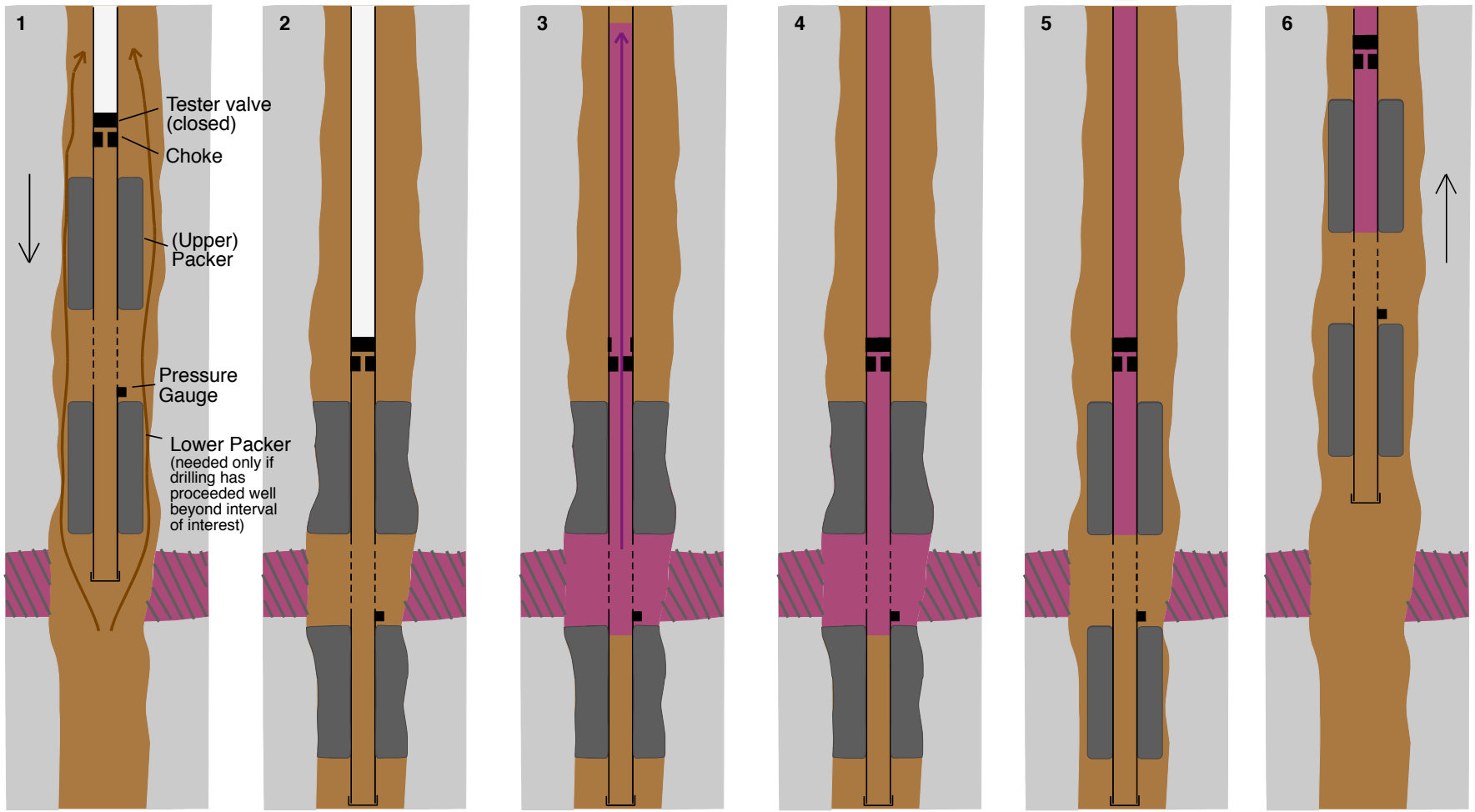
Drill-stem tests I: the tester

As drilling of a borehole progresses, the bit may reach a horizon that yields enough oil and/or gas into the drilling mud to suggest a potential producing horizon. The operator and driller may decide to evaluate the horizon soon, prior to running logs, by performing a drill-stem test. This involves tripping out, putting on the tester, and tripping back in, as shown in Panel 1. The tester's packers isolate the horizon (Panel 2), and then the tester opens to allow formation fluids to move into the hole (Panel 3). After the rate if flow is measured, the tester's valve is closed and the pressure exerted by the formation's fluids is measured (Panel 4). Then the packers are released (Panel 5) and the tester is tripped out of the hole (Panel 6).



Tester is lowered into hole; gauge records increasing pressure of mud column

Packers are set; gauge records slight pressure increase as packers expand.

Tester valve opens and pressure drops; formation fluids enter hole; rate of flow measured.

Tester valve closes; gauge records increase of pressure to shut-in pressure.

Packers are released; gauge records abrupt pressure increase under mud column.

Tester is withdrawn; gauge records decreasing pressure of mud column.

Sources include Bredehoeft, J. D., 1965, The drill-stem test: the petroleum industry's deep-well pumping test: *Groundwater*, v. 3, no. 3, p. 31-36, and F.A. Assaad's 2009 *Field Methods for Petroleum Geologists*.