

**Internal distribution code:**

- (A) [ - ] Publication in OJ
- (B) [ - ] To Chairmen and Members
- (C) [ - ] To Chairmen
- (D) [ X ] No distribution

**Datasheet for the decision  
of 30 April 2024**

**Case Number:** T 1521/22 - 3.2.05

**Application Number:** 11746288.7

**Publication Number:** 2603727

**IPC:** F16L55/128, F16L55/132,  
F16L55/16

**Language of the proceedings:** EN

**Title of invention:**  
Pipeline isolation tool and method

**Patent Proprietor:**  
STATS (UK) Limited

**Opponent:**  
TDW Norway AS

**Relevant legal provisions:**  
EPC Art. 100(a), 100(b), 100(c), 56  
RPBA 2020 Art. 12(6)

**Keyword:**  
Grounds for opposition - added subject-matter (no) -  
insufficiency of disclosure (no) - lack of patentability (no)  
Inventive step (yes)  
Late-filed evidence - circumstances of appeal case justify  
admittance (no)

**Decisions cited:**

G 0003/14



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

Boards of Appeal of the  
European Patent Office  
Richard-Reitzner-Allee 8  
85540 Haar  
GERMANY  
Tel. +49 (0)89 2399-0  
Fax +49 (0)89 2399-4465

Case Number: T 1521/22 - 3.2.05

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.05**  
**of 30 April 2024**

**Appellant:** TDW Norway AS  
(Opponent) Fabrikkeveien 15  
4033 Stavanger (NO)

**Representative:** Stephenson, Philip  
Bailey Walsh & Co LLP  
1 York Place  
Leeds, LS1 2DR (GB)

**Respondent:** STATS (UK) Limited  
(Patent Proprietor) C/o Aberdeen Considine & Company  
8-9 Bon Accord Crescent  
Aberdeen  
Aberdeenshire AB11 6DN (GB)

**Representative:** Murray, David Craig  
Marks & Clerk LLP  
The Beacon  
176 St Vincent Street  
Glasgow G2 5SG (GB)

**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 26 April 2022  
rejecting the opposition filed against European  
patent No. 2603727 pursuant to Article 101(2)  
EPC.**

**Composition of the Board:**

**Chairman**            P. Lanz  
**Members:**            T. Vermeulen  
                              B. Burm-Herregodts

## Summary of Facts and Submissions

- I. The opponent appealed against the decision of the opposition division rejecting the opposition against European patent No. 2 603 727.
- II. The opposition had been filed against the patent as a whole on the basis of the grounds for opposition under Article 100(a) together with Article 54(1) EPC (lack of novelty) and Article 56 EPC (lack of inventive step), under Article 100(b) EPC and under Article 100(c) EPC.
- III. The opposition division in particular considered the following evidence.
- D1 WO 2007/040403 A2
- D4 US 4,077,435
- D11 "SmartPlug™ - Frigg and MCP01 bypass project", video by TDW Offshore Services, 2007
- D18 George Lim and Jon Major, "The Challenges of Emergency Pipeline Repairs Introducing New Rapid Pipeline Repair Methods", PetroMin Pipeliner, Oct-Dec 2009, 14-24.
- IV. Together with its statement setting out the grounds of appeal, the appellant filed further documents.
- D19 Tender Enquiry No. LTC/E&V/972/08, Qatargas Operating Company Limited, 8 May 2008
- D20 "Isolation Methodology for Scenario 2", EPRS Study Project, T.D. Williamson, Inc. and Qatargas, document No. 175-30-25-PL-PC-0021

- D21 "QG OPCO EPRS Study Report - Executive Summary", TDW Offshore Services, Project No. 094103
- D23 "Appendix 11.7 - Pipeline Repair Schedules"
- D24 Nigel Baxter, "Isolation for Emergency Pipeline Repair - Middle East overview", TDW Offshore Services
- D25 US 3,495,626.

V. With letter dated 15 September 2022 the appellant filed the following document.

- D22 Attachment-B to Tender Enquiry No. LTC/E&V/1567/10 C30, Qatargas Operating Company Limited.

VI. The oral proceedings before the board took place on 30 April 2024.

VII. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed (main request) or that the decision be set aside and the patent be maintained as amended on the basis of the claims of one of auxiliary requests 1 or 2 filed in reply to the statement of grounds of appeal. The respondent further requested not to admit the appellant's submissions on Article 100(b) EPC and not to admit documents D19 to D25 into the appeal proceedings.

