

WELL FLOW CONTROL WITH ACID ACTUATOR

BACKGROUND

[0001] In completing a well, drilling fluids, such as drilling mud and other fluids in the well during drilling, are circulated out of the well and replaced with a completion fluid. For example, the completion fluid is pumped down the bore of a production string to displace the drilling fluids up the annulus between the production string and wellbore wall, or vice versa. The completion fluids can take different forms, but are typically a solids-free liquid meant to maintain control over the well should downhole hardware fail, without damaging the subterranean formation or completion components. The fluid is typically selected to be chemically compatible with the formation, for example, having a specified pH.

DESCRIPTION OF DRAWINGS

[0002] FIG. 1 is side partial cross-sectional views of an example well system.

[0003] FIG. 2 is a detail half cross-sectional view of a production device.

[0004] Like reference symbols in the various drawings indicate like elements.

SUMMARY

[0004a] A first aspect of the present invention provides a well screen assembly, comprising:

_____ a tubular base tubing;

_____ a filtration screen around the base tubing;

_____ a plug sealing a flow path between an interior of the filtration screen and an interior center bore of the base tubing; and

_____ a dissolving fluid chamber comprising a dissolving fluid adapted to dissolve the plug when in contact with the plug; and

_____ an actuator configured to release the dissolving fluid into contact with the plug and open the flow path to communicate fluid between the interior of the filtration screen and the interior of the base tubing.

[0004b] A second aspect of the present invention provides a well production device, comprising:
_____ a production tubing comprising a fluid passage between the exterior of the tubing and a center bore of the tubing;
_____ a fluid barrier sealing the fluid passage;
_____ a chamber comprising a dissolving fluid adapted to dissolve the fluid barrier when in contact with the fluid barrier; and
_____ an actuator configured to release the dissolving fluid into contact with the fluid barrier.

[0004c] A third aspect of the present invention provides a method of controlling flow in a well, the method comprising:
_____ receiving, in a flow control device, flow in a path between an interior center bore of a tubular base tubing and a filtration screen about the base tubing;
_____ sealing the path against communication with the center bore using a plug; and
_____ in response to a signal, releasing a dissolving fluid contained in the flow control device into contact with the plug and dissolving the plug to allow flow through the path.

DETAILED DESCRIPTION

[0005] FIG. 1 shows an example well system 10 in an open hole completion configuration. The well system 10 is shown as a horizontal well, having a wellbore 14 that deviates to horizontal or substantially horizontal in a subterranean zone of interest 24. A type of production tubing, referred to as casing 16, is cemented in the wellbore 14 and coupled to a wellhead 18 at the surface 20. The casing 16 extends only through the vertical portion of the wellbore 14. The remainder of the wellbore 14 is completed open hole (i.e., without casing). A production tubing string 22 extends from wellhead 18, through the wellbore 14 and into the subterranean zone of interest 24. The production string 22 can take many forms, for example, as a continuous tubing string between the subterranean zone 24 and the wellhead 18, as a length of production liner coupled to the casing 16 at a liner hanger with a tieback liner extending from the liner hanger to the wellhead 18, and/or another configuration. A production packer 26 seals the annulus