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(54) Title: ENHANCING HYDROCARBON RECOVERY

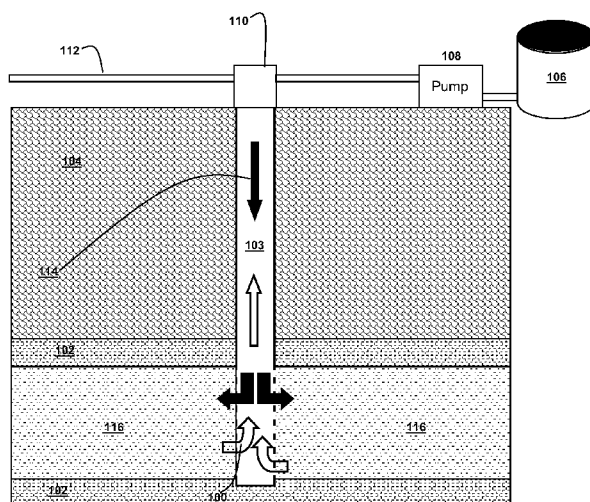


Figure 1

(57) Abstract: Recovery of hydrocarbon fluid from low permeability sources is enhanced by introduction of a treating fluid. The treating fluid may include one or more constituent ingredients designed to cause displacement of hydrocarbon via imbibition. The constituent ingredients may be determined based on estimates of formation wettability. Further, contact angle may be used to determine wettability. Types and concentrations of constituent ingredients such as surfactants may be determined for achieving the enhanced recovery of hydrocarbons.



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INTERNATIONAL SEARCH REPORT

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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)

E21B 43/16; E21B 43/00; E21B 43/22; E21B 43/24; E21B 43/267; E21B 49/00

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

(Chinese Patents and application for patent)

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

eKOMPASS(KIPO internal) & Keywords: treating fluid, imbibition

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 5411086 A (BURCHAM; CHRISTOPHER et al.) 02 May 1995 See Abstract, Fig. 1, Claim 1	1,4-15,18-28 2-3,16-17
Y	US 5069065 A (SPRUNT; EVE S. et al.) 03 December 1991 See Abstract, Claim 3	2-3,16-17
X Y	US 3978926 A (ALLEN; JOSEPH C.) 07 September 1976 See Abstract, Fig. 1, Column 3	1,4-15,18-28 2-3,16-17
X Y	US 5411094 A (NORTHROP; PAUL S.) 02 May 1995 See Abstract, Fig. 3, Claims 1,4,5	1,4-15,18-28 2-3,16-17

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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"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

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5411086 A	02.05.1995	None	
US 5069065 A	03.12.1991	None	
US 3978926 A	07.09.1976	None	
US 5411094 A	02.05.1995	None	