VIII. The independent claims 1 and 10 of the patent as granted have the following wording (the feature

numbering used by the board appearing in square brackets):

"1. **[1a]** A method for isolating a section of a pipe (10), the method comprising: **[1b]** locating a first plug module (12) of an isolation tool in a pipe (10) in a first mode using a sealing pigging array with no or minimal bypass; **[1c]** urging the first plug module (12) through the pipe (10) in a first direction; **[1d]** securing the first plug module (12) against the pipe (10); **[1e]** configuring the first plug module (12) in a second mode to permit fluid bypass of the sealing pigging array and the first plug module (12); **[1f]** locating a second plug module (24) in the pipe while the first plug module (12) is in the second mode and urging the second plug module (24) through the pipe (10) in a second direction opposing the first direction and towards the first plug module (12) such that fluid displaced by location of the second plug module (24) bypasses the first plug module (12); **[1g]** configuring the first plug module (12) in a third mode to isolate the section of the pipe (10), **[1h]** retaining pressure on one side of the isolation tool while allowing the other side to be fully vented; **[1i]** securing the second plug module (24) and the first plug module (12) to the pipe (10) to isolate the pipe section between the modules (12,24); and **[1j]** configuring the first plug module (12) in the first mode to prevent fluid bypass of the sealing pigging array for pigging both the first and second plug modules (12,24) to one end of the pipe (10) for removal."

"10. An isolation tool comprising: **[10a]** first and second plug modules (12,24); **[10b]** the first plug module (12) configured for location in a pipe (10), the first plug module (12) comprising: **[10c]** a pigging

module (13) comprising a sealing pigging array; **[10d]** a lock module (15) comprising a lock arrangement (25) for locking the first plug module (12) to the pipe (10); and **[10e]** a seal module (17) comprising a seal arrangement for engaging a wall of the pipe (10), **[10f]** wherein the lock module(15) is hydraulically activatable to grip the pipe (10) without the requirement to set the seal module (17), **[10g]** the first plug module (12) configurable in a first mode in which the first plug module (12) is configured to prevent fluid bypass without gripping the pipe (10), **[10h]** the first plug module (12) configured to be urged through the pipe (10) in a first direction while in the first mode using a sealing pigging array with no or minimal bypass, **[10i]** the first plug module (12) configurable in a second mode in which the first plug module (12) is configured to grip the pipe (10) and permit fluid bypass of the first plug module (12), **[10j]** the first plug module (12) configurable in the second mode to permit fluid bypass of the sealing pigging array and the first plug module (12) while securing the first plug module (12) against the pipe (10), **[10k]** the first plug module (12) configurable in a third mode in which the first plug module (12) is configured to isolate the pipe (10) with gripping and leak tight sealing, **[10l]** the first plug module (12) configurable in the third mode to isolate the pipe (10), **[10m]** the first plug module (12) configurable from the third mode to the first mode to prevent fluid bypass of the sealing pigging array for pigging both plug modules (12,24) to an end of the pipe (10) for removal; and **[10n]** the second plug module (24) configured for location in the pipe (10), the second plug module (24) comprising: **[10o]** a pigging module (13) comprising a sealing pigging array; **[10p]** a lock module (15) comprising a lock arrangement (25) for



locking the second plug module (24) to the pipe (10); [10q] a seal module (17) comprising a seal arrangement for engaging a wall of the pipe (10), [10r] wherein the lock module(15) is hydraulically activatable to grip the pipe (10) without the requirement to set the seal module (17), [10s] the second plug module (24) configured to be urged through the pipe (10) in a second direction opposing the first direction and towards the first plug module (12) while the first plug module (12) is in the second mode such that fluid displaced by location of the second plug module (24) bypasses the first plug module (12), and [10t] wherein the second plug module (24) and the first plug module (12) are configured to be secured to the pipe (10) to isolate a section of the pipe (10) between the modules (12,24)."

