

OPINION UNDER SECTION 74A

Patent	GB 2499172 B
Proprietor(s)	Hydra Systems AS
Exclusive Licensee	
Requester	Murgitroyd
Observer(s)	Hydra Systems AS
Date Opinion issued	21 November 2023

The request

1. The Comptroller has received a request from Murgitroyd (the requester) to issue a validity opinion in respect of patent GB 2499172 B (the patent) in the name of Hydra Systems AS (the proprietor). The request questions the validity of the patent on the basis that certain of the claims are either not novel or lack an inventive step based on the evidence submitted therewith.
2. The patent is based on a PCT application published as WO 2012/096580 having a filing date of 9 January 2012. Priority was claimed from two earlier Norwegian patent applications, NO 21000641 having a filing date of 28 November 2011 and NO 20110049 having a filing date of 12 January 2011. Following prosecution in the national phase, the patent was granted on 25 December 2013. It remains in force.
3. Observations were received from the proprietor. These observations were largely restricted to whether allegations of prior use were in fact *public*. There were no substantive arguments raised regarding the validity of the patent based on the content of prior published documents referred to. There were however observations regarding the priority date of the invention which were relevant to certain of the prior art documents. The observations also included argument directed to reasons for refusing the request.
4. Observations in reply were received from the requester. The observations in reply included a request to withdraw those parts of the original request that were based on prior use, and I have accordingly not considered these parts of the request.
5. The remaining issues to be considered by the opinion are therefore as follows:

Invalidity Reason 1 – Prior disclosure in SPE Technical Paper 223-PA (April 1962).
Invalidity Reason 4 – Prior disclosure in SPE Paper 148640 (October 2011).

Invalidity Reason 5 – S.2(3) disclosure in WO 2012/105852 / EP 2670943.
(Invalidity Reasons 2 & 3 are withdrawn)

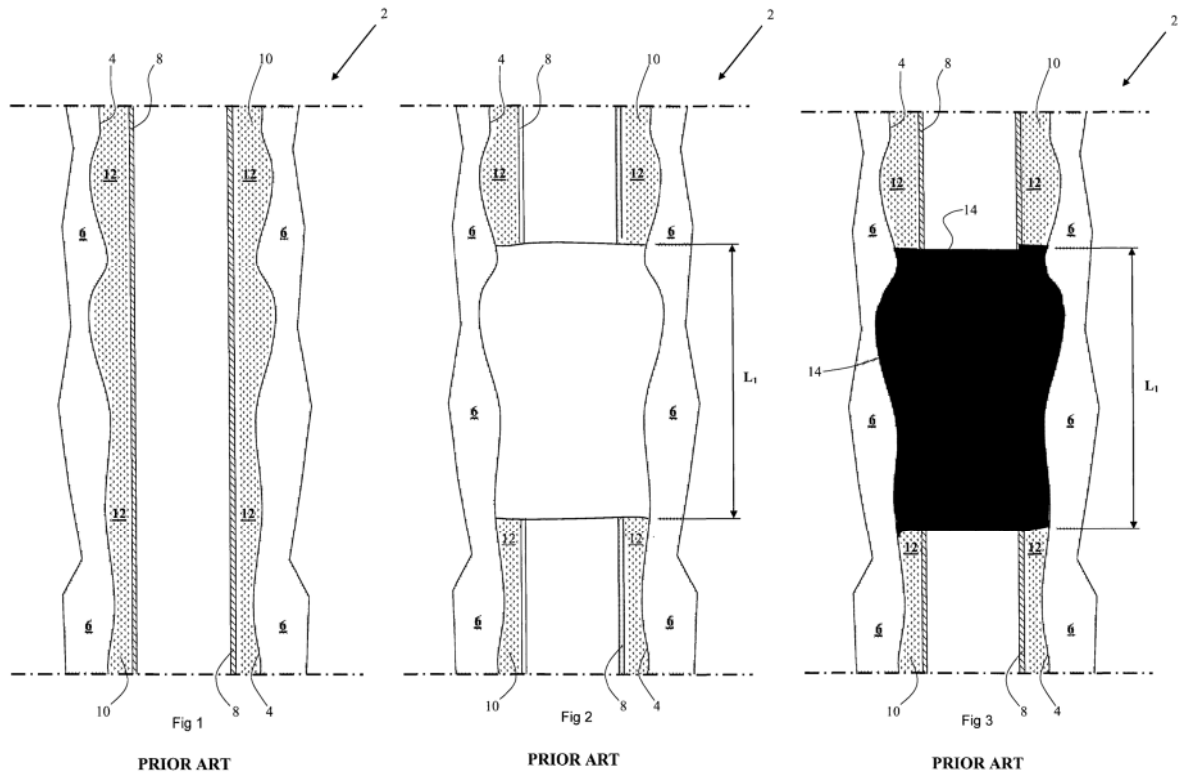
6. The observations in reply suggested that I should infer from the lack of any substantive argument regarding the content of the prior art, that the observer was conceding the argument. I draw no such inference. The issues raised by the requester will be properly considered on their merits regardless of the lack of counter-arguments. The proprietor is under no obligation to provide counter-arguments. They may have decided not to for commercial reasons, or they may regard the requester's arguments as self-evidently invalid such that no counter-argument is required.
7. The observations in reply also included argument relating to why the opinion should not be refused, and responses to the observations regarding the priority date.

