



nel
technology for life

The Americas Flow Measurement Conference 25-27 April 2012

JW Marriott Houston, USA

Committee Contributions From:

- + BP America
- + Chevron
- + ConocoPhillips
- + Letton-Hall Group
- + Weatherford



In Association With:



National
Measurement
System

NEL is delighted to announce the launch of The Americas Flow Measurement Conference. Building on the last four years of experience delivering technical workshops and training courses in the region, NEL has developed this conference to keep you informed of the latest developments in flow measurement technology.



In the field of hydrocarbon flow measurement, where measurements made have a high economic and environmental impact, it is important to stay ahead of developments in technology, regulation and practice. Pulling together and discussing the developments, issues and challenges affecting the industry in North, South and Central America will be key. This conference will get you ahead of the game.

Track Record

Since its launch four years ago, our Americas Workshop has been established as one of the major forums in the continent to facilitate 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 four events have been highly successful, attracting positive feedback from industry experts who attended each of the workshops.

The Americas Flow Measurement Conference 2012

Building on the success of the previous workshops, the 2012 conference has been given a new name, to reflect a more flexible structure, with technical conference sessions and training courses running in parallel. This allows delegates the choice of what to attend, working around their busy work schedules. We will continue to address the changes in flow measurement practice which affect North, South and Central America. The conference will examine the relevant issues relating to complex fluids, measurement technologies, allocation and verification.

“Great papers, very informative.”

“Very useful and great networking opportunity.”

Who Should Attend?

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

Why Should I Attend This Conference?

- + **Face up to industry challenges** by equipping yourself with better technical knowledge and better sector understanding.
- + **Hear topical industry debate** and make informed decisions to shape the direction of your business.
- + **Go global** - meet the people who matter today in the market place of tomorrow.
- + **Make fast informed choices** about the cutting-edge equipment and services that will define the future of your business.

Highlights of the conference will include:

- + A range of topical presentations relevant to the industry today
- + Associated training courses delivered by Micro Motion, SGS and Southwest Research Institute (SwRI)
- + Parallel full and half-day topical training courses
- + Flexible attendance options with appropriate delegate fees
- + Manufacturers from around the world showcasing the latest technology within the industry



*“Lots of interesting and new presentations of data.
Discussion panels were very successful.”*

Conference Fees

Prices start from \$325. Please note training courses have limited places and bookings will be taken on a first come first served basis.

Delegate registration fee includes attendance at selected event(s), delegate pack, electronic proceedings, lunch and light refreshments.

Accommodation, breakfasts and evening meals are not included in the delegate registration fee. The JW Marriott Houston hotel has provided a specially agreed rate of \$189 plus taxes room only per night for delegates for the 3 nights pre, post and on the conference dates. When booking you should advise the hotel that you are part of the NEL conference to receive this rate.



Members of the Technical Committee

The Committee have input to the content and direction of the technical presentations of the main conference. Presentations selected by the Committee are based on their relevance to industry and the quality of content.

- + **Dr Norman Glen** (Chairman), NEL
- + **Ms Angela Floyd**, ConocoPhillips
- + **Mrs Hazel Hampson**, NEL
- + **Dr Chip Letton**, Letton-Hall Group
- + **Mr Joel Rodger**, Weatherford
- + **Dr Joseph Shen**, Chevron
- + **Mr Robert Webb**, BP America

Conference Venue

This year the conference will be held in the JW Marriott Hotel within the Galleria area of Houston.

JW Marriott Hotel
5150 Westheimer Road
Houston
Texas 77056
USA
T + 1-713-961-1500
F + 1-713-961-5045
www.marriott.com



“This is the best technical measurement conference that is held in North America.”



Training Courses

The technical conference will be accompanied by training courses delivered by NEL's experts on CFD in Oil & Gas, LNG Metrology - Current and Future Technology, Measurement Uncertainty Stages 1 & 2 and Ultrasonics Theory and Practical. There will also be a complimentary two hour training session on the Challenges of Heavy Oil (places limited within this session).

Registration, Enquiries & Administration

Bookings can be made online at www.tuvnel.com. Payment is required by credit card only. For any enquiries please contact the Events Team on **+44 (0)1355 272858** or events@tuvnel.com

Exhibition & Sponsorship Opportunities

Suppliers of equipment and services are invited to sponsor and exhibit at the conference. This will give your company a profile in the final programme in addition to a stand within the exhibition area of the conference. For further details please contact us.

