

# Subsea Awareness Course

8 – 12 September 2008

Rydges Hotel, (West End One Room),  
Corner of King & Hay Streets, Perth, Australia

**SUT**  
Society for  
Underwater  
Technology

This five-day Course has been designed to be suitable for contractors, engineers, operators and those new to the offshore industry, those transferring from other disciplines within the industry and those who have worked in subsea previously but would benefit from a refresher course and exposure to the latest technology.

Whilst most of the course will be presented in a 'classroom' environment, the sessions will be interactive, with the opportunity to ask questions and discuss what has been learnt. In particular, hands-on and visual components have been included wherever possible to enable delegates to view software models and products destined for subsea service.

## PROGRAMME

### Day 1. A.M. 09.00 – 12.30 General Introduction to the Subsea Sector

#### Overview:

- Why subsea?
- What other options are available, including option evaluation and selection?
- Examples of different systems used on existing fields.
- What are the current design philosophies and the technology drivers?

#### Subsea development options

- Single well tieback.
- Template.
- Cluster/manifold etc.

*Tea/Coffee*

#### Components of subsea systems 'building blocks'

- What is the purpose of each and how do they fit into the overall system?

#### Development areas:

- Deep water/ultra deep water
- Complete subsea solutions

12.30 *Lunch*

13.30 – 16.45

#### Overview of Principles of Fluid Flow

- Understanding the nature of fluids
- Thermal management of subsea systems • Deep and Ultra deepwater development.
- Seabed Processing.

16.45 Day end

18.30 Course Dinner

### Day 2 . 09.00 – 17.00 Subsea Wellheads/Trees

#### Introduction

#### Getting to know the Technology and Terminology

- Drilling Vessels
- The basics of Drilling a Well
- An overview of Key components and their methods of operation
- Xmas Tree Applications
- Completion risers

*Tea/coffee*

#### Wellhead Systems

- UWD-15 Wellhead System Overview
- UWD-15 Wellhead Installation Animation

#### Tree systems

- HXT and VXT System Overview
- HXT & VXT Installation & Tooling Overview
- HXT Installation Animation
- VXT Installation Animation

12.00 – 13.00 *Lunch*

#### Templates Manifolds and Connections

#### Connection Systems

*Tea/coffee*

#### 2pm Depart Rydges for site visit to FMC's Facility at Henderson

17.00 Back at Rydges  
Day end

### Day 3 . 09.00 – 16.45 Subsea Control Systems

#### Introduction.

- Overview, what does the control system do.

#### Types of Control System

- Advantages/disadvantages of each type.

*Tea/coffee*

#### Typical Equipment

- Hydraulic Power Unit, Electrical Power Unit, Master Control Station, Subsea Control Modules.

#### Subsea Options

- Hydraulics, Electrics, Umbilicals, Sensors.

#### Operator Interface

- Master Control Station, functionality and options.

#### Future

- Technology Drivers

12.30 – 13.30 *Lunch*

#### Subsea Control Fluids

- The control fluid as a component of the system.
- Anatomy of a control fluid.
- Environmental impact.

*Tea/coffee*

#### Umbilicals

- Design • Manufacture
- Project Uses

16.45 Day end

### Day 4 . A.M. 08.30 – 12.00 Installation Introduction.

#### Field Architecture Overview:

- Subsea Tieback • Subsea Floater

#### Installation Vessels

- Vessel Types • Positioning

- Critical Success Factors

#### Structures

- Structure Types & Installation
- Foundations, Types & Installation

#### Pipelines - Flexibles

- Flexible Types • Critical Success Factors • Installation methods

#### Pipelines – Rigid

- Flexible Types • Critical Success Factors • Installation methods

#### Tie Ins

- Rigid Spools • Flexible Jumpers
- Flying leads • Critical Success Factors

12.00 *Lunch*

### 13.00 – 16.45 Remote Intervention

#### Introduction

- Safety. • Current Environment
- Technology Drivers.
- Water Depth.