Preliminary Matters

8. At the time of making the request, Declaration of Non-Infringement (DNI) proceedings before the Comptroller were well underway. Indeed, a two day hearing has recently taken place.
9. The proprietor suggests in their observations that the opinion should be refused as the issues should have been raised as part of the DNI proceedings. I see no reason to refuse the request for this reason. Although the validity of a patent may be put in issue in DNI proceedings (if for example the applicant seeks to establish non-infringement by virtue of the invalidity of the patent), there is no obligation to do so and it would have to be pleaded from the outset. Even if a patent is found invalid during the course of DNI proceedings, that invalidity does not lead to the patent being revoked. The only relief available under DNI proceedings is the declaration. There seems nothing inappropriate about requesting a validity opinion at this stage, with a view to getting the patent revoked either by use of the powers available to the Comptroller following an opinion which concludes a patent is invalid, or by commencing a separate revocation action.
10. A validity opinion (29/14) has previously been issued on the patent. That opinion found the opinion valid. This new opinion is based on significantly different prior art material and there is no basis to refuse this request for it being inappropriate in the light of that opinion, nor on any of the documents considered pre-grant.

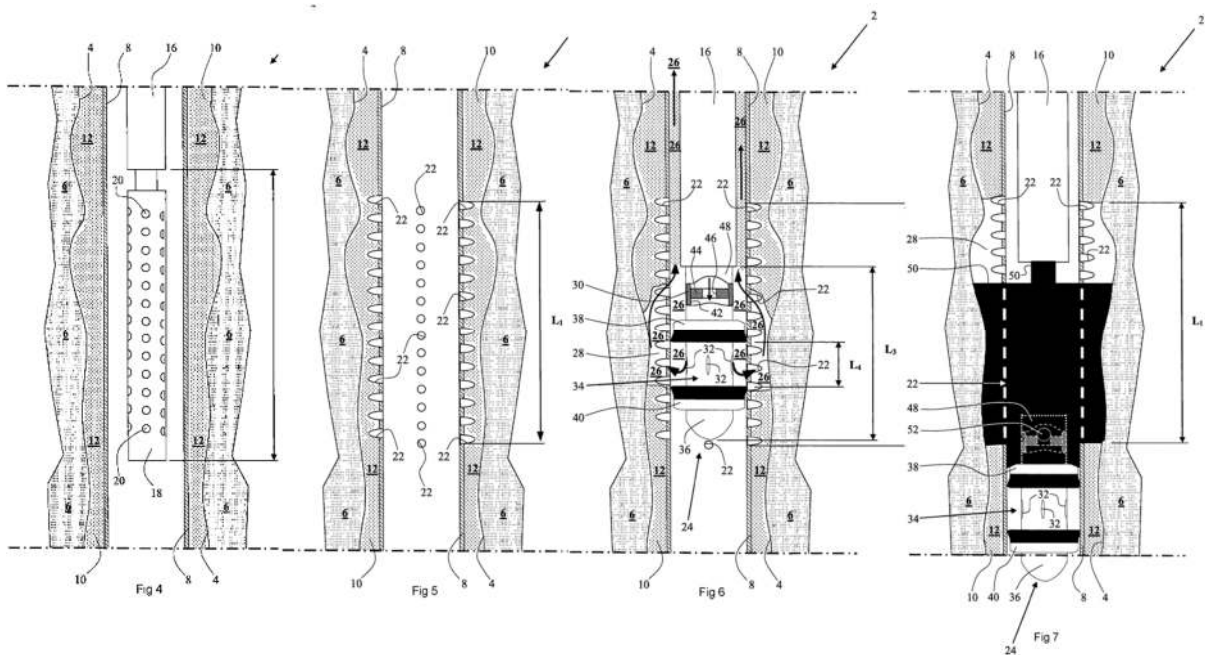
The patent

11. The patent relates to a method for plugging an oil well.
12. Figures 1 to 3 of the patent illustrate a prior method for plugging an oil well.



13. Figure 1 illustrates a well bore prior to plugging. It comprises a casing (8) which is fixed in the borehole (4) and surrounded by the subterranean formation geology (6). The casing is typically fixed in place by cement (12). Prior art plugging techniques then requires that the casing is milled away using an appropriate tool to create a void (figure 2). Cement is then injected into the void so that it fills the whole diameter of the borehole. The cement plug will then be tested to ensure the borehole is sufficiently plugged.

14. Figures 4 to 7 illustrate the steps and apparatus involved in the method of the invention.



15. The main differences between the invention and the prior art consist in the use of a perforation tool (18; fig. 4) to perforate the casing rather than milling of the casing, and the subsequent use of a special washing tool (24; fig. 6).
16. In the first step the perforation tool is lowered into the casing to the appropriate depth (fig. 4) and then operated to perforate the casing (fig. 5). Such perforation tools and their operation are well known in the art. The perforation tool creates an array of perforations (22) in the wall of the casing covering the whole circumference of the casing.
17. A washing tool (24; fig. 6) is then lowered into position and appropriate washing fluid is pumped to it. The washing fluid exits the tool through apertures (32) provided in a discharge portion (34) of the tool. The tool is further provided with upper and lower packer elements (swab cups) (38, 40) at the top and bottom of the discharge portion of the tool which seal against the wall of the casing. In operation of the tool the washing fluid is directed out of the apertures and through the perforations in a radial direction into the well bore annulus. In doing so it cleans the annulus of residues of cement, well fluids, drill cuttings, etc. The wash fluid and entrained detritus re-enter the casing through perforations above the upper packer element where they flow to the surface (as illustrated by arrows in figure 6).
18. Finally (figure 7), a cement slurry (50) is pumped into the perforated zone, the slurry flowing through the perforations to fill the annulus with the cement extending completely across the casing and bore hole. The cement is allowed to cure to form a plug which is then mechanically and hydraulically tested.

