

Well Testing 101

The time to test depends on the permeability:

- HIGHER PERMEABILITY, SHORTER TEST TIME
- LOWER PERMEABILITY, LONGER TEST TIME



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How long do I test?

One of the most important questions in the design of a well test is, "How long do I test?" The answer is that test time is inversely proportional to the reservoir permeability. In other words, higher permeability requires less testing time.

Furthermore, the time required to test is also dependent on the test objectives. Without knowing the permeability, it is not possible to predict the time required to identify reservoir boundaries and/or interference. The following chart may be used for a rough estimate of the time to test for a completion evaluation (skin and perm analysis).

Permeability ->	High k>100 md	Moderate 10<k<100 md	Low 1<k<10 md	Tight Rock k<1 md
Build Up	<12 hours	12 - 24 hours	24+ hours	4+ days
Drawdown	<24 hours	24 - 48 hours	48+ hours	8+ days

Test duration may be minimized with real-time data acquisition. Real-time data acquisition and analysis permits the well to be restored to production as soon as sufficient data has been acquired to meet the test objectives. Premature test termination results in lost production and wasted expense without achieving the desired objectives. Testing longer than necessary results in excess expense and lost production.

Real-time data acquisition can be accomplished with a downhole pressure recorder using surface read-out (SRO) via electric-line or a surface recorder. Surface recorders are a fraction of the cost of a downhole SRO gauge but care must be taken to use a tool such as the SPIDR that has effective thermal compensation and accuracy.

Once an initial well test for permeability and skin has been conducted, the results can be used to design a well test to determine the location of reservoir limits.

Figure 1 shows a well test that was not analyzable for skin and perm due to the inadequate time of testing.

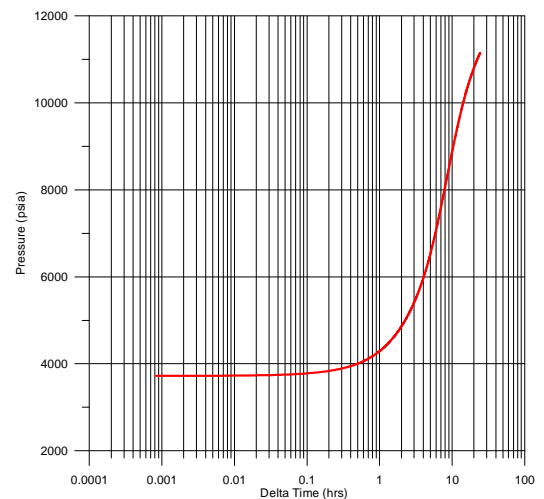


Figure 2 shows a test with adequate data to analyze.

