(9) Fiscal & Allocation Metering

WHO SHOULD ATTEND

This short course is designed for site personnel including Instrument Technicians or Supervisory Engineers, process engineers, production engineers, operators and control room personnel for fiscal purposes and custody transfer.

COURSE OBJECTIVES

At the end of this course the delegate should be able to describe:

- Requisites for flow
- Measurement history
- Flow measurement with differential meters
- Conservation of mass
- Conservation of energy
- The gas laws
- The types of liquid flow measurement
- Custody transfer
- Non custody transfer
- Basic reference standards
- Fluids – Liquids and Gases
- Characteristics of flow
- Types of flow meters
- Display devices
- Prover systems

CONTENT

The Uncertainty Budget, The Dewpoint Analyser, The Gas Chromatograph, Gas Density Calculation, Gas Sampling Skid, Hydrocarbon Dewpoint, Liquid Density, Liquid Sampling
Positive Displacement Meters, Turbine Meters, Measurement of Pressure, The Principles of Fluid Flow, Reynold's number, Bernoulli's principle, The fluid flow equation, The Relative, Density Analyser, Exercises and Case Studies, Statistics, Uncertainty, Probability, The Standards, ISO, API, Standards Related to Metering, The Sales Contract, Council of Ministers Oil and Energy Committee, Ideal gas law, Molecular mass of a gas, Reference pressure and temperature, None ideal gas behavior, Density of a gas, Specific gravity of a gas, Audits, Meter Validation Run, The Log Book, The Flow Computer, Traceability, The Ball Prover, Compact Provers, The Master Meter, Mismeasurement, What to do in the event of Prover ValidationTank, Calibration and Validation, Principles of hydrocarbon accounting, An oil pipeline hydrocarbon accounting system, Production allocation in a shared pipeline system, The use of turbine flow meters, Vortex meter flow measurements, An introduction to liquid flow computers, The flow computer function, Oil stream flow computer functions, Proving operations, Flow computer calculations, Orifice Plates for Fiscal Metering, Introduction to orifice plates, Manufacture of orifice plates, Standards and orifice plate sizing, Meter tube and piping considerations, Beta ratio, Piping considerations (ISO 5167), Flow and velocity profiles, Types of flow, Flow straighteners, Dealing with low flow rates, Inspection of orifice plates

INTENDED FOR

Instrument Technicians, Supervisory Engineers, Process engineers, Production Engineers, Operators and Control Room personnel