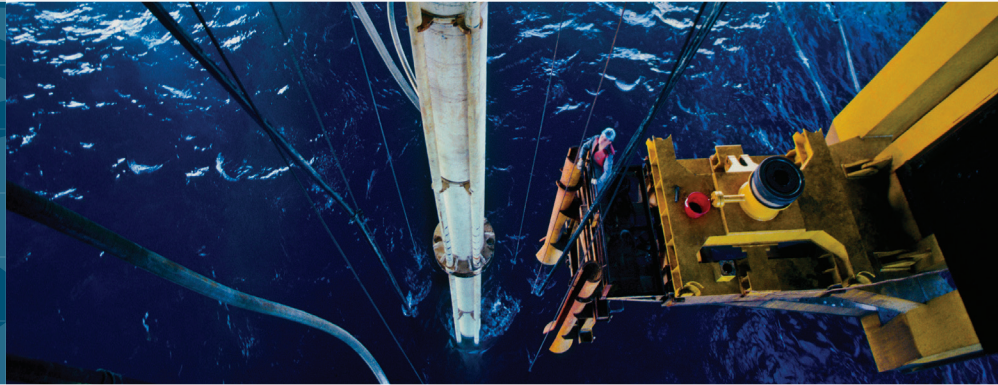


## UMBILICALS



### SERVICES INCLUDE:

#### Project Management

- FEED studies
- Subsea development layout design
- Cost estimating
- Scheduling
- Design basis document preparation
- Manned production facilities
- Minimal unmanned offshore and onshore facilities

#### Engineering

- Umbilical cross section design
- Umbilical route layout design and drafting
- Permitting
- Host interface design
- Subsea distribution design
- Chemical flow analysis
- Preparation of commissioning procedures
- Preparation of tubing and umbilical manufacture specifications and tender documents

#### Inspection and Construction Management

- Umbilical tube manufacture
- Umbilical manufacture
- Umbilical loadout, transportation, installation and commissioning
- Preparation of commissioning procedures
- Preparation of umbilical installation specifications and tender documents

UniversalPegasus International's (UPI) Umbilical Group is capable of providing umbilical project management, engineering design, and tubing and umbilical manufacture inspection, along with umbilical installation and commissioning management. Umbilical engineering experience of our personnel is worldwide.

Detailed specifications for deepwater umbilical tubing manufacture and welding have been prepared and successfully utilized by UPI. This is one of the most critical aspects of deep water umbilicals. We are well versed in the technologies for using super duplex stainless steel tube and lean duplex stainless steel tubes (Nitronic® 19D), and their applications.

Umbilical design expertise includes the use of in-house programs developed specifically for deep water umbilical design and project management.

UPI engineers can perform detailed chemical flow analysis for cold environments, dynamic analysis, deepwater umbilical cross section design, prepare route layouts, deepwater subsea termination, and host termination interface design, as well as chemical distribution schemes for multi-well subsea developments.

We are able to propose the most cost-effective solution for your project while meeting all engineering requirements. Our database of information from previous projects allows us to provide detailed accurate cost estimates and schedules during project system selection and AFE development.



713.425.6000 | [universalpegasus.com](http://universalpegasus.com)  
4848 Loop Central Drive, Houston, Texas 77081