Claim construction

19. As a first step in determining the validity of the patent I must correctly construe the claims. This means interpreting them in the light of the description and drawings as instructed by Section 125(1). In doing so I must interpret the claims in context through the eyes of the person skilled in the art. Ultimately the question is what the person skilled in the art would have understood the patentee to be using the language of the claims to mean. This approach has been confirmed in the decisions of the High Court in *Mylan v Yeda*¹ and the Court of Appeal in *Actavis v ICOS*².

Claim 1.

A method for combined cleaning of an annulus (10) in a well (2) across a longitudinal section (L₁) of the well (2), and subsequent plugging of the longitudinal section (L₁), said annulus (10) being located outside a casing (8) in the well (2), wherein the method, for such combined cleaning and plugging, comprises the following steps:

(A) conducting a perforation tool (18;18') in the casing (8) to said longitudinal section (L₁) of the well (2);

¹ *Generics UK Ltd (t/a Mylan) v Yeda Research and Dev. Co. Ltd & Anor* [2017] EWHC 2629 (Pat)

² *Actavis Group & Ors v ICOS Corp & Eli Lilly & Co.* [2017] EWCA Civ 1671

- (B) by means of the perforation tool (18; 18') forming holes (22) in the casing (8) along the longitudinal section (L₁) characterized in that the method also comprises the following combinations of steps:
- (C) by means of a washing tool (24; 24') attached to a lower portion of a flow-through tubular work string (16) and conducted into the casing (8) to the longitudinal section (L₁) pumping a washing fluid (26) down through the tubular work string (16) and out into the casing (8) via the washing tool (24; 24')
- (D) by means of a directional means associated with the washing tool (24; 24'), conducting the washing fluid (26) radially outward into the annulus (10) via at least one hole (22) formed at a first location within the longitudinal section (L₁), after which the washing fluid will flow via the annulus and onward into the casing (8) via at least one hole (22) formed in at least one second location within the longitudinal section (L₁);
- (E) pumping a fluidized plugging material (50) down through the tubular work string (16) and out into the casing (8) at the longitudinal section (L₁); and
- (F) placing the fluidised plugging material (50) in the casing, hence also in the annulus (10) via said holes (22) in the casing (8), along at least said longitudinal section (L₁) of the well (2), whereby both the casing (8) and the said annulus (10) is plugged along at least said longitudinal section (L₁) of the well (2).

- 20. I consider that the skilled person would be a drilling engineer with a specialisation in maintenance and abandonment of wells.
- 21. Most of the claim appears straightforward to construe. However, the nature of the *directional means* (step D) needs to be further considered.
- 22. The description at page 15, line 25 identifies the directional means as follows:

Further, the washing tool 24 comprises a directional means which, in this embodiment, comprises a first cup-shaped packer element 38 and a second cup-shaped packer element 40, so-called swab cups, each of which extends radially outward from the mandrel 30 at a respective axial side of the discharge area 34. By so doing, the washing tool 24, when in an operational position, is structured in a manner allowing it to direct the washing fluid 26, which flows outward through the openings 32 in the tubular wall of the mandrel 30, in a radial direction between the flow-directing packer elements 38, 40.

- 23. I therefore consider that the skilled person will interpret *directional means* as being sealing means of some form situated both above and below the discharge of the wash fluid that cause the wash fluid to flow out of the perforations and into the wellbore annulus. The wash fluid subsequently flows back into the casing through different perforations.

Invalidity Reason 1

24. Invalidity reason 1 argues a lack of novelty of claim 1 based on a paper identified in the request as SPE Technical Paper 223-PA (SPE 223)³.
25. The paper describes a workover/repair method for existing oil/gas wells which extends their lifespan by enabling continued production of oil as the oil level in the reservoir drops and is replaced by gas.
26. In a conventional oil/gas well, the bottom region of the casing may be perforated to allow oil and gas to flow into it for production. In certain oil/gas wells, depending on the geological conditions, oil and gas are recovered together. In such wells, the oil level may drop as oil is recovered, and the gas flowing into the upper perforations increases. This leads to a reduction in oil recovery. The workover technique of SPE 223 is directed at solving this problem, essentially by blocking off the upper perforations to prevent or reduce gas entering the casing. In particular, the technique involves dividing the perforated region into a number of different zones so that production can be limited to one of those zones, e.g. the lowest zone for oil production. This is achieved by creating cement plugs in the wellbore annulus at several points along the perforated region. Figure 4 of the paper illustrates a well repaired in this way.

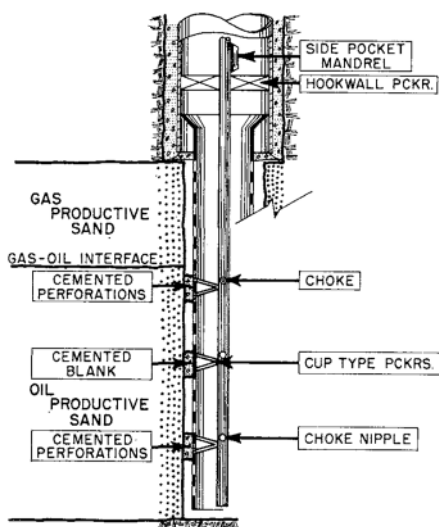


Fig. 4—Typical repaired well.

