MAGNETIC RANGING WHILE DRILLING USING AN ELECTRIC DIPOLE SOURCE AND A MAGNETIC FIELD SENSOR

Abstract: A system and methods for drilling a well in a field having an existing well are provided. In accordance with one embodiment, a method of drilling a new well (14) in a field having an existing well (12) includes drilling the new well using a bottom hole assembly (BHA) having a drill collar divided by an insulated gap (34), generating a current on the drill collar of the BHA while drilling the new well, and measuring from the existing well a magnetic field (36) caused by the current on the drill collar of the BHA. Using measurements of the magnetic field, the relative position of the new well to the existing well may be determined.
before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report: 28 April 2011
A. CLASSIFICATION OF SUBJECT MATTER

INV. E21B47/022
ADD.

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

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 practical, search terms used)
EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>Y</td>
<td>US 3 406 766 A (HENDERSON) 22 October 1968 (1968-10-22) column 2, line 23 - line 43</td>
<td>1-6, 9-16, 24-27</td>
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<td>US 2007/126426 A1 (CLARK ET AL.) 7 June 2007 (2007-06-07) cited in the application paragraphs [0029], [0071], [0083], [0085], [0086]; figures 14, 15</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

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Date of the actual completion of the international search: 3 March 2011
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