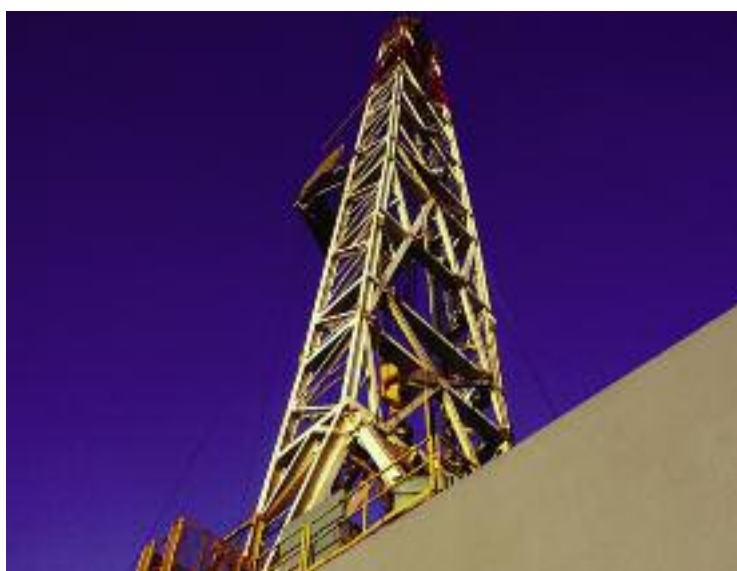




nel

oil & gas services



The Americas Workshop

27-29 April 2010

Measurement Uncertainty Training Course

26 April 2010

Solving Flow Metering Problems with Computational Fluid Dynamics (CFD)

Training Session

30 April 2010

The Woodlands Resort & Conference Center,
near Houston, USA

Organised by
TUV NEL Ltd, EAST KILBRIDE, GLASGOW, UK
BOOKING HOTLINE: +44 (0) 1355 272858
ONLINE BOOKING: www.tuvnel.com/events.aspx

Committee Contributions from:

- BP
- Chevron
- ConocoPhillips
- Fluor Offshore Solutions
- Letton-Hall Group
- Shell
- TOTAL E&P USA
- TUV NEL
- Weatherford

in Association With

National
Measurement
System

The Americas Workshop

27-29 April 2010

The Woodlands Resort & Conference Center, near Houston, USA



Introduction

In the dynamic and economically challenging world of oil and gas production, it is important that developments in technology, new regulation and best practice are shared among the practitioners who operate within upstream production and measurement.

Track Record

Since its launch two years ago, the Americas Workshop has now been established as one of the major forums in the continent to facilitate this sharing of knowledge within a focused environment.

The Workshop has brought together international operators, regulators, equipment suppliers, engineering contractors, service companies and researchers to examine the flow measurement challenges that the oil & gas industry faces, and to share knowledge and experience. The previous two events have been highly successful, attracting positive feedback from over 100 industry experts who attended each of the workshops.

2010 Workshop

Building on the success of the previous two events, the 2010 Workshop will continue to address the changes in flow measurement practice which affect North, South and Central America. The Workshop will examine the relevant issues relating to complex fluids, measurement technologies, allocation and verification.

Workshop Fee

Two delegate attendance options are available to suit those with local commitments and those travelling from further afield:

ATTENDANCE ONLY – This option allows delegates to attend on a day-only basis, which includes attendance at all technical sessions over the three days, printed proceedings and lunch. This delegate registration fee is **\$1300**.

INCLUSIVE – This package includes attendance at all technical sessions, printed proceedings, accommodation at the Woodlands Resort & Conference Center on the nights of 26, 27 & 28 April, all meals (including the Workshop Dinner – Texas BBQ). This delegate registration fee is **\$1995**.

We expect the Workshop and accommodation to be oversubscribed so places will be allocated on a first-come-first-served basis.

Training Course/Session

An optional training course on Measurement Uncertainty will be held on Monday 26 April and a complimentary Training Session on Solving Flow Metering Problems with Computational Fluid Dynamics (CFD) will be held on Friday 30 April.

Why Should I Attend This Event?

