



production technology services  
for the energy industry

[www.tuvnel.com](http://www.tuvnel.com)



TUV®

## Providing pipeline fluid management services for the energy industry

TUV NEL has a successful track record spanning over four decades of service to the oil, gas and chemicals industry. We are a leading provider of consultancy, on-site and laboratory services to the international petroleum industry. We work with our clients to increase operational profit and reduce capital expenditure by tailoring our services to match our clients' needs. From the Gulf of Mexico to the North Sea Continental Shelf, from the Middle East to Asia Pacific ....TUV NEL has played a role.

Innovative technology is crucial to the cost-effective development of oil and gas fields. As oil and gas production moves increasingly into marginal fields, deeper waters and mature assets, so technology must adapt and be applied accordingly. TUV NEL has an impressive track record in the development, design and application of leading-edge technology in order to reduce production costs and increase profitability.

To assist you in facing the technological challenges in your business, we deliver a portfolio of consulting, training, on-site and laboratory services in the following areas:

- environmental measurement
- pipeline fluid management
- process engineering
- thermal engineering





Our production technology services include:

### Consultancy

- Feasibility & conceptual design studies
- Equipment selection, design & sizing
- Thermodynamic calculations
- Installation advice
- Specialist consulting:
  - Export & allocation metering
  - Heat exchangers
  - Oil-in-water monitors
  - Produced water systems
  - Fluid properties
  - Emissions
  - LNG
- Flow & thermal modelling
- Computational fluid dynamics
- Bespoke software
- Measurement data validation

### Research & Development

- Pumps & valves
- Heavy oil
- Flow metering uncertainty studies
- Joint industry projects

### Calibration & Testing

- Oil, water & gas flow tests
- Multiphase & wet-gas flow tests
- Factory acceptance tests
- Field acceptance tests
- Multiphase & wet gas metering
- Flow surveys
- Erosion testing & analysis
- Umbilical chemical compatibility

### Technology Transfer

- Training courses & seminars
- International flow measurement workshops



MODELLING • TRAINING • JOINT INDUSTRY PROJECTS

## Our People

People are our main asset. Like your business, it is people that make the difference at TUV NEL. We have a global perspective that is increasingly important for oil & gas exploration, development, and production. The TUV NEL team are available round the clock to assist our clients from Houston to Singapore, Aberdeen to Lagos...we are at your service.

## Our Promise

TUV NEL is independent of manufacturers, service companies and end users. We offer complete impartiality in all our business dealings. We are frequently called upon by our clients to provide independent technical review, expert witness and due diligence services where complete confidentiality is respected and integrity is of utmost importance.



TUV NEL is part of the TÜV SÜD Group, the global technical services company. With more than 125 years experience it has developed to become the world's largest independent providers of testing and certification services.



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**Sustaining our environment**

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The environment is everyone's responsibility and none more so than companies operating in the oil & gas energy sector. Nowadays it's not just what we produce, but what we leave behind that matters. Legislation coupled with financial penalties help focus the minds of all involved as to their responsibilities. At TUV NEL, we have set in motion a team of sector specialist consultants to guide you through the environmental challenges and assist with meeting regulatory requirements.



Our fields of expertise are as follows:

#### **Produced Water**

Produced water is by far the largest waste stream generated by the oil & gas exploration and production activities. Proper management of produced water is extremely important and can have a direct impact on the production costs and the ultimate oil recovery.

Produced water management often requires a holistic approach and needs to understand technologies and options available. These technologies and options cover all aspects from reservoir, downhole, subsea separation and produced water re-injection to surface treatment, discharge and monitoring.

With an experienced team of consultants and engineers we can provide assistance in the following areas:

