

Title (en)

Apparatus and method for avoiding a drill string becoming stuck during drilling.

Title (de)

Vorrichtung und Verfahren zum Verhindern der Blockierung eines Bohrgestänges während des Bohrens.

Title (fr)

Dispositif et procédé pour éviter le coincement d'un train de tiges en cours de forage.

Publication

**EP 0354716 A1 19900214 (EN)**

Application

**EP 89307847 A 19890802**

Priority

US 22772188 A 19880803

Abstract (en)

Apparatus for avoiding stuck drilling equipment during drilling of a well bore over depth intervals where such equipment has stuck in similar wells in a geological province includes data storage means for recording a multiplicity of well drilling variable quantities measured substantially simultaneously at a known depth in each of a multiplicity of wells. Such multiplicity of wells includes those in which drilling equipment has stuck and a multiplicity of similar wells where the drill string did not stick. Such data forms the input to multivariate statistical analysis means for calculating for all variables in all wells of each class the maximum separation of said classes from each other. The centroids of all well vectors representing each of the multiplicity of wells in each such classes are then recorded either numerically or by plotting. A currently drilling well relative to said classes is then established by means for calculating its well vector relative to the well classes. Such calculating means sums the products of the coefficient of each variable for the complete group of wells times the current value of each variable in the drilling well. The well vector is then recorded to plot or indicate which variable may be modified within allowable values to change the plotted location of the drilling well toward the centroid or mean of the wells that did not stick the drill string. A method of determining whether a stuck drill string can be freed is provided by calculating the centroids of two groups of stuck wells using the same procedure for multivariate analysis of a multiplicity of drilling parameters to identify whether or not a stuck well is in a group of wells which could not be unstuck.

IPC 1-7

**E21B 44/00**

IPC 8 full level

**E21B 31/03** (2006.01); **E21B 44/00** (2006.01)

CPC (source: EP US)

**E21B 31/035** (2020.05 - EP US); **E21B 44/00** (2013.01 - EP)

Citation (search report)

- [A] EP 0209343 A2 19870121 - CHEVRON RES [US]
- [AD] IADC/SPE 11383 DRILLING CONFERENCE, New Orleans, Louisiana, 20th-23rd February 1983, pages 225-229; T.E. LOVE: "Stickiness factor - a new way of looking at stuck pipe"

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Designated contracting state (EPC)

DE FR GB IT NL

DOCDB simple family (publication)

**EP 0354716 A1 19900214**; AU 3929089 A 19900208; AU 621138 B2 19920305; CN 1016204 B 19920408; CN 1040653 A 19900321; DK 378289 A 19900204; DK 378289 D0 19890802; ES 2026747 A6 19920501; NO 893113 D0 19890802; NO 893113 L 19900205

DOCDB simple family (application)

**EP 89307847 A 19890802**; AU 3929089 A 19890803; CN 89106158 A 19890803; DK 378289 A 19890802; ES 8902773 A 19890803; NO 893113 A 19890802