- Technical presentations by industry experts will help improve your knowledge and understanding, making you better equipped to meet the challenges faced by the industry, now and in the future.
- Discussion on the latest topics and issues in the industry today means you can make informed decisions within your business quicker and more efficiently.
- Strong support from local companies and operators in the oil & gas sector means you can develop your own business interests in the region by making new contacts through networking at this event.
- Manufacturers from around the world will be exhibiting the latest in cutting-edge technology, helping you to make informed choices on equipment and service requirements, faster and more effectively.

Who should attend:

- Metering and instrumentation engineers
- Production and reservoir engineers
- Hydrocarbon accountants
- Product suppliers
- Metering system vendors
- Government regulators
- Researchers



TUV NEL

TUV NEL is a leading provider of pipeline fluid management services to the global petroleum industry. We have an impressive track record in the development, design and application of leading-edge technology. We provide consulting, training, R&D and laboratory testing services in the following areas:

- Flow Measurement (oils up to 1500 cSt, gas, water, wet gas, multiphase & fluids)
- Consultancy in all key flow areas
- Computational Fluid Dynamics Modelling and Interpretation
- Thermal Engineering & Heat Transfer
- Erosion Assessment and Validation
- Flow Calibrations in the UK National Test Facility
- Environmental (produced water, oil-in-water, emissions and carbon capture & storage)

TUV NEL is part of the TÜV SÜD Group, a leading international technology services organisation. Around 14,000 employees are represented at more than 600 locations throughout the world.

Members of the Technical Committee

The Committee have input to the content and direction of the Workshop. Papers selected by the Committee are based on their relevance to industry and the quality of content.

- Dr Brian Millington (Chairman), TUV NEL, bmillington@tuvnel.com
- Mr Tim Daigle, Fluor Offshore Solutions
- Ms Angela Floyd, ConocoPhillips
- Mrs Hazel Hampson, TUV NEL
- Dr Moussa Kane, TOTAL E&P USA
- Dr Chip Letton, Letton-Hall Group
- Mr Joel Rodger, Weatherford
- Dr Joseph Shen, Chevron
- Mr Charlie Tyrrell, Shell International E&P
- Mr Robert Webb, BP America

Registration, Enquiries & Administration

Bookings can be made online at www.tuvnel.com/events.aspx or alternatively complete and return the booking form to the Events Team either by fax or email. Full address details can be found at the back of this flyer.

Payment by credit card only.

Exhibition and Sponsorship Opportunities

Suppliers of equipment and services are invited to sponsor and/or exhibit at the Workshop. This will give your company a profile in the final programme in addition to a stand at the exhibition. Please contact the address on the back page for further details.



Monday 26 April

- 0830 – 0900 TRAINING COURSE REGISTRATION
- 0900 – 1600 Measurement Uncertainty Training Course
- 1900 – 2100 WORKSHOP REGISTRATION
- 1900 – 2100 DINNER

Tuesday 27 April

- 0830 – 0900 DELEGATE REGISTRATION & COFFEE
- 0900 – 0910 Welcome Address
Brian Millington, TUV NEL - UK
- 0910 – 0930 Keynote Speech
Tyler Priest, University of Houston - USA

Session 1 Multiphase

Chairman: Joel Rodger, Weatherford International

- 0930 – 1000 Measuring Relative Concentration of Water, Condensate and Methanol/Glycol in a Wet Gas Stream Using Infrared Absorption
John Lievois, Babajidey Adejuyigbe and Vijay Ramakrishnan, Weatherford International - USA,
Bob Webb, BP America - USA
- 1000 – 1030 Technology Path for Deep Water ROV-Conveyed Multiphase Flow Measurement
Philippe Remacle, TOTAL - USA
Eric Toskey and Chip Letton, Letton-Hall Group - USA
Rich McCoy, Oceaneering - USA
- 1030 – 1100 COFFEE AND EXHIBITION
- 1100 – 1130 A Combined Multiphase and WetGas Meter with In-Situ Measurement of Fluid Properties
Arnstein Wee, Multi Phase Meters, AS - Norway
Lars Farestvedt, Multi Phase Meters, Inc. - USA
- 1130 – 1200 Use of Dual-Modality Tomography for Complex Flow Visualisation
Norman F Glen and Amy Ross, TUV NEL - UK
Gary Bolton and Changhua Qiu, Industrial Tomography Systems plc - UK
- 1200 – 1230 The Next Generation of Multiphase Meters - How to Generate More Detailed Knowledge of Flow Rates and Widen the Operating Envelope
Lars Anders Ruden and Morten Brandt, Roxar Flow Measurement AS - Norway
- 1230 – 1400 LUNCH AND EXHIBITION

