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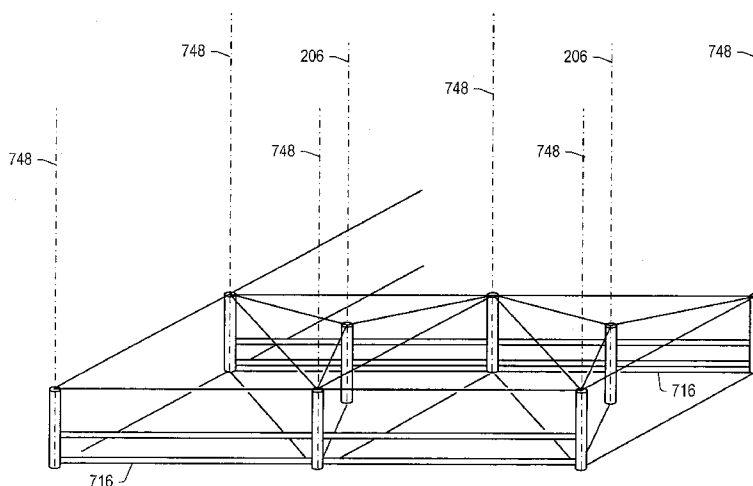
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[Continued on next page]

(54) Title: SYSTEMS AND PROCESSES FOR USE IN TREATING SUBSURFACE FORMATIONS



(57) Abstract: Methods for treating a tar sands formation are described herein. Methods for treating a tar sands may include heating a portion of a hydrocarbon layer in the formation from one or more heaters located in the portion. The heat may be controlled to increase the permeability of at least part of the portion to create an injection zone in the portion with an average permeability sufficient to allow injection of a fluid through the injection zone. A drive fluid and/or an oxidizing fluid may be provided into the injection zone. At least some hydrocarbons are produced from the portion.

WO 2008/051495 A3



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(81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY,



TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/22376

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **E21B 43/24**(2006.01),**43/243**(2006.01),**43/26**(2006.01),**43/30**(2006.01)

 USPC: 166/245,258,259,272.1,272.3,272.6,302,308.1
 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)
 U.S. : 166/57, 60, 245, 256, 258, 259, 272.1, 272.3, 272.6, 302, 308.1

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2,914,309 A (SALOMONSSON) 24 November 1959 (24.11.1959), Figures 3, 6; col. 6, line 26 - col. 7, line 15.	1-3, 60, 74, 75
X,E	US 2007/0284108 A (ROES ET AL) 13 December 2007 (13.12.2007), Figures 178-182; Para's [1214]-[1233].	19-59
X, P	2007/0131427 A (LI ET AL) 14 June 2007 (14.06.2007), Para's [0849]-[0855].	60-73
X	US 5,217,076 A (MASEK) 08 June 1993 (08.06.1993), col. 4, lines 22-34; col. 7, lines 10-25; col. 14, line 14 - col. 15, line 2.	60
X	US 4,485,868 A (SRESTY ET AL) 04 December 1984 (04.12.1984), Figures 4, 10; col. 11, line 48 - col. 13, line 44.	60
X	US 3,062,282 A (SCHLEICHER) 06 November 1962 (06.11.1962), col. 2, line 60 - col. 3, line 75; col. 4, lines 27-47.	60
A	US 3,237,689 A (JUSTHEIM) 01 March 1966 (01.03.1966), col. 3, line 55 - col. 4, line 42; col. 6, lines 30-34.	60-73

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"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	"&" document member of the same patent family

Date of the actual completion of the international search 08 August 2008 (08.08.2008)	Date of mailing of the international search report 22 AUG 2008
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 GEORGE SUCHMANN <i>George Suchmann</i> Telephone No. 571-272-3600

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/22376

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 76-1685
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
As set forth in Form PCT/ISA/224, only claims 1-75 would be searched in the absence of a response by applicant.

3. Claims Nos.: 4-18
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
 2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
 3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

 4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
 - The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
 - No protest accompanied the payment of additional search fees.