

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)**

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/B2017/000212

International filing date (day/month/year)
02.02.2017

Priority date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC
INV. E21B44/00 E21B47/12

Applicant
SCHLUMBERGER TECHNOLOGY CORPORATION

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of this opinion

see form PCT/ISA/210

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed.
 - a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>2-7, 9-13, 15-20</u>
	No: Claims	<u>1, 8, 14</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-20</u>
Industrial applicability (IA)	Yes: Claims	<u>1-20</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Reference is made to the following documents:

- D1 US 2013/000981 A1 (GRIMMER HARALD [DE] ET AL) 3 January 2013
(2013-01-03)
- D2 US 2015/053483 A1 (MEBANE III ROBERT EUGENE [US]) 26 February
2015 (2015-02-26)
- D3 US 2011/280104 A1 (MCCLUNG III GUY L [US]) 17 November 2011
(2011-11-17)
- D4 US 2016/194950 A1 (ZHENG SHUNFENG [US] ET AL) 7 July 2016
(2016-07-07)
- D5 US 2015/337652 A1 (RODNEY PAUL F [US]) 26 November 2015
(2015-11-26)

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial
applicability; citations and explanations supporting such statement**

- 1 Considering the clarity objections set out for claim 1 in section VIII-2 of this written opinion and as far as claim 1 can therefore be understood, D1 is seen as disclosing the following when disregarding the unclear terms/phrases for the purpose of this novelty analysis:

An apparatus comprising:

a processing system comprising a processor and a memory including computer program code (para. 17), wherein the processing system is operable to:

determine a change to an operation of a well construction system (fig. 2 box 200, 202) based on:

[an indication of a quality of transmitted]communication between downhole equipment of the well construction system in a wellbore and surface communication equipment of the well construction system transmitted during the operation (figure 1, elements 140, 120);

[a projected effect of the operation on future communication between the downhole equipment and the surface communication equipment;]
downhole data related to one or more conditions in the wellbore; or

a combination thereof (204); and
cause the change to the operation of the well construction system to be
implemented (206, 208).

The present application does therefore not meet the criteria of Article 33(1)
PCT, because the subject-matter of claim 1 is not new in the sense of Article
33(2) PCT.

- 2 The additional subject-matter of dependent claims 2-7 (as far as these can be
understood) appear to be trivial and would therefore be considered obvious
by the skilled man when considering D1 alone. Said claims do therefore not
involve an inventive step (Article 33(3) PCT).
- 3 What has been said above is similarly considered valid for the corresponding
apparatus claims 8-13. Said claims are therefore also not considered novel/
inventive.
- 4 What has been said above is similarly considered valid for the corresponding
method claims 14-20. Said claims are therefore also not considered novel/
inventive.

Re Item VII

Certain defects in the international application

- 1 The independent claims are not in the two-part form in accordance with Rule
6.3(b) PCT.
- 2 The features of the claims are not provided with reference signs placed in
parentheses (Rule 6.2(b) PCT).
- 3 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background
art disclosed in the documents D1-D5 is not mentioned in the description, nor
are these documents identified therein.

Re Item VIII

Certain observations on the international application

- 1 Although claims 1, 8 have been drafted as separate independent claims, they
appear to relate effectively to the same subject-matter and to differ from each
other only with regard to the definition of the subject-matter for which

protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.

- 2 The application does not meet the requirements of Article 6 PCT, because claim 1 is not clear. It appears that the applicant attempts to distinguish the claim over the prior art by using terms/phrases such as "indication of a Quality", "projected effect", "future communication", "system to be implemented". Such terms/phrases can not be understood in the technical context of an apparatus and do not serve to limit the scope of the claimed apparatus. The objection is also extended to dependent claims comprising the same or similar unclear terms/phrases.