IX. The appellant's submissions may be summarised as follows.

*Added subject-matter*

According to page 2, lines 20 to 23 and claim 1 of the application as filed, the second bypass mode was set while the first plug module was secured against the pipe. Both steps thus occurred simultaneously. With the amendments to features 1d and 1e, claim 1 as granted now implied that the first module was configured in the second bypass mode only after it had been secured against the pipe. The specific two-step sequence of securing the first plug module against the pipe and then configuring the first plug module into a second bypass mode was without basis in the application as filed. The patent should therefore be revoked on the basis of Article 100(c) EPC.

*Sufficiency of disclosure*

It was not disputed that, for the purposes of Article 100(b) EPC, the patent as a whole had to be considered when assessing whether the invention was disclosed in a manner sufficiently clear and complete for it to be carried out by the person skilled in the art. However, the criteria were not met for the patent in suit since the invention specified in the claims was not in line with the specific description as set out, for example, in paragraphs [0035] and [0044] or [0046] to [0065] with reference to Figures 1 to 15 of the patent in suit. Even if the skilled person had no technical difficulty to carry out the purported invention if they followed the steps as set out in these paragraphs and shown in the Figures, several of these steps were not disclosed in the independent claims of the patent in suit.

*Admittance of documents D19 to D25*

Documents D19 to 25 were submitted as evidence to specifically address the relatively limited interpretation of the opposition division with respect to the possibility of the use of plug modules and, in particular, the provision of a bypass function in a first plug module used to isolate damaged pipes. They were a reaction to a turn of events in the proceedings before the opposition division, in particular to the changed focus towards the issue of the deployment of plug modules in opposite directions and to the discussion of document D18 only at the oral proceedings. Document D19 was a tender enquiry for study and recommendations in connection with a method for an Emergency Pipeline Repair System (EPRS). Also document D20 related to the EPRS study project. It

specifically related to the Isolation Methodology for Scenario 2 referred to in document D22. Document D21 was an Executive Summary report referring to the provision of an anchor module with a bypass function to allow a second plugging train to be pigged into position. Document D22 also related to a tender enquiry and set out the performance of work done prior to the earliest date of the patent in suit and the specific provision of bypass capability for the pipe isolation modules. Document D23 related to pipeline repair schedules for the project referred to in document D19. Document D24 was a presentation shown to prospective clients on various dates prior to the earliest date of the patent in suit. The case law acknowledged that common general knowledge was not limited to information found in a certain type of documents, such as textbooks. Rather, it was everything that formed part of the skilled person's mental furniture. Documents D19 to D24 merely reflected what had been discussed in the art at the time. Tender enquiries normally were not confidential. Instead, access could be gained by the payment of a small fee. Document D25 was a US patent which related to pipe plugging apparatus and methods. It specifically stated that a bypass port could be provided in a first plugging assembly to permit movement of one of the other plugging assemblies. Thus, it disclosed the provision of a bypass to permit movement of one plugging assembly relative to another plugging assembly.

*Inventive step*

Document D18 could be regarded as the closest prior art. In the fourth scenario illustrated in Figure 10 of document D18, the ruptured section of a gas pipe was isolated by launching two plug modules from opposite

ends of the pipe. Also in the third scenario of Figure 10, where the second plug module was installed by a hot tap at the other end of the damaged section, it could be envisaged to launch the second plug module from the opposite direction, as long as such a measure was cost-effective. Thus, the subject-matter of claim 1 as granted only differed from the method of document D18 by the first plug module's ability to enter into a second bypass mode, as required by features 1e and 1f. The objective technical problem was how to facilitate the movement of the second plug module towards the first plug module without materially increasing the fluid pressure between both plugs. As document D18 was concerned with damaged sub-sea pipes, the skilled person, when presented with the objective technical problem, would have realised that they could safely control the escape of the fluid or the built-up pressure in the damaged section by using known bypass techniques through the first plug module. Both document D1 and document D4 disclosed a first plug module having an internal bypass to vent fluid, and thus preventing the build-up of fluid pressure, so that movement of the second plug module was permitted. Specifically, document D1 disclosed that, in order to allow a second plug train 2A to continue to be pigged along the pipe after the first plug train 2B had been positioned, the mode of the first plug train was changed to a second mode to allow fluid bypass, see page 4, lines 28 to 37 and page 5, lines 16 to 21. The skilled person was thus taught how to feasibly achieve the internal bypass in a plug module in a similar manner to that achieved in the patent in suit. Alternative bypass solutions were possible and the decision to opt for one or the other basically depended on their cost-effectiveness. The argument in respect of the escape of pipe fluid through the ruptured section in the fourth scenario of Figure

10 of document D18 ignored the teaching of the third scenario of Figure 10, in which the pipe was not ruptured but a large dent made the pipe unpiggable and the launch of two plug modules from the same end impossible. Further considering the hazardous and environmentally fragile nature of the environment in which the apparatus was used, it would have been wholly unreasonable and dangerous for the skilled person to rely on the escape of pipe fluid. The combination of document D18 with any of documents D1 or D4 thus rendered the subject-matter of claim 1 as granted obvious.

