

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference <b>P111521.WO.MEA</b>	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. <b>PCT/GB2010/051443</b>	International filing date ( <i>day/month/year</i> ) <b>02 September 2010 (02.09.2010)</b>	Priority date ( <i>day/month/year</i> ) <b>02 September 2009 (02.09.2009)</b>	
International Patent Classification (8th edition unless older edition indicated) <b>See relevant information in Form PCT/ISA/237</b>			
Applicant <b>GENESIS OIL &amp; GAS CONSULTANTS LIMITED</b>			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<input type="checkbox"/>	Box No. VIII	Certain observations on the international application																						

	Date of issuance of this report <b>06 March 2012 (06.03.2012)</b>
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# 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/GB2010/051443

International filing date (day/month/year)  
02.09.2010

Priority date (day/month/year)  
02.09.2009

International Patent Classification (IPC) or both national classification and IPC  
INV. G01M3/14 G01M3/18 G01M11/00 G01M5/00

Applicant  
GENESIS OIL & GAS CONSULTANTS LIMITED

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.

3. For further details, see notes to 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

Authorized Officer

Nelva-Pasqual, F

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**Box No. I Basis of the opinion**

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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 filed or furnished:
  - a. (means)
    - on paper
    - in electronic form
  - b. (time)
    - in the international application as filed
    - together with the international application in electronic form
    - subsequently to this Authority for the purposes of search
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 in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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**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**

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1. Statement

Novelty (N)	Yes: Claims	<u>1-18</u>
	No: Claims	<u>19</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-19</u>
Industrial applicability (IA)	Yes: Claims	<u>1-19</u>
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

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

1 REFERENCES

Reference is made to the following documents:

D1 US 5 905 194 (STRONG THOMAS P) 18 May 1999.

D2 US 2008/191706 (BURNETT GALE D ET AL) 14 August 2008.

D3 WO 2006/097112 (NKT FLEXIBLES ET AL) 21 September 2006

D4 DATABASE COMPENDEX [Online] ENGINEERING INFORMATION, INC., NEW YORK, NY, US; May 1995, OUT J M M ET AL: "Integrity of flexible pipe: search for an inspection strategy", Database accession no. EIX95452860946 ; & ENGINEERING STRUCTURES 1995 MAY BUTTERWORTH-HEINEMANN LTD, vol. 17, no. 4, May 1995, pages 305-314, DOI: DOI:10.1016/0141-0296(95)00028-6

D5 DR BOYUN GUO: "Offshore Pipelines", REFEREX, 2005, XP040426110,

2 CLARITY

2.1 The application does not meet the requirements of Article 6 PCT, because claims 1, 9 and 19 are not clear.

2.2 Claims 1 and 19 are not supported by the description as required by Article 6 PCT, as their scope is broader than justified by the description and drawings. The wording of claims 1 and 19 also covers the possibility to transmit an electromagnetic signal through separated wave guides (e.g. optical fibers) inserted in or along the polymer pressure sheath whereas it is clear from the description and the drawings that the electromagnetic signal is guided by the layers of the pipeline through the polymer pressure sheath, thereby rendering the claims unclear, Article 6 PCT. For the following of the communication, it is considered that the electromagnetic signal is guided by the layers of the pipeline.

2.3 The wording of claim 9 "frequency domain time domain reflectometry" is not clear. It is however understood as "frequency domain reflectometry".

### 3 INDEPENDENT CLAIM 1

3.1 The present application does not meet the criteria of Article 33 (1) PCT, because the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.

3.2 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):

A method of testing a pipeline comprising a polymer pressure sheath (see abstract and e.g. column 3, lines 9-19; figure 3), the method comprising at least the steps of:

(a) transmitting an electromagnetic signal along the polymer pressure sheath (see e.g. column 4, lines 17-23);

(b) seeking one or more reflected signals (see e.g. column 4, lines 17-23); and

(c) analysing the or each reflected signal to determine one or more characteristics of the electrical permittivity of the polymer pressure sheath (see e.g. column 3, lines 36-39, measurement of the impedance changes).

3.3 The subject-matter of claim 1 therefore differs from this known document D1 in that the pipeline of the invention is an unbonded flexible pipeline

3.4 The problem to be solved by the present invention may therefore be regarded as how to test an unbonded flexible pipeline.

3.5 The solution proposed in claim 1 of the present application cannot be considered to involve an inventive step (Article 33(3) PCT).

As the main layers of the pipeline of D1 (see D1, figure 2, two metallized concentric, coaxial and cylindrical layers (14) and (26) sandwiching a polymer (24)) are comparable with the layers of the application (see application figure 2, two metallized concentric, coaxial and cylindrical layers (24) and (26) sandwiching a polymer (22)), there is no doubt that the skilled person would be lead to test an unbonded flexible pipeline, which is a well known structure (see e.g D3, figure 1; D4, figure 1 and D5, figure 10.1, page 120), according to the same process than the one disclosed in D1. Other documents disclose very similar methods for testing pipelines, see e.g. D2, figure 1A and

paragraphs [18]- [22]). Consequently, the knowledge of the cited prior art documents reinforces the impression that claim 1 lacks of inventive step activity.

4 INDEPENDENT CLAIM 19

The same reasoning applies, *mutatis mutandis*, to the subject-matter of the corresponding independent claim 19, which therefore is also considered not inventive.

5 DEPENDENT CLAIMS 2-18

5.1 Dependent claims 2-18 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(2) and (3) PCT). See references applying to the documents D1-D5 cited in the search report.

5.2 Claim 2: well known application for unbonded flexible pipeline, see D3-D5.

5.3 Claim 3: see e.g. D1, figure 2, column 3, lines 1-32.

5.4 Claims 4 and 5: well known practice, see D3, page 10 and cited references in D3 page 10.

5.5 Claims 6 and 7: well known practice, see D1, column 1, lines 30-37; see D2, paragraphs [25], [26], [106] and [116].

5.6 Claims 8-10: see D1, column 4, lines 17-22; see also D2, with typical values of electromagnetic wave frequencies travelling through wave guides.

5.7 Claims 11 and 12: implicit features.

5.8 Claim 13: obvious possibility for TDR or FDR.

5.9 Claim 14: see D1 or D2.

5.10 Claim 15: well known possibility, see e.g. D5, page 219.

5.11 Claim 16: see D1, column 4, lines 23-36.

5.12 Claim 17: the feature of claim 17 is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, to interpret the reflected signal.

5.13 Claim 18: see D1 and D2, abstracts.