Title (en)

Wellbore treatment

Title (de)

Bohrlochbehandlung

Title (fr)

Traitement de puits de forage

Publication

EP 2251524 A1 20101117 (EN)

Application

EP 09251306 A 20090513

Priority

EP 09251306 A 20090513

Abstract (en)

1. A method of strengthening a wellbore wall in a zone of a wellbore that penetrates through a formation that is susceptible to formation breakdown ("weak formation") comprising: (a) delivering a settable composition into the zone of the wellbore wherein the settable composition gradually increases in viscosity at the temperature encountered in the zone of the wellbore over a period of time of at least 1 hour, preferably, at least 2 hours, for example, 1 to 20 hours; (b) increasing the pressure in the zone of the wellbore to at or above the initial fracture pressure of the formation by subsequently pumping a displacement fluid into the wellbore such that fractures are induced in the wall of the wellbore; (c) continuing to pump the displacement fluid into the wellbore until the pressure in the zone of the wellbore remains substantially constant at an initial fracture propagating pressure; (d) interrupting the pumping of the displacement fluid into the wellbore for a sufficient period of time for the settable composition to increase in viscosity; (e) increasing the pressure in the zone of the wellbore by recommencing pumping of the displacement fluid into the wellbore until the pressure in the zone of the wellbore remains substantially constant at an increased fracture propagating pressure; (f) optionally repeating steps (d) and (e) one or more times over the setting period of the settable composition until the pressure in the zone of the wellbore is at least 100 psi above, preferably, at least 500 psi above, in particular, at least 750 psi above the initial fracture pressure of step (b); (g) maintaining the pumping pressure of the displacement fluid until the settable composition has completely set in the fractures and in the zone of the wellbore; and (h) drilling out the set composition from the zone of the wellbore

IPC 8 full level

E21B 33/138 (2006.01); **E21B 21/00** (2006.01); **E21B 43/26** (2006.01)

CPC (source: EP US)

E21B 21/003 (2013.01 - EP); **E21B 33/138** (2013.01 - EP); **E21B 43/26** (2013.01 - EP US)

Citation (applicant)

- WO 2005012687 A1 20050210 - BP EXPLORATION OPERATING [GB], et al
- US 5701956 A 19971230 - HARDY MARY ANNE [NL], et al

Citation (search report)

- [X] US 2005269080 A1 20051208 - COWAN KENNETH M [US]
- [A] WO 2009018536 A2 20090205 - MI LLC [US], et al
- [A] US 2008110621 A1 20080515 - MONTGOMERY JOHN K [US], et al
- [X] FRED. E. DUPRIEST: "Fracture closure stress (FCS) and lost returns practices", SOCIETY OF PETROLEUM ENGINEERS, no. 92192, 23 February 2005 (2005-02-23) - 25 February 2005 (2005-02-25), Amsterdam, pages 1 - 11, XP002549261
- [X] F. HUTTON, T. PAYNE, K. JEFFREYS, J. OSORIO, E. THEROND, A. VELASCO, H. WILLIAMS: "Fusible-particle system helps to control severe lost circulation while drilling across a fractured zone in Elk Hills field, CA", SOCIETY OF PETROLEUM ENGINEERS, no. 121111, 24 March 2009 (2009-03-24) - 26 March 2009 (2009-03-26), San Jose, pages 1 - 12, XP002549262
- [X] W.H. GRANT, R.L. WHITE, R.C. SMITH, A.G. MILLER: "Successful squeezing of shallow and low-pressure formations", SOCIETY OF PETROLEUM ENGINEERS, no. 19937, 27 February 1990 (1990-02-27) - 2 March 1990 (1990-03-02), Houston, pages 231 - 238, XP002549263

Cited by

CN110761765A; GB2540082A; AU2015250158B2; GB2540082B; CN106226217A; US2021079288A1; US11603488B2; CN117703310A; US9803475B2; WO2015164078A3; US10227836B2; US11661815B1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

EP 2251524 A1 20101117

DOCDB simple family (application)

EP 09251306 A 20090513