The same arguments applied to claim 10 as granted. In addition, it would have been entirely obvious to the skilled person that the lock and seal modules of the plug module described either in document D18 or shown in the video D11 could be independently activated to provide a bypass with minimal, if any, modification. This was particularly clear from the passages on page 3, lines 21 to 30, page 4, lines 26 to 37, page 5, line 33 to page 6, line 2 and page 6, lines 18 to 24 of document D1. In the video D11, which could also be used as starting point for the inventive step assessment, sealing and gripping were not carried out at the same time. So, if the activation mechanism was halted immediately after deployment of the lock module, it would not require setting the seal module, as in feature 10r. Admittedly, a hydraulic activation was not explicitly shown in the video D11.

- X. The respondent's submissions may be summarised as follows.

*Added subject-matter*

The arguments submitted in the proceedings before the opposition division were maintained. The reasoning set out in the decision under appeal was agreed with. Accordingly, the ground for opposition under Article 100(c) EPC did not prejudice the maintenance of the patent as granted.

*Sufficiency of disclosure*

The appellant's submissions in the statement of grounds of appeal as to why, in its opinion, the patent as granted should be revoked under Article 100(b) EPC contravened Article 12(2) RPBA. Nonetheless, the appellant's arguments could not be followed. At best, they related to matters of clarity which was not a ground for opposition. They did not have any bearing on sufficiency of disclosure under Article 100(b) EPC. In fact, the appellant itself acknowledged that the invention was sufficiently disclosed.

*Admittance of documents D19 to D25*

Despite there having been ample opportunity to do so, the appellant did not submit any of documents D19 to D25 during the proceedings before the opposition division. The submission of these documents on appeal contravened the primary purpose of an appeal as set out in Article 12(2) RPBA. Furthermore, the circumstances of the appeal did not justify their inclusion at this late stage. The appellant itself had filed document D18 after the opposition division had issued its

preliminary opinion. The fact that documents D19 to D24 emanated from the appellant or its sister company and document D25 was a published patent document meant that they could and should have been filed within the nine-months opposition period. The appellant did not establish that documents D19 to D24 represented anything which formed part of the state of the art, let alone common general knowledge of the skilled person. In contrast, these documents related to a tender. They were thus commercial documents issued between the appellant and (prospective) clients. Documents D19 and D21 were explicitly marked as confidential or included a confidentiality clause. And document D24 did not meet the required standard of proof. As to document D25, it had actually been cited during examination of the patent application. Still, no attempt had been made by the appellant to submit document D25 during the proceedings before the opposition division. Hence, the introduction of documents D19 to D25 also contravened Article 12(6), second sentence, RPBA.

*Inventive step*

Document D18 taught that, for dented pipe applications, one of three scenarios could be used: either relying on clamps, on two plug modules launched in the same direction, or on a second plug module inserted through a hot tap. For ruptured pipes, two plug modules could be launched, one from each end of the pipe. The skilled person would have clearly understood that document D18 only permitted deploying plug modules from opposite ends of the pipe in the scenario where the pipe had been ruptured. But, since the fluid flow escaped through the rupture in that scenario, there was no need to consider bypassing the downstream plug module. Moreover, document D18 explicitly mentioned plug

modules without bypass and, instead, suggested to bypass the fluid flow via an additional pipe. Inserting the second plug module through a hot tap in case, in the third scenario, dents were larger than 10%, clearly taught away from the claimed invention. The skilled person would thus not have been prompted to modify the method of document D18 in line with the claimed subject-matter. Document D18 was a self-contained disclosure, so the combination of document D18 with either document D1 or document D4 could not result in the claimed subject-matter either.