About NEL

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 (oil, gas, multiphase and flow assurance)
- + 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)

NEL is a trading name of TUV SUD NEL Ltd, a company of the TÜV SÜD Group, the leading global technical services organisation. Around 16,000 employees are represented at more than 600 locations throughout the world.

For further details on how NEL can help your business, please visit www.tuvnel.com or contact us directly.

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“Good job this year. I appreciate the high level of technical content. Keeps the meeting focused on technology solutions and developments.”

Thursday 26 April

0830 – 0900	Delegate Registration and Coffee	Session 2	Wet Gas/Heavy Oil
0900 – 0910	Welcome Address Norman Glen, NEL - UK	1330 – 1400	Chairman: Chip Letton, Letton-Hall Group
0910 – 0930	Keynote Speech		Blind Testing of a MicroMotion Gas Coriolis Meter in Wet Gas Flows at the CEESI Wet Gas Test Facility Angela Floyd and Gordon Stobie, ConocoPhillips - USA Karl Stappert, MicroMotion Inc, Emerson Process Management - USA
Session 1	Field Experience Chairman: Bob Webb, BP America	1400 – 1430	Wet Gas Test Comparison Results of Orifice Metering Relative to Gas Ultrasonic Metering John Lansing, SICK, Inc. - USA
0930 – 1000	Water Calibrated Cone Meters in High Reynolds Number Applications Jonathan Hollist and Nick Voss, McCrometer Inc.- USA	1430 – 1500	Coffee and Exhibition
1000 – 1030	Performance Results from the Cryogenic Flow Facility at NEL Asaad Kenbar & Calum Hardie, NEL - UK	1500 – 1530	Numerical Wet Gas Flow Loop Sébastien Cadalen and Benoît Fournier, Geoservices - France
1030 – 1100	Coffee and Exhibition	1530 – 1600	Measurement of Flow in Viscous Fluids using Conventional Flow Meters Christopher Mills and Bob Belshaw, NEL - UK
1100 – 1130	Field Prover Master Meter Calibration Abstract Rashed Al-Marri, Kuwait Oil Company (KOC) - Kuwait	1600 – 1630	Panel Discussion Session
1130 – 1200	Traceable Calibration of Liquid Densitometers Norman Glen, NEL - UK		
1200 – 1230	Panel Discussion Session		
1230 – 1330	Lunch and Exhibition		



Friday 27 April

Session 3	Multiphase Chairman: Joel Rodger, Weatherford	1300 – 1330	Low Reynolds Numbers Flow Profile Measurement Possibility Using Clamp-on Ultrasonic Flowmeter Satoshi Fukuhara, Hiroyuki Yamamoto, Kazutoshi Okamoto, Rai Itou and Fumiya Kogi, Yokogawa Electric Corporation - Japan
0830 – 0900	Validation of the Same Multiphase Flow Meter in Multiphase and Wet Gas Conditions on a High Accuracy Flowloop Vishal Dhanuka and Bruno Pinguet, Schlumberger South America - Venezuela Vincent Pequignot, Viraj Konde and Hamza Matallah, Schlumberger - India	1330 – 1400	Ultrasonic Flow Meter Compliance with API 14.10 Measurement Flow to Flares Wil Camara, SICK Maihak – USA Ekkehard Riedel and Sven Holzbächer, SICK - Germany
0900 – 0930	The Effects of Scale in Subsea Multiphase Flow Meters Klaus Zanker, Letton-Hall Group - USA Neil Barton, NEL - UK Gordon Stobie, ConocoPhillips - USA	1400 – 1430	Coffee and Exhibition
0930 – 1000	Fiscal Allocation: A New Endeavour for Multiphase Flowmeter Bruno Pinguet, Nils Vågen, Michael Smith and Eivind Vethe, Schlumberger-Framo Engineering - Norway	Session 5	New Applications for Current Technologies Chairmen: Joe Shen, Chevron & Norman Glen, NEL
1000 – 1030	Coffee and Exhibition	1430 – 1500	Coriolis-based Three-phase Flow Metering for Upstream Oil and Gas Measurement Manus Henry, Michael Tombs, Feibiao Zhou and Mayela Zamora, Oxford University - UK
1030 – 1100	The Successful Application of Subsea Multiphase Flow Meters on a Deep Water Development Jaco Brons, Shell Brasil Petróleo Ltda - Brazil	1500 – 1530	Taking Coriolis to the Next Level: The Benefits of the World's First 4 Tube Coriolis Mass Flow Meter Michael Nuber, Endress+Hauser - Switzerland
1100 – 1130	Panel Discussion Session	1530 – 1600	Measurement of LNG by Dynamic Methods Drew Weaver and Donald Day, Emerson Process Management - USA
1130 – 1230	Lunch and Exhibition	1600 – 1630	Panel Discussion Session
Session 4	Ultrasonics Chair: Angela Floyd, ConocoPhillips	1630	Close
1230 – 1300	Flare Gas Ultrasonic Flow Measurement with Improved Accuracy at Low Flow and Enhanced Immunity to Cross Flow James Matson, Lei Sui, Toan H Nguyen and Selvakumaran Senthamizhchai, GE Energy - USA		

