



2nd INTERNATIONAL SOUTH EAST ASIA HYDROCARBON FLOW MEASUREMENT WORKSHOP

25-28 March 2003
Cyberview Lodge Resort
Cyberjaya, Kuala Lumpur
Malaysia

Organised By:
NEL,
United Kingdom

BACKGROUND

Dynamic change is affecting the hydrocarbon industry worldwide: the cost of exploration, changes in fiscal regimes, reliability, and contracting out.

Following on from the success of the first South East Asia Workshop, NEL is organising a second Workshop once again in Malaysia. The Workshop will provide a forum to review the changes that affect current flow measurement methods, techniques and the latest technological advances experienced within the buoyant oil production industry of the South East Asia region.

WORKSHOP

The Workshop will encourage the presentation, discussion and exchange of practical hydrocarbon flow measurement experience, through a mixture of both technical presentations and active discussion groups.

Topics of interest include:

- deployment of new technology (for example Coriolis and ultrasonic flow measurement)
- development of technology for new metering needs (multiphase and wet gas measurement)
- field experience of new metering technologies
- calibration testing and field verification

The Workshop will be preceded by a one day Multiphase Flow Measurement Training Course which will be held at the same venue.

WORKSHOP FEES

Availability for the Workshop will be on a first-come first-served basis. The Registration fees are £1045 which includes all lecture notes, cocktail reception, all meals, refreshments and accommodation. As an added incentive to register early, those delegates who are obliged to pay the full registration rate will qualify for a discount of £50. The fee will be **£995** for registrations and payment received before **11 January 2003**.

VENUE

The Workshop will be held in Cyberview Lodge Resort, which is located in Cyberjaya in the heart of the hi-tech centre, 35 minutes south of Kuala Lumpur city centre, and 30 minutes from Kuala Lumpur International Airport.



TRANSPORT

NEL will arrange a coach to pick up delegates from Kuala Lumpur Airport on 25th March and return on 28th March. Depending on numbers we may also arrange a coach on 24th March for those attending the Multiphase Flow Measurement Training Course.

REGISTRATION, ENQUIRIES, ADMINISTRATION

Please complete the enclosed Booking Form and send it by post/fax to the address below. All enquiries, telephone bookings etc should be referred to the address below.

Susan Tough
NEL
East Kilbride
Glasgow
G75 0QU
UK
Tel: +44 1355 272858
Fax: +44 1355 272626
Email: stough@nel.uk
Online booking at www.nel.uk

EXHIBITION OPPORTUNITY

There is space available for your company to exhibit at this event. For further information please contact the above.

The following companies have expressed an interest in exhibiting at the Workshop:

Agar Corporation
Caldon Europe Ltd
CEESI
Jiskoot
Kelton Engineering Ltd
Metco Services Ltd
NEL
Proserv NS
Schlumberger

PARTNERS PROGRAMME

It is hoped that many delegates will use this opportunity to invite partners to share in the experience of staying at this unique resort.

A one-day tour to Kuala Lumpur including lunch will be arranged. There will also be a demonstration of Malaysian cookery. Partners will be able to enjoy the leisure facilities offered at the hotel. All meals are included.

NEL

NEL is a world authority on flow measurement. We have an international reputation in key engineering areas; a world class profile based on 50 years of solid achievement and experience. Our professional and highly qualified staff are complemented by some of the most extensive test, analysis and experimental facilities in Europe. We have a strong track record in many specialist disciplines, including flow measurement technology, process engineering and piping systems, and safety and reliability.

MEMBERS OF SCIENTIFIC AND TECHNICAL COMMITTEE

Mr Ahmed Al-Taweel, Saudi Aramco, Saudi Arabia
Mr Jassim Al-Talib, Saudi Aramco, Saudi Arabia
Mr Kenneth Olsvik, Roxar Flow Measurement AS, Norway
Mr Jianhua Cui, Daqing Oilfield Construction Design & Research Institute, P.R. China
Dr Abdul Rahman Mohamed, Standards and Industrial Research Institute of Malaysia, Malaysia
Dr Jong Paik, Korea Research Institute of Standards and Science, Korea
Dr Ken-ichi Kuromori, Yokogawa, Japan
Dr Andrew Hall, BP, UK
Mr I Wayan Suryana, Directorate General of Oil and gas (MIGAS), Indonesia
Mr Ahmad Khairiri Abdul Ghani, PETRONAS Gas Berhad, Malaysia
Dr Brian Millington, NEL, UK
Patricia Hone, NEL, UK

