

# Achieving Reliable Subsea Systems

## One-day Course

24th October 2012

Ibis Hotel, (Pepper Room) Murray Street, Perth



**Are you surprised by how often we experience unexpected subsea failures?**

**Are you striving for higher subsea production system reliability?**

**If so, then this is the course for you!**

### What the Course will Deliver:

Overview of Subsea Reliability  
Framework for achieving reliability targets  
Interfaces with Subsea Integrity and Project Management  
Contracting Strategies for Reliability  
Key Decisions to be made  
Tools and Methods  
Industry Best Practice (New codes/stds.)  
What happens if you get it wrong  
Economic Benefits of getting it right  
Turning Lessons Learned into Improvements

### Who would benefit from attending this course:

Project Managers  
Quality/Integrity Personnel  
Reliability Specialists  
Subsea Systems Engineers  
Subsea Discipline/Package Engineers  
Subsea Pipeline Engineers  
Subsea Operations Personnel  
Subsea Equipment Vendors

## PROGRAMME

08.15 Registration

### 08.30 Welcome, Introduction Reliability Aims and Importance

- ◆ What do we mean by Subsea Systems Reliability and why is it important?
- ◆ What causes Subsea Unreliability and where do we need to focus?
- ◆ How will this course help you improve Subsea Reliability?

### 08.50 Framework for Subsea Reliability and Technical Management

- ◆ Key terms and definitions
- ◆ Objectives of a reliability strategy
- ◆ Overview of API RP 17N Reliability Management Framework
- ◆ Organisational models to enhance reliability management capability

10.00 Tea/Coffee

### 10.15 Reality of Reliability

- ◆ Data collection, reduction and validity.
- ◆ Systemic failures. Failure when everything is done 'well'
- ◆ Effects of low reliability - examples
- ◆ Inertia of organisations, Hidden benefits of reliability,
- ◆ What is typically achieved, system
- ◆ Design—accommodation of Reality

### 11.15 Reliability Modelling (RAM) / Basic Probability Theory

- ◆ Reliability models and how they relate to what we do
- ◆ Some commonly used reliability models
- ◆ Understand how the models work and when they are useful
- ◆ Models outputs
- ◆ What is required to build reliability models
- ◆ What is probability
- ◆ Why you need to know this
- ◆ Standard definitions used in reliability engineering
- ◆ Statistics and distributions to analysis reliability
- ◆ Limitations of calculation- Prediction no Perfection

12.30 Lunch

### 13.00 Tools and Techniques

- ◆ Reliability Tools and the Design Stages
- ◆ FMEA & FMECAS
- ◆ Event Trees (ETA) ◆ Fault Tree Analysis (FTA)

### 13.45 Workshop

The class will be given a simple subsea system to actuate a valve. They will be then split into 3 groups, each group will tackle a specific task to analyse using different reliability tools eg. Fault Tree, RBD and ETA

### 14.30 Workshop presentations

14.45 Tea/Coffee

### 15.00 Economics of Reliability and Operability

- ◆ Project Failure Statistics
- ◆ Economic Impact of Reliability & Availability
- ◆ Operability—Impact on Production Availability
- ◆ System Design to achieve desired Operability/Availability
- ◆ Impact of System Design - successful & not so successful examples

### 15.50 Contracting for Reliability— Workshop

In this workshop we will explore the answers to some questions, including:

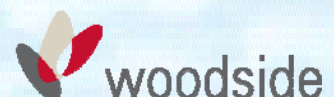
- ◆ How does Contracting Strategy affect Reliability?
- ◆ Impact of differing Contracting strategies - eg. Traditional vs EPCM vs Alliancing?
- ◆ The issues - what we can do about them?
- ◆ What does the Customer (Operator) want?
- ◆ What is the ideal Contracting strategy?
- ◆ Can we provide Contract incentives for Reliability?

17.00 Wrap up / Course Close

SUT reserves the right to change/amend the programme as it see fit.

**ATKINS**

Presenting Companies Include:



## Registration Information

Achieving Reliable Subsea Systems

Should you require further information on this event, please contact Joyce Bremner on [j.bremner@sut.org](mailto:j.bremner@sut.org) Tel +61 8 9446 9903  
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 8 9446 9905

### Registration Fees

SUT Members - \$363.64 + GST = \$400

Non Members - \$409.09 + GST = \$450

**Fee includes** - All refreshments, handout notes of the presentations & CD containing PDF versions of the presentations .

### Preferred Payment Methods:

**Credit Card:** Mastercard, Visa, or \*AMEX only. We cannot accept payment by any other card.

\*Please note if paying by AMEX there will be a 2.75% surcharge.

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

Send to, SUT, PO Box 7284 Cloisters Square, Perth, WA 6850

Please make sure you reserve a place by e-mail or fax before sending payment.

### Joining Instructions:

Joining instructions will be e-mailed to the registered delegate (as shown on the registration form). All details of presenters and updates to the programme will be included in the 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 to and from the Ibis Hotel.

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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 8 9446 9905

SUT Member No. \_\_\_\_\_

Please tick to indicate your preferred payment method:

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

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Address \_\_\_\_\_

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

Credit Card No: VISA, MASTERCARD ONLY or AMEX only\* \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

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

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

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

E-mail address where receipt should be sent for credit card payment \_\_\_\_\_

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