27. As well as being used for creating cement plugs at pre-perforated points, the technique may also be used to create plugs at non-perforated or blank sections. In this case the liner is perforated as a first step in forming the plug:

“Blank sections in the liner are 40 ft long. Since experience has shown that a

³ “Scab Cementing – An Economical Workover Technique for Effective Production Control”; Steiner, C. A., Petrulas, T.G. Palmer, W. V. & Flint Jr, W. B. Journal of Petroleum Technology 14(04) pp. 349-354. 1 April 1962.

cemented section need not be 40 ft long, the blanks are perforated at the tops and/or bottoms with four holes per foot to leave 20 or 30 ft blank sections at the desired depths.” (Page 352, column 2, lines 3-7).

28. The initial phase of the workover (following perforation of a blank section if that is necessary) involves preparing the casing and annulus. The perforations are first scraped to remove burrs, scale or foreign matter which might otherwise damage rubber swab cups. The perforations are then washed with mud followed by washing with water.
29. After washing, cement is pumped to the perforated interval and allowed to cure to form the plug.
30. The tool used for the washing and cementing operations is illustrated in figure 5 of SPE 223.

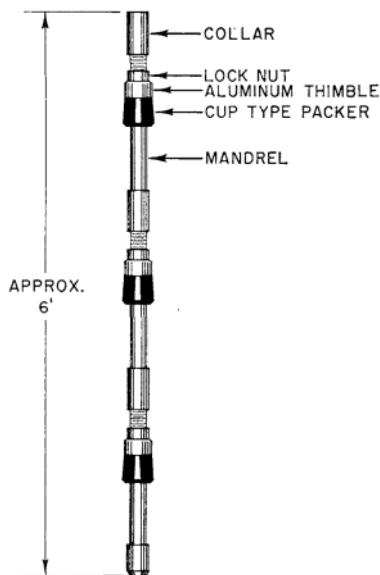


Fig. 5—Scab-cementing tool.

31. The water washing and cement pumping operations are described in SPE223 as follows (page 352, column 1, line 10):

“When the 200 cu ft volume of water ahead of the cement slurry starts out of the tool, the perforations are washed with water by pulling the tool up through the interval to be scabbed while pumping water through the perforations. Pumping is stopped at the top of the interval to allow the tool to be lowered for another wash pass. This may be repeated as many times as desired, time permitting, until the cement is almost ready to start out the tool. The tool is then hung at the bottom of the interval and 5 cu ft of cement are pumped out.

“Experience in the field has demonstrated that only a negligible amount of cement slurry drops through the mud column below. The tool is pulled up slowly through the perforations while pumping at a surface pressure ranging from 1,500 to 2,000 psig. In effect, this “squirts” the cement against the formation below the bottom cup, and then back into the liner through the

perforations directly above the top cup....”

32. Although the second paragraph above only refers to the cement being *squirted*, it is clear that the same applies to the mud and water used for washing.
33. The cementing operation forms a plug right across the annulus and liner/casing. However, such a complete plug is not required for the workover of SPE223, so the cured cement is drilled out of the liner/casing (page 352, column 2: “Phase III – Drill-out, Testing and Re-cementing”). As will be seen from figure 4 of SPE223, packer cups are used on the outside of the production string to block the inside of the liner/casing and create the desired zones.
34. The requester has included the following claim correspondence table in the request to make the case that the claim is invalid:

Features of Claim 1 – GB’172B

Reference of features disclosed in Full Prior Art – SPE 223 published April 1962

- | | |
|--|---|
| i) <i>A method for combined cleaning of an annulus (10) in a well (2) across a longitudinal section (L1) of the well (2),</i> | Combined cleaning of an annulus is disclosed see page 351 (Right Hand Column):-

<i>“the perforations to be “scabbed” are washed with mud using the inverted-swab-cup scab-cementing tool”</i> |
| ii) <i>and subsequent plugging of the longitudinal section (L1), said annulus (10) being located outside a casing (8) in the well (2), wherein the method, for such combined cleaning and plugging, comprises the following steps:</i> | and subsequent plugging (following the cleaning therefore it is “combined”) of a liner (i.e. a casing) is disclosed – see page 352 – 3rd para:-

<i>“In effect, this “squirts” the cement against the formation below the bottom cup, and then back into the liner through the perforations directly above the top cup”</i>

In doing so, the cement clearly fills the through bore of the liner (i.e. the casing) and also passes up the annulus and comes back into the liner at a higher location. |
| iii) <i>(A) conducting a perforation tool (18; 18’) into the casing (8) to said longitudinal section (L1) of the well (2);</i> | A 10 or 20 foot blank section of the liner is perforated (implicitly by a perforation tool having been run in) – see page 352, right hand column, 2nd para:-

<i>“the blanks are perforated at the tops and/or bottoms with four holes per foot to leave 20 or 30 ft blank sections at the desired depths”</i> |
| iv) <i>(B) by means of the perforation tool (18; 18’), forming holes (22) in the casing (8) along the longitudinal section (L1), characterized in that the method also comprises the following</i> | See above at iii) – the implicitly disclosed perforation tool is operated to perforate a 10 or 20 ft longitudinal section of the liner (i.e. casing) in the well. |

combination of steps:

- v) (C) by means of a washing tool (24; 24') attached to a lower portion of a flow-through tubular work string (16) and conducted into the casing (8) to the longitudinal section (L1), pumping a washing fluid (26) down through the tubular work string (16) and out into the casing (8) via the washing tool (24; 24');

See page 351, right hand column, the heading:-

"Phase 1 – Preparing the Liner and hole Before Cementing Liner Perforations"

The text then describes in second column on page 351 under the above heading:-

"the perforations to be "scabbed" are washed with mud using the inverted-swab-cup scab-cementing tool", where the cementing tool is shown in Fig. 5 in column 2 of page 351.