Optional training courses

CFD in Oil & Gas

**Thursday 26 April, 0830-1230 &
Friday 27 April, 1330-1730**

This training course will introduce delegates to CFD (Computational Fluid Dynamics) and will cover the basics through case studies; What do we mean by CFD? How is the modelling done (basics)? What software is commercially available to do the modelling? In what situations can CFD be used and what is it used to do?

At the end of the course delegates will gain the initial knowledge of how to incorporate CFD into their daily working routine.

LNG Metrology - Current and Future Technologies

**Friday 27 April
0830-1230**

This training course will cover the main aspects of LNG metrology including the current measurement practices and future developments. At the end of the course delegates will gain knowledge of the LNG industry and market status, custody transfer measurements, LNG flow metering technologies and current research and development in LNG metrology.

Measurement Uncertainty Stages 1&2

**Wednesday 25 April, 0830-1730 &
Friday 27 April, 0830-1730**

These training courses will cover the main aspects of measurement uncertainty in the oil and gas industry at two levels of learning. Delegates will learn the background to measurement uncertainty, the benefits of carrying out uncertainty analysis and the skills required to calculate the uncertainty of measurement systems. A case study will then be used to show how these skills can be used in real world applications in the oil and gas industry.

Ultrasonic Practical

**Thursday 26 April
1330-1730**

This half-day interactive course allows delegates to spend time on a demonstration rig where they will learn to correctly install a clamp-on ultrasonic flowmeter for measurement in water. The secondary diagnostic information generated by ultrasonic meters will be discussed and delegates will be able to use these parameters to diagnose common measurement problems through the use of real world examples.

Ultrasonic Theory

**Thursday 26 April
0830-1230**

This half-day course combines a detailed introduction into the theory of ultrasonic flowmeters and common problems found in industry. Delegates will gain an increased understanding of how measurements are derived and what the advantages of using ultrasonic meters are compared with traditional metering techniques. They will also gain knowledge of the factors affecting performance of ultrasonic meters to ensure their own meters have the maximum accuracy.

Complimentary Training Session on the Challenges of Heavy Oil

**Friday 27 April
1330-1600**

With over 70 per cent of remaining worldwide oil reserves classified as unconventional (heavy) oils, the exploitation of viscous oil deposits is growing rapidly. However, heavy oil can pose several technical challenges. NEL's complimentary training session will provide an introduction to this challenging area.

This informal session will cover the following topics:

- + An introduction to 'Heavy Oil'
- + Technical challenges
- + Measurement techniques and NEL's research

Who Should Attend?

This session is intended for all levels and for anyone with an interest in heavy oil.



**The Americas
Flow Measurement Conference
25-27 April 2012**



Training Courses In Association With:



**Coriolis Insights Training Course
27 April (AM)**

Exploration into the operation of a Coriolis meter from mundane single phase flows to the mysterious effects of two phase flow regimes. The instructor of this Course will explore the operation of a Coriolis providing analogies to everyday physics phenomena around us to aid in understanding the flow meter and live demonstrations. Topics to be discussed are fundamental theory of operation (density and mass), temperature effect, pressure effect, meter flow range (flow calibration factor, meter zero), resonant frequency (vibration immunity, pulsation immunity), maximum and practical flow limits and why (gas, liquid, slurries), two phase flow (performance theory, diagnostic indicators, best practices and demonstration)