Regarding claim 10 as granted, it was noted that document D1 did not have a direct and unambiguous disclosure of feature 10r. If anything, the passage on page 6, lines 20 to 23 of document D1 taught the contrary, namely that gripping and sealing modules were activated together. The video D11 did not disclose this feature either.

Accordingly, the ground for opposition under Article 100(a) together with Article 56 EPC did not prejudice the maintenance of the patent as granted.

## **Reasons for the Decision**

1. Added subject-matter
- 1.1 In point 3.3 of the reasons for the decision under appeal, the opposition division referred inter alia to page 7, lines 23 to 24 and page 9, lines 27 to 30 of the application as filed as basis for features 1d and 1e of claim 1 as granted. In each of these passages, the step of setting the lock module and, hence, securing the first plug module against the pipe is



mentioned before the step of opening the pressure equalisation valve or bypass passage, i.e. configuring the first plug module in the second bypass mode. A similar disclosure can be found in the paragraph bridging pages 4 and 5 of the summary of the invention of the application as filed ("*On reaching [...] the first plug module may be secured to the pipe and configured to the second, fluid bypass, mode*"). To the extent that the order of the steps of features 1d and 1e is reflected by the wording of claim 1 as granted, this would then also be the case for each of the above-cited passages.

- 1.2 For those reasons, the appellant's argument that, by virtue of the word "while" in claim 1 of the application as filed and on page 2, lines 20 to 23 of the application as filed, the steps of securing the first plug module against the pipe and configuring the first plug module in the second bypass mode had to occur simultaneously is not convincing.
  - 1.3 The board concludes that the ground for opposition under Article 100(c) EPC does not prejudice the maintenance of the patent as granted.
2. Sufficiency of disclosure
- 2.1 The appellant argued with reference to the figures and various passages in the description of the patent in suit that the invention as specified in the claims was "*not in line with the specific description*". This effectively amounts to an objection of lack of support under Article 84 EPC against the granted claims, which is not a ground for opposition and can therefore not be examined in opposition appeal proceedings unless, and

only to the extent that, an amendment introduces non-compliance with Article 84 EPC (see decision G 3/14, OJ EPO 2015, 102).

2.2 Neither in the written proceedings nor during the oral proceedings held before the board did the appellant demonstrate how this alleged lack of support affected, if at all, the ability of the skilled person to carry out the claimed invention. In fact, the appellant confirmed that the skilled person would have no technical difficulty to follow the steps set out in the description and the figures. It must thus be concluded that the ground for opposition under Article 100(b) EPC does not prejudice the maintenance of the patent as granted.

2.3 In view thereof, the board did not see any reason to address what was understood as a request by the respondent on page 4 of its reply to the statement of grounds of appeal not to admit the appellant's submissions on Article 100(b) EPC into the appeal proceedings.

3. Admittance of documents D19-D25

3.1 Documents D19 to D21 and D23 to D25 were presented for the first time with the statement of grounds of appeal. Document D22 was mentioned in the statement of grounds of appeal, but was only submitted with letter dated 15 September 2022. The admittance of these documents into the appeal proceedings thus underlies the provisions of Article 12, paragraphs (4) to (6) RPBA (see also Article 13(1), second sentence, RPBA).

3.2 Under Article 12(6), second sentence, RPBA, the board shall not admit requests, facts, objections or evidence which should have been submitted, or which were no longer maintained, in the proceedings leading to the decision under appeal, unless the circumstances of the appeal case justify their admittance.

3.3 The appellant submitted that documents D19 to D24 illustrated the common general knowledge of the skilled person at the time the application leading to the patent in suit was filed.

D19 is an invitation to tender (ITT) concerning the supply of services and recommendations for Emergency Pipeline Repair Systems (EPRS). It was issued on 8 May 2008 by Qatargas Operating Company Limited and addressed to J Ray McDermott Eastern Hemisphere Ltd. A confidentiality clause is included on top of page 8 in respect of "all data provided within the Tender Documents".

Document D20 is a report issued by T.D. Williamson, Inc. on an "Isolation Methodology for Scenario 2" in the context of an EPRS Study Project by Qatargas Operating Company Limited. Its front page bears the date of 12 February 2009 in connection with the entry "Issued for Client Review".

Document D21 is the Executive Summary of a report issued by TDW Offshore Services and addressed to its client Qatargas Operating Company Limited. The date of 7 April 2010 appears on the front page next to the entry "Client Comments Incorporated". Each page of document D21 is marked "CONFIDENTIAL".

