

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/EP2019/025419

International filing date (day/month/year)
26.11.2019

Priority date (day/month/year)
28.11.2018

International Patent Classification (IPC) or both national classification and IPC
INV. F16L55/46

Applicant
VETCO GRAY SCANDINAVIA AS

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>5, 6</u>
	No: Claims	<u>1-4</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-6</u>
Industrial applicability (IA)	Yes: Claims	<u>1-6</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43bis.1 and 70.10)

and / or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

see form 210

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

Re Item V

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

Reference is made to the following documents:

- D1 US 4 019 334 A (SINCLAIR ALBERT R ET AL) 26 April 1977 (1977-04-26)
- D2 GB 2 195 740 A (BRITISH PETROLEUM CO PLC; SEANOR ENG AS) 13 April 1988 (1988-04-13)
- D3 US 5 769 955 A (KOZISEK LOUIS C [US]) 23 June 1998 (1998-06-23)
- D4 WO 2018/217099 A1 (NAUTILUS SUBSEA AS [NO]) 29 November 2018 (2018-11-29)

1 Independent claim 1

The present application does 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.

1.1 D1 discloses (see figures 1-5):

A subsea fluid flow tubular connection system with an inboard hub (15) in fluid connection with piping of a subsea hydrocarbon exploration or production system and an outboard hub (23), the subsea fluid flow tubular connection system comprising a tubular saver sub (19) with an inboard hub connecting portion (21) in sealing contact with the inboard hub (15) at a first end and an outboard hub connecting portion (22) in sealing contact with the outboard hub (23) at a second end.

1.2 D2 discloses (see figures 1, 4):

A subsea fluid flow tubular connection system with an inboard hub (connected to line 16) in fluid connection with piping (16, 17) of a subsea hydrocarbon exploration or production system and an outboard hub (1), the subsea fluid flow tubular connection system comprising a tubular saver sub (6) with an inboard hub connecting portion (5) in sealing contact with the inboard hub at a first end and an outboard hub connecting portion (opposite end, see figure 4) in sealing contact with the outboard hub (1) at a second end.

1.3 D3 discloses (see figures 1-5):

A fluid flow tubular connection system suitable for subsea applications with an inboard hub (at 15, see figure 3) in fluid connection with piping (13) of a subsea hydrocarbon exploration or production system (see Item VIII) and an outboard hub (35), the subsea fluid flow tubular connection system comprising a tubular saver sub (37) with an inboard hub connecting portion (39) in sealing contact with the inboard hub at a first end and an outboard hub connecting portion (33) in sealing contact with the outboard hub (35) at a second end.

2 Independent claims 5, 6

The subject-matter of the independent claims 5, 6 is considered as not inventive in the sense of Article 33(3) PCT, with regard to D2:

D2 describes lowering and removal of the pig launcher module A every time a pig is launched ("The pig launcher is retrieved for reloading when the pig has been launched", page 2, lines 51-52). The pig launcher module remains connected to a running tool and a control umbilical deployed from a surface vessel (see page 2, lines 112-128).

D2 considers retrieval of the saver sub in case of malfunction: "The saver-sub module contains an isolation valve and is retrieved only in the event of damage of the connector to the launcher module, or in case of isolation valve failure." (page 2, lines 45-48).

The connection and disconnection of the saver sub of D2 to the hydrocarbon piping is carried out remotely, same as the connection and disconnection of the pig launcher to the saver sub: "The connectors between the pig launcher module and the saver sub module and between the latter and the production line are preferably of the collet type and may be operated by a mechanism comprising push rods activated by hydraulic jacks in a running tool."

It is fair to assume that malfunction of the saver sub is identified while the pig launcher is connected to it, and the most simple and obvious manner to retrieve the damaged saver sub would be just to release the connection to the hydrocarbon piping and to pull the pig launcher back to the surface vessel as foreseen, together with the saver sub.

Inversely, the most simple and obvious manner to install a functional saver sub would be just to lower it together with the pig launcher from the surface vessel, and to command the connection to the hydrocarbon piping.

The subject-matter of claims 5 and 6 is therefore not inventive in view of D2 (Article 33(3) PCT).

- 3 Dependent claims
- 3.1 The additional features of the dependent claim 2 are known from D3, see figures 5, 6: the outer diameter of the tubular piece is greater than a length of said piece extending between two suitably chosen "connecting portions".
- 3.2 The additional features of the dependent claims 3 and 4 are known from D1, see inboard hub clamp 51 an outboard hub clamp 50 in figure 2; see inboard guide 41 in guiding cooperation (through cylinders 42 and guide rods 37, 38) with outboard guide 40 in figure 3.
- 3.3 The subject-matter of the dependent claims is therefore not novel (Article 33(2) PCT).

Re Item VI

Certain documents cited

- 4 The document D4 is cited under Rule 70.10 PCT. This document has not been taken into consideration for the purposes of this Written Opinion (Rule 64.3 PCT). However, this document is to be considered as highly relevant in case that the present application enters the regional phase.

Re Item VII

Certain defects in the international application

- 5 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.
- 6 The figures of the present application do not comply with Rule 11.3(a) and (c) PCT.

Re Item VIII

Certain observations on the international application

- 7 Claim 1 defines "an inboard hub in fluid connection with piping of a subsea hydrocarbon exploration or production system". It is not clear (Article 6 PCT) whether said piping is part of the claimed connection system or not.

In case that said piping is intended to be part of the claimed subject-matter, it should be clearly claimed as such:

"A subsea fluid flow tubular connection system comprising:

- piping suitable to carry hydrocarbons etc.
- an inboard hub in fluid connection with said piping...."

In case that said piping is intended to be part of the claimed subject-matter, the claim is defining the inboard hub by its relationship to an element (the piping) that is not part of the claimed connection system, giving rise to a lack of clarity, see PCT Guidelines F-IV, 4.14. This deficiency can be remedied by defining "an inboard hub configured to be in fluid connection with piping of a subsea hydrocarbon exploration or production system", as explained in the Guidelines.