Tuesday 25th March 2003

- 15:00 – 17:30 **Registration**
19:00 **Pool-side Welcome Buffet**

Wednesday 26th March 2003

- 09:00 – 09:10 **Welcome address:**
Dr B Millington, NEL, UK
- Session 1: Calibration**
- 09:10 – 09:40 **Diagnostic Ability of the Daniel Four-Path Ultrasonic Flow Meter**
Klaus J Zanker, Daniel Industries, USA.
- 09:40 – 10:10 **Test of a Gas Turbine Meter Diagnostic Tool: The Acculert G-II**
Bertrand Reeb, Gas de France, France,
Alf E Smorgrav, FMC Kongsberg Metering AS, Norway
- 10:10 – 10:40 **Metering Management – The Future**
Gilbert Tonner, Kelton Engineering Ltd, UK
- 10:40 – 11:10 **Coffee**
- Session 2 On-Line Monitoring**
- 11:10 – 11:40 **Web Based Measurement Asset Healthcare & Management**
Gerry Inglis, Metco Services Limited, UK
- 11:40 – 12:10 **Online Measurement of Water Fraction and Hydrocarbon Flow Rates in Wet Gas Flow**
Rune Haddeland, Dr Oystein Boe, Roxar Flow Measurement, Norway
- 12:10 – 12:40 **Refined Production Measurement and Online Calibration Techniques for Lan-Cheng-Yu Oil Transporting Pipeline**
Fuqing Chen, Shumin An, Daqing Oilfield Construction Design & Research Institute, **Dianjie Guo**, National Crude Oil Large Flowrate Measurement Station, P.R. China
- 12:40 – 14:00 **Lunch**
- Session 3 Multiphase Metering**
- 14:00 – 14:30 **Criticality of the PVT Model in Multiphase Flow Meters to Ensure Accurate Volumetric Reporting**
Bruno Pinguet, Emmanuel Delvaux, Schlumberger-3 Phase Measurements, Norway
- 14:30 – 15:00 **Multiphase Flow Meter for Multiple Flow Behaviours and Flow Properties**
Lakmun Chan, Agarcorp SDN BHD, Malaysia
- 15:00 – 15:30 **Sampling Multiphase Fluids from Gassy Crude Through Condensates to Wet Gas**
Mark A Jiskoot, Jiskoot, UK
- 15:30 – 16:00 **Coffee**
- Session 4 Multiphase Experiences**
- 16:00 – 16:30 **Operating Experience of a Separating-Type Multiphase Metering System**
K.T. Liu, Accuflow Inc, USA
- 16:30 – 17:00 **Multiphase Meters – Operational Experience in Asia-Pacific**
Karl H Frantzen, Morten Brandt, Roxar Flow Measurement AS, Norway
- 17:00 – 17:30 **Experiences with First Installation of Multiphase Metering System for Incentive Oil Metering**
Ivan Susanto, CCST, **Jerry Gani**, PT Caltex Pacific Indonesia, Indonesia
- 19:00 **Dinner**

