

# **RPSEA - DW1301**

## ***Improvements to Deepwater Subsea Measurement***

Jim Hall

Letton-Hall Group, LLC

# RPSEA Project DW1301

## Necessity for Subsea Measurement

- Allocation of Commingled Production
- Monitoring and Well Control
- Compliance with Regulatory Requirements

# LETTON-HALL GROUP

([www.letton-hall.com](http://www.letton-hall.com))

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## Focused on Measurement

- Production Flow Measurement and Allocation – subsea & topside, possibly commingled production
- Transmission Measurement – pipeline flow and composition metering, imbalance resolution
- New Measurement Technologies – including:
  - Multiphase
  - Wet Gas
  - Ultrasonic
  - Optical
- Training – pipeline and production flow measurement

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## Leadership in Industry Programs

- API RP 85, *Use of Subsea Wet-Gas Flowmeters in Allocation Measurement Systems*
- API RP 86, *Measurement of Multiphase Flow*
- ASME MFC-19G–2008, *Wet-Gas Flow Metering Guidelines*
- DeepStar Project 8302, *Improved Multiphase Metering for Subsea Tiebacks*
- API CPMA 20.3, *Multiphase Flow Measurement (in development)*

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## Principals

- Chip Letton, Ph.D.
- Jim Hall, Ph.D.
- Eric Kelner, P.E.
- Klaus Zanker
- Eric Toskey

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## Program Elements

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### Deepwater Subsea Sampling

- Subcontractor – Oceaneering International  
([www.oceaneering.com](http://www.oceaneering.com))

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### ROV-Assisted Subsea Measurement

- Subcontractor – Oceaneering International  
([www.oceaneering.com](http://www.oceaneering.com))

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### HP/HT Sensor Qualification

- Subcontractor – axept ([www.axept.com](http://www.axept.com))

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### Evaluation of Flow Modeling

- Subcontractor – Multiphase Systems Integration ([www.msieng.com](http://www.msieng.com))

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### Meter Fouling

- Subcontractors
  - Intertek ([www.westport1.com](http://www.westport1.com))
  - TUV NEL ([www.tuvnel.com](http://www.tuvnel.com))

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## Program Elements

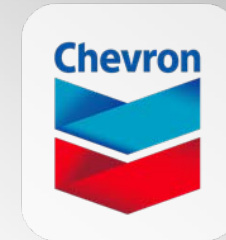
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### Meter System Uncertainty

- Subcontractor – Multiphase Systems Integration ([www.msieng.com](http://www.msieng.com))

# JIP Participants

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