

DOWNHOLE PRESSURE MAINTENANCE SYSTEM USING REFERENCE PRESSURE

ABSTRACT

A method and apparatus that includes an elongated base pipe having an external surface at least partially defining an external region and an internal surface at least partially defining an internal region; and a pressure maintenance device disposed in the base pipe and includes a first flow path that extends between an opening in the external surface and an opening in the internal surface; a first valve that controls the flow of a first fluid through the first flow path; a first pressure differential sensor that controls the actuation of the first valve and is in fluid communication with the external region; and a pressurized fluid source in fluid communication with the first pressure differential sensor; wherein a first pressure differential threshold associated with the first pressure differential sensor is the difference between a pressure within the external region and the pressurized fluid source.

Fig. 4