Thursday 27th March 2003

Session 5	Gas Measurement
09:00 – 09:30	Recent Developments in Gas Flow Metering Gregor Brown, NEL, UK
09:30 – 10:00	Ultrasonic Flow Meter for Fiscal Gas Metering in Indonesia Slamet Susil, Edi Zanuvar Muhtadi, Pertamina Dit. Hulu, Indonesia
10:00 – 10:30	Implementation and Operation Experience with Gas Ultrasonic Flow Meters Miftachul Munir, Unocal Indonesia Company, Indonesia
10:30 – 11:00	Coffee
Session 6	Ultrasonics
11:00 – 11:30	Selection of Multi-Path Ultrasonic Meters for Liquids and Gases Jim Hill, Xiao Li Ao, GE Panametrics, USA, S Tottori, GE Panametrics Japan
11:30 – 12:00	Using Optimisation Algorithms and CFD to Improve the Performance of Ultrasonic Flowmeters Chris Duffell, Dr Brian Stimpson, University of Strathclyde, Gregor Brown, Neil Barton, NEL, UK
12:00 – 12:30	Multi-Path Ultrasonic Meter Diagnostics for Field Verification Daniel Hackett, Kevin Chin, Emerson Process Management Asia Pacific Pte Ltd, Singapore
12:30 – 13:30	Lunch
13:30 – 15:30	Optional Excursion
15:30 – 15:45	Coffee
15:45 – 16:45	Discussion Session 1: Multiphase Metering Introduction: Multiphase Measurement, Brian Millington, NEL, UK
16:45 – 17:45	Discussion Session 2: Ultrasonics Introduciton: Condition Monitoring of Gas Ultrasonic Meters; Jim Bowen, Instromet, Inc, USA
17:45 – 18:45	Discussion Session 3: Wet Gas Metering Introduction: Recent Developments in Wet Gas Measurement; David Stewart, NEL, UK
19:30	Workshop Dinner

Friday 28th March 2003

Session 7	Custody Transfer Measurements
09:00 – 09:30	Breakthrough in Custody Transfer Metering Station Design for Measuring Sales Gas & Liquid Propane Ir.Hj. Ahmad Khairiri Abdul Ghani, Rafizan Abd. Rashid, Petronas Gas Bhd, Malaysia
09:30 – 10:00	Loss Minimization and Increased Measurement Accuracy Youssef F. Basrawi, Saudi Aramco
10:00 – 10:30	Custody Transfer Measurement on the World's Largest, Exclusive LPG Pipeline Trilochan Gupta, Emerson Process Management Asia Pacific Private Limited, Singapore; G.S. Chauhan, S.K. Agarwal, Gas Authority of India Limited, India
10:30 – 11:00	Coffee
Session 8	R&D
11:00 – 11:30	The Application of Signal Analysis Techniques to Identify the Onset and Influence of Two-Phase Flow on Conventional Single-Phase Flowmeters M Pusayatanont, P.J Unsworth, E.H Higham, University of Sussex, UK
11:30 – 12:00	Wet Gas Flow – Correction for Dry Gas Meters David G Stewart, NEL, UK
12:00 – 12:30	Study for the Gas Flow Through a Critical Nozzle H.D Kim, J.H Kim, Andong National University, K.A Park, KRISS, Korea
12:30 – 12:45	Closing Speech
12:45 – 13:45	Lunch
14:30	Departure

One Day Training Course on Multiphase Flow Measurement

Tuesday 25th March 2003

COURSE INTRODUCTION

The development, evaluation and use of multiphase metering systems has been a major focus for the oil and gas industry worldwide. Technology has advanced to the point where operators are now considering the installation of a multiphase meter as a serious option in both new and marginal fields.

What lessons have been learned about the practical reliability, accuracy and use of the available technology?

Many operators now realise that they will only be able to exploit marginal fields using this technology for subsea applications. A considerable amount of experience has now been gained and the industry is working closely with the regulators and manufacturers to fully realise the benefits.

This one day training course offers an introduction to multiphase flow metering, measurement technology and the evaluation of multiphase flow meter performance.

WHO SHOULD ATTEND

Chemical Engineers
Instrumentation Engineers
Pipeline & Metering Engineers
Production Engineers
R & D Managers

The course will provide a comprehensive outline of the current state of multiphase metering technology worldwide, giving the metering engineer and manager a sound knowledge upon which to base future cost savings.

COURSE DIRECTORS

The course will be presented by Mr Gregor Brown and Dr David Stewart of NEL. Gregor Brown joined NEL in 1995 following two years of research in multiphase flow instrumentation at Glasgow Caledonian University. Gregor now manages NEL's Oil and Gas Services business and provides flow measurement consultancy and training to oil companies throughout the world. Dr David Stewart holds a PhD in flow measurement and is the Manager of multiphase activities at NEL including consultancy and laboratory-based projects. David is currently managing NEL's wet-gas Joint Industry Project which is sponsored by BG Group, BP, ExxonMobil, Gaz de France, Norsk Hydro, Petrobras, Saudi Aramco, Schlumberger, Shell and TotalFinaElf.

