



Multiphase Production Allocation Solutions

Right Where It Counts

The Partners in Axio Alliance



SPL is the leading U.S. provider of services for hydrocarbon analysis, gas and liquid measurement, and production allocation and quality bank administration. In the Gulf of Mexico, SPL administers over 90% of the gas liquids allocations from over 650 offshore platforms, 14 deepwater hubs and 26 pipeline systems.



Framo Engineering AS is a leading technology innovator and supplier of oil and gas production processing system solutions and offshore field development. The first commercial supplier of multiphase meters, Framo remains the industry's most trusted provider of subsea meter installations.



Schlumberger is the world's leading oilfield services company supplying technology, project management, and information solutions that optimize performance for customers. With a global fleet of mobile multiphase meters, and many hundreds more installed in customer facilities, Schlumberger is the world's most experienced operator of multiphase flow meters.

Axio Alliance Professionals

Axio Alliance draws upon experienced field engineers and world class training facilities and laboratories to forge a new breed of measurement and allocation professionals capable of:

- Multiphase, liquid and gas metering, and uncertainty determination
- Fluid sampling, PVT analysis and equation-of-state modeling
- Instrumentation, data acquisition and delivery
- Process simulation and allocation methodologies
- Well testing, flow assurance and custody transfer applications
- Production handling contract development and administration
- HSE, quality and project management



The multiphase measurement and allocation professional is an Axio Alliance exclusive.



The Axio Alliance Value

Efficient partner for metering operations...

Trusted custodian of equitable allocations...

Full process manager from measurement to reporting...

Axio Alliance[§] provides:

Quality & Accuracy

- Traceable, defensible measurement and allocation, professionally manned and monitored
- Imbalances eliminated through integrated nomination-to-production schemes
- Reliable measurement using state of the art Vx[†] technology, multiphase sampling, fluids analysis and modeling

Equitable & Impartial Practices

- Dependable allocation carried out by independent resource
- Fair and equitable production agreements with workable practices
- Timely reporting of results, even in real-time, to partners and authorities

Cost-effective metering package

- Results-oriented integration of metering and fluid sampling facilities
- Lifelong metering at every subsea wellhead using redundant instrumentation or fully retrievable multiphase flow meters
- Drastic reduction in facilities' footprint and weight using compact multiphase flow meters capable of metering both gas and oil wells
- Capex – significantly less cost in facilities infrastructure
- Opex – fully operable system in un-manned installations using remote communications and control
- Single point of contact and efficient operations reduces interfacing costs

Safe and environmentally sound solution

- Reduced risk to environment through compact multiphase design
- Minimized personnel exposure with remote operations capability
- Robust even in the most extreme weather conditions
- Lower chemical usage through closer monitoring of production conditions
- Safe field operations conducted by highly trained, measurement and allocation specialists

Flexible offerings

- Limited risk with performance based contracts
- Cash outflow deferral with facility lease-to-sale arrangements
- "One-stop" complete scope from field data capture to hosted volume allocations to financial services
- Full production & financial data recovery capability post-disaster

The Axio Solution

Axio Alliance multiphase production allocation solutions is the first service offering in the upstream industry to combine the expertise of production allocation and multiphase flow measurement. This unique combination provides oil and gas producers a fair and accurate accounting of the custody transfer of oil and gas in multiphase conditions, ie., where gas and liquid separation is not possible or not desired.

Axio Alliance solutions are founded on Vx technology, unmatched in the industry for multiphase fluids metrology, and the domain expertise from the industry's leader in production allocation.



Axio Alliance offers:

- Fully validated and traceable oil, gas and water production quantities, on-line in real-time
- Lower fiscal risk to producers through total management of the measurement and allocation process
- Reduced operational costs by combining contractual requirements through a common independent service provider
- Impartial and reliable administration of production agreements and regulatory reporting
- Locally established support organization in all disciplines; in the field and at the office

From Field to Office

A fair and accurate allocation of produced volumes requires a continuous scrutiny of every input at each step of the process; it's not only about careful metering. Axio Alliance fences in the entire process, from field instrumentation maintenance to fluids process simulation, and focuses on reducing the allocation imbalance. If an imbalance develops, Axio directs resources in the field, lab and office to get the necessary data, identify the sources of inaccuracy and bring the imbalance back in line.