Session 2 Wet Gas

Chairman: Chip Letton, Letton-Hall Group

- 1400 – 1430 Wet Gas Sampling at High Pressure
Flavia Viana, Southwest Research Institute - USA
- 1430 – 1500 Three Phase Wet Gas Meter Response in Extremely High GVF Flowing Conditions
Sébastien Cadalen, Geoservices - France
- 1500 – 1530 COFFEE AND EXHIBITION

Session 3 Diagnostic

Chairman: Brian Millington, TUV NEL

- 1530 – 1600 Trending Diagnostics from SMART Ultrasonic Meters
Klaus J Zanker, Letton-Hall Group - USA
Angela Floyd, ConocoPhillips - USA
- 1600 – 1630 Development of a Measurement Systems Diagnostic Aid, Based on Expert Knowledge and Historical Measurement Data
Rafael Francisco Mesa Barco, Ecopetrol S.A. - Colombia
- 1830 – 1900 PRE-DINNER RECEPTION
- 1900 DINNER

Wednesday 28 April

Session 4 DP Meters

Chairman: Tim Daigle, Fluor Offshore Solutions

- 0830 – 0900 Erosion Effects on Venturi and Cone Meters
Neil Barton, TUV NEL - UK
Klaus J Zanker, Letton-Hall Group - USA
Gordon J Stobie, ConocoPhillips - UK
- 0900 – 0930 Development of a New Mass Flow Meter Concept with Diagnostic Capabilities
Jim Storer and Ed Schroeder, VorTek Instruments, LLC - USA
Richard Steven, DP Diagnostics Inc. - USA
- 0930 – 1000 Wedge Meters with Wet Natural Gas Flows
Steve Pagano, ABB Inc. - USA
Richard Steven, Charlie Britton and Josh Kinney, CEESI - USA
- 1000 – 1030 COFFEE AND EXHIBITION



Session 5

Ultrasonic

Chairman: Charlie Tyrrell, Shell International Exploration & Production

- 1030 – 1100 The Next Evolution of Ultrasonic Flow Measurement - Viscosity Independence
Shirley Ao and Peter Espina, GE Sensing & Inspection Technologies - USA
- 1100 – 1130 A Study of Required Recalibration for Gas Ultrasonic Flow Meters
Jim Hall, Klaus J Zanker and Eric Kelner, Letton-Hall Group - USA
- 1130 – 1200 New and Old Challenges of High Velocity and High CO₂ Concentration for Flare Gas Flow Measurement are Met with Improved Ultrasonic Flow Meter Capability
James Matson, Lei Sui and Toan Nguyen, GE Sensing - USA
- 1200 – 1330 LUNCH AND EXHIBITION

Session 6

Proving

Chair: Angela Floyd, ConocoPhillips

- 1330 – 1400 Prover Calibrations by Master Meter Method
Scott Iverslie, Alyeska Pipeline Service Company - USA
Stewart Ash, BP Pipelines, North America - USA
- 1400 – 1430 Correlations Determination Between Flow Profiles and Measurement Errors in Turbine Meters Used for Liquids
Raul Contreras and Diego Moncada, CIATEQ A.C. - Mexico
- 1430 – 1500 COFFEE AND EXHIBITION

Session 7

Allocation

Chairman: Moussa Kane, TOTAL E&P Research & Technology USA

- 1500 – 1530 Allocation Measurement
Rajan Batra, Chevron Corporation - USA
- 1600 – 1630 Flow Data Improvement Using In Line Data Validation & Reconciliation: Application to Offshore Fields
Jean Paul Couput and Renaud Caulier, TOTAL - France
Ulrika Wising, Belsim S.A. - Belgium
- 1630 – 1700 Uncertainty Management & Virtual Flow Computing - The Benefits to be Gained by Accurate Flow Measurement Across an Asset
Rob Ferguson, Aquidata Excel JV Ltd - UK
Baron Bennington, Talisman Energy UK - UK