The cementing tool of Fig. 5 is attached to the lower end of the work string it is run in on and the washing fluid is pumped from the surface down the drill pipe (work string) and through the bore of the cementing tool of Fig. 5 and the washing fluid exits into the liner/casing through the bottom of the tool shown in Figure 5.

See Page 351, right hand column *"approximately 200 cu ft of water are pumped down the drill tubing."*

The lower most packer stops the fluid from flowing anywhere but down (albeit it is prevented from flowing any lower than a shoe or base rock at the bottom of the well) or out through the perforation holes.

- vi) (D) by means of a directional means associated with the washing tool (24; 24'), conducting the washing fluid (26) radially outward into the annulus (10) via at least one hole (22) formed at a first location within the longitudinal section (L1), after which the washing fluid (26) will flow via the annulus (10) and onward into the casing (8) via at least one hole (22) formed in at least one second location within the longitudinal section (L1);

The washing cups will, similarly to the path that will be taken by the cement, also inherently cause the washing fluid to take the same path (because the perforations will cause that to occur) i.e. the washing fluid will exit the lower end of the Scab-cementing tool of Fig. 5 and the lower cup will direct the washing fluid against the formation below the bottom cup (through the perforations at that location such that it can then only travel upwards – because there is a shoe or the like in the liner below that point and/or base rock at the bottom of the well) and then back into the liner through the perforations directly above the top cup.

Moreover, the washing fluid exiting the bottom of the tool of Fig. 5, will exit through e.g. the lowermost perforations in e.g. a 10 ft section of perforations and will re-enter the liner through the uppermost perforations in that perforated 10ft perforated longitudinal section – because Fig. 5 shows that the tool is "only" 6 feet in length. In other words, the washing fluid flows out through the

bottom of the tool, out the perforations and back in (because the perforations are 10-20 feet in length whereas the tool is only 6ft in length). Note – the washing fluid will likely flow all the way up the outside of the casing to the next perforated section.

vii) (E) pumping a fluidized plugging material (50) down through the tubular work string (16) and out into the casing (8) at the longitudinal section (L1) ; and

See page 352 – third para:-

“In effect, this “squirts” the cement against the formation below the bottom cup, and then back into the liner through the perforations directly above the top cup”

In doing so, the cement clearly fills the through bore of the liner (i.e. the casing) and also passes out into the annulus (i.e. against the formation) through the perforations.

viii) (F) placing the fluidized plugging material (50) in the casing (8), hence also in the annulus (10) via said holes (22) in the casing (8), along at least said longitudinal section (L1) of the well (2), whereby both the casing (8) and said annulus (10) is plugged along at least said longitudinal section (L1) of the well (2).

See page 352 – third para:-

“In effect, this “squirts” the cement against the formation below the bottom cup, and then back into the liner through the perforations directly above the top cup”

In doing so, the cement clearly fills the through bore of the liner (i.e. the casing) and also passes out into the annulus (i.e. against the formation) through the perforations.

In conclusion, the disclosure of SPE 223 teaches keeping pressure on the cement which results in cement placement in both the throughbore of the casing and the annulus – see Page 352, right hand column – *“the cementing is done with the tool at this point. When all cement is almost out of the drill tubing, the tool is pulled out of the blank while maintaining pressure by pumping cement.”*

35. Although I agree with most of the requester’s assessment, it is not clear that SPE223 discloses *directional means associated with the washing tool* as required by step D (feature (vi) above) of claim 1.
36. In relation to feature (vi), in construing the claim I have already considered that the skilled person would interpret *directional means* as requiring seals both above and below the fluid discharge point in order to create the required flow.
37. The requester refers to there being a shoe or the like, or base rock below the scab cementing tool which will prevent the washing fluid travelling downwards. I consider it at least equally likely that a kill-weight mud will have been injected into the well, in order to temporarily shut off the well whilst the workover is undertaken. For example, SPE223 refers to *killing the well with mud* (page 351, column 2, line 12) and to the *mud column below [the cement]* (page 352, column 1, line 21). Such a technique would be well-known to the skilled person. It is this mud which will form the barrier

below the scab-cementing tool. Regardless of how this lower barrier is formed, it is this lower barrier which causes the wash fluid to flow out of the perforations in the casing.

38. However, step (D) requires (my emphasis) “*directional means associated with the washing tool*”. Whatever the form of the lower barrier I do not consider that it is *associated with the washing tool*. The skilled person would consider that to mean that the *directional means* was part of or connected to the tool, or part of the same work string. The scab cementing tool of SPE 223 only has seals above the fluid discharge opening and relies on a separate lower barrier, which may be natural rock at the base of the well bore, to cause the fluid to flow out of the perforations. In contrast the washing tool of the patent has seals directly above and below apertures in the tool.
39. I therefore consider that SPE 223 fails to disclose “*directional means associated with the washing tool*” as required by part (D) of claim 1 in the manner I have construed it.
40. I also make the following further observation in relation to the claim correspondence table provided by the requester.
41. In relation to features (i) and (ii), the claim specifies *a method for combined cleaning of an annulus ... and subsequent plugging of the longitudinal section*. Although the casing is only plugged relatively temporarily, I nevertheless consider that the skilled person would not interpret the claim to require permanent plugging. The claim requires a combination of cleaning and subsequent plugging of *a longitudinal section* which is not considered to be limited to a permanent closure. The plugging of SPE223 requires a cured cement plug which, although it must be subsequently drilled out, is nevertheless considered to satisfy the plugging requirement of claim 1.
42. Similarly, the plugging of the casing along the longitudinal section of feature (viii) is also considered to be met by SPE223 despite that plugging only being relatively temporary.
43. In view of the missing feature of step (D) of claim 1, SPE223, as understood by the skilled person, does not fall within the scope of claim 1 of the patent. Claim 1 is therefore considered to be novel based on SPE223.
44. No argument has been presented regarding the inventiveness of claim 1 based on SPE223. In the absence of such argument claim 1 is regarded as inventive.

