Now, test your high-yield gas-condensate wells without the risk and cost of wellbore intervention

For more than 15 years, the DRC SPIDR® (Self-Powered Intelligent Data Retriever) has been used successfully to test gas wells from the surface, at a small fraction of the cost of downhole testing. Now, you can use the SPIDR system to test more types of gas wells than ever before, including gas-condensate wells with liquid yields as high as 300 BBL/MMCF.

The four categories of gas-condensate wells

Gas-condensate wells fall into four categories, based on *wellbore* conditions, not *separator* conditions. For three of these categories, DRC's algorithms rigorously and accurately calculate bottom-hole pressures for evaluating completions, permeability, and reservoir limits:

1. Both wellhead pressure and reservoir pressure are above dew point

Wellbore and reservoir pressures are above the dew point during both flow and shut-in. Regardless of the separator yield, there is no liquid phase in the wellbore. Conversion of wellhead pressure to bottom-hole pressure is handled by the single-phase DRC model proven in thousands of well tests.

2. Wellhead pressure is below, reservoir pressure is above dew point

In this situation, wellbore pressure falls below the dew point, and liquid begins to condense from the gas. DRC's new Condensate Drop-Out model accounts for this effect. In many cases, after the well is shut in, wellbore pressure will exceed the dew point and condensate will flash back to the gas phase.

3. Both wellhead pressure and reservoir pressure are below dew point

In this category, there is two-phase flow in the wellbore and the reservoir. After shut-in, as the pressure in the wellbore increases, the GLR increases and condensed liquids re-inject into the formation. DRC's new multi-phase flow models, combined with the Condensate Drop-Out model, accurately account for these phenomena.

4. A standing fluid column in the wellbore will not unload during flow

Unfortunately, a well that will not unload all produced liquids during flow, or that exhibits extreme slugging behavior, cannot be tested with a SPIDR. To learn more about liquid unloading, visit our web site. Select "Can the SPIDR test your well?" to determine the critical unloading velocity for your well.

Want proof? Try it for free.

If you are planning a test with downhole gauges, DRC will provide a SPIDR at no charge in exchange for the downhole data file. You get to compare the SPIDR with downhole gauges, and we get another example to add to our library of successful user trials. For more information on the SPIDR well-testing system, visit our web site or give us a call.

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A SPIDR pressure-transient test unit connected at the wellhead

Surface SPIDR vs Downhole Gauges

The table below illustrates Category 1 for a moderate-yield well in an offshore Gulf of Mexico field. The wellbore and reservoir pressures are both above the dew point.

Dry Gas Gravity	*0.59*
Condensate Yield, BBL/MMCF	*29*
Water Yield, BBL/MMCF	*0.6*
Gas Flow Rate, MCF/D	*12,188*
Dew Point, psi	*Approx. 4,500*

	SPIDR	Downhole Gauges
Flowing WHP, psia	5,267	n/a
Flowing BHP, psia	7,598 (calculated)	7,599
Shut-in WHP, psia	6,687	n/a
Shut-in BHP, psia	8,678 (calculated)	8,678
Permeability, md	34	33
Skin	30	28

This table illustrates Category 2 for a high-yield well in south Louisiana. The wellbore is below the dew point, the reservoir is above it.

Dry Gas Gravity	*0.629*
Condensate Yield, BBL/MMCF	*145*
Water Yield, BBL/MMCF	*0*
Gas Flow Rate, MCF/D	*3,974*
Dew Point, psi	*Approx. 6,200*

	SPIDR	Downhole Gauges
Flowing WHP, psia	3,891	n/a
Flowing BHP, psia	5,823 (calculated)	5,794
Shut-in WHP, psia	5,602	n/a
Shut-in BHP, psia	7,772 (calculated)	7,731
Permeability, md	1.0	1.0
Skin	-1.5	-1.0

A complete SPIDR pressure-transient test kit