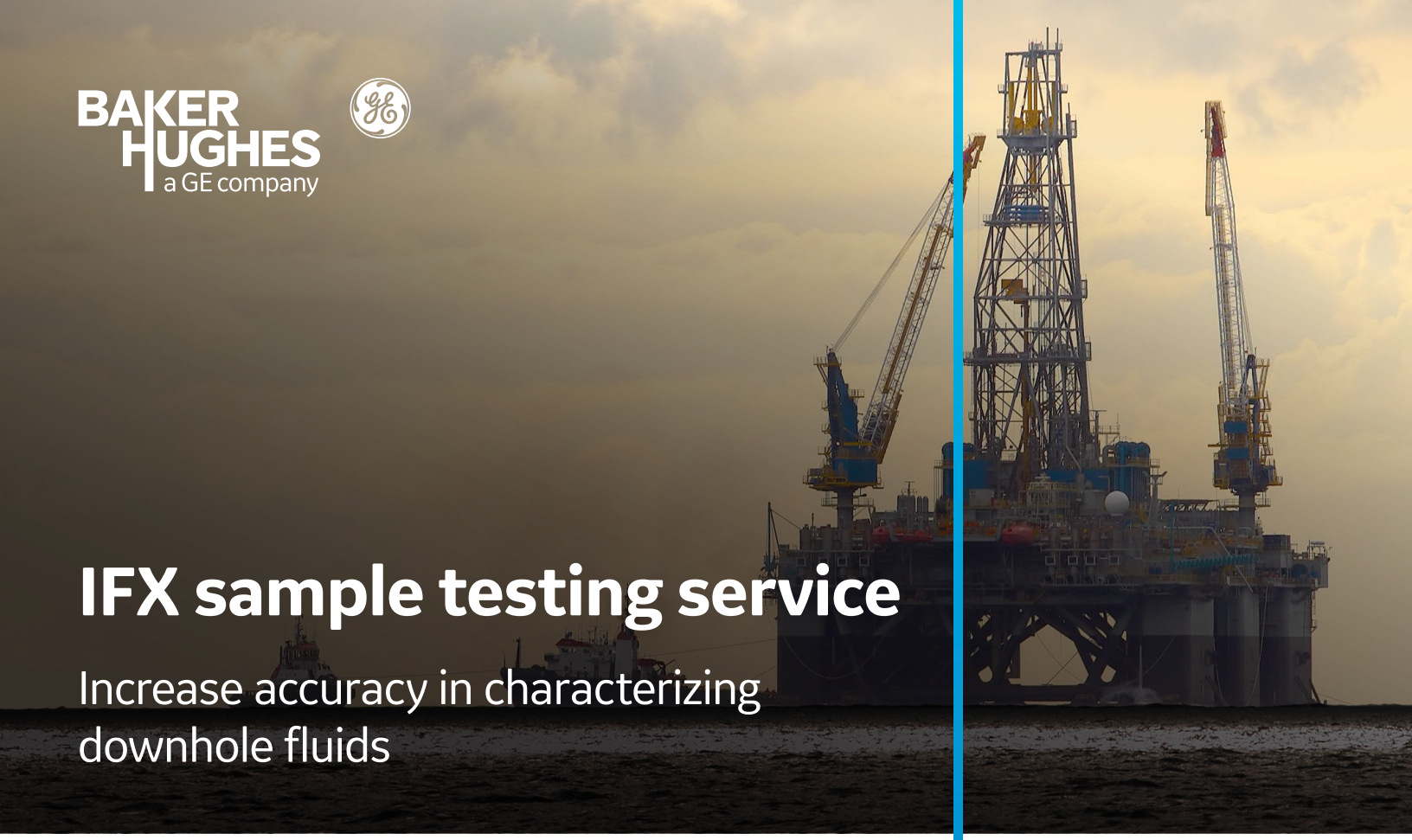

IFX sample testing service

Increase accuracy in characterizing downhole fluids

The **In-Situ Fluids eXplorer™ (IFX™) service** from Baker Hughes, a GE company (BHGE), provides a truly reliable representation of reservoir fluids.

The service combines robust downhole fluids analysis with real-time monitoring of the IFX data to target zones that exhibit fluid compositional differences and require further laboratory analysis. The information gathered improves:

- Verification of reservoir connectivity or compartmentalization
- Validation of fluid densities derived from pressure gradients
- Calculation of the gas-to-oil ratio (GOR) and fluid compressibility
- Correlation of pressure gradients with direct density measurements (g/cc)

Using information from the IFX service, operators can easily assess the commercial value of the asset and develop recovery strategies that ensure maximum return on investment. The IFX service works directly with the **Reservoir Characterization eXplorer™ (RCX™) sampling service** from BHGE to obtain information used to make optimal production and investment decisions.

The fluid properties measured by the IFX service integrate with sample and core analysis results, fluid typing from nuclear magnetic resonance, and open hole and future production log data. It uses 19-channel, near-infrared (NIR) fluid absorbance spectra with two methane channels and five-channel fluorescence spectra to measure:

- Continuous refractive index
- Fluid density, viscosity, and sound speed
- Real-time permeability based on mobility and in-situ viscosity
- Sample contamination

The IFX service locates compositional variation between zones and identifies compartmentalization based on fluid composition differences. It also distinguishes connate/injection water from water-base mud filtrate and formation hydrocarbon from oil-base mud filtrate.

Applications

- Deepwater environments
- Conventional oil and gas reservoirs

Benefits

- Supports early assessment of a reservoir's commercial value
- Lessens uncertainty from PVT lab results
- Delivers accurate sample contamination monitoring to reduce risk

The IFX service provides the information for conducting comprehensive petrophysical evaluations—contributing to more informed decision-making over the life of the field. To learn more, visit the website at bhge.com or contact your BHGE representative.

IFX Technical Specifications		
Mechanical	**1970IC Module**	**1979IA Module**
Temperature rating	302°F (150°F)	350°F (177°F)
Pressure rating	Std Version: 20,000 psi (137.9 MPa) HP Version: 30,000 psi (206.8 MPa)	
Instrument diameter	Std Version: 4.89 in. (124.2 mm) HP Version: 5.25 in. (133.4 mm)	
Instrument weight	Std Version: 251 lb (113.9 kg) HP Version: 305 lb (138.4 kg)	
Instrument length	10.15 ft (3.09 m)	
Hole size	5 7/8 in. to 24 in. (19.37 mm to 609.6 mm)	
Measurements		
Optical density range	0.0 to 3.0 OD for 425 nm – 1100 nm 0.0 to 2.0 OD for 1300 nm –1935 nm	
Optical density accuracy	10% of measured optical density or 0.1 OD, whichever is greater	
Refractometer range	1.000 to 1.750	
Refractometer precision	0.005	
Sound speed range	900 to 1800 m/sec	
Sound speed resolution	Better than 1 m/sec	
In-situ density range	0.01 to 1.5 cc/s	
In-situ density accuracy	± 0.005 g/cc (for non-conductive fluids less than 20cP)	
In-situ density resolution	0.001 g/cc	
In-situ viscosity range	0.2 to 200 cP	

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