Invalidity reasons 4 & 5 – Priority date

45. Invalidity reasons 4 and 5 are both based on disclosures made after the earliest claimed priority date and rely on an argument that the patent is not entitled to that earliest priority date.
46. The ability to claim priority in the UK is governed by Section 5 of the Act which (by virtue of Section 130(7)) is to be construed in conformity with Article 87 of the EPC.
47. Article 87(1) EPC specifies:

Art. 87(1) Any person who has duly filed, in or for (a) any State party to the

Paris Convention for the Protection of Industrial Property or (b) any Member of the World Trade Organization, an application for a patent, a utility model or a utility certificate, or his successor in title, shall enjoy, for the purpose of filing a European patent application in respect of the same invention, a right of priority during a period of twelve months from the date of filing of the first application.

48. The provisions of both Section 5 of the Act and Article 87 EPC are based on the terms of the Paris Convention. In particular Article 4A(1) Paris Convention (Stockholm Revision) specifies:

Art 4(A)(1) Any person who has duly filed an application for a patent, or for the registration of a utility model, or of an industrial design, or of a trademark, in one of the countries of the Union, or his successor in title, shall enjoy, for the purpose of filing in the other countries, a right of priority during the periods hereinafter fixed.

49. All three statutes require that a claim for priority is only valid when the application in suit is made by the same person or their successor in title as the earlier application.
50. The requester argues that the applicant was not entitled to claim priority from the earliest claimed priority application as they were not the successor in title.
51. The earliest claim to priority is from Norwegian patent application 20110049 which has a filing date of 12 January 2011. In accordance with the relevant provisions, a certified copy of that application was provided when the current patent was applied for. That shows the applicant as being Morten Myhre. It also lists the inventors and shows Morten Myhre as one of five inventors.
52. The current patent was applied for in the name of Hydra Systems AS and they are still listed as proprietor on the register.
53. There is also a second Norwegian patent application (NO 20111641) from which priority is claimed and this has a filing date of 28 November 2011. That application was made in the name of HydraWell Intervention AS (HydraWell). I understand there is no dispute that Hydra Systems is the bona fide successor in title to Hydrawell and the claim to this date is valid.
54. The question that needs to be determined is whether Hydra Systems is the successor in title to Morten Myhre. In determining this question I consider that it can also be answered in the affirmative if it can be shown that Hydrawell was the successor in title to Morten Myhre and there is a chain of title from Morten Myhre to Hydra Systems through Hydrawell.
55. The requester's main argument appears to be that there is no evidence of an assignment. The requester claims that there is only evidence of a declaration that an assignment was made, but no corresponding assignment, and that evidence of the assignment itself is needed. Furthermore, the claimed declaration is made from Morten Myhre to *Hydrawell Intervention* and not to *Hydrawell Intervention AS*. I consider that the missing AS is of no consequence and Hydrawell Intervention is

intended to be a reference to *Hydrawell Intervention AS* (in the same way I have dropped the AS when referring to Hydrawell Intervention and Hydra Systems in the preceding paragraphs).

56. In any event, the lack of conclusive publicly available evidence of the assignment is not sufficient to persuade me that the application was not correctly assigned and the priority claim is invalid on this basis. This seems to be something of a fishing exercise by the requester with a request that the proprietor be required to provide a written copy of the appropriate assignment to prove the entitlement. I do not agree that this is necessary or appropriate in the context of an Opinion. Such a request is more appropriately handled as part of discovery during proceedings before the comptroller or court proceedings. It also seems that Norwegian law would need to be considered in determining the successor in title, and for this reason also it is more appropriately dealt with in proceedings.
57. The requester further argues that the patent is not entitled to its earliest priority date because the invention is not *supported by matter disclosed in the earlier application* as required by Section 5(2)(a) of the Act and the equivalent provisions of Art. 87(1) EPC.
58. The case law relating to what is required for an invention to be supported by matter disclosed in an earlier application was summarised by Floyd J in *Samsung v Apple*⁴ as follows:

Entitlement to priority

The law

104. In *Medimmune Limited v Novartis Pharmaceuticals Limited* the Court of Appeal summarised the law on entitlement to priority in this way:

“151. [Section 5\(2\)\(a\) of the Patents Act 1977](#) provides that an invention is entitled to priority if it is supported by matter disclosed in the priority document. By [section 130\(7\)](#) of the Act, [section 5](#) is to be interpreted as having the same effect as the corresponding provisions of [Article 87\(1\) of the European Patent Convention](#). Article 87(1) says that priority may be derived from an earlier application in respect of the “same invention”.

