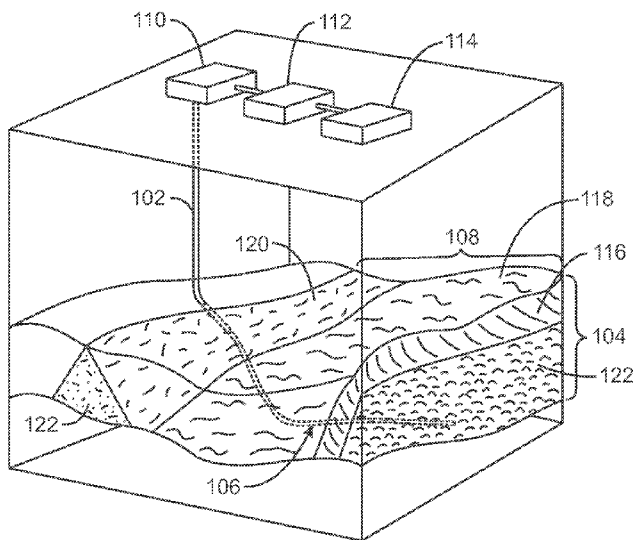




- (51) International Patent Classification: *E21B 43/27* (2006.01)
- (21) International Application Number: PCT/US2012/058798
- (22) International Filing Date: 4 October 2012 (04.10.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 61/569,557 12 December 2011 (12.12.2011) US
- (71) Applicant (for all designated States except US): **EXXON-MOBIL UPSTREAM RESEARCH COMPANY** [US/US]; CORP-URC-SW359, P.O. Box 2189, Houston, TX 77252-2189 (US).
- (72) Inventors; and
- (71) Applicants (for US only): **TROSHKO, Andrey, A.** [US/US]; 2403 Devonshire Dr., Pearland, TX 77584 (US). **BROWN, James, S.** [US/US]; 1314 Mill Stream Ct., Sugar Land, TX 77479 (US). **SHUCHART, Chris, E.** [US/US]; 1519 Timber Creek Dr., Missouri City, TX 77459 (US).
- (74) Agents: **JAMES, Rick, F.** et al.; Exxonmobil Upstream Research Company, CORP-URC-SW359, P.O. Box 2189, Houston, TX 77252-2189 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: FLUID STIMULATION OF LONG WELL INTERVALS



(57) Abstract: Systems and methods for accessing and/or harvesting hydrocarbons from a wellbore. A method may include modeling a well to determine a length of a stimulation zone in the production interval, wherein the model is based, at least in part, on a reaction time for a stimulation process. Packers are placed in the well to fluidically isolate the stimulation zone from other zones in the well. The targeted zone is stimulated, such as by acid treatment. Hydrocarbons may be recovered from the stimulation zone.



Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*

(88) Date of publication of the international search report:
22 May 2014

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/58798

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - E21B 43/27 (2012.01)

USPC - 166/307

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8): E21B 43/27 (2012.01)

USPC: 166/307

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

IPC(8): E21B 43/27 (2012.01) USPC: 166/114,135, 179,192, 250.01,250.02,252.1,252.3, 252.5,254.1,254.2, 305.1, 307, 308.1, 308.2; 175/5,40,50,58 (keyword limited; terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST (PGPB, USPT, EPAB, JPAB); Google Scholar; Google Patent; Search Terms Used: Perforate fracture frack acid zone isolation packer computer simulation stimulation model reservoir shale carbonate matrix permeability gas hydrocarbon bitumen coal liner casing annular recovery ph concentration level parameter rock fluid time period data etc.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0151938 A1 (Conkle et al.) 18 June 2009 (18.06.2009), entire document, especially Fig 1, 2, 4; para [0002], [0014]-[0016], [0020]-[0022], [0026]-[0029], [0034], [0037], [0040], [0043], [0045], [0046], [0048], [0052], [0053], [0057]-[0059], [0063], [0067]-[0074], [0080], [0083], [0084]	1-23
Y	US 2009/0294122 A1 (Hansen et al.) 03 December 2009 (03.12.2009), Fig 11; para [0005], [0011], [0107], [0111], [0128], [0135], [0136], [0148]-[0150], [0174]-[0179]	1-23
A	US 6,464,007 B1 (Jones) 15 October 2002 (15.10.2002), entire document	1-23
A	US 6,002,985 A (Stephenson) 14 December 1999 (14.12.1999), entire document	1-23
A	US 2004/0149431 A1 (Wylie et al.) 05 August 2004 (05.08.2004), entire document	1-23
A	US 2005/0230107 A1 (McDaniel et al.) 20 October 2005 (20.10.2005), entire document	1-23
A	US 2009/0114385 A1 (Lumbye) 07 May 2009 (07.05.2009), entire document	1-23
A	US 2011/0139456 A1 (Montgonery) 16 June 2011 (16.06.2011), entire document	1-23

 Further documents are listed in the continuation of Box C.


* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

18 December 2012 (18.12.2012)

Date of mailing of the international search report

04 JAN 2013

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774