

Achieving Reliable Subsea Systems

One-day Course

10th September 2009

Melbourne Hotel, (Colonial Room), Corner of Milligan and Hay Streets, 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 (Eg FMEA/RCA)
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:

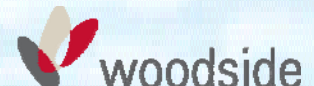
Project Managers
Quality/Integrity Personnel
Reliability Specialists
Subsea Systems Engineers
Subsea Discipline/Package Engineers
Subsea Pipeline Engineers
Subsea Operations Personnel
Subsea Equipment Vendors

PROGRAMME

- 08.15 Registration
- 08.30 **Welcome and Introduction**
Course aims, Reliability history.
- 08.45 **Reliability Aims and Importance**
Reliability at project, system & detailed level.
The impact of failures, Safety, Environment, NPV returns.
The importance of subsea and the cost of failure.
- 09.15 **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
- 10.15 Tea/Coffee
- 10.30 **Tools and Techniques**
System definitions, FMEA;s & FMECSs
Condition to Capacity (Load to strength) distribution
Event Trees, Fault Tree Analysis
Root Cause Analysis
- 11.15 **Reliability Modelling**
Reliability Block Diagrams, Reliability quantification
Reliability Availability and Maintainability Analysis
RAM Simulation software packages
Limitations of calculation - Prediction no Perfection
- 12.00 Lunch
- 12.45 **Workshop**
The class will be given a system to actuate underwater valve. They will be then split into 3 groups, each group will tackle a specific task to analyse. Ie. FMEA, Fault Tree, RBD
- 13.15 **Workshop presentations**
- 13.30 **Basic Probability Theory**
What is probability?
Quantifying uncertainty through probability
Standard definitions used in reliability engineering
Statistics and distributions to analysis reliability
Why you need to know this.
- 14.30 **Codes and Implementation**
Why QA misses the point
Component Qualification—DNV RP A203, API17Q
Lessons Learnt & continuous improvement looping
Birth of codes NORSOK Z016,API17N, ISO 20815
Reliability Strategy development
Defining functional performance
Changing mindsets and creating responsibility
Organisational Reliability & Human Factors in Corporations
- 15.00 Tea/Coffee
- 15.15 **Economics of Reliability and Operability**
When reliability really matters
When and how reliability is achieved
The Reliability, Availability, Deliverability, Operability linkage
Formal methods of Assuring Operability
Start first time - run at capacity forever concept
- 16.00 **Contracting for Reliability**
Specifying reliability & system performance
Contracting for reliability
Rewarding for successfully managing risks
Reliability Strategies for a Contractor/Vendor company
Manufacturing Reliability
FATS, SITs, SRTs are not Reliability Testing
Delivering Re, Av, De, Op over the field life
- 16.45 **Conclusions**

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

Presenting Companies Include:



Registration Information

(Reliability Sept 09)

Should you require further information on this event, please contact Joyce Bremner on j.bremner@sut.org
To register, either e-mail the information required on the registration form to perthevents@sut.org
or fax the completed form to +61 8 9446 9905

Registration Fees

SUT Members - \$385.00 Inc. GST

Non Members - \$440.00 Inc. GST

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 Melbourne Hotel.

Registration Form

Please e-mail details to 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 or MasterCard) Cheque _____ Invoice (PO No.) _____

Name _____

Company _____

Address _____

E-mail address _____ Tel No. _____

Credit Card No: VISA or MASTERCARD 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 _____