Document D22 is an undated attachment to another ITT issued by Qatargas Operating Company Limited.

Document D23 is an appendix entitled "Pipeline Repair Schedules" apparently co-issued in 2009 by J Ray McDermott Eastern Hemisphere Ltd and Qatargas Operating Company Limited.

Document D24 is an undated presentation from the hand of TDW Offshore Services on "Isolation for Emergency Pipeline Repair - Middle East overview".

The board is not convinced that the content of any of these documents was common general knowledge in the field of pipe isolation at the priority date (9 August 2010) of the patent in suit. Business documents between companies, such as reports, presentations or ITTs, do not normally fall under the knowledge an experienced person in the field in question is expected to have, or at least to be aware of, to the extent that they know they could look it up if they needed it (see "Case Law of the Board of Appeal of the European Patent Office", 10th edition, July 2022, I.C.2.8.1). This is all the more so considering that some of the above-mentioned documents are undated, marked confidential or contain a confidentiality clause.

- 3.4 Document D25 is a US-patent regarded by the appellant as an alternative starting point for assessing inventive step of claims 1 and 10 as granted. The appellant justified its late filing by referring to the opposition division's relatively limited interpretation, its changed focus and the discussion of document D18 only at the oral proceedings held before the opposition division.

The board observes that the opposition division's findings on the grounds of opposition under Article 100(b) or (c) EPC in the decision under appeal had not substantially changed compared to its preliminary opinion as set out in the communication sent in preparation for the oral proceedings. Similarly, the opposition division's conclusion on novelty over document D1 or D4 remained unchanged during the opposition proceedings. Insofar as the "relatively limited interpretation" and the "changed focus" refer to the opposition division's conclusion on inventive step in view of documents D17 and D18 in the decision under appeal, it must be taken into account that it was the appellant which submitted these documents only in response to the communication setting out the opposition division's preliminary opinion. Any turn of events caused by the discussion of documents D17 and D18 must be seen against the background of this belated filing. Nonetheless, the respondent already provided its view on the matter in preparation of the oral proceedings. The appellant therefore had the opportunity to anticipate the inventive step discussion in view of documents D17 and D18 before the opposition division.

3.5 In view of the above, the board judges that the circumstances of the appeal case do not justify admitting any of documents D19 to D25. Pursuant to Article 12(6), second sentence, RPBA, they are not admitted into the appeal proceedings.

4. Inventive step

4.1 It is common ground between the parties that document D18 is a suitable starting point for the assessment of

inventive step in respect of the method of claim 1 and the device of claim 10 as granted. It is also undisputed that the subject-matter of claims 1 and 10 as granted differs from the disclosure of document D18 by features 1e and 1f and features 10f, 10i, 10j, 10r and 10s, respectively. Indeed, the paragraph bridging the left and right columns on page 19 of document D18 foresees a solution for isolating a section of a ruptured gas pipe by means of two plug modules of the type "SmartPlug®". The modules are launched from each end of the pipe towards the damaged section and, hence, are pigged or urged in opposite directions. In doing so, the modules push the gas ahead of them towards and through the rupture in the pipe wall. This so-called "fourth scenario" is illustrated in Figure 10 on page 19 of document D18. It follows from the description immediately below Figure 8 on page 18 of document D18 that the "Smartplug®" module has a seal module ("seal packers") and a lock module ("Slips", "locked in place"). The actuation mechanism of those modules is, however, not explained. Nor is a fluid bypass mentioned in this context. The last sentence of the first paragraph on page 19 actually confirms that no bypass is foreseen through the plug module itself.

- 4.2 The board agrees with the opposition division's formulation of the objective technical problem, which was also adhered to by the appellant, namely to facilitate the movement of the second plug module towards the first plug module without increasing the fluid pressure between both plugs.
- 4.3 Document D1 is relevant for the discussion on obviousness insofar as it relates to two plug modules (referred to as "plug trains") for sealing off a section of a pipe for repair (cf. page 2, lines 11 to

13 of document D1). Even if the plug modules are launched from the same end of the pipe and are thus urged in the same direction (cf. Figures 2A to 2C of document D1), the passages referred to by the appellant indicate that, while the second plug module moves through the pipe, fluid is allowed to pass through a "lockable opening" (page 4, lines 28 to 37) or "a lockable passage opening" (page 5, lines 16 to 21) that extends through the first stopped plug module. This means that document D1 discloses a first plug module that does not only operate in a (first) mode using a sealing pigging array with no bypass and in a (third) mode to isolate a section of the pipe, but also in a (second) bypass mode, in accordance with feature 1e of claim 1 as granted and features 10i and 10j of claim 10 as granted.