152. The requirement that the earlier application must be in respect of the same invention was explained by the Enlarged Board of Appeal of the EPO in *G02/98 Same Invention*, [2001] OJ EPO 413; [2002] EPOR 167 :

“The requirement for claiming priority of ‘the same invention’, referred to in [Article 87\(1\) EPC](#), means that priority of a previous application in respect of a claim in a European patent

⁴ *Samsung Electronics Co. Limited v Apple Retail UK Limited et al* [2013] EWHC 467 (Pat)

application in accordance with [Article 88 EPC](#) is to be acknowledged only if the skilled person can derive the subject-matter of the claim directly and unambiguously, using common general knowledge, from the previous application as a whole.”

153. *The approach to be adopted was elaborated by this court in [Unilin Beheer v Berry Floor \[2004\] EWCA \(Civ\) 1021; \[2005\] FSR 6](#) at [48]:*

“48. ...The approach is not formulaic: priority is a question about technical disclosure, explicit or implicit. Is there enough in the priority document to give the skilled man essentially the same information as forms the subject of the claim and enables him to work the invention in accordance with that claim.

154. *In [Abbott Laboratories Ltd v Evysio Medical Devices plc \[2008\] EWHC 800 \(Pat\)](#), I added this:*

“228. So the important thing is not the consistory clause or the claims of the priority document but whether the disclosure as a whole is enabling and effectively gives the skilled person what is in the claim whose priority is in question. I would add that it must “give” it directly and unambiguously. It is not sufficient that it may be an obvious development of what is disclosed.”

105. ...

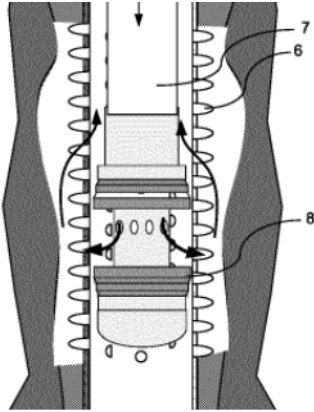
106. *If I may summarise, the task for the court is therefore:*

- (a) to read and understand, through the eyes of the skilled person, the disclosure of the priority document as a whole;*
- (b) to determine the subject matter of the relevant claim;*
- (c) to decide whether, as a matter of substance not of form, the subject matter of the claim can be derived directly and unambiguously from the disclosure of the priority document.*

59. Firstly, the requester contends that the reference to “directional means” in claim 1 is not supported by the earliest priority application NO 20110049. They point out that this phrase is not used in the priority application nor is there any equivalent. Furthermore, the function of the swab cups in the priority application is not described. Although they are illustrated in the figures, there is no mention of them in the description. (Note that although NO 20110049 is in Norwegian, an English translation of it was submitted by the proprietor in connection with a European phase application (EP 2569506), and it is that translation which is used as the basis of the disclosure).

60. As pointed out by the requester, NO 20110049 describes operation of the washing tool in the following manner with reference to figure 6 (reproduced below):

“The washing tool (8) shows the manner in which the circulation of drilling mud/soaps is forced out a limited number of perforation channels whilst moving the washing tool (8) in the longitudinal axis of the well. The purpose of this operation/movement is to wash away mud residues – filter cake – which is located on the rock (2-3). This operation is repeated until desired circulation rate and pressure is achieved”.



61. Despite not being explicitly set out, it nevertheless seems clear from figure 6 how the washing fluid flows through the perforations. I have no doubt that the skilled person would understand that the phrase *“shows the manner in which the circulation of drilling mud/soaps is forced out a limited number of perforation channels”* in the passage quoted above refers to the arrows of figure 6. Accordingly, they would interpret the arrows as showing the *direction* of movement of the washing fluid. Similarly, the skilled person would understand that figure 6 illustrates swab cups or similar sealing means. Although figure 6 shows a small gap between these cups/seals and the casing, the figure would nevertheless be interpreted as showing a seal, the gaps being a necessary illustrative device to indicate that they are separate from the casing. The skilled person would also understand that apertures are illustrated towards the lower end of the wash tool which allow the washing fluid to flow out into the casing. I therefore consider that they would interpret the drawing as showing washing fluid being directed out of the perforations by virtue of the holes formed in the wash tool and the presence of the sealing means.
62. The relevant part of the claim requires *“by means of a directional means associated with the washing tool (24; 24’), conducting the washing fluid (26) radially outward into the annulus via at least one [first perforation] (22), after which the washing fluid will flow via the annulus and onward into the casing (8) via at least one [second perforation] (22).”*
63. The claim is considered to accord with figure 6 as I have interpreted it. Although *“directional means”* is not used in the priority document, the direction of fluid flow and the means of achieving it are illustrated. I consider that the relevant subject matter of claim 1 can be derived directly and unambiguously from figure 6 of NO 20110049 when read in conjunction with the description relating to that figure.
64. I note also the words of Lloyd J in *Apple v Samsung* referred to above. At paragraph 130 he says (my underlining):

130. Samsung contend that all this is mere semantics. The disclosure in the priority document of the use of BER and latency is a disclosure of the use of

a quality of service parameter. So the claim is just giving a name to something actually disclosed. It is of course the case that the claims of a patent may, in many cases, be generalised from the specific disclosure in a priority document without loss of priority. A “nail” in the priority document may provide support for “fixing means” in the claim of the patent without loss of priority. That will be so where the skilled person could derive such a generalisation directly and unambiguously from the disclosure. But the choice of “QoS parameter” to represent “data rate” or “frame length” uncoupled from service type is not an example of such a generalisation. No generalisation of those specific terms could arrive at the notion of making the determination based on matters independent of the data stream being transmitted.