#### Remote Intervention Systems

- Tooling Standards.
- Interfacing.
- Component Replacement systems
- Connection systems.
- Diverless Pipeline Repair.

#### ROV Technology

- Introduction. • System Types.
- Typical System Components.
- Operational systems and capabilities.
- Launch and Recovery systems.

*Tea/coffee*

#### AUV Technology

- Introduction.
- System Components.
- Capabilities. • Sensors
- Trials and Testing.

#### Diver Intervention

- Air and Saturation Diving • Safety
- Diver Tasks. • Support Vessels.

16.45 Day end.

### Day 5. A.M. 09.00 – 12.30 Site Visits to:

#### Aker Kvaerner's workshop at Belmont.

12.30 *Lunch*

13.30 16.30

#### The Subsea Challenge: hotter, deeper, further, cheaper The e-Field

- Computing and Data Management
- Subsea Visualisation

#### Harder but Smarter

- High Temperature and Pressure
- Assets in the Abyss.
- Challenges of long distance tie-backs

*Tea/Coffee*

#### Risks, Reliability & Availability

- Basic background
- Predictions and Modelling
- Design Techniques
- Practical Reliability

#### Deliverability & Operability

- Deliverability Concepts
- Practical Operability
- Economics
- Performance
- Specifications
- Reliability Tools

16.30 Course end.

**Presenting Companies Include:**



All details of lecturers and updates to the programme will be provided with the Joining Instructions.

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# Registration Information

# Subseaea Awareness Course

To register, either e-mail the information required on the registration form to [perthevents@sut.org](mailto:perthevents@sut.org) or fax the completed form to +61 (0) 8 9204 3826 Tel. 0403 185 226

## Registration Fees

SUT Members \$2500 + GST = A\$ 2750.00

Non Member \$3000 + GST = A\$ 3300.00

*Included in the Fees:* All refreshments during the Course, including dinner on the first night, and a copy of the Course notes and a DVD containing PDF copies of the presentations and available videos.

## Preferred Payment Methods:

**Credit Card:** Mastercard or Visa ONLY. We cannot accept payment by any other card.

**Cheque:** Australian Dollar only, made payable to The Society for Underwater Technology

Send to, Post Office Box 1107, Kalamunda, Western Australia, 6076

Please make sure you reserve a place by e-mail or fax before posting your cheque.

## Joining Instructions:

Joining instructions will be e-mailed to the registered delegate (as shown on the registration form). All details of locations, host companies, lecturers and updates to the programme will be included in the joining instructions.

## Course Dinner:

An informal dinner will be held in a local restaurant on the first night of the course (details with joining instructions)

## Cancellations:

Refunds will be made on written cancellation received up to ten working days in advance of the event, but will be subject to a 15% handling charge. 50% will be deducted up to three working days in advance and 100% thereafter up to the start of the event. No refund will be given for non-attendance. Delegates may wish to nominate a substitute in their place.

## Transport During the Course:

Delegates are responsible for their own travel arrangements at the beginning and end of each day. Transport will be arranged by SUT from Rydges Hotel, for the site visits.

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## Registration Form

Please e-mail details to [perthevents@sut.org](mailto:perthevents@sut.org) or fax the completed form to 61 (0) 8 9204 3826 Tel: 0403 185 226

Please tick to indicate your preferred course date and payment method: **SUT Member No.** \_\_\_\_\_

Credit Card \_\_\_\_\_ (Visa or MasterCard) Cheque \_\_\_\_\_ Invoice (PO No.) \_\_\_\_\_

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

E-mail address \_\_\_\_\_ Tel No. \_\_\_\_\_

Credit Card No: VISA or MASTER CARD ONLY. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Exp. \_\_\_\_\_ / \_\_\_\_\_ Security no \_\_\_\_\_ (last 3 digits on the back of your card)

Name on the card \_\_\_\_\_

Billing Address if not as above \_\_\_\_\_

Amount to be charged \$ \_\_\_\_\_ Signature \_\_\_\_\_