

Webinar Summary – Reliability Demonstration Test (RDT) – Strategy, Methods and Practical Applications in Engineering Programs

1st July 2026

Presented by Pankaj Shrivastava, Discipline Manager and Principal Advisor – Reliability at Halliburton

This webinar examined Reliability Demonstration Testing (RDT), explaining how it provides statistical evidence that a product has achieved a specified reliability target, rather than estimating its lifetime. The speaker positioned RDT within the broader reliability engineering process, distinguishing it from qualification testing and highlighting complementary methods such as Highly Accelerated Life Testing (HALT) for identifying design weaknesses and Accelerated Life Test (ALT) for estimating product life before using RDT to demonstrate reliability.

The session described the principles of designing effective RDT programmes, including defining reliability and confidence targets, selecting appropriate statistical models, identifying dominant failure mechanisms, and using **parametric cumulative binomial models** with accelerated stress factors. Practical examples were presented using an electromechanical flow control device in the oil and gas industry, demonstrating how temperature, vibration, and thermal cycling tests can compress years of field exposure into manageable laboratory testing while remaining focused on specific physics-of-failure mechanisms.

The speaker emphasised that successful reliability demonstration depends on understanding failure mechanisms, carefully balancing sample size and test duration, and aligning test conditions with real service environments.

The webinar concluded that well-planned RDT provides confidence that products meet reliability requirements and supports informed decisions on product qualification and, where appropriate, component life extension, provided all relevant life-limiting mechanisms are considered.

If you are a SaRS Member and would like to watch the recording of the webinar please [click here](#).