65. Thus, to the extent that *directional means* may be a generalisation of the particular type of seal illustrated in figure 6 of the priority document, I consider that such generalisation is supported by the priority document. The skilled person would understand, based on the teaching of the priority document, that the important feature is the direction of flow of the fluid which is created by seals above and below the apertures in the wash tool, and this is how I have construed the *directional means* of claim 1. The skilled person would realise that the precise nature of the seals is unimportant. Such a generalisation of the illustrated *swab cups/sealing means* is considered to be directly and unambiguously derivable from the priority document.
66. The priority document therefore provides adequate support for the use of the term “*directional means*” in claim 1.
67. The requester also argues that there is no support in the earliest priority application for the step in part (C) of claim 1, “*pumping a washing fluid (26) down through the tubular work string (16)*”. In particular, they argue that there is no enabling disclosure of how this is achieved.
68. Page 1, line 22 of NO 20110049 states:
- A washing tool will be placed over the perforations (holes) in the casing. Upon pumping drilling mud and/or wash pills (soap etc.), the liquids will be guided through established hole in the casing (the perforations)*
69. Although there is no explicit information regarding how the washing fluid is conveyed to the tool, I consider that it would be implicit to pump it down the work string. That would be the conventional way of operating the well as would be well known to the skilled person. Typically fluids are either pumped down the work string and recovered through the annulus between the string and the casing, or that mode of operation is reversed with fluids pumped down the annulus and recovered through the string. However, it is clear from the illustrated flow regime in figure 6 that only the former method of operation applies in this instance.
70. The requester has suggested that the washing fluid could be delivered by a pump in the washing tool itself. However, I do not agree that figure 6 permits such an interpretation, especially in view of the skilled person’s common general knowledge. Without a clear indication of a pump in the vicinity of the washing tool, the skilled

person would understand that the mud is being delivered in a conventional manner, i.e. it is pumped from mud pits/tanks at the surface by means of a pump also located at the surface.

71. I consider that the pumping of a washing fluid down the tubular work string is implicit in the priority document. The skilled person would have no difficulty implementing such an operation and there is no lack of enabling disclosure. Operation in this manner is derivable directly and unambiguously from the disclosure of the priority document. As such this aspect of the invention is also entitled to the earliest claimed priority date.
72. The requester has also suggested that the step of “*conducting the washing fluid radially outward into the annulus via at least one hole (22) formed at a first location*” in part (D) of claim 1 also lacks support in the earliest priority application.
73. I have already set out that I consider the skilled person will interpret the arrows of figure 6 of the earliest priority document as showing fluid being directed out of the perforations. This part of the claim is entirely supported by that interpretation.
74. Similarly, the requester has argued that “*pumping a fluidised plugging material (50) down through the tubular work string*” is not supported by the earliest priority document on the basis that there is no disclosure of pumping the plugging material *down the tubular work string* in NO 20110049.
75. Their argument appears to be based in part on the basis that figure 7 of NO 20110049 includes an arrow which they say shows fluid moving upward in the tubular work string. That would suggest that cement is being pumped down the casing and displaced fluid returning through the work string.
76. I disagree with that interpretation of figure 7. The arrow in the figure is intended to show upward movement of the string. The text accompanying figure 7 specifies that:

The permanent plug material (11) is circulated down to correct depth and is forced through the perforation openings (6) whilst the drill string is lifted upward in the longitudinal axis of the well.
77. The single headed arrow of figure 7 may be compared with double headed arrow of figure 6 which shows “*moving the washing tool up and down in the longitudinal axis of the well*”.
78. NO 20110049 also states (my emphasis):

“a normal circulation operation will be carried out, whereby the permanent plug material is placed at the outside and the inside of the casing over the interval that is perforated.”
79. I consider the skilled person would interpret *normal circulation operation* as pumping of material down through the tubular work string. The alternative would be known to the skilled person, as part of their common general knowledge, as *reverse circulation*. The requester has provided evidence of the use of the term *reverse circulation* in the situation where cement is pumped down the casing.

80. The feature of “*pumping a fluidised plugging material (50) down through the tubular work string*” is therefore fully supported by the earliest priority document.
81. I am not persuaded by any of the requester’s arguments that the invention of claim 1 of the patent is not supported by the disclosures of the earliest priority document.
82. I therefore consider that claim 1 is entitled to its earliest priority date. As a consequence, the prior art documents referred to by the requester in Invalidation Reasons 4 and 5 are not relevant to the validity of the patent as the relevant dates of those documents are after the earliest priority date. I will not therefore consider these documents.
83. I do not consider that the patent is invalidated by virtue of the arguments advanced in Invalidation Reasons 4 and 5.

Opinion

84. Based on the argument and evidence provided it is my opinion that claim 1 of the patent is novel based on the disclosures in SPE223.
85. In the absence of any argument to the contrary it is also my opinion that claim 1 is inventive in the light of the disclosures of SPE223.
86. It is also my opinion that the invention of claim 1 is entitled to its earliest priority date, and any disclosures made after that date are not relevant to the novelty or inventiveness of claim 1.
87. Accordingly, it is my opinion that the patent is valid based on the argument and evidence submitted by the requester.

Matthew Jefferson
Examiner

NOTE

This opinion is not based on the outcome of fully litigated proceedings. Rather, it is based on whatever material the persons requesting the opinion and filing observations have chosen to put before the Office.