Our Scope of Services:

Project Design

- Measurement and allocation economic evaluations and contract development with hosts, pipeline and processing entities
- Conceptual, front-end engineering and detailed design of
 - Measurement and allocation scheme
 - Facilities for production flow measurement and fluid sampling
- Existing facility audit and upgrade designs

Installation and Commissioning

- Full metering and sampling system integration
- Gas, liquid and multiphase flow meters for all flow conditions: wet gas, condensates, black oil and heavy oil; subsea, topsides offshore and land
- Liquid and gas sampling facilities in single and multiphase flow lines

Field Support

- Field service coordination system linked to uncertainty reduction incentives
- Gas, liquid and multiphase meter health checks and instrument calibration
- Flow computer, power budget, communication and signal processing support
- Instrument service, reconfiguration and spare parts

Fluids Analysis

- Full suite of fluid sampling services
- Fast field analyses of fluid chemistry, properties and PVT phase behavior
- Complete laboratory fluid analyses

Data Delivery and Quality Control

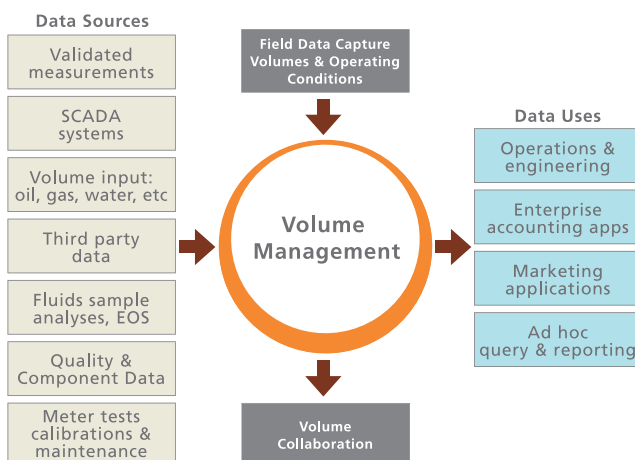
- Real-time data transfer via secure dedicated web portal
- Regular data QA/QC and alarm management
- Data visualization and diagnostic software tools
- Fluid properties monitoring, historical trending and event ID

Production Allocations and Accounting

- Daily and monthly volume balancing, and prior period adjustments
- Production nominations and quality bank administration
- Measurement uncertainty evaluations

Administration/Other

- Allocation contract administration
- Data formatting for accounting, engineering and other uses
- Regulatory and other third party reporting
- Full production accounting services
- Audit hosting and diagnostics/auditing of existing facilities



Axio Alliance Technology

Axio Alliance technologies are optimally combined to execute the measurement and allocation workflow, including proven Vx metering technology engineered to meet the stringent allocation measurement requirements; on-site and in-lab fluids sampling and analyses specifically designed for the Vx metering system and the allocation application; and remote access, monitoring, and data management infrastructure for efficient field operations and to maximize data availability for accurate production.



Vx Multiphase Flow Measurement Technology

- Based on fundamental physical principles
- Reliable across varied applications and flow conditions
- True step-change in flow rate measurement technique and quality
- Common technology platform for topside and subsea applications
- Cost-effective design with inter-changeable venturi spools to accommodate rate changes for the entire production cycle
- Performance quantified in flow loop tests as low as within 2% to 2 ½ % for both oil and gas flows
- Supported by Vx Advisor*, an indispensable modeling tool used to assess and optimize meter performance in all conditions



Accurate Fluid Properties with PhaseSampler* and PVT Express*

- Quality-verified, single-phase samples drawn from multiphase flow-line
- Fluid densities, viscosities and other properties measured in field
- Shrinkages measured to stock tank conditions
- On-site equation of state modeling for quick fluids characterization
- PVT-quality recombination samples collected for full lab analysis



Remote Access through the Production RealTime Infrastructure

- Field instrumentation monitored remotely
- Data captured for trending, diagnostics, exporting and reporting
- Daily volumes and well tests verified before release for analyses
- Meters updated or reconfigured as conditions change

* Mark of Schlumberger



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