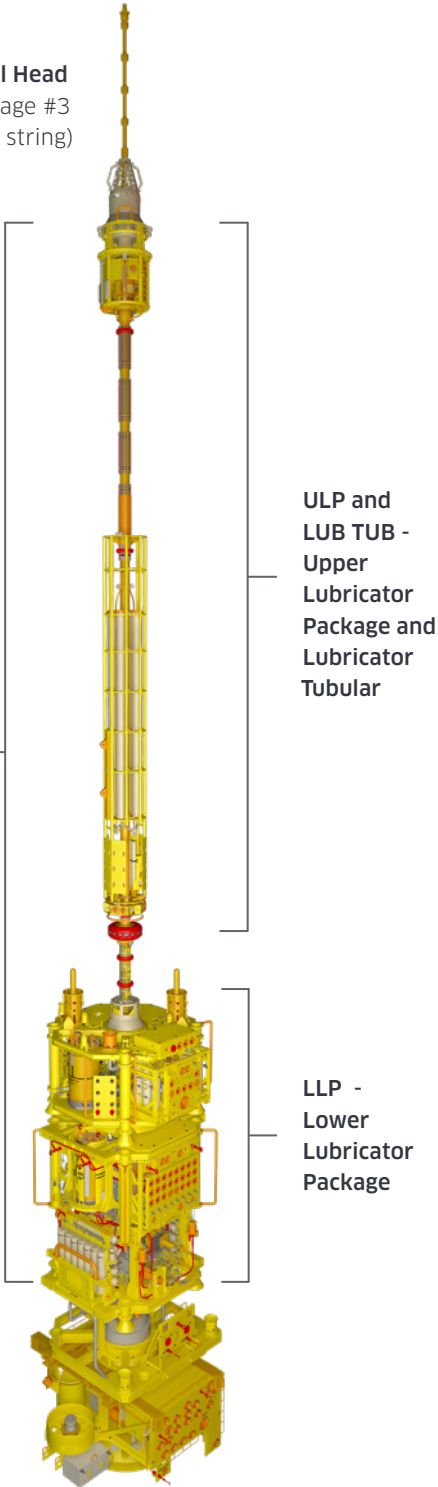
Patented Lubricator System

TechnipFMC's RLWI technology includes a patented Lubricator System for inserting downhole tool packages into the wellbore under full pressure without taking hydrocarbons back to the vessel or to the environment. The technology enables integrated operations, increases safety by reducing personnel exposure, as well as reducing cost.

PCH - Pressure Control Head
Installation package #3
(w/wire line tool string)

LS - Lubricator Section
Installation package #2

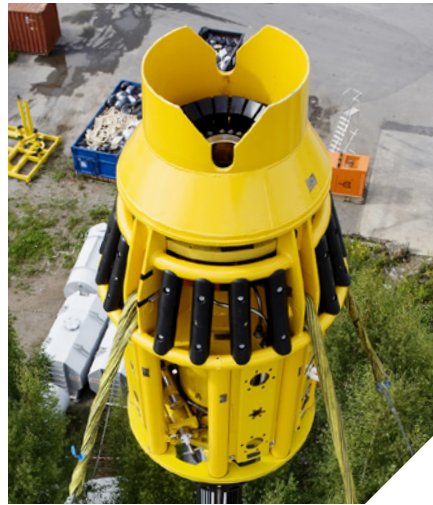
WCP - Well Control Package
Installation package #1
(w/XT adaptor)





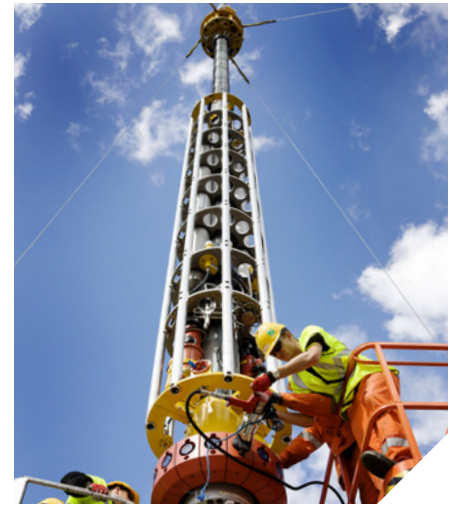
Pressure Control Head (PCH)

- ▶ Dynamic grease seal around the moving wireline
- ▶ Two off static mechanical rubber element seals - Upper Stuffing Box and Folling Dual Stuffing Box (DSB) - around the static wire (safe mode, activated by wireline operator)
- ▶ DSB has additional grease injection
- ▶ Two off MEG injection points for hydrate prevention
- ▶ Tool catcher to prevent tool drop down



Upper Lubricator Package (ULP)

- ▶ Connection point for PCH
- ▶ Wireline cutting valve acts as secondary barrier element
- ▶ Valve is normally not used in wireline operation)
- ▶ Circulation outlet



Lubricator Tubular (LUB TUB)

- ▶ Pressure lock for wireline tool
- ▶ Carrier for grease system for PCH



Lower Lubricator Package (LLP)

- ▶ Connection point for WCP
- ▶ Safety joint to prevent overload of wellhead and tree
- ▶ Carrier for controls equipment

Well Control Package (WCP)

- ▶ Main well barrier
- ▶ Shear/seal ram cuts wireline, coiled tubing and wireline tool string
- ▶ Enables flushing of hydrocarbons back into well
- ▶ Provides hydraulic pressure and supply, as well as communication with subsea tree functions

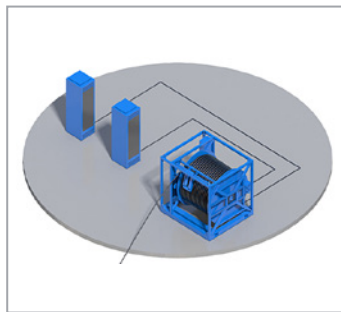
Lower Circulation Module (LCM)

- ▶ Allows pumping into the well and circulation
- ▶ 2x2" ID pumping access with dual barriers
- ▶ Built-in 18-3/4" H4 connector for connection to subsea tree

Topside Equipment



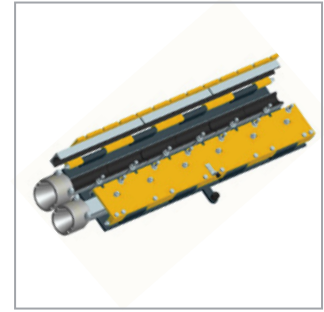
Chemical Injection Unit (CIU)



ROV type umbilical Reel



ROV type umbilical



Umbilical clamp

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