## Critical Well Reviews

### NOT ALL WELLS ARE EQUAL

What makes a well “critical”? One could make a case that all wells are critical and they would be right. However, only wells that meet a certain criteria qualify for the Halliburton Completion Tools Critical Well Review (CWR).

### What is a Critical Well Review

CWRs provide a higher level of oversight for the planning and execution phase of a well or project. The purpose is to identify risks in both service quality (SQ), health, safety, and environmental (HSE) and identify mitigation measures to reduce risk to an acceptable level or eliminate these risks altogether.

CWR’s provide a global review of the design of service well site instructions our wellsite personnel use when executing the job. The reviews should be conducted as soon as possible, but no later than one week prior to mobilization of equipment and requires company-wide, cross functional participation.

Often times proprietary information will be discussed during CWRs, so normally customers do not participate in this review process. However, in some cases, it may be appropriate for the customer to engage in this risk mitigation process.

### What Defines a Critical Well

- Project / job critical to the strategic plan for country, region, or global operations
- High operational risk and/or high economic exposure
- Use of new technology as defined by the PSL or new to the location
- New or non-conventional applications of existing technology
- Designated by Halliburton product service line or the customer as a critical well

### When Do You Need a Critical Well Review

CWRs are for wells that have a higher risk of experiencing issues due to factors such as:

- **Well Design** – As we push the limits of well design, potential issues need to be identified and mitigated.
- **New Equipment** – With new customer requirements comes new equipment. An overview of the new equipment’s use and function in the well provides for risk identification and mitigation.
- **New Fields** – When our customers start a new field or project, even if it is similar to a previous project, a CWR can help to identify potential risk and establish mitigation measures.
- **Elevated Risk** – These include Deepwater, extended-reach HP/HT, and underbalanced wells.
- **Lessons Learned** – The process can be used on repeat wells where we, our customers, or other service providers have experienced issues. The process allows learning to be considered and included and for mitigating actions to be identified.

### Failure Review Analysis (FRA)

A Failure Review Analysis (FRA) is a higher level of review for large or complex projects. It differs from a CWR in both attendees and detail, as it includes the customer and all service providers, and covers all aspects of the design and execution.

This is generally arranged by the customer at a time and place of their convenience. Normally this is a three to five day process, and as such the cost is mostly borne by the customer.

Halliburton Completion Tools supports FRAs for major critical projects.

### Key Statistics

- **75** More Than 75 CWR Customers Globally
- **500** Over 500 CWRs Completed Successfully
- **57%** CWRs Have Contributed to a 57% Decrease in NPT for Deepwater Jobs Over the Previous 3 Years