# N635: Metering of Natural Gas and Associated Liquids

Tutor(s): Edward Wichert

| 1 Day | Competence Level: Basic Application |
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| Classroom Course | |

## Summary

Natural gas is metered about four times between the wellhead and the gas transmission system. In the past, virtually all metering of natural gas in the field and in the plants was done with the orifice meter. Nowadays there is a great variety of meters to choose from for gas and liquid flow measurement. The standards that are followed for the installation of meters, the recording of the flow parameters and the calculation of the flow rates are explained. The latest issue of the AGA 3 report is covered.

Accurate metering is the foundation for equitable plant products and revenue allocation.

The operation and application of new types of meters are explained:

- Coriolis meter
- Vortex shedding meter
- Ultrasonic meter
- V-Cone meter

## Learning Outcomes

Participants will learn to

- Estimate basic properties of produced fluids for metering
- Select meter for specific measurement application
- Check orifice meter installation, operation, maintenance
- Calculate flow rate with orifice meter
- Calculate gas flow rate with turbine meter
- Identify potential sources of error
- Verify measurement testing for multiphase metering with orifice meter
- Apply AER requirements
- Estimate water vapour content of low pressure acid gas
- Select turbine meter for gas or liquid measurement

## Duration and Training Method

One classroom day providing .8 CEU (Continuing Education Credits) or 8 PDH (Professional Development Hours)

## Who Should Attend

This course is intended for technical persons responsible for the selection and installation of metering facilities, for calculation of volumes, and for accounting personnel that allocate production and financial results to the producing wells.

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## Course Content

Course Agenda

1. Types of fluids produced
2. Properties
3. General comments about meters
4. Meter Standards
5. Orifice meter, installation, operation, maintenance
6. Potential sources of error
7. Multiphase metering with orifice meter
8. AER requirements
9. Turbine meter
10. Coriolis meter
11. Vortex shedding meter
12. Ultrasonic meter
13. V-Cone meter
14. Liquid metering
15. Calculation methods