1830 – 1900

PRE-DINNER RECEPTION

1900

WORKSHOP DINNER - TEXAS BBQ

Thursday 29 April

Session 8

Heavy Oil/Multiphase & Field Experience

Chairman: Bob Webb, BP America

- 0830 – 0900 The Measurement of 4 Phases in Diluent Environment with only the Use of a Venturi and Multi-Energy Gamma Ray Combination
Onerazan Bornia and Bruno Pinguet, Schlumberger - Venezuela
J. Caldera, PDVSA - San Tomé
- 0900 – 0930 Anadarko Seeks Better Solution for Plunger Lift Wells
Stephen A Ifft, Emerson Process Management - USA
- 0930 – 1000 Thermal In Situ Production of Extra Heavy Oil: Improvement with a Commercial Nucleonic Multiphase Flow Meter of the Conventional Metering Issues
Bruno Pinguet, Jean Luc Roudil and Philippe Pechard, Schlumberger - Venezuela
Vincent Arendo and Fabrice Dang, TOTAL - Venezuela
- 1000 – 1030 COFFEE AND EXHIBITION
- 1030 – 1100 New Coriolis Based Multiphase Flow Meter for Heavy-Oil Mature Fields
Joram Agar and David Farchi, Agar Corporation Inc. - USA
- 1100 – 1130 Emulsion and Impact on Multiphase Flow Meter Technologies
Cheng-Gang Xie, Schlumberger - UK
Bruno Pinguet, Schlumberger - Venezuela
- 1130 – 1200 The RPSEA Deepwater Measurement Project
Chip Letton, Letton-Hall Group - USA
Bob Webb, BP America - USA
- 1200 – 1210 Closing Comments
Brian Millington, TUV NEL - UK
- 1210 CLOSE AND LUNCH

Friday 30 April

0830 – 0900

TRAINING SESSION REGISTRATION

0900 – 1100

Solving Flow Metering Problems with Computational Fluid Dynamics (CFD) Training Session

Measurement Uncertainty

Monday 26 April
08:30 - 16:00

Introduction & Objectives

Measurement is fundamental to the control of quality, efficiency and safety. It is vital that all those using industrial measurement recognise that measurement is not an exact science. Understanding the magnitude of the uncertainty associated with any measurement is the first step to improving accuracy. An ability to identify the key issues affecting accuracy is the crucial step in ensuring that limited resources are correctly targeted in any drive to improve accuracy.

This course will introduce delegates to the techniques required to identify what affects measurements and by how much. By ranking the effects, delegates will be able to guard against invalid conclusions and ensure that the key measurements are targeted for investment in new instrumentation.

The course is designed to impart an understanding of measurement uncertainty. Using examples tailored to the oil and gas sector, delegates will learn the appreciation of the impact of measurement uncertainty on the oil and gas industry, identify the important sources of uncertainty in measurement systems and receive practical guidance on the design of measurement techniques for improved uncertainty.

Who Should Attend?

- Research and development engineers
- Instrumentation engineers
- Quality managers
- Technical managers

Course Director

Norman Glen has worked on a wide range of projects including heat exchanger fouling, stack emissions monitoring, the application of data reconciliation techniques to flow measurement in pipe networks and the traceable calibration of industrial densitometers. All of these areas require understanding of the key effects of uncertainty of measurement on the results obtained. By drawing on this diverse background, he is able to illustrate key learning points relating to the use of uncertainty for system design and data analysis.

The course will enable delegates to identify the causes of inaccuracy. By the end of the course, delegates will be able to identify which sources of inaccuracy to target in order to improve the overall measurement system.

Please note that the fee includes participation in the course, lunch, refreshments, certificate of attendance and comprehensive course notes. These notes form useful reference material for delegates to utilise in the future. The fee does not include accommodation.

Course Fee: \$630

Solving Flow Metering Problems with Computational Fluid Dynamics (CFD)

Friday 30 April
08:30 - 11:00

Introduction & Objectives

Computational Fluid Dynamics (CFD) is a flexible computer modelling technique that is widely used to simulate fluid flow in the aerospace, automotive, process and oil & gas sectors. This session offers an introduction to CFD and demonstrates how it has been applied in numerous metering applications.

This informal session will aim to answer the following questions:

- What is CFD?
- How does it apply to flow metering in the oil and gas sector?
- What does a typical CFD analysis project entail?

