



NORTH SEA  
**FLOW**  
MEASUREMENT WORKSHOP  
*measuring for the energy transition*

# Poster 2021



## Measuring Wet gas with an Adjustable DP Cone Meter

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Saketh Mahalingam works as a Research Consultant at the Aramco Overseas Company, Aberdeen and is focused on developing new sensors for measuring hydrocarbon flow and composition. Prior to joining Aramco in 2018, he worked at the General Electric Company & Baker Hughes and was involved in the development of the Safire™ Multiphase Flow Meter and Zenith™ downhole water-cut meter. He serves as a member of the Committee of Petroleum Measurement at both the American Petroleum Institute (API) and the British Standards Institution (BSI). He graduated with a Ph.D. in Mechanical Engineering from Georgia Institute of Technology, Atlanta, USA in 2005.

### Content:

**GM Flow have developed an adjustable DP cone flow meter for gas measurement. Described as the most significant development in DP measurement in 20 years, Aramco plan to deploy the meter in a wet gas environment in Q4 2021. The meter was dry and wet gas calibrated at NEL, with N2 and Exxsol D80 fluid, to obtain pressure loss ratio and over-read data for varying flow rates, pressures and liquid loadings.**

**The testing showed that the PLR ratio method could successfully be utilised to measure dry and wet gas, dry gas over-read and liquid loading in the lockhart Martinelli range of 0 to  $0.15 X_{LM}$ .**

**2 meters will be deployed on test sites in Saudi Arabia with the view of reducing the number of downsizing events, which are commonly required for venturi meter which, with their limited turndown ratio, quickly become oversized in depleting gas wells.**