



# Reservoir Evaluation

Bringing you closer to the reservoir



We offer oil and gas operators around the world a full in-house scope of service for reservoir formation evaluation.

Using state-of-the-art pulsed neutron logging – a key measurement for reservoir surveillance and production optimisation – combined with our independent, expert data analytics, we deliver high-precision data that gives you an unrivalled understanding of your well production, and helps you manage your reservoirs more efficiently.





# Reservoir Analysis System (RAS)

Our multi-detector Reservoir Analysis System (RAS) measures reservoir saturation and determines fluid contact depths using Sigma and Carbon-Oxygen techniques, and we can deploy it in almost any well, in conjunction with most equipment currently in use across the globe.

RAS is deployable on slickline, coiled tubing or electric wireline, in memory and surface read out.

This pulsed neutron tool is easily combinable with READ's full service portfolio of well integrity and production logging measurements, making it a versatile and value-adding technology for oil and gas operations around the world.

## RAS applications

RAS offers an unsurpassed level of versatility when it comes to reservoir surveillance:

- Measurement of saturation and monitoring of fluid contacts in the reservoir
- Identification of undesired water flow in and behind tubulars
- Open hole data emulation and rock typing
- Understanding and monitoring gas or water coning
- Evaluation of the effectiveness of gravel pack and well stimulation (including acid and frac)
- Evaluation of enhanced oil recovery (EOR) sweep
- Identification of bypassed reserves

## RAS benefits

There are so many benefits to deploying RAS:

- It uses robust, high-resolution Lanthanum Chloride detectors which offer superior downhole reliability and depth of investigation
- The compact tool length makes RAS one of the shortest pulsed neutron tools on the market and ideal for operating within rig up height limitations
- With a 1 11/16" OD it is one of the slimmest pulsed neutron tools on the market enabling access through well restrictions and tight completions
- Memory and SRO data acquisition modes enable flexible conveyance options including electric wireline, slickline, digital slickline and coiled tubing

## RAS Technical Specification

Temperature rating	160°C (320°F)
Pressure rating	15,000 psi (103.4 MPa)
Tool diameter	1 1/16 in (43 mm)
Tool length*	140.7 in (3.57 m)
Tool weight	44 lb (20 kg)
Materials	Corrosion resistant throughout

## Detector Specification

Source type	14-MeV Neutron Generator
Detector material - near and far**	LaCl3 Gamma Ray Detector
Detector material - long	Nal Gamma Ray Detector
Firing rate Sigma mode	200 $\mu$ s Pulse at 500 Hz
Firing rate C/O mode	30 $\mu$ s Pulse at 6.25 KHz

## Logging Measurements

Vertical resolution	24 in (610 mm)
Typical logging speed (Sigma)	10 - 20 ft/min (3 - 6 m/min)
Typical logging speed (C/O)	3 - 6 ft/min (1 - 2 m/min)
Depth of investigation (Sigma)	9 - 12 in (229 - 305 mm)
Depth of investigation (C/O)	5 - 6 in (127 - 152 mm)

\*Compact tool length makes the RAS one of the shortest on the market and ideal for operating within rig up height restrictions.

\*\*Lanthanum Chloride detectors for superior depth of investigation.

A detailed RAS technical datasheet is available at [READCASEDHOLE.COM/Knowledge-Hub](https://readcasedhole.com/knowledge-hub)

# Our Reservoir Evaluation Services

## Reservoir monitoring

Operators need reliable intelligence about their reservoirs from a trusted source, and we have the experience and knowledge to give you valuable insight. We can monitor changes in gas-water-oil contact and contact movement and identify saturation changes, and you benefit from our time-lapse capability to build a clear picture of your reservoir over many years.

## Prospecting in existing wells

By deploying our pulsed neutron Reservoir Analysis System (RAS), we can present you with valuable data regarding oil and gas behind the casing. This state-of-the-art technology can locate the reservoir rock, identify contacts, confirm fluid types and quantify hydrocarbon saturation.

## Wellbore performance and integrity

When it comes identifying waterflow behind the casing, our RAS tool is the answer. This highly sophisticated pulsed neutron technology determines water flow, identifies fluid and gas entry points and measures flowrates outside the casing.

## Data analysis for reservoir evaluation

We offer independent and reliable data analysis services from READ ANSA for all of your reservoir evaluation needs. You'll receive fast, flexible data analytics solutions from highly experienced and qualified analysts that maximise the value of your assets.

# It's easy to see why operators choose READ as their reservoir evaluation partner.



We have three decades of oil and gas experience and expertise and we can support you from our dedicated facilities across the globe. Our highly skilled field engineers can mobilise to any worldwide location at the shortest of notice and our expert analysts deliver comprehensive and high-precision data interpretation. We have an impeccable safety track record and robust QHSE management systems.

In short, we integrate survey planning, data acquisition, log quality control and data analysis all under one roof, delivering the ultimate all-encompassing reservoir evaluation solution to help operators optimise production.

**Get in touch** and find out how our reservoir evaluation services can add value to your hydrocarbon recovery around the world.

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