4.4 For assessing obviousness of the method of claim 1 as granted, it remains to be considered whether the skilled person would have adapted the method of document D18 in view of the teaching of document D1. For the following reasons, the board is not convinced that this would have been the case. In the fourth scenario of Figure 10 of document D18, the movement of the plug modules towards the damaged section pushes the gas located between the plug modules through the ruptured area of the pipe (cf. the third paragraph in the left column of page 20: "pushing the gas, seawater and debris out of the rupture"). Permitting the gas displaced by the movement of the second plug module to bypass the first, stationary plug module would then make little technical sense. This may be different for a pipe which is merely dented (the so-called "second scenario" or "third scenario" illustrated in Figure 10 of document D18) so that the approaching movement of the second, upstream plug module may cause a pressure

build-up in the damaged section between the plug modules. But page 19 of document D18 explicitly foresees that, in such a case, the plug modules are either installed from the same end of the pipe (the "second scenario" for dents between 5% and 10%), which goes against feature 1f of claim 1 as granted, or the first, downstream plug module is installed in-situ through a hot tap (the "third scenario" for dents larger than 10%), which is opposed to the requirement of feature 1c of claim 1 as granted. Moreover, the last sentence of the first paragraph on page 19 of document D18 would have discouraged the skilled person from foreseeing a bypass through the plug module. Hence, the combination of documents D18 and D1 would not have resulted in the method of claim 1 as granted. The same arguments apply when considering a combination of document D18 with document D4 which, similarly to document D1, discloses two plug modules moving in the same direction through a pipe.

- 4.5 Regarding the obviousness of the independent device-type claim 10 of the patent as granted, the direction of moving the plug modules inside the unclaimed pipe plays a secondary role. However, neither document D1 nor document D4 discloses the combination of a lock module with a seal module in such a way that the lock module can be hydraulically activated to grip the pipe *without* the requirement to set the seal module, as defined by features 10f and 10r. Actually, it follows from the whole of document D1 that the lock module (referred to as "gripping means") and the seal module ("sealing means") are actuated by one and the same mechanism. This is explicitly specified on page 6, lines 20 to 24 ("a hydraulic cylinder operating both the sealing and the gripping means") and on page 9, lines 5 to 15 ("[t]he gripping and sealing means are



favorably activated by a centrally located fluid cylinder"). Nothing else perspires from page 3, lines 21 to 30 ("[t]he gripping means may be activated with the same function as the sealing means").

- 4.6 In this context, the appellant also referred to D11, a video filed with the notice of opposition in support of written evidence that was not submitted in appeal. The video provides an overview of the operation of the "SmartPlug®" module mentioned in document D18. It is the case of the appellant that the actuating mechanism of the lock module and the seal module illustrated in the video operates the modules in a sequential manner so that, when halted at an appropriate moment, it would deploy the lock module without setting the seal module. The board is not convinced that such a scenario is disclosed by the video D11. Rather, throughout the video, the flange that is seen to move along the axis of the plug module appears to operate both the lock and the seal modules. It is not apparent from the video that the flange has an intermediate stop or that it could be controlled to stop halfway along its stroke so that the lock module would be actuated but not the seal module. Furthermore, it cannot be derived with certainty whether the movement of the flange and the operation of the lock and seal modules are initiated by hydraulic means. As in document D18, a bypass through the plug module is not disclosed either. It must therefore be concluded that document D11 does not offer a solution to the objective technical problem when starting from document D18. For the same reasons as set out above, selecting the video D11 as an alternative starting point would not have resulted in the subject-matter of claim 10 either.

4.7 In view of the above considerations, the board concludes that the subject-matter of both claims 1 and 10 as granted involves an inventive step. The ground for opposition under Article 100(a) together with Article 56 EPC does not prejudice the maintenance of the patent as granted.

## Order

### **For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:



N. Schneider

P. Lanz

Decision electronically authenticated