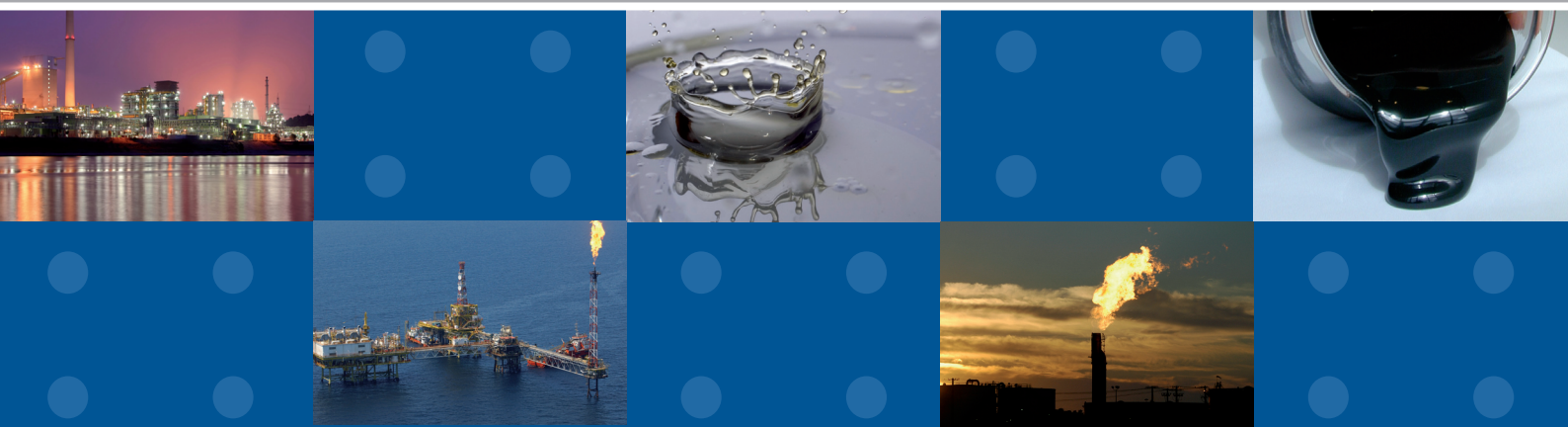
- Assessment of current separation, water treatment and handling systems
- Assessment of chemical treatment and its impact
- CFD simulation and equipment testing
- Regulatory compliance
- Auditing on discharge figures
- Best Available Technology (BAT) and Best Environmental Practices (BEP)
- Instrument and technology selection
- Training in oil-in-water measurement

#### **Carbon Capture and Storage**


With fossil fuels remaining the main source of energy for many decades to come, reducing associated carbon dioxide (CO<sub>2</sub>) emissions using Carbon Capture and Storage (CCS) technologies is seen as one of the greatest solutions in combating climate change. This is reflected in the member states' current stance on CCS and forthcoming legislation which will make CCS compulsory for all new power plants, and CCS provisions ('CCS ready') necessary for all new combustion plant. The inclusion of CCS in Phase 3 of the EU Emissions Trading Scheme will also impact on many industrial sectors.

TUV NEL can offer:

- Assistance in the implementation of CCS
- Assistance in meeting future CCS measurement guidelines
- Cost-effective guidance and best practice
- Improved confidence in measurement technologies
- Reduction in financial exposure in CO<sub>2</sub> trading schemes
- Increase in business production levels against EU ETS allocated CO<sub>2</sub> allowances







**TUV NEL's current portfolio of services to assist industry in meeting their environmental responsibilities include consultancy, membership of "real-time" clubs with up to date legislative information and the use of world class test facilities to assist with the development of monitoring equipment.**

#### **Emissions Compliance**

The accurate monitoring and reporting of emissions is essential in order to comply with environmental reporting schemes and to reduce financial exposure in emissions trading. With industry expected to purchase the majority of emission allowances under forthcoming legislation changes, an even greater emphasis will be placed on accuracy of measurement.

Our team can offer:

- Assessment of current measurement systems and methods
- Guidance on compliance and best practice
- Advice on measurement and meter selection
- Assessment of installation effects on measurement
- Measurement uncertainty analysis
- Reviewing monitoring & reporting and improvement plans
- Reviewing annual emissions reports
- Compliance monitoring and stack emissions testing

#### **Oil-in-Water Monitoring**

Oil-in-water monitoring and analysis is a subject of considerable interest to both regulatory authorities and industry. With the development and tightening of environmental legislation, accurate and reliable measurement of oil-in-water concentration plays an increasingly important role in the minimisation of oil pollution entering the environment.

Through our operation of the Oil-in-Water Monitoring Club, TUV NEL possess a unique perspective on oil-in-water analysis methods and has established a strong track record in assisting clients by undertaking a series of comprehensive market studies in this area. Additionally, we are also well-placed to independently design and conduct tests to establish the performance of equipment.



**consultancy • training • clubs • consultancy • training • clubs**

## Our Company

Supporting our commitment to the environment, TÜV NEL also offers a specialist resource for low carbon technology developments including wind, marine and sustainable transport, and a stack emissions measurement and monitoring service.

TÜV NEL is independent of manufacturers, service companies, government bodies and end users. We offer complete impartiality in all our business dealings. We are frequently called upon by our clients to provide independent technical review, expert witness and due diligence services where complete confidentiality is respected and integrity is of utmost importance.



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