DOCUMENTATION

Participants will be supplied with comprehensive course notes and a copy of all presentation material.

REGISTRATION FEE

The registration fee of £395 includes the delegate fee, lunch, refreshments and documentation. It does not include accommodation.

COURSE PROGRAMME

- 1. Introduction to Multiphase Flow**
Nature of multiphase flows
Naming and classification of flow patterns
Observation and determination of flow patterns
Effects of flow patterns on multiphase measurement
Multiphase measurement issues
Phase distribution effects on measurement
- 2. Review of Multiphase Flow Metering**
Metering techniques
The technical challenges
User expectations and typical applications
Meter development projects
Status of in-line MPFM developments
- 3. Multiphase Flow Metering Techniques**
Multiphase meter operating principles
Multiphase meter classification
Description of existing meters
Multiphase flowmeter accuracy
Practical problems of deployment
- 4. Testing and Certifying Multiphase Flow Meters**
Multiphase flow test facilities
NEL multiphase flow facility
Multiphase meter evaluation
- 5. Guide to Multiphase Flowmeter Selection**
Evaluating the measurement problem
Operating principles
Accuracy

Booking Form

South East Asia Hydrocarbon Flow Measurement Workshop 25th -28th March 2003

Title Full Name

Preferred name for badge

Job title

Company

Address

..... Post code

Telephone Fax

E-mail

We expect the workshop to be heavily subscribed. Places are strictly limited and are allocated on a first-come first-served basis. Your place will be confirmed on receipt of a booking form.

Accompanying Person's Name

Method of Payment

Payment must be included with your registration to guarantee your place and must be received before the event date.

- Invoice to company named above
- Cheque, made payable to TUV NEL Limited, enclosed with this form
- Bank transfer to National Westminster Bank Plc, East Solent, 176 London Road, Portsmouth, Hampshire, PO2 9DR. Account No. 11300175, Sort Code 52-41-32. Account name - "TUV NEL Limited".
Please advise your bank to include the event code COF132 and the delegate's surname in the transfer instructions.

Credit Card { Start date Expiry date

Visa Mastercard Amex Diners

Card No

Card Holders Name Signature

Address (if different from above)

.....

Accommodation Preference

I require extra nights accommodation before the event as detailed below:

I require an extra nights accommodation on Monday 24th March

Arrival Date

Departure Date

Note: Accommodation and transport arrangements will be confirmed with joining instructions.

Booking Form Continued

Transport

A bus will pick up delegates from KL airport on 25th March and return delegates on 28th March. Times will be confirmed later.

A bus will pick up delegates from KL Airport who arrive early for the Multiphase Flow Measurement Training Course on Monday 24th March.

If you know your flight details at time of booking please fill in the details below so that arrangements can be made. Bus times will be given with joining instructions.

Please complete the following if you require transport:

Arrivals

I wish transport from KL airport on 24th March pm

I wish transport from KL airport on 25th March am

I will be arriving at On Flight No.

Departure

I wish transport back to the airport on 28th March pm

Departure Time On Flight No.

Remittance

Registration Fee **£1045**

Early Booking Fee (if booked before 11th January 2003) **£ 995**

Presenting Authors Registration Fee **£ 775**

Multiphase Flow Measurement Training Course Booking Fee **£ 395**

Accommodation on 24th March 2003 **£ 100**

Accompanying Persons Fee **£ 195**

Total **=====**

All prices quoted are in pounds sterling.

Cancellation Policy

Substitution of delegates can be made at any time. If your cancellation is received before 1st February 2003 a charge of 25% will be made. A charge of 75% will be made after 1st February and before 21st March 2003. Any cancellations received after 1st March 2003 will not be refunded. NEL is not liable for any expenses incurred by the delegate.

Signed Date

Please return to:
Susan Tough, NEL, East Kilbride, Glasgow, G75 0QU, UK.
Fax: +44 (0)1355 272626 e-mail: stough@nel.uk or online booking: www.nel.uk.