



## Advanced Nuclear Production Logging Fundamentals

### MODULE

#### About the Skill Module

The goal of production logging is to obtain an accurate interpretation of downhole tool measurements of temperature, pressure, fluid holdups, and fluid velocities to determine flow rates of each phase. These measurements provide the only way to know for sure what is happening downhole. This skill module focuses on interpretation of multiple-phase flow in vertical to high angle and horizontal wells using advanced nuclear production logging techniques. Pulsed neutron capture, pulsed neutron spectroscopy, and oxygen activation measurement principles are reviewed with emphasis on those measurements that have production logging applications. Unlike conventional and array production logging measurements that can only sense what is happening inside the casing, nuclear measurements can also sense some of what is happening behind the casing.

[See example online learning module](#)

#### Target Audience

Petroleum engineers, production operations staff, reservoir engineers, facilities staff, drilling and completion engineers, geologists, field supervisors and managers, field technicians, service company engineers and managers, and petrophysicists who need to be able to interpret production logs or understand the production log interpretations done by others.

#### You Will Learn

Participants will learn how to:

- How pulsed neutron capture, pulsed neutron spectroscopy, and oxygen activation tools work
- How to identify formation and borehole fluid contacts and distinguish between the two
- Which measurements are used to identify formation properties versus completion effects
- How to use a pulsed neutron capture tool to log down and identify hydrocarbon/water contacts in the casing and annulus with the well shut-in
- How to interpret data and estimate flow rates from oxygen activation measurements
- How to use a pulsed neutron capture tool with gadolinium tracers to estimate oil and water flow rates
- How to determine gas and oil holdup from pulsed neutron spectroscopy measurements

#### Product Details

Categories: Upstream

Disciplines: Production and Completions Engineering Petrophysics

Levels: Foundation

Product Type: Individual Skill Module

Format: On-Demand

Duration: 10 hours (approx.)

**\$795.00**