Examples and case studies will include:

- Fiscal metering skid pipework design
- Flare gas metering uncertainty analysis
- Error predictions for orifice plates, venturis, ultrasonic and turbine meters
- Flow conditioner selection
- Temperature measurement, insulation and subsea thermal analysis
- Multiphase and wet gas metering
- Surface contamination effects

CFD is a powerful tool when used appropriately. In particular it can be used to try solutions before manufacturing components and investigate problems in detail under operational conditions. The session will consider its advantages, its limitations and how it can be used in conjunction with field information, published data and laboratory tests to produce an optimal result.

Who Should Attend?

The session is intended for metering engineers working on the oil and gas facilities. It may also be of interest to pipeline engineers, production engineers and R&D managers. A high-level understanding of fluid dynamics is not required.

Presenter

Neil Barton is a Technical Consultant at TUV NEL and has almost 20 years of experience in CFD modelling. He has been involved in a number of areas including flow metering, erosion assessment, multiphase flow and thermal analysis in oil and gas systems since joining TUV NEL from British Gas in 1997.

**Course Fee: Complimentary
(NB: Delegate numbers are limited)**

Please complete both sides.

Please copy this form for any additional delegates.

Please tick as required

Workshop

- | | | |
|--------------------------|--|---------|
| <input type="checkbox"/> | Attendance at Workshop Only – The Americas Workshop (27-29 April) | \$ 1300 |
| <input type="checkbox"/> | Workshop Dinner (Texas BBQ) on Wednesday 28 April | \$ 80 |
| <input type="checkbox"/> | All Inclusive – The Americas Workshop (27-29 April)
Includes 3 nights accommodation on 26, 27 & 28 April, attendance at Workshop
and all meals including the Workshop Dinner (Texas BBQ) | \$ 1995 |

Additional Accommodation

Inclusive workshop delegates already have accommodation booked for 26, 27 & 28 April. If you require additional bed & breakfast accommodation outwith the above dates please contact the hotel directly.

Training Course/Session

- | | | |
|--------------------------|---|---------------|
| <input type="checkbox"/> | Measurement Uncertainty Delegate
(26 April – accommodation NOT included) | \$ 630 |
| <input type="checkbox"/> | Solving Flow Metering Problems with CFD Attendee
(30 April - accommodation NOT included) | Complimentary |

Package Booking Reward

- | | | | |
|--------------------------|--------------------------------|------|--------|
| <input type="checkbox"/> | Workshop plus training course | less | \$ 100 |
| <input type="checkbox"/> | Discount for presenting author | less | \$ 650 |

INVOICE TOTAL

\$



Full Name (inc. title) _____

Preferred Name for Badge _____

Job Title _____

Company _____

Address _____

Postcode _____ Country _____

Telephone _____

E-mail _____

We expect the event to be heavily subscribed. Places are strictly limited and are allocated on a first come, first served basis. Your place will be confirmed upon receipt of a completed booking form. If you do not receive confirmation within five working days please contact TUV NEL.

Method of Payment
(Payment by credit card only)

Visa Mastercard Amex Diners Card Start Date _____ Expiry Date _____

Card No _____ Security Code _____ (3 digits on back of card)

Card Holder's Name _____

Signature _____

Invoicing address (if different from above) _____

Company VAT number (EC member states only - COMPULSORY) _____

Where did you hear about this event? _____

Cancellation Policy
 In order to receive a partial refund, notice of cancellation must be received in writing by TUV NEL Ltd not later than 14 days prior to the commencement date of the event. All such cancellations are subject to a fee of 25% of payments received by TUV NEL Ltd prior to cancellation. No refund shall be made under any circumstances for any notice of cancellation received after this 14 day period however a substitute delegate may be named, provided that TUV NEL Ltd is notified in writing of such substitution prior to the commencement date of the event. TUV NEL Ltd reserves the right to cancel the event due to unforeseen circumstances. TUV NEL Ltd is not liable for any expenses incurred by the delegate. This programme may be subject to change due to circumstances beyond the control of the organisers.

Venue Details
 The Woodlands Resort & Conference Center, 2301 N Millbend Drive, The Woodlands, Texas 77380, USA.
 Tel: + 1 281 367 1100 Fax: + 1 364 6345 www.woodlandsresort.com

Please complete and return this form to the Events Team,
 Fax back on: **+44 (0) 1355 272999**

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 East Kilbride, Glasgow G75 0QF, UK

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 Email: events@tuvnel.com
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Signed: _____ Date: _____