**Liquid and Gas Hydrocarbon Sampling Techniques and
Validation Methods Training Course
25 April (PM)**

This training course will cover techniques to obtain and analyze representative liquid and gas hydrocarbon samples of production streams at operating conditions. The focus will be on production streams leaving test and production separators although PVT sampling will be discussed. Validation methods will be reviewed to identify if the sample analysis is representative of the production stream. Items to be discussed:

- Sample Equipment
- What is the sample going to be used for?
- Sample Process Conditions
- Sample Analysis Methods
- Basic Phase Behaviour
- Pseudo Components
- Sample Validation
- PVT Sampling and Analysis

Located at the new **SGS Advanced Technology & Innovations Center**
8701 New Trails Drive, Suite 175
The Woodlands, TX 77381



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Training Courses In Association With:



**Gas Quality Training Course
25 April (PM) & 26 April (AM)**

This half-day training course will introduce attendees to concepts of natural gas quality, how gas quality changes from its production to its eventual use and how recent changes in natural gas supplies may influence gas quality in the United States and elsewhere. The course will introduce natural gas properties related to gas quality, measures of gas quality and industry standards related to the topic. Consequences of poor gas quality on pipelines and equipment are also described in detail.



**Gas Sampling and Analysis Training Course
25 April (AM) & 26 April (PM)**

This half-day training course will provide attendees with practical information on how to accurately measure natural gas compositions and assess gas quality. The course begins with a review of current industry standards for natural gas sampling. To complement the standards, physical phenomena that can bias gas samples are described and ways to avoid biases are discussed. The course also reviews current gas sampling methods and hardware, components and properties critical to natural gas quality, and the principles (and potential pitfalls) of gas chromatography and in-line technology for detecting these components and properties.



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Training Courses In Association With:

Delegate Package

Prices start from \$325 and final cost will depend on final selection.

Delegate registration fee includes:

- Attendance at selected event(s)
- Delegate hand-out pack
- Light refreshments

Accommodation, breakfasts and evening meals are **not** included in the delegate registration fee.

Please note training courses have limited places and bookings will be taken on a first come first served basis.

How to Book

Payment is required to be made by credit card via the on-line booking system at www.tuvnel.com

For any enquiries please contact:

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The Americas Flow Measurement Conference

PARALLEL SESSIONS				
↓	↓	↓	↓	↓
Wednesday 25 April (am)				
	Measurement Uncertainty, Stage 1 NEL DALLAS ROOM	Gas Sampling & Analysis, SWRI GALVESTON ROOM		
Wednesday 25 April (pm)				
		Gas Quality, SWRI GALVESTON ROOM	Liquid and Gas Hydrocarbon Sampling Techniques and Validation Methods, SGS SGS ADVANCED TECHNOLOGY & INNOVATIONS CENTER, THE WOODLANDS	

(AM) REGISTRATION 0800-0830 (PM) REGISTRATION 1300-1330

Thursday 26 April (am)					
Technical Conference Day 1 HARRIS/HIDALGO/NAVARRO ROOMS	Ultrasonic Theory, NEL DALLAS ROOM	CFD in Oil & Gas, NEL SAN JACINTO ROOM	Gas Quality, SWRI GALVESTON ROOM		
	Thursday 26 April (pm)				
	Ultrasonic Practical, NEL DALLAS ROOM		Gas Sampling & Analysis, SWRI GALVESTON ROOM		

(AM) REGISTRATION FOR TECH CONF: 0830-0900 & FOR TCs 0800-0830 (PM) REGISTRATION 1300-1330

Friday 27 April (am)					
Technical Conference Day 2 HARRIS/HIDALGO/NAVARRO ROOMS	Measurement Uncertainty, Stage 2 NEL DALLAS ROOM	LNG Metrology – Current and Future Technology, NEL GALVESTON ROOM	Coriolis Insights EMERSON PROCESS MANAGEMENT - MICRO MOTION SAN JACINTO ROOM		
		Friday 27 April (pm)			
		CFD in Oil & Gas, NEL GALVESTON ROOM	Complimentary Heavy Oil Training Session, NEL SAN JACINTO ROOM		

Colour Code Key: Technical Conference NEL Course Associated Trainer

(AM) REGISTRATION 0800-0830 (PM) REGISTRATION 1300-1330