

Array Dielectric eXplorer formation evaluation service

Get key formation data to improve hydrocarbon reserve estimates

The **Array Dielectric eXplorer™ formation evaluation service** from Baker Hughes provides key petrophysical data to improve the quality of reserve estimates. Using multi-frequency dielectric technology, the service quickly and accurately determines hydrocarbon saturation in any formation water salinity.

Get reliable hydrocarbon saturation data

Conventional methods for saturation analysis rely on the contrast between the resistivity of formation water and hydrocarbons. When formation water is nonconductive or its resistivity is unknown, operators rely on time-consuming nuclear magnetic resonance logging or formation testing to identify hydrocarbon saturation. The Array Dielectric eXplorer service relies on dielectric permittivity data to provide hydrocarbon saturation in reservoirs with any water resistivity.

Make decisions at the well site

By providing real-time deliverables, such as water-filled porosity and water resistivity, the service quickly detects

freshwater intervals and reveals the mobility of heavy oils. This offers operators earlier decision making opportunities for completion design straight from the field.

Acquire high-quality data in challenging conditions

The Array Dielectric eXplorer service features a dual-resolution sensor array to simultaneously acquire a large volume of data at a common measure point. By obtaining a large volume of permittivity and conductivity data at multiple frequencies, the service creates a comprehensive data set to provide reliable input for inversion modeling of formation parameters. The service also identifies continuous textural information of the rock structure for input in the hydrocarbon saturation equation. This keeps operators from having to make assumptions for their entire field, based on limited interpolated data, which is particularly critical for carbonate formations with complex pore structures and diverse compositions that vary across the field.

Applications

- Conventional and unconventional oil and gas wells
- Freshwater or unknown water-salinity reservoirs
- Carbonate reservoirs
- Heavy-oil reservoirs

Benefits

- Acquires large volume of permittivity and conductivity data at multiple frequencies
- Determines hydrocarbon saturation in any formation water salinity
- Provides continuous textural parameters
- Determines water-filled porosity and salinity values in real time
- Quickly indicates the mobility of heavy oils
- Offers earlier decision making opportunities at the well site
- Saves rig time and cost

Operate efficiently

The service runs at fast logging speed, and combines with all other Baker Hughes wireline formation evaluation services to reduce time spent in the well—saving rig time and cost.

For more information on how the Array Dielectric eXplorer service can help improve the quality of your reserve estimates, contact a Baker Hughes representative or bakerhughes.com.

Specifications

Depth of investigation	8 in. (203.2 mm) ¹
Length	17.50 ft (5.3 m) ²
Maximum borehole diameter	17.50 in. (445 mm)
Minimum borehole diameter	5.875 in. (149 mm)
Maximum logging speed	60 ft/min (18.2 m/min)
Maximum pressure	20,000 psi (138 MPa)
Maximum temperature	302°F (150°C)
Vertical resolution	1 in. (25.4 mm)

¹Dependent on logging environment

²Telemetry and auxiliary tools not included