

**Popular Annual Testing methods include** acoustic well sounder (AWS) for pumping oil wells and surface pressure build-up tests in gas wells. If pressure transient analysis (PTA) is conducted for  $p^*$  the 2 kPa/h and >14 day rules are waived. You have all year, so it's a good idea to plan ahead to coincide with a scheduled plant turn-around, routine maintenance program, or pump change. If you are coordinating a field survey with a plant turn-around, get all your pressure recorders installed a day-or-two before, then put the wells back on production, ready for the field-wide shut-down.

### Minimum 8 h of Data

With a minimum eight hours (8 h) of subsurface transient pressure data, *it doesn't matter whether-or-not the test meets the 2 kPa Rule*. If the data are analyzable the  $p^*$  will be compliant.

**AER-D40, section 4.5.7**, states that "...the minimum number of pressure surveys should equal about 25 % of a pool's producing well count, based on quarter section spacing for oil pools. This translates to one survey per productive section. For gas pools, one survey per four productive sections is required". Referencing 'one survey per X productive sections' is confusing for large gas pools which have not been fully drilled up. In these low density, or low well count pools, surveying 25 % of the drilled wells may actually leave some 'productive sections' un-tested.

### Critical Edit Mnemonics:

~TEST DATA,INTRP.,Y,Test Interpretation Present

~PRESSURE RESULTS - SUMMARY,PEXTR.KPAA,9558.00,Representative Extrap/ False Pressure

That innocuous 'Y' flags the business rules to ignore the 2 kPa Rule and search instead for the  $p^*$  (PEXTR).

### Pressure Build-up Tests

Surface pressure recorders are fine for annual surveys — the caveat for a gas well being that there cannot be a liquid level above the top perforation.

### Pressure Transient Analysis

Capture of the flowing or injecting pressure before shut-in is critical for PTA. Typical shut-in times are 48 – 196 h, depending on matrix permeability (k). Shut-in times do not have to comply with the 2 kPa/h or >14 Day rules if PTA ( $p^*$ ) is exploited.

### Static Gradient Surveys

Non-producing shut-in, suspended, and observation wells are all your first choice to satisfy annual requirements.

### Pressure Fall-off Tests

Testing water, gas, or miscible flood injection wells avoids shutting in your revenue generating producing wells.

### G40 Misconceptions

What's not specifically clear in G40 is that PTA ( $p^*$ ) is an acceptable method for estimating Annual Pressure Oil and Annual Pressure Gas conditions.